Injuries and alcohol management plans in remote Indigenous communities: a two-community comparison

Caryn West,[1] Reinhold Muller,[2] Alan R Clough[3,4]

[1]Department of Nursing, Midwifery and Nutrition, James Cook University, Cairns, Queensland, Australia
[2]Department of Epidemiologist/Biostatistician, Australian Institute of Tropical Health and Medicine, James Cook University Cairns Campus, Cairns, Queensland, Australia
[3]Community-Based Health Promotion and Prevention Studies Group, Australian Institute of Tropical Health and Medicine, Cairns, Queensland, Australia
[4]School of Public Health, Tropical Medicine and Rehabilitation Science, James Cook University, Cairns, Queensland, Australia

Correspondence to
Dr Caryn West, Department of Nursing, Midwifery and Nutrition, James Cook University, Cairns, Queensland, Australia; caryn.west@jcu.edu.au

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ABSTRACT

To curb high rates of alcohol-related violence and injury in Indigenous communities, alcohol management plans (AMPs) were implemented in 2002–2003 and tightened in 2008. This project compares injury presentations and alcohol involvement from two Indigenous Cape York communities, one that entered full prohibition and one that did not. Aclinical file audit was performed for the period 2006–2011, capturing changes in alcohol availability. Medical files were searched for injury presentation documenting type of injury, cause of injury (including alcohol), date of injury and outcomes of all presenting injuries for the time period 1 January 2006 to 31 December 2011, capturing the major changes of the 2008 AMP restrictions. Findings indicated injury presentation rates were higher in both communities before prohibition than afterwards andreduction was more pronounced in community 2 (prohibition). Ongoing research is imperative, as this area is characterised by a near-absence of evidence.

INTRODUCTION

Alcohol restrictions in Queensland's remote Indigenous communities were tightened in 2008.[1 2] This observational study compares population injury presentation rates in two communities from 2006 to 2011, before and after the restrictions were increased. The data reported come from a larger project exploring the impacts of alcohol-related injuries in communities where alcohol management plans (AMPs) were implemented in 2002–2003.[3]

Attempting to curb extremely high rates of alcohol-related violence and injury that had emerged during the 1990s, AMPs were implemented in 19 Indigenous communities across Queensland in 2002–2003.[4 5] Consultation between the Queensland Government, Indigenous local governments, community justice groups, residents and community stakeholders occurred in some communities to develop individual community proposals that outlined a plan to reduce alcohol-related violence and harm.[6] During this consultation community justice groups were established as statutory bodies with legislated responsibilities and were charged with providing advice on alcohol issues within their communities, provide recommendations on the type and quantity of alcohol allowed, and to declare community areas 'restricted' or 'dry'.[6] Effectively two broad AMPs were devised: (1) total prohibition and (2) restricted alcohol access commonly referred to as a carriage limit.

A unique study, conducted 20 years ago, examined injuries in five communities in Cape York in Queensland's Far North. An estimated overall injury rate of 462/1000 population was identified with 51% related to alcohol and 42% attributed to assault including domestic violence.[7] To reduce this violence, from 2002 to 2003, 'carriage limits' first restricted the quantity and type of alcohol that could be legitimately possessed and consumed in AMP communities.[4] In 2008, tighter restrictions brought total prohibition to seven communities, with limited alcohol remaining available in the others.[8] Data presented here compare two of the Cape York communities studied 20 years ago: community 1, where alcohol remained available on a limited basis; and community 2, with prohibition (see Setting and location in the Methods section regarding alcohol limits within the communities). Indicators published by the Queensland Government[9] demonstrate some success in reducing violence linked with alcohol. However, there are no valid injury data that fully describe the impacts of these unique and highly controversial alcohol controls.

With key aims of the AMPs to reduce overall violence in communities, and specifically against women and children, this study explores evidence for a causal relationship between prohibition, AMPs, and injuries, assaults and assaults attributed to alcohol. We thus hypothesised the following:

1. Overall injuries will be generally higher preprohibition than postprohibition.
2. A reduction in rates is more pronounced for assaults, especially assaults involving alcohol, than for all other types of injuries.
3. All reductions (especially reductions in assault involving alcohol) are more pronounced in community 2 (total prohibition) than in community 1 (some alcohol available).
4. A clear transition year, when complete prohibition was fully enforced during the later months of 2008, will be apparent for community 2.

METHODS

Overview of approach

- Both communities are officially classified as 'very remote'[10] and have similarly low socio-demographic ranking on the Socio-Economic Indexes for Areas[11] (community 1: 618.9; community 2: 658.4).
- Indigenous Australians comprise the majority (93%) of the communities' populations.[12]

- Both communities have similar access to government and non-government services and enterprises.[12]
- Periods of isolation are common due to monsoonal activity from December to April each year.[12]
- The nearest significant population centres to these communities are approximately 650 km away.[12]

As such both communities present a 'natural experiment' to explore the impacts of alcohol restrictions and allow for meaningful comparison.

Setting and location

Community 1 has a population of approximately 700 persons. From December 2008, each person of drinking age (18 years) is permitted to accesses six standard alcoholic drinks/person/day.[13 14] Alcohol has been available in this community continuously for more than 20 years.

Community 2 has a population of approximately 600 persons. Alcohol had been available until July 2008 when total prohibition was enforced. No alcohol or home-brewed products are to be sold, bought or consumed within the community or surrounding areas.[13 14]

In other aspects, the two communities are very similar: population almost entirely Aboriginal and Torres Strait Islander (Indigenous) Australians; considered 'very remote' according to Australia's Remoteness Indicator[10]; have similar age and gender profiles; and are isolated due to the annual monsoon.

To the best of the author's knowledge, there were no major programmes or activities being conducted by the health clinics in the communities that may have impacted on injury rates during the study period.

Clinical file audit and consent

Gladman *et al*[7] recommended further research on injury and alcohol involvement should be conducted and onsite clinical file audits should be performed rather than accessing epidemiological databases for injury data. Thus a full clinical file audit was performed in each community.

Every available medical file in the community health clinic was searched for injury presentation documenting type of injury, cause of injury (including alcohol relationship), date of injury and outcomes of all presenting injuries for the time period 1 January 2006 to 31 December 2011, capturing the major changes of the 2008 AMP restrictions. Only injury presentations to the community health centre were included in this audit.

A full study protocol detailing the methodological process has been published.[3] To ensure consistency, a single person (the lead author CW) audited all charts and a trained research officer entered all data on site. The International Classification of Diseases Injury Classification System (ICD-10-CM, 2014) was used for clarity and consistency of injury logging.[15]

The following definitions are used:

> *Injury (General): 'damage or harm to the body resulting in impairment or destruction of health; specifically, any unintentional and intentional damage to the body resulting from acute exposure to thermal, mechanical, electrical, or chemical energy that exceeds a threshold of tolerance in the body or from the absence of such essentials as heat or oxygen'.*[16]
>
> *Violence (General): 'the intentional use of physical force or power, threatened or actual, against oneself, another person, or against a group or community, which either results in or has a high likelihood of resulting in injury, death, psychological harm, maldevelopment, or deprivation'.*[17]

Alcohol association was attributed to an injury *only* when it was specifically documented in the clinical file.

Australian Bureau of Statistics (ABS) national census data were used to identify the community study population (accessed via the National Regional Profile).

Data analysis

Rates (per 1000 inhabitants) were calculated based on yearly population estimates retrieved from the ABS. Since each community's entire population was assessed, the use of statistical uncertainty measures (statistical tests or CIs) would be misplaced. Average changes pre-AMPs/post-AMPs relate to the base periods of 2006–2008 for community 1 (restrictions tightened at the end of 2008) and of 2006–2007 for community 2 (prohibition introduced in mid-2008). Their post periods assessed were identical (2009–2011).

Ethics

Ethical approval was granted by the Human Research Ethics Committee James Cook University (H5618 and H5241), and Cairns and Hinterland Hospital and Health Services District Human Research Ethics Committee (HREC/14/QCH/3 – 883).

RESULTS

A comparison of injury presentation rates within the communities (table 1) indicates that overall injury presentation rates were higher in both communities' preprohibition/increased restrictions than during the postperiod. Community 1 showed a slight reduction (−2.8%) in overall injuries prerestrictions/post-restrictions when compared with community 2, where a quite pronounced reduction (−29.7%) was observed (table 1).

This marked reduction in community 2 (relative to prelevels) remains present even when the data for the later half of the 2008 'transition year' are included in the base prerestriction average (−25.3%).

Reductions in assault-specific presentation rates were even more pronounced than for overall injury presentation rates and ranged from a reduction of 16% in assault presentation rates in community 1 (increased restrictions) to over 65% of assault presentation rates involving alcohol in community 2 (prohibition).

All observed average reductions (pre/post) are at least three times higher in community 2 when compared with community 1.

Analysis of the data also showed, for all assessed rates, a clear transition year for community 2, which entered full prohibition in July 2008.

Overall injury presentation rates decreased substantially in community 2 (prohibition) when compared with community 1 (increased restrictions) (pre: community 2: 676.1/1000 vs community 1: 546.6/1000; and post: community 2: 470.7/1000 vs community 1: 440.6/1000). Community 2 also showed dramatic decreases in assault presentation rates and assault with alcohol presentations.

DISCUSSION

This study presents a comprehensive clinical file audit exploring injury and alcohol involvement in two Indigenous Cape York communities, currently under prohibitive AMPs. Although data on only two communities are presented in this manuscript, much needed evidence is provided in an area that is characterised by restrictive policies established by politicians and a near-absence of rigorous and systematic evidence.

Table 1 Comparisons of injury presentation rates, assaults and assaults including alcohol in two remote Indigenous communities in Far North Queensland

	2006	2007	2008	2009	2010	2011	Average 2006–2008	Average 2009–2011	Reduction by %
Australian Bureau of Statistics population estimates Community 1 (C1) (increased restrictions)	644	667	673	673	691	715			
C1 injury presentations (rate/1000)	546.6	487.3	430.9	468.1	515.2	440.6	488.2	474.6	–2.8
n	352	325	290	315	356	315			
C1 assaults (rate/1000)	198.8	172.4	162.0	145.6	178.0	124.5	177.7	149.4	–16.0
n	128	115	109	98	123	89			
C1 assaults including alcohol (rate/1000)	121.1	115.4	102.5	92.1	115.8	76.9	113.0	94.9	–16.0
n	78	77	69	62	80	55			
Australian Bureau of Statistics population estimates Community 2 (C2) (prohibition)	599	604	608	619	640	512	Average 2006–2007	Average 2009–2011	Reduction by %
C2 injury presentations (rate/1000)	676.1	730.1	580.6	497.6	515.6	470.7	703.1	494.6	–29.3
n	405	441	353	308	330	241			
C2 assaults (rate/1000)	237.1	235.1	121.7	100.2	110.9	89.8	236.1	100.3	–57.5
n	142	142	74	62	71	46			
C2 assaults including alcohol (rate/1000)	113.5	119.2	62.5	29.1	46.9	44.9	116.7	40.3	–65.4
n	68	72	38	18	30	23			

All hypotheses of the study could be evidenced, thus indicating a causal relationship between AMP restrictions and a short-term reduction of different types of injury presentation rates in these communities (especially those for assaults and assaults involving alcohol). Attribution of alcohol involvement is, of course, a limitation in data collected from clinical files audits, where the clinicians' priorities are for appropriate care rather than alcohol exposure status. For these reasons, the data are likely to be underestimates of true rates. It is further noted that not every injury sustained in communities would present to the clinic for treatment, and the researchers had no control over this process.

From the results presented in this comparison, the data display a more pronounced effect for prohibition with a marked effect on overall injury presentation rates and an even more pronounced effects on assault and assault with alcohol rates than increased restrictions alone, with consistent and dramatic declines evident in the 3-year postprohibition period. These findings are also consistent with, and are corroborated by, published data describing decreases in aeromedical retrievals for all serious injury by the Royal Flying Doctor Service of 31.3% for community 1 and 75.7% for community 2 for similar periods: 2006–2008 compared with 2009–2010.[18]

It is interesting that in 2010, a rise in injury presentation rates appears to have occurred in both communities. Anecdotal evidence from local law enforcement and community members suggests that a rise in the use of illicit alcohol ('sly grog') impacted the two communities in this study, along with others in the region, at around this time. Although injury presentation rates continued to decline in 2011, the availability of illicit alcohol in defiance of restrictions is likely to be an ongoing challenge to their sustainability into the future. A study carried out 20 years ago in the same two communities found an injury presentation rate of 462 per 1000 per year, which is in the range of the rates found in the current study.[7]

This study delivers much needed evidence on the effectiveness of AMPs in two remote communities. A case has been presented for a causal relationship between AMPs and reduction in injury presentation rates indicating a dose–response relationship: the more restrictive the AMPs (those with prohibition vs those with restrictions), the greater the reduction in the estimated rates of injury presentation. However it is important to note that while alcohol restrictions appear to have been successful in the short term in the two communities studied, similar research in other Cape communities that have AMPs is critical to establish if the relationship is transferable. Additionally, monitoring is required to provide evidence that this success can be sustained.

In a highly contentious arena such as this, the complex issues surrounding alcohol and AMPs in Indigenous communities cannot be addressed through the exploration of single indicator such as injury. Ongoing research is therefore imperative and any future policy should take these complexities into account.

What is already known on this subject

- During the 1990s Queensland Indigenous communities experienced extremely high rates of alcohol-related violence and injury.
- Alcohol Management Plans were introduced in 2002-03, and tightened in 2008 to help reduce this violence.
- Queensland Government indicators point to some success, but no valid injury data that fully describes the impacts was available.

What this study adds

- Overall injury presentation rates were higher in both communities pre- prohibition/increased restrictions than during the post period.
- A strong case for a causal relationship between AMP restrictions and (at least) a short-term reduction of different types of injury presentation rates is present.
- Ongoing research is imperative to inform communities and future policy relating to alcohol management.

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