


# Characterising the Aboriginal and Torres Strait Islander patient journey after a serious road traffic injury and barriers to access to compensation: a protocol

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Received 5 June 2023

Accepted 8 October 2023



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**To cite:** Hossain S, Moeller H, Sharpe P, et al. *Inj Prev* Epub ahead of print: [please include Day Month Year]. doi:10.1136/ip-2023-044997

## ABSTRACT

**Introduction** Road safety has been a long-enduring policy concern in Australia, with significant financial burden of road trauma and evident socioeconomic disparities. Transport injuries disproportionately impact individuals in remote areas, those in lower socioeconomic situations, and Aboriginal and Torres Strait Islander populations. There is a lack of insight into transport injuries in Aboriginal and Torres Strait Islander communities, absence of Indigenous perspective in published research and limited utilisation of linked data assets to address the inequity. Aim 1 is to determine the breadth, cost and causal factors of serious injury from road traffic crashes in South Australia (SA) and New South Wales (NSW) with a focus on injury prevention. Aim 2 is to identify enablers and barriers to compensation schemes for Aboriginal and Torres Strait Islander patients in SA and NSW.

**Methods and analysis** This study will be guided by an Aboriginal and Torres Strait Islander Governance Group, applying Knowledge Interface Methodology and Indigenous research principles to ensure Indigenous Data Sovereignty and incorporation of informed perspectives. A mixed-method approach will be undertaken to explore study aims including using big data assets and mapping patient journey.

**Conclusion** The results of this study will provide valuable insights for the development of focused injury prevention strategies and policies tailored to Aboriginal and Torres Strait Islander communities. By addressing the specific needs and challenges faced by these communities, the study aims to enhance road safety outcomes and promote equitable access to healthcare and compensation for affected individuals and their families.

## INTRODUCTION

Road safety has been a policy priority for decades; however, the rate of road transport injuries in Australia is not declining. Road traffic related hospitalised injuries have continued to increase, with a 16.2% increase between 2012 to 2018<sup>1</sup> with a quarter of these being 'high threat to life' hospitalisations.<sup>1,2</sup> According to one estimation, in the 2015 calendar year, the total cost of road trauma is US\$29.7 billion annually, with each hospitalisation

## WHAT IS ALREADY KNOWN ON THIS TOPIC

⇒ Aboriginal and Torres Strait Islander people are over-represented in road traffic injuries.

## WHAT THIS STUDY ADDS

⇒ Novel mixed-method approach guided by an Aboriginal and Torres Strait Islander Governance Group. Linked administrative data assets will be used to determine the epidemiological profile. Injury yarnings will be used to assess barriers to compensation claims.

## HOW THIS STUDY MIGHT AFFECT RESEARCH, PRACTICE OR POLICY

⇒ Clear insights for focused injury prevention strategies and equitable access to compensation.

from a road traffic injury costing US\$239 000,<sup>2</sup> a cost which is likely to have increased due to inflation. Transport injuries can result in ongoing treatment and lifelong disability with significant impacts on individuals' and their families' quality of life, as well as on the healthcare system. The most common transport injuries causing hospitalisation in Australia are fractures (116.8 per 100 000 persons) with head and neck (27%) being the most common location,<sup>3</sup> leading to transport acquired traumatic brain injury, quadriplegia and blindness.<sup>4</sup>

There are significant health inequities apparent in transport injuries and fatalities in Australia.<sup>3</sup> Hospitalisation risk increases with geographical remoteness and low socioeconomic status,<sup>3,5,6</sup> males have higher rates of crash and crash related hospitalisation and death compared with females,<sup>3</sup> and Aboriginal and Torres Strait Islander peoples are over-represented.<sup>5,7</sup> Transport-related mortality is 2.7 times greater and injury up to 1.6 times higher in Aboriginal and Torres Strait Islander transport crashes than other Australians.<sup>7-9</sup> Transport injuries are the second leading cause of death and fourth leading cause of injury for Aboriginal and Torres Strait Islander communities.<sup>7</sup>

Despite these considerable inequities and burden, only a small body of research exists on transport injuries in Aboriginal and Torres Strait Islander communities and while there are abundant linked

data assets with injury data, there has been little research to date utilising these to report on transport injuries in Aboriginal and Torres Strait Islander people.<sup>10</sup> Previous studies focused on geography,<sup>10</sup> risky driving,<sup>7 11</sup> behaviour and attitudes,<sup>12</sup> proximal causation<sup>11</sup> and safer driving programmes,<sup>13 14</sup> but in depth studies using linked data assets to derive targeted information for prevention are missing. The incidence, socioeconomic determinants and overall burden of transport injuries in Aboriginal and Torres Strait Islander communities is presently poorly defined, with national annual reporting by the Bureau of Infrastructure and Transport Research Economics not capturing this detail.<sup>1 15</sup> This may be due to different jurisdiction recording and reporting of Aboriginal and Torres Strait Islander status on driver licenses, which provides an incomplete picture of the true burden. Additionally, direct healthcare costs and patient experience for their ongoing care and access to transport injury compensation have only focused on the dominant Australian populations in Victoria.<sup>16 17</sup> There has been limited exploration on if and how Aboriginal and Torres Strait Islander patients recovering from a serious injury access lifetime support. Of note, no studies have examined this with a focus on indigenous knowledges and research methods to provide appropriate contextualisation of outcomes for community, government and key stakeholders. This study will generate new evidence and knowledge, through providing a thorough understanding of the whole patient journey for Aboriginal and Torres Strait Islander people injured in road crashes and inform targeted injury prevention programmes and policies for Aboriginal and Torres Strait Islander people.

### Aim

Our objective is to characterise the patient journey for Aboriginal and Torres Strait Islander people with a serious road traffic injury. The specific aims of the study are as follows.

Aim 1 is to determine the depth, cost and causal factors of serious injury from road traffic crashes in SA and NSW with a focus on injury prevention.

Aim 2 is to identify enablers and barriers to compensation schemes for Aboriginal and Torres Strait Islander patients in SA and NSW.

## METHODS

### Setting

According to Census 2021, in NSW 278 000 people (3.4% of the population),<sup>18</sup> and in SA 43 000 (2.4% of the population)<sup>19</sup> identify as Aboriginal and Torres Strait Islander, representing 40% of the total Aboriginal and Torres Strait Islander population

in Australia.<sup>20</sup> Moreover, half of Aboriginal and Torres Strait Islander people in SA,<sup>19</sup> and one-third in NSW live in the state's capital cities<sup>18</sup> with rest of the Aboriginal and Torres Strait Islander population living in different levels of rural and remoteness across these states. Thus, SA and NSW have population level differences in the number and proportion of Aboriginal and Torres Strait Islander peoples, as well as the remoteness of residence, which could reveal important prevention needs. Both aims of the study will be investigated in SA and NSW.

### Methodology

This mixed-method research project (figure 1) will apply knowledge interface methodology<sup>21–23</sup> overseen by an Aboriginal and Torres Strait Islander Governance Group.<sup>24</sup> This group will govern all aspects of the projects to enact Indigenous Data Sovereignty focusing on principles of Indigenous Data Sovereignty which includes relationality of knowledge over data analysis, outcome interpretation, data management and dissemination of findings. This will focus on key areas of interrogating linked administrative big datasets to describe the epidemiological profile of Aboriginal and Torres Strait Islander patients involved in serious road traffic injury, estimation of direct healthcare cost; and mapping the Aboriginal and Torres Strait Islander patient journey<sup>25</sup> through yarning with the patient, family and community.

### Knowledge Interface Methodology and indigenous governance

Pivotal in our research approach is the incorporation of Knowledge Interface Methodology,<sup>21 22 26 27</sup> which brings together Western Biomedical Knowledge Systems and Indigenous Knowledge Systems, research methodologies, and methods through mutual respect, shared benefits, human dignity and discovery for new knowledge formation (figure 2). At the interface, power differentials are redressed for Aboriginal and non-Aboriginal knowledges. This methodology will underpin our research and has been previously used by the investigator team.<sup>21 22 26</sup>

This bringing together will occur through the project's Aboriginal and Torres Strait Islander Governance Group, consisting of Aboriginal and Torres Strait Islander researchers, health professionals, individuals with lived experience, Aboriginal Elders, senior community representatives and key stakeholders from NSW and SA. This group will meet monthly for the duration of the study and play a pivotal role in contributing to and approving overall study design, implementation, outcome interpretation, evaluation, translation, report writing and dissemination and

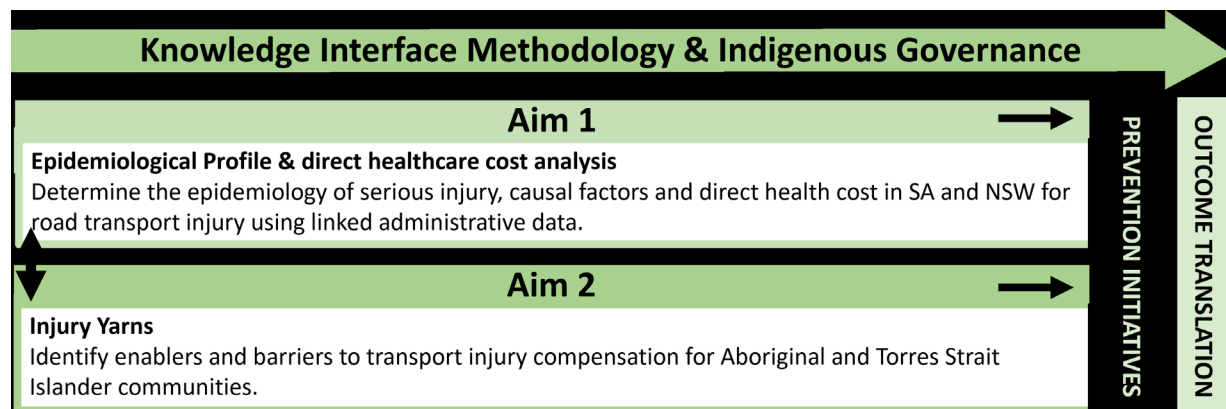


Figure 1 Research project overview.

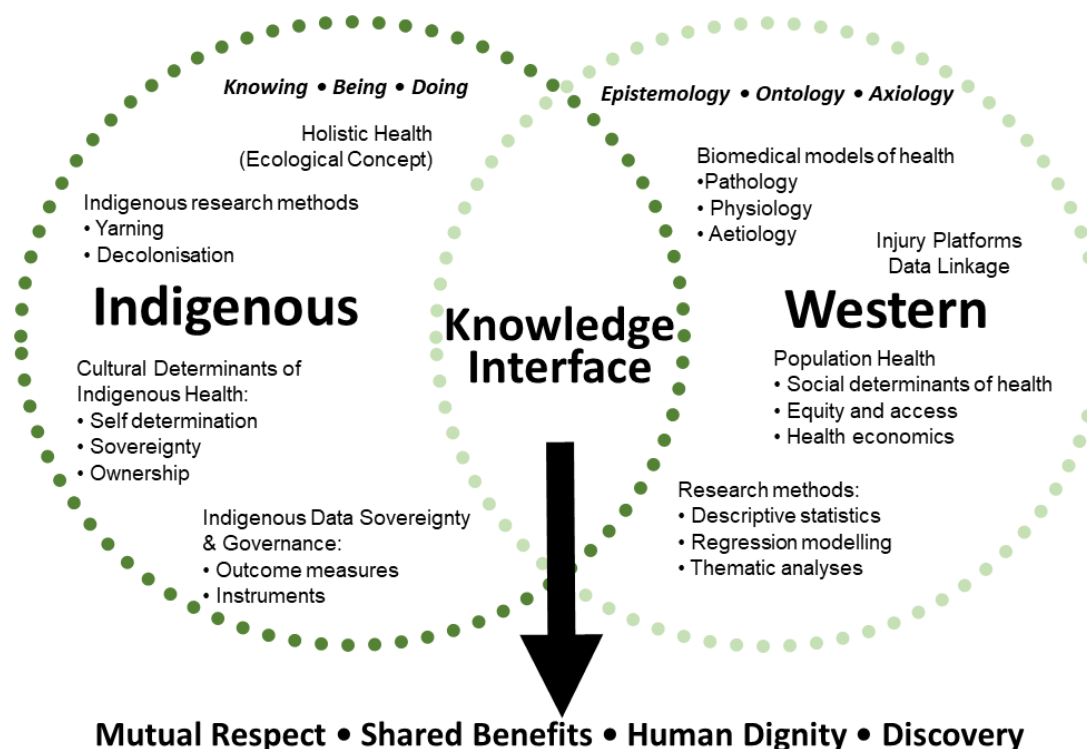


Figure 2 The knowledge interface.

translation of the results. This group makes use of two distinctive research techniques: ‘yarning’, which involves conversational exchanges to gather comprehensive data, and ‘Yuri Ingarninonii’, a practice of deep listening with the purpose of comprehending and documenting information,<sup>21 27</sup> a method rooted in Indigenous research principles. In this way, a targeted narrative, acting to focus on Indigenous Data Sovereignty, driven by Aboriginal and Torres Strait Islander communities and their experiences of severe road traffic injury and access to care, will inform gaps in research and contextualise the epidemiological findings in a meaningful and dignified way that can be translated into policy.

### Aim 1 epidemiological profile and direct healthcare cost analysis

The total epidemiological profile and causal factors of serious injury from a road traffic crashes in Aboriginal and Torres Strait Islander people living in SA and NSW will be determined utilising linked administrative data assets in NSW and SA, and the direct health costs for the road transport injury impacting Aboriginal and Torres Strait Islander people will be estimated. This analysis will be overseen by the Aboriginal and Torres Strait Islander Data Governance Group.

#### Administrative data sources

The epidemiological profiles of Aboriginal and Torres Strait Islander people in serious road traffic injury in NSW and SA will be an analysis of linked administrative data pertaining to road traffic injuries over 10 years (June 2012–June 2022). NSW and SA road transport crash data, linked to data from a range of health administration and surveillance registries will be analysed (figure 3). In NSW, this data access will be facilitated by Transport for NSW (TfNSW). The TfNSW linked data comprise hospital, emergency department and mortality data collections, State Insurance Regulatory Authority Compulsory Third-Party claim and Workers Compensation data, Lifetime Care data,

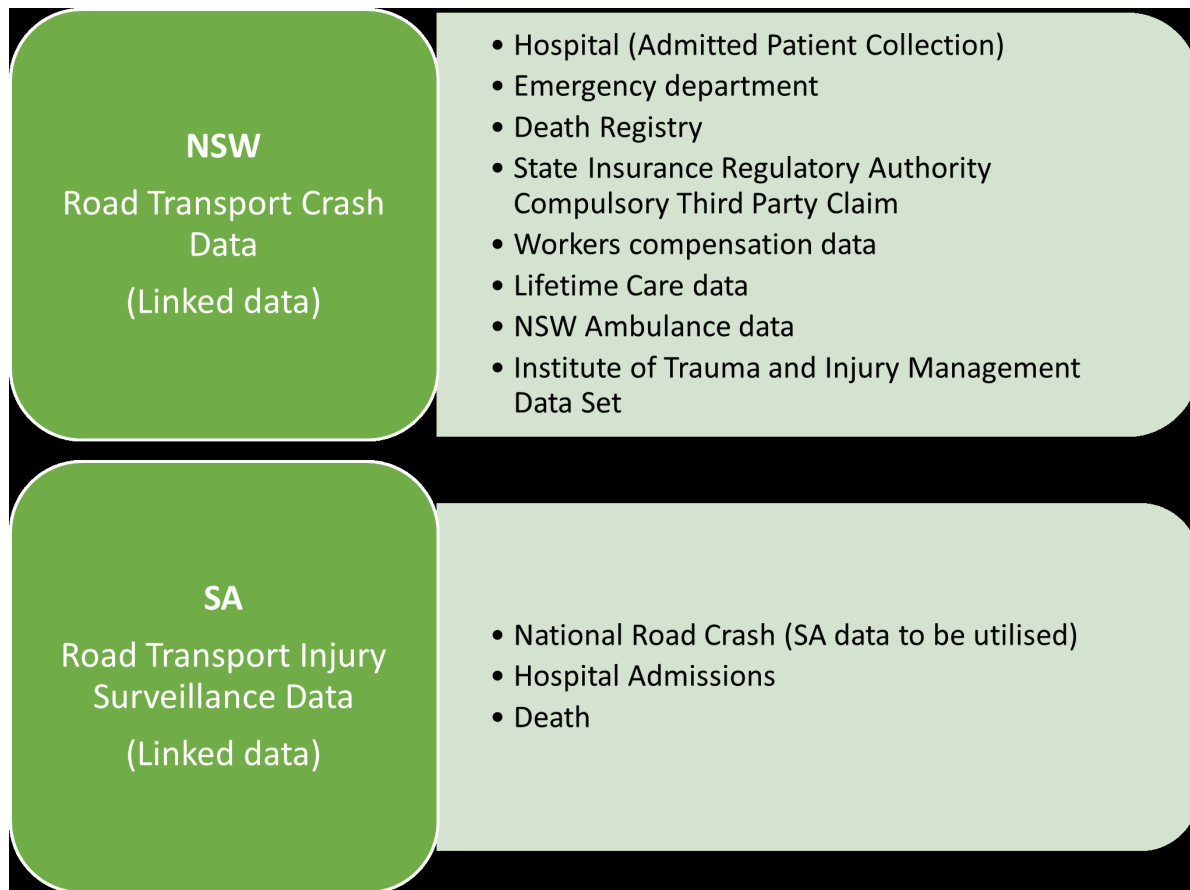
the NSW Ambulance data and Institute of Trauma and Injury Management Minimum Data Set. In SA, data access will be facilitated through the Flinders’ University’s Injury Studies Discipline’s Road Transport Injury Surveillance project. This project contains linked National Road Crash Data, Hospital Admissions and Death data. The SA crash data will be extracted from the National Road Crash Data.

#### Analytical plan

The inclusion criteria will be participants identifying as Aboriginal and/or Torres Strait Islander, being aged 18 years or over and admitted to hospital for an injury that was considered a ‘serious traffic injury’ requiring a length of stay of over one night. Serious injury will be defined in line with Lifetime Support rules; as individuals who sustained a bodily injury where the cause arose from motor vehicle use.<sup>28</sup> The initial road traffic injury will need to have occurred between June 2012 and June 2022. Aboriginal and Torres Strait Islander patients will be identified through a positive record for ‘Indigenous status’ in any of the data sources in the linked datasets used for this study as Indigenous status is commonly under reported. To move away from the deficit discourse, Aboriginal and Torres Strait Islander people’s outcome data will not be compared with outcome data from other Australians.<sup>29 30</sup> Comparison groups will be different risk categories in the Aboriginal and Torres Strait

Islander communities, as guided by the Aboriginal and Torres Strait Islander Governance Group, for example, licence status, number of occupants, natural lighting, urbanisation, and so on.

Descriptive statistics will be used to describe the burden of road transport injury in Aboriginal and Torres Strait Islander road users. These analyses will be stratified by demographic characteristics (such as rural and remote, males and females, age) and injury characteristics (mild, moderate, severe and injury outcomes). Injury characteristics of severe injuries resulting in hospital admission will be analysed using the following



**Figure 3** Data sources to follow Aboriginal and Torres Strait Islander persons involved in serious road traffic injury in SA and NSW.

measures: nature of injury, body region affected, International Classification of Diseases Injury Severity Score<sup>31</sup> and length of stay. Regression models will be employed to identify predictors contributing to serious road traffic injury and adverse outcomes. Variables for inclusion in the regression analysis will be based on best available evidence and will be informed by the Aboriginal and Torres Strait Islander Data Governance Group, who will have ultimate decision on which variables to use. Taking a healthcare system perspective, direct healthcare costs (initial hospital admissions and 1 year following the injury) will be estimated for the target population.

### Aim 2: patient journey mapping through injury yarnings

Yarning with patients and impacted families will be carried out to map the patient journey through treatment and compensation, and to identify enablers and barriers to compensation schemes for Aboriginal and Torres Strait Islander individuals experiencing a serious road traffic injury in SA and NSW. The inclusion criteria will be individuals meeting serious injury definition, identifying as Aboriginal and/or Torres Strait Islander, aged 18 years of over, admitted to hospital for an injury that required a length of stay over one night. The project team will use existing networks and connections with Aboriginal and Torres Strait Community Organisations in SA and NSW to recruit participants.

The Indigenous research method of Yarning, a conversational research method for rich data collection,<sup>23</sup> will be employed with Aboriginal participants who have had a serious transport injury. A yarning guide with set themes for exploration will be designed by Aboriginal researchers and approved by the Aboriginal and Torres Strait Islander Data Governance Group, covering

areas surrounding a participant's initial injury, ongoing care, out-of-pocket healthcare expenditure, access and use of Lifetime Support and Transport Compensation.<sup>23</sup>

Yarns will be conducted on country by an Aboriginal or Torres Strait Islander research assistant; however, if there are challenges to physical yarning and the participants consent, then Microsoft Teams or Zoom yarns will also be organised. Yarns will be recorded, transcribed and deidentified. Data will be classified using thematic analyses in NVivo V.12 to identify main themes by two investigators. Themes will be reviewed by the Aboriginal and Torres Strait Islander Data Governance Group for approval. The patient journey will be mapped using the Managing Two Worlds Together, Patient Journey Mapping Tool.<sup>25</sup>

### Reporting of research findings

The findings of this research will be reported using the Aboriginal and Torres Strait Islander Quality appraisal tool,<sup>32</sup> a tool produced by the Australian National Health and Medical Research Council funded Centre of Research Excellence in Aboriginal Chronic Disease Knowledge Translation and Exchange to assess the quality of research from an Indigenous perspective. In addition, the Strengthening the Reporting of Observational Studies in Epidemiology statement<sup>33</sup> will be used where applicable.

### Data privacy and security

This project will be led by the Injury Studies Discipline at Flinders University in partnership with the School of Population Health at the University of New South Wales (UNSW).

Deidentified administrative data in SA are securely stored at the Flinders University secure server at the Injury Studies Discipline. Transport NSW will be securely stored at tNSW server. The qualitative patient data will be securely held at the secure servers of both Injury Discipline at Flinders University and School of Population Health at the UNSW according to the respective ethics approval conditions.

### Limitations

Using existing administrative data sources is an inherent limitation of any study involving Indigenous populations, we tried to mitigate this limitation through our methodology. This

study could be improved by utilising larger, extensively linked big data assets, such as coronial and ambulance data. Selection of datasets was driven by practicalities, such as known

ethnicity reporting, funding and timelines, which is why SA and NSW were of focus.

### Key research outcomes and impact

This project will determine the epidemiological profile of Aboriginal and Torres Strait Islander people involved in serious traffic injury in SA and NSW, and their post-injury patient journey including barriers and facilitators to access to compensation with important community contextualised outcomes. We will determine the current system level interventions affecting the traffic injury related outcome of Aboriginal and Torres Strait Islander people in Australia and thus will deliver meaningful suggestions for improvements in the rural, remote and urban road traffic safety features as well as post-injury care of road trauma survivors.

Key outcomes will then inform a prevention intervention workshop with the Aboriginal and Torres Strait Islander Governance Group. Workshops will be recorded and transcribed and shared with the community. The community will also be involved in dissemination of the key messages through advocacy by affected families, lay reports, artwork produced by local artists, social media, and community groups. Policymakers, clinicians, lifetime support authorities, and researchers who contributed to the study will be invited to review the findings and discuss the implications for policy development. Working with the Australian Institute of Health and Welfare, who fund the Flinders University-based National Injury Surveillance Unit, Wellbeing SA, Sax Institute, the Lifetime Support Authority, Australian Road Safety, Health Translation SA and TfNSW outcomes and initiatives will be translated into a range of key reports and policy briefs for each institute. This work will be significant in communicating injury outcomes to the SA and NSW Minister of Health, key government officials and stakeholders for funding decisions and policy changes.

Our study will provide comprehensive data to inform injury initiatives for Aboriginal and Torres Strait Islander communities—an identified need in the National Injury Prevention Strategy 2020-2030.<sup>34</sup>

**Acknowledgements** We acknowledge the traditional lands in which this protocol was created and shaped, Kaurna Yerta, Kokatha, Mirning, Wirangu, Peramangk, Ngadjuri, Eora (Bedegal and Gadigal) Nations, and pay respect to their Elders, past, present and emerging.

**Funding** Lifetime Support Authority SA, Grant number R2214.

**Competing interests** None declared.

**Patient and public involvement** Patients and/or the public were involved in the design, or conduct, or reporting, or dissemination plans of this research. Refer to the Methods section for further details.

**Patient consent for publication** Not applicable.

**Ethics approval** Ethics approvals have been acquired through required Human Research Ethics Committees (HRECs) across SA and NSW. For the SA component of the study, ethics approvals were given by Aboriginal Health Research Ethics Committee SA (ref# 04-22-1016) and Flinders University cross institutional HREC (ref# 6258). Use of tNSW data is approved by ongoing data linkage of health datasets, such as CrashLink (ref# HREC/13/CIPHS/53), Cancer Institute NSW (a ref# 2013/10/484), Aboriginal Health and Medical Research Council NSW (ref# 966/13), ACTH-HREC (ref# 10.13.284), ACT Health Epidemiology (ref# 2013-316) and Calvary Public Hospital Bruce ref# 42-2017). Further approval for the epidemiological and cost analysis for the project is being sought through the Aboriginal Health and Medical Research Council NSW.

**Provenance and peer review** Not commissioned; externally peer reviewed.

**Data availability statement** No data are available.

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