

# Curtin

UNIVERSITY OF TECHNOLOGY

## National Drug Research Institute

Preventing harmful drug use in Australia

**An Evaluation of  
Liquor Licensing  
Restrictions in the  
Western Australian  
Community of  
Port Hedland**

Formerly National Centre for Research into the Prevention of Drug Abuse

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# **An Evaluation of Liquor Licensing Restrictions in the Western Australian Community of Port Hedland**

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## **CHRONOLOGY OF RESTRICTIONS AND ASSOCIATED CHANGES IN CONSUMPTION AND HARM**

### **1996 – Mid Year**

Voluntary restrictions under the auspices of a community alcohol accord:

1. restricted the hours of sale of take-away alcohol to 10am-8.30pm, Monday to Sunday;
2. instituted monitoring of the number of wine casks sold to any one person.

Per capita alcohol consumption rose in Roebourne Shire subsequent to 1995/96, whereas it essentially remained steady in Hedland. The only harm data that goes back to this time are trauma related ambulance callouts, which did not change.

### **2002 – July**

Voluntary restrictions implemented under the existing community alcohol accord:

1. restricted the hours of sale of take-away alcohol to 10.30am-8.30pm, Monday to Sunday;
2. limited the sale of table wine to containers of 2 litres or less;
3. limited the sale of fortified wine to containers of less than 2 litres.

Per capita consumption of wine fell in Hedland subsequent to 2001/2002, whereas it did not change in Roebourne Shire. Consumption of beer did not change in either location. Consumption of spirits rose in both locations. Night time hospital accident and emergency department occasions of service fell in Hedland, after controlling for Roebourne. Sunday hospital accident and emergency department occasions of service did not change. Trauma related ambulance callouts fell in Hedland. There was no change in night-time assaults.

### **2004 – 1 January**

Mandatory restrictions imposed by the Director of Liquor Licensing after community consultation:

1. confirmed the previous voluntary restrictions on container size for table and fortified wines;
2. restricted container size for spirits to 750 mls or less;
3. prohibited the sale of take-away alcohol on Sundays;
4. restricted the hours of sale of take-away alcohol to 11am-9pm, Monday to Saturday;
5. prohibited the promotion or advertising of full strength beer, spirits, spirit mixers or 2 litre wine casks.

There were thus three controls additional to those implemented previously on a voluntary basis and a slight relaxation of trading hours.

There is currently no per capita consumption data available for the period subsequent to mandated restrictions. There was no change in hospital accident and emergency department

occasions of service in Hedland, either at night-time or on Sundays. There was no change in trauma related ambulance callouts or night-time assaults. Disturbances attended by Police fell in Hedland.

There was a reduction in community concern about heavy drinking and public drinking and an impression in the community that disturbances had decreased. The key informants interviewed indicated that the overall level of harm has been reduced.

## **EXECUTIVE SUMMARY**

### **Introduction**

In response to expressions of concern from the Town of Port Hedland about local alcohol problems, the Western Australian Director of Liquor Licensing conducted a series of inquiries during 2002 into the adverse effects of alcohol on the local community. As a consequence of findings from these inquiries, the Director decided to impose the following restrictions on the sale and promotion of packaged liquor, so that in accordance with the Liquor Licensing Act, harm and ill health in the community caused by alcohol would be minimised.

- No promotion or advertising of full strength beer, spirits, spirit mixers, or 2 litre wine casks
- Takeaway alcohol only to be sold from 11am to 9pm Monday to Saturday
- Table wine only to be sold in containers of 2 litres or less
- Fortified wine like Port and Sherry only to be sold in containers of less than 2 litres
- Spirits only to be sold in containers of 750mls or less

Following a number of appeals, these restrictions were mandated from 1<sup>st</sup> January, 2004, although restrictions on the container size of table and fortified wine occurred voluntarily in July 2002, and voluntary restrictions on takeaway times dated back to 1996. An evaluation of the community impact of the mandatory restrictions was commissioned by the Health Department of Western Australia, and undertaken by the National Drug Research Institute (NDRI) with assistance from the Combined Universities Centre for Rural Health (CUCRH).

### **Methodology**

Large scale community surveys were undertaken in both the intervention community of the Town of Port Hedland and the control community of Roebourne Shire, in November 2003, immediate prior to the introduction of mandated restrictions (pre) and again 12 months later (post). These gathered opinion on alcohol consumption and harm at the local level, with additional information sought from Hedland residents as to their knowledge of and attitudes towards the liquor licensing restrictions. Pre and post interviews were conducted with key informants in Hedland at approximately the same times on: the nature of local alcohol problems; what responses were already in place and the effect of the advertising and sales restrictions specified by the Director of Liquor Licensing. The following serial data were collected from both intervention and control communities and changes measured over the period restrictions were introduced. In the case of alcohol harm, sensitive proxy measures have been used, as there were no suitable direct measures:

- Total and specific beverage per capita adult alcohol consumption
- Night time (10pm to 7 am) and Sunday hospital accident and emergency department occasions of service
- Night time (10pm to 6am) assaults

The following serial data were also collected just in the intervention community:



- Trauma related ambulance callouts
- Disturbances attended by Police

## **Main Findings**

### *Main Local Alcohol Problems*

Concern about public drinking and disturbance was prominent at pre, but dropped somewhat at post, which suggests that people in Hedland are less confronted by this problem.

### *Knowledge of the Restrictions*

At both pre and post, community respondents and key informants in Hedland were knowledgeable about local strategies to reduce alcohol problems. This local awareness is important because it provides the basis for understanding how community action can reduce alcohol problems, which in turn influences support for continuation of the restrictions.

### *Support for the Restrictions*

The community survey indicated that at pre there was weak support in Hedland for local restrictions on the advertising and sale of alcohol. This support was maintained during their full application, despite a background trend in the wider community against greater control of alcohol. Key informants were generally enthusiastic about the harm reduction potential of sales restrictions and expressed little opposition to the trial.

### *Other Changes Sought*

Community respondents in Hedland emphasised greater control of alcohol at pre, but subsequent to the introduction of mandated restrictions this issue became less important. Enforcement of drinking standards became more of a concern at post. Comments from the key informants at both times reinforced this emphasis on individual responsibility. These trends suggest that having restrictions allows the community to turn its attention to other problem sources.

### *Additional Comments on Alcohol Problems*

In Hedland, additional comments at pre on the nature of local alcohol problems, by both survey respondents and key informants, identified normative heavy drinking as the strongest issue, but this diminished at post. This suggests greater resilience to negative standards.

### *Effect of the Restrictions*

In Hedland, community respondents indicated at pre that they would not be personally affected by any of the planned restrictions. Most were prepared to accept the restrictions, but there was a degree of scepticism about their effectiveness. At post, proportionately more Hedland respondents indicated they would be affected by restrictions on takeaway times and there was increased scepticism about the ability of any of the restrictions to reduce community harm, although in both cases the change was slight. These trends suggest that the restrictions have not greatly inconvenienced the Hedland community. Support for the restrictions was stronger among the key informants, but as with the community, this support

waned slightly over time. The unique contribution from informants was specific comment on how the restrictions had affected the community. They considered that harm had been reduced, that the community was not greatly concerned about the restrictions and that most people still bought what they wanted, but at different times.

#### *Further Advertising and Sales Restrictions*

At pre, community respondents in Hedland wanted more control of drunks and a broader range of restrictions on the supply of alcohol. At post, there was less mention of the need to control drunks, but greater support for quantity limitations. Support for easing restrictions remained negligible at both times. Regulation of drinking was also important to the key informants, who placed greater emphasis on responsible service by licensees. These trends suggest that the community is more satisfied with the way public alcohol problems are being handled, but sees no need to ease control.

#### *Serial Measures of Alcohol Consumption*

Alcohol consumption in Hedland remained essentially steady when the initial voluntary restrictions were introduced in mid 1996, whereas it rose by approximately 20% in Roebourne Shire. In addition, per capita consumption of wine, which was subject to voluntary restrictions on large containers from July 2002, decreased in Hedland from this time, while remaining stable in Roebourne Shire.

#### *Serial Measures of Alcohol Harm*

There was a decline in some proxy measures of alcohol harm, when voluntary restrictions on large wine containers were introduced in July 2002. Night time hospital accident and emergency occasions of service decreased in Hedland at this time, as did trauma related ambulance callouts, but there was no change in these measures when mandated restrictions were introduced on 1 January 2004. A measure more focused on the effect of the mandated restrictions, accident and emergency service rates on Sundays, similarly revealed no change on 1 January 2004. There was no change in rates of night time assaults at either time. The only proxy measure of alcohol related harm that showed a decrease when mandated restrictions were introduced was disturbances attended by Police. This seems to be a particularly sensitive local measure because of the well identified link with alcohol consumption and the large number of cases involved.

#### *Comment on the Change in Consumption and Harm With Mandatory Restrictions*

It is unrealistic to expect that the one substantial new measure that accompanied mandatory restrictions, cessation of Sunday takeaway sales, would have a major effect on consumption, as most people have capacity to adjust their purchasing habits accordingly. However, the detected improvement in disturbances is understandable in terms of how reduced availability would affect heavily dependent drinkers, who have more limited capacity to adjust. Here, stopping sales on one day is likely to stop their drinking on that day and as their drinking is the major cause of public disturbance, this form of harm is likely to decrease proportionately.

## Conclusion

This study has identified how the Town of Port Hedland views its alcohol problems and how it has been affected by various advertising and sales restrictions that date back to the mid 1990s. There was recognition of a substantial community alcohol problem and there was good knowledge of and support for the nominated restrictions prior to their mandated introduction on 1 January 2004. Subsequently there was little opposition to their ongoing operation. Moreover, expectations as to what could be achieved by the restrictions were realistic. They were seen as one element that needed to be part of a broader strategy. Consumption and harm measures indicated that restrictions have made a difference, although not necessarily at the time of mandated implementation. Continuing to mandate compliance is important however, for a number of reasons.

- The restrictions derived from an extensive community consultation process and there is scant indication that the community wants any of the measures reversed.
- There is evidence that the mix of restrictions address different problems in the community.
- Their legal status is a manifest indication of official concern and support in relation to community alcohol problems.
- Their permanence and enforceability institutionalises the previous voluntary changes, and obviates the need to continually revisit the issue.
- They provide a clear benchmark to a community long troubled by alcohol as what it has the right to expect in terms of future promotion and availability of alcohol.

All these factors underpin the further development of local policy and program initiatives, which the community has indicated are needed to complement the restrictions on availability.

Considerable evidence has now been gathered from the community as to what has changed, and local feedback should be provided to both validate the contribution of the community and build a sense of efficacy that local initiatives can have an effect on local problems. Consideration should also be given to longer term follow up. This would provide a more robust indication of effect because the evaluation process can be refined in light of experience and there is more time for distinct trends to emerge.

## **INTRODUCTION**

The Northwest of Western Australia is well recognised for having high consumption of alcohol and high levels of associated harm (Daly & Philp, 1995; Veroni, Swensen & Thomson, 1993). Midford and colleagues (1998) combined state health survey data, which reported the male and female drinking patterns and liquor sales data to determine that male drinkers in the Kimberley/Pilbara region consumed 39.4 litres of alcohol in 1991/92. This equates to approximately 8.5 standard drinks a day. During the same period both male and female hospital morbidity attributable to alcohol was the highest for any region in the state at 92.4 admissions per 10,000 and 70.3 admissions per 10,000, respectively. Levels of violence were also the highest for the state, as indicated by arrests for assault. Traditionally Northwest communities sought to deal with their alcohol problems through the establishment of treatment facilities, but this was prohibitively expensive and ultimately unlikely to be effective at the population level. As Holmila (2000) asserts, curing or removing the individual problem drinker will not result in a reduction in alcohol-related harm, because the community dynamics, which contributed to these problems, are unchanged. In order to change the aggregate level of alcohol-related harm, long-term environmental and structural changes are essential.

Implementation of locally focused structural change probably had its genesis in the Kimberley town of Hall's Creek in the early 1990s, when a group of influential community members was asked to act as an advisory body for a sobering up centre planned for the town (Midford, Daly & Holmes, 1994). The group quickly developed an understanding of the broader issues associated with local alcohol problems and decided that the community was well placed to initiate complementary prevention strategies, including restrictions on the sales of alcohol. A submission to the Western Australian Director of Liquor Licensing was successful in bringing about the first local restrictions to the sale of alcohol in Western Australia. Douglas (1998) evaluated the effect of these restrictions and found that alcohol consumption decreased in the two years following the intervention. The sale of cask wine was particularly targeted and of all alcoholic beverages, consumption of wine evidenced the greatest decline subsequent to the restrictions. Indicators of alcohol related harm, such as crime, alcohol related and domestic violence presentations at the hospital and emergency evacuations by the Royal Flying Doctor Service also decreased.

The introduction of restrictions in Hall's Creek has been followed by similar community led initiatives in other locations. In response to lobbying from local Aboriginal organizations, the Northern Territory Liquor Commission trialled and then permanently introduced a comprehensive set of restrictions in Tennant Creek during the mid 1990s. The effectiveness and community attitudes towards these restrictions were evaluated two years later by Gray and colleagues (2000), who found that they had reduced alcohol consumption and related acute harm, and were supported by most of the town's population.

### **Alcohol Consumption and Harm in Port Hedland**

The Town of Port Hedland has a long history of high alcohol consumption and consequent problems (Gray and Saggars, 2002). Per capita adult (15 years and over) alcohol consumption in 1991/92 was 19 litres. During the same period state adult per capita consumption was 10.82 litres (Daly & Philp, 1995). Alcohol consumption has increased slightly since the early nineties and stands at 19.7 litres for 2002/03, just prior to the

mandatory introduction of liquor licensing restrictions.<sup>1</sup> At the time the study was completed in December 2004, liquor was sold from 24 licensed premises in the local government area that comprises the Town of Port Hedland, although three of these premises are not in the urban area <sup>2</sup>. Fourteen of these premises are located in the Port area, with seven in South Hedland. A breakdown of premises by type and location is provided in Table 1. There was no change in the number of licensed premises during the period of the study.

**Table 1 - Licensed premises in the Town of Port Hedland**

	Hotel/Tavern	Liquor Store	Club	Restaurant	Canteen	Special Facilities
Port	3	4	3	2	1	1
South	1	2	3	1		
Non Urban	3					
Total	7	6	6	3	1	1

Accompanying this high level of consumption is a correspondingly high level of harm. Gray and Siggers (2002) provide two indicators of this harm, alcohol-caused hospital admissions for the Pilbara Health Region and police arrests for offences associated with alcohol in the De Grey Statistical Sub-Division. In the case of both these administrative agglomerations, the Town of Port Hedland is a major population centre. The rate of hospitalisations for alcohol caused conditions was 54.1/1,000 for Aboriginal people and 4.8/1,000 for Non-Aboriginal people in the Pilbara Health Region between 1996 and 2000. This compared with rates of 38/1,000 for Aboriginal people and 4.1/1,000 for Non-Aboriginal people in the whole of Western Australia. The crude arrest rate for offences commonly associated with alcohol consumption was 281/1,000 for Aboriginal people and 17.3/1,000 for Non-Aboriginal people in the De Grey Statistical Sub-Division between 1994 and 2000. This compared with rates of 243.2/1,000 for Aboriginal people and 13.7/1,000 for Non-Aboriginal people in the whole of Western Australia.

### **The Introduction of Restrictions on the Sale and Promotion of Packaged Liquor in Port Hedland**

In response to expressions of concern from the Town of Port Hedland, the Western Australian Director of Liquor Licensing conducted a series of inquiries during 2002 regarding the adverse effects of alcohol on the local community. As a consequence of findings from these inquiries, the Director indicated his intention to impose the following restrictions on the sale and promotion of packaged liquor, so that in accordance with the Liquor Licensing Act, harm and ill health in the community caused by alcohol would be minimised.

<sup>1</sup> Consumption figure provided by the National Alcohol Indicators Project (NAIP)

<sup>2</sup> License figures obtained from the Department of Racing, Gaming and Liquor website, <http://www.orgl.wa.gov.au/m/index.php> on 28 March 2005

- *No promotion or advertising of full strength beer, spirits, spirit mixers, or 2 litre wine casks*
- *Takeaway alcohol only to be sold from 11am to 9pm Monday to Saturday*
- *Table wine only to be sold in containers of 2 litres or less*
- *Fortified wine like Port and Sherry only to be sold in containers of less than 2 litres*
- *Spirits only to be sold in containers of 750 mls or less*

A number of court appeals against this decision delayed official implementation until 1<sup>st</sup> January 2004. However, the following voluntary restrictions were implemented under the auspices of an existing community alcohol accord from July 2002. These voluntary restrictions remained in place until superseded by those imposed by the Director of Liquor Licensing.

- *Takeaway alcohol only sold from 10.30am to 8.30pm Monday to Sunday*
- *Table wine only sold in containers of 2 litres or less*
- *Fortified wine like Port and Sherry only sold in containers of less than 2 litres (This measure was not universally implemented)*

Pre dating even these restrictions there had been a series of voluntary agreements dating back to mid 1996 that comprised two main elements.

- *Takeaway alcohol only sold from 10.00am to 8.30pm Monday to Sunday (Implementation varied across premises and over time)*
- *Monitoring of the number of wine casks sold to any one individual*

### **The Opportunity to Evaluate the Impact of the Restrictions**

At face value, the delay in implementation of the full range of restrictions, mandated by the Director of Liquor Licensing, allowed for rigorous evaluation of their impact on the community, as repeated measures could be undertaken prior and subsequent to implementation. However, many of the mandatory restrictions had been introduced in mid 2002 on a voluntary basis, which in turn built on restrictions introduced as early as 1996. The main change that occurred on 1 January 2005 was the complete cessation of Sunday takeaway sales. This meant that in reality restrictions were introduced in a series of steps, which is likely to have a confounding effect in terms of evaluation.

The Health Department of Western Australia developed an evaluation brief for this natural experiment. There was particular interest in identifying the short term effects of the restrictions and community attitudes to their imposition. Funding was provided to the

National Drug Research Institute (NDRI) for the evaluation, which has been undertaken with assistance from the Combined Universities Centre for Rural Health (CUCRH).

### Roebourne Shire: A Control Community

Roebourne Shire was used as a comparison community in the evaluation, so as to control for the influence of any background factors. It has similar geographic and socio-demographic characteristics to the Town of Port Hedland. It does have a liquor accord in place, which seeks to maintain responsible service practices, but no restrictions to the sale and advertising of packaged liquor were introduced during the period of this study. Per capita adult (15 years and over) alcohol consumption for Roebourne Shire was 20.4 litres in 1991/92, which was only slightly more than Hedland. Alcohol consumption has increased substantially since the early nineties and stands at 28 litres for 2003/04<sup>3</sup>. Liquor was sold from 36 licensed premises at the time the study was completed. These premises are spread across five different townships and two non urban locations<sup>4</sup>. Most of these premises are located in the Karratha, which is the major population centre in the shire. A breakdown of premises by type and location is provided in Table 2, with notation of changes that occurred during the course of the study provided in brackets.

**Table 2 - Licensed premises in Roebourne Shire**

	Hotel/ Tavern	Cabaret	Liquor Store	Club	Restaurant	Canteen	Special Facilities
Karratha	4	1	2	4	2(-1)	1	2
Roebourne	1(+1)		1	1			
Dampier	1		1	3(+1)	1	1(+1)	1(+1)
Point Samson	1				1		1
Wickham			1	3(-1)			
Whim Creek	1						
Mardie	1						
Total	9	1	5	11	4	2	4

<sup>3</sup> Consumption figures provided by the National Alcohol Indicators Project (NAIP)

<sup>4</sup> License figures obtained from the Department of Racing, Gaming and Liquor website, <http://www.orgl.wa.gov.au/liquor/premsearch.php> on 23 June 2004

## METHODOLOGY

### Research Design

A traditional experimental design was employed in this study, with pre and post measurement of dependent variables in both the intervention community of the Town of Port Hedland and the control community of Roebourne Shire. Data were gathered from three sources to evaluate the impact of the licensing restrictions. This counters many of the methodological limitations inherent in research conducted in naturalistic settings. Gathering a range of complementary data, using a variety of methods, strengthens findings and has been termed 'triangulation' by Guba and Lincoln (1989) because a global understanding of what has occurred derives from several different investigation components. The three research elements employed in this study are identified in Table 3 and matched with the type of evaluation involved.

**Table 3 - Evaluation strategies and method of data collection**

Research element	Type of evaluation		
	Process	Impact	Outcome
Community survey		√	
Key informant interviews	√	√	
Serial measures of alcohol consumption and harm		√	√

Pre and post intervention community survey and key informant data were gathered, respectively in December 2003 and December 2004. Community survey data were gathered in both the intervention and control communities. Key informant data were only gathered in the intervention community. A variety of serial measures of consumption and harm for the period 1994-2004 have been obtained from relevant government and service agencies.

The following serial data has been collected from both intervention and control communities and changes in prevalence measured over the period restrictions were introduced.

- Total and specific beverage per capita adult alcohol consumption
- Night time (10pm to 7 am) and Sunday hospital accident and emergency department occasions of service
- Night time (10pm to 6am) assaults

The following serial data has also been collected in the intervention community

- Trauma related ambulance callouts
- Disturbances attended by Police

### Community Survey

Pre and post intervention surveys were undertaken in the affected community, the Town of Port Hedland (comprising, in the main, Port Hedland, South Hedland, Wedgefield and the Aboriginal communities of Tjalkawara and Tkalkabooda and a matched control community, Roebourne Shire (comprising in the main Dampier, Karratha, Roebourne, Wickham and



Point Sampson). Population numbers and socio–demographic indicators are comparable for the two communities and their proximity to each other facilitated data gathering. Pre intervention surveying was conducted during November/December 2003, just prior to the official introduction of the restrictions on the 1<sup>st</sup> January 2004. Post intervention surveying was undertaken approximately one year later, in December 2004.

The same survey instrument was used for both pre and post data gathering, with some minor changes to the tense of some questions. It gathered opinion on alcohol consumption and harm at the local level, with additional information sought from the Town of Port Hedland residents as to their knowledge of and attitudes towards the liquor licensing restrictions. Examples of the Town of Port Hedland and Shire of Roebourne variants are contained in Appendices A and B, respectively. The survey instrument used by Gray and colleagues (2000) in their evaluation of the Tennant Creek liquor licensing restrictions was used as a point of reference in developing the Hedland/Roebourne instrument. However, content was tailored to suit the particular circumstances of this study. The draft instrument was first refined through consultation with six key informants as to its validity in the Town of Port Hedland context and then piloted with 25 local people in order to assess ease of completion.

Telephone sampling had limitations in this setting, because particular sections of the population had unlisted numbers, did not have telephones, or would be difficult to contact because of shift work. There was also a saturation effect due to increasing telephone market research and charity calls, which meant the refusal rate was likely to be high. Door knocking households was considered impractical, because of the heat (typically 35 Celsius at that time of year) and sample bias towards females, because of the large proportion of the male population who worked long shifts. Local advice from Aboriginal agencies also indicated that surveying Aboriginal people in their local communities would be considered intrusive. Accordingly, community opinion data were gathered by intercept survey at the main shopping centre and other community focal points, using local interviewers. A \$1 scratch and win lottery ticket was offered to all participants as an acknowledgement of their effort.

### *Sample Design*

The Town of Port Hedland comprised 7369 adults (18 years or over) as at the 2001 census, while Roebourne Shire community comprised 9331 adults. These populations were very similar in size, although somewhat different in terms of their gender/Aboriginality/age composition. A stratified random sample design was used to ensure those interviewed represented the diversity of the community. The minimum sample size for each community was 88 for the purpose of statistically accurate comparison between the populations on a single item for a simple random sample. However, the stratified sample design resulted in a design effect of 1.21 for the Town of Port Hedland and 1.27 for Roebourne Shire. This meant that the minimum sample size was 107 for Hedland and 112 for Roebourne Shire in order to ensure that each strata contained sufficient persons to form valid comparisons between the two locations (with 95% confidence) (Kish, 1965). However, the intention was to over sample each population so as to accommodate sub-group comparisons with multiple items, compensate for possible inaccuracies in numbers sampled in each strata and provide greater power to detect change.

A sample size of 370 was chosen for each community, with large enough numbers in each stratum to ensure that sub-groups could be compared for multiple items (Kish, 1965). However, Karratha (in Roebourne Shire) had a high refusal rate from males during the pre

data collection and a large number of people approached on successive days indicated they had already completed the survey. This resulted in a smaller sample in Roebourne Shire at pre. The problem did not reoccur at post because surveying was conducted over a great range of times on more days.

In the Town of Port Hedland 377 adults were surveyed at pre and 373 at post. In Roebourne Shire 286 adults were surveyed at pre and 395 at post. The adult population was segmented by gender, by Aboriginality and by age (three age groups 18–24 years, 25–44 years and 45 years and over). There was an intention to over-sample Aboriginal people, because they comprised a small proportion of the community, but were particularly at risk from alcohol. The sub-populations or strata are described in Table 4. These strata were selected for their representativeness of the communities, and their sub-populations. The table presents the sampled sub-populations and the 19 persons who nominated themselves as being neither Aboriginal nor non-Aboriginal (not known). These 19 persons could not be included in sub-group comparisons, but their responses were valid and have been included in other parts of this report. The weight of the stratum is the proportion of the population contained in that stratum. The sampling fraction is the fraction of the sample size over the population size for each stratum. For this evaluation, a maximum difference between population proportion and sample proportion of 6% was considered acceptable for purposes of representation.

### **Key Informant Interviews**

Pre and post intervention structured interviews were conducted with community key informants in the Town of Port Hedland at approximately the same time as the surveys were undertaken. At pre 12 interviews were conducted. At post 11 interviews were conducted. In nine cases the same people were reinterviewed, but where the original interviewee was unavailable a person holding a similar position in the community was substituted. In one case no suitable replacement was available. This qualitative data gathering process provided fine grained, ‘insider’, detail on: the nature of local alcohol problems; what responses were already in place and the likely effect of the advertising and sales restrictions specified by the Director of Liquor Licensing. Key informants were identified through a community consultation process and selected on the basis that they best met the following criteria:

- *They were affected in some way by problematic alcohol use*
- *They were knowledgeable about their community*
- *They have demonstrated a long term commitment to their community and were likely to be available for post interview*

The same interview schedule was used with all informants at both pre and post (see Appendices C and D for a copy of the consent form and schedule). Analysis was undertaken using a matrix, which cross-referenced themes with key informants. In this way, themes common across informants could be identified, as well as the strength of particular themes and associations between particular themes and particular informant clusters.

**Table 4 - Stratified random sample design**

Location	Gender	Aboriginality	Age-Group	Population Size	Pop %	Pre-Test	Pre %	Post-Test	Post %
Town of Port Hedland	Male	Aboriginal	18-24	95	0.57	5	0.75	6	0.78
			25-44	263	1.57	19	2.87	16	2.08
			45+	150	0.90	5	0.75	6	0.78
		Non-Aboriginal	18-24	410	2.46	21	3.17	22	2.86
			25-44	1856	11.11	76	11.46	70	9.11
			45+	1197	7.17	51	7.69	44	5.73
	Female	Aboriginal	18-24	115	0.69	12	1.81	12	1.56
			25-44	329	1.97	20	3.02	30	3.91
			45+	187	1.12	17	2.56	16	2.08
		Non-Aboriginal	18-24	374	2.24	21	3.17	33	4.30
			25-44	1618	9.69	83	12.52	73	9.51
			45+	775	4.64	44	6.64	42	5.47
	Unknown					3		3	
	Total				7369	44.13	377	56.86	373
Roebourne Shire	Male	Aboriginal	18-24	114	0.68	14	2.11	10	1.30
			25-44	317	1.90	18	2.71	18	2.34
			45+	112	0.67	5	0.75	7	0.91
		Non-Aboriginal	18-24	545	3.26	9	1.36	20	2.60
			25-44	2584	15.47	64	9.65	76	9.90
			45+	1410	8.44	35	5.28	51	6.64
	Female	Aboriginal	18-24	84	0.50	8	1.21	13	1.69
			25-44	246	1.47	29	4.37	19	2.47
			45+	139	0.83	15	2.26	13	1.69
		Non-Aboriginal	18-24	508	3.04	12	1.81	32	4.17
			25-44	2322	13.90	54	8.14	83	10.81
			45+	950	5.69	21	3.17	42	5.47
Unknown					2		11		
Total				9331	55.87	286	43.14	395	51.43
Total Both Locations				16700	100.00	663	100.00	768	100.00

## **Serial Measures of Alcohol Consumption and Harm**

### *Alcohol Consumption*<sup>5</sup>

Per capita (15 years +) alcohol consumption was collected for the Town of Port Hedland and Roebourne Shire for the thirteen year period from 1991/92 to 2003/04. There were insufficient data points to undertake a meaningful time series analysis, so a paired sample correlation was undertaken on the consumption data prior to the first introduction of voluntary restrictions in mid 1996 and then again on data subsequent to introduction. This identified whether consumption trends changed subsequent to the introduction of these initial restrictions. Per capita (15 years +) alcohol consumption was also collected by beverage type. In the case of two beverage types, wine and spirits, voluntary and then mandated restrictions were introduced on container size. Comparison of mean per capita consumption of these two beverages before and after the introduction of voluntary restrictions on container size was undertaken using independent sample t tests. Data for 1999/00 have not been included in the analysis because they were considered unreliable due to inconsistent data collection methods, which may have resulted in some double counting.

### *Hospital Accident and Emergency Department Occasions of Service*<sup>6</sup>

Night time (8pm to 6am) hospital accident and emergency department occasions of service were collected for the Town of Port Hedland and Roebourne Shire for three years from 2002 to 2004. This covered a period from before voluntary introduction of restrictions on large containers in July 2002, through the introduction of mandatory restrictions on 1 January 2004 to the end of 12 months implementation. This is a proxy measure, but the World Health Organization has identified accident and emergency data, as a high level indicator of acute alcohol related harm (World Health Organisation, 2000). International research has indicated that a considerable proportion of presentations at hospital emergency departments are alcohol related (Cherpital, 1993). The proportion with alcohol involvement has also been found to increase markedly during late evening/early morning hours (Holt et al, 1980; Treno et al, 1994; McLeod et al, 1999; Hulse et al, 2001). In most settings there is greater concentration of alcohol related presentations on weekend night. However, discussions with local service agency staff indicated that drinking in both locations was more evenly spread through the week and so simple night time presentation is likely to be the better proxy measure of alcohol harm in this case. Data were standardised to occasions of service per week and rates per 10,000 of population.

The data were organised as a time series so that each week represented a point of interest. Interrupted time series analyses may be performed using multiple linear regression, however, one of the major assumptions of multiple linear regression is that the residuals for the model must be free from serial autocorrelation. Serial autocorrelation refers to those instances in which a measurement taken at one point in time sufficiently predicts another. Serial autocorrelation is often a characteristic of variables measured consecutively over time and may be positive or negative. Prior to analyses the series was checked for the presence of positive and negative serial autocorrelation using the Durban-Watson statistic d (Ott & Longnecker, 2001). Where serial autocorrelation is present, a preferred method of analysis is

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<sup>5</sup> Consumption figures provided by the National Alcohol Indicators Project (NAIP)

<sup>6</sup> Accident and emergency department occasions of service data provided by the hospital in each location

the application of ARIMA modelling, which allows the appropriate adjustments for any underlying pattern in the series.

A time series analysis was undertaken to assess if service trends varied significantly between the Town of Port Hedland and Roebourne Shire when restrictions were introduced (SPSS Inc., 1994). The series were initially tested for serial autocorrelation by applying the Durbin-Watson statistic to the basic model, with the introduction of voluntary restrictions on large container sizes as the sole regressor. Tests indicated that there was significant positive serial autocorrelation in the series ( $d = 1.635 < d_{u, 0.05} = 1.746$ ) and as such, ARIMA was denoted as the appropriate analysis.

Using the technique for time series intervention analysis described by Box and Tiao (1975), a basic ARIMA model was developed for the series occurring prior to the voluntary container size restrictions. The pre-intervention series appeared adequately integrated and was not differenced, although the natural log was taken to stabilise variance. Analysis indicated 1<sup>st</sup> order serial autoregression to be present in the series and autocorrelation plots of errors showed ARIMA (1, 0, 0) to be a parsimonious and adequate model, with no spikes evident to the 16<sup>th</sup> lag. The primary intervention model, fitted as ARIMA (1, 0, 0), then examined the whole series for a linear association between the intervention periods (voluntary container size restrictions and mandated restrictions) and weekly emergency department presentations. The independent periods of interest were treated as binary step functions. A seasonality variable (binary dummy variable) was also introduced to take account of the consistently lower rates of service from early January to late February. It is likely that less alcohol is being consumed during this period, as local service agencies indicated many people are away on annual leave and traditional Aboriginal communities focus on 'law business'.

In addition, hospital accident and emergency department occasions of service on Sunday were collected for the same period of time, as the major change that occurred with the introduction of mandatory restrictions, was the cessation of all of take away alcohol sales on Sunday. Data were standardised to occasions of service per Sunday and rates per 10,000 of population.

Once again, a time series analysis was undertaken to assess if service trends varied significantly between the Town of Port Hedland and Roebourne Shire. The dependent series was initially tested for serial autocorrelation by applying the Durbin-Watson statistic to the basic model, with the introduction of voluntary restrictions on container sizes as the sole regressor. Tests indicated that there was significant positive serial autocorrelation in the series ( $d = 1.68 < d_{u, 0.05} = 1.746$ ) and as such, ARIMA was denoted as the appropriate analysis.

A basic ARIMA model was developed for the series occurring prior to the voluntary container size restrictions. The natural log was taken to stabilise variance. Analysis indicated that the series was non-stationary and required differencing. Autocorrelation plots revealed a first order moving average processes (0, 1, 1) to be a parsimonious and adequate model, with no spikes evident to the 16<sup>th</sup> lag. Using this model, the whole series was examined for a linear association between the intervention periods (voluntary container size restrictions and mandated restrictions) and weekly emergency department presentations. A seasonality variable was again introduced to take account of the consistently lower rates of service from early January to late February.

### *Trauma Related Ambulance Callouts*<sup>7</sup>

Data on trauma related ambulance callouts were collected in Port Hedland from January 1994 to December 2004, on the basis of information from local health workers that indicated a substantial proportion of these callouts were alcohol related. This measure should be considered a locally relevant proxy measure of alcohol-related harm. Comparable data were not available from Roebourne Shire. Data were standardised to occasions of service per month and rates per 10,000 of population.

The data were organised as a time series so that each month represented a point of interest and analysis was undertaken to assess if callout rates changed subsequent to the introduction of the various restrictions. The series was initially tested for serial autocorrelation by applying the Durbin-Watson statistic to the basic model, with initial introduction of voluntary restrictions as the sole regressor. Tests indicated that there was significant positive serial autocorrelation in the series ( $d = 1.59 < d_{u, 0.05} = 1.694$ ) and as such, ARIMA was denoted as the appropriate analysis.

As this was a monthly series, covering a period of 11 years, adjustment was first made to account for seasonal variation, using SPSS de-seasonalisation procedure (SPSS Inc., 1994). A basic ARIMA model was developed for the series occurring prior to initial introduction of voluntary restrictions. Autocorrelation errors plots indicated a non-stationary, first order moving average process. Thus, ARIMA (0, 1, 1) was found to be the most parsimonious and adequate model, with no spikes evident to the 16<sup>th</sup> lag. The ARIMA model was then applied, to the whole series to test for a linear association between the intervention periods (initial introduction of voluntary restrictions, voluntary container size restrictions and mandated restrictions) and monthly trauma related ambulance callouts.

### *Night Time Assaults*<sup>8</sup>

Night time assaults have high alcohol involvement, in a similar manner to unintentional injury, and are considered by the World Health Organisation (2000) as another high level proxy measure of acute alcohol related harm: in this case interpersonal harm. For example, Ireland and Thomenney (1993) estimated that there had been prior alcohol consumption in 91% of assaults that occurred in public places in Sydney between 10pm and 2am. Accordingly, night time assaults (10pm to 6am) were collected for the Town of Port Hedland and Roebourne Shire for the three years, 2002 to 2004, that covered the introduction of recent restrictions. Data were standardised to occasions of service per month and rates per 10,000 of population.

The data were organised as a time series so that each month represented a point of interest and analysis was undertaken to assess if rates of night time assault varied significantly between the Town of Port Hedland and Roebourne Shire when restrictions were introduced. The series was initially tested for serial autocorrelation by applying the Durbin-Watson statistic to the basic model, with introduction of voluntary restrictions on container size as the sole regressor. Tests indicated that borderline positive serial autocorrelation was present

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<sup>7</sup> Ambulance callout data provided by St Johns Ambulance

<sup>8</sup> Assault data provided by Police

in the series ( $d = 1.528 > d_{u, 0.05} = 1.525$ ), and ARIMA was chosen as the conservative method.

The natural log was taken to stabilise variance. Analysis indicated 1<sup>st</sup> order serial autoregression to be present in the series. Visual inspection of the series and an examination of the errors produced from the ARIMA (1, 0, 0), modelling procedure indicated that 1<sup>st</sup> order seasonal autoregression and integration were also featured.

ARIMA (1, 0, 0), SAR (1, 1, 0) was the most parsimonious model for these data, with no spikes evident to the 16<sup>th</sup> lag. The primary intervention model was then applied to the whole series to test for a significant linear association between the intervention periods (voluntary container size restrictions and mandated restrictions) and monthly rates of night time assault (SPSS Inc., 1994).

#### *Disturbances Attended by Police*<sup>9</sup>

Data on disturbances attended by Police in the Town of Port Hedland were collected for the period June 2002 to December 2004. These data did not specifically identify the involvement of alcohol. However, Port Hedland's senior police officer, Senior Sergeant Gors stated that "in the vast majority of cases alcohol was involved"<sup>10</sup>. Accordingly, the data should be considered a sensitive, local, proxy measure of alcohol harm. A particular advantage of the data is the large number of recorded cases, which means less variability and greater sensitivity to change. As these data were originally part of a data set collated for the town's Community Safety Committee comparable data are not available for Roebourne Shire. Data were standardised to occasions of service per month and rates per 10,000 of population.

The data were organised as a time series so that each month represented a point of interest and analysis was undertaken to assess if rates of police attended disturbances changed subsequent to the introduction of the various restrictions. The series was initially tested for serial autocorrelation by applying the Durbin-Watson statistic to the basic model with introduction of mandated restrictions as the sole regressor. Tests indicated that the series was not autocorrelated ( $d = 1.944 > d_{u, 0.05} = 1.496$ ). Accordingly, analysis was undertaken using multiple linear regression procedure.

#### *Other Alcohol Harm Data Not Presented*

Sobering up centre admission data and night time traffic crash data were also collected and analysed. However, the analyses have not been presented because low numbers and substantial variance meant that meaningful trends could not be established.

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<sup>9</sup> Disturbance data provided by the Town of Port Hedland Community Safety Committee

<sup>10</sup> Personal communication

## RESULTS

### Community Survey

#### *The Main Community Alcohol Problem*

Respondents from both the Town of Port Hedland and Roebourne Shire were asked to nominate the main alcohol problems in their respective communities. This was an open-ended question, which permitted up to three responses. In a post hoc analysis, these open-ended responses were categorised and counted.

Percentages were calculated using the total count of responses, for each category and community, and divided by the number of responses overall (N) for each community. Table 5 presents the percentages for the most commonly stated responses at pre and post. The actual question was:

In your opinion what are the main alcohol problems in the  
Town of Port Hedland / Shire of Roebourne?

1) \_\_\_\_\_

2) \_\_\_\_\_

3) \_\_\_\_\_

The results presented in Table 5 indicate that “Public Drinking and Causing Disturbance” was the primary cause of concern in the Town of Port Hedland, at both pre and post, although the level of concern declined significantly over time. “Violence, Abuse and Harassment” was the second highest nominated cause for concern at both pre and post. However, there was no change over time. Other problems were mentioned to a lesser extent, although there was some change in the level of concern over time. Concern as to “Parents, Family, Domestic Problems”, “Availability” of alcohol, the “Aboriginal” nature of the problem and “Social, Economic and General Disadvantage” increased significantly between pre and post. Concern as to “Heavy, Excessive Drinking” decreased significantly.

This pattern was different for Roebourne Shire. While “Violence, Abuse and Harassment” and “Selling to Youth & Underage Drinking” were identified as the major alcohol problems in the Roebourne community at both pre and post, there was no change in the level of concern over time. In contrast to Hedland, concern about “Public Drinking and Causing Disturbances” and “Heavy, Excessive Drinking” increased significantly from pre to post. Other problems that generated significantly increased concern were: “General, Social Behaviour”; the “Aboriginal” nature of the problem; “Drink Driving” and “Binge Drinking”. Again in contrast to Hedland, concern as to “Social, Economic and General Disadvantage” decreased significantly. The other problems about which concern decreased significantly was “Health, Injury and Accidents”.



Further to this, each person was asked if these problems had changed over time. Again, each problem, for which there was a response, was coded into categories. A score higher than three denoted that the problem had got better, while a score lower than three denoted that the problem had got worse over the last twelve months. The question was:

<p>Have these problems got better or worse over the past 12 months? <i>(Circle the number that matches your answer)</i></p>				
Got much Worse	Got Worse	Stayed the same or don't know	Got Better	Got much Better
1	2	3	4	5

Table 6 presents the perceived change in the level of each identified problem at pre and at post. Not one problem was considered to have got better in either community. However, a number of problems were seen as deteriorating to a lesser extent. In Hedland “Public Drinking and Causing Disturbances” and “Community Amenity” deteriorated to a significantly lesser extent over time. In Roebourne “Public Drinking and Causing Disturbances”, “Violence, Abuse, Harassment”, “Social, Economic and General Disadvantage” and “Drink Driving” deteriorated to a significantly lesser extent over time.

**Table 5 - Main Alcohol Problems: Percentage of Responses by Category**

	Significant Differences Between Communities at Pre	Intervention Hedland		Significant Differences Pre to Post	Control Roebourne		Significant Differences Pre to Post
		Pre-test % N=679	Post-test % N= 634		Pre-test % N=539	Post-test % N=650	
Public Drinking, Causing Disturbance	*	20.47	17.06	*	2.60	5.23	*
Violence, Abuse, Harassment		15.17	15.01		11.50	10.0	
Selling to Youth, Underage Drinking		8.54	9.16		15.96	17.85	
Parents, Family, Domestic Problems		7.95	11.22	*	7.79	7.08	
Heavy, Excessive Drinking	*	7.81	4.74	*	3.90	6.77	*
General, Social Behaviour		4.86	4.74		3.53	6.62	*
Community Amenity (litter, graffiti)	*	4.57	3.63		1.67	1.23	
Availability (cost, trading hours)		4.57	7.27	*	4.45	5.38	
Property Crime (burglary, damage)		3.39	3.32		1.86	2.31	
Aboriginal (Indigenous) People		3.39	6.48	*	2.23	3.69	*
Social, Economic and General Disadvantage		2.36	3.95	*	10.39	6.31	*
Drink Driving		2.21	2.05		4.08	6.31	*
Boredom		2.06	3.16		4.27	5.69	
Binge Drinking		1.77	2.53		1.67	3.38	*
Health, Injury and Accidents	*	1.62	1.90		9.09	0.77	*

\* Significant Differences between Communities and from Pre to Post Intervention at  $p < .05$  using t-tests.

**Table 6 - Perceived Change in the Level of Problems Attributed to Alcohol Consumption: Mean Level of Change**

		Intervention Hedland			Control Roebourne		
		Pre-test Mean N=679	Post-test Mean N=634	Significant Differences	Pre-test Mean N=539	Post-test Mean N=650	Significant Differences
Got much worse 1	Got Worse 2	Stayed the same or don't know 3		Got Better 4	Got much Better 5		
Public Drinking, Causing Disturbance		2.04	2.40	*	1.62	2.50	*
Violence, Abuse, Harassment		2.18	2.44		1.78	2.40	*
Selling to Youth, Underage Drinking		2.15	2.06		1.96	2.07	
Parents, Family, Domestic Problems		2.25	2.26		2.00	2.32	
Heavy, Excessive Drinking		2.47	2.39		2.75	2.50	
General, Social Behaviour		2.00	2.13		2.69	2.58	
Community Amenity (litter, graffiti)		1.62	2.22	*	2.14	1.80	
Availability (cost, trading hours)		2.47	2.18		2.19	2.48	
Property Crime (burglary, damage)		1.93	2.46		1.88	2.18	
Aboriginal (Indigenous) People		2.14	2.25		2.38	2.23	
Social, Economic and General Disadvantage		1.92	2.47		1.88	2.50	*
Drink Driving		2.78	2.25		2.18	2.77	*
Boredom		2.75	2.42		2.42	2.57	
Binge Drinking		2.30	2.50		1.83	2.20	
Health, Injury and Accidents		2.33	2.57		1.34	1.75	

\* Significant Differences from Pre to Post Intervention at  $p < .05$  using one-way Analysis of Variance and F-tests.

### *Local Alcohol Strategies*

Respondents in both communities were asked if they were aware of local strategies to reduce alcohol problems. The question was phrased as follows:

Do you know of anything that is being done locally to reduce alcohol problems? *(If you answered Yes, please list what you know is being done. If you answered No, go to the next question)*

1) \_\_\_\_\_

2) \_\_\_\_\_

3) \_\_\_\_\_

Each person could nominate up to three strategies, which were being undertaken locally. Percentages were calculated using the total count of responses, for each category and community, and divided by the number of responses overall for each community (N). Table 7 presents the percentages for the most commonly stated responses at pre and post.

The strategy overwhelming mentioned in the Town of Port Hedland at both pre and post was supply reduction (restricted trading hours). Roebourne Shire respondents reported at both pre and post that community programs/agreements was the most commonly used local strategy to reduce alcohol problems, but this was just one of a number of frequently mentioned strategies. At pre supply reduction was mentioned significantly less in Roebourne Shire than in the Town of Port Hedland and while reporting of this strategy increased in Hedland between pre and post, it decreased in Roebourne. These changes were not however significant. The only significant change in either community was decreased reporting of individual education, counselling and treatment in Hedland.

**Table 7 - Local Strategies to Reduce Alcohol Problems: Percentage of Responses by Category**

	Significant Differences Between Communities at Pre	Intervention Hedland		Significant Differences Pre to Post	Control Roebourne		Significant Differences Pre to Post
		Pre-test % N=202	Post-test % N=228		Pre-test % N=106	Post-test % N=93	
Supply reduction (pub closed, reduced trading hours)	*	50.99	62.28		13.21	9.57	
Community programs, agreements, bylaws (accords)		14.85	14.91		25.47	31.91	
Health services, facilities (e.g., sobering up centre)		9.41	7.02		16.98	7.45	
Individual education, counseling and treatment		8.42	3.95	*	17.92	18.09	
Police enforcement		8.42	6.14		8.49	13.83	
Community facilities (youth club, skate park)		6.44	3.07		8.49	5.32	
Advertisement of health risks	*	0.99	2.63		8.49	12.77	

\* Significant Differences between Communities and from Pre to Post Intervention at  $p < .05$  using t-tests.

*Support for restrictions on local advertising and sales of high strength alcohol*

Respondents in both communities were asked two related questions regarding their support for restrictions on local advertising or promotion and sales of certain types of high strength alcohol as a way of reducing community harm (see questions and responses below). For each question, respondents could circle one number representing their level of support.

Do you support restricting local advertising or promotion of certain types of high strength alcohol as a way of reducing community harm?

Do you support restricting local sales of certain types of high strength alcohol as a way of reducing community harm?

1 = Strongly support  
 2 = Support  
 3 = Neutral or don't know  
 4 = Against  
 5 = Strongly against

The support for these two restrictions questions were coded such that a score lower than three denoted support, while a score higher than three denoted a lack of support.

The level of community support for advertising and sales restrictions is presented in Table 8. On average, Port Hedland respondents evidenced weak support for both advertising and sales restrictions, which did not change from pre to post. In each case support from Roebourne Shire respondents was greater at pre, but deteriorated significantly over time to a level similar to that of Hedland.

**Table 8 - Support for Restrictions: Mean Level**

Intervention or control community	Support for restricting local advertising or promotion			Significant Difference	Support for restricting local sales			Significant Difference
	Strongly Support 1	Support 2	Don't Know 3		Against 4	Strongly Against 5		
Intervention Hedland	Pretest	2.30	*		Pretest	2.57	*	
	Post-test	2.39			Post-test	2.67		
Control Roebourne	Pretest	2.10	* #		Pretest	2.25	* #	
	Post-test	2.38	#		Post-test	2.58	#	

\* Significant Differences between Hedland and Roebourne at  $p < .05$  using t-tests.

# Significant Differences from Pre to Post Intervention at  $p < .05$  using t-tests.

### *Changes in Addition to Restrictions on the Advertising and Sale of Alcohol*

The Town of Port Hedland and Shire of Roebourne respondents were asked whether there were any other changes they would like to see. This was an open-ended question, which permitted up to three responses (see actual question below). In a post hoc analysis, these open-ended responses were categorised and counted. Percentages were then calculated using the total count of responses, for each category and community, divided by the number of responses overall for each community (N). Table 9 presents the percentages for the stated responses at pre and post.

Apart from restricting the advertising and sale of alcohol, are there any other things you think should be done locally to reduce alcohol problems in Town of Port Hedland / Shire of Roebourne? *(List all the things you think should be introduced)*

1) \_\_\_\_\_

2) \_\_\_\_\_

3) \_\_\_\_\_

The most frequently mentioned changes in the Town Hedland at pre involved greater control of alcohol. In Roebourne Shire this type of change was mentioned significantly less at pre although responses in both locations changed significantly over time. In Hedland it was mentioned significantly less at post whereas in Roebourne Shire it was mentioned significantly more. Both communities consistently mentioned they wanted improved services for individuals with alcohol problems. Greater enforcement of drinking behaviour was significantly more important in Roebourne Shire at pre, but importance of this issue rose significantly between pre and post in both locations. Roebourne Shire respondents mentioned economic and family/youth issues significantly more at pre, but there was little difference between the two communities at post, as the importance of economic issues diminished significantly in Roebourne, while the importance of family and youth support rose significantly in Hedland. Other significant differences related to issues that were mentioned relatively infrequently.

**Table 9 - Changes Other Than Restricting Advertising and Sale of Alcohol that the Communities Would Like to See Occur: Percentage of Responses by Category**

	Significant Differences Between Communities at Pre	Intervention Hedland		Significant Differences Pre to Post	Control Roebourne		Significant Differences Pre to Post
		Pre-test % N=290	Post-test % N=277		Pre-test % N=411	Post-test % N=557	
Control of alcohol	*	27.2	12.3	*	6.3	12.7	*
Individual treatment/counseling/education/support		23.1	20.6		20.0	21.7	
Enforcement of drinking behaviour	*	12.7	24.9	*	20.9	28.9	*
Community intervention/involvement		7.2	9.0		6.8	6.8	
Provide alternative activities		5.2	5.1		6.8	6.3	
Stop underage drinking		4.8	2.9	*	4.6	2.2	*
Improve economic or general disadvantage	*	4.1	2.5		11.9	4.7	*
Provide family support / youth programs	*	3.4	12.3	*	13.4	11.1	
Better community amenities / transport		2.8	4.0		2.2	0.7	*
Community health promotion / advertising		3.1	4.0		3.9	3.1	
Nothing can be done		1.4	0	*	0.5	0.4	
Create a safe place to drink		1.4	0.4		0.2	0.4	
Do not introduce measures that disadvantage responsible drinkers		1.0	0.7		0	0.2	
Self-regulation / breath-testing in bars		0.7	1.1		0.5	0.5	
Increased availability of alcohol / lift restrictions		1.0	0		0.7	0	
Keep places that don't serve alcohol open later		0.7	0.4		0	0	
Address drug issues		0.0	0.0		0.7	0.2	
Responsible service		0.0	0.0		0.5	0.2	

\* Significant Differences between Communities and from Pre to Post Intervention at  $p < .05$  using t-tests.



*Additional Comments About Alcohol Problems*

The Town of Port Hedland and Roebourne Shire respondents were asked whether there were any other comments they would like to make about alcohol problems in their communities. This was an open-ended question that permitted up to three responses. In a post hoc analysis, these open-ended responses were categorised and counted. Percentages were then calculated using the total count of responses, for each category and community, divided by the number of responses overall for each community (N). The categorised responses are presented in order of frequency in Table 10.

Is there anything else you want to say about alcohol problems in the  
Town of Port Hedland / Shire of Roebourne?

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Hedland respondents spoke most frequently about the normative nature of heavy drinking in their community at pre (13.7% of responses), but this decreased significantly at post. Greater control of drinkers was a prominent response at both times. There was a greater degree of change from pre to post in the comments from Roebourne respondents. There was significantly greater emphasis on people being responsible for their behaviour and on reducing litter. There were significantly fewer comments indicating that alcohol was being well controlled.

**Table 10 - Other Comments on Local Alcohol Problems: Percentage of Responses by Category**

	Significant Differences Between Communities at Pre	Intervention Hedland		Significant Differences Pre to Post	Control Roebourne		Significant Differences Pre to Post
		Pre-test % N=175	Post-tes % N=143		Pre-test % N=103	Post-test % N=114	
Heavy drinking is normative in the community		13.71	4.20	*	9.71	7.89	
Have greater control of drinkers / more police enforcement		11.43	14.69		8.74	8.77	
Do not introduce regulations that disadvantage responsible drinkers	*	9.71	12.59		0.97	0.00	
Reduce supply		8.57	4.20		11.65	7.02	
Have a long term community strategy / education		8.57	6.99		6.80	9.65	
Its a difficult problem / causes other problems		8.00	7.69		8.74	7.02	
People should be more responsible for their behaviour	*	6.29	9.09		0.00	5.26	*
Offer alternative activities		5.71	4.20		4.85	6.14	
Stop underage drinking		5.14	2.80		7.77	8.77	
Not just an Aboriginal issue		4.57	2.80		3.88	1.75	
Design community facilities to reduce the impact of drinking		4.00	5.59		0.00	2.63	
Affects families / more support for families		3.43	7.69		3.88	6.14	
Provide more education		2.86	5.59		6.80	5.26	
Reduce litter		2.29	0.70		0.00	5.26	*
Not familiar with problems		1.71	2.10		4.85	4.39	
Parents should be more responsible for their kids		1.14	0.70		3.88	7.02	
Provide more jobs / opportunities		1.14	0.00		3.88	2.63	
Its under control / good programs in place		0.57	2.80		6.70	1.75	*

\* Significant Differences between Communities and from Pre to Post Intervention at  $p < .05$  using t-tests.

### *Personally Affected by Restrictions*

At pre the Town of Port Hedland respondents were asked if they thought the five planned restrictions on advertising and sale of alcohol would affect them personally. At post this question was rephrased slightly and respondents were asked if the restrictions had affected them.

Would you personally be/Have you personally been affected by the following restrictions?

Affected by no advertising or promotion of certain high alcohol beverages

Affected by restrictions on takeaway times

Affected by ban on 4 litre wine casks

Affected by ban on 2 litre fortified wine casks

Affected by ban on spirits in containers larger than 750 mls

They responded on a three-point scale:

1 = A lot

2 = A little

3 = Not at all

The degree to which the survey respondents considered they would be or were affected by each planned restriction at pre and at post is presented in Table 11. Here 'N' refers to the number of respondents. At both times, the Town of Port Hedland respondents indicated a level of inconvenience that varied between 'a little' (scored as 2) and 'not at all' (scored as 3). The only significant change between pre and post occurred for the restriction on takeaway times. Here respondents were affected to a greater extent, but the mean response was still between a "a little" and "not at all".

### *Prepared to Accept Restrictions*

At pre the Town of Port Hedland respondents were asked would they be prepared to accept the five planned local restrictions, if these would reduce alcohol harm in the community. At post they were asked if they were prepared to accept the restrictions continuing.

Would you be prepared to accept the following restrictions/Are you prepared to accept the following restrictions continuing on if they reduced alcohol harm in the community?

Accept no advertising or promotion of certain high alcohol beverages

Accept restrictions on takeaway times

Accept ban on 4 litre wine casks

Accept ban on 2 litre fortified wine casks

Accept ban on spirits in containers larger than 750 mls

They responded on a three-point scale:

1 = Yes

2 = No

3 = Unsure (recoded to 1.5)

The degree to which the survey respondents considered they would be prepared to accept each planned restriction is presented in Table 11. A mean score of 1.5 indicated that half of the respondents chose yes and half chose no for acceptance of restrictions. It is important to note that in these analyses the third response, 'Unsure', was recoded to 1.5 (halfway between yes and no). On average, respondents at both pre and post were willing than not to accept the restrictions and bans for the sake of greater community good. There was no significant change in terms of support for any of the restrictions over.

#### *Belief that Restrictions will Reduce Community Harm*

At pre the Town of Port Hedland respondents were asked if they believed the planned restrictions would reduce community harm. This question was changed at post to whether they thought the restrictions had reduced community harm.

Do you think the following restrictions will reduce/have reduced community harm?

No promotion or advertising of full strength beer, spirits, spirit mixers, or 2 litre wine casks (no advertising of specials or giving prizes to encourage you to buy).

Takeaway alcohol only to be sold from 11am to 9pm Monday to Saturday (later opening and no Sunday sales).

Wine only to be sold in containers of 2 litres or less (no 4 litre casks).

Fortified wine like Port and Sherry only to be sold in containers of less than 2 litres (no 2 litre casks).

Spirits to be sold in containers no larger than 750 mls (no oversized bottles).

They responded on a three-point scale:

1 = Yes

2 = No

3 = Unsure (recoded to 1.5)

The extent to which the survey respondents believed that each of the planned restrictions would or did reduce community harm is presented in Table 11. A mean score of 1.5 indicated that half of the respondents chose yes and half chose no for acceptance of restrictions. It is again important to note that in these analyses the third response, 'Unsure', was recoded to 1.5 (halfway between yes and no).

In the case of all five restrictions, respondents at pre were fairly evenly split in their belief that the five planned local restrictions would reduce community harm. This belief changed over time as respondents were significantly less convinced at post that any of the five restrictions had reduced community harm.

**Table 11 - Mean Attitudes to Restrictions on Alcohol Advertising and Sales (Town of Port Hedland only)**

	Intervention Hedland		
	Pre-test	Post-test	Significant Differences
	Mean N=365	Mean N=370	
<b>“Would you personally be/Have you personally been affected by the following restrictions?” (1 = A lot / 2 = A little / 3 = Not at all)</b>			
Affected by no advertising or promotion	2.69	2.65	
Affected by restrictions on takeaway times	2.49	2.28	*
Affected by ban on 4 litre wine casks	2.69	2.70	
Affected by ban on 2 litre fortified wine casks	2.76	2.76	
Affected by ban on spirits in containers larger than 750 mls	2.55	2.57	
<b>“Would you be prepared to accept the following restrictions/Are you prepared to accept the following restrictions continuing on if they reduced alcohol harm in the community?” (1 = Yes / 2 = No / 1.5 = Unsure)</b>			
Accept no advertising or promotion if reduces alcohol harm	1.27	1.31	
Accept restrictions on takeaway times if reduces alcohol harm	1.32	1.38	
Accept ban on 4 litre wine casks if reduces alcohol harm	1.23	1.24	
Accept ban on 2 litre fortified wine casks if reduces alcohol harm	1.22	1.21	
Accept ban on spirits in containers larger than 750 mls if reduces alcohol harm	1.28	1.33	
<b>“Do you think the following restrictions will reduce/have reduced community harm?” (1 = Yes / 2 = No / 1.5 = Unsure)</b>			
Community harm reduced by no advertising or promotion	1.58	1.65	*
Community harm reduced by restrictions on takeaway times	1.47	1.57	*
Community harm reduced by ban on 4 litre wine casks	1.47	1.54	*
Community harm reduced by ban on 2 litre fortified wine casks	1.47	1.53	*
Community harm reduced by ban on spirits in containers larger than 750	1.50	1.57	*

\* Significant Differences from Pre to Post Intervention at  $p < .05$  using t-tests.

*Further Restrictions on Advertising and Sale of Alcohol*

The Town of Port Hedland respondents were asked whether there were any other advertising and sales restrictions they would like to see implemented in their community. This was an open-ended question, which permitted up to three responses. In a post hoc analysis, these open-ended responses were categorised and counted. Percentages were then calculated using the total count of responses, for each category, divided by the number of responses for the Hedland community (N).

Are there any other restrictions on the advertising and sale of alcohol you would like to see introduced locally? *(List all the restrictions you think should be introduced)*

1) \_\_\_\_\_

2) \_\_\_\_\_

3) \_\_\_\_\_

The main additional restrictions nominated by respondents are presented in Table 12 Greater control of drunks was the restriction most mentioned by respondents at pre, but this was mentioned significantly less at post. The most mentioned restriction at post was “Limit quantity sold per day/week”. Here there was a significant increase over time. Just over 3% of responses at post called for no more restrictions or the lifting of existing restrictions, which changed little from pre.

**Table 12 - Additional Restrictions the Town of Port Hedland Would like to see Introduced: Percentage of Responses by Category.**

	Intervention Hedland		
	Pre-test	Post-test	Significant Differences
	% N=155	% N=130	
More control of drunks	21.94	6.15	*
Not sell to drunks	15.48	10.77	
Not sell to underage people/children	12.90	17.69	
Further reduce trading hours	9.68	14.62	
Limit quantity sold per day/week	8.39	24.62	*
Ban advertising that glamorises drinking	7.74	10.00	
Advertise the consequences of heavy/problematic drinking	5.16	2.31	
More education	2.58	1.54	
Higher penalties for non-compliance	2.58	0.00	
Further reduce container size	2.58	1.54	
Nothing will make a difference	2.58	0.77	
No glass containers	1.94	4.62	
Lift all restrictions / No more restrictions	1.94	3.08	

\* Significant Differences from Pre to Post Intervention at  $p < .05$  using t-tests.

### **Key Informant Interviews**

The 12 informant interviews conducted at pre and the 11 conducted at post in the Town of Port Hedland were designed to collect detailed ‘insider’ information about local attitudes towards the liquor licensing restrictions, not available from the survey data. Some people filled more than one role in the community. Their responses were ascribed to both role categories, but have only been tabulated once. In the tables presenting key informant data ‘N’ refers to the number of key informants.

#### ***Roles of Informants***

*Prominent Community Spokespersons (5 at pre and post)*

*Human Services (Police, Health and Welfare) (8 at pre and 7 at post)*

*Commercial, including the liquor industry (3 at pre and post)*

*Aboriginal Representative (2 at pre and 1 at post)*



### *Main Alcohol Problems in the Town of Port Hedland*

The first interview question was “What do you consider to be the main alcohol problems in Hedland?” There were 64 responses to this question at pre and 44 at post. These responses have been categorised under 14 broad headings for purposes of comparison and are presented in Table 13. At pre just under half of the interviewees nominated family dysfunction, and its consequences, and anti-social behaviour, including public drinking, as issues of main concern. These concerns were fairly evenly distributed across the four groupings, although informants representing commerce were more concerned about public anti-social behaviour. The Aboriginal representatives tended to focus on family problems.

*“Some children live on the streets because it is not safe at home” (Pre)*

At post fewer concerns were expressed, but again the same two issues were mentioned most frequently.

*“People drinking in the open, drinking late, causing problems to the public, to pedestrians and vehicles” (Post)*

*“Break up of families as a result of the abuse of alcohol” (Post)*

In addition, two other issues emerged. There was more concern expressed about community dysfunction and the easy availability of alcohol and less concern about violence and crime. At post, particular themes were less associated with informant groupings. Interestingly, drink driving was hardly mentioned as a problem at either pre or post.

*“Drinking problem is a symptom of low status, cycle of poverty” (Post)*

*“Bar staff keep serving patrons when they are obviously drunk” (Post)*

**Table 13 - Key Informant Interview Data - Main Alcohol Problems in the Town of Port Hedland**

	Pre N = 12	Post N = 11
Family dysfunction / child neglect / domestic violence	17	8
Public anti-social behaviour (e.g. public drinking, vandalism, litter)	13	8
Alcohol consumption normative / children mimicking adults	7	4
Violence and other crime / assaults / deaths	6	2
Alcohol abuse / high consumption / binge drinking	3	2
Hospitalizations / injuries	3	1
Community dysfunction	2	6
Easy access / irresponsible service / provision by third party	2	5
Health, emotional and psychological problems	2	4
High disposable income	2	1
Prostitution / sexual abuse	2	1
Financial problems/unemployment	2	1
Underage drinking	2	
Drink driving	1	1
Total	64	44

*Changes in the Level of Alcohol Problems*

Most of the interviewees at both pre and post considered that there had been no change in the level of alcohol problems over the previous 12 months, and this opinion did not vary greatly between the different groups. However, at both times some interviewees considered there had been an improvement (see Table 14). At post the improvements most mentioned related to public drinking, particularly on Sunday.

*“It fluctuates, but generally the same over the long term” (Pre)*

*“I wouldn’t say there has been a shift” (Post)*

However, at both times some interviewees considered there had been an improvement. At post the improvements most mentioned related to public drinking, particularly on Sunday.

*“You don’t see as much drinking around town” (Post)*

*“Much quieter on Sunday – people like Sundays” (Post)*

**Table 14 - Key Informant Interview Data – Change in the Level of Alcohol Problems Over the Past 12 Months**

	Pre N = 12	Post N = 11
Improvement in the level of problems	3	4
No change in the level of problems	8	7
Deterioration in the level of problems	1	

### *Local Initiatives*

The great majority of interviewees were able to identify a range of local initiatives to reduce alcohol problems. Responses have been categorised under seven broad headings for purposes of comparison and are presented in Table 15. Community sponsored agreements between stakeholding organizations such as the Alcohol Accord and the Taxi Code of Practice were consistently identified at both pre and post, as were community programs such as Project .05. Fewer programs were identified at post, which could be a consequence of several, such as the Local Drug Action Group (LDAG), not continuing.

*“Local Drug Action Group, but they went into recess” (Post)*

Agency based counseling and education programs were identified less frequently, particularly at post. The sobering up centre and the night patrol were mentioned a number of times as were policing initiatives. Alcohol sales restrictions were mentioned relatively infrequently at both pre and post, and did not feature prominently in interviewees’ responses.

*“Restrictions are still in place” (Post)*

Some mention was made of new initiatives to improve the regulation of licensed drinking environments and workplace programs.

**Table 15 - Key Informant Interview Data – What is Occurring Locally to Reduce Alcohol Problems**

	Pre N = 12	Post N = 11
Community agreements and projects (e.g. alcohol accord, road safety project)	20	14
Agency based counseling and education	10	6
Sobering up centre and night patrol	4	5
Policing initiatives	4	4
Sales restrictions	3	4
Regulation of licensed drinking environments	3	2
Workplace prevention programs	2	1
Total	46	36

*Opinion of Restrictions as a Strategy for Reducing Harm*

At pre the interviewees were asked their opinion as to whether local restrictions on the advertising and sale of alcohol would be effective in reducing community harm. They were generally supportive of sales restrictions. However, most felt that restrictions on local advertising would make no difference to the ‘problem’ drinkers, although they saw some benefit from banning advertisements that targeted young people. Several interviewees suggested the promotion of low-strength alcohol. There was particular support for restricting the sale of wine in large casks. Restricting the opening hours of alcohol outlets was generally seen as most effective.

*“I don’t think that restrictions on advertising would make any difference. The problem drinkers in the town won’t view the ads. Promoting low–strength alcohol would have an impact.*

*Overall restrictions on times of opening and the number of stores trading in town would be more effective than limiting what can be sold.”*

Only one interviewee was opposed to the restrictions, but there was some comment that restrictions would impinge on the responsible drinkers.

*“Problem drinkers only bought sweet cheap casks, but all casks were restricted.”*

### *Opinion on the Ability of Specific Restrictions to Reduce Harm*

In the great majority of cases there was strong support at pre for restrictions on trading hours and sales, but concern was also expressed that the intent could be circumvented by bringing in banned items from neighbouring communities.

*“Time restrictions will reduce harm, because people will drink less (lower socio-economic groups with limited disposable income). By the time the liquor stores are open, they would have spent their money on food or their kids” (Pre)*

*“I am very happy with the effectiveness of restrictions on 4Lt wine and 2Lt Port casks” (Pre)*

*“The restrictions will have a far reaching impact – but restrictions need to be Pilbara-wide because sly grogging is going on i.e., people bring in 4Lt casks of wine from Karratha” (Pre)*

A minority of the interviewees were sceptical about the restrictions, particularly restrictions on advertising.

*“I am sceptical about the impact of restrictions. People will plan around restrictions i.e., buy alcohol in advance or twice as many of the smaller containers. If people want to drink, then they will regardless. Restrictions are aimed at the Aboriginal population” (Pre)*

*“Restrictions on local advertising doesn’t make any difference. If people are heavy drinkers, then specials are ignored. People know what they like and buy it. The Indigenous people don’t read the newspapers or listen to radio, so restrictions on advertising doesn’t affect them” (Pre)*

At post the majority of the interviewees considered that the restrictions had actually reduced harm, but they were more specific about what had been achieved and what had not.

*“Sundays are a lot better now – less street drinking” (Post)*

*“The canning of the 4 litre casks was the best thing that ever happened” (Post)*

*“There’s been a shift to 750 ml bottles of spirits and boutique beers which causes the problem of glass in town” (Post)*

None of the interviewees at either pre or post considered any of the restrictions increased harm. However, the number of interviewees who considered the restrictions ineffective increased from pre to post. These were evenly drawn from human services and from commerce.

*“People make sure they have their carton before Sunday” (Post)*

There were a number of comments that the restrictions were not a great concern for the community one way or another.

*“No concerns about the restrictions...most people live with it” (Post)*

The level of overall support for the restrictions as a harm reduction strategy at pre and post is presented in Table 16.

**Table 16 - Key Informant Interview Data – Will/Have the Restrictions Reduced Harm**

	Pre	Post
	N = 12	N = 11
Restrictions will reduce/have reduced harm	10	7
Restrictions will make/have made no difference to harm	2	4
Restrictions will increase/have increased harm		

*Further Desired Restrictions*

Further desired restrictions have been categorised under seven broad headings for purposes of comparison and are presented in Table 17. At both pre and post the most frequently mentioned additional restriction was a ban on advertising that encouraged drinking. In most cases the interviewees wanted a blanket ban on all advertising or a ban on advertising that glamorised drinking. This opinion was expressed fairly evenly across all groups. At pre a number of interviewees, predominantly in the human services category, also indicated that counter advertising should be introduced.

*“I would like to see a total ban on advertising state wide....not a constant reminder for people to go out and buy alcohol” (Post)*

*“Incorporate warnings into advertising” (Post)*

The next strongest theme was making licensees responsible for service and the drinking environment. At both pre and post these opinions were predominantly expressed by the human service interviewees.

*“Licenses should be confiscated if the licensees are not following regulations”*  
(Pre)

*‘Licensees need to change their mentality. There is nowhere that smells nice, is clean....’* (Post)

The other themes emphasised various refinements to sales restrictions, including targeting problem drinkers and individual purchase quantities. Banning particular irresponsible products was mentioned several times at post.

*“Ridgy Didge Port brought in from NT in 1.5 litre bottles to meet the restrictions - made in the Northern Territory specifically to beat the restrictions of 2 litre Port”* (Post)

**Table 17 - Key Informant Interview Data – Further Desired Restrictions on the Advertising or Sale of Alcohol**

	Pre N = 12	Post N = 11
Less advertising that promotes drinking	5	7
Advertise the harms associated with drinking	3	
Make licensees more responsible for service and the drinking environment	2	3
Restrict alcohol access for problem drinkers	2	0
Limit quantity and type of alcohol sold to individuals	1	3
Ban large containers and irresponsible products ( eg Ridgy Didge Port)	1	3
Further reduce trading hours	1	2
Total	15	17

*Other Measures to Reduce Local Alcohol Problems*

There were many and varied suggestions for other strategies that could be introduced in Hedland to reduce alcohol problems. Often suggestions were very specific and tended to derive from the informant’s background and experience. Accordingly, grouping was undertaken by underlying theme (see Table 18). The largest number of suggestions at both pre and post involved some form of community education.

*“Make people aware of the hazards of drinking” (Pre)*

*“Community based education in your face...because then the community will actually start to make changes in their own areas” (Post)*

Another strong theme at pre was better targeted and co-ordinated responses by service agencies. Most of these suggestions came from interviewees involved in commerce. At post this issue was mentioned less frequently.

*“People involved should not just knock off at 5 o'clock” (Pre)*

Many suggestions from interviewees in all categories at both pre and post emphasised that individuals had to be made more responsible for their drinking behaviour.



*“Enforcing no alcohol in dry communities’ (Pre)*

*“Police enforcing zero tolerance of public drinking” (Post)*

Other suggestions encompassed more community based intervention programs, further advertising and sales restrictions, better treatment and support for drinkers and their families, training of licensees and improving community amenity. This latter theme emerged strongly in the post interviews.

*“Get better facilities. Get a decent cinema” (Post)*

**Table 18 - Key Informant Interview Data – Other Suggested Measures to Reduce Local Alcohol Problems**

	Pre N = 12	Post N = 11
Community education	11	11
Agency engagement and collaboration	8	3
Enforcement of individual responsibility	7	8
Community action programs	7	2
Additional sales and advertising restrictions	5	4
Treatment and support	5	1
Licensee training	2	3
Community amenity		5
Total	45	37

#### *Additional Comments*

Additional comments have been grouped under 8 broad headings for purposes of comparison and are presented in Table 19. The greatest number of comments at pre concerned improving agency responses to alcohol problems, mainly through better coverage and co-ordination. These comments decreased somewhat at post. At both times the spread was fairly even across the interviewee groups.

*“It’s important to bridge the gap between hospital and community” (Pre)*

The other consistent theme in comments at both pre and post concerned alcohol being an ongoing issue that the community had to manage. At post the comments typically added that the restrictions were a good starting point, but more needed to be done.

*“There is a huge alcohol problem in Port Hedland and we need to resolve it”*  
(Pre)

*“I reckon the restrictions have helped a fair bit, but just having the restrictions themselves doesn’t stop all the problems”* (Post)

A number of comments at both pre and post indicated that alcohol was a particular problem for Aboriginal people, especially those from the remote communities that use Port Hedland as a service centre. This accordingly required their involvement in prevention measures.

*“Designated person to work with itinerant people – get them back to homelands”* (Post)

There was consistent comment at pre and post that the burden of alcohol problems fell disproportionately on the vulnerable, particularly children, and more needed to be done to protect them. At pre there was mention of prostitution in exchange for alcohol and drugs and one informant mentioned instances where women, who could not pay for their journey, were asked for sexual favours in lieu by the taxi drivers. Other comments related to teaching people to respect the community, providing a designated public drinking area and greater enforcement of existing provisions for managing problem drinking. A number of comments were made at post by several interviewees about regular training for licensees and making them more accountable for serving alcohol in a responsible manner.

**Table 19 - Key Informant Interview Data – Additional Comments**

	Pre N = 12	Post N = 11
Improved service delivery and collaboration by agencies	7	5
Alcohol is an ongoing important community issue/build on the restrictions	5	5
Alcohol is an indigenous issue	3	2
Affects vulnerable groups, particularly children	2	3
Teach people to respect the community	1	2
Designated public drinking area	1	1
Enforcement	1	1
Licensee accountability	0	6
Total	20	25

### **Serial Measures of Alcohol Consumption and Harm**

#### *Alcohol Consumption*

Per capita alcohol consumption (15 years +), covering the 13 year period 1991/92 to 2003/04, for the Town of Port Hedland and Roebourne Shire is presented in Figure 1. Prior to the initial introduction of restrictions in Hedland the level of correlation between consumption in the two locations was .75, which indicates very similar consumption trends. Subsequent to the restrictions the correlation was -.499, which indicates substantial divergence between consumption that rose in Roebourne Shire and consumption that remained essentially steady in Hedland. Per capita consumption of wine and spirits over the same period of time is presented in Figure 2. Average per capita wine consumption (15 years +) fell from 3.27 litres before restrictions on container size to 1.99 litres after the restrictions. This was a significant decrease,  $t(10) = 4.286, p < .01$ . Average per capita wine consumption (15 years +) did not change significantly in Roebourne Shire  $t(10) = -0.465, ns$ . In the case of spirits, average per capita consumption (15 years +) rose significantly in both locations (Hedland,  $t(10) = -4.519, p < .001$ ; Roebourne Shire  $t(10) = -4.814, p < .001$ ). Per capita full strength beer consumption has not been included in Figure 2, but did not change in either Hedland ( $t(10) = 0.556, ns$ ) or Roebourne ( $t(10) = -0.211, ns$ ). These patterns, particularly the increase in spirits consumption, should however be interpreted with caution, because of the increasing proportion of fly-in fly-out workers in each location. In 2004 Watts, (2004) estimated that 14% of the Pilbara workforce were in employment that involved long distance commuting or fly-in fly-out arrangements. These people purchase alcohol while working in the Pilbara, but are generally not counted by the Australian Bureau of Statistics in the Estimated Resident Population (ERP), which is used to calculate per capita consumption for a particular location. As a consequence local consumption figures can be inflated.

### *Hospital Accident and Emergency Department Occasions of Service*

Rates of night time hospital accident and emergency department occasions of service in the Town of Port Hedland and Roebourne Shire are presented in Figure 3. Time series analysis indicated that after controlling for the simultaneous trend in Roebourne, there was a significant decline in the rate of service for Hedland, when local voluntary restrictions were introduced in July 2002 ( $t = -4.006$ ,  $p < .001$ ), but not when mandated restrictions were introduced on 1 January 2004 (T-Ratio = 0.95, ns).

Rates of hospital accident and emergency department occasions of service on Sunday in the Town of Port Hedland and Roebourne Shire are presented in Figure 4. Analysis indicated that after controlling for rates in Roebourne, rates of service in Hedland did not change significantly when either voluntary restrictions on container size ( $t = 0.301$ , ns) or mandated restrictions, involving no takeaway sales on Sundays ( $t = 0.729$ , ns) were introduced.

### *Trauma Related Ambulance Callouts*

Rates of trauma related ambulance callouts in the Town of Port Hedland are presented in Figure 5. There was a significant decline in the rate of callouts, when restrictions on container size were introduced in July 2002 ( $t = -2.597$ ,  $p = .01$ ). There was no change when initial voluntary restrictions were introduced ( $t = 0.86$ , ns), or when mandated restrictions were introduced ( $t = -0.066$ , ns).

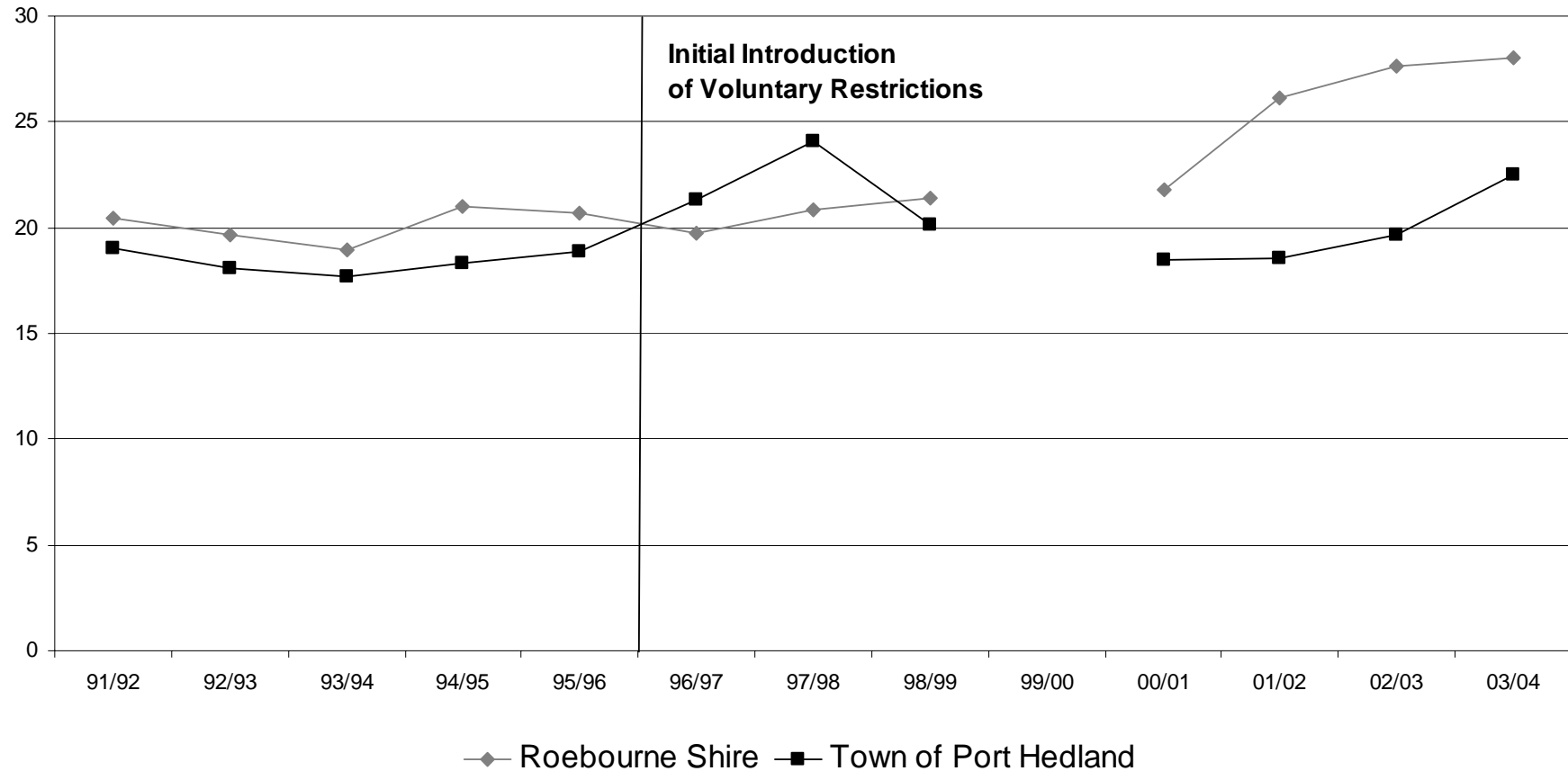
### *Night Time Assaults*

Rates of night time assaults in the Town of Port Hedland and Roebourne Shire are presented in Figure 6. After controlling for the rate of assault in Roebourne, rates of assault in Hedland did not change significantly when either voluntary restrictions on container size ( $t = 0.849$ , ns) or mandated restrictions ( $t = 0.612$ , ns) were introduced.

### *Disturbances Attended by Police*

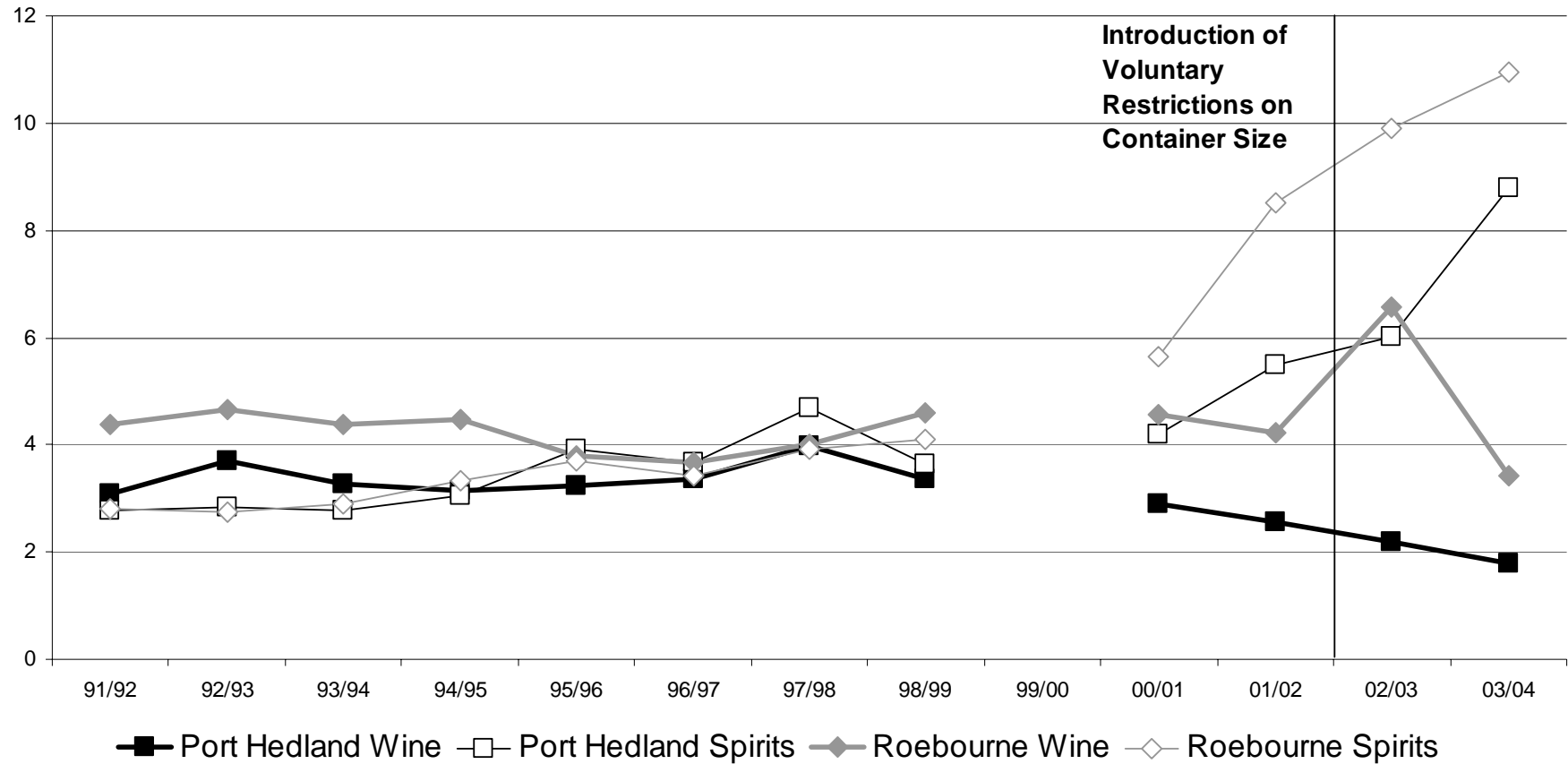
Rates of disturbances attended by Police in the Town of Port Hedland are presented in Figure 7. Regression analysis indicated that when mandatory restrictions were introduced on 1 January 2004 there was a significant decline in disturbances ( $t = 17.536$ ,  $p < .001$ ).

## Annual Per Capita Alcohol Consumption (15 years +) in Litres of Alcohol



**Figure 1 - Annual Per Capita (15 Years +) Alcohol Consumption in the Town of Port Hedland and Roebourne Shire**

## Annual Per Capita Consumption (15 years +) in Litres of Alcohol By Selected Beverage Type



**Figure 2 - Annual Per Capita (15 Years +) Alcohol Consumption by Selected Beverage Type in the Town of Port Hedland and Roebourne Shire**

### Rates (per 10,000) of Night Time (22:00 to 07:00) Hospital Accident and Emergency Occasions of Service

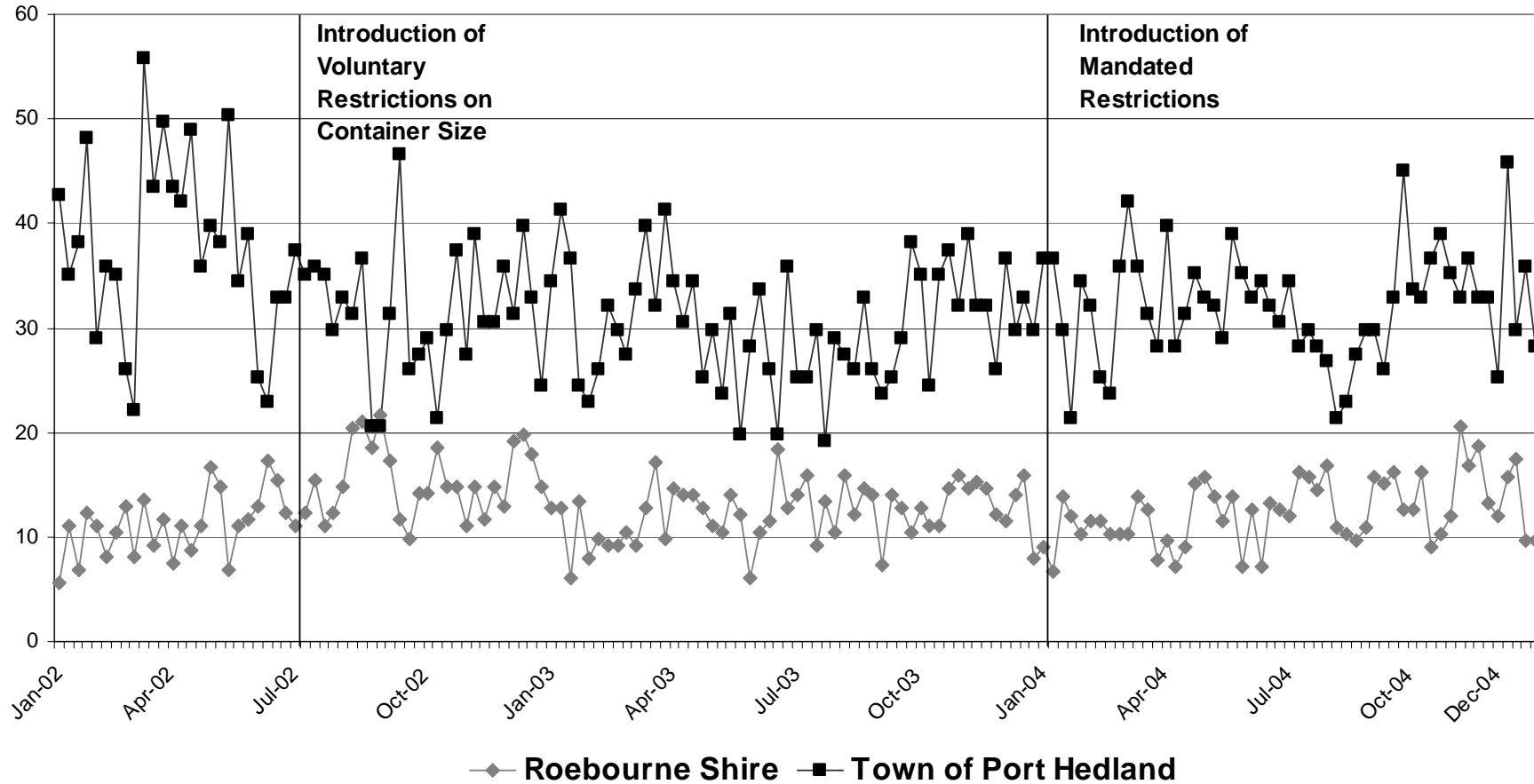


Figure 3 - Night Time Accident and Emergency Department Occasions of Service in the Town of Port Hedland and Roebourne Shire

## Rates (per 10,000) of Hospital Accident and Emergency Occasions of Service on Sundays

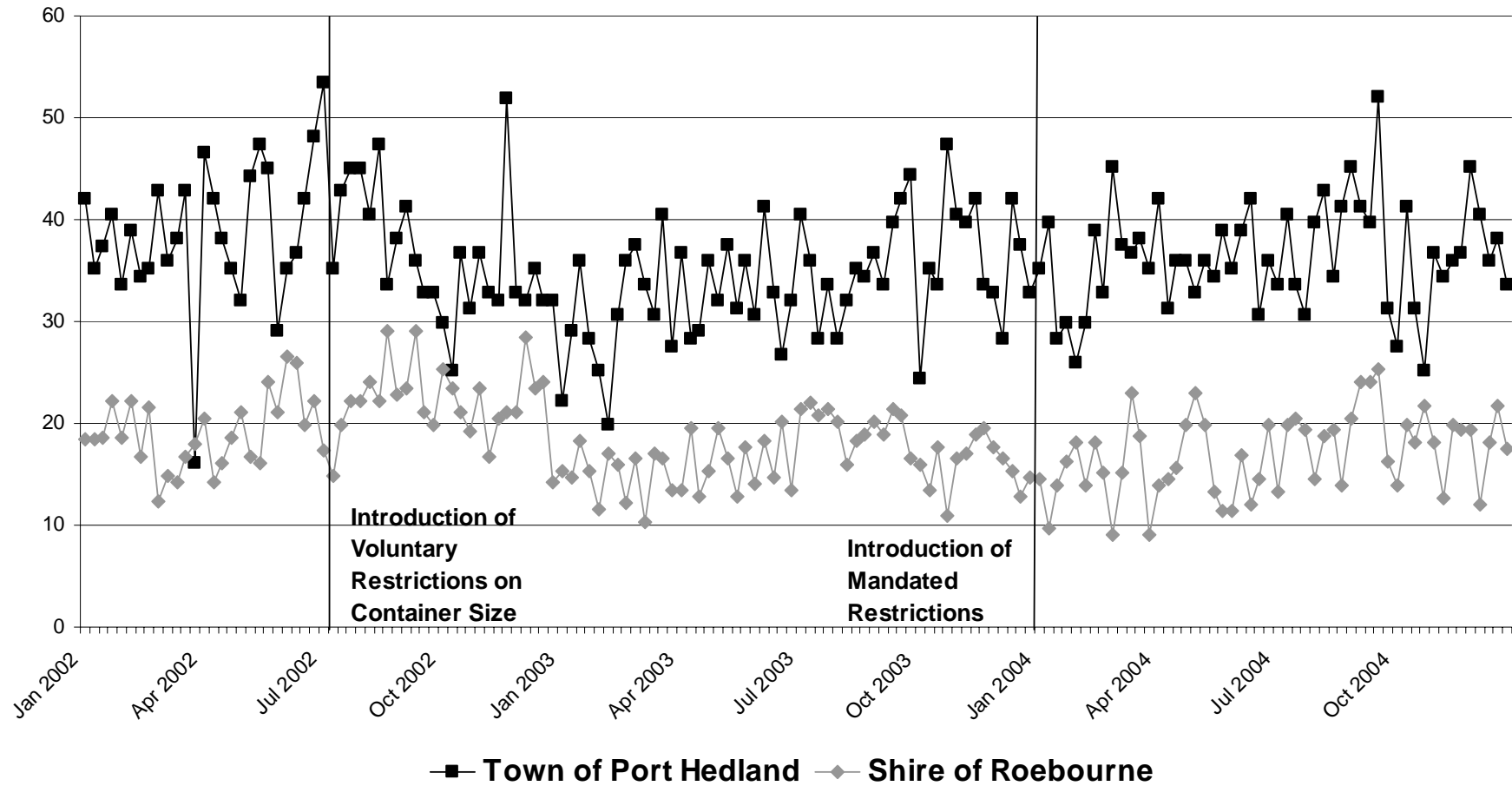


Figure 4 - Accident and Emergency Department Occasions of Service on Sunday in the Town of Port Hedland and Roebourne Shire



## Rates (per 10,000) of Trauma Related Ambulance Callouts

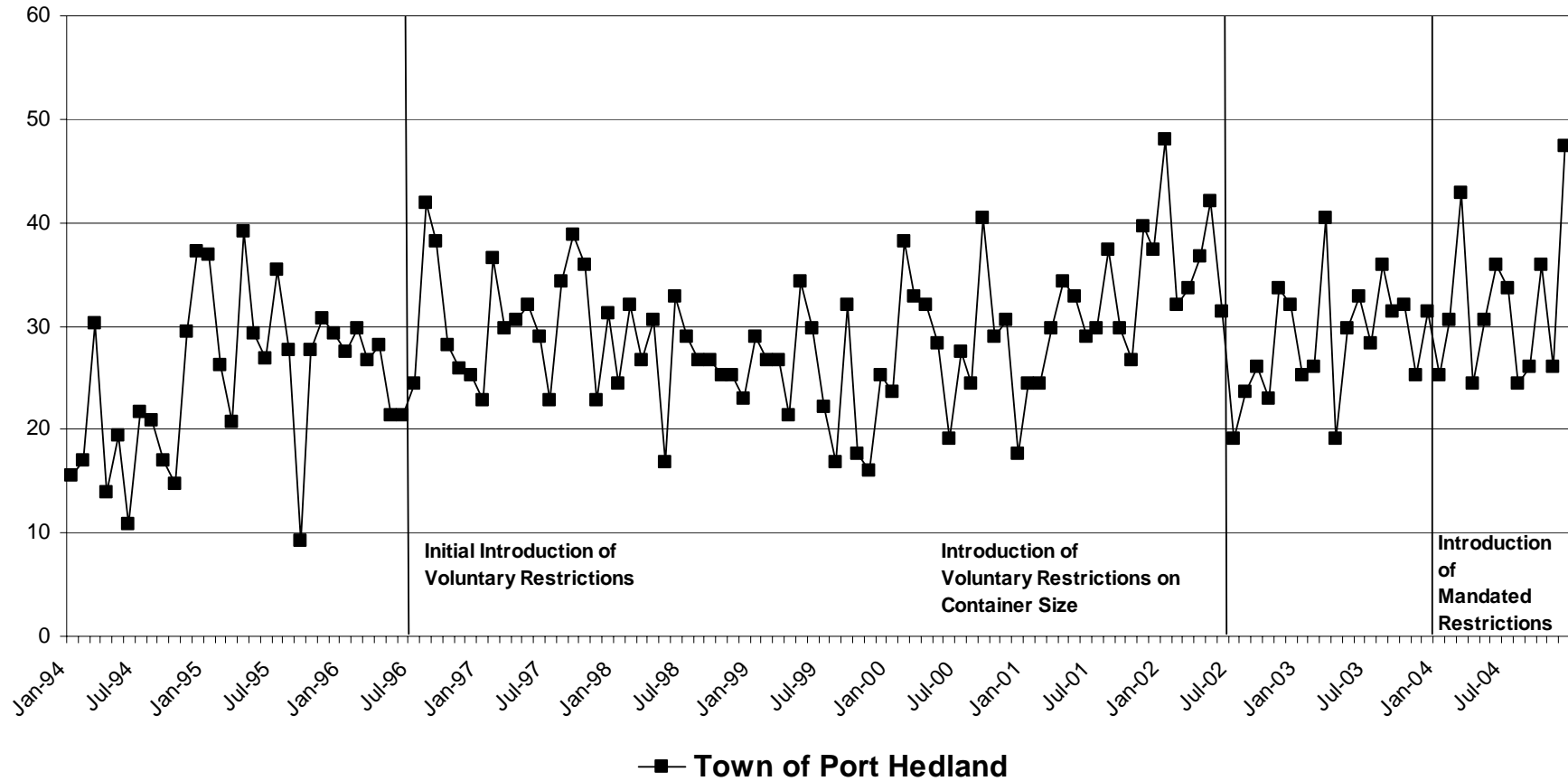


Figure 5 - Trauma Related Ambulance Callouts in the Town of Port Hedland

### Rates (per 10,000) of Night Time (22:00 to 06:00) Assaults

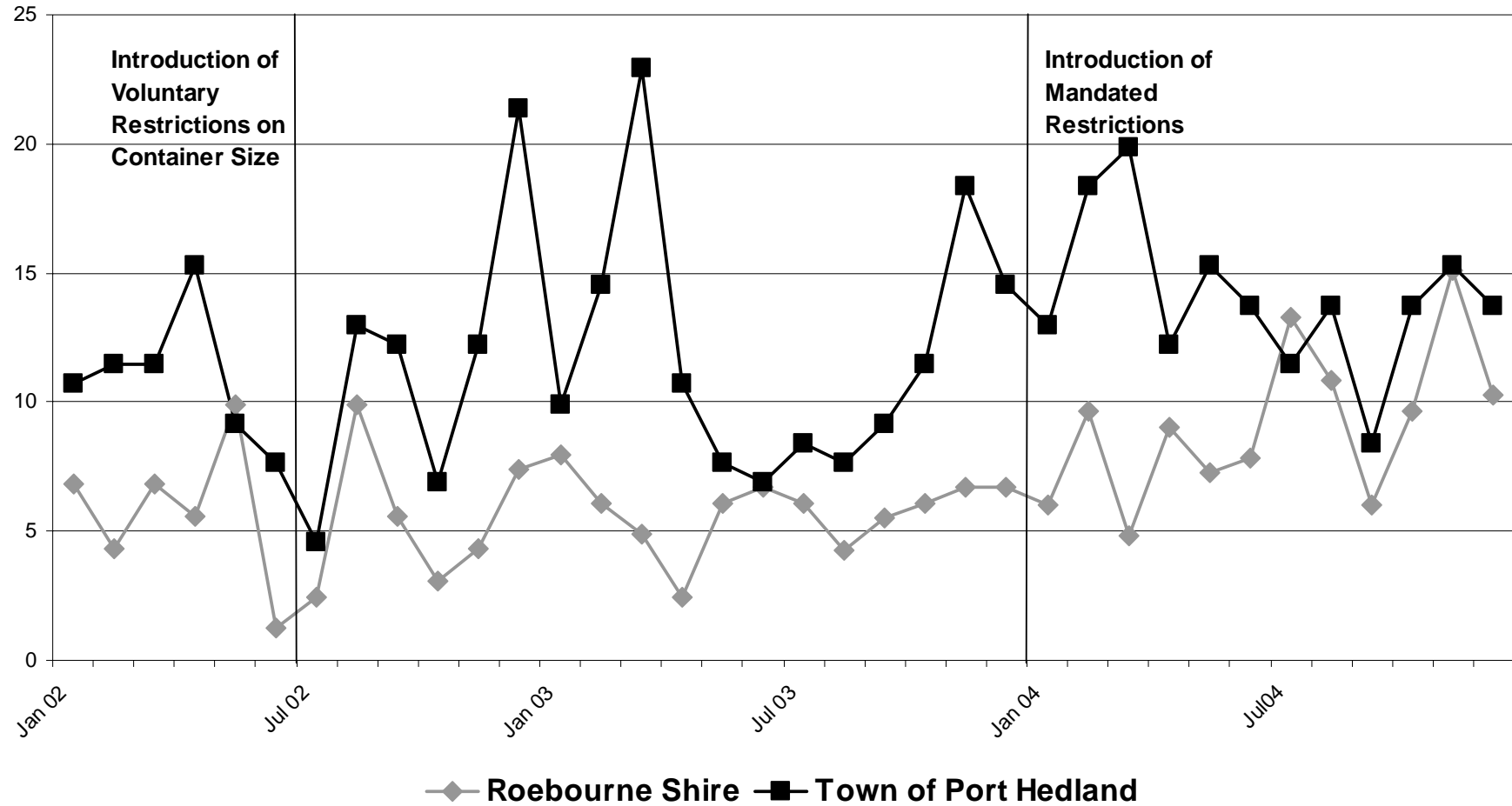


Figure 6 - Night Time Assaults in the Town of Port Hedland and Roebourne Shire

## Rates (per 10,000) of Disturbances Attended by Police

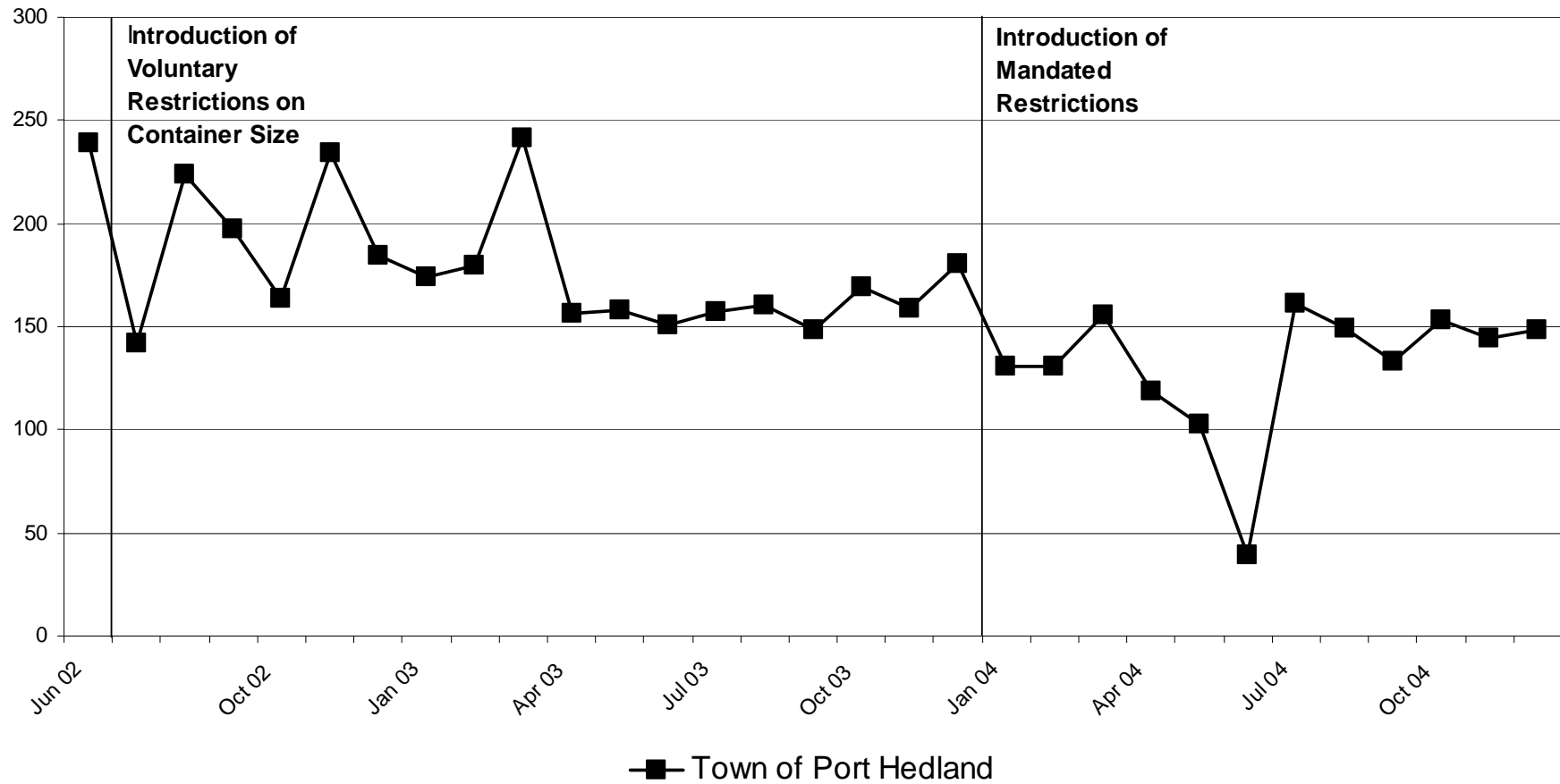


Figure 7 - Disturbances Attended by Police in the Town of Port Hedland

## DISCUSSION

The intervention community of the Town of Port Hedland and the control community of Roebourne Shire are very similar in socio-demographic terms and geographic location and not surprisingly there was considerable commonality in community appreciation of the alcohol problems experienced. However, there were some differences in emphasis. Prior to the mandatory introduction of restrictions in the Town of Port Hedland, drinking and associated harms to community function and amenity were of greater concern in that community, whereas harms to the individual were more of a concern in Roebourne Shire (see Table 5). The community survey, 11 months post the mandated introduction of restrictions, found that concern about heavy drinking and public drinking and disturbance had decreased significantly in Hedland, whereas concern about these matters had increased in Roebourne Shire. The concerns of the two communities have converged to some extent, but public drinking and associated disturbance still remains a much bigger problem in Hedland. Concern about alcohol availability also increased significantly here, but not in Roebourne Shire. This pattern of change in community concern suggests that while people in Hedland are less confronted by public drinking and associated problems, they have become more sensitive to alcohol availability as a problem. Data from the Hedland key informants reinforced this change in emphasis (see Table 13). Public anti-social behaviour was a strong concern, both before and after the introduction of mandated restrictions, although again there was a decrease in the number of times this issue and other problem consequences, such as violence, were mentioned. Instead systemic issues, such as community dysfunction and provision of alcohol, came more to the fore. This change seemed an acknowledgement that the community had to accept greater responsibility for managing use of alcohol.

The perceived change in the level of these problems over the previous 12 months, while not indicating absolute improvement in either community, indicated significantly less deterioration in a number of cases (see Table 6). This is not definitive, but in communities cynical about any possibility of improvement, such relative change may be all that can be expected. In Hedland perceptions as to the relative level of public drinking and disturbance and community amenity improved significantly. In Roebourne there was a similar perception of relative improvement in public drinking and disturbance. In no cases were problems seen as deteriorating further. These results are somewhat contradictory for Roebourne, where some of the problems were mentioned more frequently, but then perceived as improving in relative terms. This may be due to increased community sensitivity to alcohol problems. However, in Hedland the relative improvement is more consistently identified as occurring in problem areas, which are causing less concern. This reinforces the impression that public alcohol problems here have improved. Assessment of change offered by the key informants was similarly subtly optimistic. Between pre and post most considered the level of problems remained much the same (see Table 14). However, one more person at post considered that there had been an improvement and unlike pre, nobody considered that the situation had deteriorated. The comments by the key informants on this issue are probably more informative here. The most consistent theme in terms of change was the occurrence of less public drinking, particularly on Sunday

Community respondents in Hedland were knowledgeable about local strategies to reduce alcohol problems. At pre, over half the respondents in Hedland nominated supply reduction as a known local strategy (see Table 7). This was significantly greater than in Roebourne Shire, where supply reduction was not part of the local alcohol strategy, but was usually mentioned in the context of closure of the Victoria Hotel in the town of Roebourne some years earlier. This strong pre response in Hedland was most likely a consequence of the publicity surrounding liquor licensing hearings on restrictions and the voluntary implementation of many sales restrictions, which occurred well in advance of the mandated introduction of full restrictions on 1 January 2004. Mention of these measures increased at post in Hedland, although the change was not significant. It is important to emphasise that most people in Hedland knew about the restrictions at pre and post, whereas knowledge of all other local strategies was much less. This suggests that community opinion on the restrictions is likely to be based on good awareness and a substantial period of assessment. This is important in terms of its validity. It was difficult to demonstrate that the key informants had the same sense of awareness of the restrictions because the interviews were clearly identified as being part of an evaluation of the restrictions and there was likely to have been an assumption by the interviewees that their knowledge of this strategy was a given. They were however able to name a large number of far less prominent community prevention measures (see Table 15). This level awareness in the general community and amongst likely opinion leaders is important because it provides the basis for community understanding of how local structural change can reduce alcohol problems, which in turn influences support for continuation of the restrictions.

The community survey indicated that at pre, there was weak overall support in Port Hedland for restrictions on advertising and promotion of high strength alcohol and for restrictions on the sale of high strength alcohol in large containers (see Table 8). The control community of Roebourne Shire was actually significantly more supportive of both measures, despite not having experienced the same level of disruption to public amenity that has occurred in Hedland because of public drinking. A confounding factor here may be that the Roebourne respondents were only dealing with the issue in theory, while Hedland respondents had already experienced the application of some restrictions as part of the voluntary accord. When key informants were asked about the prospective benefits of the restrictions they were more enthusiastic than the general community about the harm reduction potential of sales restrictions, although most were sceptical that the restrictions on advertising and promotions would have any impact on heavy drinkers. There was little opposition to a trial of the concept. The community survey at post found no change over time in support for either the advertising or sales restrictions in Hedland. In contrast, support for both these restrictions fell significantly in Roebourne from pre to post. This means support for the restrictions in Hedland was maintained during the period that the community would have experienced their full application. In this context such support has to be considered all the more valid. Interestingly, support for the concept waned in Roebourne, even though no restrictions were introduced, which suggests a background trend against greater control of alcohol.

Other changes sought by Hedland respondents tended to emphasise control of alcohol and of drinkers, but the relative importance of each changed over the course of the study (see Table 9). Subsequent to the introduction of mandated restrictions, control of alcohol became less important, but there was increased emphasis on better enforcement of drinking behaviour. Comments from the key informants at both pre and post reinforced this emphasis on making

individuals responsible for their drinking behaviour (see Table 18). These trends suggest that having the restrictions in place allows the community to turn its attention to problems other than availability. The decline in key informant concern about agency performance between pre and post is also worth noting as it suggests an improvement in local responses.

When both Hedland and Roebourne Shire respondents were asked at pre for further comment about local alcohol problems, normative heavy drinking emerged in Hedland as the strongest issue, whereas supply reduction topped the list in Roebourne (see Table 10). At post the issue of normative heavy drinking diminished significantly in Hedland, which suggests greater resilience to negative standards. In Roebourne, while there was no significant change in mention of supply reduction, its order of importance slipped from first to fourth place. Other changes in Roebourne would suggest that alcohol problems are rising in this community. There is acknowledgement that current programs are not working, but at the same time there is relatively less appetite for supply control. These changes do not directly relate to the restriction in Hedland, but they do reinforce the sense of waning background support for environmental change and greater emphasis on individual responsibility.

The issue of support for the specific restrictions introduced in Hedland on 1 January 2004 was explored in detail with this community. Most Hedland respondents indicated at pre that they would not be personally affected by the restrictions on advertising, restrictions on takeaway times and bans on larger wine and spirit containers then due to be introduced on a mandatory basis (see Table 11). Similarly, most respondents were prepared to accept the restrictions on the basis that they reduced alcohol harm in the community. However, there was a degree of scepticism about the likely effectiveness of the restrictions. The survey sample was fairly evenly divided between those who thought the restrictions would be effective in this regard and those who did not. Restrictions on advertising and promotion as a measure to reduce community harm had the least support. At post there was a significant increase in the proportion of Hedland respondents, who indicated that they felt affected by restrictions on takeaway times, although the mean response still fell between being affected a little or not at all. There was no change over time in terms of being personally affected by any of the other restrictions or in terms of being prepared to accept the restrictions for the greater good of the community. Respondents did however become significantly more sceptical about the ability of any of the restrictions to reduce community harm, although here again the mean response at post was only marginally negative. These trends suggest that the restrictions have not greatly inconvenienced the Hedland community and while there is still willingness to support the measures, there also is greater doubt as to whether they make a difference to local alcohol problems. Support for the restrictions was stronger among the key informants at both pre and post, but in a similar manner to the community, this support waned slightly over time (see Table 16). The key informants were also sceptical that restrictions on advertising and promotions would have any impact on heavy drinkers, although they did consistently mention banning advertising that promotes drinking as a population prevention strategy (see Table 17). The unique contribution from informants was specific comment on how the restrictions had affected the community and here three themes stood out. Firstly, the overall level of harm had been reduced. Secondly, the community was not greatly concerned about the restrictions. Thirdly, the restrictions were ineffective because people bought more alcohol at other times.

When asked at pre to nominate other restrictions they would like to see introduced, community respondents in Hedland clearly stated that they wanted more control of drunks and a broader range of restrictions on the supply of alcohol (see Table 12). There was little support for easing restrictions. At post, there was significantly less mention of the need to control drunks, while support for limiting the quantity of alcohol sold per day to any one individual increased significantly. Community support for easing restrictions remained negligible. This appetite for greater regulation of drinking is reflected in comments from the key informants, who placed greater emphasis on responsible service by licensees (see Table 17). Again these trends suggest that the community has become more satisfied with the way public alcohol problems are being handled, but sees no need to ease control. Indeed the substantial increase in the call for quantity limits by community respondents suggests support for refinement of the restrictions so binge drinking is better targeted.

The pre and post survey findings suggest that there has been little change in local community support for the liquor licensing restrictions introduced in the Town of Port Hedland on 1 January 2004. The general community was always well informed about the restrictions and this has improved over time. There was support for the restrictions prior to their official introduction, albeit at a low level, and this has not changed. The general community has not felt greatly inconvenienced by the existing restrictions and seems prepared to have them continue, although they are now less convinced as to their benefit. There has however been an increase in support for an additional restriction that better targets binge consumption. Interestingly, the change over time in the type of alcohol problem that causes greatest concern for the community, suggests that the public problems have ameliorated. All this has occurred against indications from the control community of decreasing public support for control of alcohol. The key informants similarly evidenced continuing support for the restrictions between pre and post and were able to identify particular ways in which the restrictions had benefited the community. They were also realistic about what could be achieved by restrictions on their own because most people quickly adjust. The other consequence of this limited impact is minimal community concern. Most key informants indicated that restrictions were not an issue for the community because few people were inconvenienced. However, the informants were also keen to make the point that the alcohol problems in Hedland were a complex, long term issue that would not be overcome by any single strategy (see Table 19). There is a need for a range of complementary community programs.

The alcohol consumption and harm data tend to confirm the impressions given by both the community survey respondents and key informants, namely that the restrictions did not have a dramatic impact on the drinking behaviour of the community when formally implemented on 1 January 2004. This is because the current restrictions may have been mandated from this date, but in reality implementation had commenced much earlier and proceeded over several years on a piecemeal, voluntary basis. Accordingly, their effect tended to be gradual and cumulative. Voluntary restrictions on opening hours dated back to the community alcohol accord agreed to in mid 1996, but compliance varied over time. In July 2002 the liquor outlets in Hedland voluntarily agreed to stop selling table wine in 4 litre casks and fortified wine in 2 litre casks and to standardise reduced opening hours. The main condition that actually altered with the introduction of mandated restrictions was the cessation of takeaway alcohol sales on Sunday. Restrictions have made a difference to both consumption and harm, but the greatest demonstrable effect had already occurred by the time of formal

implementation. A further confounding factor is that the one year follow up period from formal introduction is very short to identify trends.

Per capita consumption trends in Hedland and the control community of Roebourne Shire diverged at the point when the initial voluntary restrictions were introduced. Consumption in Hedland effectively remained stable, whereas it rose by approximately 20% in Roebourne. In addition, per capita consumption of wine, which was subject to voluntary restrictions on large containers, decreased significantly in Hedland, while remaining stable in Roebourne Shire. This is probably the best objective indication as to the effect of container size restrictions. Spirit sales did increase, but they did so in both communities and this seems a consequence of an increase in the fly-in and fly-out workforce, rather than a displacement of wine sales. There seems to have been no displacement of sales to beer, as consumption did not increase subsequent to wine container size restrictions.

Analysis of the proxy measure of alcohol harm, night time hospital accident and emergency occasions of service did not show any significant change in Hedland when mandated restrictions were introduced on 1 January 2004. However, there was a significant decrease in occasions of service at the time voluntary restrictions on large wine containers were introduced in July 2002. This change at the time container size restrictions were introduced was mirrored in trauma related ambulance callouts, but again there was no change when mandated restrictions were introduced on 1 January 2004. A more focused measure, accident and emergency service rates on Sundays similarly revealed no change on 1 January 2004 when all Sunday takeaway alcohol sales ceased with the introduction of mandated restrictions. There was no change in rates of night time assaults at either time, but this data series is restricted in its ability to detect change because of variability and the small number of data points. The only proxy measure of alcohol related harm that showed a decrease when mandated restrictions were introduced was disturbances attended by Police. This seems to a particularly sensitive local measure because of the well identified link with alcohol consumption and the large number of cases recorded.

Overall, this pattern of change in consumption and harm indicates that the restrictions have had a beneficial effect in Hedland, but most of this occurred much earlier than expected. The mandated restrictions in the main simply formalised previous voluntary restrictions, so an additional effect was difficult to detect. It is also unrealistic to expect that the one substantial new measure, cessation of Sunday takeaway sales, would have a major effect on consumption, as most people have the planning ability and resources to adjust their purchasing habits to suit new circumstances. This is supported by Gray (2002) who stated

*If a restriction on Sunday packaged liquor sales was introduced in Port Hedland and South Hedland, there is likely to be some displacement to other days as people pre-purchase packaged alcohol for consumption on the day of the restrictions. If the measure did contribute directly to a reduction of consumption on that day it is likely to be relatively small. (p. 23)*



However, the detected improvement in disturbances is understandable in terms of how reduced availability would affect heavily dependent drinkers, who have more limited planning skills and fewer financial and social resources. Here, stopping sales on one day is likely to stop their drinking on that day and as their drinking is the major cause of public disturbance, this form of harm is likely to decrease proportionately.

## CONCLUSION

This mixed method study has identified how the Town of Port Hedland views its alcohol problems and how alcohol advertising and sales restrictions have impacted on the community. The community recognises it has a substantial community alcohol problem and there have been successive, local, collaborative prevention efforts that go back at least a decade. Voluntary restrictions have been part of this mix and there was good knowledge of and support for the nominated restrictions prior to their mandated introduction on 1 January 2004. Subsequent to implementation there was little opposition to their ongoing operation. Moreover, expectations as what could be achieved by the restrictions were realistic. Key informants consistently indicated that they were just one element that needed to be part of a more comprehensive community prevention strategy. Serial measures of consumption and harm indicated that the restrictions have objectively made a difference, although not necessarily at the time of mandated implementation. There is however, a good case for retaining the current mandatory measures. Their implementation derived from an extensive community consultation process and there is scant indication that the community wants any of the measures reversed. There is evidence that the mix of restrictions address different problems in the community. Their legal status is a manifest indication of official concern and support in relation to community alcohol problems. Their permanence and enforceability institutionalises the previous voluntary changes, and obviates the need to continually revisit the issue. They provide a clear benchmark to a community long troubled by alcohol as what it has the right to expect in terms of future promotion and availability of alcohol. All these factors underpin the further development of local policy and program initiatives, which the community has indicated are needed to complement the restrictions on availability.

A limitation of this study is the short post follow up period, which makes it difficult to get sufficient recent serial data to detect intervention effects. Accordingly, consideration should be given to longer term follow up. Greater emphasis could be placed on collection and analysis of those data series identified in this research as being particularly sensitive to the restrictions and there would be more time for distinct trends to emerge. Finally, there should be acknowledgement of the Hedland community's ongoing stake in the findings from this study. It is important that local feedback be provided to both validate the contribution the community made to the evaluation and build a sense of efficacy within the community that local initiatives can have an effect on local problems.

## REFERENCES

- Box, G. E. P. & Tiao, G. C. (1975). Intervention analysis with application to economic and environmental problems. *Journal of the American Statistical Association*, 70, 70-79.
- Daly, A. & Philp, A. (1995). *Alcohol consumption in Western Australia, July 1991 to June 93*, Perth: Health Department of Western Australia.
- Douglas, M. (1998). Restriction of the hours of sale of alcohol in a small community: a beneficial impact. *Australian and New Zealand Journal of Public Health*, 22(6), 714-719.
- Gray, D. (2002). *The Impact of Restrictions on the Sale of Alcohol on Particular Days of the Week: With Reference to Proposed Restrictions in Port Hedland and South Hedland*, National Drug Research Institute, Curtin University of Technology.
- Gray, D. & Siggers, S. (2002). *Submission to the inquiry by the Director of Liquor Licensing into proposed restrictions on the sale of packaged liquor in Port Hedland and South Hedland*, Health Department of Western Australia.
- Gray, D., Siggers, S., Atkinson, D., Sputore, B. & Bourbon, D. (2000). Beating the grog: an evaluation of the Tennant Creek liquor licensing restrictions. *Australian and New Zealand Journal of Public Health*, 24(1), 39-44.
- Holmila, M. (2000) Lessons learned about the community initiatives in preventing alcohol and drug-related harm. In K. Elmeland (Ed.) *Lokalt Alkohol-Och Droghforebyggande Arbete I Norden*, Helsingfors: Nordiska namnden for alkohol-och droghforskning (NAD).
- Holt, S., Stewart I. C., Dixon J. M. J. *et al.* (1980). Alcohol and the emergency service patient. *British Medical Journal*, 281, 638-40.
- Hulse, G. K., Robertson, S. I. & Tait, R. J. (2001). Adolescent emergency department presentations with alcohol- or other drug-related problems in Perth, Western Australia. *Addiction*, 96, 1059-67.
- Ireland, C. S. & Thomenny, J. L. (1993) The crime cocktail: licensed premises, alcohol and street offences. *Drug and Alcohol Review*, 12(2), 143-150.
- Kish, L. (1965). *Survey Sampling*. John Wiley & Sons: New York.
- McLeod, R., Stockwell, T., Stevens, M. & Phillips, M. (1999). A case-control study of alcohol use and injury. *Addiction*, 94, 1719-34.
- Midford, R. G., Daly, A. & Holmes, M. (1994). The Care of Public Drunks in Halls Creek: A Model for Community Involvement. *Health Promotion Journal of Australia*, 4(1), 5-8.
- Midford, R., Stockwell, T., Daly, A., Phillips, M., Masters, L., Gahegan, M. & Phillips M. (1998). Alcohol consumption and injury in Western Australia: A spatial correlation analysis using geographic information systems. *Australian and New Zealand Journal of Public Health*, 22(1), 80-85.
- Ott, R. M. & Longnecker, M. (2001). *An Introduction to Statistical Methods and Data Analysis*. Duxbury, Pacific Grove.
- SPSS Inc. (1994). *SPSS Trends 6.1*. Author, Chicago.

- Treno, A. J., Cooper, K. & Roeper, P. (1994). Estimating alcohol involvement in trauma patients: Search for a surrogate. *Alcoholism: Clinical and Experimental Research*, 18, 1306-11.
- Veroni, M., Swensen, G. & Thomson, N. (1993). *Hospital Admissions in Western Australia Wholly Attributable to Alcohol Use: 1981-1990*. WA Drug Data Collection Unit, Health Services Statistics and Epidemiology Branch, Health Department of Western Australia.
- Watts, J. (2004). *Best of Both Worlds? Fly In - Fly Out Research Project Final Report*. Pilbara Regional Council, Karratha.
- World Health Organisation (2000). *International guide for monitoring alcohol consumption and related harm*. Department of Mental Health and Substance Dependence, Noncommunicable Diseases and Mental Health Cluster, World Health Organization.

## Appendix A: Community Survey of Alcohol Problems in the Town of Hedland

Survey Community Code	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Survey Location	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Survey Time Code	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<i>(Office Use Only)</i>			

This survey is being done by a research team from Curtin University. We are asking about local alcohol problems and prevention measures.

- (1) There are no right or wrong answers to the questions. We want to know what you think about local alcohol problems and what is being done to improve the situation.

You will not be asked for your name and the answers you give to the questions will be confidential. No one but members of the research team will know the answers that you give, and by law they aren't allowed to tell others what you said.

- (2) **Are you willing to take part in the survey?**  
*(Please tick the box that applies)*

No

Yes

If Yes please continue to the next page. If No please return the blank form to the researcher

We need to get the following details to make sure the people we survey represent a cross section of the Hedland community (*Please tick the box that applies*)

1. Your Sex                      Male                       Female
2. Your Age                      18-24 years                       25-44 years                       45+ years
3. Do you consider yourself to be Aboriginal?
- Yes                       No                       Don't know
4. Do you drink alcohol?
- Very occasionally/never
- 1-3 days a week
- 4-6 days a week
- Everyday

We would like to get your opinion on alcohol problems in Hedland and ways of making things better

5. In your opinion what are the main alcohol problems in Hedland? Have these problems got better or worse over the past 12 months?  
(Circle the number that matches your answer)

	<i>Got much Worse</i>	<i>Got worse</i>	<i>Stayed the same or don't know</i>	<i>Got better</i>	<i>Got much better</i>
1) _____	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>
2) _____	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>
3) _____	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>

6. Do you know of anything that is being done locally to reduce alcohol problems?  
(Tick the box that applies)

Yes  No

(If you answered Yes, please list what you know is being done. If you answered No go to the next question)

- 1) \_\_\_\_\_  
2) \_\_\_\_\_  
3) \_\_\_\_\_

7. Do you support restricting local advertising or promotion of certain types of high strength alcohol as a way of reducing community harm?  
(Circle the number that matches your answer)

<b>Strongly Support</b>	<b>Support</b>	<b>Neutral or don't know</b>	<b>Against</b>	<b>Strongly Against</b>
<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>

8. Do you support restricting local sales of certain types of high strength alcohol as a way of reducing community harm?  
(Circle the number that matches your answer)

<b>Strongly Support</b>	<b>Support</b>	<b>Neutral or don't know</b>	<b>Against</b>	<b>Strongly Against</b>
<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>

12. Would you personally be affected by the following restrictions?

*(Tick the box that matches your answer)*

(a) No promotion or advertising of full strength beer, spirits, spirit mixers, or 2 litre wine casks (no advertising of specials or giving prizes to encourage you to buy).

A lot       A little       Not at all

(b) Takeaway alcohol only to be sold from 11am to 9pm Monday to Saturday (later opening and no Sunday sales).

A lot       A little       Not at all

(c) Wine only to be sold in containers of 2 litres or less (no 4 litre casks).

A lot       A little       Not at all

(d) Fortified wine like Port and Sherry only to be sold in containers of less than 2 litres (no 2 litre casks).

A lot       A little       Not at all

(e) Spirits only to be sold in containers of 750mls or less (no oversized bottles).

A lot       A little       Not at all

13. Would you be prepared to accept the following restrictions if they reduced alcohol harm in the community?

*(Tick the box that matches your answer)*

(a) No promotion or advertising of full strength beer, spirits, spirit mixers, or 2 litre wine casks (no advertising of specials or giving prizes to encourage you to buy).

Yes       No       Unsure

(b) Takeaway alcohol only to be sold from 11am to 9pm Monday to Saturday (later opening and no Sunday sales).

Yes       No       Unsure

(c) Wine only to be sold in containers of 2 litres or less (no 4 litre casks).

Yes       No       Unsure

(d) Fortified wine like Port and Sherry only to be sold in containers of less than 2 litres (no 2 litre casks).

Yes       No       Unsure

(e) Spirits to be sold in containers no larger than 750mls (no oversized bottles).

Yes       No       Unsure



14. Do you think the following restrictions will reduce community harm?  
(Tick the box that matches your answer)

(a) No promotion or advertising of full strength beer, spirits, spirit mixers, or 2 litre wine casks (no advertising of specials or giving prizes to encourage you to buy).

Yes  No  Unsure

(b) Takeaway alcohol only to be sold from 11am to 9pm Monday to Saturday (later opening and no Sunday sales).

Yes  No  Unsure

(c) Wine only to be sold in containers of 2 litres or less (no 4 litre casks).

Yes  No  Unsure

(d) Fortified wine like Port and Sherry only to be sold in containers of less than 2 litres (no 2 litre casks).

Yes  No  Unsure

(e) Spirits to be sold in containers no larger than 750mls (no oversized bottles).

Yes  No  Unsure

15. Are there any other restrictions on the advertising and sale of alcohol you would like to see introduced locally?

(List all the restrictions you think should be introduced.)

1) \_\_\_\_\_

2) \_\_\_\_\_

3) \_\_\_\_\_

16. Apart from restricting the advertising and sale of alcohol are there any other things you think should be done locally to reduce alcohol problems in Hedland?

(List all the things you think should be done.)

1) \_\_\_\_\_

2) \_\_\_\_\_

3) \_\_\_\_\_

17. Is there anything else you want to say about alcohol problems in Hedland?

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## Appendix B: Community Survey of Alcohol Problems in Roebourne Shire

Survey Community Code	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Survey Location	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Survey Time Code	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<i>(Office Use Only)</i>			

This survey is being done by a research team from Curtin University. We are asking about local alcohol problems and prevention measures.

- (1) There are no right or wrong answers to the questions. We want to know what you think about local alcohol problems and what is being done to improve the situation.

You will not be asked for your name and the answers you give to the questions will be confidential. No one but members of the research team will know the answers that you give, and by law they aren't allowed to tell others what you said.

- (2) Are you willing to take part in the survey?  
*(Please tick the box that applies)*

No

Yes

If Yes please continue to the next page. If No please return the blank form to the researcher

We need to get the following details to make sure the people we survey represent a cross section of Roebourne Shire community (*Please tick the box that applies*)

1. Your Sex                      Male                       Female
2. Your Age                      18-24 years                       25-44 years                       45+ years
3. Do you consider yourself to be Aboriginal?
- Yes                       No                       Don't know
4. Do you drink alcohol?
- Very occasionally/never
- 1-3 days a week
- 4-6 days a week
- Everyday

We would like to get your opinion on alcohol problems in Roebourne Shire and ways of making things better

5. In your opinion what are the main alcohol problems in Roebourne Shire? Have these problems got better or worse over the past 12 months? (Circle the number that matches your answer)

	<i>Got much Worse</i>	<i>Got worse</i>	<i>Stayed the same or don't know</i>	<i>Got better</i>	<i>Got much better</i>
1) _____	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>
2) _____	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>
3) _____	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>

6. Do you know of anything that is being done locally to reduce alcohol problems? (Tick the box that applies)

Yes  No

(If you answered Yes, please list what you know is being done. If you answered No go to the next question)

- 1) \_\_\_\_\_
- 2) \_\_\_\_\_
- 3) \_\_\_\_\_

7. Do you support restricting local advertising or promotion of certain types of high strength alcohol as a way of reducing community harm? (Circle the number that matches your answer)

<b>Strongly Support</b>	<b>Support</b>	<b>Neutral or don't know</b>	<b>Against</b>	<b>Strongly Against</b>
<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>

8. Do you support restricting local sales of certain types of high strength alcohol as a way of reducing community harm? (Circle the number that matches your answer)

<b>Strongly Support</b>	<b>Support</b>	<b>Neutral or don't know</b>	<b>Against</b>	<b>Strongly Against</b>
<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>

9. Apart from restricting the advertising and sale of alcohol are there any other things you think should be done locally to reduce alcohol problems in Roebourne Shire?  
*(List all the things you think should be done.)*

1)\_\_\_\_\_

2)\_\_\_\_\_

3)\_\_\_\_\_

10. Is there anything else you want to say about alcohol problems in Roebourne Shire?

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# Appendix C: Hedland Licensing Restrictions Key Informant Interviews

## Information Sheet and Consent Form

Richard Midford from the National Drug Research Institute (NDRI) at Curtin University in association with Denese Playford from the Combined Universities Centre for Rural Health (CUCRH) are conducting research into the community impact of liquor licensing restrictions on the advertising and sale of certain high strength alcohol products in Hedland. As part of this research Denese Playford, who is based in Hedland, is interviewing a number of key community informants, who are knowledgeable about local alcohol issues.

The interview will consist of eight questions and last approximately 45 minutes. Denese will take notes on what you say and if you agree will record the interview so that she does not miss anything important. The interview notes and any recorded material are confidential. What you say will be used in reports on the community impact of the licensing restrictions, but your name will not be mentioned. You are free to skip any questions and can withdraw from this interview at any time.

If you have any queries about this project you can contact

Denese Playford      Telephone: 9173 2361  
Richard Midford      Telephone: 9266 1602

I know what the study is about and agree to participate in this interview:

Yes       No

I agree to the interview being recorded:

(all tapes will held in secure storage by NDRI and destroyed after six years)

Yes       No

Name \_\_\_\_\_

Signature \_\_\_\_\_

Date \_\_\_\_\_

## **Appendix D: Hedland Licensing Restrictions Key Informant Interviews**

### **Liquor Licensing Restrictions Interview Schedule for Hedland Key Informants**

(Provide the respondent with the combined information sheet/consent form for signature *prior to commencing the interview*)

Name of the respondent: \_\_\_\_\_

Employing organization: \_\_\_\_\_

Position in organization: \_\_\_\_\_

Rationale for selection: \_\_\_\_\_

\_\_\_\_\_



## Questions

1. What do you consider to be the main alcohol problems in Hedland?

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2. Have these problems got better or worse over the past twelve months?

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3. Can you tell me about what is being done locally to reduce alcohol problems?

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4. What do think about restricting local advertising and sale of certain types of high strength alcohol as a way of reducing community harm? (Prompt to gauge the respondents' level of support for each measure and the reasons for their position)

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5. The following restrictions will be introduced as a matter of law on 1 January 2004, although as you probably know a number of the measures are already in place on a voluntary basis.

No promotion or advertising of full strength beer, spirits, spirit mixers, or 2 litre wine casks  
(prompt: this means no advertising of specials or giving prizes to encourage you to buy)

Takeaway alcohol only to be sold from 11am to 9pm Monday to Saturday  
(prompt: this means later opening and no Sunday sales)

Wine only to be sold in containers of 2 litres or less  
(prompt: this means no 4 litre casks)

Fortified wine like Port and Sherry only to be sold in containers of less than 2 litres  
(prompt: this means no 2 litre casks)

Spirits only to be sold in containers of 750mls or less  
(prompt: this means no oversized bottles).

Do you think these restrictions will reduce harm?  
(prompt as to which restrictions the respondents consider will be most effective and why)

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6. Are there any other restrictions on the advertising or sale of alcohol you would like to see introduced locally? (prompt as to the reasons for their choices)

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7. Apart from restricting the advertising and sale of certain types of high strength alcohol, are there any other things you think should be done locally to reduce alcohol problems in Hedland? (prompt as to the reasons for their choices)

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8. Is there anything else you want to say about alcohol problems in Hedland?

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