Healing together: Identifying the value of partnerships between rural Aboriginal communities, services and researchers to co-design, implement and evaluate programs to reduce drug and alcohol harms

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Healing together: Identifying the value of partnerships between rural Aboriginal communities, services and researchers to co-design, implement and evaluate programs to reduce drug and alcohol harms

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Thesis / Dissertation Sheet

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Abstract

Aboriginal Australians have experienced trauma, racism and disempowerment as a result of the legacies of colonisation and dispossession. One of the most visible manifestations of this is the disproportionately higher rate of substance-related harms compared to non-Aboriginal Australians. These harms impact the social and emotional wellbeing of Aboriginal Australians, and often extend beyond the person misusing substances to their families and communities. In the rural Australian context, where more Aboriginal people live, per capita rates of substance misuse are higher and access to specialised treatment is limited, compared to cities. Aboriginal communities are well aware of the devastating impacts that substance misuse has for their communities, as evidenced by the range of programs to reduce these harms initiated by Aboriginal people, which often incorporate cultural elements as a primary mechanism for healing. These programs are rarely robustly evaluated.

The overarching aim of this thesis was to evaluate three distinct, real-world examples of Aboriginal-led, community-based drug and alcohol programs to better understand the mechanisms of partnerships between academics and Aboriginal communities and services. Study 1 retrospectively examined the impact of a drug and alcohol radio advertising campaign implemented in a remote Aboriginal community. Study 2 described and retrospectively analysed the impact of community-led programs implemented across four rural NSW Aboriginal communities from 2012-2015. Study 3 focused on a three-year, mixed methods, prospective community-based participatory research project with a remote Aboriginal drug and alcohol residential rehabilitation service.

The research presented in this thesis makes a unique contribution to the evidence-base by identifying the key characteristics of effective partnerships between researchers and Aboriginal communities and services. The final chapter concludes that Aboriginal Australians should be the drivers for programs to reduce disproportionately high substance-related harms. To more effectively support program development, community-based participatory research offers a culturally acceptable, rigorous model in which academics can work in partnership with, not for, Aboriginal communities to strengthen the quality and quantity of the research in this field and, more importantly, improve health outcomes and healing for Aboriginal Australians.

FOR OFFICE USE ONLY	Date of completion of requirements for Award:	

Statements

Originality Statement

I hereby declare that this submission is my own work and to the best of my knowledge it contains no materials previously published or written by another person, or substantial proportions of material which have been accepted for the award of any other degree or diploma at UNSW or any other educational institution, except where due acknowledgement is made in the thesis. Any contribution made to the research by others, with whom I have worked at UNSW or elsewhere, is explicitly acknowledged in the thesis. I also declare that the intellectual content of this thesis is the product of my own work, except to the extent that assistance from others in the project's design and conception or in style, presentation and linguistic expression is acknowledged.

Ms Alice Munro
March 2018

Supervisor Statement

I hereby certify that all co-authors of the published or submitted papers agreed to Alice Munro submitting those papers as part of her Doctoral thesis.

Professor Anthony Shakeshaft
March 2018

Acknowledgements

I acknowledge Aboriginal and Torres Strait Islander peoples as the traditional owners and First Nations of Australia. I pay my respects to their Elders past, present and future, and to the children of today, as the leaders and Elders of tomorrow.

Firstly, I wish to thank my supervisors Professor Anthony Shakeshaft and Doctors Julaine Allan and Courtney Breen. Thank you all for your steady guidance and support in mentoring me through my research apprenticeship over the last four years. Anthony, I was very proud to have you as my supervisor. Thank you for taking me on as an enthusiastic but inexperienced student, and expertly teaching me how to undertake the highest quality research possible. Your compassion and dedication to improve the rigour of Aboriginal community-based drug and alcohol research always kept me focused on the 'why' we all seek to improve the knowledge in this challenging yet rewarding field. Your students are a monument to you and your years of tireless dedication. Julaine, your unique ability to integrate rural drug and alcohol research with clinical practice has always inspired me. You were there supporting me as a social work placement student in Broken Hill in 2007, and over a decade later, you are still championing my career. Your ability to grow others around you to improve rural health research is highly commendable. Courtney, thank you for your support and steady guidance with regards to the 'pointy end' of data analysis, interpretation and writing. Your expert advice was consistently grounding during times of pressure. The combination of all of my supervisors' personal and professional qualities were especially important being a student completing a Doctorate located remotely from the supports of UNSW in Sydney. I have to admit I found this isolation more challenging than I anticipated, which makes me even more proud that you were all continued to stick with me over the years to achieve this milestone.

Aboriginal culture is about telling stories. In one respect, this thesis also tells three distinct stories on behalf of the Aboriginal communities and specific people involved in each of the projects. For this opportunity, I am very grateful, and hope it can inform or translate to future projects, partnerships, and research. Firstly, in relation to Chapter 2, I'd like to acknowledge and thank the Bourke Alcohol Working Group, Bourke Aboriginal Medical Service, Western NSW Local Health District, Outback Division, 2CUZ, Bourke Young Mums Group, Murdi Paaki Drug and Alcohol Network, and many others who assisted with the design, implementation and evaluation of the radio advertisement campaign. In Chapter 3, from 2012-2015, a significant number of 'Breaking the Cycle' community-led projects were designed, with over 70 implemented in four NSW communities. This was a phenomenal achievement, given unforeseen challenges as a result of a change in Federal government and intensifying 'red tape'. Without 'Breaking the Cycle', this research would not have eventuated. As such, thank you especially to Stuart Gordon and Far West Medicare Local, who supported the funding for this research. Stuart's infectious drive to improve both rural and Aboriginal health inequalities, and his colloquial rural charm, is second to none. In Chapters 3-5, I have many important people to thank. Norm Henderson, your remarkable real-world view of Aboriginal substance misuse and residential rehabilitation taught me so much. I valued all of our yarns together, thank you for allowing me to work alongside you and your service. I hope it ensures Orana Haven continues to leave a lasting legacy that builds on the vision of the Elders and community leaders that opened its doors over 30 years ago. Alan Bennett, thank you for your gentle wisdom and life experience when we shared ideas about this work – your family and clients should be very proud of you. Thank you also to all the Orana Haven staff and clients that I was fortunate to learn from and cross paths with over the years.

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I am also endlessly grateful for the beautiful family and friends that enrich my world. You have shown genuine interest in my work and helped me to celebrate the successes along the way. In particular, my mother, Margaret Munro - your selfless compassion and dedication shaped my drive to work in this field. I was indeed very proud to reference your book, a testament to your countless years of historical research, listening and learning from others and your sophisticated ability to tell the stories for those long gone. A special thanks to my parents-in-law, Jan and Col Hawthorn, for your steadfast love and prayers - you both mean so much to me. Thanks also to my siblings and siblings-in-law for your generous support over the years, you have all had a profound impact on helping me to achieve both personally and professionally. To all my amazing mates far and wide, I am so lucky to have you all in my life. You all kept me grounded with lots of (mostly helpful) distractions. Thanks for the chats, laughs, phone calls, texts, dinners, wine, cuppas, picnics, indoor netball, touch football, book club, runner's club, yoga and all the other amazing aspects of living a great life in a dynamic regional city like Orange.

Finally, I wish to especially thank my husband, Ged. You were a constant source of love, support and understanding, offering a listening ear any time of the night or day. Thank you for your tolerance during the late nights when I was absorbed in my research and for giving me the space and courage to keep going. Thank you for spending your holidays supporting me attend conferences both in Australia and overseas, and dutifully listening to me practice my presentations. You have been loyally standing beside me at every stage of my career and the Doctoral process; every ethics amendment, every presentation, every draft and re-draft of my papers, every visit out to the communities, and for the times when I didn't know if it was worth the many sacrifices. The elation I feel at the completion of this chapter in my life, I share wholly with you.

To get the full value of joy you must have someone to divide it with.

Mark Twain

Dedication

I dedicate this work to my research colleagues and Aboriginal clients, staff and community members that I worked alongside over the last decade – may we continue to work in partnership so that the future generations can benefit.

And to my father, Ian Munro, who gratefully imbued me with the 'Munro' work ethic to stick at a project you start and never relinquish the enthusiasm to see it through. I wish you were here to celebrate this milestone with me.

Dissemination arising from this thesis

1. **Munro A**, Shakeshaft A, Breen C, Allan J. Healing Together: Identifying the value of partnerships between rural Australian Aboriginal communities, services and researchers to co-design, implement and evaluate programs to reduce drug and alcohol harms. *Presentation at the Canadian Public Health Conference,* Montreal, Canada, May 2018.

2. **Munro A**, Shakeshaft A, Breen C, Clifford A, Henderson N, Allan J, James D. Partnering with an Aboriginal residential rehabilitation service in NSW to co-design a standardised data collection process and model of care. *Poster accepted to present at the 2017 NDARC Annual Symposium,* Sydney, NSW, October 2017.

3. **Munro A**, Shakeshaft A, Breen C, Clifford A, Henderson N. Allan J, James D. Good decisions grow from good research that starts from good meeting places. *Accepted for 3 Minute Thesis presentation at the 2017 NDARC Annual Symposium,* Sydney, NSW, October 2017.

4. **Munro A,** Shakeshaft A, James D. Partnering with the multiple Aboriginal residential rehabilitation services in NSW to co-design a standardised data collection process and model of care. *Presentation at Western NSW Health Research Network (WHRN) Scientific Symposium,* Orange, NSW, August 2017.

5. **Munro A,** Snijder M, Shakeshaft A. Striving to achieve equity through effective Aboriginal community-based researcher partnerships to reduce drug and alcohol-related harms in NSW: Lessons learned from multiple projects from 2014-2017. *Presentation at Western NSW Health Research Network (WHRN) Scientific Symposium,* Orange, NSW, August 2017.

6. **Munro A.** Good decisions grow from good research that starts from good meeting places. *3 Minute Thesis (3MT) UNSW Competition*, Faculty of Medicine, Sydney, NSW, August 2017.

7. **Munro A,** Shakeshaft A. Partnering with the multiple Aboriginal residential rehabilitation services in NSW to co-design a standardised data collection process and model of care. *Presentation to Bila Muuji Board Meeting,* Dubbo, NSW, June 2017.

8. **Munro A**, Shakeshaft A, Breen C, Allan J, Snijder M. Riding the rural radio wave: The impact of a community-led drug and alcohol radio advertising campaign in a remote Australian Aboriginal community. *Abstract accepted to present at the 14th WONCA World Rural Health Conference,* Cairns, QLD, May 2017.

9. **Munro A**, Shakeshaft A, Breen C, Allan J. "Nothing changes if nothing changes:" Evaluation of an Aboriginal residential rehabilitation service in remote NSW. *Peer reviewed presentation at the 14th National Rural Health Conference,* Cairns, QLD, April 2017.

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[1] Not able to present in person

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13. Munro A, Bennett A, Shakeshaft A, Breen C, Allan J. "Nothing changes if nothing changes:" Evaluation of an Aboriginal residential rehabilitation service in remote NSW. *Presentation at the 4th National Indigenous Drug and Alcohol Conference,* Adelaide, SA, October 2016.

14. Munro A, Shakeshaft A, Breen C, Allan J. Evaluation and pilot research into an Aboriginal residential rehabilitation service in remote NSW. *Presentation at the Global Addiction Conference,* Venice, Italy, October 2016.

15. Munro A, Shakeshaft A, Breen C, Allan J. Preliminary findings from 5 years of Orana Haven data, *presentation to Orana Haven Board,* Brewarrina, NSW, August 2016.

16. Munro A, Shakeshaft A, Breen C, Allan J. Evaluation and pilot research into an Aboriginal residential rehabilitation service in remote NSW. *Abstract accepted to present at the 8th International Conference on Social Work in Health and Mental Health,* Singapore, June 2016.

17. Munro A, Shakeshaft A, Breen C, Allan J. Did it 'Break the Cycle'? The impact of community-led programs which aimed to prevent drug and alcohol harms in two remote NSW communities. *Presentation at the 4th HETI Rural Health and Research Congress,* Armidale, NSW, November 2015.

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19. Munro A, Shakeshaft A, Stone C, Dobbins T, Breen C, Allan J. A collaborative community researcher partnership that aims to 'Break the Cycle' to reduce alcohol and drug harms in rural NSW Aboriginal communities: A summary of the research to date. *Presentation at Western NSW Health Research Network (WHRN) Scientific Symposium,* Orange, NSW, August 2015.

20. Munro A, Shakeshaft A, Stone C, Allan J. A community-led research partnership that aims to 'Break the Cycle' to reduce alcohol and drug harm in rural Aboriginal communities: A summary of the research to date. *Presentation at the 2014 NDARC Annual Symposium, Sydney, NSW, September 2014.*

21. Shakeshaft A, Allan J, **Munro A.** A community-led research partnership that aims to 'Break the Cycle' to reduce alcohol and drug harm in rural Aboriginal communities: A summary of the research to date. *Poster presented at the 2014 NDARC Annual Symposium, Sydney, NSW, September 2014.*

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2. Services for Australian Rural and Remote Allied Health (SARRAH) Postgraduate Scholarship ($1,500) to attend National Rural Health Conference, April 2017
3. National Indigenous Drug and Alcohol Conference – Most Outstanding Service (Orana Haven Residential Rehabilitation Service), October 2016.
4. Postgraduate Research Student Support (PRSS) scheme travel award ($2,500), UNSW Australia, Sydney, Australia, October 2016
5. Far West Medicare Local PhD Stipend 2014-2017 ($138,500)

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Tables

Figures

Abbreviations

AA	Alcoholics Anonymous
ABS	Australian Bureau of Statistics
ACCHO	Aboriginal Community Controlled Health Organisation
ACE	Adverse Childhood Experiences
AHMAC	Australian Health Ministers' Advisory Council
AH&MRC	Aboriginal Health and Medical Research Council of NSW
AIC	Akaike information criterion
AIFS	Australian Institute of Family Studies
AIHW	Australian Institute of Health and Welfare
AIATSIS	Australian Institute of Aboriginal and Torres Strait Islander Studies
AM	Alice Munro (Doctoral candidate)
AMP	Alcohol Management Plan
ARCI	Alcohol-related criminal incident
ASR	Age standardised rates
AUDIT-C	Alcohol Use Disorders Identification Test- Consumption
BOCSAR	NSW Bureau of Crime Statistics and Research
BTC	Breaking the Cycle
CAEPR	Centre for Aboriginal Economic Policy Research
CBPR	Community-based participatory research
CI	Confidence interval
COAG	Council of Australian Governments
CQI	Continuous quality improvement
DALY	Disability-Adjusted Life Year
DoHA	Department of Health and Ageing
DUDIT	Drug Use Disorders Identification Test
ED	Emergency Department
FASD	Fetal Alcohol Spectrum Disorder
GEM	Growth and Empowerment Measure
HREC	Human Research Ethics Committee

IPA	Interpretative Phenomenological Analysis
IRIS	Indigenous Risk Impact Screen
ITS	Interrupted time series
JA	Julaine Allan (co-author)
K10	Kessler Psychological Distress Scale
MAD	Median absolute deviation
MBD	Multiple baseline design
NARHDAN	NSW Aboriginal Residential Rehabilitation Healing Drug and Alcohol Network
NACCHO	National Aboriginal Community Controlled Health Organisation
NADA	Network of Alcohol and other Drugs Agency
NAIDOC	National Aborigines and Islanders Day Observance Committee
NDARC	National Drug and Alcohol Research Centre
NDS	National Drug Strategy
NHMRC	National Health and Medical Research Council
NIDAC	National Indigenous Drug and Alcohol Council
NSQHC	National Safety and Quality in Health Care
NTNER	Northern Territory National Emergency Response
NSW	New South Wales
OH	Orana Haven Aboriginal Residential Rehabilitation Service
OSR	Online Services Report
PM&C	Department of the Prime Minister and Cabinet
POA	Postcode area
POI	Person of interest
PRISMA	Preferred Reporting Items for Systematic Reviews and Meta-Analyses
RBD Scale	Risk Behaviour Diagnosis Scale
RSA	Responsible service of alcohol
RCT	Randomised controlled trial
SES	Socioeconomic status
SEWB	Social and emotional wellbeing
SDoH	Social determinants of health

UN	United Nations
UNSW	University of New South Wales
VOC	Victim of crime
WHO	World Health Organization
WHOQoL-BREF	World Health Organization Quality of Life-BREF (abbreviated version)
X^2	Chi squared

Glossary

Akaike information criterion	The Akaike information criterion (AIC) is an estimator of the relative quality of statistical models for a given set of data. Given a collection of models for the data, AIC estimates the quality of each model, relative to each of the other models. Thus, AIC provides a means for model selection.
Baiame	Creator or God in many Australian Aboriginal cultures.
Boomerang	A traditional wooden hunting weapon or ceremonial tool used by Aboriginal peoples.
Closing the Gap	Closing the Gap is a commitment by the Council of Australian Governments (COAG) to work with Aboriginal and Torres Strait Islander peoples to address Aboriginal and Torres Strait Islander disadvantage. Also commonly referred to as 'the Gap'.
Cognitive impairment	Cognitive impairment is an umbrella term used to refer to the impacts of acquired brain injury, intellectual disability or Fetal Alcohol Spectrum Disorder (FASD)
Corroboree	Aboriginal ceremony, usually incorporating dance, music and other forms of cultural expression.
Country	A term often used by Aboriginal and Torres Strait Islander peoples to describe the complex and interrelated connections to family origins and particular pieces of geography in Australia and the Torres Strait.
Demand reduction	Demand reduction aims to prevent the uptake and/or delay the onset of substance misuse; reduce the misuse of alcohol and the use of alcohol and other drugs in the community; and support people to recover from dependence and re-integrate with the community.
Didgeridoo	A traditional Aboriginal wind instrument.
Dja Dja Wurrung	The Dja Dja Wurrung language group, commonly known as the 'Loddon Tribe,' covered an area in north central Victoria, which included present-day Boort (an Aboriginal word meaning 'smoke from the hill').
Dreaming	'Dreaming' or 'Dreamtime' are non-Aboriginal words that describe a rich Aboriginal and Torres Strait Islander concept of cultural knowledge. Dreaming is more than a mythical past; it prescribes the connection as with the spiritual essence, which gives meaning to all aspects of life. The Dreaming is traditionally passed from generation to generation through stories, song, dance and art.

Dual diagnosis	Co-occurring mental health and substance misuse issues.
Elder	A senior Aboriginal person or leader respected by the Aboriginal community.
First Fleet	The First Fleet of 11 ships containing mostly British convicts arrived at Botany Bay, in Sydney Cove, on 24 January 1788.
Harm minimisation	Overarching policy for the National Aboriginal and Torres Strait Islander Peoples' Drug Strategy 2014-19, including the three pillars of demand, supply and harm reduction.
Harm reduction	Harm reduction aims to reduce the adverse health, social and economic consequences of the use of alcohol and other drugs.
Intergenerational trauma	The combination of colonisation and disruptive government policies impact the health and social outcomes experienced by many Aboriginal Australians today through intergenerational trauma. Also referred to as 'transgenerational trauma.'
Kinship	For Aboriginal peoples, the concept of kinship allows members to invariably refer to their extended family by their relationship names rather than a personal name, roles which intrinsically infer social obligations and interactional behaviour and is synonymous with country, spirituality and ritual
Knowledge translation	Knowledge translation involves an iterative process to synthesise, disseminate, and exchange the application of knowledge to ensure more effective health services and a stronger health system
Makarrata	A traditional Yolgnu ceremonial ritual symbolising the restoration of peace after a dispute.
Ngemba	The Ngemba language group and traditional country for Aboriginal peoples located on Barwon, Bogan and Darling rivers, near Brewarrina, NSW. The traditional country of the Brewarrina fish traps.
Nulla Nullas	A hardwood club used as a weapon by Aboriginal Australians.
Polydrug use	Concurrent use of more than one substance.
Research yarning	'Research yarning' is a conversational process that involves the sharing of stories and the development of knowledge. It prioritizes Indigenous ways of communicating, in that it is culturally prescribed, cooperative, and respectful.

Scar tree	Trees which have had bark removed by Aboriginal Australians for the creation of bark canoes, shelters, shields and containers, known as coolamons.
Social and emotional wellbeing	Social and emotional wellbeing (SEWB) encompasses all aspects of the social and emotional context of the person and their family, the historical and economic factors, including racism, oppression, trauma, grief, loss in its many forms, and the sequelae of the Stolen Generations.
Sorry Business	A term used by Aboriginal Australians to refer to the death of a family or community member and the mourning process. 'Sorry Business' includes attending funerals and taking part in mourning activities with the community.
Stolen Generations	Aboriginal Australians who were forcibly removed from their families as children from the early 1930s to the 1980s.
Substance dependence	Substance dependence is an adaptive state that develops from repeated substance misuse and which results in withdrawal upon cessation.
Supply reduction	Supply reduction aims to prevent, stop, disrupt or otherwise reduce the production and supply of illegal drugs; and control, manage and/or regulate the availability of legal drugs.
Terra Nullius	British colonial policies and subsequent laws relating to the ownership of the land were framed in the belief that the colony was acquired by occupation (or settlement) of a *terra nullius* or 'land without owners.'
The Intervention	In response to the 2007 *Little Children are Sacred* report into allegations of serious sexual abuse of children in Aboriginal communities, the federal government staged a massive intervention in the Northern Territory, sending in army troops. The federal government called it the Northern Territory National Emergency Response, or NTNER. Many Aboriginal and non-Aboriginal people commonly refer to it as 'the Intervention'.
Uluru Statement from the Heart	Formally made in Uluru, Central Australia on 26 May 2017, the *Uluru Statement from the Heart* symbolises a culmination of over 250 Aboriginal and Torres Strait Islander leaders' efforts for a call for a genuine representative body and treaties process.

Preface

Terminology

Indigenous

The World Health Organization (WHO) defines Indigenous populations as those that live in distinct geographical territories, identify themselves as belonging to a cultural group separate from mainstream society and are descendent from groups present in the area before modern states and borders were defined (WHO, 2017). The term Indigenous will be used to respectfully refer to all Indigenous peoples in the world.

Australian Aboriginal peoples

There is often tension surrounding the use of different terms to represent the First Peoples of Australia, and therefore it is necessary to explain the language used in this thesis. Australia's First Peoples have two distinct cultural identities: Aboriginal and Torres Strait Islander groups. In 2011, there were 669,881 Aboriginal and Torres Strait Islander Australians—an estimated 3 percent of the total population in Australia, including 90 percent identifying as Aboriginal, 6 percent Torres Strait Islander, and 4 percent identifying as both (ABS, 2011a).

The broad terms 'Aboriginal and Torres Strait Islander' and 'Indigenous' are often used interchangeably in Australia to refer to our First Australians. The author notes that the First Australians did not use the word 'Aborigine' (derived from the Latin word *ab origne* meaning 'from the beginning') to refer to themselves, and although there have been numerous attempts to find a generic term to replace the name 'Aborigine' in English, none have been successful (Jonas & Langton, 1993). As such, many Aboriginal and Torres Strait Islander Australians prefer to be referred to by their distinct language group, such as Koori, Ngemba, Wiradjuri, or Yolgnu. Although all language groups and individuals have their own unique history, in this thesis, the term Aboriginal Australians will be respectfully used, following the recommendations of the Aboriginal Health and Medical Research Council for New South Wales (AH&MRC, 2013).

Author's notes

I grew up on a merino sheep property on the banks of the Loddon River, in central-western Victoria, Australia; the same banks on which the local Dja Dja Wurrung tribes would have traversed, hunted and flourished for thousands of years. The same banks that Major Thomas Mitchell and his expedition notoriously crossed in 1835, as the first European recorded in our area. I feel very privileged to have been brought up with a mother who taught us to resect all people, but most especially our First Australians. From a young age, she informed us about local tribal names and ways of life, showed us middens and stone implements in the paddocks, and pointed out scarred trees when checking sheep, monuments which she and our descendants protected from the impacts of agriculture. I have a distinct memory of taking a large, rolled up copy of the first known photograph of an Aboriginal corroboree in Australia, taken in 1850 by John Hunter Kerr for 'show and tell' as a Grade 4 student at Boort Primary School. I remember no one had ever heard of these people who roamed the area for over a thousand generations, and my teacher (who had lived in the area for most of his life) asked me to spell 'D-j-a D-j-a W-u-r-r-u-n-g' on the blackboard. This is despite Lake Boort Reserve containing Australia's largest concentration of scarred trees where approximately 900 red gums and black box trees scarred by the Dja Dja Wurrung people still stand today. Sadly these unique monuments to our local Aboriginal heritage remain inadequately protected with advocates petitioning local and state government to remedy this. I look back on this memory, appalled at my

inadequate education about Aboriginal people from our area, and sincerely hope that ours was the last generation to only learn about the years since 1788, when Captain Cook sailed into Botany Bay.

After completing my social work degree in rural NSW, I was very fortunate to commence a role with the Murdi Paaki Drug and Alcohol Network as a drug and alcohol outreach worker. It was an extraordinary, yet difficult role, with a team including myself, and mentors and friends, including Dr Rod MacQueen as the addiction medicine specialist and Lynette Bullen as a senior outreach worker, as well as a number of other Aboriginal and non-Aboriginal drug and alcohol workers. We would travel, often by plane, vast distances to remote Aboriginal communities from south of the Queensland border to above the Victorian border – to towns such as Dareton, Bourke, Broken Hill, Wilcannia, Goodooga, Walgett, Lightning Ridge and Menindee. The years in this position shaped my deep interest in finding better ways to improve health in these rural communities, specifically relating to the burdens of substance misuse and recidivism on lives of Aboriginal people. This and other professional experiences, in addition to the relationships developed while in these roles across western NSW, led me to the opportunity to undertake my Doctoral research in this field from 2014 under the guidance of Professor Anthony Shakeshaft.

The final note I wanted to make is that the predominant stereotype of Aboriginal Australia portrayed by statistics and the media is often as a traumatised peoples afflicted by debilitating chronic health disease, inept governance policies, criminal recidivism, substance misuse, violence, unemployment, poverty and poor educational achievements. Far too often these images overshadow the exceptional strength, leadership, resilience, creativity, advocacy and innovation of many of the Aboriginal communities and people with which I have been fortunate to cross paths. It is a great tribute to the enduring personal qualities and abilities that Aboriginal Australians have survived and, as such, they have much to teach us as a nation about the evolving process of reconciling with past injustices. As a non-Aboriginal person, I urge others to remember that no matter how desperate the situation might look to the outsider, Aboriginal Australians will remain resilient in the face of the legacies of the past and the challenges of today and tomorrow, for they did not earn the status of the oldest continuing culture in the world otherwise.

1. Introduction

1.1 Overview

There are an estimated 370 million Indigenous peoples worldwide, some 5% of the world's total population, residing in approximately 90 countries (United Nations, 2009). Many of them continue to practice unique traditions that are distinct from those of the dominant societies in which they live (United Nations, 2009). Aboriginal Australians are the representatives of the oldest continuing culture in the world (Malaspinas et al., 2016; Rasmussen et al., 2011). Colonisation severely disrupted the traditional Aboriginal ways of life and to understand the enduring health inequalities experienced by Aboriginal Australians today, a historical and cultural background is needed. This Introduction contends that substance misuse and its associated harms stem from a complex aetiology of factors, namely the intergenerational impacts of colonisation and successive oppressive government policies (Wynne-Jones et al., 2016). Chapter 1 provides the historical context for the current patterns of substance misuse among Aboriginal Australians. The subsequent chapters focus on reducing harms related to substance misuse for Aboriginal individuals, families and their communities.

1.2 Aboriginal culture in the Dreamtime

Our Aboriginal and Torres Strait Islander tribes were the first sovereign Nations of the Australian continent and its adjacent islands, and possessed it under our own laws and customs. This our ancestors did, according to the reckoning of our culture, from the Creation, according to the common law from 'time immemorial', and according to science more than 60,000 years ago.

Uluru Statement from the Heart (Referendum Council, 2017, p. i)

Australia has an estimated human history of between 45,000 to 120,000 years, making Australian Aboriginal peoples the representatives of the longest continuing culture in the world (Dudgeon, Wright, Paradies, Garvey, & Walker, 2010; Malaspinas et al., 2016; Rasmussen et al., 2011). It has been proposed that prior to colonisation, there were approximately 260 distinct languages spoken within Australia, incorporating 500 differing dialects (Dudgeon et al., 2010). Aboriginal Australians lived in separate family groups (also referred to as clans, kinships or tribes), with each clan living in a defined territory according to their Dreaming, or ancestral knowledge (Dudgeon et al., 2010). Complex and sophisticated kinship systems dictated each person's relationship with other clan members, governing responsibilities and obligations (Dudgeon et al., 2010). Traditional kinship systems, for instance, determined how food and gifts should be divided, who one's teachers were, and whom one could marry. In one sense, an individual was never alone or disconnected from the clan; kinship systems placed each person securely in the group (Berndt & Berndt, 1992, as cited in Dudgeon et al., 2010, p. 5).

Aboriginal Australians believe that spiritual Dreamtime ancestors shaped the land, sky and water as they travelled across the landscape, with both living and non-living things being a consequence of these ancestors (Dudgeon et al., 2010). Each individual and community belonged to certain territories, thus having preordained obligations and spiritual connections to particular country, trees, animals or other resources (Dudgeon et al., 2010; Pascoe, 2014). Hence, the First Australians traditionally see themselves as belonging to the land, rather than owning the land, with traditional concepts of Aboriginal land ownership different to modern-day non-Aboriginal legal systems (Dudgeon et al., 2010).

Aboriginal culture flourished for up to 3,000 generations. Remnants of this traditional life are generously scattered across the Australian landscape, with artistic expression and cultural practices still visible today. From renowned rock art (up to 65,000 years old) to Australia's largest concentration of scar trees (trees with markings on their bark from canoes or implements cut into the tree, ranging from 200 to thousands of years old) found in north-central Victoria on Dja Dja Wurrung country (Haw & Munro, 2010; see Fig. 1.1).

Figure 1.1 Remnants of Dja Dja Wurrung existence can still be found today on the Kinypaniel Creek, near Lake Boort, in north-west Victoria[2]

The predominant post-colonial stereotype of the Aboriginal nomadic hunter-gatherer, or 'savage,' is powerfully debated in the compelling text *Dark Emu. Black Seeds: agriculture or accident,* where Bunurong descendent, Bruce Pascoe, extensively documents evidence of how traditional Aboriginal peoples once lived (Pascoe, 2014). Pascoe details that in contrary to popular opinion, Aboriginal peoples constructed elaborate huts, lived in villages, sewed clothing, and planted, irrigated, harvested and stockpiled their crops of yams or grain. For instance, he outlines evidence that native grasses were specifically selected for their seeds, and grown over vast agricultural belts of country, with the grain used for flour in a similar manner to the way wheat is used today. Furthermore, Pascoe describes how the First Australians herded kangaroos using brush fences and nets, to separate males for consumption and draft off females to ensure sustainability of the kangaroo population.

Pascoe cites examples of many sophisticated methods of trapping fish across Australia based upon a deep ecological knowledge, some of which are in evidence today. One such example is the fish traps on Ngemba country at Brewarrina, western NSW (Fig. 1.2), which are understood to be the oldest man-made structure in the world (Pascoe, 2014). The Brewarrina fish traps were a significant meeting place whereby at certain times of the year, large numbers of Aboriginal people (up to 5,000

[2] This is one of over 900 scar trees documented in the area, indicating it was a significant meeting place for corroborees. This scar tree was used for drying possum skins for cloaks (Haw & Munro, 2010). *Photo:* Penny Stephens.

at a time) from across modern-day NSW and Queensland, would meet for ceremony, marriage, inter-tribal parliamentary exchange of ideas and agricultural trade purposes (Pascoe, 2014).

Figure 1.2 Early photograph of the Brewarrina fish traps, on Ngemba country located in western NSW[3]

Pascoe refers to this sophisticated and predominantly peaceful system of Aboriginal management of people, culture and agricultural resources as: "the longest running pan-continental stability the world has known" (p. 130). He reports on the significance of Elders as the equivalent of contemporary judges or politicians, with their roles codified by levels of initiation (similar to attaining educational achievements, such as a high school certificate to a Doctorate to becoming a Professor), which elevated them to positions of influence or respect. Elders democratically delivered justice to those who disrespected ancestral law/lore, protected the peace, and managed food procurement and the land's wealth (Garvey, 2007; Pascoe, 2014).

While there is evidence that some tribal violence would have occurred, it is generally understood that because populations remained stable enough to stay within their defined regions or country, there were no population driven conquests or inter-tribal invasions to seize territory (Gammage, 2011; Pascoe, 2014). Given there were an estimated 300,000 to over one million Aboriginal peoples living on the Australian continent at the time of colonisation in 1788, Pascoe contends that one of the primary explanations for the survival of Australian Aboriginal cultures was this inherent sense of balance, logic and fairness, particularly relating to resources such as food and the environment. Without political stability, activities extending beyond language and cultural boundaries would have been impossible. In contrast to what is acknowledged today, it is generally understood there were no class divisions, socioeconomic inequalities, and poverty in Aboriginal societies prior to 1788 (Pascoe, 2014).

1.2.1 A note on the traditional use of alcohol

It is believed that Aboriginal Australians participated in controlled consumption of mild fermented beverages made from local plants for ceremonial and trade purposes (Brady 2008). Alcohol was

[3] *Photo:* Powerhouse Museum

additionally introduced to Aboriginal Australians by the Makassans, the Dutch, the French and the Russians, prior to the arrival of the First Fleet (Brady, 2008).

1.3 "After the Dreaming[4]": A story of survival

We have been poked and prodded for two centuries. We have been the subject of endless inquiry… It is a history lamented by anthropologist W.E.H Stanner as the 'great Australian Silence'. It was, he said: "A cult of forgetting practiced on a national scale." Half a century later, his words ring just as true.

Stan Grant - UNSW Wallace Wurth Lecture, July 2016

Pascoe argues that the ubiquitous belief that Aboriginal people were 'mere' hunter-gatherers with spears and loincloths was used as a political tool to debase the Aboriginal race to justify dispossession and colonisation from traditional country (Pascoe, 2014). Colonialism was about abruptly seizing Aboriginal lands, overpowering them by destroying buildings and decimating fragile ecosystems and crops with introduced livestock and early Western farming practices. Erasing this evidence was the first step in 'the great Australian silence,' as it erased the memory that Aboriginal peoples were once a sophisticated and civilised society (Pascoe, 2014; Stanner, 1969).

By casting them as nomadic hunter-gatherers, British settlers gained the moral authority, aligning with the popular racial ideology of the era (Pascoe, 2014). Since 1788, official historians mostly ignored the references of early European explorers and settlers about the level of sophistication achieved by the First Australians, to justify *terra nullius* and, as such, the comprehensive usurpation of Aboriginal country had commenced. The concept of *terra nullius* essentially assumed that Australia was unoccupied at the time of colonisation and that land could be acquired through occupation or settlement. While the colonisers acknowledged the presence of Indigenous peoples, they justified their land acquisition policies by saying that they were too primitive and had no readily identifiable hierarchy or political order with which the British Government could negotiate. Given evidence of the existence of Aboriginal agriculture and governance, the land being deemed *terra nullius* defies belief. The stage was set for dispossession and decimation of Aboriginal culture to become a "melancholy footnote to Australian history" (Stanner, 1969, p. 11).

1.3.1 Colonisation, assimilation and the Stolen Generations

With the arrival of Captain Arthur Phillip and 1,500 convicts, crew, marines and civilians from 1788, the destruction of Aboriginal cultures accelerated through widespread conflict and massacres, settler acquisition of lands and the introduction of previously unknown infectious diseases (Atkinson, Graham, Pettit, & Lewis, 2002; Briskman, 2003; Dudgeon et al., 2010; Markwick, Ansari, Sullivan, Parsons, & McNeil, 2014; Pascoe, 2014; Stanner, 1969). In the 10 years that followed the arrival of the British, it is estimated that the Indigenous population of Australia was reduced by 90% (Harris, 2003). The expansion of British settlements across the continent led to competition over land and resources that resulted in frontier violence, the extent of which is still critiqued today (see Reynolds and Windshuttle). Nevertheless, primary archaeological and historical records provide evidence of numerous occasions where Aboriginal people were hunted and brutally murdered, including the following harrowing account by Edward Wilson in the *Argus* on 17 March 1856 (as cited in Harris, 2013, p. 209):

> *In less than twenty years we have nearly swept them off the face of the earth. We have shot them down like dogs. In the guise of friendship we have issued corrosive sublimate in their damper and*

[4] This was the title of the 1968 Boyer Lectures by Professor W.E.H. Stanner, which examined the status of Aboriginal peoples and their relationship with non-Aboriginal Australians.

> *consigned whole tribes to the agonies of an excruciating death. We have made them drunkards, and infected them with diseases which have rotted the bones of their adults, and made such few children as are born amongst them a sorrow and a torture from the very instant of their birth. We have made them outcasts on their own land, and are rapidly consigning them to entire annihilation.*

Well-known explorer, Charles Sturt, also foresaw the impacts of this inevitable invasion, writing:

> *I have to regret that the progress of civilised man into an uncivilised region is almost invariably attended with misfortune to its original inhabitants.*
>
> Sturt, 1849 (as cited in Pascoe, 2014, p. 140)

Aboriginal peoples were dispossessed of their lands and subsequently segregated onto reserves or missions. They became trespassers as their country was taken over for grazing and Western agricultural practices. This had dire consequences for Aboriginal traditional economies, maintenance of spiritual life, and social systems (Elston & Dade Smith, 2002; Harris, 2003). The missions aimed to segregate Aboriginal peoples from the white community, a policy made worse by poor living conditions and meagre rations (Elston & Dade Smith, 2002; Harris, 2013). Different Aboriginal cultural groups, who may not have traditionally had reciprocal relationships or spoken the same dialects, were forced to live together in missions, which created further disharmony (Dudgeon et al., 2010; Elston & Dade Smith, 2002). As tensions between Aboriginal people and the colonisers grew, conflicts arose: documentaries, historical descriptions, and Aboriginal communities recount the stories of bloody massacres that killed many Aboriginal people. The massacres occurred under a policy known at the time as 'dispersal' (Orford et al., 2005). Within 100 years of colonisation, it is reported that only 10% of the pre-colonisation Aboriginal population had survived the massacres and infectious diseases (Awofeso, 2011). For instance, it is estimated that two thirds of Aboriginal people from the northern Victorian tribes died of smallpox, as this highly infectious disease spread along well-worn trading routes across and the vast river systems in eastern Australia (Haw & Munro, 2010).

The survivors and descendants of the first century of invasion by the Europeans were later subjected to government policies that attempted to displace, convert, isolate and repress Aboriginal cultural practices (Gracey, 1998; Phillips, 2003). One tactic often employed to suit the interests of the colonialists following the arrival of the First Fleet was the use of alcohol. Alcohol quickly became a cornerstone of early social and economic colonial life in Australia, with settlers reportedly using alcohol as a means of exchange for sex or labour with Aboriginal Australians (Langton, 1993; Lewis, 1992). Further, patterns of consuming large quantities of alcohol on a single occasion were beginning to be introduced, with Aboriginal people quickly adopting these patterns of drinking (Brady, 2008, 2012; Lewis, 1992). State Prohibition Laws denying Aboriginal people legal access to alcohol were introduced across all states and territories of Australia from 1838-1929. This had the effect of segregating Aboriginal and non-Aboriginal drinking, increasing the temptation of alcohol to Aboriginal Australians, in addition to encouraging alcohol consumption in an uncontrolled environment (Brady, 2004, 2008; Saggers & Gray, 1998). Despite the prohibitive laws banning Aboriginal people entering towns and drinking establishments, the laws provided no real disincentive to circumvent access to, or desire for, alcohol, and non-Aboriginal people were able to profit from selling alcohol to them illegally (Irish, 2017; Wilson, Stearne, Gray, & Saggers, 2010). When prohibition eased in the 1900s, conditional citizenship, and the legal right to drink, was restored only for Aboriginal Australians who had abandoned their tribal connections, served in the army, or were deemed to have acquired the

'habits of civilised life' (Lewis, 1992). Hence, the right to drink alcohol was perceived as a 'reward' for citizenship and assimilation with the Western way of life (Lewis, 1992).

By the 1930's, the assimilation policy was widespread across all Australian governments. Part of this policy involved the forcible removal of children from their families, now known as the Stolen Generations (Atkinson, 1997, 2004; Atkinson et al., 2002; HEROC, 1997). Children were placed into institutions for educating and training, and to live and work in mainstream society as housemaids or labourers (Dudgeon et al., 2010). As many as one in ten Aboriginal children were removed from their families and communities in the first half of the 20th century. Various reports, such as *Bringing Them Home,* found that in certain regions the figure may have been much more (HREOC, 1997). From the 1930s to the 1980s, few Aboriginal families escaped the effects of forcible removal, and most families have been affected over one or more generations. One account from the Northern Territory described these policies for the removal of children as the ultimate racist act (McGrath, 1987). Finally, Aboriginal Australians were not given the same rights as the other inhabitants of Australia until the late 1960s, including the right to vote, marry without permission, access welfare, attend schools, enter hotels, testify in court, and be counted in the national census (Atkinson, 2004; Milroy, 2005). Thus, for the Aboriginal people, this discrimination highlighted a loss of freedom and connection to country and left many destitute, in comparison to their previous existence imbued with culture, traditions, and harmony (Milroy, 2005).

It took more than two centuries from Captain Cook's landing in 1788, through the landmark events of the Wave Hill Walk-Off in 1966, the Constitutional Referendum in 1967 and the 1972 Tent Embassy, for the 1994 Mabo judgement in the High Court of Australia to legally recognise that, from the beginning, Aboriginal lands were taken under the legal fiction of *terra nullius* (Elston & Dade Smith, 2002; Gilbert, 2005; Green & Baldry, 2008; Redfern Legal Centre, 2017). The historic 2008 National Apology to the Stolen Generations by Prime Minister Kevin Rudd marked a new era of reconciliation between Aboriginal and non-Aboriginal Australians, powerfully acknowledging the *"profound grief, suffering and loss on these, our fellow Australians…"* (AIATSIS, 2017). Despite these conciliatory milestones, the Constitution of Australia, which was adopted in 1901, continues to afford no legal recognition of Australian Aboriginal people's citizenship and rights. According to Cape York Aboriginal Leader Noel Pearson, and others, *makarrata*, or 'the coming together after a struggle,' is the next fundamental step in the path forward to both symbolic and tangible healing as one nation (Pearson, 2017).

1.4 The impacts of colonisation on the health and social and emotional wellbeing of Aboriginal people

Since colonisation, Aboriginal Australians have experienced extreme loss, grief, disempowerment, cultural alienation, and loss of identity (Berry & Crowe, 2009; Dudgeon et al., 2010; Hunter, 1998; Wynne-Jones et al., 2016). According to Aboriginal academic Judy Atkinson, this is considered to be the result of three layers of colonisation: the physical violence of the frontier; the structural institutional violence perpetrated by the state; and the psychosocial dominance of another culture (Atkinson, 2006). Health inequalities between Australian Aboriginal peoples and their non-Aboriginal counterparts are regarded by the WHO to be the largest in the world (WHO, 2008). Within the Australian context, Aboriginal peoples are identified to be the most disadvantaged group in Australia (AIHW, 2015a; Caruana, 2010). The legacies of colonisation and government policies impact the health and social outcomes experienced by many Aboriginal Australians today through

intergenerational trauma and disempowerment (Osborne, Baum, & Brown, 2013; Wynne-Jones et al., 2016). While some health and social outcomes have improved over the past decade, these achievements have been inadequate to reduce the stark disparities between Aboriginal and non-Aboriginal Australians (Altman, Biddle, & Hunter, 2005; Ring, Dixon, Lovett, & Al-Yaman, 2016).

There are three key impacts of colonisation on the health and wellbeing of Aboriginal people: intergenerational trauma; social determinants of health (SDoH); and racism.

1.4.1 Intergenerational trauma

Our country and people have suffered many traumas since colonisation, the magnitude of which is beyond words. Looking through trauma is like being trapped in the back of a mirror, there is no reflection of self.

(Zubrick et al., 2005, p. *xii*)

Aboriginal people view health and wellbeing holistically to encompass social, emotional, physical, and spiritual wellbeing, and are therefore connected to the environment in which they live (Carson et al., 2007; NAHSWP, 1989; Vicary, & Westerman, 2004). Thus, an Aboriginal person's wellbeing is critically connected to culture, family and country: destroy this relationship and you damage - sometimes irrevocably - an individual's health (Anderson, 1996; Burgess & Morrison, 2007). Not only did colonisation produce trauma at the time of the event (situational trauma), such as witnessing relatives being shot or being removed, it also left a legacy of trauma that has manifested over years (cumulative trauma) as a result of the profound impacts of the unresolved grief and loss of identity and culture experienced within each successive generation (Phillips, 2003). This is known as intergenerational trauma (Phillips, 2003; Carson, Dunbar, Chenhall, & Bailie, 2007).

Until relatively recently, the consequences of specific traumas, such as wars, the holocaust, rape, colonisation, child abuse, and neglect, were perceived as separate entities (van der Kolk, 1987, 2014). Upon closer analysis, van der Kolk considered that human responses to unexpected, overwhelming, traumatic events were remarkably similar. Such responses include dissociation, depression or depression like symptoms, psychic numbing, and somatisation (Phillips, 2003). These consistencies have been recognised by the American Psychiatric Association, which classify such human responses to overwhelming life events under the diagnosis of Post-Traumatic Stress Disorder (PTSD; APA, 2013).

Research describing the symptomology for nine adult members of the Stolen Generations identified that the clinical picture shared by all interviewees was consistent with contemporary understanding of the harmful impact of chronic trauma on the developing self (Petchovsky & San Roque, 2002). Thus, parallel to van der Kolk's research, the symptomology of the nine adults was found to fit diagnostic constructs of 'complex PTSD, depressive type.' The authors also ascertained specific issues of loss of cultural identity to be salient, as all members of the sample perceived the linkages to kinships, land, myth, and ritual, had been attacked by the process of removal and deculturation, and that this was the cause of their PTSD symptomology.

The separation of children from their parents, and its effects on child-rearing practices and loss of culture, has been suggested as another major factor on traumata imposed on subsequent generations (HREOC, 1997; Raphael, Swan, & Martinek, 1998). The transmission of culture does not occur as a result of forcible removal, although a sense of uncertainty about one's identity and belonging is likely to be engendered (Raphael et al., 1998). Furthermore, Aboriginal people (predominantly men), are underrepresented in statistics in community and

mental health services, tend to be overrepresented in the records of criminal justice systems (Hunter, 1998) and, as a result, paternal role models for initiation into manhood in many communities, are lacking (Raphael et al., 1998). The unresolved trauma experienced as a result of colonisation of American Indians (who share a similar history of colonisation with Aboriginal Australians), is referred to as a 'soul wound'. This concept explains the cumulative damage across generations, suggesting that this wound leads to poor social and emotional wellbeing, including symptoms of anxiety, depression, feelings of marginality, and alienation (Waldram, 2004).

The Australian Government's assimilation policies are likely to have negatively impacted early attachments for many Aboriginal Australians, thus contributing to mental health issues and difficulties in interpersonal relationships in adulthood (Berry & Crowe, 2009; Swan & Raphael, 1995). According to attachment theory, the strong and healthy bond that a child develops towards family in early years builds the foundation for future relationships with others, and for typical physical, social and psychological development (Bowlby, 1982; Raphael et al., 1998). Given this, it is suggested that the loss of fundamental attachments for Aboriginal children after forcible removal from parents and families resulted in a disproportionately high incidence of children who failed to achieve their full potential, and develop self-reliance, resilience to stress and trusting attachments in adult life (HREOC, 1997). Adverse Childhood Experiences (ACEs), have been empirically correlated with poor mental health and maladaptive coping skills, thereby increasing the likelihood of Aboriginal people misusing substances and partaking in risk-taking behaviours (Raphael et al., 1998). ACE refers to stressful and traumatic life events for children, including a death in the family, injury, household substance misuse, child abuse or neglect, living in out-of-home care, and being bullied at school (Dudgeon, Calma, Brideson, & Holland, 2016; Jacobs, Agho, & Raphael, 2012). Australian Aboriginal families have a much higher prevalence of ACE, when compared to non-Aboriginal families (Jacobs et al., 2012; Zubrick et al., 2005). High levels of child abuse and neglect have been identified as contributing to the underlying trauma and grief issues that compound in each generation (Pearson, 2000; Tatz, 2010). The trauma and subsequent impacts of ACE for Aboriginal communities can lead to revictimisation, where children who have experienced childhood adversities are considerably more likely to be revictimised as young people or adults, often resulting in complex psychological symptoms (Briere & Scott, 2006; Elkit, 2002; Kingston & Raghavan, 2009).

1.4.2 Aboriginal Australians and the SDoH

The Western biomedical model of health has historically privileged the health professional as the expert of the patient's wellbeing: diagnosing and treating symptoms in isolation from broader biopsychosocial considerations. In contrast, Indigenous people's holistic view of health is one in which the individual, family, whole community and country are all in harmony and balance (Bond, 2005; Markwick et al., 2014; Milroy, 2005; Ministerial Council on Drug Strategy, 2011). The egalitarian nature of the Indigenous worldview of health aligns aptly with the conclusions from the WHO's Commission on Social Determinants of Health (WHO, 2008). It found that the key determinants of social inequalities in health lie in the circumstances relating to the whole person, including the place in which people are born, grow, live, work, and age, which in turn are linked to differences in access to power and resources (WHO, 2008; Marmot, 2011). The WHO highlighted a social gradient in health and wellbeing, with the most socioeconomically disadvantaged experiencing poorer health outcomes than the more affluent (WHO, 2008; Marmot, 2011).

The SDoH include income, education, employment, living conditions, social support (particularly in early childhood) and access to health care services (King, Smith, & Gracey, 2009). Aboriginal Australians have worse outcomes on each of these determinants compared to their non-Aboriginal counterparts (Altman et al., 2005). The contribution of low socioeconomic status (SES) to the differences in health and social outcomes between Aboriginal and non-Aboriginal Australians is being increasingly recognised (Marmot, 2011; Osborne et al., 2013). SES specifically refers to an individual's access to material and social resources, and their ability to participate in society. It is measured as the proportion of people in a defined sub-population who are employed, have a tertiary education, and earn a high income, and ranking this relative to other areas in ten equal sized groups (deciles) (Collins, 2016; ABS, 2011b). In Australia, there is no sub-population (as defined by postcode) where Aboriginal Australians have a higher SES than non-Aboriginal people (AIHWa, 2015; Biddle, 2013). A recent study in the Northern Territory, for example, identified inequality in SES as the leading determinant of the gap in life expectancy between Aboriginal and non-Aboriginal Australians, explaining one-third to half of this gap (Zhao, Wright, Begg, & Guthridge, 2013). The presence of low SES can negatively impact a range of psychosocial factors, such as self-esteem, stress, sense of control, and grief and loss (Marmot, 2011; Osborne et al., 2013). Taken together, the combination of low SES and psychosocial factors can impact on risky health and lifestyle behaviours, such as smoking, alcohol use, poor nutrition and inadequate physical activity, which contributes to the higher burden of disease for Aboriginal Australians, compared to non-Aboriginal Australians (AIHW, 2016a; Holland, 2014; King et al., 2009; Osborne et al., 2013; Vos, Barker, Stanley, & Lopez, 2007).

1.4.3 Racism

In Australia, racism has been both implicitly and explicitly identified as a cause of the relatively low SES and poor health experienced by Aboriginal Australians (Larson, Gilles, Howard, & Coffin, 2007). In defining the rubric of racism, it is useful to consider the concepts of privilege and oppression as mutually constitutive phenomena, where power is unevenly distributed based on racial classifications (Paradies, 2007). According to Larson et al. (2007), there are three types of racism: institutional, interpersonal, and internal. Institutional racism is expressed through economic and political systems and maintained by the policies and practices carried out by government and other institutions. Interpersonal racism is the discriminatory interactions between individuals, such as demeaning comments by a health professional, a police officer or a shop assistant. Internalised racism refers to the adaptations of people who experience racial discrimination as a consequence of institutional and interpersonal racism, which can result in poor self-esteem, depression and hostility (Jones, 2001; Larson et al., 2007). Given the impacts of types of racism, the experience of racial discrimination could also be recognised as a social determinant of poor health (Jones, 2001; Larson et al., 2007).

1.5 Aboriginal substance-related harms: A visible manifestation of the legacies of colonisation and intergenerational trauma

Aboriginal Australia underwent a rape of the soul so profound that the blight continues in the minds of most blacks today. The real horror story is locked in the police files and child welfare reports. It is a story of private misery and degradation, caused by a complex chain of historical circumstance that continues into the present.

Kevin Gilbert (as cited in Gilbert, 2005, p. 70.)

Substance misuse has been identified as a form of self-medication to cope with symptoms of loss, trauma and pain. A quote from the *Bringing them Home* report provides the essence as to why alcohol is the 'treatment of choice' for some Aboriginal people (HREOC, 1997):

> *If they hadn't used alcohol they probably would have committed suicide…You can't be here to carry that sort of pain and depression. We're incapable of staying alive with that sort of feeling, and alcohol was a sort of first aid (Evidence 263).*

Gregory Phillips, a Waanyi man from north-western Queensland, reflected upon his community's grief and use of alcohol by stating that "some of our people have become so used to alcoholism that they think drinking is not just a part of their life, but their Aboriginality – their essence as a human being (Phillips, 2003)." This is also evident in Aboriginal communities who observe the traditional Celtic ritual of the wake for contemporary 'Sorry Business,' with large gatherings coming together to farewell loved ones with excessive amounts of alcohol (Tatz, 2010). Tatz reflects "a constant cycle, or procession, of grief… with no time to complete the grieving before another death ensues- and often no grief counselling available" (p. 103).

Alcohol misuse and smoking are consistently identified as leading risk factors for the Aboriginal burden of disease (AIHW, 2016a; Commonwealth of Australia, 2014; King et al., 2009; Osborne et al., 2013; Vos et al., 2007). For Aboriginal Australians, alcohol is estimated to contribute 5.4% to the total burden of disease (Vos et al., 2007), compared to 2.3% of the total burden of disease in the general Australian population (Begg et al., 2007). Despite this, however, more Aboriginal Australians abstain from drinking alcohol than non-Aboriginal Australians (28% and 22% respectively) and lifetime risky drinking is similar for Aboriginal and non-Aboriginal Australians (19% compared to 18%, respectively; AIHW, 2015a; Begg et al., 2007). Over the past two decades, evidence indicates that Aboriginal Australians are much more likely than non-Aboriginal Australians to suffer from conditions related to drug and alcohol misuse, such as alcoholic liver cirrhosis, haemorrhagic stroke, assault injury, road traffic injury, and suicide (Wilkes, Gray, Casey, Stearne, & Dadd, 2014). Moreover, Aboriginal alcohol-attributed deaths have been underestimated by approximately 9%, suggesting that the total burden of disease for substance misuse associated with Aboriginal Australians may be even higher than previously considered (Pascal, Chikritzhs, & Gray, 2009).

Tobacco smoking has been estimated to account for one-fifth of Australian Aboriginal deaths, making it the largest contributing risk factor for mortality among Aboriginal and Torres Strait Islander men (Vos et al., 2007). While the tobacco-smoking rate in the general adult population has declined from approximately 24% in 1991 to 15% in 2010 (AIHW, 2011a), this is not the case for all population groups, particularly Aboriginal Australians. In 2013, the smoking rate among Aboriginal people was considerably higher than non-Aboriginal people, with daily smoking found to be 2.5 times more likely for Aboriginal compared to non-Aboriginal people (AIHW, 2014b). Further, in some remote Australian communities, which often include high proportions of Aboriginal people, the tobacco use prevalence estimate is as high as 83% (MacLaren, Redman-MacLaren, & Clough, 2010). Smoking has also been identified to be higher among Aboriginal Australian pregnant women (Carson et al., 2014; Gould, Munn, Avuri, Hoff, Cadet-James, McEwen, & Clough, 2013), with a recent report finding that almost 1 in 2 Aboriginal mothers reported to smoke during pregnancy – 45% compared with 12% of non-Aboriginal mothers (age-standardised; AIHW, 2017). Reducing prevalence of tobacco use in Aboriginal communities is, therefore, an important focus for improving the health outcomes for this population (Gould et al., 2013; Gould, Watt, McEwen, Cadet-James, Clough, 2014).

Other than ecstasy and cocaine, Aboriginal Australians use illicit drugs at a higher rate than the general Australian population (AIHW, 2014a). Cannabis is the most commonly used illicit drug among Aboriginal Australians; with19% of Aboriginal Australians aged 15 years and over reporting having used cannabis in the previous 12 months in 2012-13, compared to 10% of non-Aboriginal Australians (AHMAC, 2015; AIHW, 2014a; MacRae & Hoareau, 2016). Furthermore, methamphetamines were identified as the third most common 'recently used' illicit drug by Aboriginal Australian peoples aged 15 years and older, with Aboriginal peoples reporting using them 1.6 times more frequently than their non-Aboriginal counterparts (AHMAC, 2015; MacRae & Hoareau, 2016). Illicit drug use is associated with a number of health impacts and social harms that disproportionately impacts Australian Aboriginal peoples. These harms include increased risks from injecting drug use, for instance in 2012 the rates of hepatitis B and C were three and four times the rate for Aboriginal people compared to non-Aboriginal people, higher levels of psychological distress, and an increased risk of suicide (Kirby Institute, 2016; MacRae & Hoareau, 2016).

1.5.1 Substance misuse and crime

Two decades ago we held a royal commission into black deaths in custody…it was supposed to end the culture of incarceration. Today almost every face – man woman and child – behind bars in the Northern Territory is black.

Stan Grant - UNSW Wallace Wurth Lecture, July 2016

The issue of Aboriginal over-representation in the criminal justice system has attracted significant attention since the 1991 *Royal Commission into Aboriginal Deaths in Custody* provided the first comprehensive audit of the Aboriginal imprisonment rates (Commonwealth of Australia, 1991). However, over a quarter of a century later, Aboriginal imprisonment, disproportionately high rates of contact with the criminal justice system and links with substance misuse, remain major challenges (Dawes, Davidson, Walden, & Isaacs, 2017). Age standardised statistics reveal that Aboriginal Australians are being imprisoned at a rate 13% greater than non-Aboriginal people, with Aboriginal offenders constituting 27% of the national prison population (Dawes et al., 2017). With three out of four Aboriginal offenders incarcerated having had a prior conviction, reoffending (also known as recidivism) is recognised as a leading cause of the disproportionately high number of Aboriginal Australians being incarcerated (Australian Institute of Criminology, 2016). Furthermore, in 2013, it was identified that Aboriginal young people were 30 times more likely to be incarcerated than non-Aboriginal young people (Australian Institute of Criminology, 2016).

The immediate post-release from incarceration period is particularly worrying, with Australian Aboriginal male prisoners 4.8 times more likely to die, and Australian Aboriginal female prisoners 12.6 times more likely to die, than the general population (Rodas, Bode, & Dolan, 2011). Overdose is known to be a leading cause of death among recently released prisoners (Kinner, Dietze, & Alati, 2012; Kinner et al., 2011). Numerous reports continue to advocate for an increase in the availability of culturally responsive diversionary programs from prison to residential treatment settings (Finlay, Williams, McInerney, Sweet, & Ward, 2016; Lloyd et al., 2015; Weatherburn & Holmes, 2010).

1.5.2 Substance misuse, injury and violence

Together with more frequent experiences of physical and mental health conditions, Aboriginal Australians are significantly more likely to be hospitalised as a result of an alcohol-related condition (Wilson et al., 2010). For Aboriginal Australians, alcohol-related harm results in 5.4% (n=5,171) of Disability-Adjusted Life Years (DALYs) and 6.7% (n=192) of all deaths (Vos et al., 2007). Alcohol

misuse thus accounts for a significant proportion of the total burden of disease and injury among Aboriginal Australians, and significantly contributes to the ongoing health disparities between Aboriginal and non-Aboriginal Australians (Vos et al., 2007; Wundersitz, 2010). Finally, road traffic accidents were the main contributing factor for alcohol-related harm for Aboriginal males aged between 0-14 years old, found to be 2.4 times higher compared to the general population (Calabria, Doran, Vos, Shakeshaft, & Hall, 2010).

Alcohol-related violence has been recognised to have a devastating impact on Aboriginal families (Vos et al., 2007). For instance, homicide and violence rates are between 5 and 8 times higher for Aboriginal males and between 14 to 20 times higher for Aboriginal females compared to the general population (Calabria et al., 2010). The scale of alcohol-related assault is a notable challenge, with partner homicides involving an Aboriginal perpetrator and victim being 13 times more likely to involve alcohol than other partner homicides (Dearden & Payne, 2009).

1.5.3 Substance misuse and mental illness

Poor mental health among Aboriginal Australians has been consistently linked to the intergenerational effects of colonisation and substance misuse (Parker, 2010; Swan & Raphael, 1995). Mental illness and related conditions have been estimated to account for as much as 22% of the health gap measured in DALYs for Aboriginal people: 12% to mental health conditions, 4% to suicide, and 6% to alcohol and substance abuse (Vos et al., 2007). The available evidence suggests mental health disorders are more prevalent in Aboriginal communities compared to non-Aboriginal communities, and that Aboriginal people are over-represented in inpatient mental health care (Roxbee & Wallace, 2003; Wynne-Jones et al., 2016). Further, it has been estimated that there is a high proportion of Australian Aboriginal people who experience dual diagnosis, or co-occurring substance misuse and mental health issues. While there has been no comprehensive study of rates or prevalence of comorbidity in the Australian Aboriginal population (Wilkes, Gray, Casey, Stearne, & Dadd, 2014), in the mainstream literature it is estimated that among those with an alcohol-dependence disorder, 20% have an anxiety disorder, and 24% an affective disorder (Shand, Gates, Fawcett, & Mattick, 2003). Despite this, evidence relating to Aboriginal communities in Western Australia identified that the prevalence of alcohol use disorders, PTSD and depression are extremely high in comparison to non-Aboriginal communities (Nadew, 2012).

The causes of Aboriginal suicide, which was largely unknown among Aboriginal people three decades ago, are different from mainstream suicide and mental health problems, as they are the legacy of past violations of Aboriginal communities (Silburn, Robinson, Leckning, Henry, Cox, & Kickett, 2014; Wynne-Jones et al., 2016; Tatz, 2010). For instance, youth suicide rates for Australian Aboriginal people are twice that of non-Aboriginal people, with young Aboriginal men and women being between 4 and 5 times more likely to die by suicide than other young non-Aboriginal Australians, according to Australia's first National Aboriginal and Torres Strait Islander Suicide Prevention Strategy (DoHA, 2013). Among Aboriginal adult males, suicide has been found to be the most common cause of alcohol-related deaths, and among adult Aboriginal females, the fourth most common cause (Pascal et al., 2009; Wilson et al., 2010). One of the most significant socio-cultural changes in Aboriginal communities associated with increases in suicide has been the disruptive effect of alcohol misuse (Silburn, Robinson, Leckning, Henry, Cox, & Kickett, 2014; Wynne-Jones et al., 2016; Tatz, 2010). Other community factors linked to the increased rates of suicide include the disintegration of family, lack of meaningful networks within the community, intergenerational grief and poor educational attainment, which leads to social and economic exclusion and alienation (Tatz, 2010).

1.5.4 Substance misuse and remoteness

Aboriginal Australians are important to include in any discussion about the health of people living in rural and remote Australia. Although they make up 3% of the Australian population, 53.2% of all Aboriginal people live in 'outer regional', 'remote' and 'very remote' areas (ABS, 2011a). Overall, people living in rural and remote areas have a poorer SES and health than those in major cities, and are often disadvantaged in relation to the SDoH, specifically poorer access to primary health services, educational and employment opportunities, and high income (Schoo, Lawn, & Carson, 2016). Reflected in higher levels of mortality, disease and health risk factors, people living in rural and remote Australia are more likely to have higher rates of risky health behaviours, such as smoking and heavy alcohol use (AIHW, 2014a; Allan, Clifford, Ball, Alston & Meister, 2012), with the proportion of those drinking at risky levels increasing with remoteness (AIHW, 2014b). Lastly, a recent study found that lifetime and recent methamphetamine use were significantly higher for those living in rural communities than for other Australians (Roche & McEntee, 2016). Despite the need for targeted services in rural communities, rural people face difficulties in accessing acute or specialised support, such as counselling (Allan & Kemp, 2011), and in the promotion of safer drinking and community-wide activity to reduce substance-related harms (Shakeshaft, Petrie, Doran, Breen, & Sanson-Fisher, 2012).

1.5.5 Substance misuse and cognitive impairment

Cognitive impairment is an umbrella term used to refer to the impacts of acquired brain injury, intellectual disability and Fetal Alcohol Spectrum Disorder (FASD; Allan, Kemp, & Golden, 2012). While each of these conditions can vary in severity and impact, they have similar broad effects on executive function, such as impaired ability to plan and make decisions, reduced ability to evaluate consequences, a preference for reward-seeking goals, impulsivity and attentional dysfunction, lack of initiative, memory impairment or loss, impaired self-monitoring and self-regulation, and an inability to benefit from experience (Shepherd, Ogloff, Shea, Pfeifer, & Paradies, 2017). Further, those with some form of cognitive impairment are more likely to experience poor concentration, depression, emotional instability, irritability, impulsive or inappropriate behaviour and reduced ability to problem-solve and inflexible thinking (AIHW, 2007; Hensold, Guercio, Grubbs, Upton, & Faw, 2006). These factors indicate that people with cognitive impairment are likely to experience difficulty engaging with, participating in, and completing substance misuse treatment, especially treatment based on cognitive and behavioural change activities, which is a barrier for improved outcomes as treatment completion is consistently identified as a key factor associated with a favourable post-treatment outcomes (Allan, Kemp, & Golden, 2012; Brorson, Ajo Arnevik, Rand-Hendriksen, & Duckert, 2013; Goddard, 2003; Hensold et al., 2006). Substance use and cognitive impairment are highly correlated (Hagen et al., 2016), with prevalence estimates varying between 30%-80% among treatment-seeking-substance users (Copersino et al., 2009). Despite this growing evidence, cognitive impairment largely remains largely a hidden disability (Mantell, 2010).

People with cognitive impairment are often overrepresented in the criminal justice system, experience greater numbers of prior custodial episodes, are more likely to be charged, are less likely to receive parole, more likely to reoffend and are often younger at first contact with the justice system (Baldry, Dowse, & Clarence, 2012; McCausland, McEntyre, & Baldry, 2017; Shepherd et al., 2017; Bower et al., 2018). While less is known about the prevalence of cognitive impairment for Aboriginal offenders due to a lack of accurate data, available research indicates levels are substantially higher for Aboriginal offenders than non-Aboriginal offenders (Shepherd et al., 2017). The FASD prevalence among young people in youth detention in Canadian studies identified FASD in 11%–23%

of young people in corrective services (Bower et al., 2018). In contrast, a recently published study of a youth detention centre in Western Australia, found 89% of a total of 99 participants (74% identified as Aboriginal) had at least one domain of severe neurodevelopmental impairment, with 36 diagnosed with FASD – a prevalence of 36% (95% CI 27% to 46%; Bower et al., 2018). This aligns with previous evidence that in some Aboriginal communities, such as in the Fitzroy Valley in Western Australia, Aboriginal Australians are identified has having higher rates of FASD (Elliott, 2015). In a NSW study involving 2,731 adult prisoners with mental health disorders and cognitive impairment, higher rates of cognitive impairment were found for Aboriginal prisoners (Baldry et al., 2012; Shepherd et al., 2017). Further, findings from a study about the relationship between SEWB and cognitive impairment for 122 Aboriginal people in custody revealed a diminished level of wellbeing for cognitive impairment participants, including poorer coping, more extreme experiences of racism and difficulties regulating their emotions (Shepherd et al., 2017). Taken together, these findings highlight the missed opportunities for prevention and earlier diagnosis of cognitive impairment and FASD, which may have mitigated Aboriginal substance misuse and subsequent involvement with justice services (Bower et al., 2018).

1.6 The Australian Aboriginal substance misuse policy context

There are a broad range of policy initiatives and strategies at the national, state and local levels that have set the foundations of, or are currently seeking to improve, the social and economic outcomes for Aboriginal peoples impacted by harmful substance misuse. Key national policy directions relevant to the Australian Aboriginal substance misuse context are outlined below.

1.6.1 Royal Commission into Aboriginal Deaths in Custody Report

The *Royal Commission into Aboriginal Deaths in Custody* was established by Prime Minister Hawke three decades ago in response to a growing public concern about the increasing numbers of Aboriginal deaths in custody (Commonwealth of Australia, 1991). The Royal Commission examined all deaths in custody in each State and Territory that occurred between 1 January 1980 and 31 May 1989, and the actions taken in respect to each death. In total, 99 deaths were examined. The Commission's terms of reference were unique in that it enabled it to take account of social, cultural and legal factors, which may have had a bearing on the deaths under investigation. A key finding was that deaths were due to the combination of police and prisons failing their duty of care, and the extensive numbers of Aboriginal people being arrested and incarcerated (Parliament of Australia, 2016). A total of 339 recommendations were generated from the Royal Commission, of which approximately 40 percent related to Aboriginal disadvantage, which the Commission identified as contributing to the high rates of Aboriginal incarceration. The following factors were included: substance abuse, poor school performance, poor parenting, poverty, unemployment, low wages, poor housing, geographic mobility, peer group pressure, welfare dependence, and racial discrimination (Weatherburn, 2008). This report set the foundations for current *Closing the Gap* policy and efforts.

1.6.2 Alcohol Management Plans

The first Alcohol Management Plan (AMP) was introduced in late 2002 under a new Queensland Government policy formulated in response to a review which identified that alcohol abuse and violence had become normalised in Cape York communities, and were subsequently replicated in the Northern Territory and later adopted across the country (Smith et al., 2013) This policy included a provision for individual communities to develop their own AMPs through Community Justice Groups that were granted statutory power (Smith et al., 2013). An evaluation conducted in 2005 notes that the Queensland government had imposed restrictions on supply without considering the processes of community consultation and change and that it failed to match supply reduction strategies with

adequate programs to reduce demand for alcohol, such as early intervention, treatment and rehabilitation (D'Abbs, 2015). As such, controversy exists that AMPs represent a re-assertion of government control over Aboriginal access to alcohol, which was similar to the controversy of comparable bans on possession and consumption of alcohol imposed in 2007 under the Northern Territory National Emergency Response (NTNER; D'Abbs, 2015). Current evaluations of the AMPs in Far North Queensland highlighted the mixed impacts of these plans since they commenced over 15 years ago (Clough, Margolis, Miller, Shakeshaft, Doran, McDermott et al., 2016; Clough, Margolis, Miller, Shakeshaft, Doran, McDermott et al., 2017). Illegal access to alcohol has increased in certain communities and given this, it is unclear whether relaxing the restrictions would reverse the impacts without extensive demand reduction, treatment and diversion efforts (Clough et al, 2016).

1.6.3 Closing the Gap

Closing the Gap is a commitment by the Council of Australian Governments (COAG) to improve the lives of Aboriginal peoples (Australian Government, 2009). It acknowledges that improving the opportunities for Aboriginal Australians requires intensive and sustained effort from all levels of government, in addition to the private and not-for-profit sectors, communities and individuals. Figure 1.3 outlines the agreed targets, with the Prime Minister reporting annually to Parliament on progress against these commitments each year to mark the anniversary of the 2008 National Apology. Despite progress in each of these targets since 2008, the 2017 report card indicates all but the Year 12 attainment rates are not on track (Commonwealth of Australia, 2017). Despite the evidence for the impacts of substance misuse on the social determinates of health, which contributes to the gap in life expectancy and the other *Closing the Gap* targets, there is an absence of a coherent strategy for reducing the adverse impacts of substance misuse (D'Abbs, 2015).

Figure 1.3 COAG Closing the Gap targets for Indigenous disadvantage

1. Close the gap in life expectancy within a generation (by 2031).
2. Halve the gap in mortality rates for Indigenous children under 5 within a decade (by 2018).
3. Ensure access to early childhood education for all Indigenous four year olds in remote communities within 5 years (by 2013).
4. Halve the gap in reading, writing and numeracy achievements for Indigenous students within a decade (by 2018).
5. Halve the gap for Indigenous people aged in Year 12 (or equivalent) attainment rates by 2020.
6. Halve the gap in employment outcomes between Indigenous and non-Indigenous Australians within a decade (by 2018).

1.6.4 The National Drug Strategy 2010–2015

In Australia, the *National Drug Strategy* (NDS) is the national framework to reduce the harms to individuals, families and communities from alcohol, tobacco and other drugs (Ministerial Council on Drug Strategy, 2011). The NDS has been the foundation of Australia's framework to substance misuse since 1985, utilising the overarching approach of harm minimisation which includes the three pillars of demand, supply and harm reduction (Stockwell et al., 2005; Gray & Wilkes, 2010):

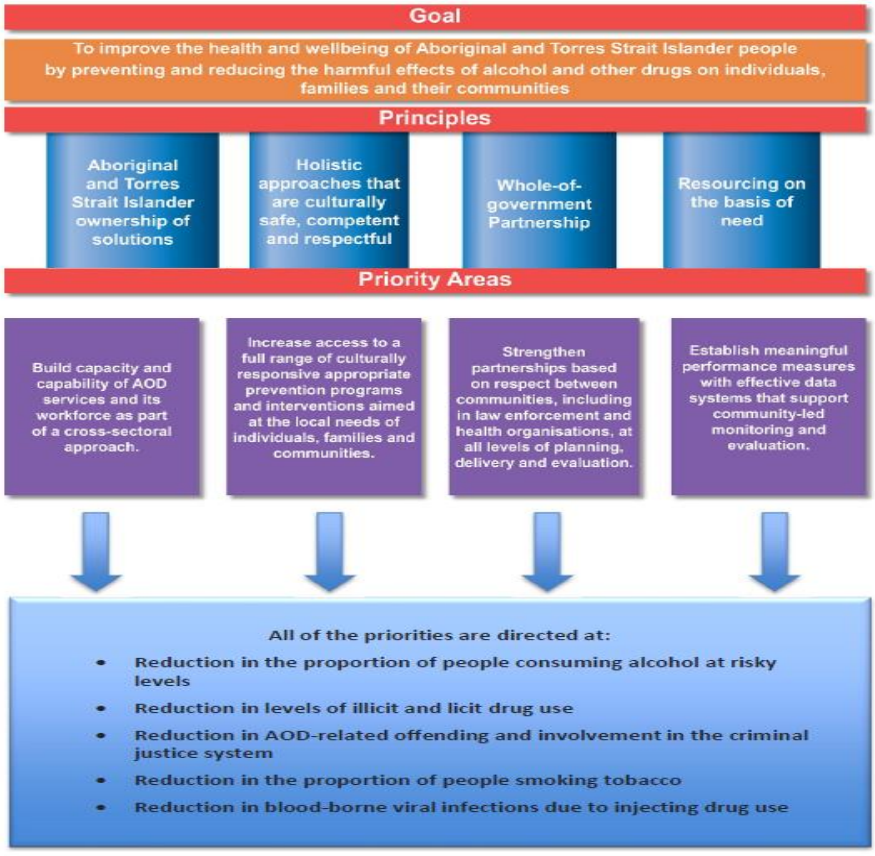
- *Supply reduction* – price controls, restrictions on trading hours, fewer alcohol outlets, dry community declarations, local dry area alcohol bans, liquor licensing accords, controls of volatile substances, and other legislative measures and enforcement
- *Demand reduction* – early intervention, substance use diversionary strategies, education, treatment, and follow-up care to reduce rates of relapse

- *Harm reduction* – community patrols, sobering-up shelters, and needle and syringe exchange programs

1.6.5 Aboriginal and Torres Strait Islander Peoples' Drug Strategy 2014-19

The *Aboriginal and Torres Strait Islander Peoples' Drug Strategy 2014–19* is a sub-strategy of the NDS (NDS, 2014). This strategy aims to build safe and healthy communities by minimising alcohol, tobacco and other drug related health, social and economic harms among individuals, families and communities. Figure 1.4 presents an overview of this strategy, including the strategy's primary goal, principles and key priority areas, which includes meaningful partnerships, effective data systems, monitoring and evaluation.

Figure 1.4 Overview of the Aboriginal and Torres Strait Islander Peoples' Drug Strategy



1.7 Evidence for programs that reduce substance-related harms in Aboriginal communities

There is extensive national and international mainstream evidence for effective approaches[5] to reduce substance related harms and, although it is limited, the evidence from Aboriginal-related research is congruent with these broader findings (Altman et al., 2005; D'Abbs, 2010; Ring et al., 2016; Gray & Wilkes, 2010; Stockwell et al., 2005; Loxley et al., 2004). For instance, mainstream

[5] Following the advice from Aboriginal colleagues, this thesis will adopt the words 'approach' or 'program' instead of 'intervention', because of the negative, paternalistic association of the latter with the Northern Territory National Emergency Response ("the Intervention"; O'Mara, 2010).

evidence for investment in early life-stage approaches suggests a range of opportunities for encouraging healthy child development and thereby preventing children's drug use and progression to heavy and harmful use (Stockwell et al., 2005; Loxley et al., 2004). Secondly, there is universal support for a combination of well-designed and executed regulatory and taxation policy approaches, such as enforcement of laws prohibiting sales of both tobacco and alcohol to persons under legal purchasing age for these legal drugs (Loxley et al., 2004). There is also strong evidence that public health promotion campaigns can contribute to reductions in smoking and risky alcohol use, but are enhanced when they are implemented as part of a comprehensive suite of other policy measures such as tax increases and law enforcement (Stockwell et al., 2005; Loxley et al., 2004).

In the Aboriginal context, Gray et al's (2000) review of evaluations of treatment, health promotion and supply reduction programs aimed at reducing alcohol-related harms among Aboriginal Australians, identified supply reduction programs as having the strongest evidence. Further, a review on Smoking, poor Nutrition, Alcohol and Physical Activities (SNAP) programs for Aboriginal people only identified four evaluations of programs targeting alcohol use (Clifford, Pulver, Richmond, Shakeshaft, & Ivers, 2011). This review also found most support for supply restrictions, although it concluded that the results had little generalisability due to the methodological deficiencies of the studies. Another review of community-based health promotion initiatives did not find any studies targeting alcohol-related harms specifically (Mikhailovich, Morrison, & Arabena, 2007). Similarly, a recent bibliometric review of published literature from the Aboriginal drug and alcohol field generally identified that evaluations represented only 11-16% of published research in the past twenty years for Australia, the United States, Canada and New Zealand (Clifford & Shakeshaft, 2017). Conversley, this paper identified that descriptive research accounted for 79-83% of all published literature.

In addition to the lack of evidence about which programs are effective in reducing substance-related harms for Aboriginal peoples, the following section addresses three specific topics that are pertinent to this thesis: *Culture as healing, Aboriginal residential rehabilitation, and Aboriginal drug and alcohol community-based programs.*

1.7.1 Culture as healing

All culture is treatment
All healing is spiritual
The community is the treatment center
We are all counsellors

Canadian First Nations' healing philosophy (as cited in Phillips, 2003, p. 143)

Acknowledging that cultural identity and connection to country are key elements to SEWB has been identified as a critical step to decolonise mainstream approaches to reduce substance misuse harms for Aboriginal peoples (Dudgeon & Walker, 2015). Therefore, recognising Aboriginal culture and spirituality has been defined as similar to reclaiming lost identity, and a way of augmenting resilience in the face of intergenerational trauma and racism (Dudgeon & Walker, 2015; Paradies, 2007; Poroch, Arabena, Tongs, Larkin, & Henderson, 2009). There are seven key interconnected domains of health, according to a recently developed SEWB framework from the Aboriginal psychological field (see Fig. 1.5; Dudgeon & Walker, 2015; Paradies, 2007; Poroch et al., 2009). According to this figure, recognising culture as a part of the 'Self' is critical to the overall understanding of Aboriginal SEWB. Academics and Aboriginal leaders contend, therefore, that this should be considered in developing and implementing health promotion and community projects in the Aboriginal Australian health context (Dudgeon & Walker, 2015; Paradies, 2007; Poroch et al., 2009).

Figure 1.5 Determinants of SEWB

NOTE: Dudgeon & Walker, 2015.

Further to this, the 'culture as treatment' hypothesis coined by Brady in1995 advocates that a return to traditional Aboriginal cultural practices may enhance recovery from substance misuse for many Aboriginal individuals (Brady, 1995). To date, however, there is limited research within Australia and internationally that rigorously investigates the association between engaging in culture and positive health outcomes (Berry & Crowe, 2009; Gone & Calf Looking, 2011). A 2014 randomised controlled trial that used a culturally-tailored approach for a smoking cessation program for adult American Indian smokers found no significant differences to treatment as usual (Smith et al., 2014). However, the authors highlighted that specific cultural components that support cessation need to be further defined (Smith et al., 2014). Despite this finding, Aboriginal and non-Aboriginal academics theorise that the reconnection of cultural and spiritual ways of being has healing effects, as it allows reclamation of the 'Self' via cultural, spiritual, and personal identity (Dudgeon & Walker, 2015; Paradies, 2007; Poroch et al., 2009).

1.7.2 Aboriginal residential rehabilitation

For over five decades, Aboriginal-specific residential rehabilitation facilities have provided treatment for substance misuse in Australia. The first independent Aboriginal-led residential program was Benelong's Haven, which opened in 1974 by a long-term Alcoholics Anonymous (AA) member, Val Bryant (Chenhall, 2007). In the years following, several similar community-controlled facilities were established in regional and metropolitan centres. Given the strong relationship between substance misuse, poor quality housing, mental health problems, and family and community disruption, Aboriginal residential rehabilitation services may be the best, or only practical, option for people who have a range of complex co-occurring needs (NIDAC, 2014). At the very least, Aboriginal drug and alcohol residential rehabilitation services provide time away from chaotic environments, with even short periods of abstinence in residential care potentially beneficial (Brady, Nicholls, Henderson, & Byrne, 2006).

Despite the importance of Aboriginal residential rehabilitation, reviews conducted in 2002 and 2010 concluded that the knowledge-base supporting these services could be strengthened (Brady, 2010; Taylor, Thompson, & Davis, 2010). More specifically, a current systematic review of studies of Indigenous drug and alcohol residential rehabilitation services from Australia, United States, Canada and New Zealand published between 2000-2016, identified limited rigorous research output; an average of only one paper per annum, and only one single setting, pre/post treatment outcome evaluation (James, Shakeshaft, Munro, & Courtney, 2017; see Appendix L). Three key features of the reviewed papers included: (i) the studied services were mostly located in regional areas; (ii) the services provided multi-component programs, but there was little alignment in the models of care provided across different services; and (iii) the majority of studies used qualitative, rather than quantitative, methods. This review concluded that client outcomes would likely improve if future research can establish best-practice, culturally acceptable models of care, and increase the application of evidence-based, culturally validated quantitative measures to complement existing qualitative research.

1.7.3 Aboriginal drug and alcohol community-based programs

As Aboriginal substance misuse use is a complex, multi-causal phenomenon, addressing it at the community-level requires a comprehensive approach. Given this, in the ideal community setting, it is suggested that Aboriginal communities need to be provided with a combination of the following community-based programs to effectively reduce the risk of harms: acute care initiatives (e.g. sobering up shelters, night patrols and crisis care), support services (e.g. counselling and accommodation), prevention (e.g. health promotion, alternatives to substance use, and cultural initiatives), and supply reduction (e.g. limiting the trading hours of licensed venues and other restrictions on the availability of alcohol; Gray & Wilkes, 2010).

A key component to optimise engagement and utilisation of these approaches is that programs should be initiated by, or negotiated with, local communities and implemented in ways that are culturally acceptable and locally relevant (Gray & Wilkes, 2010). Therefore, Aboriginal Community Controlled Health Organisations (ACCHOs) are often well placed to engage and work with Aboriginal Australians at risk of, or currently, experiencing substance misuse. In this context, for instance, systematic screening and brief interventions and using standardised and culturally validated tools have been identified as being cost-effective in detecting and monitoring individuals who are at risk of harm because of their drinking, in addition to engaging concerned family members (Calabria, Clifford, Rose, & Shakeshaft, 2014; Calabria, Clifford, Shakeshaft, Allan, Bliss, & Doran, 2013; Clifford, Shakeshaft, & Deans, 2012, 2013; Ober et al., 2013). Further to this, soft-entry approaches, or evidence-based and culturally-safe drug and alcohol programs that are specifically embedded into rural NSW-based ACCHO settings, enhance access to vital drug and alcohol services for Aboriginal community members (Allan & Campbell, 2011).

Gray and Wilkes (2010) note where Aboriginal communities lack capacity to develop and implement effective, evidence-based Aboriginal-led programs to reduce substance-related harms, partnering with organisations or academics to build capacity with, not for, Aboriginal communities, is suggested. Given that a number of notable policies, including the *Royal Comission into Aboriginal Deaths in Custody* and the *National Aboriginal and Torres Strait Islander Peoples' Drug Strategy 2014-2019* (see Fig. 1.4), also strongly advocate for such partnerships, this thesis contends that effective community-based research parthernships have an important role in closing the substance misuse gap between non-Aborignal and Aboriginal people.

1.8 Research in Aboriginal communities

Australian Aboriginal peoples have been conducting various forms of research for thousands of generations, such as intergenerational sharing and documenting activities relating to the seasons, historical events and traditional agricultural practices (Adams & Faulkhead, 2012). The onset of colonisation disrupted these traditions and, as such, Aboriginal peoples have had to endure Western ways of conducting research. From the early 1800s, for instance, between 10,000 and 15,000 Aboriginal skulls and other remains were dismembered and stolen for 'scientific trade' (Johnstone, 2007). The purposes of science and research, therefore, can have a dehumanising and paternalistic connotation for many Aboriginal people, which has been idenfitied as an underlying reason as to why Aborignal communities are often distrustful or antipathic towards non-Aboriginal researchers or 'outsiders' (Johnstone, 2007). As a result, opportunities to undertake good quality research to improve health outcomes can be diminished.

Many Aboriginal communities have expressed serious concerns that Aboriginal Australians have been over-researched and under-consulted without corrosponding improvements in health and wellbeing outcomes (Todd, Frommer, Bailey, & Daniels, 2000; Ramanathan et al., 2017; Aboriginal Research Institute, 1993). Further to this, it is important to note that research with vulnerable populations, including Indigenous peoples, people with disabilities, those who use substances or have a mental illness, universally underline the importance of greater, meaningful involvement of 'consumers' or representatives of vulnerable groups in all areas of research, community programs, and policy initiatives (Johnstone & Kanitsaki, 2009; Souleymanov et al., 2016). Thus embracing the philosophy of "Nothing about us without us" (Charlton, 2000), researchers working with vulnerable populations are called on to acknowledge the legacy of research exploitation and navigate more meaningful and effetive ways to better engage with oppressed or vulnerable groups (Souleymanov et al., 2016). As such, greater community participation in, and control of, Aboriginal community-based research is well supported by the literature (NHMRC, 2003; Snijder, Shakeshaft, Wagemakers, Stephens, & Calabria, 2015). Current research guidelines and protocols are being developed regarding the collection, ownership and use of Aboriginal health information reflects meaningful partnerships between Aboriginal people, communities and external research stakeholders. According to a recent systematic revew, there are a total of 38 current guidelines that describe methods for culturally appropriate research with Indigenous populations in the world, such as seeking informed consent (Fitzpatrick et al., 2016). These guidelines consistently espouse broad principles of research in partnership with Indigenous peoples to guarantee greater community participation in research activities, including reciprocity, respect, equality, responsibility, survival, protection, spirit, and integrity (Fitzpatrick et al., 2016).

Inextricably linked to enhanced community participation are the concepts of empowerment and self-determination. Empowerment has been described as "a group-based, participatory, developmental process through which marginalised or oppressed individuals and groups gain greater control over their lives and environment, acquire valued resources and basic rights, and achieve important life goals and reduced societal marginalisation" (Maton, 2008, p. 5). Previous research proposes that approaches that aim to enhance empowerment have the potential to address concerns about inequalities in Aboriginal health (Haswell et al., 2010). Broadly conceived, self-determination is a collective right for people to exercise autonomy and control their own destiny (Pratt & Bennett, 2004). In the health research context, therefore, inherent in the right of self-determination is that Aboriginal decision-making is carried through from initial planning, to implementation, and finally to evaluation.

Collaborative partnerships between health services, researchers and Aboriginal communities are one way to ensure both empowerment and self-determination for Aboriginal communities, and have long been recognised as beneficial for broadening service capacity and using resources more effectively to improve Aboriginal health outcomes (Taylor & Thompson, 2011). A literature review conducted in 2009 found that successful partnerships develop genuine, trusting relationships that are tangibly linked to the Aboriginal community, with failure to invest in this aspect of the relationship ultimately having negative consequences on client outcomes (Taylor & Thompson, 2011). Similarly, '10 steps to a successful Aboriginal and researcher partnership,' as posited by Waples-Crowe and Pyett, include: a long time-frame; building trust; valuing each other; getting educated; good planning; community-initiated; identifying the partners and formalising partnerships; supportive work environments; and cultural awareness (Waples-Crowe & Pyett, 2006). Finally, community-based research partnerships between communities, services and researchers to identify best evidence programs for reducing substance misuse among Aboriginal Australians, and effective methods for tailoring them to the specific circumstances of Aboriginal communities, would also likely improve outcomes relating to the *Closing the Gap* strategy (Durey et al., 2016; Lee et al., 2013; Taylor & Thompson, 2011; Waples-Crowe & Pyett, 2005, 2006).

One solution to achieving greater community particpation, empowerment and self-determination, while ensuring rigourous research methodologies, is to adapt a community-based participatory research (CBPR) approach to reduce substance-related harms in Aboriginal communities.

1.8.1 Community-based participatory research

CBPR is a transformative research paradigm designed to integrate science and practice through meaningful engagement throughout the research process, to ultimately achieve social change (Baydala et al., 2014; Lazarus, 2014; Wallerstein & Duran, 2011; Windsor, 2013). CBPR is founded on a tradition that espouses that the community should not be a mere subject of the research, but rather an active participant and equal partner in identifying the topic of the research, the processes used to address the topic, and the outcomes or actions from the research (Minkler & Wallerstein, 2011).

CBPR advocates that researchers and communities contribute their unique strengths to co-design tools or evaluation methodologies that are rigorous, practical, and appropriate to the community. Further, it has been identified that involving community members in data collection has also been demontrated to reduce the number of missing values and produce more accurate data (Minkler, 2005; Minkler & Hancock, 2011). Given this, CBPR has the potential to improve overall research outcomes and processes, as well as empower participating community members to take greater control over elements that influence their health and social outcomes (Minkler & Wallerstein, 2011).

The process of CBPR typically involves cycles of transactional and collaborative action, often in sequential steps that engage community or service provider participants as co-researchers, educating and empowering them to effect positive changes in their environment (Kowanko et al., 2009; Lazarus, 2014; Windsor, 2013). Given CBPR's limitation of not outlining a specific and rigorous methodology, however, Windsor (2013) proposes the addition of mixed scientific methods to ensure the production of new knowledge that is most relevant to the specific research questions of interest at any given point in time.

1.9.2 CBPR and Aboriginal communities

Conducting research that is culturally appropriate for, and acceptable to, Aboriginal communities, while also optimising scientific rigour, can require modification of traditional research designs and processes (Farnbach et al., 2017). CBPR offers both researchers and communities a model that may

contribute to more successful research outcomes. The evolution of CBPR is deeply grounded in work with oppressed communities in South America, Asia and Africa in the 1970s (Minkler, 2005). It has since been demonstrated to be a highly culturally acceptable form of research in the context of Indigenous communities (Bainbridge, McCalman, Tsey, & Brown, 2011; Baldwin, Hohnson, & Benally, 2009; Baydala et al., 2014; Cochran et al., 2008; Edwards, Lund, Mitchell, & Anderson, 2008; Mayo, Tsey, & Empowerment Research Team, 2009; Mooney-Somers & Maher, 2009; Pyett, 2002; Snijder et al., 2015; Thomas, Rosa, Forcehimes, & Donovan, 2015). Using research processes that are culturally appropriate, such as CBPR, have been reported to enhance overall community acceptance (Farnbach et al., 2017).

An exemplary model of CBPR being implemented by Indigenous peoples is the Māori concept of 'kaupapa Māori research.' This is defined as research where Māori are significant participants, and where the research team is largely Māori, producing Māori knowledge that primarily meets expectations and quality standards set by Māori (Hudson, Milne, Reynolds, Russell, & Smith, 2010). Kaupapa Māori research is one part of the larger picture of indigenous-led research in its focus on developing and affirming Indigenous ways of knowing and doing research. For non-Māori researchers who are conducting research that involves Māori health issues and/or involves Māori participants, kaupapa Māori also provides a guide for researchers considering their responsiveness to Māori-related issues and needs (Hudson, Milne, Reynolds, Russell, & Smith, 2010).

Given the complicated and sentisitive contexts of Australian Aboriginal communities impacted by the legacies of colonisation, the empowering potential of CBPR is amplified (Bainbridge, Whiteside, & McCalman, 2013; Cochran et al., 2008; Pyett, 2002; Waples-Crowe & Pyett, 2005, 2006). Thus researchers developing partnerships with Aboriginal communities that adopt the CBPR methodology can empower Aboriginal communities to gain greater control in self-determining solutions for the issues that concern them. CBPR aims to ensure mutual respect for the unique expertise and knoweldge that community members, Elders or other stakeholders have about the issues that specifically impact their community (Cochran et al., 2008; Haswell-Elkins et al., 2009). Given CBPR's potential to affirm Aboriginal ways of knowing and doing, integrate rigorous evaluation designs, improve the internal validity of the research, and promote community participation in every phase of the research, its use provides academic partners with the opportunity to improve both processes and outcomes of Aboriginal community-based research.

1.8 Rationale for the present research

There is a need for rigorous and culturally acceptable research in Aboriginal communities to reduce the disproportionately high rates of substance-related harms for Aboriginal, compared to non-Aboriginal, Australians. Given the history of colonisation and dispossession imposed on Australian Aboriginal communities, approaches that promote self-determination and empowerment are more likely to be effective. To improve substance-related harms, greater community participation in, and control of, Aboriginal community-based programs and health research is supported by the literature. Nevertheless, where Aboriginal communities lack the capacity to develop and implement effective, evidence-based programs to reduce substance-related harms, partnering with academics to build capacity with, not for, Aboriginal communities, is recommended (Bainbridge, McCalman, Tsey, & Brown, 2011; Baldwin, Hohnson, & Benally, 2009; Baydala et al., 2014; Cochran et al., 2008; Edwards, Lund, Mitchell, & Anderson, 2008; Loxley et al., 2004; Mayo, Tsey, & Empowerment Research Team, 2009; Mooney-Somers & Maher, 2009; Pyett, 2002; Snijder et al., 2015; Stockwell et al., 2005; Thomas, Rosa, Forcehimes, & Donovan, 2015).

This thesis seeks to examine different types of research partnerships with the aim to develop more effective partnerships between academics and Aboriginal communities and services for implementing research designed to reduce drug and alcohol harms. It will do this by reporting on three distinct, real-world, practical examples of community-based drug and alcohol research partnerships, developed in rural and remote Aboriginal community contexts. Specifically, this thesis comprises a total of five studies that builds upon the community-research partnership evidence-base.[6]

Chapter 2 examines the development of a community-researcher partnership to retrospectively quantify the impact of an Aboriginal designed drug and alcohol radio advertising campaign, implemented in a remote community in New South Wales (NSW).

Chapter 3 describes the development of a partnership between researchers and multiple communities that was formed to analyse the impact of a suite of Aboriginal-led, community-wide programs implemented across four rural NSW Aboriginal communities from 2012-2015 and aimed to reduce substance-related harms.

Chapters 4-6 focus on a three-year, mixed methods, CBPR project designed and implemented in partnership between a community-based Aboriginal drug and alcohol residential rehabilitation service located in remote NSW and researchers located in regional and metropolitan NSW. **Chapter 4** empirically describes all recorded presentations to, and clients of, the Aboriginal residential rehabilitation service over a five-year period. This analysis includes an examination of the differences between the characteristics of clients with single, compared to multiple, admissions, and identifies the client characteristics which predict length of stay and self-discharge. **Chapter 5** aims to identify staff and client perceptions of the key strengths of the treatment program delivered by the Aboriginal drug and alcohol residential rehabilitation service, and identify specific components of the treatment program that could be improved. **Chapter 6** articulates a best-evidence model of care, developed in collaboration between clients, service providers and researchers. It is designed to be adaptable to, and implementable by, any Aboriginal drug and alcohol residential rehabilitation service.

Chapter 7 presents the key findings from each chapter and summarises the strengths, limitations and implications of different partnerships developed and implemented for the research presented in this thesis. This final chapter discusses the implications and provides recommendations for researchers and policymakers for future community-based research with Aboriginal Australian communities.

[6] Author note: Four of the five studies have been published and are reproduced verbatim in Chapters 2, 4, 5 and 6. Given this, there may be some repetition across the chapters, specifically relating to the introduction of each chapter.

2. Riding the rural radio wave: The impact of a community-led drug and alcohol radio advertising campaign in a remote Australian Aboriginal community[7]

[7] This chapter has been published as follows:

Munro A, Allan J, Shakeshaft A, Snijder M. (2017). Riding the rural radio wave: The impact of a community-led drug and alcohol radio advertising campaign in a remote Australian Aboriginal community. *Australian Journal of Rural Health,* 25(5): 290-297. doi: 10.1111/ajr.12345.

2.1 Preamble to Chapter 2

As detailed in Chapter 1, Aboriginal Australians have experienced disempowerment resulting from colonisation, intergenerational trauma, racism, social disadvantage and exclusion (Atkinson, 2004; Dudgeon et al., 2016; Larson et al., 2007). One of the most visible manifestations of this disempowerment is the disproportionately high rate of substance-related harms for Aboriginal, compared to non-Aboriginal, people (Calabria et al., 2010; Vos et al., 2007). This is especially concerning in rural communities, where rates of substance misuse are higher on a per capita basis, especially for single occasion risky drinking and methamphetamine use, and there is less access to specialised drug and alcohol counselling and treatment (Shakeshaft et al., 2014; AIHW, 2015a; Roche & McEntee, 2016).

Aboriginal Australians should be the key drivers in the design and implementation of approaches to address harmful substance misuse that are developed in response to the specific needs and circumstances of local communities (Gray, Stearne, Wilson, & Doyle, 2010; Wilson et al., 2010). The range of community-developed programs addressing the impacts of substance misuse is an indicator that Aboriginal people are aware of the impacts of substance misuse on their communities (Wilson et al., 2010). It is also suggested that community-based prevention programs to reduce drug and alcohol-related harms that are instigated by Aboriginal communities often include elements of culture or spirituality (Lee et al., 2013).

Chapter 2 examines the development of a community and researcher partnership to retrospectively quantify the impact of an Aboriginal designed drug and alcohol radio advertising campaign, implemented in a remote community in NSW.

2.2 Introduction

Indigenous people of Australia (hereafter Aboriginal Australians as the term recommended by the Aboriginal Health and Medical Research Council for NSW; AH&MRC, 2008) experience a higher burden of disease as a consequence of drug and alcohol use compared to non-Aboriginal Australians (AIHW, 2011b, 2015; Calabria et al., 2010). The alcohol-related burden of disease, for example, is 6.1 times higher for Aboriginal men than non-Aboriginal men (Calabria et al., 2010). Smoking rates are approximately three times higher for Aboriginal Australians (45-50% prevalence) than for non-Aboriginal Australians (17% prevalence; Guillaumier, Bonevski, & Paul, 2012; AIHW, 2015a). Furthermore, people living in regional and remote areas (which generally have higher proportions of Aboriginal populations) have higher rates of smoking and heavier alcohol use compared to cities (NRHA, 2014; AIHW, 2015a).

Harm minimisation has underpinned the Australian National Drug Strategy for over 20 years and incorporates three approaches: supply reduction, demand reduction and harm reduction (van der Sterren, Anderson, & Anderson, 2006). Demand reduction prevention, or 'upstream' strategies, such as mass media campaigns, are designed to influence behaviour in the general population by removing or lowering obstacles to change, encouraging people to adopt healthy behaviours, identifying unhealthy social norms and invoking cognitive or emotional responses designed to positively influence individuals' decision-making processes (Wakefield, Loken, & Hornik, 2010).

While there is some evidence that mass media campaigns are effective in the general population (Robinson et al., 2014; Wakefield et al., 2010; Wakefield, 2011), there is a lack of evidence that they are effective in reducing drug and alcohol use for rural Aboriginal populations. A recent review

concluded only that culturally specific campaigns for Aboriginal Australians are more likely to be effective because they reflect Aboriginal worldviews (Gould, McEwen, Watters, Clough, & van der Zwan, 2013), while one small study found that a mainstream anti-smoking campaign positively influenced the thoughts and behaviours of Aboriginal smokers towards quitting (Boyle et al., 2010).

This lack of Aboriginal-specific evidence clearly indicates scope for further evaluations of the impact of media campaigns aimed at reducing the burden of drug and alcohol related harms among Aboriginal rural populations. Radio advertising as a drug and alcohol demand reduction strategy is promising because radio has comparable ratings to television advertising on understanding, believability, highlighting the drug and alcohol harms, and increasing self-reported motivation to quit, but is rated significantly higher on unprompted recall (Durkin & Wakefield, 2009). Furthermore, compared to television, radio campaigns are usually cheaper for broadcasting health messages, potentially have a greater reach into low and middle-income communities, and have been shown to be a trusted source of media for minority groups, such as African-American populations (Durkin & Wakefield, 2009; Hall, Johnson-Turbes, & Williams, 2010).

2.2.1 Aims

This paper is the first to examine the impact of a drug and alcohol radio advertising campaign aimed at, and designed by, Aboriginal people in a remote community in New South Wales (NSW).

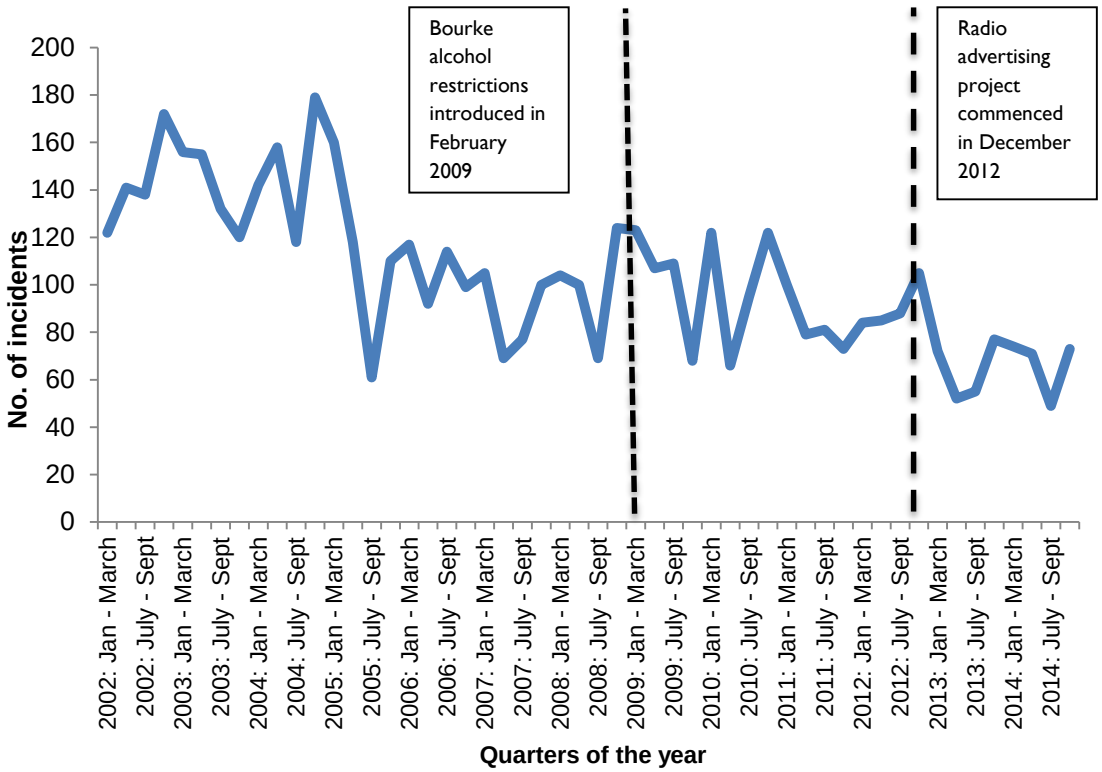
2.3 Methods

2.3.1 Context

The radio campaign was implemented in Bourke, population of 2,465 people (30.2% Aboriginal; ABS, 2011c), a remote community located in north-western NSW. The radio campaign was developed under the guidance of the Bourke Alcohol & Drug Working Group (known locally as 'BAWG'). BAWG membership included health staff and managers, representatives from the Murdi Paaki Drug and Alcohol Network (MPDAN), police, local government representatives, and Aboriginal Elders. BAWG formed in response to the perception of these Bourke community experts of escalating drug and alcohol issues in Bourke in the mid-2000s. Figure 2.1 illustrates the accuracy of the perception of this population in relation to alcohol, with alcohol-related crimes over the period from 2002-2014, peaking in 2004/5[8]. This increasing trend in harms resulted in Bourke being the first community in NSW to introduce voluntary alcohol restrictions in February 2009 (Senserrick et al., 2012). To complement these restrictions, the BAWG was awarded a 2011 Community Drug Action Team (CDAT) grant of $10,000 to develop and broadcast local radio advertisements that aimed to challenge listeners to consider their own substance use, increase awareness of drug and alcohol harms and prompt them to refer themselves or their families to a local drug and alcohol (D&A) worker for specialist advice about how to reduce those harms.

[8] Data obtained from BOCSAR in 2015

Figure 2.1 Rates of alcohol-related crime in Bourke from 2002-2014



NOTE: Data obtained from BOCSAR in 2015

2.3.2 Project development and implementation

The content of seven radio advertisements were developed in collaboration with local community members. A young mum's group, for example, helped write one of the scripts relating to peer pressure. This iterative process ensured that the radio advertisements were meaningful and relevant by reflecting local issues and the use of locally used terms and language. Table 2.1 summarises the topics and scripts used in the advertisements.

Table 2.1 Overview of the radio advertisement campaign messages

Topic	Radio advertisement script
1. Effects of alcohol use Scene: the grog is talking to you as you drink it, 'Who am I' question)	"Who am I? My first name is 'Al.' (short pause) I can be your best friend and I can be your worst enemy at the same time. I can lose you your wife or husband, house, kids, dignity, freedom, money, respect, job, licence… and more. I can make you say things you don't mean. I can make you do things you wouldn't normally do. Any idea of who I am?... (PAUSE) I'm alcohol." **Announcer:** Grog – it's not the answer to the problem… It's the problem. So be strong… if you or someone close to you needs help, please contact Bourke Community Health or Bourke Aboriginal Health Service or your local Aboriginal Medical Service. Sponsored by the Bourke Alcohol & Drug Working Group.
2. Financial cost of substance use Scene: Conscience is talking to an intoxicated person about getting a hit over spending money on food for kids	Conscience: "Good Job" Intoxicated person: "Huh?" Conscience: "Good Job" Intoxicated person: "Oh yeah?" Conscience: "You spent your last few dollars to get like this" Intoxicated person: "(Giggles) Yeah… I did" Conscience: "What are ya gunna get the kids for dinner, sis?" Intoxicated person: "Uh, I dunno…" Conscience: "How much longer you gunna last?" Intoxicated person: "Maybe an hour?" Conscience: "Well that was money well spent, wasn't it?" **Announcer:** Drugs *won't* fill your kid's belly. If you or someone close to you needs help, please contact Bourke Community Health or Bourke Aboriginal Health Service or your local Aboriginal Medical Service. Sponsored by the Bourke Alcohol and Drug Working Group.
3. Effects of methamphetamines Scene: Aboriginal Health Worker is talking to the community about the harmful effect of the drug, ice	"Hey there, all of us at the Bourke Alcohol and Drug Working Group wanted to talk for a moment about the drug, Ice. Do you know much about it? It's actually hard to know about it as every batch of ice can be different and very unpredictable. It is the most potent stimulant or amphetamine out there. This also means it has far stronger side effects and you can experience worse downers. Spinning out when using ice can also often occur and is caused by high and frequent doses. It is characterised by paranoid delusions, hallucinations, and bizarre and violent, aggressive behaviour. These symptoms usually disappear a few days after the person stops using ice, but by that time you can get you in trouble with the police or your family. So be strong… if you or someone close to you is using ice and wants help, please contact Bourke Community Health or Bourke Aboriginal Health Service or your local Aboriginal Medical Service." **Announcer:** Sponsored by the Bourke Alcohol and Drug Working Group.
4. Peer pressure and substance use Scene: Lots of voices, like they're in your head, peer pressuring you to use a substance.	Voice 1: "Don't worry… just do it" Voice 2: "C'mon…. try me… you'll like it. I'll be your best friend, be by your side when you're alone, we'll be together forever." Voice 1: "I'll make you feel good, give you energy, I'll solve all your problems, I'll make you party all night long." Voice 2: "Now, I've got you" (demanding / domineering) Voice 1: "I'll get you addicted, use all your money. I'll destroy your relationships; make you lose your children." (getting stronger) Voice 2: "I'll make you steal; I'll make you lie… All you will want in life is me. Voice 1: "But most of all, in the end I'll take your life one way or another" Voice 2: "What's wrong? It's not MY fault… you made the choice to take me, didn't you?" (sneering). **Announcer:** If you have a grog or drug problem, go see the staff at Bourke Aboriginal Health Service or Bourke Community Health or Bourke Aboriginal Health Service or your local Aboriginal Medical Service. Sponsored by the Bourke Alcohol and Drug Working Group with the help of the Bourke Young Mum's group.
5. Effects of yarndi use Scene: Female and male teenage cousins talking to each other	Boy: "Hi sis" Girl: "Hey bro – what's doing, haven't see ya in a while?" Boy (depressed): "(sigh) Nuthin… am bored, nuthin to do round 'ere" Girl: "That's no good my brother – I just bin for a run and now I got some homework to get done!" (PAUSE)

	Boy: "You wanna go for a smoke and catch up – I really need it" Girl: "Nah bro, I don't do that sort of stuff. I'm too busy to get involved with stuff like that…. But I've noticed you're different since you've started smokin' the yarndi – less like yourself or sumthin." Boy: (angrily) "You're making that up… I got no worries." Girl: "Well I heard people bin saying they worried bout you smoking that crap – just thought I'd let ya know that's all, cos you're me family and I care bout ya..." (PAUSE) Girl: "Well if ya want help with it, you can go talk to someone at the Bourke AMS or community health. Anyways, I'm off to do me homework for tomorrow!" **Announcer:** Yarndi – it's not in our way. Go to school and play sport – don't choose yarndi. If you or someone close to you needs help to cut back on yarndi, please contact Bourke Community Health or Bourke Aboriginal Health Service or your local Aboriginal Medical Service. Sponsored by the Bourke Alcohol and Drug Working Group.
6. Effects of tobacco smoking Scene: Father confronts teenage son about finding a packet of smokes in washing	Father: Boy, is this yours? (angrily) Son: No… (defensive) Father: Your mum found this pack of ciggies in your washing… Son: I dunno…. Maybe one of the fellas? (defensive) Father: One of the fellas? Whaddya mean? (ANGRILY) Son: Look Dad… I don't wanna talk about it. (defensive) Father: Where did you get these smokes? Answer me boy (pushy, angrily) Son: LOOK DAD… It doesn't matter where I got them, I have seen YOU and MUM smokin' ALL my life (PAUSE) Maybe YOU should have thought about THAT before you yell at me. (Emphasis in the capital words) **Announcer:** Parents who use drugs have kids who use drugs – break the cycle before it becomes *your* kid's habit. If you need help to give up smoking, please see the staff at Bourke Aboriginal Health Service or Bourke Community Health. Sponsored by the Bourke Alcohol and Drug Working Group.
7. Safe partying message Scene: Nephew and Uncle talking about a Christmas party on the weekend	Uncle: "Hey Reece, whatchya been up to mate?" Reece: "Not much Unc but am getting keen for this party on the weekend aye!" Uncle: "Oh are you going are ya?" Reece: "Sure am… gunna be a BIIIIGGGG one – Chrissy break-up and all! You better be getting stuck in with me…" Uncle: "Nah mate, I'll come but gotta drive to Dubbo Sunday so gotta make sure I'm under. Are you drinking, eh?" Reece: "God yeah... I need it." Uncle: "Member last time you had a big one? I couldn't wake you for hours… was really worried bout ya and almost called the ambos..." Reece: "What are you saying… stop being me father..." Uncle: "Look, I'm not telling you to not drink… you deserve a bit of fun. But this time just do it a bit safer bro. Like you could try having a water in between, or have a big feed before you go. Do you drink heavies or mid strength?" Reece: "Heavies mate… why, what's the difference?" Uncle: "Mid-strength cans are only 1 standard drink, and heavies are 1.5 standards drinks… so a bit less alcohol can mean ya won't pass out or start bluen' like you did last time. Reece: Well, maybe I'll try middies this time… they're a bit cheaper too! Tar Unc." Uncle: "No worries brother, see ya Saturday." **Announcer:** "Party safe this summer. Look after yourself and your mates. And make sure, whatever you do… your kids are safe, as you can look after yourself – but they can't." Sponsored by the Bourke Alcohol and Drug Working Group.

A locally run and owned Aboriginal radio station, called '2CUZ', produced the advertisements. Locally known and respected Aboriginal and non-Aboriginal community members were used to voice the radio advertisements. The advertisements were played concurrently on two radio stations ('2CUZ' and '2WEB') that collectively transmit a signal across a 500-kilometre radius from Bourke.

The radio advertisements were broadcast 25 times a week on both radio stations for 4 months (December 2011-April 2012) during off-peak hours. Summer was thought to be an appropriate time to broadcast the advertisements as drug and alcohol related harms tend to be higher due to seasonal festivities and holidays. Off-peak times were preferred because BAWG members reported people drinking at those times and listening to the radio stations while they were drinking. The radio advertisements were also less expensive to run during off-peak broadcasting.

2.3.3 Data Sources

Survey: The primary outcome was the awareness of the radio advertisement. A 15-item community survey was developed in consultation with the BAWG divided in three domains: 1) *demographics*; 2) *use of radio and recognition of the advertisements*; and 3) *impact of the radio advertisements*. The survey utilised tick boxes, circling pictorial symbols and open-ended questions.

D&A referral records: The number of referrals to local services in the community was reported by the drug and alcohol workers situated at the local health services.

2.3.4 Participants

A total of 53 survey participants were randomly sampled from the Bourke community. A total of 60% of the participants identified as Aboriginal, half (53%) were employed; and the majority (94%) resided in the township of Bourke. Table 2.2 outlines the demographics of the participants.

2.3.5 Data Collection Procedure

Surveys were conducted on a Thursday afternoon after the broadcasting period by two Aboriginal Health workers. Thursday afternoon was identified as a favourable day to maximise responses, as families are paid government allowances on this day. As an extra incentive to participate, respondents had the chance of winning a $50 meat voucher from a local butcher.

2.2.6 Ethical Considerations

The project meets the Standards for Quality Improvement Reporting Excellence Guidelines (SQUIRE; Davies, Batalden, Davidoff, Stevens, & Ogrinc, 2015). A post evaluation of the radio campaign was implemented as a component of the MPDAN Evaluation Framework. MPDAN was funded by the Council of Australian Governments in 2008 to reduce the harms related to drug and alcohol use in remote Aboriginal communities in the Murdi Paaki region of western NSW. The network comprised three Aboriginal Medical Services, a public health service and a drug and alcohol treatment agency. The evaluation framework aimed to identify any impact of MPDAN activities on the communities and to monitor and improve the service delivery activities of the network as a result.

2.4 Results

2.4.1 Survey participants

The characteristics of survey participants are shown in Table 2.2. More than half (60%) identified as Aboriginal, about half (53%) were employed and the majority (94%) resided in Bourke.

Table 2.2 Characteristics, radio use and advertisement recognition of survey participants

Characteristic	N	%
Total	53	100
Sex		
Male	26	49
Female	27	51
Age		
18-25	7	13
26-34	9	17
35-44	10	19
45-54	16	30
55+	11	21
Aboriginal status		
Aboriginal	32	60
Non-Aboriginal	16	32
Did not specify	5	8
Usual residence		
Bourke area	50	94
Other	3	6
Employment status		
Employed	28	53
Unemployed	6	11
Retired	5	9
Other	14	27
Use of radio		
Listen to radio daily	42	79
Sometimes listen to radio	8	15
Do not listen to radio	3	6
Recognition of advertisements		
Heard one or more advertisements	40	75
Did not hear the radio advertisements	8	15
Unsure / did not specify	5	10

2.4.2 Use of radio and recognition of the advertisements

The majority of participants (79%) reported listening to radio daily, while 15% reported that they sometimes listen to the radio and 6% reported that they do not listen to the radio. Three-quarters of respondents reported hearing at least one of the advertisements, 17% did not hear any advertisements, 6% were unsure and 4% did not specify. The advertisement that prompted the greatest recognition contained the voice of a local well-known and respected young person from the community. Table 2.2 also summarises responses for the use of radio and recognition of the advertisements.

2.4.3 Impact of the advertisements

More than a third of respondents considered that the advertisements challenged their own, or their family's thinking about substance abuse (39%) and 22% reported that they sought help.

2.4.4 Referrals to D&A workers

Drug and alcohol workers reported one self-referral during the period that the advertisements were broadcast.

2.5 Discussion

2.5.1 Summary and discussion of findings

The current evidence-base for media campaigns to reduce drug and alcohol harms in rural Aboriginal communities comprises very limited research (Gould et al., 2013). However, it is known that tailoring media campaigns, specifically using radio as a medium, can be an effective way to target messages to Aboriginal Australians (Durkin & Wakefield, 2009; Gould et al., 2013). The results of this project indicate that the community-led radio advertising campaign increased community awareness given the high level of recognition of the radio advertisements, but had a limited impact on formal help-seeking, given low numbers of self-referrals.

Nevertheless, this evaluation does highlight that a high percentage of the sample (94%) self-reported that they listen to the radio on a 'daily basis' or 'sometimes,' which supports the premise that radio is a commonly used, trusted, and culturally relevant medium for health promotion (Durkin & Wakefield, 2009; Hall et al., 2010), and in terms of this research, highly relevant for rural or remote Aboriginal communities.

A strength of the project was in the process of designing and implementing the radio advertisements to reflect local issues, language and culture, which ensured that the content was meaningful and engaged with the target audience. Given the unique characteristics of the Bourke community, relevant community members and groups participated throughout all the phases of the project to develop or provide feedback or on the content for the advertisements.

The MPDAN evaluation framework that supported the project was also important in identifying the need for research on drug and alcohol projects and encouraged community members to look for an impact of their campaign. The community and the MPDAN staff were able to develop an appropriate, practical evaluation methodology capable of assessing and explaining community-led drug and alcohol project outcomes, albeit with limitations.

Resources and experienced research support would have better enabled this process and likely delivered a more robust result. For example, during the four-month implementation period, there were a limited number of people actively seeking help at local health services. While awareness of substance abuse was enhanced, there was an assumption by the planning group that community members would then actively seek help at health services and the raised awareness could be measured in increased referrals. Working in partnership with researchers or academics could have assisted with tailoring appropriate program outcomes to the specific community and should be a key consideration for future research in this area.

The project highlights the importance of developing a standardised evaluation approach so rural Aboriginal communities can continue to build scientific knowledge in health promotion media strategies to reduce drug and alcohol harms. Collaboration with academic partners would help to formulate research plans and reduce potential barriers. For example, this radio awareness campaign was implemented in isolation from other complementary and concurrent strategies, including the use of social media and text messaging services, which contrasts with suggested current best practice (Guillaumier et al., 2012; Hall et al., 2010; Wakefield et al., 2010).

2.6 Conclusion

Although the research evidence-base for effective media campaigns targeting substance abuse in rural and remote communities is currently insufficient, this evaluation has demonstrated that radio can be

a relevant and well-trusted form of media in Aboriginal communities, with evidence suggesting that it reaches a cross-section of loyal listeners. This finding highlights the potential for locally generated media health awareness campaigns, designed in meaningful consultation with local communities, to be a key strategy in modifying community attitudes towards, and promoting positive behavioural change in relation to, reducing drug and alcohol harms in rural Aboriginal communities.

3. Did it 'Break the Cycle' to reduce alcohol-related criminal incidents? A retrospective evaluation of community-led programs implemented in 2012-2015 in four remote communities in NSW.[9]

[9] This paper will be submitted as follows:

Munro A, Shakeshaft A, Breen C, Jones M, Oldmeadow C, Snijder M & Allan J. Did it 'Break the Cycle' to reduce alcohol-related criminal incidents? A retrospective evaluation of community-led programs implemented in 2012-2015 in four remote communities in NSW. *Australian and New Zealand Journal of Public Health,* 2018.

3.1 Preamble

As outlined in Chapter 1, the interconnected issues of cultural dislocation, trauma and the ongoing stresses of disadvantage, racism and exclusion have contributed to harmful substance misuse and related problems among Aboriginal Australians (Atkinson, 2004; Dudgeon et al., 2016; Larson et al., 2007). Those living in rural communities also have an increased risk of substance misuse and less access to specialised drug and alcohol counselling and treatment (AIHW, 2015a; Roche & McEntee, 2016). There is, therefore, an urgent need to generate evidence about which programs are acceptable to Aboriginal communities in remote areas, their effectiveness and their costs.

Chapter 2 demonstrated the importance of community involvement in the process of designing and implementing projects to reduce drug and alcohol-related harms. The radio advertisements reflected local issues, language and culture (as evidenced by the content of the radio scripts), which ensured that the content was meaningful and engaged the target audience. This demonstrated high levels of community participation, which has previously been found to be an important component in the design of community-based projects to reduce substance-related harms (NHMRC, 2003; Snijder et al., 2015). Despite this, the partnership with the research team was developed after the radio advertisements had been designed and implemented, which meant that the evaluation was necessarily conducted retrospectively in a single setting. In turn, this limited both the quality of the data collected (because the research team had no input into those decisions) and the scientific rigour of the evaluation design that was able to be used (a pre/post evaluation in one setting, which makes it difficult to attribute causality to any potential impacts and limits the generalisability of the findings to other communities).

Similarly to Chapter 2, Chapter 3 will retrospectively evaluate the impacts of a suite of community-led programs. It is a methodological improvement on Chapter 2, however, because multiple communities are included, which allows for the implementation of a more rigorous evaluation design (a quasi-experimental multiple baseline design using criminal incident data routinely-collected by NSW Police) and increases the generalisability of the results. Specifically, Chapter 3 reports on the evaluation of a suite of Aboriginal-led, community-wide programs aimed at reducing substance-related harms, that were implemented in four rural NSW Aboriginal communities from 2012-2015. The evaluation was undertaken by a partnership of researchers, who led the data analysis components, and the communities, who led the program design and implementation components.

3.2 Introduction

Aboriginal Australians continue to experience significantly higher rates of alcohol-related harms than non-Aboriginal Australians, including crime, homicides, car accidents, suicides and assaults (AIHW, 2015a; Calabria et al., 2010; Vos et al., 2007). Alcohol-related harms for Aboriginal Australians stems from a complex aetiology of social disadvantage as a legacy of both the intergenerational impacts of colonisation and subsequent failures in social and health policies.

A potentially preventable alcohol-related harm for Aboriginal Australians relates to alcohol-related criminal incidents (ARCIs). Studies show that Aboriginal Australians experience higher rates of ARCIs than the general Australian population (d'Abbs, 2015; Weatherburn, 2014; Wundersitz, 2010). For instance, in a survey of Aboriginal male prisoners and detainees, a significantly higher proportion of Aboriginal compared to non-Aboriginal respondents had recently used alcohol, which was 1.2 and 1.5 times higher than reported usage levels among non-Aboriginal male prisoners and detainees (Putt, Payne, & Milner, 2005).

In the mainstream literature, a strong, positive relationship between risky alcohol use and violence or crime has been established (Graham & Homel, 2008; Murgraff, Parrott, & Bennett, 1999; Rehm et al., 2009). ARCIs are estimated to comprise 23% of all criminal incidents in Australia, costing the Australian criminal justice system an estimated $2.958 billion per year (Donnelly et al., 2007; Manning, Smith, & Mazerolle, 2013). Evidence indicates that community characteristics such as socioeconomic disadvantage, income inequality, increased density of alcohol outlets, and increased remoteness are also associated with higher rates of ARCIs (Breen, Shakeshaft, Slade, Love, D'Este, & Mattick, 2011; Collins, 2016; Gmel, Holmes, & Studer, 2016).

As ARCIs involving Aboriginal people is a complex, multi-causal phenomenon, comprehensive, effective and culturally safe community-based prevention and treatment programs are often recommended as best practice (Gray & Wilkes, 2010). However, a lack of reliable data relating to ARCIs experienced by Aboriginal people has been identified (Wundersitz, 2010), with evidence recommending researchers better integrate routinely-collected data in the design and evaluation of Aboriginal-specific programs (Anderson et al., 2016). Furthermore, current reviews of evaluations of community-based programs to reduce alcohol-related harms in Aboriginal communities suggest that more rigorous evaluations are needed to robustly assess their effectiveness (Clifford & Shakeshaft, 2017; Snijder, Shakeshaft, Wagemakers, Stephens, & Calabria, 2015).

3.2.1 Aims

The objective of this study was to access and examine routinely-collected ARCI data for four participating communities in NSW, and then utilise those data to evaluate the impact of community-based programs designed and implemented by Aboriginal communities. Specifically, this study aims to: (1) Obtain and describe ten years of criminal incidents using routinely-collected community-level data across four communities in NSW; and (2) Quantify the impact of a suite of community-based programs on reducing the quarterly ARCIs for Aboriginal Persons of Interest (POIs) and Victims of Crime (VOC) recorded in the routinely-collected criminal incident data for each community.

3.3 Methods

3.3.1 Ethics

Ethical approval was sought and granted by the Aboriginal Health and Medical Research Council (1023/14) and the University of New South Wales Human Research ethics committees (HC14142). The four communities directly involved in the research have also provided consent for the research to be undertaken.

3.3.2 Study design

Aim 1 of this study is addressed using standard epidemiological techniques to describe rates of ARCIs over time. Aim 2 is addressed using a multiple baseline design (MBD) to evaluate the impact of the community-based initiatives on the time-series data constructed for Aim 1. MBDs are endorsed by the Cohrane Effective Practice and Organization of Care Group for the evaluation of complex, real-world community-based programs (McCalman et al., 2012; Komro et al., 2016; NHMRC, 2009; Sanson-Fisher, Bonevski, Green, & d'Este, 2007). Despite the benefits of MBDs, there are no published evaluations that have used this design to evaluate Aboriginal community-based programs to reduce ARCIs (Clifford & Shakeshaft, 2017). In a MBD, the introduction of a program is staggered over time across different communities, with repeated measurements of outcomes collected at multiple time-points. A MBD can provide methodologically adequate evidence that the observed changes are a consequence of the program and that the program is effective at a population-level,

although care must be taken in generalizing the results beyond the participating settings (Biglan, Ary, & Wagenaar, 2000; Hawkins, Sanson-Fisher, Shakeshaft, D'Este, & Green, 2007; Rhoda, Murray, Andridge, Pennell, & Hade, 2011; Sanson-Fisher et al., 2007). In this study, multi-component programs commenced at different time points in each community. Commencement dates aligned with the first month of employment of the project workers who facilitated the program design, approvals and implementation in each community. The project commenced in Community 1 on 1 October 2012, Community 2 on 1 February 2013, and Communities 3 and 4 on 1 May 2014. The program completion date for all communities was 30 June 2015, when federal funding ceased.

3.3.3 Community selection and setting

The four rural NSW communities were selected by the Australian Federal Government based on established merit in developing and implementing locally-driven solutions to reduce Aboriginal drug and alcohol harms. The population of these four communities ranged from approximately 1,100 to 3,500 people; median age ranged from 32-38 years old; and Aboriginal and Torres Strait Islander status ranged from 16% to 65% (the 2016 NSW Aboriginal and Torres Strait Islander population average is 3% (ABS, 2016). The relative disadvantage of communities in Australia is measured using Socio-Economic Indexes for Areas (SEFIA) scores, which range from 120 (most disadvantaged) to 1200 (least disadvantaged; (ABS, 2011b). In 2011, the SEFIA scores of the four communities participating in this study ranged from 810-940, indicating significant socio-economic disadvantage in these four communities (ABS, 2011d).

3.3.4 The Breaking the Cycle programs

The 'Breaking the Cycle (BTC) of Alcohol and Drugs Abuse in Indigenous Community Activity' initiative was a federally funded program that commenced in 2012. BTC aimed to contribute to the outcomes of the COAG *Closing the Gap* strategy by empowering Aboriginal communities to address the harms caused by drugs and alcohol. The funding was managed by a local statutory organisation via a Community Alcohol and Substance Abuse Management Plan (CASP) that was developed by an Aboriginal external consultant in collaboration with the communities. Delegation to approve funding allocated to each community project sat with the Federal Minister for Indigenous Affairs. Across the four communities, a total of three BTC project facilitators were employed to coordinate the projects. Three workers (one non-Aboriginal, two Aboriginal) were employed to manage projects implemented in Communities 1 and 2 and one non-Aboriginal worker managed projects implemented in Communities 3 and 4 for the duration of the funding. The workers were responsible for the implementation of the CASP and the development of specific BTC activities in consultation with the local working groups and other relevant stakeholders over the funding period.

The CASP comprised nine key areas as the priorities for the BTC funding. Each community designed and implemented their own activities in line with these key areas, but not all communities implemented activities in all key areas. The nine priorities were: education and community awareness; youth engagement and resilience; promoting Aboriginal culture; engaging and supporting families; licensee engagement and participation; social media, arts and e-technology; healthy environments through improved infrastructure; improving responsiveness, capacity and integration of treatment services; and community capacity building. The number and cost of discrete BTC programs implemented in each site across the key priority areas are outlined in Table 3.1, and summarised in the text below.

Table 3.1 Number and cost of BTC programs implemented in four rural NSW communities from 1 October 2012 to 30 June 2015

BTC Key Priority Areas	Community 1	Community 2	Community 3	Community 4	Total (N / cost)
1. Education and community awareness	12 $51 418	3 $53 559	4 $22 243	6 $5 508	**25** **$132 728**
2. Youth engagement and resilience	8 $73 610	3 $61 360	2 $2 600	2 $950	**15** **$138 520**
3. Engaging and supporting families	- -	- -	- -	2 $3 149	**2** **$3 149**
4. Promoting Aboriginal culture	5 $410 606	2 $355 000	2 $1 345	6 $14 507	**15** **$781 458**
5. Social media, arts and e-technology	1 $21 500	1 $21 500	- -	- -	**2** **$43 000**
6. Licensee engagement and participation	2 $57 750	- -	- -	- -	**2** **$57 750**
7. Healthy environment through improved infrastructure	2 $158 400	1 $60 000	- -	- -	**3** **$218 400**
8. Improving responsiveness, capacity and integration of treatment services	- -	- -	- -	- -	**-** **-**
9. Community capacity building	1 $26 334	1 $26 334	2 $15 368	4 $14 386	**8** **$82 422**
Total (N / cost)	**31** **$799 618**	**11** **$577 753**	**10** **$41 556**	**20** **$38 500**	**72** **$1 457 427**

Education and community awareness: This included developing and implementing a range of tools and resources to provide education and raise community awareness about risks of harm from alcohol and other drugs, building the capacity of community members to identify and respond to risks associated with alcohol and other drugs, and supporting existing health promotion activities. Examples of activities included: standard drink awareness resources; awareness calendars; promoting alcohol free months; support for Men's Shed programs; community sporting programs; and supporting community health promotion activities with an upgrade to the Police Citizens Youth Club (PCYC) van so it can be functional to deliver health promotional activities.

Youth engagement and resilience: This included engaging with young people through diversionary activities to reduce substance-related harms, and providing education and training for young people about the harms associated with substance misuse. Examples of programs included: alcohol-free discos; at-risk girl's leadership and resilience programs; Responsible Service of Alcohol training for young people; touch football, skate boarding and rugby league events; supporting youth week events; and a traffic offenders program.

Engaging and supporting families: This included supporting activities that promote family based approaches to education, awareness and care. Examples of programs included: an alcohol-free Christmas family carnival and a family health day.

Promoting Aboriginal culture: This included supporting programs to promote community cultural connection, providing access to programs to address harms resulting from trauma, grief and loss and facilitate healing, community resilience. Examples of programs included: National Aborigines and Islanders Day Observance Committee (NAIDOC) cultural events; youth culture camps; strong Aboriginal men and women workshops; Elder's bingo nights; tackling violence program; Healing

Foundation to focus on healing intergenerational trauma by reconnecting participants with culture; Literacy for Life program to improve adult literacy skills; Aboriginal music festival; and Aboriginal women's culture trip.

Social medial, arts and e-technology: This included supporting community involvement in the development of social marketing and media campaigns and resources to raise awareness of drug and alcohol risk and promoting alcohol free community arts events. Examples of programs included: safe partying and other community developed drug and alcohol health promotion; sewing groups; mental health arts projects and concerts.

Licensee engagement and participation: This included participation in local liquor accords and strategies to promote responsible service of alcohol and reduce risk of harm in the community. Examples of programs included: a courtesy bus service and a range of other harm reduction resources for licensees.

Healthy environment through improved infrastructure: This included improving healthier living environments through enhancing facilities and infrastructure for remote communities. Examples of activities included: building a skate park; developing a garden; and building improvements for a youth centre.

Improving responsiveness, capacity and integration of treatment services: This included supporting early intervention and prevention initiatives, supporting targeted programs for young people affected by drug and alcohol environments and longer term treatment/relapse prevention. There were no recorded programs in this priority area for the duration of the BTC funding as the community either did not approve projects or did not design projects relevant to this area.

Community capacity building: This included community-identified education to improve capacity to deliver substance misuse prevention and treatment and developing community leadership capacity. Examples of activities included: BTC program support workshops to assist community members deliver their projects; future program implementation workshops; employment training for mothers; and a community data workshop.

3.3.5 Measures

Routinely-collected criminal incident data

Criminal incident data were obtained from NSW Bureau of Crime Statistics and Research (BOCSAR) for each community from 1 January 2002 to 31 December 2011. Three types of de-identified unit record crime data for people aged 13 years and older for the four community postcodes were obtained:

i. *Criminal incident.* Defined by BOCSAR as 'an activity detected by or reported to police which involved the same offender(s) and the same victim(s), occurred at the one location, during one uninterrupted period of time, falls into one offence category (e.g. assault, offensive conduct, theft) and falls into one incident type (e.g. actual, attempted, conspiracy)' (BOCSAR, 2016). Unit-level criminal incident data was obtained for each community from 1 January 2002 - 31 December 2016 to provide a 10-year baseline, in addition to data during and after BTC program implementation, and comprised date and time, postcode, offence category and subcategory.

ii. *Person of Interest (POI).* A POI is a suspected offender recorded by police in connection with a criminal incident, although not all criminal incidents have a POI recorded against them. The same POI can be linked to more than one criminal incident, and one criminal incident can involve multiple POIs. Unit-level POI data included age, gender, postcode, Aboriginal and Torres Strait Islander status and offence category and subcategory.

iii. *Victim of Crime (VOC).* BOCSAR defines a VOC as 'anyone who has come to the attention of the NSW Police either because they reported a crime against them or the crime was otherwise detected.' VOC information is only provided for the offences of murder, manslaughter, attempted murder, domestic assault, non-domestic assault, robbery, sexual offences and abduction/kidnapping. Unit-level VOC data included age, gender, postcode, Aboriginal and Torres Strait Islander status and relation to the offender.

Both the POI and VOC datasets were separately merged with the criminal incident dataset to obtain information relating to whether the event was alcohol-related.

Alcohol-related criminal incidents (ARCIs)

Although NSW Police flag incidents as alcohol-related in the routinely-collected data, the validity with which NSW Police identifies criminal incidents as alcohol-related is unclear, as is the intra-rater reliability (the consistency with which a police officer identifies different incidents as alcohol-related) and the inter-rater reliability (the consistency with which different police officers within and between communities identify incidents as alcohol-related). Given the limitations of NSW Police flagged ARCIs, a proxy measure that has been developed, validated and used in Australia to compare rates of ARCIs across Australian jurisdictions and between communities, was applied (Breen, Shakeshaft, Slade, D'Este, & Mattick, 2011a; Matthews, Chikritzhs, Catalano, Stockwell, & Donath, 2003). Proxy measures involve selecting readily identifiable events that are strongly correlated with alcohol involvement (WHO, 2000). The proxy measure found to be most reliable, and therefore used in this study, includes offence categories (e.g. assault, disorderly conduct and malicious damage to property) that correlate strongly with alcohol use and occur on times when alcohol is more likely to be consumed (Breen, Shakeshaft, et al., 2011). Incident types included those that have been shown to correlate strongly with alcohol use, specifically: assault (domestic, non-domestic, and police assaults), sexual assault (sexual and indecent assaults), disorderly conduct (offensive language and conduct), and malicious damage to property. Times of occurrence are the time periods in which a disproportionately high number of ARCIs occur (Sunday 10pm–Monday 6am, Monday 10pm–Tuesday 2am, Wednesday 10pm–Thursday 2am, Friday 10pm–Saturday 6am, and Saturday 6pm–Sunday 6am; Breen, Shakeshaft, et al., 2011). Criminal incidents in each of the four communities that satisfied both offence category and time components were coded as an ARCI. As BTC aimed to reduce alcohol-related harms for Aboriginal people in the selected communities, data specifically relating to Aboriginal and Torres Strait Islander people involved in ARCIs were examined to evaluate the impacts of the programs on this population. All missing data and postcodes other than the selected communities were also removed.

3.3.6 Data analysis

Descriptive data

Descriptive data were analysed using SPSS (version 24). Descriptive analyses were conducted to identify characteristics of crime 10-years prior to the BTC programs commencing in 2012.

Evaluation of program impact

All analyses were performed in R version 3.4.2 "Short Summer" (R Core Team, 2017). Interrupted time series analyses were conducted separately for each community, as is recommended for MBDs

(Biglan et al., 2000). ARCI data involving Aboriginal VOCs and POIs were aggregated to yearly quarters due to the low monthly number of ARCIs per community. Segmented regression modelling was run separately for Aboriginal VOC and POI to determine if the BTC programs were associated with a change in trend of the quarterly time series for each of the communities. A generalized linear autoregressive moving average (GLARMA) modelling framework was used (Dunsmuir & Scott, 2015) to allow for the autocorrelation that often exist in time series data and are appropriate for count data. The models were then parameterised to include terms for the pre-BTC program temporal trend, an immediate level shift (coinciding with the project commencement date in each community) and a change in temporal trend from the BTC program period through to the end of the BTC program period. Indicator variables were also included to represent seasonality since previous research has found that more ARCIs occur in summer (Shakeshaft et al., 2014). The percentage point changes are presented as 1 minus the exponent of the parameter estimate for the change in trend, with negative signs indicating a decrease in the percentage point trend. Assumptions were assessed by inspecting the residuals for serial correlation, outlying points, normality and the validity of the assumed distribution via the probability integral transformation (Czado, Gneiting, & Held, 2009). Additionally, the Ljung-Box (1978) modified portmanteau test was used to explicitly test for serial correlation in the residuals.

3.4 Results

3.4.1 Characteristics of crime prior to program implementation

As outlined in Table 3.2, between 1 January 2002 and 31 December 2011, NSW Police recorded a total of 18,581 criminal incidents in Community 1; 7,586 incidents in Community 2; 5,947 incidents in Community 3; and 4,036 incidents in Community 4. The most common day and time of all criminal incidents to occur in Community 1, Community 3 and Community 4 was Saturday evenings (from 6pm-11.59pm). The exception was Community 2, where the most common time and day for criminal incidents to occur was Friday afternoon (from 12 noon-5.59pm). Total number of ARCIs using the proxy measure ranged from over a quarter of all criminal incidents in Community 1 (27%, n=4,983) to approximately half of all incidents for the other three communities (Community 2: n=3,647, 48%; Community 3: n=2817, 47%; Community 4, n=1842, 47%).

10 years of POI data for all criminal incidents

For all criminal incidents identified in the four communities, POI were typically male (range 72-79%) aged from 13-19 years old (range from 27-39%). Communities 3 and 4 also recorded high proportions for POIs aged from 20-29 (30% for both communities). Half to a majority of all POIs were identified as Aboriginal or Torres Strait Islander (range 47-86%).

10 years of VOC data for all criminal incidents

Substantial proportions of VOC identified as Aboriginal or Torres Strait Islander, ranging from 25% in Community 3 to 53% in Community 2. The largest proportions of VOC were found to be between 20-39 years of age (range 29%-47%).

Table 3.2 Characteristics of criminal incidents across four BTC communities in NSW prior to program implementation (2002-2011)

Characteristics of crime	Community 1	Community 2	Community 3	Community 4
Total number of incidents	18,581	7586	5947	4036
Most common day of occurrence (%)	Saturday (18)	Friday (20)	Saturday (23)	Saturday (26)
Most common time of occurrence (%)	Evening^ (36)	Afternoon~ (35)	Evening^ (35)	Evening^ (39)
ARCIs+ N (%)	4983 (27)	3647 (48)	2817 (47)	1842 (47)
POI for all criminal incidents	**N (%)**			
Total number of POI (N)++	18578	7586	5945	4035
Gender				
Male	**14594 (79)**	**5480 (72)**	**4442 (75)**	**2894 (72)**
Female	3984 (21)	2106 (28)	1503 (25)	1141(28)
Aboriginal status				
Aboriginal and Torres Strait Islander	14446 (78)	6527 (86)	2772 (47)	2830 (70)
Non-Aboriginal and Torres Strait Islander	1796 (10)	361 (5)	1729 (29)	796 (20)
Unknown	2336 (12)	698 (9)	1444 (24)	409 (10)
POI Age				
13-19 years	**7239 (39)**	**2033 (27)**	**1756 (30)**	**1225 (30)**
20-29 years	4050 (22)	1809 (24)	**1771 (30)**	**1211 (30)**
30-39 years	2545 (14)	1920 (25)	1037 (17)	635 (16)
40-49 years	1253 (7)	924 (12)	693 (12)	378 (9)
50-59 years	522 (3)	224 (3)	301 (5)	125 (3)
60-69 years	159 (<1)	67 (<1)	156 (3)	57 (1)
≥70years	40 (<1)	12 (<1)	53 (<1)	56 (1)
Unknown	2770 (15)	597 (8)	178 (3)	348 (9)
VOC for all criminal incidents	**N (%)**			
Total number of VOC (N)*	9885	4228	3935	2218
Gender				
Male	4476 (45)	1968 (47)	**2126 (54)**	**1183 (53)**
Female	**5409 (55)**	**2260 (53)**	1809 (46)	1035 (47)
Aboriginal status				
Aboriginal and Torres Strait Islander	4161 (42)	**2250 (53)**	884 (23)	725 (33)
Non-Aboriginal and Torres Strait Islander	**5053 (51)**	1703 (40)	**2563 (65)**	**1291 (58)**
Unknown	671 (7)	275 (7)	488 (12)	202 (9)
VOC Age				
13-19 years	1298 (13)	471 (11)	345 (9)	211 (10)
20-29 years	2193 (22)	963 (23)	**833 (21)**	**507 (23)**
30-39 years	**2286 (23)**	**997 (24)**	712 (18)	425 (19)
40-49 years	1434 (15)	731 (17)	674 (17)	320 (14)
50-59 years	1034 (10)	390 (9)	612 (15)	255 (10)
60-69 years	662 (7)	281 (7)	348 (9)	202 (10)
≥70years	412 (4)	173 (4)	191 (5)	203 (10)
Unknown / Missing	566 (6)	222 (5)	220 (6)	95 (4)

NOTES:
^6pm-11.59pm
~12noon-5.59pm
+Proxy measure
++POI varied from total incidents due to criminal incidents involving multiple POIs missing data
*Not all incidents have a victim. VOC information is only provided for the offences of murder, manslaughter, attempted murder, domestic assault, non-domestic assault, robbery, sexual offences and abduction/kidnapping

3.4.2 Impacts of the BTC programs

Aboriginal ARCIs for VOCs and POIs

An overall small downward trend of Aboriginal ARCIs for both VOCs and POIs was identified in all four communities for the study timeframe from 1 January 2002 to 31 December 2016, as observed in Figures 3.1-3.4. Overall, there were no significant reductions in Aboriginal ARCIs in Communities 2, 3 and 4 following the commencement of the BTC programs. In Community 1, a statistically significant reduction from the baseline Aboriginal ARCI rate was apparent following the start of the BTC programs. However, any interpretation must be tentative given that (a) the reduction was only in one community and (b) the 95% confidence interval associated with the change was wide, due to small number of data points. In aggregate, the results suggest that a more sustained program on a larger population base would be needed in order to make definitive statements.

ARCIs involving Aboriginal VOC descriptive data

Table 3.3 shows the number of ARCIs involving Aboriginal VOCs in each community, in addition to the median, median absolute deviation (MAD; a robust measure of variation) and the minimal and maximum number of incidents per quarter. Community 1 showed the highest number of incidents involving Aboriginal victims and had the longest period of BTC. Visual inspection of the time series (Fig. 3.1) suggests a decline in Aboriginal ARCIs from the start of the BTC programs in Community 1. The other communities appear to remain approximately level over the study period.

Table 3.3 Descriptive statistics for ARCIs involving Aboriginal VOC

Community	Total incidents involving Aboriginal VOCs	Incidents per season			
		Median	MAD[a]	Min	Max
1	860	14	5.9304	1	30
2	386	6	1.4826	1	15
3	295	5	2.9652	1	12
4	198	3	1.4826	1	11

NOTE: [a] Median absolute deviation

Figure 3.1 Time series plots of ARCIs involving Aboriginal VOC by year and quarter

NOTE: Black line shows quarterly aggregated incidents, dashed line shows mean, blue line shows smoothed regression, grey shade shows BTC period.

ARCIs involving Aboriginal VOC segmented regression

Table 3.4 shows the parameter estimates, standard errors and a level of significance code from the models fitted for Communities 1 to 4 (also see Fig. 3.2 for lines of fit). Community 1 was the only community to show a statistically significant change in trend associated with the post-BTC program period (a trend decrease of 17.8% per year; 95% CI: 6.2% to 27.9%, p-value = 0.003). Thus, for Community 1 with a mean pre-BTC program incident rate of 14 Aboriginal VOC incidents per quarter (roughly 60 per year), there is a decrease to 11.9 per quarter in the first year post BTC program commencement, a decrease to 9.8 per quarter in the second year and so forth, if the effects of BTC remain permanent. The seasonal terms were globally statistically significant at the 0.05 level for Communities 1 and 2, suggesting the presence of seasonality in the data.

Table 3.4 Parameter estimates for negative binomial ARCIs involving Aboriginal VOC seasonal models

	Parameter Estimate (standard errors)			
	Community 1	**Community 2**	**Community 3**	**Community 4**
Intercept	3.050*** (0.081)	2.026*** (0.139)	1.670*** (0.245)	1.560*** (0.230)
Trend (pre)	−0.015 (0.010)	0.022 (0.019)	−0.028 (0.029)	−0.031 (0.027)
Season:				
Autumn	−0.247** (0.093)	−0.216 (0.137)	0.126 (0.253)	−0.228 (0.201)
Winter	−0.396*** (0.105)	−0.691*** (0.157)	0.336 (0.218)	−0.372 (0.259)
Spring	−0.310** (0.101)	−0.261# (0.139)	−0.060 (0.284)	−0.225 (0.258)
Level (BTC)	0.113 (0.162)	−0.175 (0.229)	−0.954 (0.657)	0.466 (0.426)
Trend Change (BTC)	−0.195** (0.067)	−0.045 (0.092)	0.412 (0.332)	0.129 (0.365)
% Point Change:				
Trend Change (BTC)	-17.75	-4.44	51.03	13.81
Autumn %	-21.86	-19.39	13.42	-20.42
Winter %	-32.67	-49.87	39.95	-31.06
Spring %	-26.63	-23.01	-5.84	-20.17
AIC^	360.27	293.00	302.12	261.31

NOTE: Significance codes '***' 0.001 '**' 0.01 '*' 0.05 '#' 0.1 ^ Akaike information criterion

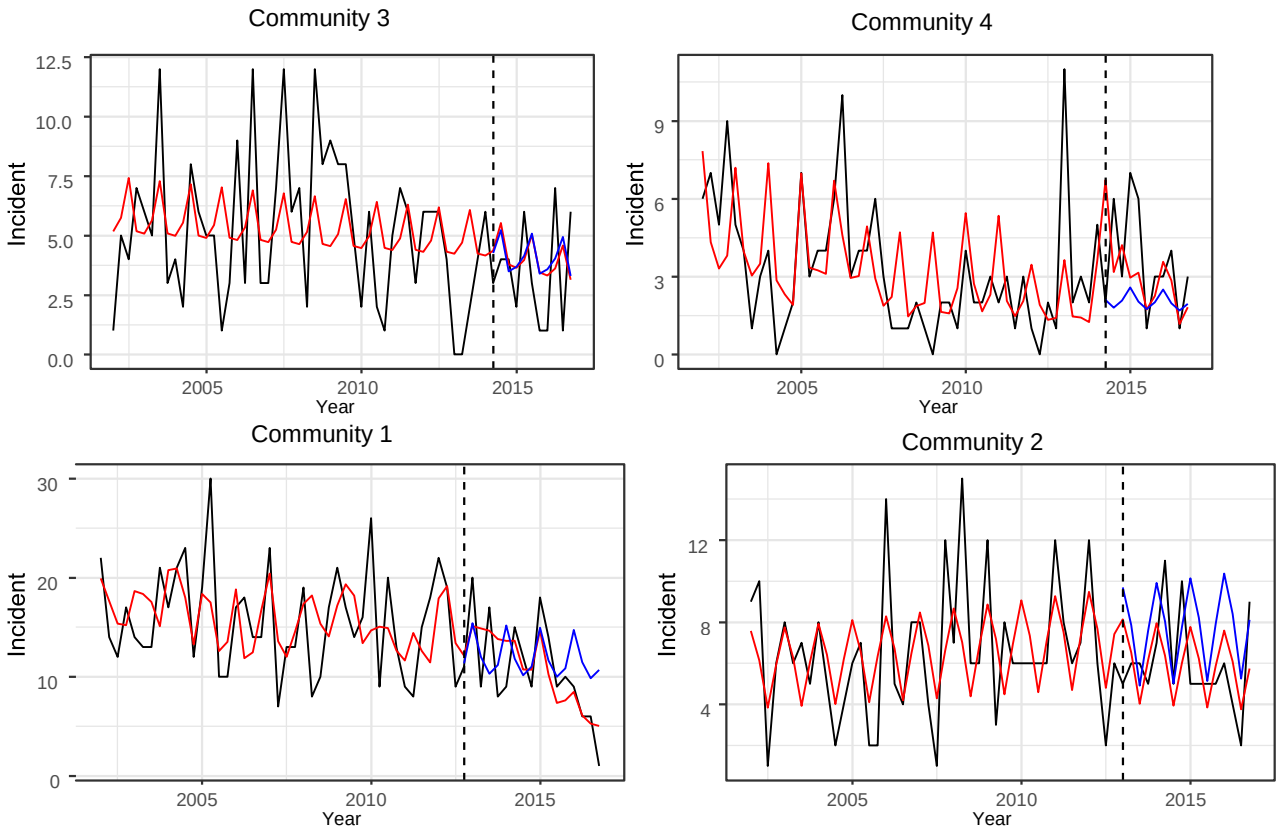
In the 10 years before the BTC program were implemented, rates of Aboriginal VOCs for Community 1 were slightly trending down by approximately 1.5%. After parameter reduction (Table 3.5), the estimate for the change in trend for Community 1 was an 18.7% decrease per year (95% CI 12.5 to 24.5%, p-value < 0.001). There was evidence of seasonality effects in three of the four communities, with summer rates being higher than those of the other seasons.

Table 3.5 **Parameter estimates for negative binomial ARCIs involving Aboriginal VOC models after parameter reduction**

	Parameter Estimate (standard errors)			
	Community 1	**Community 2**	**Community 3**	**Community 4**
Intercept	2.955*** (0.023)	2.128*** (0.111)	1.851*** (0.157)	1.582*** (0.413)
Trend (pre)			−0.037# (0.020)	−0.027 (0.047)
Season:				
Autumn	−0.274*** (0.040)	−0.195 (0.152)		0.166 (0.371)
Winter	−0.277*** (0.038)	−0.704*** (0.171)		−0.624*** (0.179)
Spring	−0.316*** (0.053)	−0.259 (0.165)		−0.042 (0.418)
Level (BTC)				0.505 (0.474)
Trend Change (BTC)	−0.207*** (0.038)			
% Point Change: Trend Change (BTC)	-18.72			
Autumn %	-23.93	-17.74		18.04
Winter %	-24.19	-50.56		-46.40
Spring %	-27.06	-22.80		-4.07
AIC^	349.30	289.16	295.62	258.57

NOTE: Significance codes '***' 0.001 '**' 0.01 '*' 0.05 '#' 0.1 [a] Autumn/Winter (quarters 2 and 3) are the reference level
^Akaike information criterion

Figure 3.2 **Observed and predicted ARCIs involving Aboriginal VOC time series**



NOTE: Observed incidents in black, fitted in red, prediction assuming no BTC programs blue.

ARCIs involving Aboriginal POI descriptive data

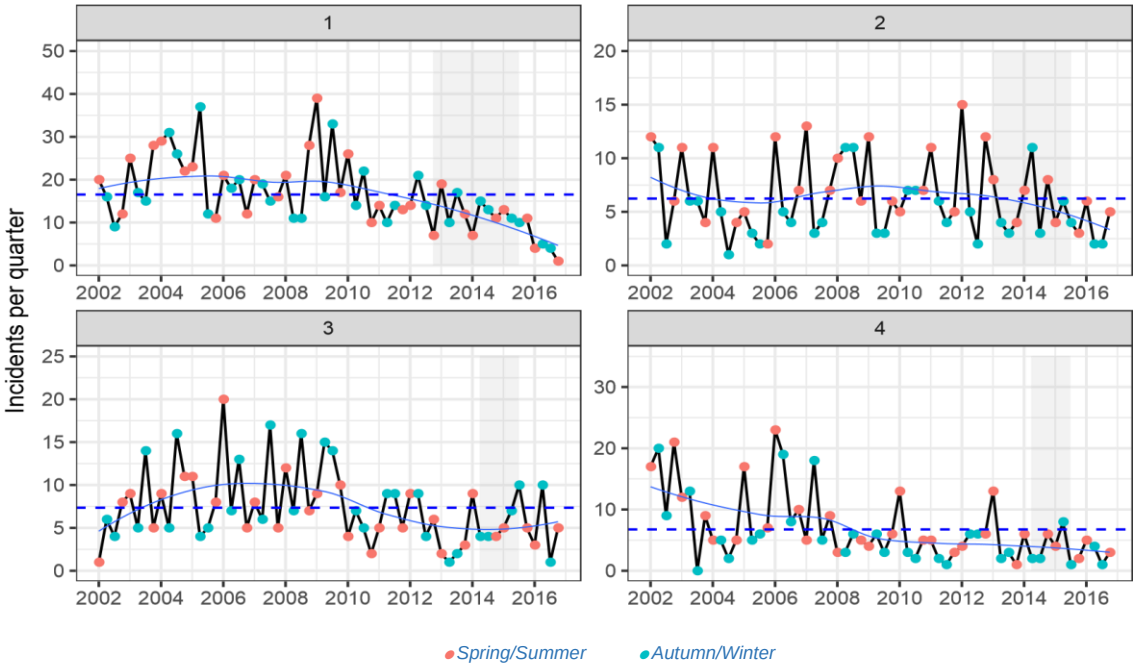
Table 3.6 shows the number of ARCIs involving Aboriginal POIs along with the median, MAD, minimum and maximum number of incidents per quarter. Again, Community 1 showed the highest number of incidents (n=992). Visual inspection of Figure 3.3 suggests a decline in ARCIs from the start of the BTC programs in Communities 1and 2, Community 3 shows consistently lower counts from around 2010 and Community 4 was highly variable until mid-2008 from which point the ARCI rate appears much more stable.

Table 3.6 Descriptive statistics for ARCIs involving Aboriginal POI

Community	Total incidents involving Aboriginal POIs	Incidents per season			
		Median	MAD[a]	Min	Max
1	992	15	6.6717	1	39
2	374	5.5	2.9652	1	15
3	441	6.5	3.7065	1	20
4	405	5	2.9652	1	23

NOTE: [a] Median absolute deviation

Figure 3.3 Time series plots of ARCIs involving Aboriginal POI by year and quarter



NOTE: Black line shows quarterly aggregated incidents, dashed line shows mean, blue line shows smoothed regression, grey shade shows BTC period.

ARCIs involving Aboriginal POI segmented regression

Table 3.7 shows the parameter estimates, standard errors and a level of significance code from the models fitted for Communities 1 to 4 (also see Fig. 3.4). None of the models suggested a level shift and only the Community 1 series showed a change in the trend post BTC programs. The results suggest changes in the trend associated with the post-BTC program period between a 10% increase to a 25% decrease, holding all other terms constant. There was evidence of a reduction in ARCIs

involving Aboriginal POI incidents between the start of the BTC programs and the end of the BTC programs in Community 1. The estimate for the change in trend for Community 1 was a 24.6% decrease per year (95% CI of 10.8 to 36%, p-value = 0.001) and after parameter reduction the estimate was a 29.8% decrease (95% CI of 23.1 to 36%, p-value < 0.001). Thus, for Community 1 with a mean pre-BTC program incident rate of 17.2 incidents per quarter (roughly 60 per year), a decrease to 13 in the first year post BTC programs is observed, a decrease to 9.8 per quarter in the second year and so forth. None of the analyses show level shifts, meaning there was no measurable change pre and post the BTC programs.

For Community 1, a sensitivity analysis that incorporated census population data into the models was conducted which found that the post-BTC program percent point change in trend weakened in magnitude to -19.0%, 95% CI (-31.2 to -4.8), p-value = 0.011, meaning that some of the reduction in the number of ARCIs are due to a reduction in population of the community.

Table 3.7 Parameter estimates for negative binomial ARCIs involving Aboriginal POI seasonal models

	Parameter Estimate (standard errors)			
	Community1	**Community2**	**Community3**	**Community 4**
Intercept	3.297*** (0.114)	2.208*** (0.137)	2.272*** (0.187)	2.756*** (0.100)
Trend (pre)	−0.030# (0.017)	0.020 (0.019)	−0.032 (0.022)	−0.109*** (0.012)
Season:				
Autumn	−0.174** (0.065)	−0.475*** (0.141)	−0.088 (0.193)	−0.167 (0.138)
Winter	−0.261** (0.087)	−0.892*** (0.161)	0.159 (0.186)	−0.769*** (0.122)
Spring	−0.350*** (0.073)	−0.497*** (0.143)	−0.237 (0.197)	−0.177 (0.142)
Level (BTC)	0.054 (0.232)	−0.232 (0.240)	−0.254 (0.373)	0.600 (0.554)
Trend Change (BTC)	−0.282*** (0.085)	−0.114 (0.102)	0.100 (0.230)	−0.161 (0.380)
% Point Change:				
Trend Change (BTC)	-24.56	-10.76	10.47	-14.86
Autumn %	-16.01	-37.83	-8.41	-15.39
Winter %	-22.95	-59.03	17.29	-53.66
Spring %	-29.54	-39.17	-21.10	-16.19
AIC^	386.64	290.89	336.37	307.47

NOTE: Significance codes '***' 0.001 '**' 0.01 '*' 0.05 '#' 0.1 ^Akaike information criterion

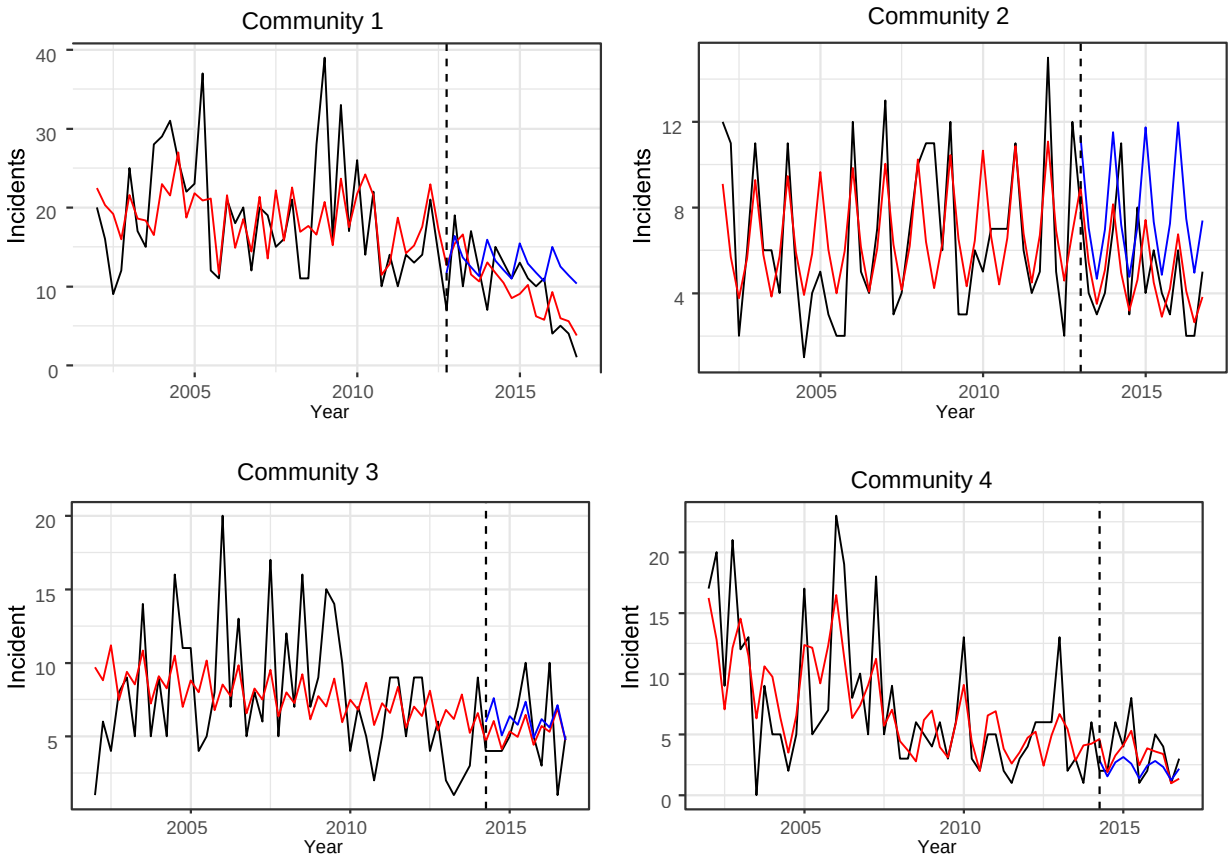
Table 3.8 shows the results from the reduced models. The results continued to support the post-BTC program change in trend that was apparent in the full model for Community 1. The estimate for the change in trend for Community 1 was a reduction of 29.8%, 95% CI (-36.0 to -23.1) p-value < 0.001 relative to the pre-BTC program period.

Table 3.8 **Parameter estimates for negative binomial ARCIs involving Aboriginal POI models after parameter reduction**

	Parameter Estimate (standard errors)			
	Community1	**Community2**	**Community3**	**Community 4**
Intercept	3.102*** (0.054)	2.235*** (0.108)	2.233*** (0.151)	2.730*** (0.101)
Trend (pre)			−0.036# (0.019)	−0.100*** (0.006)
Season:				
Autumn	−0.149* (0.071)	−0.459** (0.156)		−0.160 (0.160)
Winter	−0.206* (0.084)	−0.869*** (0.122)		−0.798*** (0.164)
Spring	−0.317*** (0.077)	−0.506** (0.173)		−0.189 (0.165)
Level (BTC)				
Trend Change (BTC)	−0.354*** (0.047)			
% Point Change:				
Trend Change (BTC)	-29.83			
Autumn %	-13.87	-36.80		-14.83
Winter %	-18.65	-58.07		-55.00
Spring %	-27.16	-39.73		-17.25
AIC^	384.08	292.11	331.22	301.81

NOTE: Significance codes '***' 0.001 '**' 0.01 '*' 0.05 '#' 0.1 ³Autumn/Winter (quarters 2 and 3) are the reference level ^Akaike information criterion

Figure 3.4 **Observed and predicted ARCIs involving Aboriginal POI time series**



NOTE: Observed incidents in black, fitted in red, prediction assuming no BTC blue.

3.5 Discussion

ARCIs were found to account for a quarter to a half of all criminal incidents across the four communities over a 10-year period (range 27%-48%). These figures are greater than those found in other studies, with previous research indicating that in Australia, ARCIs account for 23% of all police incidents (Manning et al., 2013). Similarly, a 2007 investigation of the prevalence and impact of ARCIs on police resources in Queensland found that a quarter of all police work involved attendance at ARCIs, with incidents most likely occurring in the early hours of the morning on the weekends, and usually taking longer to complete than non-ARCIs (Palk et al., 2007). A comparable rural NSW-based study also identified that most ARCIs occurred on the weekends (Snijder et al., 2017), which aligns with the most common day and time for crime in this study, which was Saturday evenings (from 6pm-11.59pm) for three of the four communities. Across all four communities, POI's were typically young males aged from 13-19 years, and at least half of the POIs were recorded as being Aboriginal or Torres Strait Islander (ranging 47%-86%). Again, these results are consistent with existing evidence that indicates that Aboriginal offenders tend to be, on average, younger and more likely to have recently used alcohol (Putt, Payne, & Milner, 2005; Teece & Williams, 2000). This analysis supports previous conclusions that enhancing the utilisation of routinely-collected data to understand specific community-level characteristics is most likely to better inform future program design and efficacy (Shakeshaft et al., 2014).

This was the first MBD evaluation of multi-component community-based programs developed in consultation with Aboriginal communities that aimed to reduce Aboriginal ARCIs across four rural communities. The analyses identified two main findings. First, Community 1 was the only community identified as having statistically significant reductions in Aboriginal ARCIs for both POI and VOC post the commencement of the BTC programs. Despite this finding, definitive statements about the success of the BTC programs to reduce ARCIs cannot be extrapolated as the results were not replicated in the other three communities. Second, there was an overall downward trend of Aboriginal ARCIs across the four communities over the study period (2002-2015). Despite being non-significant in three of the four communities, this finding aligns with BOCSAR data from 2010-2015, which also identified that ARCIs have decreased by 6.4% across the state (BOCSAR, 2015). This may suggest government policy or other factors are having an impact towards the overall downward trend of ARCIs both generally in NSW and also specifically for the four communities, as these communities were selected for the BTC funding by the Federal government for previously demonstrating merit in reducing alcohol-related harms.

Although the programs were similar in the four communities, there are a number of implementation characteristics that may have contributed to the significant reductions in Community 1. Compared to the other BTC communities, Community 1 had a greater proportion of BTC programs implemented across a wider range of BTC key priority areas, as outlined in Table 3.1. This meant Community 1 received significantly more program funding (54.9% of total program funding) when compared to the other three communities (Community 2, 39.6%; Community 3, 2.9%; Community 4, 2.6%). Further, Community 1 also had the longest duration of the BTC programs (2.74 years) compared to the other three communities (Community 2, 2.42 years; Community's 3 and 4, 1.25 years). Given these factors, when compared to the other BTC communities, Community 1 overall received a greater program dose, which may have improved the impacts of the programs for this community. Alternative potential explanations for the improvement in Community 1, other than the possibility that the BTC program was effective, are that key offenders normally residing in Community 1 may have left or were incarcerated during the post-program timeframe, or that Community 1 had a greater level of governance and program support in the design or implementation of the programs

compared to the other communities. The use of the proxy measure in this evaluation provides reassurance that the results are unlikely to be a consequence of simply changing reporting practices by police in Community 1, relative to the other communities.

3.5.1 Limitations and methodological considerations

This study has a number of limitations. First, the MBD used to evaluate impacts of the BTC programs means we cannot confidently exclude the possibility that factors other than the program had an effect on Aboriginal ARCIs. Using a RCT would have improved the methodological quality of the evidence for the effectiveness of the BTC programs in reducing ARCIs, but as this evaluation was conducted retrospectively, this was not feasible. Furthermore, the start dates of the BTC programs were dependent on when each community recruited respective project workers, whereas randomisation is preferable in a MBD to enhance rigour. Second, even though proxy measures to identify ARCIs have been validated and widely used in previous research, including similar community-based research in NSW, proxy measures have not been specifically validated for Aboriginal people, which would help strengthen future evaluations for Aboriginal communities (Breen, Shakeshaft, et al., 2011a; 2011b; Snijder et al., 2015; Chikritzhs et al., 2004). Third, due to small monthly counts of ARCIs, the data were analysed based on quarterly aggregation, which, in temporal data, is a form of information loss, losing specificity, as was evident from the wide confidence intervals for Community 1 (Rossana & Seater, 1995). Related to this is the accuracy or underreporting of ARCIs or Aboriginal status of POIs or VOCs by police, which could have potentially impacted the sensitivity or statistical power (i.e. insufficient observations) in assessing the overall impact of the programs on ARCIs, especially given Communities 2 and 4 recorded less ARCIs than Communities 1 and 3. Fourth, as the evaluation was conducted retrospectively, the evaluation only used routinely-collected ARCIs as an outcome measure to evaluate the impacts of the BTC programs. If researchers were involved from the beginning of the BTC program development, additional outcome measures or undertaking surveys to understand community perceptions relating to the impacts of the programs could have been included which would have likely strengthened the results. Future studies could include other sources of routinely-collected data to strengthen findings, such as emergency department alcohol-related injuries data.

The considerable variability in the number, duration and focus of programs across the four communities, which is also reflected in the variability in the amount of funding spent on BTC program delivery in each community, meant that there were issues with program standardisation across the four communities. Despite each community leading the decision-making about the program design and implementation, this lack of standardisation represents a major limitation, as it is difficult to interpret a statistically significant change without a standardised approach. It is also worth noting that none of the four communities implemented the 'improving responsiveness, capacity and integration of treatment services' BTC component, which would suggest either that the communities may not have the resources or local expertise required to develop programs targeting improved responsiveness and capacity of treatment services, or whether this was relevant to the community's needs indicating issues when defining the key issues that the community wanted to target. Together, this highlights an overarching methodological limitation of this research of integrating researcher expertise at the conclusion of a project rather than prospectively, which could have utilised routinely-collected data to better align community needs with current evidence to inform program co-design, standardisation and rigorous evaluation.

Although the methodological limitations may have limited the strength of the evidence, it is a promising first attempt to retrospectively evaluate community-led design programs aimed to reduce

ARCIs using a rigorous quasi-experimental MBD. As demonstrated in this research, MBDs can overcome some of the challenges posed by the application of RCTs in a community setting, including the need for a large number of communities to achieve sufficient statistical power, and ethical considerations regarding withholding a potential beneficial program from disadvantaged communities in the control group (Hawkins et al., 2007; Komro et al., 2016; NHMRC, 2009; Saini & Quinn, 2013; Sanson-Fisher et al., 2007). MBDs are both cost-effective and can use smaller sample sizes than RCTs, yet still be methodologically rigorous (Hawkins et al., 2007). This MBD evaluation approach is, therefore, worth replicating and improving for future use to evaluate multi-component community-based programs, such as BTC. Greater utilisation of this evaluation design would ensure confidence that any improvements in community or health outcomes are reasonably attributable to the program or approach being evaluated (McCalman et al., 2012.)

3.5.2 Implications of findings

Despite the overall strengths of the BTC programs, such as the focus on cultural activities and community participation, there may have been an increased likelihood of improved outcomes if the programs delivered across the four communities were more effectively tailored to each of the communities' unique needs. While Aboriginal communities may share common histories or experiences, each community is not homogenous, with local dynamics and characteristics being critical to reduce alcohol-related crime and violence (Homel, Lincoln, & Herd, 1999). Given this, a key implication of this research which is well supported by the literature (Bainbridge, McCalman, Tsey, & Brown, 2011; Baldwin, Hohnson, & Benally, 2009; Baydala et al., 2014; Cochran et al., 2008; Edwards, Lund, Mitchell, & Anderson, 2008; Loxley et al., 2004; Mayo, Tsey, & Empowerment Research Team, 2009; Mooney-Somers & Maher, 2009; Pyett, 2002; Snijder et al., 2015; Stockwell et al., 2005; Thomas, Rosa, Forcehimes, & Donovan, 2015), is that developing meaningful partnerships between local communities and researchers before and during project implementation will better embed rigorous evaluation methods and inform effective program design. Second, embedding the use of routinely-collected data in community-based program evaluation can be advantageous because they are low cost, can be defined by postcode or local government area, are not biased by non-consent and can be used retrospectively (Breen, Shakeshaft, Slade, D'Este, & Mattick, 2011). Third, optimal program effectiveness is more likely if researchers and communities work together to co-design the multi-component community-based approach using a program logic model, which can help to articulate how and why a program will work, what impacts and outcomes are likely to be achieved, and how it can be robustly evaluated (Hurley, Baum, Johns, & Labonte, 2010; WK Kellogg Foundation, 2004; Munro, Shakeshaft, & Clifford, 2017).

3.5.3 Conclusion

This was the first retrospective MBD evaluation of multi-component community-based programs that were developed and implemented by Aboriginal communities, aimed at reducing ARCIs. Although the methodological issues discussed may have limited the ability to detect the impacts of the BTC programs, especially with regard to attributing a causal relationship between the programs and the outcomes, it is an encouraging first attempt to combine community-led program design and implementation with robust evaluation methods. Given these findings, community-based programs have potential to improve outcomes in alcohol-related harms experienced by Aboriginal communities. However, both the likely effectiveness of community-based programs and the rigour of their evaluation, would be strengthened if the process was co-designed, co-implemented, and co-evaluated using meaningful partnerships between Aboriginal communities and researchers with the requisite evaluation expertise.

4. Understanding remote Aboriginal drug and alcohol residential rehabilitation clients: who attends, who leaves and who stays?[10]

[10] This chapter has been published as follows:

Munro A, Shakeshaft A, Breen C, Clare P, Allan J, Henderson N. (2018). Understanding remote Aboriginal drug and alcohol residential rehabilitation clients: who attends, who leaves and who stays? *Drug and Alcohol Review*. doi: 10.1111/dar.12656.

4.1 Preamble

Chapter 3 demonstrated that the BTC community-based programs designed and implemented across four rural communities from 2012-2015 did not produce a statistically significant impact on ARCIs in three of the four communities from the commencement of the BTC programs until the completion of the post program period. Despite this finding, there are a number of elements of this study that could be utilised in, and improved on, for future multi-component community-based program evaluations. First, it is a promising attempt to combine community-led program design and implementation with rigorous evaluation methods, especially the MBD which incorporated the use of routinely-collected police incident data. The overall evaluation approach is worth replicating and refining. Second, the programs were implemented across four communities, each with a staggered commencement time. As such this allowed for the utilisation of the MBD methodology. This evaluation design does, therefore, engender greater confidence in attributing any statistically significant impacts to the program being evaluated, relative to the community-designed project evaluated in Chapter 2, which was only able to use a pre/post evaluation design in one community. Third, all of the programs were designed, implemented or approved by the community working groups that oversaw the programs, which optimised their relevance and acceptability to each community, as demonstrated by the strong focus on culture. This aligns with previous evidence of programs to reduce drug and alcohol-related harms that are initiated by Aboriginal communities often typically include cultural or local elements (Lee et al., 2013).

Although Chapter 3 concluded that community-based programs have potential to reduce the alcohol-related harms experienced by Aboriginal communities, the quality of the evidence will most likely be strengthened when programs are co-designed, implemented, and evaluated using standardised methods that are adapted to each evaluation via meaningful partnerships between local communities and researchers with the requisite evaluation skills. A key learning is, therefore, that while retrospective evaluations, such as the examples described in Chapters 2 and 3, are preferable to no evaluation, they provide inadequate opportunities for ensuring programs are informed by existing evidence, and that they are well-aligned with outcomes that are assessed by high-quality measures. These limitations increase the likelihood of evaluations reporting negative findings, even if the programs under evaluation are effective, or have effective components. As a result, researchers and communities are missing opportunities to effect real, sustained change by demonstrating which community-based programs are effective. Missing these opportunities is extremely problematic given the significant negative health disparities that exist for Aboriginal Australians, in comparison to non-Aboriginal Australians, as detailed in Chapter 1.

Collaborative partnerships between researchers and Aboriginal communities developed at the beginning of a project are one way to ensure Aboriginal communities are empowered to drive change in their communities. Broadening community capacity and using resources more effectively to improve Aboriginal health outcomes (Taylor & Thompson, 2011), while simultaneously adding to the existing evidence-base, have been both shown to be strengthen the evaluation of community-based programs (Snijder et al., 2015).

Chapters 4-6 will focus on a three-year, mixed-methods CBPR project developed in partnership between a community-based Aboriginal residential rehabilitation service located in remote NSW and researchers based in regional and metropolitan NSW. Specifically, Chapter 4 empirically describes all recorded presentations to, and clients of, the Aboriginal residential rehabilitation service over a five-year period. This analysis includes an examination of the differences between the characteristics of

clients with single, compared to multiple, admissions, and identifies the client characteristics which predict length of stay and self-discharge.

4.2 Introduction

The health disadvantage of Australia's Indigenous peoples (hereafter Aboriginal Australians as the term recommended by the AH&MRC) is a consequence of the complex legacy of intergenerational trauma, the etiology of which includes colonisation, racism, and social exclusion (Dudgeon et al., 2016; Wilkes et al., 2010; Wynne-Jones et al., 2016). One manifestation of this harmful legacy is the disproportionately higher burden of substance-related harm experienced by Aboriginal Australians, compared to their non-Aboriginal counterparts (AIHW, 2014a; Calabria et al., 2010; Saggers & Gray, 1998). Relative to non-Aboriginal Australians, for example, Aboriginal people are up to eight times more likely to be hospitalised and five times more likely to die from an alcohol-related condition (AIHW 2011b), while Aboriginal Australians aged 15-29 are 4 to 5 times more likely to die from alcohol-related suicide than their non-Aboriginal peers (AIHW, 2014a; Calabria et al., 2010; Saggers & Gray, 1998)

There is no simple way to reduce the burden of substance-related harm experienced by Aboriginal Australians (Wilson et al., 2010) and, as such, a range of effective and culturally safe approaches are required. Gray et al. (2000) identify appropriate strategies including: acute treatment (sobering-up centres, detoxification; Brady, Nicholls, Henderson, & Byrne, 2006); counseling and residential treatment (Brady, 2002; Calabria et al., 2014; Calabria et al., 2013; Munro & Allan, 2011); support services (health services, accommodation, crisis care); and prevention (health promotion, cultural initiatives, supply reduction; Demaio, Drysdale, & de Courten, 2012; Munro, Allan, Shakeshaft, & Snijder, 2017; (Wilkes, Gray, Casey, Stearne, & Dadd, 2014). Regardless of the strategy, access to Aboriginal community-controlled health services (ACCHOs) is vital to an Aboriginal person's right to self-determination (Brady, 2002; Taylor et al., 2010), even if some Aboriginal patients prefer to access non-Aboriginal specific services (Teasdale et al., 2008.).

The provision of Aboriginal residential rehabilitation spans over five decades in Australia (Brady, 2002; Chenhall, 2007). Whether Aboriginal-specific or not, it offers a multi-component approach for individuals with complex social, economic, housing, and legal difficulties (Taylor et al., 2010). Multi-component programs are important given the strong association between substance misuse and related issues, such as family violence (Honorato, Caltabiano, & Clough, 2016; Wilson, Graham, & Taft, 2017), homelessness, mental illness, and recidivism (Brunette, Mueser, & Drake, 2004; Farabee & Shen, 2004; Leal, Galanter, Dermatis, & Westreich, 1998; Mortlock, Deane, & Crowe, 2011). Factors associated with improved outcomes from residential rehabilitation include: longer time in treatment (Darke, Campbell, & Popple, 2012; Greenfield et al., 2004; Mulder, Frampton, Peka, Hampton, & Marsters, 2009; Sung & Richter, 2007) and being older is associated with increased length of stay (Choi, Adams, MacMaste, & Seiters, 2013; Copeland & Indig, 2004; Li, Sun, Marsh, & Anis, 2013); attending for a minimum of three months (Deane, Wootton, Hsu, & Kelly, 2012); having previously received fewer episodes of care of a longer duration, compared to multiple, shorter episodes of care (Darke et al.); having previously completed a residential rehabilitation program successfully (Darke et al.); and competent clinical management practices, including strong governance, qualified staff and partnerships with researchers and auxiliary services (Brady, 2002; Strempel, Saggers, Gray, & Stearne, 2003).

One reason Aboriginal clients may prefer Aboriginal-specific residential rehabilitation is that treatment can incorporate cultural dimensions (Brady, 1995; Rowan et al., 2014). Although a greater

degree of cultural components in treatment has been found to increase clients' wellbeing and reduce recidivism to substance misuse (Chenhall, 2007; Jiwa, Kelly, & Pierre-Hansen, 2008; Nagel, Robinson, Condon, & Trauer, 2009; Smith, Rodrıguez, & Bernal, 2011), the mechanisms by which cultural components improve outcomes, and identifying which specific cultural activities are most effective, is yet to be determined (Chenhall & Senior, 2012; Rowan et al., 2014; Smith et al., 2011).

Nevertheless, it is likely that cultural components will be optimally effective if they are tailored to the specific characteristics of clients admitted to Aboriginal residential rehabilitation services (Choi et al., 2013; Darke et al., 2012; Deane et al., 2012; Shakeshaft, Bowman, & Sanson-Fisher, 2002). Despite the need to define client characteristics, a systematic review of studies of Aboriginal residential treatment services from New Zealand, Canada, the United States, and Australia, published between 2000 and 2016, identified only eight studies that systematically described their clients, of which three (Allan et al., 2012; Brady et al., 2006; Chenhall & Senior, 2012) were Australian (James et al., 2017).

4.2.1 Aims

Consequently, this paper has three aims. First, to empirically describe the demographic, referral type, and service utilisation characteristics of all recorded presentations to, and clients of, a remote Aboriginal residential rehabilitation service over a five-year period. Second, to examine the differences between the characteristics of clients with single, compared to multiple, admissions. Third, to identify the client characteristics which predict length of stay and self-discharge.

4.3 Methods

4.3.1 Ethics

Ethical approval was granted by the Human Research Ethics Committees of the Aboriginal Health and Medical Research Council and the University of New South Wales.

4.3.2 Setting and treatment Program

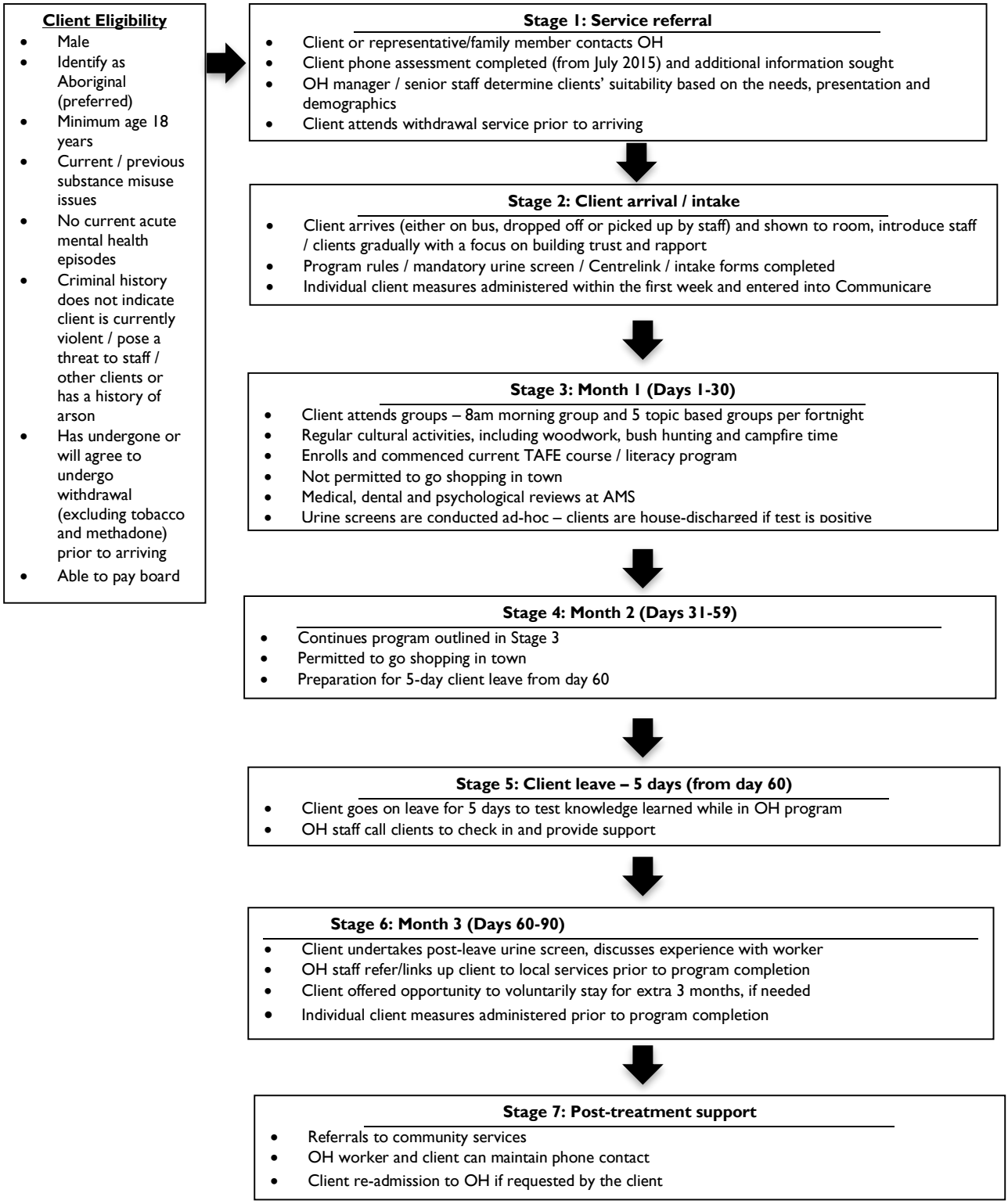
Orana Haven Drug and Alcohol Rehabilitation Centre (OH) is an Aboriginal residential rehabilitation service located in western NSW, approximately 700 kilometres northwest of Sydney. It has been operating since 1982 and offers a three-month voluntary rehabilitation program for Aboriginal males. OH is situated on 10 hectares of traditional country of the Ngemba people.

OH's broad objective is to provide a culturally safe drug and alcohol healing centre that maximises the strengths of Aboriginal people and their communities. The program has evolved from an abstinence-based, 12-step treatment modality to encapsulate broader Aboriginal spiritualty and belief systems. The multi-component program features: two daily groups (a morning 'check-in' group and a psycho-educational group); individual case management and counselling; cultural activities, including fishing and carving wood artefacts (such as didgeridoos); a focus on mental and physical wellbeing; and undertaking vocational skills-based training. OH's client eligibility, referral process, and key program stages are summarised in Figure 4.1.

4.3.3 Sample

All recorded OH client admissions over a five-year period from 1 May 2011 to 30 April 2016.

Figure 4.1 Description of client eligibility and the seven stages of OH program



4.3.4 Measures

Two sets of measures were obtained:

1. Client details were handwritten into a service admission book on arrival at, and exit from, OH. The data collected were: *demographics* (age, date of birth, Aboriginality); *referral type* (criminal justice referred); and *service utilisation characteristics* (days in treatment, discharge type).

2. A service-developed phone assessment form was implemented (in addition to the data collected on arrival) from 1 July 2015 to 30 April 2016. These additional data collected were: *previous rehabilitation service experience* (location, reason for referral); *previous and current legal history* (bail or parole conditions, legal representative details, pending court dates); *drug and alcohol history* (details of last use, frequency of use, substance(s) of concern); *current government payments* (type of benefit); and *current health status* (mental illness, medical conditions or disabilities).

4.3.5 Procedure

Data for this study were extracted into an excel file by the first author from the handwritten service book or the phone assessment form. Data extracted from the handwritten service book were categorised as follows (Table 4.1):

1. *Year*. The first complete month of data available was May 2011. In order to maximise the data included in the analysis, year categories were defined as 1 May to 30 April each year.

2. *Age.* Categories were classified to reflect clinically relevant information sought by the Board, such as whether younger clients were less likely to stay in the program: 18-25 years; 26-35 years; 36-45 years; and ≥ 46 years.

3. *Aboriginality.* Categorised into Yes/No.

4. *Referral type.* Clients were categorised as being referred from criminal justice or not. A criminal justice referral was allocated to clients on parole from incarceration or on bail.

5. *Length of stay.* Constructed to reflect key stages of the program. Clients who remained in treatment for 1-30 days were defined as short stay. Clients who remained in treatment from 31 to 59 days were defined as medium stay. Clients who remained at OH for 60 to 90 days were defined as long stay. The 60-day lower limit was selected because after 60 days in treatment the clients become eligible for a 5-day leave to return to their community and practice the skills that they developed in treatment. Clients who stayed longer than 91 days were classified as extended long stay.

6. *Discharge type.* Categories were classified as program completion (minimum of 90 days), self-discharge (voluntarily discharged without OH staff consent), or house-discharge (discharged by staff for not abiding by OH rules).

Data extracted from the phone assessment form used the same categorisations as the handwritten service book for age, Aboriginality, referral type, length of stay and discharge type, and included the following additional categorisations:

1. *Substance(s) of concern.* Categorised into drug type or polysubstance when more than one substance was reported.

2. *Client location prior to OH admission.* Categorised as currently in custody, metropolitan NSW, rural/remote NSW, mental health institution, and homeless as reported by clients.

3. *Main source of income.* Categorised into the type of benefit (unemployment, disability, and carer/parenting), currently employed or not as reported by clients.

4. *Current mental illness.* Categorised into type of diagnosed disorder or co-occurring diagnoses when more than one diagnosis was reported.

4.3.6 Statistical methods

Data for client admissions from 2011-2016, and the phone assessment subset of data, are presented as means for continuous variables and percentages for categorical variables. Data for single and multiple admission clients were identified using clients' date of birth and initials. Results of inferential statistical tests report the F-statistic (for means) or the χ^2-statistic (for percentages) as appropriate, and the probability value (p).

Two regression models were estimated to identify client characteristics that predict length of stay and self-discharge. For these models, only single client admissions were used to ensure the independence of the sample (n=246, 75% of the total sample). Predictors of length of stay (short, medium, long and extended stay) were examined using a multinomial logistic regression model. Medium stay was used as the reference category because identifying which types of clients were likely to stay for shorter or longer periods was considered clinically relevant by OH staff. There was adequate distribution of the sample in each outcome category. Self-discharge was analysed using a binary logistic regression model where categories were categorised as self-discharge (n=154, 47% of sample) or not (n=175). Self-discharge was selected because almost half of the sample self-discharged from the program. The predictors for both regression models were: age, Aboriginality, and type of referral. These predictor variables were selected because they were the only variables available. Results of the regressions are presented as odds ratios (OR) with exact p-values (due to small sample sizes). All analyses were conducted using SPSS Version 23.

4.4 Results

4.4.1 Sample

The characteristics of the 329 clients admitted to OH over the period 1 May 2011 to 30 April 2016 are summarised in Tables 4.1 and 4.2.

Table 4.1 Demographic, referral type and service utilisation characteristics of OH client admissions over 5 years: 1 May 2011–30 April 2016

Characteristics	Year 1 2011-12	Year 2 2012-13	Year 3 2013-14	Year 4 2014-15	Year 5 2015-16	Total N (%)	F or X^2 (df); p-value
				N (%)			
Total admissions	72 (22)	58 (18)	62 (19)	67(20)	70 (21)	329 (100)	
Demographics							
Age [a] (Mean, years)	32	32	33	36	35	34	**F(4)= 2.39, p= 0.05**
			%				
18-25 years	29	31	32	21	12	81 (25)	X^2**(4)= 11.10, p= 0.03**
26-35 years	36	35	29	27	51	118 (36)	X^2**(4)= 11.03, p= 0.03**
36-45 years	29	26	19	36	20	86 (26)	X^2**(4)=** 6.44, p= 0.17
≥46years	6	9	16	16	17	42 (13)	X^2**(4)=** 6.89, p= 0.14
Aboriginality	94	83	79	85	80	278 (85)	X^2**(4)=** 8.08, p= 0.09
Referral type							
Criminal justice referral	79	69	47	88	96	252 (77)	X^2**(4)= 52.09, p= 0.001**
Service utilisation							
Length of stay (Mean, days)	49	57	58	56	62	56	F(4)= 0.93, p= 0.44
			%				
1-30 days	40	33	36	37	34	119 (36)	X^2**(4)=** 0.98, p= 0.91
31-59 days	20	19	13	16	14	54 (16)	X^2**(4)=** 1.55, p= 0.82
60-90 days	40	43	44	37	36	131 (40)	X^2**(4)=** 1.30, p= 0.86
91> days	0	5	8	9	14	25 (7)	X^2**(4)= 11.44, p= 0.02**
Discharge type [b]							
Completed	29	36	31	27	39	106 (32)	X^2**(4)=** 2.97, p= 0.56
Self-discharge	46	52	50	51	37	154 (47)	X^2**(4)=** 3.89, p= 0.42
House-discharge	18	12	19	22	24	64 (20)	X^2**(4)=** 3.52, p= 0.48

NOTE:
[a] N=327 – 2 client ages missing in Year 3
[b] N=324 – 5 client discharge types missing in Year 1

4.4.2 Demographics

OH recorded a mean of 66 admissions each year (range 58-72), which remained stable over time. Although there was a significant increase in mean age of clients (p=0.05), the range from 32 to 36 years suggests this increase was of marginal clinical importance. The proportion of clients admitted aged 18-25 years significantly declined from 32% in 2013/14 to 12% in 2015/16 (p=0.03), while the proportion of clients aged 26-35 significantly increased from 27% in 2014/15 to 51% in 2015/16 (p=0.03). Most clients identified as Aboriginal (mean 85%, range 79%-94%).

4.4.3 Referral type

The majority of clients (77%) were referred from criminal justice and the proportion significantly increased over time from 79% in 2011 to 96% in 2016 (p<0.001). Most clients were referred from criminal justice across all years (range of 69% to 96%), except in 2013/2014 (47%).

4.4.4 Service utilisation characteristics

Mean length of stay was 56 days (range 49 - 62 days). Half the clients (52%) remained in the program for less than 60 days. In 2011/12, 60% of clients left before 60 days, which reduced to 48% in 2015/16. The percentage of clients staying longer than 90 days significantly increased from none in 2011/12 to 7% of clients in 2015/16 (p=0.02). A third of all clients (32%) completed the program (range 27%-39%). Rates of self-discharge ranged from 37%-52% (mean 47%). Although the proportion of house-discharged clients doubled from 12% in 2012/13 to 24% in 2015/16, this increase was not statistically significant. There was a non-significant increase in the proportion of clients who completed treatment (from 31% to 39%) and a non-significant decrease in the proportion of clients who self-discharged (from 52% to 37%).

4.4.5 Characteristics of OH clients assessed using the phone assessment form in 2015-2016

Most clients reported that they were concerned about their polysubstance use (69%). Methamphetamine was the most commonly reported substance of concern (n=32; 63%), whether it was used in combination with other substances (n=28) or as methamphetamine only (n=4), followed by alcohol (total n=29 [57%]; n=8 alcohol only) and cannabis (total n=29 [57%]; n=3 cannabis only). Prior to OH admission, most clients: resided in rural or remote NSW (59%); had been in custody (19%); resided in metropolitan NSW (12%); were homeless (8%); or had been in a mental institution (2%). Most clients (94%) received government payments: unemployment benefits (59%); disability benefits (27%); or a carer/parenting benefit (8%). Half (51%) reported that they had been formally diagnosed with at least one current mental illness.

Table 4.2 Characteristics of OH clients (n=51) from 2015-2016

Characteristics	2015-2016 n (%)
Total admissions*	51
Demographics*	
Age (Mean, years)	35
Aboriginality	40 (78)
Referral type*	
Criminal justice referral	49 (96)
Service utilisation*	
Length of stay (Mean, days)	62
Discharge type	
Completed	20 (39)
Self-discharge	19 (37)
House-discharge	12 (24)
Substance(s) of concern	
Polysubstance	35 (69)
Methamphetamine and alcohol	*3 (6)*
Methamphetamine and cannabis	*8 (16)*
Methamphetamine, alcohol and cannabis	*11 (21)*
Cannabis and alcohol	*7 (14)*

Methamphetamine and other substances (including heroin, cocaine, methadone, and oxycontin)	*6 (12)*
Alcohol	8 (15)
Methamphetamine	4 (8)
Cannabis	3 (6)
Methadone	1 (2)
Client location prior to OH admission	
Currently in custody	10 (19)
Metropolitan NSW	6 (12)
Rural / remote NSW	30 (59)
Mental health institution	1 (2)
Homeless	4 (8)
Main source of income	
Unemployment benefit	30 (59)
Disability benefit	14 (27)
Carer / parenting benefit	4 (8)
Currently employed	1 (2)
Not specified	2 (4)
Current mental health diagnosis	
Depression	12 (24)
Anxiety disorder	2 (4)
Bipolar disorder	2 (4)
Schizophrenia	5 (10)
Co-occurring diagnoses	5 (10)
Not specified	25 (49)

NOTE: *Shaded cells are data unique to the 2015/16 phone assessment form

4.4.6 Differences between the characteristics of single admission clients and multiple admission clients

Table 4.3 shows that older clients were statistically significantly more likely to have multiple admissions to OH over the five-year period ($p<0.002$).

Table 4.3 Differences between the characteristics of single admission clients and multiple admission clients to OH from 2011-2016

Characteristics at first admission	Single admission clients n=246	Multiple admission clients n= 37	Statistical difference? F or X^2 (df), p-value
	Mean or % (Std. Deviation)		
Age (years) [a]	33 (9.36)	36 (10.15)	**F(2)= 6.61, p= 0.002**
Aboriginal status	84 (0.37)	84 (0.37)	$X^2(2)= 0.88$, p= 0.65
Criminal justice	77 (0.42)	68 (0.48)	$X^2(2)= 2.12$, p= 0.35
Length of stay	55 (38.83)	58 (44.75)	F(2)= 0.30, p= 0.74
Type of discharge [b]			
Completed	33 (0.47)	30 (0.46)	$X^2(2)= 0.58$, p= 0.75
Self-discharge	47 (0.50)	43 (0.50)	$X^2(2)= 0.38$, p= 0.82
House-discharge	18 (0.39)	27 (0.45)	$X^2(2)= .55$, p= 0.46

NOTE:
[a] 2 client ages missing in Year 3
[b] 5 client discharge types missing in Year 1

4.4.7 Predictors of short, medium and long stay in treatment

Table 4.4 shows that older clients were significantly more likely to complete an extended, relative to a medium stay (p=0.02). The lower likelihood that Aboriginal clients would complete an extended stay approached significance (p=0.06).

4.4.8 Predictors of self-discharge

Table 4.4 shows that clients referred from a criminal justice setting were significantly more likely to self-discharge, relative to clients who did not self-discharge (p<0.01).

Table 4.4 **Predictors of short (1-30 days), long (60-90 days), extended stay (91> days) and self-discharge among single client admissions (N=283) at OH from 2011-2016**

Predictors	Multivariate Odds Ratios (OR)					
	OR (95% CI)	**p-value**	**OR (95% CI)**	**p-value**	**OR (95% CI)**	**p-value**
Model 1: Predictors of short, long and extended stay[a,b]						
	Short stay (1-30 days) n=102		**Long stay (60-90 days) n=121**		**Extended stay (91> days) n=16**	
Aboriginal status	0.70 (0.26, 1.91)	p=0.49	0.68 (0.26, 1.80)	p=0.44	0.29 (0.08, 1.07)	p=0.06
Age	1.00 (0.97, 1.04)	p=0.99	1.02 (0.98, 1.05)	p=0.32	1.06 (1.01, 1.12)	**p=0.02**
Criminal justice	0.50 (0.22, 1.10)	p=0.08	0.93 (0.42, 2.08)	p=0.93	1.31 (0.31, 5.62)	p=0.08
Model 2: Predictors of self-discharge among single client admissions[c]						
	Self-discharge n=131					
Aboriginal status	0.89 (0.46, 1.70)	p=0.72				
Age	1.00 (0.98, 1.03)	p=0.90				
Criminal justice	2.53 (1.43, 4.46)	**p=0.01**				

NOTE:
[a]The reference category is: Medium stay: 31-59 days (n=42)
[b]2 missing (N=281)
[c]The reference category is: Other discharge (n=152)

4.5 Discussion

The current study makes a unique contribution to the literature by being the first to empirically describe the characteristics of clients of a remote Aboriginal residential rehabilitation service. The following synthesises the main findings relating to this study.

4.5.1 Key findings

Trends relating to age

Although the mean age of OH clients significantly increased over time, the marginal extent of this mean increase is reflected by the significant reduction in the proportion of clients aged 18-25 (from 32% in 2013/14 to 12% in 2015/16) being largely offset by the significant increase in the proportion of clients aged 26-35 (from 27% in 2014/15 to 51% in 2015/16). The fall in the proportion of younger clients admitted to OH is reflected by the broader decline in the proportion of 20–29 year olds treated for drug and alcohol misuse, reducing from 33% to 27% of treatment episodes in Australia between 2005-2015 (AIHW, 2014b). The decrease in young people accessing residential treatment may suggest that Aboriginal residential rehabilitation facilities, or the treatment provided, could be modified to increase their appropriateness for young people. Alternatively, it may reflect that fewer young Aboriginal people are attending residential rehabilitation because they are being incarcerated

at increasingly high rates (there was a 77% increase between 2000-2015 for adult Aboriginal imprisonment (Productivity Commision, 2016).

Older clients were more likely to have extended stays during the study period (relative to medium stays), which is consistent with Australian research that found older residential rehabilitation clients had significantly longer treatment episodes, and were more likely to have multiple admissions, compared to younger clients (Copeland & Indig, 2004). Given the evidence that treatment characterised by fewer episodes of care that are of longer duration is associated with better outcomes (compared to multiple, shorter episodes of care; Darke et al., 2012), OH could provide additional support to older clients who re-admit, to increase the likelihood that they will stay for the duration of their treatment, rather than relapse into further iterations of discharge and readmission. The specific nature of that support could be co-designed by clients and staff, integrated into a revised model of care and evaluated to quantify its impact and costs.

Criminal justice system referrals

The majority of clients were referred from the criminal justice system, ranging from 90% (2011/12) to 96% (2015/16) and these clients were significantly more likely to self-discharge. The significant increase in clients referred from the criminal justice system is consistent with the reported 77% increase between 2000-2015 in the number of adult Aboriginal prisoners (Productivity Commision, 2016), and the disproportionately high prevalence of substance misuse among prisoners (Doyle et al., 2015; Indig, McEntyre, Page, & Ross, 2010). In Australia, for example, 84% of prisoners reported illicit drug use, 58% reported harmful alcohol consumption and 61% reported being under the influence of substances at the time they committed their current offence (Doyle et al., 2015; Indig et al., 2010). Numerous reports have advocated for an increase in the availability of culturally responsive diversionary programs from prison to residential treatment settings (ANCD, 2013; Finlay et al., 2016; Lloyd et al., 2015; Weatherburn & Holmes, 2010). Since criminal justice referrals were more likely to self-discharge, future research could usefully determine why these clients are more likely to self-discharge, given the reasons could vary from clients engaging in the minimal amount of residential rehabilitation in preference to jail, to the need to tailor programs to better meet the risk factors that are specific to these clients (Sung, Belenko, & Feng, 2001).

Program completion and length of stay

A third of clients completed the program, 47% self-discharged, and 20% house-discharged. The average length of stay was 56 days, although 36% left within the first month. The average length of stay of 56 days is higher than for mainstream residential rehabilitation services, which have been reported as 26 days (Copeland & Indig, 2004), 32 days (Choi et al., 2013) and 37 days (Darke et al., 2012). Although 36% of clients left treatment within the first month, this compares favourably to 56% for residential treatment for dual diagnosis clients (Choi et al., 2013). OH's completion rate of 32% is comparable to the 34% reported for non-Aboriginal residential rehabilitation services in Australia (Darke et al., 2012) but it is possible this could be improved given the 62% completion rate reported in one study (Sung et al., 2001).

Polysubstance use

Most clients in the 2015/16 dataset reported concerns with polysubstance use (69%). Methamphetamine was identified as being the most prevalent substance of concern, whether it was used in combination with other substances or as methamphetamine only (nominated by 63% of clients). This finding is consistent with increased methamphetamine use in Australia generally (Roche

& McEntee, 2016) and among offenders (AIHW, 2015b), and an increase in demand for treatment from clients with methamphetamine dependence (AIHW, 2016b). Residential rehabilitation is an appropriate option for treating methamphetamine dependence, given clients' outcomes at three- and 12-months post treatment have been shown to be significantly better than for clients who received detoxification only (McKetin et al., 2012). Despite the increase in demand for treatment for methamphetamine dependence, the total proportion of treatment seeking clients whose primary drug of concern includes methamphetamine is still comparable to alcohol and cannabis (57% for both). This finding, along with the finding that most clients reported concerns with polysubstance use (69%), highlights the importance of programs focusing on substance abuse disorders generally, not just risk factors associated with individual substances.

4.5.2 Limitations

A number of limitations merit discussion. First, while length of time in treatment is a good predictor of outcomes, follow-up data were not collected. Follow-up data would help identify which clients would benefit most from aftercare aimed at preventing re-admission (Alati, Liamputtong, & Peterson, 2003; Brunette, Drake, Woods, & Hartnett, 2001; NACCHO, 2016). Second, limited staff uptake of the electronic client management system, a reliance on handwritten intake and client files, and *ad hoc* screening processes all increased the likelihood of missing data. The potential to improve data collection and routine monitoring across the ACCHO sector has been noted previously (NACCHO; Taylor et al., 2010), and the phone assessment data for the 2015/16 period in this study demonstrates that it is feasible for services to routinely collect more comprehensive data. Additional measures could include those specifically developed for Aboriginal substance misuse clients, such as IRIS (DOHA, 2007), or those with Aboriginal-specific cut-off scores, such as AUDIT-C (Calabria et al., 2014), or those that measure a wider-range of potential psychosocial benefits from Aboriginal residential rehabilitation, such as empowerment (Haswell et al., 2010) and quality of life (Chenhall & Senior, 2012). Third, this study was conducted in a single setting, meaning the results are of unknown generalizability to comparable services. Replicating this study in other Aboriginal residential rehabilitation services would facilitate useful comparisons and identify opportunities for greater standardisation in client assessments.

4.5.3 Implications for research, clinical practice and policy

OH has clear potential to increase the rate with which clients complete treatment from the mean completion rate of 32% over the last five years. It could also tailor treatment to improve outcomes for high-risk clients, including older clients with a history of multiple admissions and clients referred from the criminal justice system. Beyond OH, this study highlights the opportunity for Aboriginal residential rehabilitation services to collect follow-up data, standardise client assessments and embed routine data collection. The latter has been successfully done in Aboriginal-specific primary health care services in partnership with the authors, which suggests it would be feasible for Aboriginal residential rehabilitation services (Clifford & Shakeshaft, 2011; Clifford, Shakeshaft, & Deans, 2012).

This study also underlines the value of a service-researcher partnership in improving both service delivery and research outcomes. Such partnerships should be a priority given Recommendation 69 of the *Royal Commission into Aboriginal Deaths in Custody,* which articulates the need to assist Aboriginal organisations to develop effective evidence-based programs aimed at minimising harms from substance misuse and criminal activity (Commonwealth of Australia, 1991).

In addition to quantitative analyses, research could be improved by incorporating the personal experiences of those who misuse substances, and the professional experiences of staff, through

methodologically robust qualitative research (Saggers & Gray, 2001). The combination of both quantitative and qualitative data could be utilised by OH and other residential rehabilitation services to inform the development of evidence-based models of treatment that are feasible to implement, acceptable to clients and staff, and tailored to the specific needs of clients.

4.5.4 Conclusion

Creating partnerships between services and researchers to utilise both the clinical expertise within services and the evaluation expertise of researchers represents best-evidence practice (Sackett, Rosenberg, Gray, Haynes, & Richardson, 1996). This study makes a unique contribution to the literature and this remote Aboriginal residential rehabilitation service as the data can be used to more accurately tailor the service to clients' needs. Key recommendations are to integrate these empirical observations with the perceptions of staff and clients to co-design an improved model of care that would be adaptable to other Aboriginal residential rehabilitation services, to standardise data collection across Aboriginal residential rehabilitation services, and to implement a process of routinely following-up clients to monitor treatment effectiveness.

5. "I just feel comfortable out here, there's something about the place": staff and client perceptions of a remote Australian Aboriginal drug and alcohol rehabilitation service[11]

[11] This chapter is published as follows:

Munro A, Allan J, Breen C, Shakeshaft A. (2017). "I just feel comfortable out here, there's something about the place": staff and client perceptions of a remote Australian Aboriginal drug and alcohol rehabilitation service. *Substance Abuse Treatment, Prevention, & Policy,* 12(49). doi:10.1186/s13011-017-0135-0.

5.1 Preamble

A key recommendation of Chapter 3 was that meaningful and respectful partnerships between local communities and researchers should be developed at the beginning of the implementation of a project to both improve health outcomes for Aboriginal communities and demonstrate that those improved outcomes are measureable and replicable. Chapter 4 presented the first of series of three CBPR-based studies that demonstrate the development of a research partnership between services and researchers at the commencement of a project that sought to strengthen the delivery of services in a community-based Aboriginal drug and alcohol residential program. Chapter 4 empirically described clients admitted to the service over a 5-year timeframe, which can help the service more accurately tailor its program to the needs of its clients, with the goal of improving their outcomes (Sackett et al., 1996). Improving outcomes as quickly and as cost-effectively as possible is extremely important given the significant health and social disparities between Aboriginal and non-Aboriginal Australians, as extensively detailed in Chapter 1.

Key strengths identified in Chapter 4 included the value of developing a meaningful service-researcher partnership with the mutual goals of strengthening both service delivery and research outcomes within the Aboriginal drug and alcohol residential rehabilitation research field. Such partnerships should be a priority given Recommendation 69 of the *Royal Commission into Aboriginal Deaths in Custody*, which articulates the need to assist Aboriginal organisations to develop effective evidence-based programs aimed at minimising harms from substance misuse and criminal activity (Commonwealth of Australia, 1991). A benefit of this partnership was evidenced by improvements to the intake process including the service-developed phone assessment form for the 2015/16-period. This demonstrates that ACCHOs can undertake quality improvement processes with input and support from academic partners. Despite this improvement in data collection, a major limitation was that client follow-up data were not collected. Follow-up data are required to determine client outcomes post admission and can help identify which clients would benefit most from follow-up care aimed at preventing re-admission. In addition to the lack of follow up data collected, limited staff uptake of the electronic client management system, a reliance on handwritten intake and client files, and *ad hoc* screening processes increased the likelihood of missing data. The potential to improve data collection and routine monitoring across the ACCHO sector is strongly encouraged by the national body overseeing all ACCHOs and previous research (NACCHO, 2016; Taylor et al., 2010).

A key recommendation of Chapter 4 was to integrate data from empirical measures with the perceptions of staff and clients to co-design an improved model of care that could be adaptable to other Aboriginal residential rehabilitation services. Therefore, Chapter 5 will qualitatively analyse staff and client perceptions of the key strengths and areas for improvement of the OH program.

5.2 Introduction

The harmful effects of substance misuse on Australian Aboriginal and Torres Strait Islander individuals, families and communities (hereafter Aboriginal Australians as the term recommended by the Aboriginal Health and Medical Research Council for NSW; AH&MRC, 2008) arises from a complex milieu of factors including the intergenerational impacts of colonisation (Wynne-Jones et al., 2016), and subsequent high rates of incarceration (Productivity Commision, 2016) suicide and self-harm (DOHA, 2013), and poverty (ACOSS, 2016; Marmot, 2011). Despite Aboriginal Australians comprising only approximately 3% of the Australian population (ABS, 2014), drug and alcohol-related morbidity and mortality are disproportionately higher among this population (AIHW, 2016a; AIHW,

2011a). In order to significantly reduce the rates of harm, a range of effective prevention and treatment programs are required, including residential rehabilitation services.

Although the need for effective, culturally safe residential rehabilitation services for Aboriginal people is widely acknowledged, the specific combination of treatment components that is optimally effective is not well defined (Chenhall & Senior, 2012, 2013; Gone & Calf Looking, 2011; James et al., 2017). Research with mainstream drug and alcohol residential rehabilitation services, conversely, has consistently identified that length of stay is significantly associated with positive post-treatment outcomes (Broadstock, Brinson, & Weston, 2008; Carr & Ball, 2014; Darke et al., 2012; Brorson et al., 2013; Meier & Best, 2006; Turner & Deane, 2016). Alternatively, the stage of treatment achieved by the client may provide another indicator of individual progress, but content of the stages may vary between different services (Toumbourou, Hamilton, & Fallon, 1998). Toumbourou et al. (1998) suggest that progress in treatment rather than length of time in treatment may be more predictive of improvements in a client's level of function afterwards. However, ways to measure progress have not been described and failure to complete treatment is common (Brorson et al., 2013). A systematic review of studies published between 1992 and 2013 aimed at identifying risk factors for non-completion in mainstream residential rehabilitation found that 91% of studies exclusively focused on patient characteristics, such as age, sex, ethnicity, primary substance, marital status and co-occurring diagnosis, rather than people's experience of specific treatment components, such as the perception of therapeutic activities and relationships with staff (Brorson et al., 2013). This review surmised that the key reason for the focus on client characteristics is the dominant medicalised understanding of substance misuse. From a medical perspective failure to complete treatment is often viewed as the result of an underlying pathology, and therefore future research should focus on treatment-related components associated with failure to complete treatment in residential rehabilitation settings, in addition to patient characteristics (Ghose, 2008; Brorson et al., 2013). In settings other than residential rehabilitation, treatment components associated with improved retention include: the quality of the client-staff relationship, or therapeutic alliance (Brorson et al., 2013; Meier, Donmall, McElduff, Barrowclough, & Heller, 2006; Newton-Howes & Stanley, 2015), ward atmosphere (Carr & Ball, 2014; Moos, 2007; Moos, King, Burnett, & Andrassy, 1997); a balanced treatment program (Meier et al., 2006); and consistent daily routine (Sung, Belenko, Feng, & Tabachnick, 2004).

Aboriginal-specific drug and alcohol residential rehabilitation services provide treatment for Aboriginal people with substance misuse problems. Since being established over five decades ago, Aboriginal residential rehabilitation services are reported to be the preferred option for Aboriginal people and have historically incorporated Therapeutic Community and 12-Step approaches, or a combination of both (Brady, 1995). Aboriginal residential rehabilitation programs have an important role in responding to substance use disorders because they provide culturally specific services over an extended period of time, including providing a drug and alcohol-free environment, safe accommodation, time away from chaotic environments, access to counselling, and meeting clients' nutritional needs (Brady et al., 2006; Munro, Shakeshaft, & Clifford, 2017). Further, the National Indigenous Drug and Alcohol Committee suggests that residential treatment may be the best, or only practical, option for people who have a range of complex co-occurring needs (NIDAC, 2014).

An important component of Aboriginal residential rehabilitation services is 'culture as treatment' for healing from substance misuse (Brady, 1995, 2002; Chenhall & Senior, 2013; Taylor et al., 2010). Indigenous peoples in Australia and internationally perceive the aetiology of substance misuse and ill health in the erosion of their cultural integrity (Brady, 1995, 2002; Chenhall, 2007; Chenhall & Senior, 2013; Chirkov, Ryan, & Willness, 2005; Rowan et al., 2014; Taylor et al., 2010; Torres Stone,

Whitbeck, Chen, Johnson, & Olson, 2006). Re-connection with culture is, therefore, viewed as essential to recovery and ongoing wellbeing (Dudgeon et al., 2016; NAHSWP, 1989).

5.2.1 Aims

This study aims to identify staff and client perceptions of the key strengths and areas for improvement of specific treatment components delivered by a remote Australian Aboriginal drug and alcohol residential rehabilitation service.

5.3 Material and Methods

5.3.1 Ethics

Ethical approval was provided by the Aboriginal Health and Medical Research Council and the University of New South Wales Human Research Ethics Committees (HC14142, 1023/14). All participants were provided with an information sheet explaining the purpose of this study, had the opportunity to ask questions, and signed a consent form to participate in the interviews. The study adhered to the principles outlined in National Health and Medical Research guidelines (NHMRC, 2003) and the Australian Institute of Aboriginal and Torres Strait Islander Studies Guidelines for Ethical Research in Indigenous Studies (AIATSIS, 2012).

5.3.2 Study context

Orana Haven Drug and Alcohol Residential Rehabilitation Service (OH) is an Aboriginal residential rehabilitation service located in western NSW, 700 kilometres northwest of Sydney. The service began operating as an Aboriginal Community Controlled Health Organisation (ACCHO) in 1983. It offers a 3-month voluntary rehabilitation program for Aboriginal males. OH's current service provision is a combination of a Therapeutic Community and 12-Step treatment approach. According to OH's 2015-2018 Strategic Intent (see Appendix B), the service's vision is to provide a culturally safe drug and alcohol healing centre that maximises the strengths of Aboriginal people and communities.

5.3.3 Study design

This study was undertaken as part of a three-year (2014-2017) mixed methods community-based participatory research (CBPR) project that aimed to empirically describe a remote Aboriginal drug and alcohol rehabilitation service. CBPR typically involves cycles of collaborative action, often in sequential steps that engage community or service provider participants as co-researchers, educating and empowering them to effect positive changes in their environment (Kowanko et al., 2009; Lazarus, 2014; Windsor, 2013). The theoretical perspective of Interpretative Phenomenological Analysis (IPA) informed this qualitative study. IPA is based on the assumption that participant perceptions present evidence as their "lived experience" (Smith, 2004; Smith et al., 2011), with lived experience defined as the way a person experiences their world (Beck, 1992). It has been previously argued that substance misuse is a lived experience rather than a behaviour and, therefore, it is legitimately studied within the context of the whole person (Kahn & Steeves, 1986). Given this, IPA provides an appropriate methodology to interpret the meanings clients and staff ascribe to their lived experiences of OH (Biggerstaff & Thompson, 2008).

5.3.4 Participants and data collection

Researchers utilised purposive sampling (Barbour, 2001) to conduct 21 in-depth, semi-structured interviews. The sample consisted of 12 clients (denoted in quotes by 'C') and 9 OH staff (denoted by 'S') attending or employed at OH from October 2015 to January 2016. Interviews were conducted across two different time points (less than 3 months apart) to ensure data collected reflected a range

of client and staff experiences. The semi-structured interviews used a 'research yarning' approach, a form of culturally appropriate conversation that is relaxed and narrative-based (Bessarab & Ng'andu, 2010). Participants were initially asked about their life history (e.g. age, family, education, and occupation) prior to being admitted to, or employed at, OH. This enabled rich accounts of their experiences in a non-threatening way. Clients were additionally asked about the process of their referral to and length of time at OH. Participants were then asked a series of open questions about their experiences of OH (Table 5.1). Interviews were conducted in person at OH by a non-Aboriginal female researcher, took 30 minutes to 2 hours, were digitally recorded and transcribed by an independent third party into word documents. To ensure accuracy, the interviewer selected 10% of the interviews to re-transcribe and compare with the transcribed interviews.

Table 5.1 Summary of qualitative interview schedule for OH staff and clients

Client interview schedule
1. What is your personal background/story?
2. Describe your health and life before you came to OH
3. What were your first impressions of OH?
4. What are your thoughts about your experience of OH once you had settled after a few days?
5. What has your mental and physical health been like since you have been at OH?
6. What activities have you been doing since you arrived at OH?
7. What are the cultural aspects of OH?
8. What are the next steps/plans for you after your discharge from OH?
9. What could OH do better?
10. Other comments to add?
Staff interview schedule
1. What is your personal background/story?
2. What is your role on a typical day at OH?
3. What happens when a client first arrives at OH – what is your role in the intake process?
4. What is OH's approach for working with clients?
5. What are the cultural aspects of OH?
6. What happens when a client is getting ready to leave OH – what's your role in the discharge process?
7. What could OH do better?
8. Other comments to add?

5.3.5 Data analysis

The interview transcripts were deductively coded guided by the interview schedule (Table 5.1) and best practice recommendations for Aboriginal drug and alcohol residential rehabilitation services outlined by Brady (2002) and also inductively coded into emerging categories by the first author (AM) using NVivo data management software (QSR International Pty Ltd). Then, iterative categorization (Neale, 2016), a systematic technique for managing analysis that is compatible with, and can support, analytical approaches such as thematic analysis, was used to deepen the analysis process by coding the categorised data line by line to identify emerging themes. The second author (JA) reviewed the coding for consistency. The emerging themes were then analysed from an IPA perspective, focusing on how interview participants ascribed meaning to their experiences and relationships within their environments. In this case, IPA prioritised the participants' lived experiences before and during their admission to OH and examined how specific treatment components shaped their perceptions of the program (Smith, 2004).

5.4 Results

5.4.1 Sample

Client characteristics: The mean age of clients was 35 years, most of whom identified as Aboriginal (91%). On average, clients had been at OH for 48 days (range 4-120 days). Over half were referred from the criminal justice system and reported prior substance rehabilitation experience, with a quarter indicating a previous admission to OH. All clients reported a history of incarceration. Most clients had children and two said they had a current partner. No clients reported completing high school education, although half had completed a trade qualification. All clients described current mental health difficulties (e.g. psychosis, self harm, suicidality and depression) and extensive trauma in childhood or adolescence, ranging from one-off events to prolonged exposure. The types of trauma disclosed included: sexual abuse; being removed from their families and placed in foster care; family violence; parental substance abuse; and/or the death of a parent, sibling or child.

Staff characteristics: Two female and seven male staff were interviewed. The mean age of the interviewed staff was 48 years old and the majority identified as Aboriginal (67%). Most were employed in full-time roles: two in management; two drug and alcohol counsellors; four residential care worker/other support roles (e.g. cook, maintenance, administration); and one in a dual transport and cultural advisor role (e.g. teaching woodwork, going on bush trips, taking clients to cultural sites). Two thirds of staff reported a history of substance misuse, of which over half stated they had had a prior drug and alcohol residential rehabilitation admission. Most reported a history of trauma in childhood or adolescence, including parental substance abuse or neglect, family violence and sexual abuse.

Table 5.2 Summary of key client and staff characteristics

Characteristics	Clients	Staff
	N (%)	
Total participants	12	9
Age (mean, years)	35 (range 21-51)	48 (range 36-61)
Aboriginality	11 (91)	6 (67)
Gender		
Male	12 (100)	7 (88)
Female	n/a	2 (22)
Referral type		
Criminal justice	7 (59)	n/a
Self-referred	3 (25)	n/a
Other services	2 (17)	n/a
Length of time in treatment (mean, days)	48 (range 4-120)	n/a
1-30 days	5 (42)	n/a
31-59 days	2 (17)	n/a
60-90 days	4 (33)	n/a
91> days	1 (8)	n/a
Length of time employed at OH (mean, yrs)	n/a	2.5 yrs (range 7mths – 5 yrs)
Prior incarceration	12 (100)	5 (56)
Prior substance misuse	12 (100)	6 (67)
Prior residential rehabilitation admission	7 (58)	5 (56)
Self-reported mental health issues	12 (100)	n/a
Self-reported history of trauma	12 (100)	6 (67)

5.4.2 Emergent themes

Five themes about specific OH program components were consistently identified in the interview data: 1. Healing through culture and country; 2. Emotional safety and relationships; 3. Strengthening life skills; 4. Improved wellbeing; and 5. Perceived treatment gaps. The themes are detailed below.

5.4.3 Healing through connection to culture and country

The presence and value of Aboriginal culture embedded throughout the OH program was described by staff and clients as a primary strength of the program. It was identified that providing ready access to culture by being on country directly impacted on people's identity and spirituality. The term "country" is often used by Aboriginal and Torres Strait Islander people to describe the complex and interrelated connections to family origins and particular pieces of land in Australia and the Torres Strait (Queensland Studies Authority, 2008).

Providing access to culture and country

Clients described the location of OH as being very important to stimulate connection to, and practice of, culture, for instance: "I think just being here is enough culture" (C6). Other clients spoke of feeling the "old people" such as: "You can feel them in some rooms. They're probably just looking for someone or passing through" (C5). The ancestral connection to the country on which OH is located, including being at a known traditional meeting place and where respected Elders once lived, was also noted to be significant by staff. For example:

> "I know a very well respected old Aboriginal man used to live here, used to own this place and they did a lot of cultural stuff. His house was over there [pointing]..." (S7).

> "Somewhere along this river was a meeting place in days gone by, the people that lived here before Orana Haven were very, very cultural... being on the banks of a river has a cultural aspect for Aboriginal people, that's where most of their meeting places are..." (S6).

Clients who had little connection to Aboriginal culture prior to coming to OH discovered that being on traditional country provided access to a range of cultural experiences:

> "There's a couple of fellas from the city and they've never been to a bush place. I suppose they'd like to learn what berries to pick and make you healthy and stuff like that. One fella didn't know Aboriginal ways, but, he ended up getting the message… he started mixing in and doing things, following us around, [saying] "Oh yeah, I love this!"" (C3).

Examples of using the bush and the country to access culture included regular 'culture trips,' which was reported to involve looking for wood to make traditional artefacts such as boomerangs and nulla nullas (traditional Australian Aboriginal hunting and tools), visiting significant sites, and learning about traditional medicines. Importantly, the staff believed it was this access to culture from being on country that positively impacts clients' health and wellbeing. Staff commented that it is their responsibility to impart knowledge about culture:

> "We take them out bush, show them which trees have the fruit, which ones are the medicine. A lot of them like the medicine... There's one medicine that's good for your liver and a lot of them drink it when they're here, they go and get it and we show them how to mix it. Some have pretty high liver counts and by the time they leave here and they've been drinking the medicine, the liver count drops" (S7).

Identity

Clients reflected on a range of positive experiences of learning and practicing their culture while at OH. One client described the process and persistence required to make, and learn to play, a didgeridoo (a traditional Australian Aboriginal musical instrument), which was reported to directly impact on his identity as an Aboriginal person:

> "You sand it down. We've got the wood all cut up, just go and pick a good one out and clean it up. You give it a wipe over with paint, it gives it a shine or something, takes a lot of splinters away from it. Then you can carve it… Learning to play is something I do nearly every morning. I try but, I can't do it, but one of the koori fellas said to me, "You can do it, just keep trying and you'll get it. Just keep trying and it will work." It's like just sitting down playing the guitar... It keeps our Aboriginal culture alive, which I never knew how it was done as an Aboriginal person… I feel happy and proud about it" (C1).

This sense of pride and happiness that this client and others reported from making cultural artefacts or engaging in other cultural activities was perceived by staff to improve their sense of self-worth. For example an Aboriginal staff member stated:

> "It's given me a lot of joy seeing them making something like a didgeridoo. Watching their self-esteem lift up…"I can do this." Because a lot of this stuff, I believe, the aiding of the self-esteem, self-worth… gets rid of the depression" (S3).

Staff consider a major indicator of the success of the program, therefore, was the strengthening of clients' identity as Aboriginal men through actively engaging in cultural activities:

> "A lot of fellas are lost or got no identity, don't know where they came from. We understand where they're not complete in their identity and that's why we do these culture things, like the young fella that learnt to play his didge, he said, "Now, I feel like a blackfella"" (S3).

Spirituality

Clients and staff interchangeably used the term 'spirituality' to refer to both traditional cultural spirituality (e.g. "feeling the old people" (C9)) and more conventional forms of religious spirituality aligning with the 12-Step model, a foundation of OH's program. Both clients and staff perceived OH had an appropriate amount of spirituality embedded within the program and it was viewed as a positive that spirituality could be personalised to each individual. For instance, one client reported they were encouraged to view his 'higher power' to be any source of strength in his life, which he described being his sister and his son (with whom he had lost contact). A staff member explained how clients were encouraged to identify their own perception of spirituality;

> "We tell them, "Your God or higher power can be anything, your partner, your children, it could be your great grandfather"" (S8).

And that belief in a higher power was critical as this is consistent with traditional Aboriginal beliefs;

> "A lot of us Aboriginal fellas, we say, "Baiame, is our God." Everyone's got to believe in something, if you don't believe in something you've got nothing" (S8).

5.4.4 Emotional safety and relationships

The importance of emotional safety, including trust, acceptance, feeling safe, and developing relationships was described by participants in relation to the following components: therapeutic activities; and staff empathy and lived experience.

Therapeutic activities

There were two types of therapeutic activities described by participants: groups (e.g. 12-Step, morning therapy and psycho-educational groups); and individual counselling (described as one-on-one time with a counsellor). A majority of clients perceived the therapeutic groups to be the most helpful therapeutic activity during treatment. Groups gave them an opportunity to share experiences about their problems instead of "holding it in" and listening to other people's stories enabled them to "learn from each other." This was found to be especially beneficial for clients who reported vulnerabilities with expressing themselves or their emotions. For instance, one client said:

> "The groups have been unreal... When staff are talking it's like they're taking everything out of my head and just saying it. It's like they're only talking to me, like I'm the only person in the room with the problem… It's good to listen, just to sit there and listen" (C12).

A critical element of OH's groups, as identified by clients, was that "you're allowed to share if you want, but they don't force you" (C10). Clients consistently reported a preference to listen when they first arrive, and then they gradually "talk more and more" (C3) each time as they build their confidence and trust within the group. Trust was, therefore, perceived as a very important enabler for the clients to share their experiences, as they felt more accepted into the group:

> "We'll talk about our stress every morning instead of holding it in… We talk in a circle and we all know it stays in the room" (C1).

Staff also perceived group participation to be an important part of the OH program. For example;

> "We try and make that (Group) talk normal for this community and when we find that's working, this place runs very, very well, the blokes love it. Sometimes they feel sad, they even cry, we have that happen quite often in groups" (S8).

Staff reported the value of keeping clients engaged in groups using two strategies. First, having a variety of topics or guest speakers from local or visiting services was considered a vital strategy to ensure clients stay engaged with the content, particularly those who stay longer than three months. Second, OH intentionally limits its focus on journaling or setting homework tasks because "paperwork doesn't work at Orana"(S6). Staff identified most clients had difficulties with literacy or never completed homework and, therefore, were more likely to disengage from the program activities.

According to the clients, there were two types of individual counselling provided at OH. First, most clients reported receiving individual counselling from the visiting psychologist or psychiatrist at the local Aboriginal Medical Service (AMS). The focus or content of these sessions was not described. Second, several clients described "having a yarn" (C4) with OH staff in more informal settings. These clients reported feeling staff were approachable and were "always there to have a talk" (C1) both day and night when they were "worked up and need a chat" (C3) or felt like leaving the program. These statements were echoed by staff, who refer clients for formalised mental health support when needed, but being responsive to the client's needs by talking with clients in more informal settings, such as at the river, while making artefacts, or during night shifts.

Staff empathy and lived experience

All clients reported positive perceptions about the OH staff, stating "it's not just a job for them… they go out of their way" (C7) and that staff are "always available for a chat… genuine, easy to get along with and feel caring" (C11). Staff reinforced the importance of providing client-centred care. In one client's words, the "clients come first:"

> "We're all on the same page, the whole purpose of the job is to help these fellas in their journey to do something different with their life" (S4).

Clients reported staff related to them better because they had "been there done that" (C11), meaning the staff had lived experience of substance misuse which clients perceived as a strength of the program. One staff member reflected on how their shared experiences are similar:

> "Since I've come here I've worked with a lot of the guys and there's not much difference in our stories, the only difference is that some of the guys end up in jail, but all the traits were the same, all the habits, what we did was the same" (S3).

An example of how a staff member used their lived experience to relate better to clients was when talking to them prior to admission to OH:

> "I tell them that, "You're going to do it hard… but if you use before coming, it will be harder." Even if they're coming from jail, I say: "Cut down. The sicker you're going to be the harder you're going to do it." But, I have to remember about my experiences, because, when I was going to rehab I would have used that much… to get that last hurrah" (S5).

The same staff member also reported using their lived experience to reframe their understanding by feeling empathy for clients who are angry:

> "Sometimes the clients are doing something that really pisses me off I sit down and think, "Well, I used to do the same thing." I think a lot of times, "How would I have felt?" (S5).

Staff lived experience was also viewed as more important by some clients than formal qualifications. For example:

> "It's pretty good here too because all the staff that are here have been through it, they've been in the same boat, whereas some of the city rehabs and that they're just people out of university and that, so it wouldn't work as good" (C10).

Staff with lived experience demonstrated by their example that recovery is possible. One staff member reflected on sharing his personal experiences in the group setting:

> "Sometimes when I talk about the past it brings back a lot of memories, but when I walk out clients come shake your hand and say, "Thank you," because they didn't expect it" (S8).

However, a small number of staff reported university or other relevant training related to their role. One staff member reported that he progressed up the ranks through "on the job training" (S3):

> "I started off as a residential care worker, I did cooking, cleaning, assessments... As each opportunity came, I grabbed it. I really enjoy it! I couldn't imagine where I'm at, and since I've been here I've been offered training, I actually finished university last year, which I never, ever thought I'd be able to do, I never dreamt of it" (S3).

Staff additionally conveyed that identifying as Aboriginal or from the region helped to build rapport and develop cultural bonds with clients, and was perceived as a strength by both staff and clients:

> "I think a lot of boys feel comfortable if you say, "Where are you from, brother?" I always ask them where they're from, "Oh, do you know such and such," because nine out of ten times they know the people we know…"Yeah, Unc, I know him... You know him?" "Yeah" (S4).

> "I'm Ngemba... this country is Ngemba. My great, great, great grandfather, that's how far I go back, he was the Chief of this tribe… I'm connected to this land strongly" (S8).

As a result of employing a mix of staff with lived experience, formal qualifications, links to the region or identifying as Aboriginal, staff have been able to develop trusting and respectful bonds that empower clients, encapsulated in the following quote:

> "The staff only expect what you can physically and mentally do… if you're struggling they're here to help you, but they teach you that you can do it yourself" (C10).

This mutual respect between staff and clients was reflected by one client who compared his respect for the staff to his respect for an Aboriginal Elder because: "they would not be working here if they weren't respected in the community" (C8). Mutual respect also appears to be demonstrated and reinforced by role modelling respectful behaviour between each other. For instance:

> "There are boundaries, and they respect the boundaries. That's the same as us, we give them respect. If they're in their bedroom and the door is closed we'll knock, and they like that. We just treat them the same as anybody else, no different, we just talk to them nicely" (S3).

> "They feel safe around us, and when you know they feel safe around you and respect you, you start to see them healing" (S9).

Despite this, some staff reported challenges of working in a remote Aboriginal residential rehabilitation setting, including the difficulty of caring *too much* about the clients, for example;

> "The managers say, "Look, be there, but you're not their friend, you're just a worker." But it's a hard when you're with them for three months and you get to know them, and later someone says, "So and so got killed, so and so overdosed, this one's got locked up"" (S4).

As a result, working in a "24/7 remote service with the most complex, disadvantaged members of society" (S6) was described as "mentally draining" (S3), with staff reporting feeling overwhelmed.

5.4.5 Strengthening life skills

To ensure they can overcome substance misuse and lead meaningful lives when they return to families and communities, clients need to strengthen fundamental life skills. Rules and routine, program structure, and work-ready skills were reported to enhance the development of life skills.

Rules and routine

Overall, the rules and routine of the OH program appealed to both clients and staff. Rules are explained to clients when they first arrive in "plain language," and read out each week to remind people of them. As described by clients, the rules are "strict, but fair" (C2), with one client stating that once they arrive, there is an acceptance that they are not coming to OH to "sit around for three months so it can look good for court" (C5). For example:

> "They don't let you just come here and have a free run, or a free ride, you've got to work for your sobriety, or earn it in a way" (C4).

The following staff quote articulates the benefits of discipline, inferring that the routine and rules embedded into the program are fundamental to the program and the client's, success:

> "I don't know everything, but if you haven't got structure you've got nothing, you're just wasting your time if you haven't got structure…rules and structure makes this place" (S4).

One particular rule that was considered strict but fair relates to routine urine screens. While clients reported being aware that a positive screen meant instant program discharge, staff also positively described clients wanting to see the results if they are clean, finding this helps maintain their progress:

> "They say: "It's good to see my results…this is the first time I've been clean this long." It gives them confidence in themselves and lifts their self-esteem, their confidence…like they're proud of themselves, some blokes walk out real happy. Some of them say, "This is what we need to do more of, it keeps me going"" (S3).

Another rule clients discussed was the expectation to have undergone withdrawal prior to admission. Over half of the interviewed clients reported formal withdrawal, with one client presenting to the hospital "drunk with 15 cans" (C2) Clients described withdrawal as "hard and that it felt like I was dying" (C4). Clients reported being pleased to have withdrawn from substances prior to coming to OH.

Despite having firm rules in the program, staff also reported some flexibility to ensure each client's needs are considered before decisions are made. For instance:

> "You can't approach everyone the same, it's not a cannery, it's not jail. We are individuals and we care, so you can't give everyone exactly the same approach… If you've got too many people then it just becomes a cannery" (S6).

Staff consistently reported that the routine and the program rules have been designed with a purpose that aims to promote long-term healing from substance misuse after the clients leave OH. An example of this includes the gradual increase in freedom as clients achieve set time in the program:

> "It's really clever how the program set up, there's a purpose for everything…. I just love the whole three months! The first month they're not allowed to go to town because they're really finding it hard to just deal with stuff emotionally, the second month they're allowed to go shopping… gives them that little bit of freedom. They might see dealers down the street and they have to say, "No"" (S9).

Structured activities on the weekend aimed to encourage clients to develop hobbies, as weekends are typically high-risk times for substance misuse:

> "On weekends clients don't often have a real lot planned and that's to try to help them start to learn to do their own thing… because when they go home, the weekend is their hardest time, so it teaches them to learn to occupy themselves" (S9).

Following a consistent daily routine and developing personal responsibility was perceived as a vital life skill to continue when clients returned home or gained employment. For example;

> "Some don't get out of bed until two or three… We say, "You go to bed at a certain time, have plenty of rest, get up at a certain time, attend group on time. I tell them, "What if you go to the doctor and you're late, what happens?" We're trying to get them into routine, be punctual, be responsible. It gives them structure. When you're in an addiction, the whole household is in chaos, so when they go home they can put a bit of structure back" (S3).

Finally, the value of routine and structure was connected to Aboriginal culture to ensure a deeper understanding about why this is an important skill for clients to strengthen:

> "Things come up about the Aboriginal people and I say, "Why do you think they survived? They had structure, routine, that's why they survived, and they followed it… that's what you'll learn here. Work out a structure and follow it." Anything I can find that links back to Aboriginal culture… hopefully it triggers something in them" (S3).

Opportunities to develop work-ready skills

All clients described partaking in two or more work-related activities while at OH, including rebuilding small engines, woodwork, developing literacy, numeracy and financial skills, or volunteering (e.g. building garden beds for the local school). Participants reported very positive perceptions of their experiences of the work-related activities, with most stating that it "keeps you busy" (C1), making "the time go fast" (C5) which resulted in "less time to worry" (C2). Most importantly, clients reported they enjoyed "learning new things" (C1) with another stating he "wouldn't be learning all of these things if [he] was back home" (C10). Completing vocational courses enhanced their sense of pride and confidence, exemplified by one client describing how he felt after learning to rebuild an engine:

> "I'm very proud of myself, I thought I couldn't do it, I had the biggest smile" (C1).

Several staff also conveyed that learning practical skills helps clients in their everyday life not just for attaining employment, such as completing a small motors course to fix their own vehicles rather than paying for a mechanic. Learning work-ready skills was perceived to achieve three outcomes for clients. First, it empowered clients and built self-confidence; second, it reduced their time being "idle-minded" (C8); and, third, it increased their sense of "personal responsibility" (C6) to seek employment after finishing the program.

5.4.6 Improved wellbeing

Participants discussed observable physical and mental changes as clients progressed through the program. Abstinence and observing improvements in their overall wellbeing allowed clients to cultivate hope for a better future for themselves and their families.

Client trauma and improvements to mental wellbeing

All clients reported experiencing trauma, ranging from one-off events to prolonged exposure. The following quote comes from an Aboriginal man who had been drinking for over 30 years:

> "I lost my mum and hit rock bottom… I think round about the same time they came and took my three young boys and to numb the pain I turned to alcohol. I would drink every day (C2)."

Descriptions of mental health problems were common. The following examples provide a powerful insight into the relationship between mental state and substance misuse:

> "Mental health forced me to drink because I'd forget about everything, and then it would all just flood back to me when I had too much grog and I'd try to kill myself all the time" (C3).

> "Without my medication I wind right up and get faster and faster and faster in my thought patterns and it won't slow down, but on my meds it slows me down. That's why I drink when I'm off my medication, to slow me down, because I hate my brain; it terrorises me" (C6).

Most participants reported limited access to or knowledge of services that provided mental health treatment. Since being at OH, and having access to health services, several clients reported feeling like they were now "thinking clearer" (C4) or that their life felt like it was "back on track" (C7). For example;

> "I used to be always thinking…24/7. Now I've slowed down to 10 minutes daily" (C4).

> "It's a breath of fresh air - good thinking time. You can really get your life sorted here" (C6).

The location of OH was described as a major factor in improved wellbeing, with clients commenting on a love for being in the bush and that OH is "sort of like coming home" (C2) or that being at OH is "safe and peaceful" (C1). For instance;

> "I just feel comfortable out here, there's something about the place, once you get settled in, there's something about it" (C7).

Several clients specifically stated being near the river to be important to them. For example;

> "There's some good energy about the place, it might be being near the water" (C9).

> "I love the river. It's a big relief for me to be on the river – all of a sudden just go for a walk down the river or something and just clear your head, it helps a lot of us boys" (C4).

A number of clients referred to the remoteness of OH and being near a local community as important because they "had heard a lot about" (C2) the country or they felt more comfortable due to being in closer proximity to their family rather than being in a place that felt unfamiliar to them.

A good "balance of downtime and activities" (C9) was considered as a strength of the program, with one client reporting: "There's a lot more spare time here compared to other rehabs, this place is not in your face" (C4). These comments were also consistent with staff perceptions about the location and activities combining to give "clients a break from the full on" (S2) and valuable time away from substances and chaotic lives at home to process their experiences:

"The benefit of this place to these fellas is time out, it gives them time for their minds to become a little bit clearer and start thinking about the rest of their life. Until their mind is clear [from substances], they can't think" (S7).

Improvements in physical wellbeing

Improvements in physical wellbeing were regularly reported as being necessary to a client's overall progress towards healing. One staff member recounted their observations when clients first arrive:

> "When they come, some have no colour in their face, very little eye contact, no confidence, not steady on their feet… very thin" (S3).

Most clients described improvements in their physical health since being admitted to OH, with one client reporting that his family immediately noticed the difference in his appearance: "I feel good on the inside and I feel good on the outside" (C2). Putting on or losing weight was a major indicator for good health for the clients, especially those who were not eating while using substances, for instance: "Just when I first stepped here I only weighed 55 kilos and I weigh nearly 90 kilos now" (C8). Some clients also reported sleeping better than before coming to residential rehabilitation. For example: "It feels good to wake up every morning without getting drugs" (C8).

Food and nutrition were also perceived as a fundamental component to both physical and mental wellbeing, with several clients reporting how food has helped them in their healing process from substance misuse. Clients reported "eating better than in jail" (C12); that their appetite has increased or they enjoying eating regular, healthy meals. Similarly, OH staff reported that they can see client's "getting their taste buds back" (S7) after a few days in the program and often observe improvements in their appetite, their "glowing skin" (S3) and gaining weight.

Hope for a better future

Abstaining from substance misuse improved overall health and wellbeing, facilitated clients to set goals and provided a glimpse of a better future.

> "The longer you're off it, in a way, the more chance you've got. It's a good program, it seems to be working [for me]" (C10).

> "I've learned heaps about why I've taken drugs and all that sort of stuff, it gives me a strength, not to go back to the outside and start the whole cycle again… I just think about goals to set for when I get out" (C2).

This perception of hope is derived from a range of goals discussed by clients, such as wanting to be a role model, wanting to be a better father, and hope for their relationships. For example:

> "Once I got locked up this time, I said, "This is it, it's time to throw everything away." It was the second time and I was thinking to myself, "I don't want to keep doing this, it's not the life I want to give my children"" (C1).

A staff member also reflected the hope observed in clients:

> "I see them wake up… have hope in their eyes. Hope is the biggest thing I see for the fellas, and we're talking about fellas who have been in and out of the correctional system for years, and they think that's normal. They've seen their parents go through domestic violence and they're passing it down to their kids without realising what's going on. When they come to Orana, they start to think, that maybe they can intervene" (S6).

5.4.7 Perceived areas for improvement

Clients and staff perceived a range of areas for improvement in the current provision of OH treatment, namely for a greater focus on aftercare, more access to resources such as mental health services and improved understanding of the value of culture in treatment.

Aftercare

Clients typically described feeling uncertain about what supports would be available to them when they left OH and returned back to their community: "Not sure what I'll do, take it day by day, I guess" (C2). Staff also identified major limitations with OH's current aftercare support, as they were aware of the increased likelihood of relapse and re-admission if partners or family members continue

to misuse substances and/or do not support the client's decisions to maintain their progress, for instance:

> "If you haven't got support it's very hard, especially if your girlfriend or wife are using; what chance have you got? (S7)."

Another staff member provided a powerful insight into the client struggle once they are discharged:

> "We had a bloke from Moree and after three months he was clean, looked well, like a billion dollars. When I took him home, I dropped him at a beautiful home, beautiful wife. He rang me up a couple of weeks later drunk, crying, wanting me to him back, and I said, "What happened mate?" and he said, "I did what you said not to do. I started hanging around when my mates were drinking," and now he hasn't got a house because his wife won't have him while he's drinking. He's living homeless until he can get back in here" (S4).

Staff therefore suggested two solutions: referrals to designated workers in each community, and incorporating the client's family in their transition home.

Access to more resources

Clients identified barriers to accessing mental health treatment. For example:

> "There's sometimes anywhere from 10 to 15 people out here, so there's 15 other people that have been in jail that need to see psychologists and psychiatrists, especially some of the boys that have been in jail more than two years because it would be pretty tough. So, you just pretty much have to wait until there's a vacancy really" (C8).

Staff also believed that the current level of resources provided to OH was a barrier to providing an effective program for clients with mental health problems;

> "We can only do so much for their heads at Orana, but some of these guys need more mental help while they here and after they leave" (S3).

Staff also highlighted pressures between balancing case management tasks (e.g. file notes, referrals, weekly scheduling) and time for one-on-one work with clients, in addition to managing expectations from the community. For instance:

> "There's a lot of things you've got to coordinate, expectations from community, expectations from funding, expectations of staff, expectations of your residents; there is a lot of expectation around these places" (S6).

Other concerns related to lack of resources included: ongoing costs associated with isolation such as cost of food and transport to OH; and the costs in time and money to attend meetings or training. While the location was perceived as a positive overall, the costs associated with remoteness were not reflected in the budget for the program.

Better understanding of the value of culture in treatment

Clients reported a preference for more cultural activities (e.g. smoking ceremonies, camping, bush medicine), with one client suggesting a full-time cultural Elder would be beneficial because it was "important to remember what happened in the past" (C12). Staff also identified a need for more cultural activities (e.g. "sometimes I don't think we do enough culture here, we need to make sure that all the stuff we do leads back to culture" (S5)); in addition to a perceived disconnect between

policymakers, funders and NSW Aboriginal residential rehabilitation services about the value culture has in the residential treatment setting. For instance;

> "Bureaucrats don't understand the importance and time it takes to work with the boys about their culture" (S6).

Therefore, staff emphasised the need to have a better understanding of the value culture plays in healing during residential rehabilitation treatment.

5.5 Discussion

This paper identified that Aboriginal drug and alcohol residential rehabilitation is not just about length of time in treatment, but also about the culture, activities and relationships that are part of the treatment process that enables the client to change over time. This study found that cultural elements of the program were highly valued by both clients and staff of a remote Aboriginal residential rehabilitation service, with the country or location of the service fundamental to the daily practice of, and access to, culture. Secondly, specific factors such as trusting and connecting with staff, consistent rules and routine, gaining work and recreation skills, and improved wellbeing, were considered program strengths. Thirdly, this paper identified areas for improvement including aftercare support, more access to resources such as mental health services, and the need for a better understanding of the value of culture as treatment.

5.5.1 The value of culture

The cultural component of Aboriginal residential rehabilitation programs is the point of difference between these programs and non-Aboriginal rehabilitation services. Connection to culture is perceived as critical to recovery from substance misuse by staff and they facilitate connection through location, cultural activities and education. This finding is consistent with papers outlining that recognition of culture in Aboriginal drug and alcohol programs are critical (Brady, 2002; NIDAC, 2014). The 'culture as treatment' hypothesis coined by Brady in 1995, refers to this return to traditional cultural practice for improved wellbeing, and while it has since been supported conceptually in the literature (Chirkov et al., 2005; Rowan et al., 2014), its measurable impact continues to remain an open empirical question (Gone & Calf Looking, 2011). Nevertheless, results from a recent meta-analysis of cultural adaptions of psychological treatment programs are promising: they identified that culturally adapted treatment for Indigenous people had almost five times greater likelihood than other treatment to engender remission from psychopathology (Smith et al., 2011). The current study demonstrates that embedding culture within the program ensures clients have opportunities to acquire a meaningful connection with their heritage and strengthen their identity. The delivery of the program by Aboriginal staff with similar experiences of substance misuse is critical in cultural connectedness, trust and therapeutic alliance (Abbott, 1998; Chenhall & Senior, 2013). The integration of culture into routine service delivery appears preferable to implementing a single program component of 'cultural activity' because culture is not an activity at OH but a philosophy of change (Brady, 2002; Chenhall, 2007; Taylor et al., 2010).

5.5.2 Therapeutic alliance

Staff empathy and lived experience established real life examples of how recovery is possible. In other studies, positive therapeutic alliance is associated with higher rates of retention in treatment and improvements in post-treatment outcomes (Brorson et al., 2013; Meier et al., 2006; Newton-Howes & Stanley, 2015; Sung et al., 2001). While therapeutic alliance is not measured in this study,

participants provided many examples of trusting staff, believing in their authenticity and perceiving staff knew what they were doing. Further, ward atmosphere, a phenomena shaped by the social structures and interactions in the caring environment, has been previously found to enhance retention in both psychiatric and substance abuse programs. Moos (1997) describes three specific dimensions of ward atmosphere: relationships (involves aspects of support and quality of personal relationships); personal growth (captures the level of encouragement for personal change and development among patients); and system maintenance (emphasises how well ordered and organized a ward is). These dimensions were found to be reflected in participant statements.

5.5.3 Developing life skills

A third perceived strength was the value of developing skills for after discharge. The rules and routine, planned activities (e.g. groups, work-ready education, cultural activities, chores) interspersed with rest and recreation, were important. Evidence from previous research supports this finding, with a large-scale study of residential treatment services in the United Kingdom identifying higher completion rates associated with the provision of a balanced treatment program that is not too demanding (Meier et al., 2006). Additional research recommends developing conventional social routines (e.g. routine sleep times) increased the likelihood of treatment compliance (Sung et al., 2004). Nevertheless, in Aboriginal drug and alcohol residential rehabilitation settings, a paradox may still exist for a service to be both flexible and structured, as some clients seek residential rehabilitation for a short-term break from substance misuse primarily for recuperation, while others are seeking more structured treatment-focused activities, such as strict rules and routine (Brady, 2002; Taylor, Thompson, & Davis, 2010).

5.5.4 Perceived improvements in health

A return to better health was also established as a key strength of the program and an integral aspect of the healing process for clients. Perceived improvements of health after a period of abstinence is correlated with positive self-evaluations of overall quality of life, mental health, reduced stress, and hope (Chenhall & Senior, 2012; Galanter et al., 2007; Picci et al., 2014; Wnuk, 2016). Similarly, inmates in a correctional facility who had perceived their health to be poor prior to incarceration were more likely to report improvement in their physical and mental health during incarceration (Padwa et al., 2016; Yu, Sung, & Koenigsmann, 2015). Nevertheless, without continuity of care upon release, any health improvements, perceived or real, are likely to rapidly dissipate when released (Padwa et al., 2016; Yu et al., 2015).

5.5.5 Perceived areas for improvement

Both clients and staff perceived aftercare as a major area for improvement for OH. Research indicates that the post-treatment period is when a client is most vulnerable and requires more attention to regularly monitor their status, for early detection of potential problems, referral to appropriate services, and re-admission, as required (Padwa et al., 2016; Yu et al., 2015). Evidence demonstrates that a lack of aftercare is not unique to Aboriginal residential rehabilitation services, but that people with chronic substance misuse typically receive single episodes of treatment (Dennis & Scott, 2007; McKay, 2009; McLellan, Lewis, O'Brien, & Kleber, 2000). This is especially important given the risk of relapse. Clients may have reduced tolerance as a result of forced abstinence from substance misuse may result in death or serious harm if a client relapses (Yu et al., 2015). Aftercare support has been found to improve treatment outcomes the longer the duration of aftercare (Moos & Moos, 2003) and the more family is involved (Calabria et al., 2014; NIDAC, 2014). The length and types of supports provided for aftercare should also be dependent on the complexity of issues facing the client upon discharge (McKay, 2009). It is therefore recommended to strengthen the continuum

of care for OH clients by developing an evidence-based aftercare support program as part of an integrated model of care.

A second perceived area of improvement focuses largely on resources in residential rehabilitation treatment to provide better access to mental health services and support staff to access adequate training. A lack of resources to maintain effective, evidence-based services have been consistently reported for decades (Brady, 2002; Chenhall & Senior, 2013; Gray et al., 2000). Lastly, staff identified the importance of empirically evaluating the impact of 'culture as treatment' in future research with Aboriginal residential rehabilitation services. Such evaluations would contribute to improving the understanding of the impact of culture in residential rehabilitation treatment, which was identified by staff to be lacking amongst many policy makers and funders. Further, creating partnerships to evaluate programs between services and researchers represents best-evidence practice (de Crespigny, Emden, Kowanko, & Murray, 2004).

5.5.6 Limitations

This is the first qualitative study to empirically analyse the stories of both clients and staff in a remote Australian Aboriginal drug and alcohol residential rehabilitation setting. While this study makes a unique, qualitative contribution to drug and alcohol literature, there are some limitations. First, the interviews were conducted in a single setting, and the findings relate specifically to OH. Second, the interviews were conducted with clients attending the OH program, which therefore increased the potential risk for bias, as researchers did not include the views of clients who had discharged from the program. Third, the interviewer was non-Aboriginal, which may have impacted on the richness of interview data. Finally, the IPA methodology used to analyse the data focused on lived experiences of OH to identify strengths and weaknesses of the core program components, which restricted deeper analysis about why staff and clients valued specific components over others.

5.5.7 Conclusion

Through listening to the stories of clients and staff, this research has identified that Aboriginal drug and alcohol residential rehabilitation is not just about length of time in treatment, but also about the culture, activities and relationships that are part of the treatment process. This study found that cultural elements of the program were highly valued by both clients and staff of a remote Aboriginal residential rehabilitation service, with the country or location of the service being fundamental to the daily practice of, and access to, culture. Developing reliable and valid assessments of the program components of culture and treatment alliance would be highly useful, given this study has reinforced their perceived importance in achieving positive treatment outcomes. Further, clients and staff identified that strengthening the aftercare program, as part of an integrated model of care, would likely provide greater support to clients after discharge.

6. The development of a Healing Model of Care for an Indigenous[12] drug and alcohol residential rehabilitation service: a community-based participatory research approach[13]

[12] The term 'Indigenous' is used in this chapter as the journal that the manuscript was published in was an international journal and therefore applicable to Indigenous peoples worldwide.

[13] This paper is published as follows:

Munro A, Shakeshaft A, Clifford A. (2017). The development of a healing model of care for an Indigenous drug and alcohol residential rehabilitation service: a community-based participatory research approach. *Health & Justice,* 5(1): 12. doi: 10.1186/s40352-017-0056-z.

6.1 Preamble

Chapter 4 demonstrated that developing a partnership between services and researchers can effectively integrate the clinical, cultural and local expertise of service providers with the evaluation expertise of researchers to empirically describe the characteristics of clients admitted to a remote Aboriginal drug and alcohol residential rehabilitation service. Complementing clinical expertise with these empirical data is a mechanism by which services can more accurately tailor their program to their clients' needs, to improve client outcomes. Enhanced clinician involvement in the research partnership, combined with the application of rigorous evaluation methods, represents best-evidence practice (Sackett et al., 1996; Snijder et al., 2015).

A key recommendation from Chapter 4 was the need to integrate empirical observations with the perceptions of staff and clients to strengthen the process of data collection, but also to support the co-design of an improved model of care that would be adaptable to other Aboriginal residential rehabilitation services. Chapter 5 utilised IPA methodology to analyse the lived experiences of staff and clients from a remote Australian Aboriginal drug and alcohol residential rehabilitation setting. IPA was adopted as it considers the lived experiences from the whole person (i.e. taking into consideration broader life experiences which are influenced by the SDoH of each participant) rather than viewing substance misuse within the dominant Westernised diagnosis of substance use disorder. Interviews were conducted across two different time points (less than 3 months apart) to increase the likelihood that the data collected would reflect a range of client and staff experiences. The semi-structured interviews used a 'research yarning' approach, a form of culturally appropriate conversation that is relaxed and narrative-based (Bessarab & Ng'andu, 2010).

Chapter 5 identified that Aboriginal drug and alcohol residential rehabilitation is not just about length of time in treatment, but also about the culture, activities and relationships that are part of the treatment journey. Cultural activities were highly valued by both clients and staff, with the country or location of the service being fundamental to the daily practice of, and access to, culture. Furthermore, the results reinforced the value that developing a partnership between researchers and Aboriginal services can have in strengthening service delivery. Despite this, both Chapters 4 and 5 identified clear scope to strengthen the continuum of care to better support Aboriginal residential rehabilitation clients after discharge by developing an evidence-based aftercare program to add to their existing model of care. Chapter 6 articulates a Healing Model of Care for an Aboriginal drug and alcohol residential rehabilitation service, developed in collaboration between clients, service providers and researchers, as part of the 3-year CBPR process. [14]

6.2 Introduction

The aetiology of the harmful effects of substance misuse on Indigenous Australians is a complex range of factors including the intergenerational impacts of colonisation and subsequent high rates of incarceration, suicide, self-harm and poverty (ACOSS, 2016; DOHA 2013; Marmot, 2011; Productivity Commision, 2016; Wynne-Jones et al., 2016). Indigenous Australians comprise approximately 3% of the Australian population (ABS, 2014), and drug and alcohol-related morbidity and mortality are disproportionately higher among this population (AIHW, 2016a; AIHW, 2011b). In order to further reduce rates of substance misuse harms, more effective prevention and treatment programs that are tailored to the specific needs of Indigenous Australians are required.

[14] The research team gratefully acknowledge the expertise and guidance of the OH Board and senior managers, especially Mr Norm Henderson and Mr Alan Bennett, who provided their time and skills in the development of the Healing Model of Care.

Indigenous drug and alcohol residential rehabilitation services are a preferred option for Indigenous people who have high levels of substance dependence, primarily because they provide a culturally acceptable form of treatment (Brady, 1995; Chenhall & Senior, 2013). In addition to being culturally acceptable, Indigenous residential rehabilitation services are typically multi-component, reflecting the complex social, economic, housing, mental health, crime, and legal challenges experienced by their clients (Brunette et al., 2004; Farabee & Shen, 2004; Honorato et al., 2016; Leal et al., 1998; Mortlock, Deane, & Crowe, 2011; Weatherburn, 2008; Wilson et al., 2017). A current analysis of the characteristics of clients admitted to a remote Indigenous residential rehabilitation service in NSW, Australia, for example, highlighted the strong correlation between their significant health and socio-economic needs, and their involvement in the criminal justice system (Munro et al., 2018). This analysis not only showed that the majority of clients were referred from the criminal justice system, but that this proportion had statistically significantly increased over time, from 79% in 2011/12 to 96% in 2015/16. Most clients had at least two co-occurring risk factors, in addition to a criminal history: 69% self-reported polysubstance use (primarily methamphetamines, alcohol and cannabis) and 51% reported a current mental illness (primarily depression, anxiety and bipolar disorder). The statistically significant growth in clients referred from the criminal justice system is consistent with the reported 77% increase in adult Indigenous prisoners in Australia from 2000-2015 (Productivity Commision, 2016) and the disproportionately high prevalence of substance misuse among prisoners, which has been identified as a key driver in the disproportionately high incarceration rate (Doyle et al., 2015; Indig et al., 2010; Weatherburn, 2008, 2014).

Given the well-established evidence of disproportionately high rates of substance-related morbidity and mortality after release from incarceration (Kinner et al., 2011), access to comprehensive, effective and culturally appropriate residential rehabilitation treatment will most likely assist in reducing recidivism to both prison and substance abuse for Indigenous Australians (Heffernan, Davidson, Andersen, & Kinner, 2016; NIDAC, 2014). The 2015-16 Aboriginal and Torres Strait Islander Online Services Report (OSR) from Australia, however, identified a number of gaps in current service provision, particularly in relation to addressing the mental health and the social and emotional wellbeing needs of Aboriginal clients (AIHW, 2017). Further, despite the need to establish the relative effectiveness of different configurations of culturally acceptable, multi-component treatments delivered in Aboriginal residential rehabilitation services, a current systematic review of studies of Indigenous residential rehabilitation services from Australia, the United States, Canada and New Zealand, published between 2000-2016, identified only one quantitative evaluation (James et al., 2017). This finding is consistent with results from a recent bibliometric review of published literature from the Indigenous drug and alcohol field generally, which found evaluations represented only 11% of published research in the past twenty years for Australia, the United States, Canada and New Zealand (Clifford & Shakeshaft, 2017). These reviews emphasise the need for more rigorous evaluations of Indigenous drug and alcohol services, including residential rehabilitation treatment.

In the absence of sufficient evidence from quantitative evaluation studies about the most cost-effective configurations of multi-component treatments, approaches to the delivery of Aboriginal residential treatment programs vary widely, and divergent views exist regarding the effectiveness and appropriateness of different potential treatment components. As such, specific, evidence-based features of Indigenous residential programs are not well defined (Chenhall & Senior, 2012, 2013; Gone & Calf Looking, 2011; James et al., 2017; Taylor et al., 2010). One way to increase the quantity and methodological quality of evaluations of Indigenous residential rehabilitation services is to develop collaborative partnerships between services and researchers, to work together to develop models of care that synthesise the views of clients and service providers with existing research

evidence, including both descriptive data and evaluations of treatment outcomes (Shakeshaft et al., 2012). Identified as a key priority in the 2014-19 National Aboriginal and Torres Strait Islander People' Drug Strategy, such partnerships could simultaneously co-create new knowledge and optimise client outcomes by embedding the development and evaluation of treatment models into the routine delivery of services.

6.2.1 Aims

The purpose of this study is to report on the articulation of a model of care for an Indigenous drug and alcohol residential rehabilitation service, developed in collaboration between clients, service providers and researchers.

6.3 Methods

6.3.1 Ethics approval and consent to participate

Ethical approval was sought and granted by the Aboriginal Health and Medical Research Council (1023/14) and the University of New South Wales Human Research Ethics Committees (HC14142).

6.3.2 Setting and clients

This study was undertaken with Orana Haven Aboriginal drug and alcohol residential rehabilitation service (OH), which is located in NSW, approximately 700 kilometres north-west of Sydney (in relation to OH, the word Aboriginal is used because it is recommended by the Aboriginal Health and Medical Research Council as being most appropriate for the Indigenous peoples of NSW). The service began operating as an Aboriginal Community Controlled Health Organisation (ACCHO) in 1983. OH's current vision builds on this long history of Aboriginal community-control, and that is to "provide a culturally safe drug and alcohol healing centre that maximises the strengths of Aboriginal people and communities" (OH 2015-2018 Strategic Intent, Appendix B). Based on a combination of a Therapeutic Community and 12-Step treatment approach, OH offers a 3-month voluntary rehabilitation program for Aboriginal males, 96% of whom were referred from the criminal justice system in 2015/16. OH has an average of 66 client admissions annually, of whom 85% identify as Aboriginal. Mean length of stay is 56 days, although a third (36%) discharge within the first month. An estimated 32% of clients complete the program, 47% self-discharge and 20% are house-discharged for failing to comply with treatment requirements, such as providing continuously clean urine samples. OH's completion rate of 32% is comparable to the 34% reported for non-Aboriginal residential rehabilitation services in Australia (Darke et al., 2012), but it is possible this could be improved given the 62% completion rate reported in another study (Sung et al., 2001). Due to inconsistent reporting across Indigenous residential rehabilitation services, rates of self-discharge could not be reliably compared with OH's average of 47% of all clients.

6.3.3 Study design

This 3-year (2014-2017) study used a community-based participatory research (CBPR) approach. CBPR is an emerging transformative research paradigm designed to bridge the gap between science and practice through community or service provider engagement throughout the research process, to achieve social change (Lazarus, 2014; Wallerstein & Duran, 2006; Wallerstein & Duran, 2010, 2011; Windsor, 2013). The process of CBPR typically involves cycles of collaborative action, often in sequential steps that engage community or service provider participants as co-researchers, educating and empowering them to effect positive changes in their environment (Kowanko et al., 2009; Lazarus, 2014; Windsor, 2013). Given CBPR does not outline a specific and rigorous methodology,

however, Windsor (2013) proposes the addition of mixed scientific methods to ensure adequate rigor in the production of new knowledge. In the context of Aboriginal health, CBPR has been shown to be highly culturally acceptable (Cochran et al., 2008; Mooney-Somers & Maher, 2009; Pyett, 2002; Snijder et al., 2015). As visually represented in Figure 6.1, the CBPR framework designed for this study comprised four iterative steps.

Figure 6.1 The community-based participatory research (CBPR) approach for OH

Step 1: Initial engagement (March 2014 - October 2014)

The activities that facilitated effective engagement were:

i. *A formal invitation from OH's Board of Directors to the National Drug and Alcohol Research Centre (NDARC) to form a partnership.* In 2014, OH received federal funding to evaluate their treatment program and undertake capital works. The funding provided scope for OH to independently engage with experts and, consequently, OH's Board of Directors invited the National Drug and Alcohol Research Centre (NDARC) to partner with them to review their treatment program.

ii. *An initial meeting between the OH Board and NDARC researchers to define the scope of the proposed evaluation and the principles of the partnership.* It was agreed that this meeting should be face-to-face, held on OH's premises (to accommodate the clinical and administrative processes of OH and provide an opportunity for researchers to tour the service), and involve senior academics (professorial level) and junior researchers to reflect the seniority of OH's Board membership.

iii. *The joint development of a set of guiding principles for the partnership.* These principles were further developed and agreed subsequent to the initial meeting, and were designed to be consistent with the National Health and Medical Research guidelines (NHMRC, 2003)

and the Australian Institute of Aboriginal and Torres Strait Islander Studies Guidelines for Ethical Research in Indigenous Studies (AIATSIS, 2012):

- *Mutual recognition that meaningful change takes time.* Consistent with the CBPR approach with Indigenous communities, both NDARC and OH allowed considerable project lead-time to understand the strengths and expertise from both sides of the partnership and build mutual trust.

- *Regular, scheduled meetings.* Both partners agreed that good communication is the foundation for a successful, long-term research partnership. As such, an agreed schedule of visits to the OH service, meetings with the Board of Directors and regular teleconferences with key stakeholders and community leaders was implemented so that researchers and OH stakeholders had open dialogue about the research process.

- *The research activity should be closely tied to OH's strategic planning needs and make a significant contribution to new knowledge.* This principle ensured that the research was beneficial for both OH and the researchers.

- *Sharing ownership over the project.* In recognition of OH's co-leadership of the research process, site-visits were specifically organised to be flexible and responsive to the demands of the service and Board members (especially when unexpected cultural obligations occurred), rather than only the schedules of the researchers. It was also accepted by the OH Board that formal research requirements (such as ethics approvals) were lengthy processes and needed realistic timeframes.

Step 2: Identifying the scope of the research (November 2014 – September 2015).

The activities that determined the specific nature of the research questions were:

I. *NDARC researchers agreed to assist OH develop its strategic intent for 2015-2018.* OH invited the researchers to assist them in developing their strategy to meet the National Safety and Quality in Health Care (NSQHC) Standards, which was closely aligned with the revision of OH's strategic plan. The researchers considered this was a unique opportunity to: i) better understand the service's specific needs; ii) deepen the process of engagement and trust, as outlined in Step 1; and iii) apply robust research methods to create rigorous new knowledge that would both inform OH's strategic plans and engender publications for the peer-reviewed, academic literature. The strategic planning process involved conducting two focus groups, between May-July 2015, with OH staff and the Board of Directors. Data from the focus groups were analysed using thematic analysis, which identified three strategic priorities: 1) strong governance and sustainability; 2) supported and skilled staff; and 3) effective, culturally safe service delivery. The 2015-2018 Strategic Intent was presented to the Board for feedback and subsequent approval in September 2015, and supported OH's successful NSQHC accreditation in November 2015.

II. *Generating a clear research protocol for ethics approval.* Researchers and OH staff worked collaboratively to co-design the detailed mixed-methods research protocol. The purpose of this protocol was to obtain clarity and agreement about the required research methods for approval by the OH Board, the local ACCHOs and the appropriate research ethics committees. This process required 12 months to complete.

Step 3: Collection, analysis and interpretation of the data (October 2015 – October 2016)

Quantitative data. Researchers worked in partnership with OH staff to collect, analyse and interpret client and service data collected at OH during a 5-year period from 1 May 2011 to 30 April 2016. Two processes for collecting quantitative data were implemented at OH. First, client details were hand-written into a service admission book upon intake and discharge. Data collected included: demographics; referral type; and service utilisation characteristics (e.g. type of discharge, length of time in treatment). Second, after a recommendation from researchers to obtain additional client information to inform service delivery, OH staff took the initiative to develop and implement a phone assessment form from 2015-2016 to better understand the health, psychological and social status of clients admitted to the service. Data collected included: previous rehabilitation service experience; previous and current legal history; drug and alcohol history; current income; and current physical (e.g. asthma, diabetes) and mental health diagnoses (e.g. bipolar disorder, depression). As this self-report phone assessment was a service-designed tool, no validation of this measure has been undertaken. A combination of this baseline data was analysed to better understand client characteristics and improve local decision-making to better tailor the service to client needs and has been published elsewhere (Munro et al., 2018). Preliminary results were fed back to OH staff at two separate Board meetings (in February and August 2016) to facilitate collaborative interpretation of the data to ensure outcomes were clinically meaningful.

Qualitative data. Researchers adopted purposive sampling (Barbour, 2001) to conduct a total of 21 in-depth, semi-structured interviews with nine staff and twelve clients. The semi-structured interviews used research 'yarning' approach, a form of culturally respectful conversation that is relaxed, narrative-based and emphasises the value of storytelling (Bessarab & Ng'andu, 2010). Interviews were conducted across two phases (<3 months apart) to ensure qualitative data was captured at different time intervals. Interviews were conducted by a female non-Aboriginal researcher (AM) at OH, were digitally recorded, and later transcribed by an external transcriber to minimise researcher bias. Interview data were analysed using Interpretative Phenomenological Analysis (IPA) methodology, the findings of which are published elsewhere (Munro, Allan, Breen, & Shakeshaft, 2017).

Step 4: Feedback final results (November 2016 – June 2017)

A dissemination process of the final results from the current CBPR study occurred in two ways. First, the primary author and a senior Aboriginal drug and alcohol worker from OH had the opportunity to co-present findings at the 2016 National Indigenous Drug and Alcohol Conference (NIDAC), the most notable Indigenous drug and alcohol conference in Australia. The value of OH as a culturally safe and effective treatment service in remote Australia was recognised by OH being presented with the NIDAC Service Recognition Award. In addition, a senior OH staff member was also recognised for their years of service at OH with the NIDAC Remote Male Worker Award. Second, final reports were presented for feedback and subsequent approval at two separate OH Board meetings in April 2017 and June 2017, thus completing Step 4 of the CBPR process.

6.4 Results

A triangulation of the following sources of data informed the Healing Model of Care described in the results: i) focus groups; ii) quantitative data; and iii) qualitative data. First, the focus groups identified key strategic priorities for OH in addition to the need for strong and transparent governance. Second, the quantitative data identified the most prevalent client characteristics, to which the Healing Model of Care ought to be tailored: clients were mostly Aboriginal men, all had multiple risk factors,

were mostly referred from the criminal justice system, and were mostly aged from 26-35. Third, the qualitative data identified the importance of a structured program, the value of therapeutic relationships and the critical importance of healing by immersion in Aboriginal culture and being on traditional "country." The term "country" is often used by Aboriginal and Torres Strait Islander people to describe the complex and interrelated connections to family origins in Australia and the Torres Strait (Queensland Studies Authority, 2008). This includes the geographical region where a person's family is from and their connections to this region and its people.

6.4.1 Healing Model of Care

The Healing Model of Care is comprised of the following:

1. Core components of OH, as summarised in Figure 6.2 and detailed in the text below; and
2. OH Treatment and Organisational program logics, as summarised in Tables 6.1 and 6.2.

6.4.2 Core components of OH

Figure 6.2 delineates two broad areas of OH's service delivery. First, the two centre circles represent the six core treatment components. Second, the black outer circle represents the core three organisational components. The central component of OH's treatment service delivery is *healing through culture and country*, which is why it is shown in the centre of Figure 6.2. The other five core treatment components enable healing through culture and country, shown in the middle section of Figure 6.2, and includes*: therapeutic activities; case management; life skills; time out from substances;* and *aftercare support.* The effective delivery of these treatment components is dependent upon the three core organisational components, as shown in the outer circle of Figure 6.2: *governance, rules and routine; staff skills;* and *links with services and networks*. A detailed description of these components is provided below.

Figure 6.2 Core components of OH

Healing through culture and country

There are a number of activities that operationalise the centrality of *healing through culture and country*, and that are unique to Aboriginal services: the way clients and staff talk to each other; the perception of family; the emphasis on country/mob/where you come from; the value of role-modelling positive behaviour; and the lived experience from Aboriginal Elders or senior staff. OH recognises that healing is not just related to the wellbeing of the individual, but also the wellbeing of the broader community, thus acknowledging the interconnectedness between social, cultural, spiritual and environmental influences of health. These elements are embodied in the centre of the circle because they are applied across all of the other five core treatment components.

Case management

The collaborative process of assessment, planning, facilitation and advocacy to meet an individual's holistic needs, or *case management,* is an important component to all residential rehabilitation services. In an Aboriginal residential rehabilitation context, case management must also ensure robust partnerships with ACCHOs.

Therapeutic activities

The range of *therapeutic activities* implemented at OH comprises individual counselling (predominantly motivational interviewing and cognitive behaviour therapy), in addition to daily psychoeducational groups and weekly 12-Step meetings. Aboriginal-specific therapeutic activities are embedded into program delivery via informal, ad hoc conversations or "yarns" that focus on identity, personal spirituality, an individual's connection to country, and the value of relationships.

Life skills

To ensure clients lead meaningful lives when they return to families and communities, they are encouraged to strengthen a range of *life skills*. Life skills developed or re-established during treatment aims to foster a stronger sense of self through kinships, cultural connection, developing a consistent routine and enhancing personal responsibility from learning work-ready skills.

Time out from substances

Time out from substances refers to a client's time away to recuperate from using and/or the interactions with people who encouraged or maintained their substance misuse. Time out from substances therefore aims to provide a client with the time required to focus on improving their physical, mental and spiritual health, largely through developing alternative activities to substance misuse during spare time in preparation for discharge. For instance, being on country or near the river was identified as a key activity that epitomises this core treatment component.

Aftercare support

Aftercare support aims to provide ongoing support tailored to the client's needs, allowing for flexibility to "step up" or "step down" to OH or other services, as required. Maintaining a client's wellbeing after discharge is currently enacted through ongoing relationships with OH staff or linking clients with services and AA groups in their community prior to discharge.

Links with services and networks

Links with services and networks is core to OH program delivery as for many clients, as this may be their only point of contact with the health care system. Therefore, links with services to support a client's physical and mental health needs during treatment is a priority, alongside maintaining parole conditions or supporting clients to undertake withdrawal prior to admission. Broader professional networks across the drug and alcohol residential rehabilitation sector is also important to ensure

OH is not isolated from integral knowledge exchange with comparable services, despite its remote geographic location.

Staff skills

OH staff must be client-centred, flexible and committed to improving the quality of lives of clients admitted to the service. Therefore, OH strives to employ combination of predominantly local Aboriginal staff with a mix of lived experience and formal qualifications. Staff must also be supported via clinical and cultural support and access to training.

Governance, rules and routine

A strong program vision and purpose, as well as a robust, empowered and objective governance structure is required to ensure effective delivery of OH's service delivery to clients as well as adequate resources. Furthermore, program governance needs to be supported by fair and consistent rules and routine, in addition to ongoing quality improvement and capacity building via collaborative research partnerships.

6.4.3 Orana Haven treatment and organisational program logics

A program logic is a depiction of a program designed to clearly align the problem being addressed with what the program will do, and articulate what aspects of the clients and the program will be measured. Two program logics have been developed as a mechanism to operationalisation of the core components that summarise OH's program delivery (Fig. 6.2). Table 6.1 relates to the core treatment activities within the OH program and Table 6.2 relates to the key organisational activities required to maintain effective service provision. Both tables articulate the following:

1. *Client or organisational areas of need.* Outlines the primary and secondary client needs that OH aims to target, or the Organisational areas of need, as defined in OH's Strategic Intent;
2. *Treatment.* Operationalises and describes associated flexible activities of the central treatment component, five core treatment components, and three organisational components;
3. *Mechanisms of change.* Articulates key mechanisms of change for clients/organisation;
4. *Process measures*. Specifies key processes to quantify client/organisational change; and
5. *Outcomes.* Specifies key outcomes to measure or quantify client or organisational change.

Table 6.1 OH treatment program logic

a. Client areas of need	b. Treatment: Core treatment components	b. Treatment: Flexible activities	c. Mechanisms of change	d. Process measures	e. Outcomes*
Primary client areas of need: **1.** Risky substance use **2.** Poor quality of life **3.** Poor cultural connection ***Secondary client areas of need:*** **4.** Co-occurring mental illness **5.** Criminal justice involvement **6.** Chronic physical health needs **7.** Tobacco use ***8.*** Unemployed / limited education	**Healing through culture and country**	- Being on country/spiritualty - Developing kinships - Making artefacts, fishing bush medicine	Reconnecting clients to culture and country via activities and strong relationships	No. of clients engaged in regular cultural activities	***Primary outcomes:*** **1.** Reduced substance misuse (AUDIT/DUDIT* / IRIS* clean urines) **2.** Increased quality of life (WHOQoL-BREF*) **3.** Increased connection to culture (GEM*) ***Secondary outcomes:*** **4.** Reduced psychological distress (IRIS* / K10*) **5.** Reduction in recidivism (Pre/post criminal justice data) **6.** Improved physical health (Pre/post Aboriginal health check outcomes) **7.** Reduction in smoking (RBD Scale* / self-report* / CO levels*) **8.** Improvement in employment and education (3mth follow-up data)
	Case management	- Referrals to local health services and visiting specialists - Working with corrections - File notes / assessments - Client transport	Clients engaged in the program via positive therapeutic alliance between staff and clients Referrals to AMS to external health and other social services	No. of clients staying in the program for 3 or more mths No. of Aboriginal Health Checks/other referrals No. of kms of transport	
	Therapeutic activities	- One-on-one counselling - AA, morning, psychoeducational groups - Informal counselling	Improving client quality of life Increased understanding of substance misuse (e.g. triggers) and personal strategies (e.g. motivations, goals, timeout) for reducing misuse	No. of clients maintaining abstinence 3 months post discharge No. of external counselling sessions provided	
	Life skills	- Develop daily routine - Positive role-modelling - Redevelop personal responsibility - Vocational courses - Literacy / communication skills	Reconnecting clients to culture and country Relearning daily routine and structure to maintain a healthy lifestyle after discharge Learning and developing work-ready and communication skills	No. of vocational-related courses completed No. of clients achieving individualised life skills goals	
	Time out from substances	- Improve physical wellbeing (e.g. sleep routine / nutrition) - Improve mental / spiritual wellbeing - Smoking cessation	Identify and engage in positive alternative activities to substance use to learn how to take time out from substance substances	No. of clients engaging in regular exercise / cultural activities No. of clients quitting or reducing smoking	
	Aftercare support	- Referrals to services post-discharge (e.g. ACCHOs) - Provide a list of support services in client's community (e.g. AA) - Ongoing phone contact	Continue to access treatment and care required to maintain improved health and wellbeing post discharge Developing aftercare program post discharge from treatment	No. of clients maintaining abstinence/not involved in crime post discharge No. of clients participating in aftercare (e.g. phone calls, assessments, visits)	

Note: *Measured at admission, mid, discharge and 3mths post discharge from the OH program

Table 6.2 OH organisational program logic

a. Organisational areas of need*	b. Treatment		c. Mechanisms of change	d. Process measures	e. Outcomes
	Core organisational components	**Flexible activities**			
1. Effective culturally safe service delivery	**Links with services and other networks**	- Partnerships with local services - Networks across the field (e.g. NADA, Bila Muuji) - CQI cycles and capacity building	Ongoing strong partnerships with local service providers and external networks Regular CQI feedback to inform local decision making	Type and no. of services or programs integrated into OH service delivery No. of network meetings attended	Improved primary and secondary client outcomes (Table 6.1)
2. Supported and skilled staff	**Staff skills**	- Staff must be client-centred - Regular staff training - Regular clinical and cultural supervision	Client-centred staff committed to improving client outcomes Pathways to increase and up skill Aboriginal staff at OH Staff are supported by OH via regular clinical and cultural supervision and access to training	No. of staff training completed No. of Aboriginal staff employed at OH No. of staff receiving cultural/clinical supervision	Improved client intake/discharge data Improved staff retention
3. Strong governance and sustainability	**Governance, rules and routine**	- Regular Board meetings - Annual review strategic intent to meet ongoing accreditation standards - Consistent program rules / routine for clients and staff - Strong regional advocacy - Ensure adequate resources and ongoing capital works - Regular feedback of program outcomes to staff, Board, community/ stakeholders via reporting systems	Strong vision and purpose of OH program Local decision making from an empowered Board and community Regular governance training and inductions for Board members Capital works / maintenance projects Ongoing partnerships with researchers and funding bodies to ensure adequate resources	No. of Board meetings No. of staff meetings Annual budget Annual review of treatment and organisational process measures No. of capital works / maintenance projects No. of kms of transport	Program Accreditation Current OH Strategic Intent Annual reports to stakeholders and funders Ongoing economic analysis (e.g. Cost Benefit Analysis)

Note: *Organisational areas of need obtained from three strategic priorities specified in the 2015-18 OH Strategic Intent

6.5 Discussion

To our knowledge, the process and outcome of researchers working in partnership with a remote Indigenous residential rehabilitation service to define, standardise and operationalise core treatment and organisational components has not been undertaken, or at the very least, has not been extensively published in the peer reviewed literature (James et al., 2017). The Healing Model of Care proposed in this paper is based on the premise that successful treatment in a remote Indigenous drug and alcohol residential rehabilitation service will improve clients' quality of life and cultural connectedness which will, in turn, be strongly associated with sustained reductions in their risky substance use.

6.5.1 The value of culture

Measuring changes in cultural connectedness and quality of life in conjunction with risky substance use among Indigenous Australians admitted to residential rehabilitation is also consistent with Indigenous peoples' conceptualisation of health and wellbeing, both in Australia and internationally, which recognises that culture is a key determinant of Indigenous health and wellbeing (Brady, 1995; Chenhall & Senior, 2013; NIDAC, 2014). Strengthening or reconnecting with culture is therefore essential to Indigenous peoples' healing and recovery from substance misuse as it provides an important protective function (Brady, 1995; Chenhall & Senior, 2013; McCormick, 2000; NIDAC, 2014; Taylor et al., 2010; Stone et al., 2006). This explicit focus on the centrality of culture in treatment is the primary factor that distinguishes Indigenous from non-Indigenous treatment services. It is not to argue that Indigenous people do not benefit from non-Indigenous services, nor that non-Indigenous people do not benefit from Indigenous services, only that outcomes for Indigenous clients in Indigenous services are likely to be optimised by embracing and operationalising the concept of culture in treatment. Having recognised the potential primacy of this concept it now does, of course, require empirical evaluation (Chenhall & Senior, 2012, 2013; Gone & Calf Looking, 2011; James et al., 2017).

6.5.2 The value of standardising core components

Defining Indigenous residential rehabilitation programs using standardised core components with flexible activities specific to each service, as articulated in this paper, provides one possible solution to the problem of the inconsistent delivery and diverging views on the appropriateness and efficacy of treatment components. The authors note there are a number of models that could be used to guide the development of services in addition to the logic model framework that the research partnership have utilised in current example, such as Outcomes Star (MacKeith, 2011). However the primary difference of the current research in comparison to other models, is that the research partnership have been able to define the service delivery in concrete terms in a way that is both standardised (core components) and flexible (specific activities). As such, a key strength of this approach is that the definition does not require programs to adhere to a prescribed approach, but provides a structure within which different Indigenous drug and alcohol residential rehabilitation services can categorise preferred treatment activities to their service. For instance, services located in remote areas will have different activities to services in metropolitan or coastal settings. Furthermore, programs in other communities may have more than these core components, but are defined as being comparable to OH if they have these same core components, irrespective of the specific activities developed and delivered to suit the unique circumstances in which they are being implemented.

6.5.3 The value of standardising outcome measures

Given the reported inconsistency in outcomes measures utilised across Indigenous drug and alcohol residential rehabilitation services both in Australia and internationally (James et al., 2017), the adoption of the program logic framework delineated in this paper may help standardise the outcome measures used in different services. The potential suite of outcome measures would likely increase over time to include other domains such as homelessness, specific health issues, family restoration and community-level benefits of programs (NADA, 2009). Where possible, outcome measures validated for use with Indigenous peoples were selected for the current Healing Model of Care. These included the Growth and Empowerment Measure (GEM; Haswell et al., 2010), the Alcohol Use Disorders Identification Test (AUDIT; Calabria et al., 2014), the Indigenous Risk Impact Screen (IRIS; Schlesinger, Ober, McCarthy, Watson, & Sienen, 2007); the Risk Behaviour Diagnosis Scale (RBD; Gould, Watt, McEwan, Cadet-James, Clough, 2014), and the 10-item Kessler Psychological Distress Scale (K10; Bougie, Arim, D.E., & Findlay, 2016). We recognise other outcome measures, namely the WHO currently validated for use with Indigenous peoples, but given that health education and behaviour studies are tested for validity and reliability inconsistently (Barry, Chaney, Pazza-Gardner, & Chavarria, 2013) and there have been no measures designed and validated for use within Indigenous drug and alcohol residential rehabilitation settings, the authors consider this a pivotal area for future research (James et al., 2017; Stephens, Bohanna, Graham, & Clough 2013).

6.5.4 The value of the CBPR approach

The CBPR approach adopted in this study was found to create a dynamic community-researcher partnership that facilitated meaningful data collection and interpretation over the duration of the 3-year study period. Partnerships between researchers, community members, clients and services, such as the example presented in this paper, therefore have great potential to improve methodological quality and community participation when research skills and community knowledge are integrated to co-design, implement and evaluate community development projects (Munro et al., 2018; NIDAC, 2014; Snijder et al., 2015; Taylor et al., 2010).

6.5.5 Implications

First, the Healing Model of Care articulated in this paper could be easily be scaled up and applied across other Indigenous drug and alcohol residential rehabilitation services using a similar CBPR framework. By adopting a more standardised approach, the logic model specifically aligns each treatment component and outcome with the mechanism of change for the client or organisation, which then allows for rigorous evaluation and ongoing quality improvement to ensure improved outcomes. As such, this model has the potential to rapidly develop a larger and more rigorous evidence-base to improve outcomes for clients attending Indigenous residential rehabilitation services, both within Australia and internationally, including for Native American or Maori services. It could therefore be adapted and applied to a range of cultural or ethnic minority communities where there may be key components or flexible activities of effective treatment that are specific to their culture. As such, this provides one possible solution to how to provide better care for the large and growing population of Indigenous people with substance dependence transitioning from custody to community. Second, no evaluations published to date have undertaken an economic analysis to weigh the benefits of the treatment approach against its costs (James et al., 2017). This makes it difficult for governments and other agencies to justify funding programs on the basis

of a likely economic return for their investment. Therefore, this paper recommends an economic analysis of Indigenous drug and alcohol residential rehabilitation services to methodologically guide future efficiency and resource equity considerations for services, researchers and funding bodies.

6.5.6 Conclusion

There is a clear lack of rigorous evidence in the Indigenous drug and alcohol residential rehabilitation field due to a number of factors. The description of the CBPR process and the Healing Model of Care presented in this paper provides a possible solution to this problem by defining programs using standardised core components with flexible activities specific to each service. CBPR was found to be integral to enable this research process and has the potential to expand the reach of research across other Indigenous drug and alcohol residential rehabilitation programs. By adopting a more standardised approach, Indigenous drug and alcohol residential rehabilitation services would rapidly develop a larger and more rigorous evidence-base that would likely improve the effectiveness of care provided to all clients accessing these services both in Australia and internationally, but particularly the growing population of Indigenous people with substance dependence transitioning from custody to community.

7. Discussion

7.1 Purpose of this thesis

There is a need for culturally acceptable rigorous research in Aboriginal communities to reduce the disproportionate gap of substance-related harms between Aboriginal and non-Aboriginal Australians. Given the history of colonisation and dispossession in Australian Aboriginal communities, as outlined in Chapter 1, greater participation, self-determination and empowerment for Aboriginal people to shape health research will likely improve the health and social outcomes for Aboriginal people (NHMRC, 2003; Fitzpatrick et al., 2016). Where Aboriginal communities do not have the expertise to access existing research evidence, or evaluate the impacts of their programs aimed at reducing substance-related harms, tailoring effective mainstream approaches to the local context and partnering with organisations or academics to build capacity with, not for, Aboriginal communities, is strongly recommended (Gray & Wilkes, 2010).

This thesis sought to develop and strengthen knowledge about the processes and outcomes in designing, implementing and evaluating Aboriginal community-based programs to reduce substance-related harms in partnership with researchers, by evaluating three distinct, real-world, practical programs from rural and remote NSW. The programs utilised different methodologies and included varying levels of community/researcher partnerships. This research included a retrospective examination of the impact of a drug and alcohol radio advertising campaign implemented in a remote community. The campaign increased community awareness (measured by the high level of recognition of the radio advertisements by loyal listeners), but had a limited impact on formal help-seeking, as evidenced by the low numbers of self-referrals to local treatment services (Chapter 2; Munro, Allan, Shakeshaft, & Snijder, 2017). In addition, a retrospective analysis of a suite of community-led programs implemented across four remote NSW Aboriginal communities from 2012-2015 was conducted, utilising a quasi-experimental design to evaluate the impacts of the programs on reducing Aboriginal alcohol-related criminal incidents (Chapter 3). This research highlighted that the programs did not produce consistent impacts on ARCIs in all four communities. However, despite the methodological issues specifically relating to the retrospective nature of the evaluation, it was a promising first attempt to combine community-led program design and implementation with rigorous evaluation methods. Finally, this thesis reported on a three-year, mixed-methods CBPR project, undertaken in partnership with a remote Aboriginal residential rehabilitation service, to collate and analyse five years of routinely collected client and service utilisation data, to qualitatively examine staff's and clients' perceptions of the program, and to co-design a Healing Model of Care that could be both standardised across, and tailored to the specific needs of, different services (Chapters 4-6; Munro, Allan, Breen, & Shakeshaft, 2017; Munro, Shakeshaft, & Clifford, 2017; Munro et al., 2018).

The findings from these evaluations make a unique contribution to strengthening the evidence-base in relation to the processes and outcomes of Aboriginal community-based drug and alcohol research by utilising a number of research methodologies, in addition to demonstrating the strengths and limitations of different partnership approaches with which Aboriginal community-based research can be undertaken. This final chapter will summarise the key findings arising from this thesis and discuss the implications and recommendations for researchers and policymakers for future community-based research with Aboriginal Australian communities.

7.2 Summary of the findings

As outlined in **Chapter 1**, it is acknowledged that the disparities in the health of Aboriginal Australians are the result of a complex array of interconnecting processes, including cultural disruption, intergenerational trauma and the ongoing stresses of disadvantage, poverty, racism, and disempowerment (Atkinson, 2004; Dudgeon et al., 2016; Larson et al., 2007). One prominent manifestation of these disparities includes disproportionate substance-related harms for Aboriginal Australians, compared to non-Aboriginal Australians (Vos et al., 2007). Those living in rural communities also have an increased risk of substance misuse and have less access to specialised drug and alcohol counselling and treatment (AIHW, 2015a; Roche & McEntee, 2016). Chapter 1 highlighted the urgent need for evidence-based prevention and treatment programs to reduce drug and alcohol-related harms in Aboriginal communities.

Chapter 2 examined the development of a community and researcher partnership to retrospectively quantify the impact of a community-designed radio campaign implemented in a remote community, aimed at reducing drug and alcohol harms. The key finding in this chapter was that the campaign increased community awareness of substance-related harms, measured by the high level of recognition of the radio advertisements by loyal listeners, but had a limited impact on formal help-seeking, as evidenced by the low numbers of self-referrals (Munro, Allan, Shakeshaft, & Snijder, 2017). A key strength of the project was that, as the radio advertising was community-initiated, the design and implementation of the radio advertisements reflected local issues, language and culture. The project's limited impacts on help-seeking for substance misuse issues, however, highlighted the importance of ensuring community-led projects are evidence-based and have rigorous evaluation methodologies so Aboriginal communities can continue to build knowledge in health promotion media strategies that effectively reduce substance-related harms. Collaboration with academic partners could have helped to formulate more effective research methodologies and improve the quality of the project design. Further, current best practice suggests that implementing a mass media campaign such as this, in conjunction with other complementary and concurrent strategies, such as the use of social media and text-messaging services, would strengthen community-level awareness (Guillaumier et al., 2012; Hall et al., 2010; Wakefield et al., 2010).

A primary limitation included that the partnership with the research team was developed after the radio advertisements had been designed and implemented, which meant that the evaluation was necessarily conducted retrospectively in a single setting. In turn, this limited both the quality of the data collected (because the research team had no input into those decisions) and the scientific rigour of the evaluation design that was able to be used (i.e. a pre/post evaluation in one setting, making it difficult to attribute causality to any potential impacts and limits the generalisability of the findings to other communities). Community-based participatory research (CBPR) partnerships between researchers and key stakeholders has been suggested as one way to more effectively improve Aboriginal health outcomes because it ensures Aboriginal communities are empowered to drive change in their communities, it broadens community capacity for evaluation and it achieves more efficient use of resources (Taylor & Thompson, 2011).

Chapter 3 reported on the retrospective evaluation of a suite of community-based programs to reduce alcohol-related harm that were implemented in four remote Aboriginal communities. The analyses identified two main findings. First, Community 1 was the only community identified as having statistically significant reductions in Aboriginal ARCIs for both

POI and VOC post the commencement of the BTC programs. Despite this finding, definitive statements about the success of the BTC programs to reduce ARCIs cannot be extrapolated as the results were not replicated in the other three communities. Second, there was an overall downward trend of Aboriginal ARCIs across the four communities over the study period (2002-2015). Although methodological issues, such as the retrospective nature of the evaluation and statistically small counts for each community, may have limited the ability to detect the impacts of the programs, this research offers a promising first attempt to combine community-led program design and implementation with rigorous evaluation methods. These findings, therefore, suggest that is it feasible to rigorously evaluate community-designed programs that have the potential to reduce the alcohol-related harms experienced by Aboriginal communities. However, outcomes from the BTC programs could have been strengthened if the programs were co-designed by the community members and researchers through meaningful partnerships developed prior to the implementation stage using a combination of a program logic model and routinely-collected community-level data to better tailor programs to local community needs.

A key finding from both Chapters 2 and 3 highlights the importance of some form of prospective evaluation, given retrospective evaluations offer limited scope for researchers to support the project design, and to provide advice on appropriate data collection and outcome measures. These methodological limitations reduce the likelihood that an evaluation will determine measurable health benefits for Aboriginal communities. In turn, this suggests that researchers and communities are missing vital opportunities to both effect and demonstrate measurable change. This is extremely pressing given the significant health disparities that exist for Aboriginal Australians in comparison to non-Aboriginal Australians, as extensively detailed in Chapter 1. Meaningful partnerships between researchers and Aboriginal communities have been consistently identified as one way to ensure Aboriginal communities are empowered to drive change by broadening community capacity and using resources more effectively (Taylor & Thompson, 2011). Chapters 4-6 demonstrated that developing a research partnership between a community-based remote Aboriginal residential rehabilitation service and researchers can utilise the clinical, cultural and local expertise within Aboriginal services and the evaluation expertise of researchers.

Chapter 4 empirically described the characteristics of clients admitted to a remote Aboriginal drug and alcohol residential rehabilitation service from 2011-2016 (Munro et al., 2018), which is a population group that had not been systematically reported on previously. Specifically, this paper identified that there were 66 admissions recorded annually, of which most identified as Aboriginal (85%). Further, it was found that mean length of stay was 56 days, which is higher than for mainstream residential rehabilitation services, which have been reported as 26 days (Copeland & Indig, 2004), 32 days (Choi et al., 2013) and 37 days (Darke et al., 2012). A key finding of this chapter was highlighting the potential to utilise data that are collected routinely by services to develop ways to tailor programs to better meet the specific risk factors of clients who attend Aboriginal drug and alcohol residential rehabilitation services (Sung et al., 2001).

Key strengths of Chapter 4 included the value of developing a meaningful service-researcher partnership with the mutual goals of strengthening both service delivery and research outcomes within the Aboriginal drug and alcohol residential rehabilitation field. An example of this was the phone assessment form developed in partnership between the service and the

research team, comprising both clinically meaningful and best-evidence measures, which demonstrated that ACCHOs can undertake quality improvement processes with the support of academic partners. Such partnerships should be a priority, given both the findings from the recent systematic review (James et al., 2017) and Recommendation 69 of the *Royal Commission into Aboriginal Deaths in Custody* articulate the need to assist Aboriginal organisations to develop effective evidence-based programs aimed at minimising harms from substance misuse and criminal activity (Commonwealth of Australia, 1991). Despite service-led improvements in data collection, both the researchers and the service agreed that a major limitation was that client follow-up data were not collected, which would help to identify which clients benefit most from treatment after discharge from the program, and the likely benefits of follow-up care aimed at reducing rates of re-admission to residential rehabilitation. In addition, it was identified that the combination of limited staff uptake of the electronic client management system, a reliance on handwritten intake and client files, and ad hoc screening processes increased the likelihood of missing data. The potential to improve data collection and routine monitoring across the ACCHO sector is strongly encouraged by the national body overseeing all ACCHOs, in addition to previous research (NACCHO, 2016; Taylor et al., 2010).

The research reported in Chapter 4 was conducted in a single setting (a similar limitation to the project evaluated in Chapter 2), meaning the results are of limited generalisability to comparable services. Replicating this research process across other Aboriginal drug and alcohol residential rehabilitation services to facilitate useful comparisons and identify opportunities for greater standardisation in client assessments is recommended. Strengthening programs using both research evidence and clinical experience represents best evidence practice as it can ensure that services utilise both sources of knowledge to more accurately tailor their program to client needs to improve outcomes (Sackett et al., 1996). Consequently, to complement the quantitative data collected, a key recommendation from Chapter 4 included the need to integrate empirical observations with the perceptions of staff and clients, to assist with the co-design of an improved model of care that would be adaptable to other Aboriginal residential rehabilitation services.

The subsequent chapter (**Chapter 5**) undertook this research, interviewing twelve clients and nine staff across two different time points to ensure data collected reflected a range of client and staff experiences about the OH program (Munro, Allan, Breen, & Shakeshaft, 2017). The semi-structured interviews used a 'research yarning' approach, a form of culturally appropriate conversation that is relaxed and narrative-based (Bessarab & Ng'andu, 2010). This research identified that Aboriginal drug and alcohol residential rehabilitation is not just about length of time in treatment, but also about the culture, activities and relationships that are part of the treatment process. This study found that cultural elements of the program were highly valued by both clients and staff of a remote Aboriginal residential rehabilitation service, with the country or location of the service being fundamental to the daily practice of, and access to, culture. Enhancing cultural connection and life function is consistent with how Aboriginal peoples in Australia and internationally view substance misuse and ill health: that is, that it is inextricably associated with the deprivation and erosion of their cultural integrity (Brady, 1995; Chenhall & Senior, 2013; NIDAC, 2014). Therefore, reconnection with culture is viewed as essential to recovery and ongoing wellbeing as it can provide an important protective function in relation to cessation and abstinence (Brady, 1995; Chenhall & Senior, 2013; McCormick, 2000; NIDAC, 2014; Taylor et al., 2010; Stone et al., 2006). A key

recommendation from both Chapters 4 and 5 was to strengthen the continuum of care to better support Aboriginal drug and alcohol residential rehabilitation clients after discharge by developing an evidence-based aftercare program as part of an integrated model of care.

Chapter 6 triangulated the quantitative and qualitative data collected and analysed from the three-year CBPR partnership process to articulate a Healing Model of Care for the remote Aboriginal residential rehabilitation involved in the project (Munro, Shakeshaft, & Clifford, 2017). The Healing Model of Care described in Chapter 6 highlights that a successful admission to this remote Aboriginal drug and alcohol residential rehabilitation service is defined as an improvement in a client's quality of life and cultural connectedness, and having achieved a substantial period of abstinence from risky substance use. To our knowledge, the process and outcome of researchers working in partnership with a remote Aboriginal residential rehabilitation service to define, standardise and operationalise core treatment and organisational components has not previously been undertaken or, at the very least, such research has not been published in the peer reviewed literature (James et al., 2017). The CBPR approach adopted in this study was found to create a dynamic community-researcher partnership that facilitated meaningful data collection, and interpretation of those data, over the duration of the three-year study period. Partnerships between researchers, community members, clients and services, such as the examples presented in this thesis, have great potential to improve methodological quality and community participation by integrating research skills and community knowledge into the co-design, implementation and evaluation of community development projects (Munro et al., 2018; NIDAC, 2014; Snijder et al., 2015; Taylor et al., 2010).

Given the reported inconsistency in outcomes measured across Aboriginal drug and alcohol residential rehabilitation services, both in Australia and internationally (James et al., 2017), the adoption of the program logic framework, as outlined in Chapter 6, was recommended to help standardise outcomes, in addition to treatment components. Utilising this framework in conjunction with the Healing Model of Care may increase the ease with which the Healing Model of Care can be applied across other Aboriginal drug and alcohol residential rehabilitation services using a CBPR framework. Adopting a more standardised approach has the potential to rapidly develop a larger and more rigorous evidence-base to improve outcomes for clients attending an Aboriginal residential rehabilitation service, both within Australia and internationally. Further, this provides one possible solution to how to provide better care for the large and growing population of Aboriginal people with substance dependence transitioning from custody to community. An economic analysis of Aboriginal drug and alcohol residential rehabilitation services to guide future efficiency and resource equity considerations for services, researchers and funding bodies is recommended, given no evaluations published to date have undertaken an economic analysis to weigh the benefits of the program against its costs (James et al., 2017). This makes it difficult for governments and other agencies to justify funding programs on the basis of a likely economic return for their investment.

Table 7.1 summarises the key strengths, limitations and implications of the research presented in each chapter.

Table 7.1 Summary of key strengths, limitations and implications of the research presented in each thesis chapter

Chapter / Project (Project timeframe)	**Strengths**	**Limitations**	**Implications**
Project 1, Chapter 2: Rural drug and alcohol radio advertising campaign (2011-12)	• Community-designed project reflecting local culture, needs and language. • Highlighted the value of radio as a culturally appropriate medium for health promotion activities. • Voices of local and respected Aboriginal people were the most recognised, reflecting the importance of locally developed health promotion content.	• Project was retrospectively evaluated, limiting opportunities to design more a robust evaluation. • Evaluation of project occurred in single setting, reducing generalisability of results.	• Community participation was high for this project. • Developing a partnership with academics prospectively to co-design this project using CBPR principles would likely have improved outcomes.
Project 2, Chapter 3: Breaking the Cycle initiative (2012-15)	• Community active participants in the decision-making, design, and implementation of the BTC projects. • Programs involved activities to enhance or reconnect to cultural identity and country. • Projects were implemented across four separate remote communities with staggered starts over a three-year period, allowing for retrospective evaluation using a MBD.	• Limited involvement of researcher expertise to help co-design evidence-based programs. • The commencement dates of the BTC programs were not randomised for each community, which is preferable in a MBD to enhance rigour. • Even though proxy measures to identify ARCIs have been validated and widely used in previous research, proxy measures have not been specifically validated for Aboriginal people. • Due to statistically small counts of ARCIs each month, ARCIs had to be analysed quarterly thus reducing the time points for the analyses. This potentially compromised the sensitivity of the data. • The accuracy of ARCIs, Aboriginal POI or VOC status reported by NSW Police could have also impacted the sensitivity / statistical power in assessing the impact of the programs. • As the evaluation was conducted retrospectively, the evaluation only used routinely-collected ARCIs as an outcome measure to evaluate the impacts of the BTC programs. • Considerable variability in the number, duration and focus of programs across the communities, which was reflected in the variability of funding spent on BTC program delivery in each community.	• Developing a meaningful partnership with academics prospectively to co-design programs using a CBPR approach likely would have improved community-level outcomes. For instance, additional outcome measures could have been included which would have strengthened the results and better tailored the programs to each community's specific needs. • The development of community and researcher co-designed program logics would likely ensure programs have greater impact to improve outcomes. • MDB offers a robust and practical evaluation methodology in which to better understand if community projects have impacts in Aboriginal communities. • This research was a promising first attempt to combine the community-led design of programs and rigorous evaluation methods. A retrospective MBD evaluation approach is therefore feasible to evaluate the impacts of other community-led programs.

Project 3, Chapter 4: CBPR project with Orana Haven – 5 years of service data (2014-17)	• A meaningful service-researcher partnership was developed prospectively with mutual goals of strengthening both service delivery and research outcomes within the Aboriginal residential rehabilitation research field generally. • Local service data collection improved during the CBPR timeframe- an indication of staff seeing utility of collecting more specific client information. • This study makes a unique contribution to the Aboriginal residential rehabilitation evidence-base and the service as the data can be used to more accurately tailor the service to clients' needs in the future.	• Client follow-up data were not collected, which would have helped to identify which clients would benefit most from follow-up care aimed at preventing re-admission and assist in measuring program outcomes. • Combination of limited staff uptake of the electronic client management system, a reliance on handwritten intake and client files, and *ad hoc* screening processes therefore increased the likelihood of this missing data. • This research was conducted in a single setting, meaning the results are of unknown generalisability to comparable services.	• OH has clear potential to increase the rate with which clients complete treatment from the mean completion rate of 32% over the last five years. • High level of service/academic involvement has occurred as a result of the CBPR process, indicating that CBPR is a culturally acceptable and rigorous research approach in this setting. • Replicating this research process across other Aboriginal residential rehabilitation services would facilitate useful comparisons and identify opportunities for greater standardisation in client assessments, representing best evidence practice. • Future research needs to integrate empirical observations with the perceptions of staff and clients, to co-design an improved model of care adaptable to other Aboriginal residential rehabilitation services, and to implement a process of routinely following-up clients to monitor treatment effectiveness.
Project 3, Chapter 5: CBPR project with Orana Haven - qualitative data (2014-17)	• This was the first qualitative study to empirically analyse the perceptions of clients and staff from a remote Australian Aboriginal drug and alcohol residential rehabilitation setting. • The semi-structured interviews used a 'research yarning' approach, a form of culturally appropriate conversation that is relaxed and narrative-based • Cultural elements of the program were found to be highly valued by both clients and staff of a remote Aboriginal residential rehabilitation service, with the country or location being fundamental to the daily practice of, and access to, culture. • Participants provided many examples of trusting staff, believing in their authenticity and perceiving staff knew what they were doing, demonstrating therapeutic alliance.	• The interviews were conducted in a single setting, and the findings related specifically to OH. • The interviews were conducted with clients attending the OH program only, which therefore increased the potential risk for bias, as researchers did not include the views of clients who had discharged from the program. • The interviewer was non-Aboriginal, which may have impacted on the richness of interview data.	• The results reinforced the value of developing a prospective partnership between researchers and Aboriginal services and community members using the CBPR approach can have in strengthening service delivery. • 'Research yarning' was identified as a useful and culturally safe tool to engage with Aboriginal interview participants. • The integration of culture into routine service delivery appears preferable to implementing a single program component of 'cultural activity' because culture is not a single activity at OH, but a philosophy of change. Further validation of this finding is required in this field. • Further validation of therapeutic alliance and treatment compliance is recommended. • Both clients and staff identified aftercare as a major area for improvement in this study. It was also recommended to strengthen the continuum of care for OH clients by developing an evidence-based aftercare support program as part of an integrated model of care.

Project 3, Chapter 6: CBPR project with Orana Haven - Healing Model of Care (2014-17)	• The service, clients and the research team were active participants in this three-year project via a prospective partnership developed using a CBPR framework. • The research guiding principles developed at the beginning of the partnership and updated as required reflected the partnership's mutual goals. • The process and outcome of researchers working in partnership with a remote Aboriginal residential rehabilitation service to define, standardise and operationalise core treatment and organisational components improves the evidence-base in this field. • The Healing Model of Care clearly articulates that a successful admission to a remote Aboriginal drug and alcohol residential rehabilitation service is that as a client's quality of life and cultural connectedness increases, risky substance use decreases. • Defining Aboriginal residential rehabilitation programs using standardised core components with flexible activities specific to each service, provides a possible solution to the problem of the inconsistent delivery and diverging views on the appropriateness and efficacy of treatment components.	• This research was conducted in a single setting, meaning the results are of unknown generalisability to comparable services.	• The prospective CBPR approach adopted in Chapters 4-6 was found to create a dynamic community-researcher partnership that facilitated meaningful data collection and interpretation over the study period. • The Healing Model of Care could be easily be scaled up and applied across other services using a similar CBPR framework. By adopting a more standardised approach, this model has the potential to rapidly develop a more rigorous evidence-base to improve outcomes for clients attending an Aboriginal residential rehabilitation service, both within Australia and internationally. • Given the reported inconsistency in outcomes measured across Aboriginal drug and alcohol residential rehabilitation services both in Australia and internationally, the adoption of the program logic framework would help standardise those outcomes. • No evaluations published to date have undertaken an economic analysis to weigh the benefits of the program against its costs. Therefore, an economic analysis of Aboriginal drug and alcohol residential rehabilitation services is recommended

7.3 Recommendations to reduce drug and alcohol harms in rural Aboriginal communities

The CBPR project designed to strengthen service delivery to improve client outcomes, presented in Chapter 6, produced a successful partnership between researchers and the Aboriginal service. Specifically, it culminated in the development of in a Healing Model of Care (Chapter 6) comprising core components and tailored, flexible activities embedded into treatment and organisational program logics. In addition to Chapter 6, this thesis demonstrated the feasibility of using a rigorous MBD methodology and the value of integrating culture within program design and implementation. Given these key findings, it is proposed that a combination of the following strategies will ensure evaluation methods are both practical and acceptable to Aboriginal communities and services – both important considerations given that the identification and uptake of robust evidence-based programs will be a key factor in reducing the disproportionately high substance-related harms experienced by Australian Aboriginal communities:

1. CBPR – a tool for empowerment and self-determination;
2. MBD – a rigorous and feasible community-based evaluation design;
3. Standardising project co-design, implementation and evaluation using core components;
4. The value of a program logic to conceptualise the program; and
5. Recognising the value of culture for Aboriginal community-based projects in reducing drug and alcohol harms.

7.3.1 CBPR - a tool for empowerment and self-determination

Over the past two and a half decades, CBPR has been increasingly viewed as an important strategy for eliminating racial and ethnic health disparities through engaging communities as partners in research co-design, knowledge creation, program development, and health policy-making (Belone et al., 2014; Wallerstein & Duran, 2010). This thesis applied CBPR to initiate a collaborative and equitable prospective relationship between an ACCHO and academic partners to enable research being conducted is both culturally acceptable and robust. Equitable participation in research by Aboriginal people ensures that their views are not misrepresented by non-Aboriginal partners, which helps to build opportunities for greater empowerment and self-determination (Elston, Saunders, Hayes, Bainbridge, & Mccoy, 2013). The opportunities and challenges of engaging in CBPR with a remote Aboriginal health service are summarised in Table 7.2. The salient features of the CBPR process are then outlined below, followed by the meaningful impacts of the OH CBPR collaboration, and future directions for CBPR in Aboriginal communities including the potential for CBPR to contribute to the advancing reconciliation between non-Aboriginal and Aboriginal communities.

Table 7.2 Opportunities and challenges of engaging in CBPR

Opportunities of CBPR	Challenges of CBPR
Developing meaningful and genuine engagement at all levels as a transactional relationship	Balancing the constraints of time with the administrative requirements of research e.g. ethics
Ensuring a greater level of humanity and purpose to the importance of good quality research with empowered communities/services	Potential issues with communication when services/researchers are in high demand
Robust and equitable partnerships strengthen data collection and program co-design, leading to improved outcomes	Changing policy and community/service environments
Community/service drive the research question or focus, ensuring the research is relevant to the community's needs and has an agreed clarity of purpose	Engaging the community/service in the understanding the value of research
Community/service develop key research and monitoring skills, enhancing local capacity	Appropriate user-friendly communication of key findings to community/service to ensure it is meaningful
Researchers are respectful and acknowledge community 'intellectual property' and participation, as per research guiding principles	Financial cost of ensuring adequate face to face meetings are conducted throughout the CBPR process
Researchers have the opportunity to develop a deeper cultural understanding and knowledge about local issues and the historical cultural context, fostering the spirit of reconciliation	Community/service governance issues or internal politics can derail the partnership process
Supports self-determination and empowerment of service/community, which can lead to a sense of pride at increased control in decision-making	Partnerships are at risk of being symbolic rather than functional and useful
Partners are equally involved in all aspects of the research process, and must be respectful of time, resources, expertise and responsibilities	Short timeframes to undertake the project, often dictated by external funding sources
The CBPR partnership can endure over a long timeframe if done correctly and lead to ongoing projects and different partnerships	The recruitment and challenges with retaining local people who possess the desired skills and confidence to support CBPR on the ground
Location of meetings can vary depending on research needs ensuring researchers and community/service share resources and have opportunities to meet face to face	

NOTE: Table adapted from Bainbridge et al. (2013).

Research guiding principles

In terms of this thesis, the process of developing the research guiding principles (Appendix A) was a central manifestation of the CBPR partnership, as it allowed for conversations about the expectations, responsibilities, needs or competing interests to be transparently discussed, resolved and agreed upon. Akin to establishing 'ground rules,' it has been noted that this step is vital as it can avoid potential relationship breakdown or 'bad feelings down the track' (Closing the Gap Clearinghouse, 2013; Fitzpatrick et al., 2016; Kowal, Anderson, & Bailie,

2005; Willis & Saunders, 2007). Acknowledgement or greater control of Aboriginal 'intellectual property' and 'data sovereignty' will be more likely when Aboriginal people are actively participating at all stages of the research (Kukutai & Taylor, 2017). This shared participation and equal power, two intrinsic values of CBPR, can be safeguarded via the process of developing research guiding principles (Waples-Crowe & Pyett, 2005). For instance, permissions from the ACCHO Board and key staff, in addition to AH&MRC ethics approval, were required before any research was submitted for publication to ensure the research accurately reflected the ideas and 'voice' of the service and those involved. Furthermore, the guiding principles document was updated as the partnership developed over time. The research guiding principles process, therefore, represents a formal structure that both parties enter into equally, and similar to kinship relationships, should be based on genuine trust, mutual respect, accountability and reciprocity.

Length of the project timeframe

One key element of a successful partnership, as identified by Waples-Crowe and Pyett (2006), includes a long timeframe, as a forced partnership in a short timeframe rarely delivers "the same outcome as one that is built on trust" (p. 5). Nevertheless, the process of negotiation can make it a long and complicated process, which can often be in conflict with funding bodies. Reconciling these conflicting demands is often difficult, but necessary (Baum, 1998). Both academics and services or communities should therefore enter into a CBPR partnership with the agreed expectation of the length of time required to develop a robust partnership (Hunt, 2013; Israel, Schulz, Parker, & Becker, 1998). In the CBPR context presented in this thesis, adequate timeframes over a three-year period were clearly articulated throughout the partnership process, with the expectation being that the partnership between OH and NDARC would continue to evolve beyond this timeframe to assist with the implementation and evaluation of the Healing Model of Care.

The researchers involved in this project recognised that timeframes and deadlines needed to be adapted to the local needs of the OH service, such as when Board meetings were postponed or cancelled, often resulting in deadlines being extended. Further, current funding pressures, which can often set the tenor of the research culture, can impact the quality of the partnership and increase the likelihood of inappropriate methodologies and poor data collection (Haynes, Takylor, Durey, Bessarab, & Thompson, 2014; Hudson, 2016, 2017; Street, Baum, & Anderson, 2007). These issues can be limitations of undertaking CBPR in an Aboriginal health research context. Despite this, the CBPR example presented in this thesis demonstrates that when allowed sufficient time to develop a partnership without the pressures from external funding bodies, rigorous and culturally acceptable research can occur.

Ongoing, meaningful research partnerships

As a direct result of the CBPR collaboration between OH and NDARC, relationships were fostered between NDARC and the AH&MRC-led peak body for all NSW Aboriginal residential rehabilitation services, the NSW Aboriginal Residential Healing Drug and Alcohol Network (NARHDAN), which comprises six Aboriginal-led residential rehabilitation services (including OH). The collaboration was instigated by the NARHDAN group from a desire to transfer or 'scale up' the research being undertaken with OH, to more systematically examine their data and services, with the goal of strengthening the evidence-base to ensure

optimal outcomes for their predominantly Aboriginal clients.[15] In 2017, PM&C supported a process of formal engagement with these six NSW-based Aboriginal residential rehabilitation services, guided by the principles of CBPR outlined in Chapter 6 of this thesis. Representing best-evidence practice (Ramanathan et al., 2017; Indig, Lee, Grunsieit, Milat, & Bauman, 2018), the final report articulates an evaluation framework that could be used to estimate the total net benefits and costs of Aboriginal residential rehabilitation services to provide a benchmark against which the benefits and costs of future innovations in treatment programs could be assessed, such as the development and uptake of a standardised follow-up process across all services, or co-designing and implementing a comprehensive aftercare model of service delivery (Shakeshaft et al., 2017).

CBPR and reconciliation

The legacies of research for Australian Aboriginal people articulated in Chapter 1 have led many Aboriginal communities to feel cautious or untrusting when engaging with the research community, often questioning the value of this knowledge and contribution to improved health outcomes (Thompson & Taylor, 2009). Even well intentioned research can be poorly conceived and inappropriate (Thompson & Taylor, 2009). As demonstrated in Chapters 4-6 of this thesis, working in more equitable and prospective CBPR partnerships can mean the 'research coalition' has the potential to become 'greater than the sum of parts' as a result of sharing expertise, resources and perspectives (Johnstone, 2007; Minkler, 2005). This also aligns with the spirit of the wider movement for reconciliation (Minkler, 2005). Reconciliation refers to the self-conscious dialogue that confronts the histories of the colonial encounter (Johnstone, 2007). According to Reconciliation Australia, the peak national organisation building and promoting reconciliation between non-Aboriginal and Aboriginal Australians, a key step in reconciliation is building robust relationships that are focused on achieving lasting results. Through collaboration, negotiation and translation of mutually valued research projects, the 'coloniser' and the 'colonised' both have the opportunity to disrupt persisting narratives and create new possibilities in the form of knowledge or research (Haynes et al., 2014). A key element of this, however, is relinquishing some control over the research process by academics, which can be an anathema for researchers who prefer to undertake research in a more traditional sense (O'Neil, Elias, & Wastesicoot, 2005).

Added to this 'research dance' is the increasingly complex and pertinent issue of Indigenous data sovereignty (Kukutai & Taylor, 2017). Indigenous peoples worldwide have claimed sovereign status over their lands and territories, while debates about data sovereignty' have historically been dominated by governments and multinational corporations (Kukutai & Taylor, 2017). A key element missing from those conversations has been the inherent rights and interests of Indigenous peoples relating to the collection, ownership and application of data about their people, ways of life and country. The future of Australian reconciliation and Aboriginal health research will need to confront enduring colonial legacies to ensure that Aboriginal people and organisations claim greater control and ownership of data connected to them (Kukutai & Taylor, 2017; Anderson et al., 2016).

Creating dynamic CBPR projects is not just important in the Aboriginal health research domain, but across the broader community. Given this, researchers, community members,

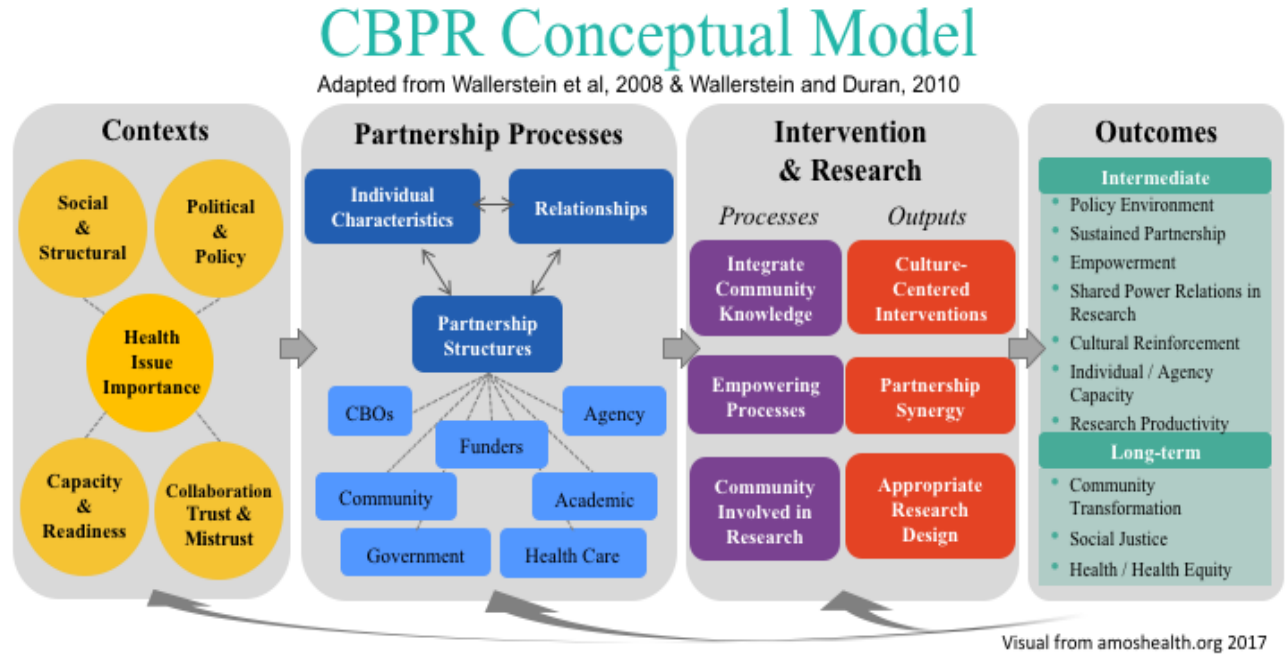
[15] This work is currently being undertaken by an Aboriginal NDARC Doctoral colleague with over two decades of experience in the Aboriginal drug and alcohol field, and friend, Doug James.

services and advocates of change for improving Aboriginal health are obligated to ensure research involving Aboriginal social and emotional wellbeing makes a difference. Future Aboriginal-based health research should, therefore, continue to build research partnerships like the CBPR approach presented in this thesis. Aboriginal communities, services and academics should celebrate the many advances in the empowerment and self-determination of Aboriginal health research of the last decade, but recognise that much more remains to be achieved.

Future directions for CBPR

From 2006-2017, Wallerstein and her research team developed and consulted with an advisory committee of CBPR experts composed of academics and community members. The research team conducted an interdisciplinary literature review of collaborative and community-engaged research (Wallerstein et al., 2008) and measurement instruments (Sandoval et al., 2011), distributed a survey to approximately 100 CBPR projects, and examined survey results in consultation with a national advisory committee. As a result, a conceptual model of CBPR partnership processes was proposed to contribute to CBPR systems and policy change to improve health outcomes (Wallerstein & Duran, 2010; Wallerstein et al., 2008). A recent version of this conceptual logic model developed by the Engage for Equity study, Center for Partnerships Research, is outlined in Figure 7.1 and described in the text below.

Figure 7.1 **CBPR Conceptual Model**



Contexts	Partnership Processes	Intervention & Research	Outcomes
• Social-Structural: Social-Economic Status, Place, History, Environment, Community Safety, Institutional Racism, Culture, Role of Education and Research Institutions • Political & Policy: National / Local Governance/ Stewardship Approvals of Research; Policy & Funding Trends • Health Issue: Perceived Severity by Partners • Collaboration: Historic Trust/Mistrust between Partners • Capacity: Community History of Organizing / Academic Capacity/ Partnership Capacity	**Partnership Structures:** • Diversity: Who is involved • Complexity • Formal Agreements • Control of Resources • % Dollars to Community • CBPR Principles • Partnership Values • Bridging Social Capital • Time in Partnership **Individual Characteristics:** • Motivation to Participate • Cultural Identities/Humility • Personal Beliefs/Values • Spirituality • Reputation of P.I. **Relationships:** *How we interact* • Safety / Respect / Trust • Influence / Voice • Flexibility • Dialogue and Listening / Mutual Learning • Conflict Management • Leadership • Self & Collective Reflection/ Reflexivity • Resource Management • Participatory Decision- Making • Task Roles Recognized **Commitment to Culture-Centeredness**	• Processes that honor community and cultural knowledge & voice, fit local settings, and use both academic & community language lead to Culture-Centered Interventions • Empowering Co-Learning Processes lead to Partnership Synergy • Community Members Involved in Research Activities leads to Research/Evaluation Design that Reflects Community Priorities • Bidirectional Translation, Implementation & Dissemination	**Intermediate System & Capacity Outcomes** • Policy Environment: University & Community Changes • Sustainable Partnerships and Projects • ~~Empowerment – Multi-Level~~ • Shared Power Relations in Research /. Knowledge Democracy • Cultural Reinforcement / Revitalization • Growth in Individual Partner & Agency Capacities • Research Productivity: Research Outcomes, Papers, Grant Applications & Awards **Long-Term Outcomes: Social Justice** • Community / Social Transformation: Policies & Conditions • Improved Health / Health Equity

The four domains of the model include the following:

1. Contexts: the social, cultural, economic, political, and other factors that ground partnerships in local, state, or national conditions.
2. Partnership Processes: practices for successful partnering, such as individual characteristics (skills & attitudes academic-community partners bring to the partnership); relationships (how partners make decisions, and interact with each other to achieve goals); and structural features (who are the stakeholders and what are their agreements, values, and guidelines for partnering).
3. Intervention/Research Designs: shaped by the nature of partnering and the extent of equal contribution of knowledge from different partners, including community members, clinicians, health professionals, government, and academic members. This domain includes both processes and outputs.
4. Outcomes: derived from the ongoing interaction between context, partnering processes, and culturally-centred implementation of the approach or program. Outcomes range from intermediate systems, that is, policy and capacity changes, power relation changes, sustainability, and increased cultural renewal, to improved health and social justice outcomes.

While the program logic (Fig. 7.1) offers an overarching CBPR framework based on consensus from a range of experts, the authors of the framework suggest that the next steps to advance the study of CBPR is developing and providing access to adequate research tools to measure program impacts in each of the four domains (Sandoval et al., 2011). Such research tools could better capture *how* community partners and academic-community partnerships contribute to change, for example culturally-focussed approaches and new practices and policy changes (Sandoval et al., 2011). The Australian Aboriginal health research field is in a strong position to extend the CBPR evidence-base over the next decade to improve research translation to reduce Aboriginal health disparities.

7.3.2 MBD – a rigorous and feasible community-based evaluation design

Data is the lifeblood of decision-making and the raw material of accountability. Without high-quality data providing the right information on the right things at the right time; designing, monitoring and evaluating effective policies becomes almost impossible.

(United Nations, 2014, p. 2)

Given that rigorous evaluation of community-based programs to reduce substance-related harms is inadequate, more robust community-based evaluation is required to understand what works to reduce drug and alcohol-related harms in Aboriginal communities (Clifford & Shakeshaft, 2017). This thesis desmontrated the feasibility of implementing a MBD by retrospectively analysing routinely-collected data in remote Aboriginal communities. A MBD was adopted because it does not require the engagement of a large number of communities because each community serves as its own control, where a RCT requires at least 20 participating communities for sufficient power (Buchanan et al., 2007; Merzel & D'afflitti, 2003; Hawkins et al., 2007). Since MBD also does not require control communities, it also avoids ethical concerns about withholding potentially beneficial programs from communities that could benefit from it (Brown & Lilford, 2006; Buchanan et al., 2007; Minkler & Baden, 2011; Stewart, Sanson-Fisher, Eades, & Manning, 2010). Finally, as the evaluation was retrospective, with researchers engaged towards the end of the project, a MBD was able to effectively evaluate the impacts of the programs using routinely-collected crime data to assess community-level program impacts (Breen, Shakeshaft, Slade, D'Este, & Mattick, 2011b; Gilligan, Sanson-Fisher, Anderson & D'Este, 2011).

In the MBD adopted in Chapter 3 of this thesis, each of the four Aboriginal communities implemented the BTC community-based suite of programs. Given the sufficient methodological rigour of a MBD to inform policy and practice and the small number of communities required by the design, this thesis recommends that future Aboriginal community-based evaluation research consider the implementation of a MBD. Despite this, it is recommended that a CBPR approach be utilised *prior* to the projects being designed. As outlined in the research partnership example in Chapter 3, the community-based partners implemented the BTC programs without researchers' expertise to support each community to define specific issues to target (Steps 1 and 2 of CBPR) and then co-design evidence-based and culturally appropriate programs to impact on these specific issues (Step 3 of CBPR). Furthermore, the researchers made the decision to use a MBD after the communities had implemented the BTC programs; therefore the communities and services involved were not able to benefit from shared learning and building Aboriginal community capacity or input into

this type of evaluation. This was regrettably a missed opportunity to undertake good quality CBPR research, which ideally should have combined evidence-based programs, tailored to each of the four rural communities, the impact of which was evaluated using a MBD. In short, this thesis proposes that a prospective CBPR approach utilising evidence-based and culturally appropriate program components evaluated via a MBD would be the ideal scenario to reduce Aboriginal substance-related harms.

7.3.3 Standardising project co-design, implementation and evaluation using core components

Defining Aboriginal residential rehabilitation programs using standardised evidence-informed core components with flexible activities specific to each service, as articulated in Chapter 6, provides one possible solution to the problem of the inconsistent delivery and diverging views on the appropriateness and efficacy of treatment components. A key strength of this approach was that the definition does not require programs to adhere to a prescribed program, but rather provides a structure within which different Aboriginal drug and alcohol residential rehabilitation services can make decisions about preferred treatment activities tailored specifically for their service. An example of this is that services located in remote areas will have different activities to services in metropolitan or coastal settings as this reflects the local needs of the clients attending each service. Furthermore, programs in other communities may have more than these core components, but are defined as being comparable to OH if they have these same core components, irrespective of the specific activities developed and delivered to suit the unique circumstances in which they are being implemented.

Emphasising the limitation or missed opportunity outlined in Chapter 3, the core components approach would have been useful to define and standardise the same multi-component community-based BTC programs across the four Aboriginal communities. This is because stepped replication of the same program across different communities increases power and generalisability that the outcomes are a consequence of the program (Komro et al., 2016; Paul, Sanson-Fisher, Stewart & Anderson, 2010). In the Aboriginal residential rehabilitation example, if scaled-up and replicated across other services, this process ensures a balance between standardising the core components to guide each service's selection of activities, while maintaining flexibility for each community to implement community-specific activities in line with their strengths, resources, and program focus areas (Shakeshaft et al., 2017).

In short, the core components combined with CBPR maximises high levels of community or service participation in the development or implementation of the program (Chapter 6). As such, this thesis recommends future community-based research utilise a core components approach to more effectively replicate and tailor programs across multiple communities or services.

7.3.4 The value of a program logic to conceptualise the program

Program logic models articulate a plausible explanation of how and why a program will work and what impacts and outcomes are likely to be achieved by demonstrating a theoretical causal pathway between inputs, effects and desired outcomes for a program (Hurley, Baum, Johns, & Labonte, 2010; WK Kellogg Foundation, 2004). Importantly, program logics can be used to examine the effectiveness of the whole program in addition to individual components or particular aspects of services or programs. Given the reported inconsistency in outcomes

measured across Aboriginal drug and alcohol residential rehabilitation services both in Australia and internationally (James et al., 2017), the adoption of the program logic framework, as outlined in Chapter 6, would help to better standardise outcomes (Munro, Shakeshaft, & Clifford, 2017). As previously stipulated, the potential suite of outcome measures could increase over time to include other domains such as homelessness, specific health issues, and family restoration. Further, outcomes could additionally extend to measuring community-level benefits of programs. Conversely, the outcomes of the retrospective evaluation undertaken in Chapter 3 highlights the limitations when a CBPR process is not implemented prospectively, as a program logic to incorporate existing evidence and align to the needs of the community with specific activities to address these needs did not occur.

Implementing a program logic model when undertaking community-based research, therefore, has the potential to increase the rigour of the evaluation methods used in a community-based research project. It does this by creating a well-defined alignment between the needs of the service or community, the specific activities that will address these needs and the outcomes that will measure the effectiveness or impact of the activities on the identified needs. An indication of the utility of the program logic model applied in the CBPR project and outlined in Chapter 6, is its application to guide the implementation and ongoing evaluation and monitoring of OH and other NSW-based Aboriginal drug and alcohol residential rehabilitation services (Shakeshaft et al., 2017). Given this example and the current evidence, this thesis strongly advocates the use of a program logic model to strengthen the methodological rigour of all Aboriginal community-based research.

7.3.5 The value of culture for Aboriginal community-based projects to reduce drug and alcohol harms

Chapter 1 outlined the way of life for Aboriginal Australians prior to the arrival of the First Fleet in 1788. Examples included the traditional role of the Elder as the leader, decision-maker and advocate for resources within each clan. Further, as a result of maintaining and equitably sharing resources such as land and food, it was argued that there were no class divisions, no socioeconomic inequalities and no poverty in Aboriginal societies prior to colonisation. Over two centuries later, it is not surprising that the results of Chapter 5 identified that embedding culture and access to country within an Aboriginal drug and alcohol residential rehabilitation program ensures clients have opportunities to acquire a more meaningful connection with their heritage and identity. The delivery of the OH program by Aboriginal staff with similar experiences of substance misuse was also identified to be critical in strengthening cultural connectedness, trust, and therapeutic alliance (Munro, Allan, Breen, & Shakeshaft, 2017; Abbott, 1998; Chenhall & Senior, 2013).

It is this re-integration of culture into routine service delivery that appears preferable to implementing a single program component of 'cultural activity,' as culture was not found to be simply an activity at OH, but a philosophy for change (Brady, 2002; Chenhall, 2007; Taylor et al., 2010; Munro, Allan, Breen, & Shakeshaft, 2017). Connection to culture was therefore perceived as critical to recovery from substance misuse by staff and clients and was facilitated through the location, cultural activities and education. This finding is consistent with papers outlining that recognition of culture in Aboriginal drug and alcohol programs are critical (Brady, 2002; NIDAC, 2014). Evidence also suggests that successful treatment and prevention programs to reduce drug and alcohol related harms that are initiated by Aboriginal

communities often instinctively include elements of culture (Lee et al., 2013), as demonstrated by the community-initiated programs across all three projects outlined in this thesis.

The 'culture as treatment' hypothesis coined by Brady over two decades ago advocates that a return to traditional Aboriginal cultural practices may be sufficient for optimising recovery from substance misuse for many Aboriginal people (Brady, 1995). Further, acknowledging that cultural identity and connection to country are key elements to the concept of SEWB has been identified as a critical step to decolonise research approaches to reduce substance misuse harms for Aboriginal people (Dudgeon & Walker, 2015). To date, however, there is limited research within Australia and internationally that rigorously investigates the association between engaging in culture and positive health outcomes (Berry & Crowe, 2009; Gone & Calf Looking, 2011). Theoretically, the reconnection of cultural and spiritual ways of being is expected to have healing impacts, and to allow reclamation of 'the Self' via cultural, spiritual, and personal identity (Dudgeon & Walker, 2015; Paradies, 2007; Poroch et al., 2009). As such, this thesis contends that cultural components to be at the centre of program co-design to reduce substance-related harms, as programs that are led by Aboriginal communities themselves are considered likely to be optimally effective and sustained over time (Clapham, 2011; Gray & Wilkes, 2010). However, to better support the implementation of culturally-based effective programs, more focus needs to be directed at developing and validating outcome measures with demonstrated reliability and validity to quantify the effect of culture on quality of life and SEWB.

It is worth noting that AIATSIS are embarking on a comprehensive investigation exploring exactly how Aboriginal and Torres Strait Islander culture impacts health and wellbeing. Led by Wongaibon man, Dr Ray Lovett, this will be the first time a longitudinal study such as this has been undertaken. In naming this study, Dr Lovett looked to his family's traditional language for inspiration. 'Mayi Kuwayu' comes from the Ngiyampaa language of far west NSW and translates to 'Aboriginal people' (*mayi*) and 'to follow' (*kuwayu*). *Mayi Kuwayu* represents a powerful response to community concerns about the lack of understanding of the importance of Aboriginal and Torres Strait Islander culture and its connection to wellbeing and will seek to offer a vital lens for more rigorous evaluation of existing Aboriginal health-related policies and SEWB programs.

7.4 Implications for policymakers

One of the greatest mistakes is to judge policies and programs by their intentions rather than their results.

Milton Friedman[16]

There is evidence of goodwill in Australia to improve Aboriginal social and health outcomes given an increase in government expenditure and the number of federal, state, territory and non-government/not-for-profit Aboriginal programs that currently exist in Australia (Hudson, 2016). In less than a decade, federal, state and territory spending for programs for Aboriginal Australians increased by 20%, from $21.9 billion in 2008-09 to $30.3 billion in 2012-2013 (Hudson, 2016). Despite the significant increase in resources, very few of these programs are

[16] Milton Friedman was awarded the Nobel Prize in 1976 for his development of his seminal theory of the permanent income model of consumption.

being evaluated. Table 7.3 summarises the findings of a current review of Aboriginal programs and funding (Hudson, 2016). In this review, Hudson identified 8% of a total of 1,082 programs had been evaluated, either during or after implementation, with those evaluated programs adopting methodology that provided evidence for the program's effectiveness in improving outcomes for the health and welfare of Aboriginal people (Hudson, 2016). The largest program category was health-related programs (n=568) followed by cultural programs (n=145). Of the 490 programs delivered by Aboriginal organisations, only 4%, or 20, were formally evaluated. This report also identifies that over half of the Indigenous Advancement Strategy funding is allocated to implement programs in remote and very remote regions of Australia, however, poor coordination and consultation exists in the design and implementation of programs in these geographic regions of Australia (Hudson, 2016).

Table 7.3 Key findings of a 2016 review of Aboriginal programs

Funding jurisdiction	Total annual cost	No.
Federal	$3.28 billion	49
State / Territory	$2.35 billion	236
Non-government / Not-for-profit	$224 million*	797*
TOTAL	$5.9 billion	1082

NOTE: *Many programs were found to be funded in part, or full, by government

Confirming this dearth of high-quality evaluations of Aboriginal health programs is a current systematic review of peer-reviewed literature from 2009-2014 on Indigenous health program evaluation, which found a majority (72%) were university/research institution-led; 49% utilised quantitative data only and 33% used both quantitative and qualitative data (Lokuge et al., 2017). The most common design was a before/after comparison (30.5%), with only 7.6% of studies adopting an experimental design, which included six individual-level and three cluster-randomised controlled trials. Given the number of Aboriginal health-related programs that are implemented (n=568; Hudson, 2016), very few evaluations overall are published in the peer-reviewed literature and, of these, few use optimal methodologies such as mixed methods and experimental design (Lokuge et al., 2017).

A key recommendation well-supported by the literature and advocated for by Aboriginal and non-Aboriginal leaders, is for greater accountability to ensure that both the government agency funding the program, and the program provider delivering the program, are accountable for outcomes from the program (McCalman et al., 2012, 2014; Hudson, 2017; Indig, Lee, Grunsieit, Milat, & Bauman, 2018). To achieve population-wide improvements in Aboriginal health outcomes and specifically to reduce substance-related harms, knowledge about effective programs and strategies for successful implementation is required as ineffective implementation wastes scare resources and will not have their intended effects on reducing health inequities (MacDonald et al., 2016). As such, programs identified to have potential need to be first, rigorously evaluated, and then second, 'scaled-up' to reach the broader population (Ramanathan et al., 2017; Indig, Lee, Grunsieit, Milat, & Bauman, 2018), as evidenced by the ongoing CBPR partnership between NDARC and six NSW Aboriginal residential rehabilitation services to more effectively co-produce new knowledge to

strengthen service delivery. Co-production advocates for collaboration to take place prospectively, with researchers, funders and communities partnering from the beginning to generate research that addresses pertinent policy questions (Filipe, Renedo, & Marston, 2017). The term 'knowledge translation' relates to this co-production model, as it involves an iterative process to synthesise, disseminate, and exchange the application of knowledge to ensure more effective health services and a stronger health system (Straus, Tetroe, & Graha m, 2009; Ramanathan et al., 2017). Any degree of suboptimal knowledge translation means the returns from research investments do not achieve their potential, which is a fundamental consideration given the growing demand for more accountability in public spending in the Aboriginal health sector (Hudson, 2017; Ramanathan et al., 2017). Finally, Australia's peak health research organisation, the NHMRC, explicitly requires researchers working in the Aboriginal health context to demonstrate transferability, scalability and sustainability of programs and research benefits (NHMRC, 2003; McCalman et al., 2012). As such, optimal knowledge translation between researchers, communities, and policymakers developed using the principles of CBPR may be the missing link for measurable change to improve the health and wellbeing of Aboriginal Australians.

7.5 Conclusion

There is considerable scope to improve outcomes in the health and wellbeing of Aboriginal people in Australia, especially with regards to the detrimental impacts of substance misuse. Aboriginal Australians should be the key drivers in developing ways to address harmful substance misuse. The research presented in this thesis demonstrates how the application of CBPR principles can strengthen research rigour by empowering Aboriginal services or communities to take greater control; an important strategy given the history of colonisation and disempowerment experienced by Aboriginal Australians. The adoption of a more standardised research approach by utilising evidence-informed core components, program logic models, MBDs, and integrating program co-design with cultural elements is likely to ensure evaluation methods are both practical and acceptable to Aboriginal communities, while also balancing the need for scientific rigour. By fostering a more meaningful research culture between researchers and Aboriginal communities, there is greater potential to build knowledge and capacity with, not for, Aboriginal people, strengthen the quality of research in the Aboriginal drug and alcohol field, optimise Aboriginal health outcomes, and importantly, promote healing for Aboriginal people, families, and their communities.

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9. Appendices

NDARC
National Drug & Alcohol Research Centre

Orana Haven Project

Research Guiding Principles

Updated February 2017

Project Background

Far West Medicare Local (FWML) funded the National Drug and Alcohol Research Centre (NDARC) to work in partnership with the Orana Haven Board, staff and clients to help define and strengthen the program from 2014 to 2017.

NDARC had a preliminary meeting at Orana Haven in March 2014, and over the 3-year timeframe, the following was completed:

Orana Haven Project: Key Activities	When
Preliminary consultation with OH Board	Mar 2014
AHMRC & UNSW HREC ethics modifications submitted	Apr – Nov 2014
Ethics application was approved	Jan 2015
Client and service data collection / input was completed	March 2015-April 2016
OH Strategic planning process with Lyndon	May – Aug 2015
OH received accreditation	November 2015
NDARC completes staff and client interviews (2 visits)	Oct 2015 – Jan 2016
NDARC analysis of OH 5-year data	May – Dec 2016
NDARC present preliminary findings to OH Board	August 2016
NDARC & OH attended National Indigenous Drug and Alcohol Conference in Adelaide – OH wins 2 awards!	Oct 2016
2 Articles about OH were published in the NADA magazine	December 2016
Finalise data analysis and complete research	Nov 2016 – April 2017
Present final results to OH Board (TBC)	April 2017 (TBC)

Our Research Guiding Principles

"The construction of ethical relationships between Aboriginal and Torres Strait Islander Peoples on the one hand and the research community on the other must take into account the principles and values of Aboriginal and Torres Strait Islander cultures" [1].

1. The NDARC research team are committed to ensuring we have a respectful, two-way partnership with the Orana Haven Board, staff, clients and key stakeholders
2. NDARC will aim to communicate project progress and findings to the OH Board and relevant partners, through attending meetings, report cards and other appropriate means
3. Draft reports and articles to be approved prior to submission to the agency or journal
4. NDARC are keen to involve as many people as possible in the authorship process because we recognise the important role that different people play in successful research projects. Therefore, any staff or community member who has contributed will be acknowledged where possible
5. The NDARC research team consider that this Research Guiding Principles document is a working document and are therefore very happy to continue to discuss and update over the course of the research partnership

The NDARC research team (Anthony, Julaine and Alice) presenting findings at OH Board meeting in August 2016.

Reference:

1. National Health and Medical Research Council, *Values and Ethics:* Guidelines for Ethical Conduct in Aboriginal and Torres Strait Islander Health Research, 2003, p. 2.

Appendix B OH 2015-18 Strategic Intent

Orana Haven strategic intent 2015-2018

Vision

- Aboriginal people live connected and healthy lives with strong families and communities

Purpose

- Orana haven provides a culturally safe drug and alcohol healing centre that maximises the strengths of Aboriginal people and communities

Values

- We support Aboriginal community control
- We respect culture, tradition and country
- We recognise people's strengths and potential
- We are dedicated to our clients and our work

Strategic priorities

Our success will be measured by:

- Our clients' experience of our services and our staff
- The outcomes we help our clients to achieve
- The support received from our communities, partners and funders
- The skills, capabilities and cultural competence of our staff to deliver
- The healing environment we create and sustain

2015-16 Action Plan

Strategic Priorities	Strong governance and sustainability	Effective, culturally safe service delivery	Supported and skilled staff
Actions	Board recruitment and training Accreditation Facilities upgrades Stakeholder relationship building	Evaluate our treatment program Develop aftercare and family support service options Promote Orana's successes Bring the community into Orana	Improve Workplace Health and Safety processes Develop local training options and include community members Partner with other services for additional service delivery
Activities 2015-16	Identify and recruit new Board members Provide 2 board related trainings Investigate volunteer and pro-bono support for activities e.g. technology support and Skype New sewage and water recycling Meet regularly with funding bodies	Alice completes initial service review and client interviews Identify client outcome measures Hold an open day Update the website Get media coverage for 3 positive news stories	Mobile phone for trips to town Establish client medication and information transfer from Corrective Services and other referrers Identify and schedule 3 training courses Establish a schedule of visiting services

Appendix C NADA Advocate Article 1

Orana Haven

Dedicated to the cause for over 30 years

Alice Munro, Doctoral Candidate
National Drug and Alcohol Research Centre, UNSW

For over 30 years, Orana Haven Residential Rehabilitation Treatment Service, a three-month, voluntary residential program for men, has been providing a culturally safe place of healing for Aboriginal substance users in remote New South Wales. It has a long history of community-controlled ownership, becoming incorporated in 1979 after local Elders were concerned about problematic alcohol use in their community. Orana Haven officially opened in 1982 at the site of the old mission in Brewarrina, but later relocated to a 10-hectare property overlooking the Bogan River on traditional Ngemba country.

According to a staff member, when clients first come to Orana Haven, often arriving by bus directly from incarceration, 'they say they feel safe within three or four hours of getting here, they don't understand why, but they say they do'. Over the years, Orana Haven has ensured that culture remained at the heart of their program. Orana Haven takes pride in the fact that most of the staff and clients identify as Aboriginal and that the clients are encouraged to participate in activities that strengthen their cultural identities, such as fishing, bush tucker, painting, wood work, campfire groups and visits to culturally significant places.

The program gives clients the space to regain better balance in their lives by helping them relearn life skills, maintain a daily structure, and acquire work-related skills. This includes their innovative small engines and literacy TAFE courses, which runs three days a week at Orana Haven on seven week rotations throughout the year. Clients are also supported by local health services, such as detox facilities at the Brewarrina Health Service, or health checks, dental appointments and counselling provided by Brewarrina Aboriginal Medical Service.

Orana Haven CEO and residential rehabilitation advocate, Norm Henderson, along with the board, sensed they were starting to get the balance right for their clients but had no sure way of knowing. In 2014, they approached Professor Anthony Shakeshaft and his team at the National Drug and Alcohol Centre (NDARC) to help them find out if the program was really working.

NDARC and Orana Haven worked together to evaluate the program. The collection and analysis of five years of client intake data and qualitative interviews with staff and clients have been completed, with results soon to be published. This innovative evaluation was designed to allow its application to all Aboriginal residential rehabilitation services in NSW.

The value of Orana Haven as a culturally safe and effective treatment service in remote Australia was recently recognized at the 2016 National Indigenous Drug and Alcohol Conference (NIDAC), the peak Aboriginal drug and alcohol conference in Australia.

At the NIDAC gala dinner, Orana Haven received the Service Recognition Award. Alan Bennett, a local Aboriginal man with lived experience who started working at Orana Haven five years ago as a residential care worker and is now transitioning into the role of program manager, was also recognised with the Remote Male Worker Award. In his speech, Alan humbly dedicated both awards to the work NIDAC delegates were collectively undertaking in the Aboriginal drug and alcohol field, and to clients who make difficult lifestyle changes each day striving to recover their lives and rejoin their families and communities.

Orana Haven is a member of the NSW Aboriginal Residential Drug and Alcohol Network (NARHDAN) who are working together to harmonise their models of care and ensure they are evidence-informed. NDARC hopes to continue the research partnership with Orana Haven and NARHDAN for many years to come.

To learn more about Orana Haven Residential Rehabilitation Treatment Service, visit the website.

'I'm doing it for my family...but the biggest thing is that I'm doing it for myself too. I try not to think that it's coming from court. I mean, I'll deal with that for when that day comes. But like I said, if I had to do it all over again, this would be the place.'

44 year old Aboriginal substance user for over 30 years, and Orana Haven client

Appendix D NADA Advocate Article 2

Translating research into practice

Standardise the delivery of care for a remote Aboriginal resi rehabs

Alice Munro Doctoral Candidate, National Drug and Alcohol Research Centre, UNSW

Over five decades, Aboriginal-specific residential rehabilitation facilities (resi rehabs) have provided substance misuse treatment in Australia. The first independent Aboriginal-led residential program was Benelong's Haven, which started in 1974 by a long term Alcoholics Anonymous member, Val Bryant.[1] In the years following, several similar community-controlled facilities were established in regional and metropolitan centres.

Over the years, research with Aboriginal resi rehabs has looked at how to strengthen and support best practice within this sector,[1-3] however there is still much to be learned. A systematic review currently being conducted by the National Drug and Alcohol Research Centre (NDARC) on this topic has identified over 40 peer reviewed articles related to Indigenous resi rehabs in New Zealand, Canada, the US and Australia. These studies have examined a range of treatment service and client characteristics associated with treatment outcomes. Now that some of these key factors have been identified, the next wave of Indigenous resi rehab research papers can test the efficacy of tailoring programs to better take these characteristics into account.

Rigorous, tailored program evaluation in partnership with Aboriginal resi rehabs has been a priority for NDARC since 2014, when it was invited to collaborate with Orana Haven Residential Rehabilitation Treatment Service to evaluate their program and provide advice on how their service outcomes might be improved through research.

NDARC adopted an action research process to identify the strengths and weaknesses of the program, with the first stage of the research process taking approximately six months. This largely involved initial visits to the service, attendance at bi-monthly board meetings and regular communication. To further aid the development of a strong collaborative partnership, NDARC and Orana Haven agreed on key research guiding principles, which encapsulated the National Health and Medical Research Council guidelines.[4] The second stage of the action research process involved NDARC supporting Orana Haven's strategic planning development for the service's 2015–2018 Strategic Intent, which NDARC will continue to assist with reviewing annually. The next phase of the partnership involved working with the Orana Haven Board and management to iteratively develop and finalise the qualitative interview and intake data collection procedures, which were then submitted for approval to the Human Research Ethics Committees of the Aboriginal Health and Medical Research Council (AH&MRC) and UNSW. Once approved, NDARC was then able to commence the formal research data collection period, which involved the collection and analysis of five years of client intake data, and qualitative interviews with both staff and clients.

During the data collection period, NDARC attended several Orana Haven Board meetings to share and discuss emerging findings, seek the advice of Orana Haven's clinical and management experts and to analyse data in a timely manner to ensure that the results were clinically meaningful to the service, as well as being of high originality and importance for the research sector.

In accordance with the research guiding principles, final results will be presented to the board in 2017, along with a draft, tailored model of care specifically developed for the Orana Haven program. This will delineate how the service can routinely collect client data from arrival, throughout their stay, on completion and follow up to ensure client outcomes can be measured at different points through their resi rehab experience.

NDARC hopes that this community-driven and practical evaluation process can be applied to other Aboriginal resi rehab services across NSW in the next few years. In addition to generating clinically useful and scientifically robust findings, we hope this project can be seen as an exciting model of better integration between the clinical and research worlds, that have traditionally been seen as separate. Of course the clinical and research fields will always have their own requirements and interests, but this project shows that there is the capacity to improve the overlap between them, to the benefit of both sectors and, more importantly, to the benefit of clients.

Translating research into practice continued

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1. Chenhall, R 2007, *Benelong's Haven: recovery from alcohol and drug use within an Aboriginal Australian residential treatment centre*. Melbourne, Victoria: Melbourne University Publishing Ltd.

2. Brady, M 2002, *Indigenous residential treatment programs for drug and alcohol problems: current status and options for improvement*. Centre for Aboriginal Economic Policy, Canberra, ACT.

3. Gray, D, Saggers, S, Sputore, B, & Bourbon, D 2000, 'What works? A review of evaluated alcohol misuse interventions among Aboriginal Australians'. *Addiction*, 95(1).

4. National Health and Medical Research Council (NHMRC) 2003, *Values and ethics: guidelines for ethical conduct in Aboriginal and Torres Strait Islander health research*.

NDARC National Drug & Alcohol Research Centre The Difference is Research

Appendix E OH Board meeting Progress Report – August 2016

NDARC Orana Haven

NDARC Evaluation Progress Report August 2016

Orana Haven is an Aboriginal community controlled 3-month voluntary residential rehabilitation service for males located in remote NSW, some 700 kilometres north-west of Sydney. Acording to the 2015-2018 Orana Haven Strategic Intent, the service aims to *"provide a culturally safe drug and alcohol healing centre that maximises the strengths of Aboriginal people and communities"*.

Orana Haven provides 24 hour care 365 days a year to extremely complex, predominantly Aboriginal, substance users mostly referred from Corrective Services.

Orana Haven began operating in Brewarrina in 1982 on the site of the old mission. Funding from State and Federal Government agencies has enabled the expansion and relocation of Orana Haven to the village of Gongolgon on the Bogan River, 35 kilometres south of Brewarrina.

The current site of Orana Haven, situated on traditional healing country of the Ngemba people, now occupies a 10 hectare property. Its peaceful location on the river allows Orana Haven to encourage clients to re-engage in cultural activities as part of their rehabilitation program, including fishing, hunting, painting, tool making and other types of art work.

13 facts about Orana Haven clients

1. **329 clients over 5 years (2011-2016)**
2. **84% of clients identify as Aboriginal**
3. **Average age is 36 years old**
4. **61% of clients are aged 18-35 years old**
5. **The average client stays 56 days**
6. **53% will stay for at least 60 days**
7. **1 in 3 (33%) will complete the 90 day OH program**
8. **From 2011-2016, 77% of clients were referred by corrections**
9. **In 2016 – 95% were referred from corrections**
10. **Over 95% receive government payments, are unemployed or have a disability**
11. **73% of clients are poly drug users**
12. **2 in 3 of all clients are seeking help for the drug ice**
13. **Almost half of clients in 2015/16 have severe mental health diagnoses**

What do the clients say?

- Being a client of Orana Haven is being part of a **family**
- The intrinsic nature of **culture** within the program is perceived to have an impact on their recovery
- The **location** of Orana Haven being in a remote area and on traditional Aboriginal country is perceived as a positive attribute of the service
- A key motivator for change and reason for attending Orana Haven for most clients is their **children and families**
- All clients perceive the **rules** to be fair and appropriate
- Gaps clients identified include **move involvement with family** and **strengthened aftercare support**

What do the staff say?

- Staff perceive the **location** and **culture** as integral strengths of the Orana Haven program
- Perception of **trust, respect and family** within the program
- Staff notice distinct changes like in the client's **appearance** and their **confidence** as they progress through the stages, such as weight, confidence, wellbeing, pride
- Staff observe clients leaving the program with more skills than when they arrived – **daily routine, cultural skills, TAFE certificates, literacy, cooking and other important employment and life skills**
- Staff would like to improve their process of providing **aftercare support** to clients when they leave Orana Haven

"I'm doing it for my family…but the biggest thing is that I'm doing it for myself too. I try not to think that it's coming from court. I mean, I'll deal with that for when that day comes.

But like I said, if I had to do it all over again, this would be the place."

44 year old Aboriginal substance user for over 30 years

Orana Haven 2016 Board members with NDARC evaluation team – August 2016

Appendix F OH qualitative interviews flier

The National Drug and Alcohol Research Centre will be visiting Orana Haven from Monday 18 – Wed 20 January 2016!

Alice Munro (from the National Drug and Alcohol Research Centre) will be at Orana Haven from Monday 19-Wed 21 October to talk with staff and clients about your experiences of Orana Haven.

Each interview will take about 30 mins. If you would like any further information about these interviews, feel free to call Alice on [redacted]

NDARC

These interviews have been approved by both the Aboriginal Health and Research Council (AHMRC) Ethics Committee and the UNSW Human Ethics Committee.

Appendix G OH staff and client interview PCIS forms

INFORMATION & CONSENT FORM FOR ORANA HAVEN PARTICPANTS

THE UNIVERSITY OF NEW SOUTH WALES

HREC Approval No: # **HC14142**

PARTICIPANT INFORMATION STATEMENT AND CONSENT FORM

Preventing and treating drug and alcohol harms in remote communities
- ORANA HAVEN -

Chief Investigator: Professor Anthony Shakeshaft – NDARC
Associate Investigators: Dr Julaine Allan – Lyndon Community and Alice Munro – PhD Student

Introduction
You are invited to take part in this research project, which is called *Breaking the Cycle to reduce drug and alcohol related harm in rural communities,* which aims to find out what is working or not working to reduce drug and alcohol harms in Bourke and Brewarrina. Orana Haven is working with the research team to find out about people's experiences receiving treatment and care in Western NSW.

This Participant Information Sheet and Consent Form tells you about the research project. It explains the processes involved with taking part. Knowing what is involved will help you decide if you want to take part in the research.

Why have I been invited to participate in this research?
You have been invited to be involved in this research as you are a client or a staff member of Orana Haven and we would like to listen and hear from as many staff and clients as possible about your experiences providing or receiving treatment from Orana Haven.

How can I be involved?
You can be involved in two ways:

- Interviews or focus groups: You can give permission to be contacted to arrange a time to talk to researchers about your experiences receiving health care from Orana Haven. If you agree to participate, you will be contacted by a health worker at Orana Haven who will arrange for you to talk to a researcher at time that is suitable to you. Participants will be given food and (non-alcoholic) drinks as reimbursement for their time and participation. Your conversation with the researcher will be audio-recorded.
- Health Information: If you are a client, you can give permission for researchers to access your health records from Orana Haven. All information collected will have your name and any other identifying information removed by staff before it is given to researchers so that you cannot be identified.

What are the possible benefits of taking part?
The possible benefits of participating include developing a more culturally appropriate service at Orana Haven.

Confidentiality and disclosure of information
Any information you give will be private and confidential and will not be used in any way that will identify you. All data will be stored in secure facilities, and accessed only by authorised personnel up to a period of seven years, after which it will be destroyed. Specific information about you will not be published in a way that could identify you as an individual, during or after the conclusion of this project.

Complaints
Complaints may be directed to the Ethics Secretariat, The University of New South Wales, SYDNEY 2052 AUSTRALIA (phone (02) 9385 4234, fax (02) 9385 6222, email humanethics@unsw.edu.au. Any complaint you make will be investigated promptly and you will be informed out the outcome.

Feedback to participants
Please indicate to Alice Munro if you wish to get a copy of the results from this research.

Your consent
Your decision whether or not to participate will not prejudice your future relations with the University of New South Wales and the National Drug and Alcohol Research Centre. If you decide to participate, you are free to withdraw your consent and to discontinue participation at any time without prejudice.

If you have any questions, please feel free to ask us. If you have any additional questions later, Alice Munro (ph: [redacted]) will be happy to answer them.

You will be given a copy of this form to keep.

THE UNIVERSITY OF NEW SOUTH WALES

PARTICIPANT INFORMATION STATEMENT AND CONSENT FORM (continued)

Preventing and treating drug and alcohol harms in remote communities

- ORANA HAVEN -

Chief Investigator: Professor Anthony Shakeshaft – NDARC
Associate Investigators: Dr Julaine Allan – Lyndon Community and Alice Munro – PhD Student

Declaration by Participant

I have read the Participant Information Sheet or someone has read it to me in a language that I understand.

I understand the purposes, procedures and risks of the research described in the project.

I have had an opportunity to ask questions and I am satisfied with the answers I have received.

I freely agree to participate in this research project as described and understand that I am free to withdraw at any time during the project without affecting my future care.

I understand that I will be given a signed copy of this document to keep.

.....	.....
Signature of Research Participant	Signature of Witness
.....	.....
(Please PRINT name)	(Please PRINT name)
.....	.....
Date	Nature of Witness

THE UNIVERSITY OF NEW SOUTH WALES

REVOCATION OF CONSENT

Preventing and treating drug and alcohol harms in remote communities

- ORANA HAVEN -

Chief Investigator: Professor Anthony Shakeshaft – NDARC
Associate Investigators: Dr Julaine Allan – Lyndon Community and Alice Munro – PhD Student

I hereby wish to **WITHDRAW** my consent to participate in the research proposal described above and understand that such withdrawal **WILL NOT** jeopardise any treatment or my relationship with The University of New South Wales and the National Drug and Alcohol Research Centre (NDARC).

....
Signature Date

.....
Please PRINT Name

The section for Revocation of Consent should be forwarded to:

Professor Anthony Shakeshaft
Deputy Director of NDARC
Email: a.shakeshaft@unsw.edu.au
[redacted]

Appendix H Client semi-structured interview schedule

TOPIC AREAS	QUESTIONS AND DISCUSSION POINTS
A bit about you...	I would like to start the interview by asking about your background, to find out a bit more about you. It would be good to hear about where you were at in life before you went to Orana Haven. This will help me to get to know you and your story.
Pre-rehab health	I'd like to know a bit about you before you went to Orana Haven. Tell me a little about your health before you went to Orana Haven (i.e. physical, mental, emotional) Tell me about your alcohol and drug use before coming to Orana Haven? (i.e. what drugs, how much, how often, where and when?)
Pre-rehab health service use	Did you have a regular doctor? If not why not? What health services did you use? What other services did you use? What sort of help from others (friends, community, family) did you get for your drug and alcohol use?
Rehab experience at Orana Haven	Because people's experience with rehab can be different, we would like to know what it's been like for you in Orana Haven (leave open-ended without prompts, thereby gain breadth of experiences).
Orana Haven health experience	Can you tell me how your health has been in Orana Haven? (physical and mental)
Orana Haven health service use	Can you tell me about what services you used while in Orana Haven? Prompt: programs, activities, health staff What do you think about these services? How easy or difficult were they to access? How did these services help you with your alcohol or drug use? How did health staff help you with your drug and alcohol use?
Orana Haven release-aftercare plan	I would like to know about the aftercare plan you made while at Orana Haven. What was in your aftercare plan? How did the aftercare plan help you after leaving Orana Haven? If this plan didn't help you, are you able to tell me why not?
Other comments	Is there anything else you'd like to add?
TOPIC AREAS	**FOLLOW-UP QUESTIONS AND DISCUSSION POINTS**
Post- Orana Haven health experience	Can you tell about your drug and alcohol use after you left Orana Haven? (i.e. what drugs, how much, how often, where and when?
Post - Orana Haven	What do you think could be done to make Orana Haven better for

health improvements	Aboriginal people with alcohol or drug problems?
Post - Orana Haven release health service use	Did you have a regular doctor after you left Orana Haven?-If not why not? What health services did you use after you left Orana Haven? What other services did you use? What sort of help from others (friends, community, family) did you get for your drug and alcohol use after you left Orana Haven?
Orana Haven release-health integration	How do you think living in a rural/remote/urban (as appropriate) area has affected you getting healthcare after you left Orana Haven?
Orana Haven release-health improvements	What do you think Orana Haven could do to make it easier to for their clients to stay off alcohol or drugs after they leave Orana Haven?
Other comments	Is there anything else you'd like to add?

Appendix I Staff semi-structured interview schedule

TOPIC AREAS	QUESTIONS AND DISCUSSION POINTS
A bit about you...	I would like to start the interview by asking about your background, to find out a bit more about you. It would be good to hear about where you were working before you came to Orana Haven. This will help me to understand your role at Orana Haven and your skills.
Role and work at Orana Haven	Can you tell me what your official role is at Orana Haven? - What are you required to do in this role? Tell me about a typical day for you at Orana Haven? • What things make it hard for you to do your role at Orana Haven? • What things make it easy for you to do your role at Orana Haven?
Working with clients in Orana Haven who have alcohol problems	What happens when a client first comes to Orana Haven? Prompts: assessments, forms, medical checks, referrals - What is your role in the process? What is Orana Haven's approach for working with clients who have alcohol problems? Prompts: types of services, programs, activities • What are the reasons for this approach? • What is your role in this approach? • What services other than Orana Haven are involved in this approach? How are these services involved? • How do clients respond to this approach? What tells you if this approach is working?
Working with clients after they have left Orana Haven?	What happens when a client is leaving Orana Haven? Prompts: assessments, forms, medical checks, referrals - What is your role in the process? What is Orana Haven's approach for working with clients after they have left Orana Haven? Prompts: types of services, programs, activities • What are the reasons for this approach? • What is your role in this approach? • What services other than Orana Haven are involved in this approach? How are these services involved?

	• How do clients respond to this approach? • What tells you if this approach is working?
Your recommendations for Orana Haven	What do you think could be done better at Orana Haven? • For clients • For staff
Other comments	Is there anything else you'd like to add?
TOPIC AREAS	**FOLLOW-UP QUESTIONS AND DISCUSSION POINTS**
Post - Orana Haven health experience	Can you tell about your drug and alcohol use after you left Orana Haven? (i.e. what drugs, how much, how often, where and when?
Post - Orana Haven health improvements	What do you think could be done to make Orana Haven better for Aboriginal people with alcohol or drug problems?
Post - Orana Haven release health service use	Did you have a regular doctor after you left Orana Haven? If not, why not? What health services did you use after you left Orana Haven? What other services did you use? What sort of help from others (friends, community, family) did you get for your drug and alcohol use after you left Orana Haven?
Orana Haven release-health integration	How do you think living in a rural/remote/urban (as appropriate) area has affected you getting healthcare after you left Orana Haven?
Orana Haven release-health improvements	What do you think Orana Haven could do to make it easier to for their clients to stay off alcohol or drugs after they leave Orana Haven?
Other comments	Is there anything else you'd like to add?

Appendix J OH Client interview coding framework

Semi-structured Question	Theme / code	Sub-theme 1	Theme / sub-theme explanation
1. Opening statement	1.1 Age		Age of the client at time of the interview
	1.2 Where the client is from		Where the client reports being from (open question)
	1.3 Other rehab experience		If the client reported previous experience at OH or other rehabs
	1.4 How long in OH so far?	1.4.1 OH Reputation	How many days or approximate length of time at OH at the time of the interview -> Client discussions about OH reputation before coming
2. Background	2.1 Background		Discussions about client background - family, employment, hobbies etc.
	2.2 Criminal history		Discussions about previous criminal history
	2.3 Educational background		Discussions about client's education background
3. Pre-OH health and wellbeing	3.1 Pre-OH health and wellbeing - general		Discussion about client's health and wellbeing prior to OH admission - physical health
	3.2 Mental health, grief and loss		Discussion about client's MH, grief and loss experiences
	3.3 Previous substance use	3.3.1 Family pressure to use	Discussion about client's history of substance use -> discussion about the perception of client's family's pressure on them to use
4. First few days at OH	4.1 Detox information		Details of detox process
	4.2 First impressions of OH		Perceptions of first few days at OH (transport there, feelings when arrived, intake process etc.)
	4.3 Impressions of OH rules		Perceptions of rules in the first few days at OH
	4.4 Location of OH		Perceptions of the location of OH
5. Health in OH	5. Access to health services at OH		Client experiences of access to other health services (e.g. AMS, dentist, psychologist etc.)
6. Activities since coming to OH	6.1 Routine at OH		Discussion of day to day routine and experiences at OH
	6.2 Courses and skill development		Discussions about clients courses and other skills being developed
7. Perceptions of culture and spirituality	7.1 Culture and spirituality		Discussions about the cultural components of the program and aspects of spirituality
8. Perceptions of OH program	8.1 Benefits of OH		Client perceptions of the good aspects about the OH program
	8.2 Challenges at OH		Client perceptions of the challenges, gaps or negative aspects about the OH program
	8.3 Impacts of OH		Client perceptions of the impacts the program has had
	9.1 Plans after OH		Discussion about client's plans after leaving the program

9. Plans after leaving OH	9.2 Aftercare support		Discussion about their additional support from OH or other services after leaving the OH program
10. Latent / manifest themes	10.1 Goals		Discussions about client's goals (e.g. work, family, substance goals etc.)
	10.2 Motivation for change		Client's reasons for making changes in their life
	10.3 Perception of family at OH		Client's perceptions of feeling like a family at OH
	10.4 Perception of staff	10.4.1 Trust	Client's perception of OH staff -> Discussion about importance of trust
11. Governance	11.1 Definition of the purpose of the program		Client perception of the purpose of the OH program
	11.2 Program structure and rules		Client perceptions about the program rules and structure
	11.3 Good administrative base / accreditation		N/A
12. Staff skills and service links	12.1 Skilled Staff		Client perceptions about staff skills, experience, qualifications and rapport
	12.2 Links with other client-related health services		Client experiences about other health services linked to the OH program
	12.3 Membership with relevant AOD networks / associations		N/A
	12.4 Research partnerships		N/A
13. Program content	13.1 Detoxification		Client experiences of detox prior to OH
	13.2 Rest and recuperation	13.2.1 OH Location	Client perceptions of location as a part of rest and recuperation
		13.2.2 Fitness / Physical Health	Client perceptions of fitness and physical health as a part of rest and recuperation
		13.2.3 Perception of family between staff and clients	Client perceptions of importance of family as a part of rest and recuperation
		13.2.4 Keeping busy at OH	Client perceptions of importance of keeping busy as a part of rest and recuperation
		13.2.5 Good food	Client perceptions of good food as a part of rest and recuperation
		13.2.6 Criticisms / Negative comments	Negative comments about OH program
	13.3 Individual counselling and case management		Perceptions of individual counselling - positive and neg comments
	13.4 Group counselling		Perceptions of groups - positive and neg comments
	13.5 Vocational skills		Client perceptions of vocational skills development - positive and negative comments

	13.6 Cultural and spiritual activities		Client perceptions of cultural and spiritual aspects of the program - positive and negative comments
	13.7 Planning for discharge		Client perceptions of post discharge services - positive and negative comments
KEY:			
Semi structured interview framework			
Latent themes			
Available Evidence			

Appendix K OH staff interview coding framework

Semi-structured Qn	Theme / code	Sub-theme 1	Theme / sub-theme explanation
1. Opening question	1.1 Age		Age of staff
	1.2 Role title at OH		Staff role at OH
	1.3 How long working at OH		Length of time staff employed at OH
2. Background of staff member	2.1 Other employment history		Staff range of employment experience before OH
	2.2 Skills		Staff skills
	2.3 History of personal experience of substance use		Staff personal experiences of substance misuse
	2.4 Other personal history of staff member	Grief and loss issues etc.	Additional personal experiences of staff - MH, grief and loss etc.
3. Current role at OH	3.1 Specific tasks undertaken in role		Outline of tasks undertaken by staff
	3.2 Typical day at OH		Activities in a typical day - intake, cooking, groups, counselling etc.
	3.3 Challenges with role		Perceptions of challenges in role at OH
	3.4 Positives about role		Perceptions about positives with role at OH
4. Intake process at OH	4.1 Referrals		Staff comments about referrals pre intake
	4.2 Forms		Staff comments about forms at intake
	4.3 Assessments		Staff comments about assessments at intake
5. Cultural aspects of the program	5.1 Description of activities		Staff comments about cultural activities of program
	5.2 Positives / strengths		Positive and strengths of culture in program
	5.3 Gaps / negatives		Gaps and negatives of cultural activities
6. Client discharge process	6.1 Discharge process		Staff comments about discharge
	6.2 Aftercare support options at OH	Gaps in services	Staff comments about aftercare support
7. What can be improved at OH?	7.1 Staff improvements		Staff comments about what to improve for staff
	7.2 Client improvements		Staff comments about what to improve for clients
8. Latent / manifest themes	8.1 Hope for clients		Perceptions of hope for clients

9. Governance	9.1 Definition of the purpose of the program		Staff perception of the purpose of the OH program
	9.2 Program structure and rules		Staff perceptions about the program rules and structure
	9.3 Good administrative base / accreditation		Staff perceptions of administration of OH / accreditation etc.
10. Staff skills and service links	10.1 Skilled Staff		Staff perception of skills, access to training, educational levels
	10.2 Links with other client-related health services		Staff perception of OH's links with client-related health services / access etc.
	10.3 Membership with relevant AOD networks / associations		Staff perception of OH's memberships with other networks / associations
	10.4 Research partnerships		Staff perceptions of partnerships with researchers / academics / evaluation
11. Program content	11.1 Detoxification		Staff comments on detoxing of clients
	11.2 Rest and recuperation	13.2.1 OH Location	Staff perceptions of location as a part of rest and recuperation for clients
		13.2.2 Fitness / Physical Health	Staff perceptions of fitness and physical health as a part of rest and recuperation for clients
		13.2.3 Perception of family between staff and clients	Staff perceptions of importance of family as a part of rest and recuperation for clients
		13.2.4 Keeping busy at OH	Staff perceptions of importance of keeping busy as a part of rest and recuperation for clients
		13.2.5 Good food	Staff perceptions of good food as a part of rest and recuperation
		13.2.6 Criticisms / Negative comments	Negative comments about OH program
	11.3 Individual counselling and case management		Perceptions of individual counselling - positive and neg comments
	11.4 Group counselling		Perceptions of groups - positive and neg comments
	11.5 Vocational skills		Staff perceptions of vocational skills development - positive and negative comments
	11.6 Cultural and spiritual activities		Staff perceptions of cultural and spiritual aspects of the program - positive and negative comments
	11.7 Planning for discharge		Staff perceptions of post discharge services - positive and negative comments
KEY:			
Semi structured interview framework			
Latent themes			
Available evidence			

Appendix L The need to move from describing to evaluating the effectiveness of Indigenous drug and alcohol residential rehabilitation services: a systematic review

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1. INTRODUCTION

Internationally, Indigenous peoples experience poorer health outcomes compared to their non-Indigenous counterparts [1] including disproportionately high mortality and morbidity from substance use disorders, such as liver cirrhosis, injury, cancers and poor mental health [2]. In part, the disproportionately higher rate of substance use disorders experienced by Indigenous peoples is a result of intergenerational trauma from a range of factors, including colonisation (i.e. dispossession, forced relocation, stolen generations of children), racism, social disadvantage, and exclusion [3]. In order to significantly redress the burden of harms associated with Indigenous substance use disorders, effective prevention programs and treatment services are required, ranging from community-based health promotion and supply reduction initiatives, to residential rehabilitation programs [4].

Despite the need for effective responses, previous reviews of Indigenous treatment services, including drug and alcohol residential rehabilitation services, have consistently shown that treatment does not always represent best-evidence practice, and that there is a need to more routinely evaluate the benefits and costs of Indigenous treatment services [5]. Given the strong relationship between substance use disorders, poor quality housing, mental health, and family and community disruption, Indigenous residential rehabilitation programs have an important role in responding to substance use disorders because they provide multiple and culturally competent services over an extended period of time, including providing a drug and alcohol-free environment, safe accommodation, access to counselling, and meeting patients' nutritional needs [6]. Despite the importance of Indigenous residential rehabilitation, a 2002 analysis concluded that the knowledge-base supporting these services could be improved [7].

Conducting a systematic review is one key way to collate the current level of published evidence for Indigenous drug and alcohol residential rehabilitation services. Consequently, this study has three aims. First, to identify the total research output related to Indigenous drug and alcohol residential rehabilitation services internationally. Second, to classify identified studies according to their study type. Third, to describe the key characteristics of patients and services, and critique the research methods used. Given the results of existing reviews of Indigenous health services research generally [8], it is hypothesised that there will be very few evaluations of Indigenous drug and alcohol residential rehabilitation services, and that any evaluations that are published will be of a relatively low methodological quality.

2 METHOD

2.1 Search strategy

A PRISMA compliant search of the literature was undertaken for studies published between 1 January 2000 and 28 March 2016 [9]. Consistent with the methods detailed in the Cochrane Collaboration

Handbook on Systematic Reviews of Health Promotion and Public Health Interventions the search strategy comprised two steps [10] a search of six scientific electronic databases (Medline, Embase, Cinahl, Psych Info, APAIS/ATSIS, Sociological Abstracts); and four grey literature databases (Health Infonet, Lowitja Institute, APO Online, NSW Ministry of Health). The search was limited by date of publication (1 January 2000 to 28 March 2016) and to English language studies. The following keywords and subject heading terms were used: (exp * Residential Treatment/or Residential Program or Therapeutic Community and Indigenous) and (exp Aborigin* or Torres Strait* or Indigenous and Oceanic Ancestry) and (exp Alcohol Abuse* or Alcohol Misuse* or Alcohol Dependence* or Drug Abuse* or Substance Related Disorders* or Drug Addiction* and Drug Dependence). As summarised in Figure 1, the search of the electronic databases identified 325 studies, which was reduced to 290 after the 35 studies duplicated across the six databases were removed. The search of the grey literature identified 528 studies, which was reduced to 506 after the 22 studies duplicated across the four databases were removed. Consequently, this search strategy identified 796 unique studies.

Figure 1 about here

2.2 Application of the exclusion criteria

The titles of these 796 studies were reviewed to assess their relevance against three exclusion criteria. Where the title provided insufficient information, the abstract was reviewed or, if required, the complete article was screened. The exclusion criteria were: (i) not an Indigenous focus (n=179 studies excluded); (ii) not a drug or alcohol treatment focus (n=236 studies excluded); and (iii) not a residential treatment focus (n=343 studies excluded). In total, 758 studies were excluded by these criteria.

2.3 Classification of studies

The remaining 38 studies were classified into six study types using category definitions adapted from similar reviews [11]. First, descriptive studies were defined as those that aimed to quantify the prevalence or incidence of a harm or behaviour, or describe the nature of relationships among phenomena. Second, measurement studies describe the development and/or psychometric testing of measures that can be used to quantify problems or the impact of interventions aimed at reducing those problems. Third, systematic reviews are structured, replicable searches of existing literature. Fourth, theses or dissertations on defined subjects (or problems) that are usually undertaken for a higher academic qualification. Fifth, program evaluation studies are defined as those that attempt to establish causal relationships (e.g. between a treatment program and patient outcomes), or to quantify the benefits and costs of a program or policy, preferably using scientifically rigorous evaluation designs and measures of demonstrated reliability and validity. Sixth, service summaries were defined as studies that did not comprise a research component but provided a summary description of a service.

2.4 Critical appraisal

Based on the recommendations of the Cochrane Collaboration Handbook for Systematic Reviews of Health Promotion and Public Health Interventions [12], two sets of information were extracted from the peer-reviewed studies (i.e. excluding any service summaries or theses). First, the key characteristics of studies were identified, comprising: first author, year, country and province of publication; study type and aims; and a summary description of the program, including its feature characteristics such as its length and capacity (i.e. numbers of patients). Second, key methodological details were summarised: the key research methods (i.e. quantitative or qualitative) and measures used; sample characteristics, including sample sizes; the principal results; and the key limitations of the study.

3 RESULTS

3.1 Classification of identified studies

Of the 38 studies identified for classification (Figure 1): 20 were service summaries only [29-48]; one was a thesis [5068]; 16 were classified as descriptive studies [7,14-28]; and one was a program evaluation [49].

3.2 Key characteristics of the descriptive (n=16) and evaluation (n=1) studies

The characteristics of the 17 data-based studies (n=16 descriptive and n=1 evaluation) are summarised in Table 1.

Table 1 about here

3.3 First author, year of publication, country and province

Unlike existing systematic reviews of Indigenous drug and alcohol research generally [19-20], there is no evidence that the rate of publication in the Indigenous residential rehabilitation field is increasing over time: 9 studies were published between 2000 and 2007, and 8 were published between 2008 and 2015. As summarised in Table 1, seven published studies were from the United States [36,37,39-41,69,70]; seven were from the Australia [19,14-18,49] and three were from Canada [25-27]. The studies were relatively evenly spread across different provinces within countries, except for Australia where 70% of studies were from the most populous jurisdiction of New South Wales (NSW).

3.4 Study type and aims

Of the 16 descriptive studies, 12 described characteristics of the treatment services, which included: rates of client drop-out or participation [17,23,26-27], client or staff experiences of treatment [14,16,18,24] and defining the range of treatment modalities available to Indigenous patients, including cultural components of treatment and whether there are elements of substance use disorders that are common across cultures [7,19,28]. The remaining six descriptive studies reported on

client characteristics: factors associated with treatment success [15]; cognition and motivation to change [51]; perceived needs and life experiences [22]; and attitudes to cultural practices [25]. The one program evaluation was a pre-post analysis of the impact of one episode of treatment on patients in one service [49].

3.5 Summary description of programs

Type of services. The 17 data-based studies (n=16 descriptive and n=1 evaluation) described three types of residential treatment services: i) detoxification or withdrawal only (n=2) [23,27]; ii) counselling only (n=13) [14-18,20,22,24-25,27-28,49,51] and iii) both detoxification and counselling (n=2) [26,19].

Program types. Programs delivered comprised a broad range of treatment options, including psycho-education, life skills, cultural education, health assessments, and support. The 12-step philosophy, and its focus on abstinence, was the predominant therapeutic component of treatment. Two studies reported use of medications and the types of medications used [23, 26].

Location of the services. Five of the seven Australian studies, four of the seven US studies and all three of the Canadian studies were located in regional centres rather than cities.

Program length. Program length was variable and, as expected, related to the type of service provided. Detoxification programs only specified that their program length was variable [26], or was a maximum stay of seven days [23]. The program length for counselling services varied from a minimum of 2 weeks [13] to a maximum of 52 weeks [31]. Despite these extremes, most services provided a program of at least three months duration (n=3) [14-16] or 4-6 months duration (n=4) [19, 17, 20, 49]. The program for one service was approximately one month [27].

Program capacity. Program capacity was only specified for six studies including a 20-bed medical detoxification unit [19,26] and residential treatment centres [7,17,49,51].

Client profiles. The majority of the treatment services accommodated both male and female patients (n=11), [7,14-16,18-20,23,26-28] while one was male only [49] and three were female only [22,24-25]. One service accommodated thirteen to eighteen-year olds [51] and the remaining services were for adults only.

3.6 Key methodological details of the 17 data-based studies

The methodological details of the 17 data-based studies are summarised in Table 2.

Table 2 about here

3.7 Primary research methods used

As summarised in Table 2, quantitative-only methods were used in five studies [15,23,26,27,49], qualitative-only methods were used in eight studies [7,16-19,24,25,51] , and both quantitative and qualitative methods were used in two studies [15,22]. Also included were two analyses of the informal aspects of programs seeking to understand the gaps between western and Indigenous forms of treatment [14, 28]. Some described the setting, initial development, setup, structure and description of a therapeutic model of care. Most of the programs utilised a range of data collection techniques including informal observation, interviews and questionnaires and client characteristic data. Of the 16 descriptive studies, nine collected primary (original) data [7,14-16,19,20,25,27,51], and seven used secondary data or data that had been collected previously [17,18,22-24,28]. The one evaluation study collected primary data [49].

3.8 Sample sizes, settings, gender, and Indigeneity

Of the 16 descriptive studies, 14 had primary data based on sample sizes that ranged from 20 to 877 participants and two had secondary data based on sample sizes that ranged from 20-32 participants. Although all 16 studies were Indigenous drug and alcohol residential rehabilitation services, only four had a sample that included at least 100 Indigenous patients [7, 22, 26, 49].

Six studies had small sample sizes ranging from 12 to 50 participants, meaning they had limited statistical power and generalisability [15, 19-20, 27, 49, 51]. Rates of treatment drop-out in the three studies [30, 41, 65] that reported those data, ranged from 28% to 88%.

3.9 Measures used, key themes and outcomes

Eleven studies sought to identify the client characteristics that impacted on, or predicted, treatment completion [7, 15, 18, 20-21, 25, 28, 49, 51]. These factors included: drug of choice; dropout rates; readmission rates; a positive alliance with counselling staff; quality of life factors; impact of residential programs on women; motivation; Global Assessment of Functioning (GAF) score; readmission to treatment; and cultural and spiritual factors. Of the identified studies, 13 considered an aspect or the relationship between a set of program characteristics, including the use of standardised assessments, growth and empowerment in treatment, analysing the incorporation of traditional values into a program, which elements of dependence may be common across settings or the use of psycho-educational groups [7,14,16-20,23-28].

Three studies considered client characteristics including quality of life (family relationships, education and functioning within the family), level of motivation (factors that impact upon motivation to remain in treatment) and a need for recovery from substance use disorders. These client characteristics were also analysed in relation to other psychosocial factors, including poverty, drug use, neglect and domestic violence [15, 22, 51].

Another four studies [14-16, 22] described the program components and reported the need for further research into the impact of those program components on client outcomes. Participatory research methods [18] were recommended as useful in demystifying the research process for participants and their respective communities. Another study provided an overview of a multicomponent program and discussion of the importance of ethnographic research and evaluation processes [16].

4. DISCUSSION

This systematic review identified 38 studies of Indigenous drug and alcohol residential rehabilitation services published between 2000 and 2016, of which 20 were service descriptions, one was a thesis, 16 described treatment or client characteristics and one was a pre/post evaluation of treatment effect. There were no studies on the development or evaluation of measures for Indigenous residential rehabilitation services and no systematic reviews. Consistent with the hypothesis, there were few published studies (the 17 data-based studies represent an average of one study published per annum internationally), while the evaluation was both the only treatment outcome study and was of relatively low methodological rigour (a pre/post evaluation in a single service).

Three key elements of Indigenous residential rehabilitation services were identified. First, the majority of services were located in regional centres, which most likely reflects the importance that patients and service staff place on Indigenous programs being delivered 'on-country' [6].

Second, there is a strong focus on the Alcoholics Anonymous12-Step model, as the therapeutic component of treatment. The A.A. substance use recovery program requires participants to follow a series of 12 steps to attain sobriety and maintain abstinence from alcohol or drugs [31]. Although this may be reasonable, the evidence-base for this, remains inconclusive and should not preclude the development and evaluation of other therapeutic approaches, such as Community Reinforcement Approach (CRA) [57]. There may even be scope to provide complementary therapeutic approaches, such as CRA while patients are attending the program and AA to help patients become comfortable with attending regular, weekly meetings. Beyond the therapeutic component, all services report offering a range of treatment components, including psycho-education, life skills, cultural education, health assessments, and support. Given the range of treatment components provided, it would be useful to develop a multi-component model of care for Indigenous residential rehabilitation that could be tailored to the unique characteristics of different services [6]. Given the lack of treatment outcome studies identified in this systematic review, this model of care would initially need to be based on expert consensus, but could then be evaluated in multiple services internationally, to establish a benchmark level of its benefits and costs, against which the impact of future iterations of the initial model of care could be measured. For Indigenous services, integrating traditional values, culture and spirituality into a model of care would likely improve its effectiveness, as would the inclusion of

Indigenous concepts of the central role of family and community in the health and wellbeing of individuals [58]

Third, the most commonly used data collection method (60% of the 17 data-based studies) was qualitative only. This is highly appropriate given the relative infancy of the systematic approach to describing Indigenous drug and alcohol residential rehabilitation services, and anthropological or ecological approach to understanding the settings and processes by which substance abuse services are most appropriately provided to Indigenous patients. Nevertheless, it seems appropriate for the field to start to transition from a focus on describing services, their patients and their processes, to a focus on building a quantitative evidence base. Building this quantitative evidence base will most likely require Indigenous services to work together, because the relatively small client capacity of individual services would translate into small sample sizes, which would increase the difficulty of establishing statistically significant associations and treatment outcomes within each service [54]. Building a quantitative evidence base would complement, rather than replace, ongoing qualitative research. As for the model of care, data collection systems could be standardised across services, and it would be critical that they comprise culturally appropriate tools that align with key performance indicators [59]. In addition to greater standardisation and appropriateness, there appears to be an opportunity for services to collect, or for studies to report on, a greater range of patient characteristics to more clearly identify the extent to which different services could tailor their models of care to the specific characteristics of their clients [6,60]. It is also instructive that this systematic review found no published studies on the development or evaluation of measures for Indigenous residential rehabilitation services.

5. CONCLUSION

Given the ongoing disadvantage experienced by Indigenous peoples across Australia [1], which is manifested in a number of problematic ways, including a disproportionately high prevalence of substance use disorders, this systematic review has identified clear scope to develop a standardised, multi-component model of care and a standardised quantitative assessment tool to both evaluate the benefits of Indigenous residential rehabilitation services and identify the key factors that predict successful recovery from substance use disorders for Indigenous people[67]. More accurately identifying individuals' treatment needs (through a more standardised, evidence-based assessment tool) and the provision of a more standardised, evidence-based model of care, might assist in more precisely defining the length of stay in residential rehabilitation that is most cost-effective. Achieving the goal of an increase in the number of program evaluations will require collaboration between Indigenous drug and alcohol residential rehabilitation services, collaboration between Indigenous treatment services and Indigenous communities, and effective partnerships between Indigenous treatment services, communities and researchers with evaluation skills. The results of these evaluations also need to be published in the peer-review literature, which utilises an established peer-

review system as a quality assurance mechanism to optimise the transparency of, and confidence in, the study results [53]. Most critically, methodologically sound evaluation of Indigenous residential rehabilitation services will give rise to improved treatment outcomes for patients, their families and their communities, including improvements in quality of life and in social and emotional wellbeing. Economic evaluations would provide benchmark estimates of the costs of achieving these benefits, against which future models of care can be compared.

LIST OF ABBREVIATIONS

Abbreviations are listed in the text.

CONFLICTS OF INTEREST

The authors confirm that this article has no conflict of interest

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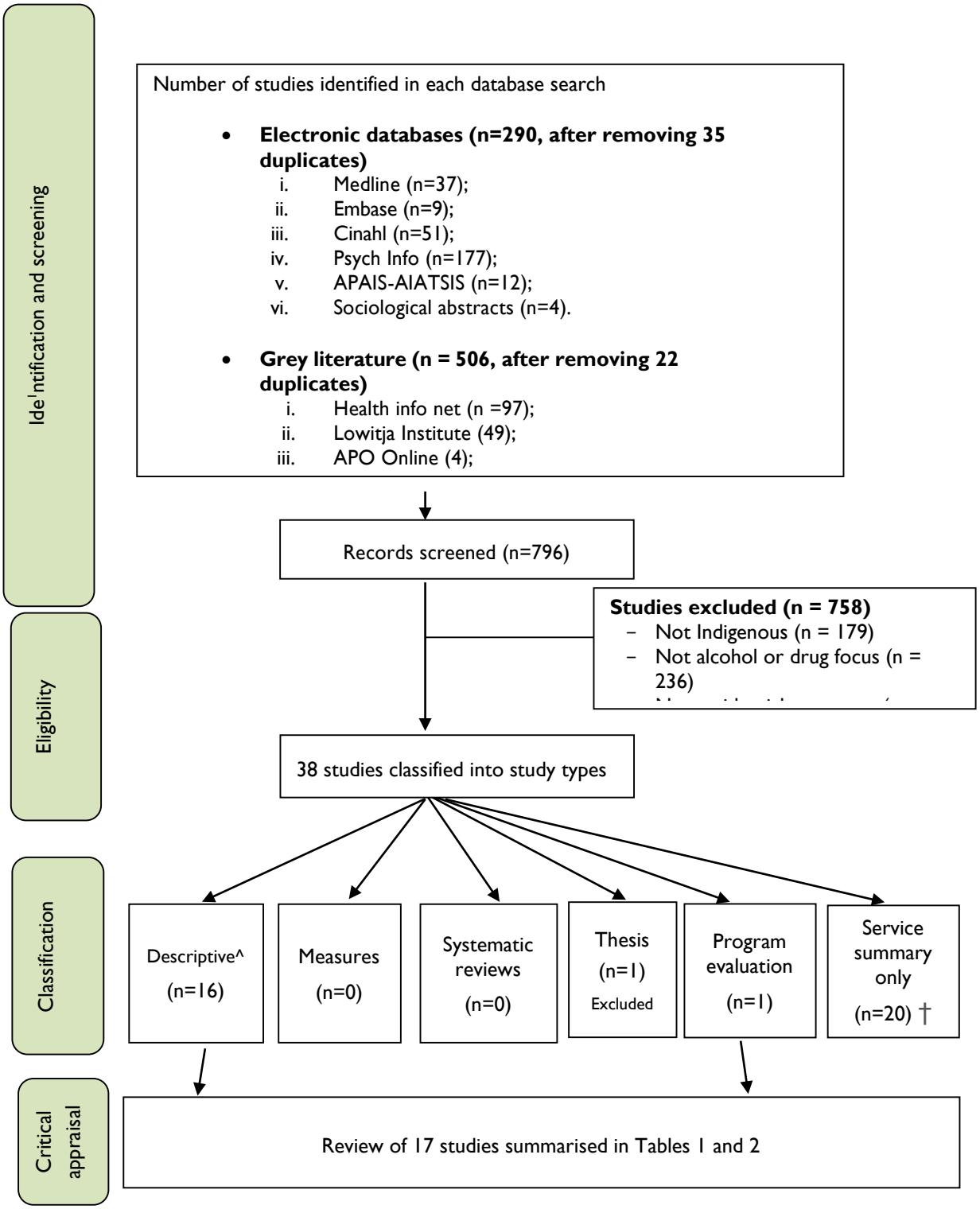
Figure 1: **Flowchart indicating classification of articles**



^Note: these studies described either treatment (n=10 studies) or client (n=6 studies) characteristics.

† The service summaries gave a description of a residential service but did not meet the criteria for analysis and were therefore excluded.

Table 1: Key characteristics of identified studies (N=17)

	1st author, year, country (province)	Study type	Aim of study	Summary description of programs
1.	Callaghan [26] 2003, Canada (British Columbia)	Descriptive (treatment characteristics)	To examine patterns of dropout and readmission among a sample of First Nations individuals who were admitted over a 3-year period to a medical detoxification program. To identify predictors of dropout from and readmission to the program	• Service type: detoxification/withdrawal • Program type: medicated detoxification (Methadone,Clonodine Phenobarbitol) • Location: regional or metropolitan • Program length: 1 to 4 weeks • Program capacity: 20 beds • Client profile: male/female; adults/young people. • Referral source: drop in or referral from a health service provider • Client assessment points: Standardised assessment on admission, at unspecified follow up points and at discharge.
2.	Clarkson[27] 2013, Canada (Ontario)	Descriptive (treatment characteristics)	To examine the association between therapeutic alliance and treatment participation in a residential and whether Aboriginal youths responded differently from non-Aboriginal adolescents	• Service type: counselling • Program type: Individual/group work Cognitive Behavioural Therapy • Location: metropolitan • Program length: 3 to 5-weeks • Program capacity: not stated • Client profile: male/female; young people. • Referral source: drop in or referral from a health service provider • Client assessment points: Standardised assessment on admission, at unspecified follow up points and at discharge.
3.	Edwards[20] 2003, United States (California)	Descriptive (treatment characteristics)	To review and document the transformational experiences of Native United States of Americas in residential treatment, including an analysis of the extent to which traditional practices have been incorporated into treatment.	• Service type: counselling • Program type: Individual/group work and education • Location: regional or metropolitan • Program length: 12-weeks • Program capacity: 80 • Client profile: male/female; adults. • Referral source: drop in or referral from a health service provider • Client assessment points: Standardised assessment on admission and at unspecified follow up points

4.	Feldstein[19] 2006, United States (National study)	Descriptive (client characteristics)	To understand the relationship between alcohol dependence, treatment and alcohol related incarceration	• Service type: detoxification/ withdrawal and counselling • Program type: Individual/group work and education • Program length: variable • Location: variable • Program capacity: n/a (varied by service) • Client Profile: male/female; adults • Referral source: referred from advertising and telephone interviews • Client assessment points: Standardised assessment on admission and at unspecified follow up points
5.	Berry [49] 2012, Australia (New South Wales).	Pre/post evaluation study	To examine changes in psychosocial wellbeing among Patients of an Indigenous Residential Substance use rehabilitation centre. Explore the degree to which service users valued the cultural components relative to other treatment components.	• Service type: Residential treatment • Program type: 12 step/ Cognitive Behavioural therapy • Location: regional • Program length: 16-weeks • Program capacity: 24 beds • Client profile: Male; adults • Referral source: self and or health service provider • Client assessment points: Standardised assessment on admission and at unspecified follow up points
6.	Brady[7] 2002. Australia (National study)	Descriptive (treatment characteristics)	To examine treatment modalities across 29 residential Indigenous programs, including patients' and staff experiences, and to identify the need for programs to participate in quality management reviews.	• Service type: residential treatment • Program type: Varied according to individual service including 12 step, therapeutic community model/s • Location: Metropolitan, regional and rural • Program length: variable • Program capacity: n/a (varied by service) • Client profile: Male/female; adults • Referral source: self and or health service provider • Client assessment points: Standardised assessment on admission, at unspecified follow up points and at discharge
7.	Chenhall[14] 2007, Australia (New South Wales).	Descriptive (treatment characteristics)	To examine the informal aspects of an Indigenous residential alcohol and drug rehabilitation service treatment program. Identify the ethnographic findings, alongside some of the evaluation implications of doing this kind of research.	• Service type: Residential treatment setting • Program type: 12 step • Location: regional • Program length: 12 to 52 weeks • Program capacity: not stated

				• Client profile: male/female; adults • Referral source: self and or health service provider • Client assessment points: Standardised assessment on admission and at unspecified follow up points
8.	Chenhall[15] 2012, Australia (New South Wales)	Descriptive (client characteristics)	To review and evaluate quality of life (QoL) factors as a predictor of success within an Indigenous residential treatment program.	• Program type: 12 step • Location: regional • Program length: 12 to 52-weeks • Program capacity: not stated • Client profile: male/female; adults • Referral source: self and or health service provider • Client assessment points: Standardised assessment on admission and at unspecified follow up points
9.	Chenhall[16] 2008, Australia (New South Wales).	Descriptive (treatment characteristics)	To analyse experiences and supports within a therapeutic context.	• Program type:12 step • Location: regional • Program length: 12 to 52-weeks • Program capacity: not stated • Client profile: male/female; adults • Referral source: self and or health service provider • Client assessment points: Standardised assessment on admission and at unspecified follow up points
10.	Dell[28] 2011, Canada (Ontario)	Descriptive (treatment characteristics)	To examine role of Indigenous culture and its intersection with Western approaches to recovery.	• Service type: Residential treatment centre • Program type: individual counselling/group therapy • Location: regional • Program length: 16 week • Program capacity: not stated • Client Profile: Male/Female, Adults//young people • Referral source: referral from a health service provider • Client assessment points: Standardised assessment on admission and at unspecified follow up points Discussion of the cultural implications for psychiatry's response to individualised treatment approaches. Discussion of the gap in understanding and practice between western and Indigenous worldviews

11.	Fickenscher[51] 2006, Unites States of America (Colorado)	Descriptive (client characteristics)	To measure intrinsic and extrinsic motivation as a factor in treatment for 13-18-year olds. What motivational factors influence treatment?	• Service type: residential treatment • Program type: Individual/group therapy/counselling • Location: regional • Program length: 26 weeks • Program capacity: 24 beds • Client profile: Male/female; young people • Referral source: Health service provider/s • Client assessment points: standardised assessment on admission and at unspecified points
12	Peterson[22] 2002, United States (western, Southwest, Northern Plains, Mid-western region and Alaska areas)	Descriptive (client characteristics)	To document the life experiences and perceived recovery needs of Native and Indigenous women who have a trauma history.	• Service type: Residential treatment (Women) • Program type: Individual/group work (counselling) • Location: regional and or metropolitan • Program length: Not stated • Program capacity: not stated • Client profile: Female; adults • Referral source: referral from a health service provider or self-referred. • Client assessment points: Standardised assessment on admission, at unspecified follow up points and at discharge • Client profile: female; adults
13	Running Bear Ursula[23] 2014, United States (New Mexico)	Descriptive (treatment characteristics)	To determine if a set of factors were associated with the risk of readmission in Native and American Indians who received inpatient alcohol detoxification services.	• Service type: detoxification/withdrawal (Disulfiram, Naltrexone, Benodiazepine and Acamprosate) • Program type: 12 step program • Location: regional and metropolitan • Program length: 1 week • Program capacity: not stated • Client profile: Male/female; adults • Referral source: self and/or referred form a health service provider • Client assessment points: Standardised assessment on admission
14	Saylors[24] 2004. United States (California)	Descriptive (client characteristics)	To identify factors associated with the promotion of healthier lifestyles in an American Indian Lodge for women and children.	• Service type: residential treatment • Program type: Individual/group work; counselling • Location: metropolitan • Program length: variable • Program capacity: 30 beds • Client profile: Female; adults • Referral source: self referred or a health service provider

				• Client assessment points: Standardised assessment on admission, at unspecified follow up points and at discharge
15	Shaw[17] 2011 Australia (Northern Territory)	Descriptive (treatment characteristics)	• To romote an understanding of the outstation model of care. • To highlight difficulties between programs and their funding sources.	• Service type: counselling • Program type: individual/group work (cultural activities/life skills) • Location: remote • Program length: 16 to 20-weeks • Program capacity: 20 beds • Client profile: male/female, adult • Referral source: self/family and or health service providers. • Client assessment points: Standardised assessment on admission, at unspecified follow up points and at discharge
16	Stephens[18] 2014. Australia (Queensland)	Descriptive (treatment characteristics)	• To highlight the importance and value of reflective practice in ameliorating addiction issues. • To highlight the importance and value of reflective practice.	• Service type: therapeutic community • Program type: Individual/group work (cultural activities) • Location: regional • Program length: variable • Program capacity: not stated • Client Profile: male/female, adults • Referral source: self and or health service provider • Client assessment points: Standardised assessment on admission and at unspecified follow up points
17	Chong[25] 2009, United States (Arizona)	Descriptive (client characteristics)	A project to investigate the relationship between attitudes toward traditional AI=AN practice and the spiritual development of Native and non-Native female patients and whether it is possible to identify their readiness for spiritual growth.	• Service type: Residential rehabilitation • Program type: Individual/group work (cultural activities) • Location: regional • Program length: 18 weeks • Program capacity: not stated • Client profile: Female; Adults • Referral source; self and or health service provider • Client assessment points: Standardised assessment on admission and at unspecified follow up points

Table 2: Key methodological details of the identified studies (N=17)

	1st author, year, country	Study type	Key research methods and measures	Sample characteristics	Principal results	Key limitations
1	Callaghan[26] 2003, Canada (British Columbia)	Descriptive (treatment characteristics)	• Key data collected: – Sex – Employment status – Marital status – Drug of choice – Injecting drug use – Poly drug use – Previous detoxification history – Referral source – Residential status • Quantitative study • Medical chart reviews	• N=877 • Inpatient detoxification • Male and female • Indigenous • 3 to 30-day detox	• 254 patients (28.96%) dropped out of treatment • 219 patients (24.96%) were readmitted into treatment within 12 months • Statistically significant predictors of treatment dropout were: i) a preferred drug other than alcohol; and ii) being self-referred • Statistically significant predictors of readmission to inpatient detox within 12 months were: i) previous history of detoxification; and ii) residential instability.	• Study relied upon self-reports from some patients who were under the influence of drugs • Further research needed to increase the predictive accuracy of models of detoxification readmission
2	Clarkson[27] 2013, Canada (Ontario)	Descriptive (treatment characteristics)	• Key data collected: – Drug use history – Treatment participation – Initial alliance • Quantitative study • Self-report assessment at intake into treatment	• N=45 • Residential treatment program. • Male/Female • Indigenous	• A statistically significant correlation was found between treatment engagement, therapeutic alliance and a successful treatment outcome. • Perceptions of the therapeutic alliance were different for Indigenous and non-Indigenous patients.	• Relatively small sample size (n=45)

3	Edwards[20] 2003, United States of America (California)	Descriptive (treatment characteristics)	• Key data collected
			  • Survey questions about transformational experiences in rehab including;
			  − Feelings experienced
			  − What precipitated the experience
			  − How long did it last?
			  − How did the experience affect your recovery?
			• Empirical study which looked to analyse the type and quality of healing experiences
			• Face to face semi structured interviews at program completion
				• N=30 Beds
				• Residential
				• Treatment program
				• Male/female
				• Indigenous
					• Program focus on healing concepts of;
					  − Re-traditionalisation
					  − Trauma Work
					  − Use of A.A. for addiction treatment
					• A range of experiences integral to a resolution of childhood trauma including
					  − Feeling cared for
					  − Spiritual experiences
					  − Insight
					  − Making a commitment
					  − Empowerment and self esteem
					  − Releasing emotional pain
					  − Remorse
					  − Reconnecting to traditional values
					  − Forgiveness
					  − Relief
					  − Safety
					  − Gratitude
						• Reliance on one model
						• Small sample size (n=12)
						• The need for identifying and diagnosing trauma (including historical) should be an integral component of Indigenous treatment programs.

4	Feldstein[19] 2006, United States of America	Descriptive (Client characteristics)	• Key data collected:
			  − Structured clinical interviews based upon client classification from the DSM-1V-TR Axis 1 Disorders
			  − Alcohol dependence and levels of Incarceration
			• Empirical Study, Quantitative Study
			• Structured interview/s for the DSM-IV for axis 1 disorders
				• N=45
				• Correctional Centre/community treatment program
				• Male/Female
				• Indigenous
					45 participants met the DSM-IV criteria for alcohol dependence
					• No baseline difference for patients who left program before 8 and 16 weeks.
					• Program completion indicative of higher baseline scores on the GEM tool
					• From baseline to 8 weeks' participants psychological distress decreased while confidence in resisting relapse significantly increased
						• A paucity of current literature on the impacts of incarcerations and arrests of individuals who drink
						• Small sample size (n=45)
						• A high value placed on one model e.g. 12 step programs

					• Effect sizes for GEM subscales indicative GEM highly sensitive to change in client populations • Wilcox signed ranks test indicates Indigenous populations rate culture more highly than non-indigenous people (*Mean Rank =14.25)* • Higher psychological distress associated with lower refusal self-efficacy • Participants reported at least one year of abstinence • Significant correlations between alcohol related behaviours and the alcohol dependence scale • Lack of perfect correlations indicative of a probability of unique contributions • A predictable correlation between severity of dependence and incarceration • T tests revealed participants experienced more times in incarceration than medical hospitalisation	
5	Berry[49] 2012, Australia (NSW)	Pre/post evaluation study	• Key data collected – Kessler 10 to assess psychological distress – GEM to assess Growth and Empowerment – DTQC-8 to assess confidence in resisting relapse • Quantitative Study/s	• N=103 per year • Residential treatment facilities • Male/female • Indigenous	• Recommendations for a successful Indigenous residential treatment program	• High attrition rate • Sample reduced from 103 (57 Indigenous & 46 non-Indigenous participants) to 50 (8-weeks, 25 Indigenous & 25 non-Indigenous participants) to 34 (16 weeks, 20

			• Self-report measures at intake, 8 weeks and 16 weeks into treatment			Indigenous and 14 non-Indigenous participants)
6	Brady[7] 2002, Australia (national study)	• Descriptive (treatment characteristics)	• Key data collected • Qualitative program • Review of 48 Residential drug and alcohol treatment facilities	• N=57 Indigenous • N=46 non-Indigenous males • Various residential substance misuse treatment facilities • Male/Female. • Indigenous	• Board of managements should receive governance training • Regular and ongoing skills development needed for residential program staff • Indigenous residential programs to become members of Peak Indigenous bodies to strengthen advocacy for the sector • Residential program should consist of a structured timetable of activities • Residential program to facilitate a broader range of treatment modalities	• The over-representation of abstinence based programs within the indigenous residential sector
7	Chenhall[14] 2007, Australia (NSW)	Descriptive (treatment characteristics)	• Key data collected – Oral histories • Program description and review of an Indigenous residential Centre	• Varied bed numbers • Residential treatment Centre. • Male/female • Indigenous	• Historical description of services • Comprehensive overview of the centre • A need for further research to identify and clarify treatment outcomes • The need for a greater understanding of the implicit factors that impact upon residential treatment	• Lack of peer reviewed data • Need for more targeted longer-term support to patients of the centre
8	Chenhall[15] 2012, Australia (NSW)	Descriptive (client characteristics)	• Key data collected – Self-reported aspirations of patients – Client self-evaluations • Quantitative and Qualitative	• Varied bed numbers • Residential treatment Centre. • Male/female • Indigenous	• Data categorised QoL domains selected by participants and the degree to which progress is able to be demonstrate through treatment • 15 of 25 participants identified family as an important QoL area	– A discrepancy was found between the self-reported aspirations of patients and the focus of the treatment provided – Small sample size (n=25)

			• Analysis of client data using the Self Evaluated Individual Quality of Life-Direct Weight tool over a treatment episode of 3 months. • Formal and informal interviews during the residential program		• 9 of the participants viewed their functioning within the family as low • QoL effective in identifying patients centred treatment domains • QOL factors identified as important in the recovery process included; – Family – Safe home – Education – Sports – Drivers Licence – Work Q – QoL important in assessment and treatment	– 22 of the 25 patients exited the program before their planned completion date
9	Chenhall[16] 2008, Australia (NSW)	Descriptive (treatment characteristics)	• Key data collected – Day to day observation/s of client as they participated in the treatment program • Ethnographic Evaluation • Focus on the informal observation of aspects of a treatment programme,	• Varied bed numbers • Residential treatment Centre. • Male/female • Indigenous	• Oscillating periods of mutual support and discipline have an important therapeutic function • Identify and describing of client experiences within the support structures of the residential Centre.	• Length of time needed to carry out this type of study • This type of study relies on the expertise of the researcher and can be perceived as intrusive
10	Dell[28] 2011, Canada (Ontario)	Descriptive (treatment characteristics)	• Key data collected – A review of the literature related to the application of an Aboriginal method of storytelling • Literature review & Discussion paper	• Varying numbers across a number of treatment facilities. • Male/Female. • Indigenous	• Articles identified three themes of Connection with Self, Community and • Political context as important predicators of treatment success • Identification of a gap between psychiatric medicine and Indigenous culture	• Need for increased peer-reviewed culturally responsive, psychiatric research • A gap between western and Indigenous understanding of treatment practice

			• Medical file reviews			• Search from 1998-2008 identified a limited number of documents for review.
11	Fickenscher[51] 2006, USA (Colorado)	Descriptive (client characteristics)	• Key data collected – Survey questionnaire – Analysis of client records • Empirical study which analysed the intrinsic and extrinsic motivation towards treatment • Participant interviews on admission into treatment	• 45 Participants • 13-18-year olds • Residential treatment Centre • Male/Female • Indigenous	• Level of motivation is a predictor of positive outcomes in treatment • Motivation affected by; – Age – Gender – Legal issues – Drug of choice – Non-substance use disorders	• Significance of treatment to levels of motivation • Sample size relatively small (n=93) • Focus on treatment completion rather than other outcomes
12	Peterson[22]] 2002, United States of America	Descriptive (client characteristics)	• Key data collected – Treatment data – Client demographics • Quantitative and Qualitative • Formal interviews and client data analysis	• 60 Patients, 52 staff • 9 treatment centres. • Female • Indigenous • Review of treatment charts of women • 60 women participated in 6 focus groups • 52 staff were interviewed	• 82% of participants abused as children • 39% physically abused • 34% sexually abused • 23%emotionally abused • 7% experienced some form of neglect • 78% participate in aftercare programs while 12% did not. • Recovery from the effects of substance use needs to be understood in terms of entrenched experiences of trauma • A relationship between culture and treatment important for engagement with program participants	• Use of treatment forms and data collection not consistent across the 9 centres • Substance use data varies widely from tribe to tribe

13	Running Bear Ursula[23]] 2014, US (Anchorage)	Descriptive (treatment characteristics)	– Key data collected – Demographics – Social and psychological client characteristics – Access to health care – Utilisation of health care • Quantitative • Data collected during intake into treatment and on discharge	• 383 participants from (2006-2007) • Inpatient detoxification unit • Male/female • Indigenous	• A lower score on the GAF tool a reliable predictor of readmission whilst a higher score indicted less likelihood of readmission • A decrease in the Global Assessment of Functioning (GAF) score increases the likelihood of readmission to a detoxification unit	• The reliability of self-reported data • Underreporting of medical and diagnosis information
14	Saylors[24] 2004, US (California)	Descriptive (Client characteristics)	• Key data collected – Description of a program • quantitative/ethnographic • Client interviews conducted at intake, during the program and at 12 months follow up	• 30 beds • Residential treatment Centre • Female • Indigenous	• 13% of patients' report a decrease in seeking inpatient mental health services • 2% decreased emergency department presentations • 67% reported at intake • 72% reported abstinence at 6 months • 71% reported abstinence at 12 month follow up • Improvements for program participants in health noted through; – Increased access to health care – Increased reported positive health benefits	• Reliability of self-reported data
15	Shaw[17] 2011, Australia (NT)	Descriptive (treatment characteristics)	• Key data collected – Client demographics – Program characteristics • Descriptive analysis	• 20 beds • Remote treatment Centre • Male/Female • Indigenous	• A descriptive account of a model of residential care • Recognition of the validity of a locally based model of care for remote patients including factors such as; – Remote setting – Care by family members	• Not peer reviewed • No data analysis

			− Informal interviews and participant observation between 2004 and 2010.		− The place of the "Kanyirninpa' strategy − Fluid nature of the model − Role of communication	
16	Stephens[18] 2014, Australia (QLD)	Descriptive (treatment characteristics)	• Key data collected − Descriptive account of the use of; − Consultative participatory methods − Collaborative research methods − Collegiate research methods • Systemic intervention research • Participatory methods described to highlight the value of reflective practice	• Varying numbers • Residential therapeutic community • Male/female • Indigenous	• Participatory methods are useful in demystifying the research process • Key to research success is the level of engagement with relevant stakeholders • CQI processes are important to the evaluation process Participatory methods suitable to de-mystify the research process and the sharing of information	• Need for a prolonged period of reliably collectable data
17	Chong[25] 2009. United States (Arizona)	Descriptive (client characteristics)	Key data collected − Attitudes towards spirituality − Attitudes towards cultural practices • Qualitative study • Project Involving two focus groups and Surveys (n=2) on attitudes towards spiritual development	• Survey (n=2) related to participant's spirituality (n=51)	• Participation in cultural activities increases the client's interest in spiritual development and growth.	• Small number of non-native patients • Not determined whether individuals with different • levels of positive outlook or other outlook change differentially with the • length of stay in the program.