

# **AN EVALUATION OF INTERVENTIONS AIMED AT INCREASING RESTRAINT USE IN WHYALLA, SOUTH AUSTRALIA**

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The effectiveness of police and mass media interventions on the rate of restraint use by car occupants in the regional city of Whyalla and in rural South Australia, was evaluated by the Road Accident Research Unit of the University of Adelaide using data supplied by Transport SA.

The trial was evaluated by examining observations of restraint use before (February 1998) and directly after the campaign (December 1998) and then three months later following a second campaign (March 1999). These results were also compared with self reported restraint use telephone surveys completed before (May 1998) and directly after the intervention (December 1998).

Observed restraint use levels for all vehicle occupants increased in Whyalla from 84 per cent in February 1998, to 93 per cent in December 1998. This increase was maintained four months later after supplementary education and enforcement. The increase brought the level of restraint use in Whyalla up to that of metropolitan Adelaide. Two other rural regions in South Australia also experienced increases in restraint use, but not to the same extent as in Whyalla. Self reporting surveys showed a substantial increase in the knowledge of penalties incurred for seat belt non-compliance following the intervention.

The interventions were followed by a large increase in restraint use, at least part of which appeared to result from the interventions.

## **INTRODUCTION**

A major observational study of restraint use in South Australia was conducted by Transport SA in January 1998. The locations selected were metropolitan Adelaide, Whyalla, Mount Gambier and the Riverland (these regions will be part of an on-going annual program to increase rural restraint use). The study aimed to provide baseline data on restraint use and to identify broad profiles of non-compliance.

Results from the observational study indicated that there were low wearing rates in rural areas, especially in Whyalla where up to 16 per cent of all vehicle occupants were observed to be unrestrained. Even lower restraint use levels were noted amongst younger drivers and passengers and children (28% unrestrained). Whyalla was selected for this study due to wide community support and police co-operation. Given a successful outcome, the program would be extended further throughout rural South Australia.

## **METHODOLOGY**

The intervention was evaluated through a post campaign observational study, which was designed to identify any changes in the levels of restraint use. These observational restraint usage surveys were undertaken in metropolitan Adelaide and three rural regions: Whyalla, Mt Gambier and the Riverland. The surveys were conducted before the intervention (February 1998), directly after it (December 1998 - Whyalla only) and three months later following another intervention campaign in Whyalla (March 1999).

This study was also supported by quantitative market surveys to gauge changes in self reported attitudes and behaviours and to assess community understanding of the issues. These telephone interviews were conducted in Whyalla before (May 1998) and after (December 1998) the intervention.

### **Campaign Components**

The campaign was run for three weeks between 23 November 1998 and 13 December 1998. The main components involved in the campaign were police enforcement, public education (media) and local community activities. An overview of the schedule for these activities is presented in Table 1. Another intervention campaign was conducted from February 28 to March 20 1999. This involved extra police enforcement and a mass media schedule on the same scale as the original campaign.

#### ***Education / Media***

The mass media component consisted of paid electronic and print advertising, supported by a range of print resources including pamphlets, posters and stickers for children. Four television commercials were produced and directly supported by four integrated radio commercials and a newspaper advertisement. The concepts were based on research results and tested on focus groups drawn from members of the local community. The

commercials were strategically phased in over the three weeks to coincide with other initiatives. Emphasis was placed on child restraint use.

*Table 1: Main Components by Week of Campaign*

	Nov 23 - Nov 29 1998	Nov 30 - Dec 6 1998	Dec 7 - Dec 13 1998
<b>POLICE</b>	CAUTION	CAUTION	ENFORCEMENT
<b>- TV MEDIA - RADIO - PRESS</b>	424 TARPS <sup>1</sup> BREAKFAST 2 x 30-sec DRIVE 3 x 30-sec One full page	419 TARPS BREAKFAST 2 x 30-sec DRIVE 3 x 30-sec One full page	411 TARPS BREAKFAST 2 x 30-sec DRIVE 3 x 30-sec One full page
<b>LOCAL COMMUNITY</b>	OFFICIAL LAUNCH	BOOSTER SEAT SCHEME LAUNCH	ENFORCEMENT LAUNCH  CHRISTMAS PAGEANT
<i>SHOPPING CENTRE DISPLAYS AND INFORMATION + PRINT MATERIALS</i>			

<sup>1</sup> TARP - Target Audience Rating Percentage

### **Enforcement**

The police supported the restraint use program through a dual role in education and enforcement. Initially, the enforcement element in Whyalla consisted of a cautionary phase for the first two weeks. During this period, police cautioned 29 drivers for seat belt offences. In the last week of the campaign, police actively enforced restraint use and apprehended and fined 129 offenders in Whyalla for not wearing seat belts.

### **Local Community Activities**

The local community identified and conducted several initiatives to support the campaign with funding provided by the Department of Human Services.

- Twenty five child safety seats were purchased by Transport SA and provided for short term loan through the local Red Cross baby capsule rental scheme.
- Signs were erected at the exit of major shopping centre car parks reminding vehicle occupants to 'buckle up'.
- Visual displays incorporating crashed vehicles and 'dummies' were set up at major shopping centres and were also featured in the Whyalla Christmas Pageant. The displays were aimed at increasing community focus on the importance of child restraints.
- The local radio station was used to run an advocacy program. This included interviews with people involved in road trauma.
- To generate further local community interest, two additional public launches were made. In the second week of the campaign, the booster seat rental scheme was launched and in the third week the beginning of the enforcement component was announced.

### **Observations**

Three observational surveys were undertaken based on a modified version of the methodology used by Preece et al. (1) in New South Wales. A total of 13,709 vehicle occupants from four geographical regions were observed in February 1998, 3,435 in Whyalla during December 1998, and in March 1999, 14,056 observations were made over the original four regions.

Data was gathered through direct observation by trained field staff working at selected sites controlled by traffic lights, stop signs or give way signs and represented a range of occupant types (e.g. local traffic, commuting to work). Observers worked in pairs at each location with each observer standing in a different position observing a different vehicle. The observer waited at traffic lights until the first vehicle was stationary, then began noting observations from the second car back from the lights, unless the first car was more than 50 metres from the lights when they turned red. Details were recorded for each stationary vehicle in the line until traffic began to move off. At intersections controlled by stop signs and give way signs, details of all vehicles that slowed were recorded.

Vehicle types included in the study were cars, car derivatives (panel vans, utilities), four wheel drives and taxis. Service vehicles (police, ambulance etc.) and hire cars (limousines, wedding cars etc.) were excluded. Vehicle type was recorded, along with the number of occupants. Seating position, gender, estimated age, restraint type and wearing of restraint was recorded for all occupants.

### **Self-Reported Surveys**

Initial surveys were conducted by telephone in Adelaide and Whyalla from 23 May to 27 May 1998. A second survey was completed in Whyalla from 13 December to 15 December 1998, following the intervention. The

subsequent survey was aimed at gauging changes in reported behaviours and attitudes and assessing community understanding of restraint use issues.

In May 1998, 609 interviews were completed, and in December 1998, 645 were completed. Households were selected randomly via CD ROM. Participants were required to hold a current driver's licence, have driven a motor vehicle for private use in the last four weeks and be aged 18 or over.

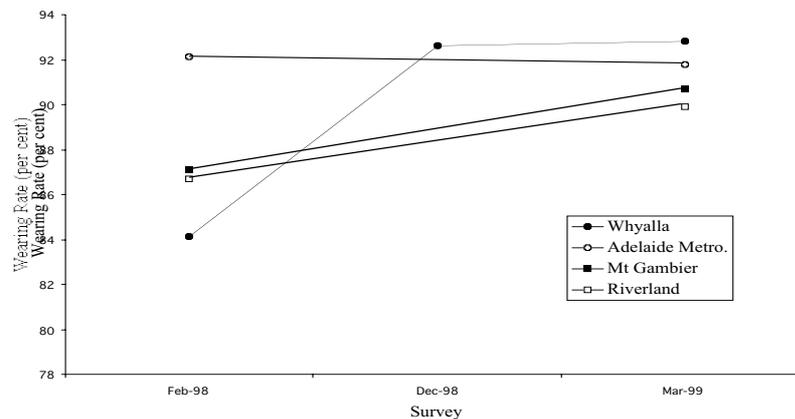
## RESULTS / DISCUSSION

Results from the observational survey and self reported restraint use survey, are compared in the following section.

### Restraint Use

General restraint use for all occupants for each survey date and geographical region is shown graphically in Figure 1. In February 1998, rural South Australian restraint use was observed to be significantly lower than in the Adelaide metropolitan area ( $X^2_3=104.53$ ,  $p<.001$ ). Of the three rural regions examined, Whyalla had the lowest wearing level (84%). Following the education and enforcement intervention in Whyalla, restraint use levels for vehicle occupants in Whyalla increased significantly ( $X^2_1=117.22$ ,  $p<.001$ ) to levels similar to those in metropolitan Adelaide (93% versus 92%).

Figure 1: Restraint Use for All Vehicle Occupants by Survey Date and Region



Another observational survey conducted one year later, in March 1999, showed that restraint use levels had increased in all of the three rural areas compared to February 1998 although, with the exception of Whyalla, they still fell below the level in the Adelaide metropolitan area. However, varied levels of police enforcement in the other two rural regions was a confounding variable that made it difficult to draw comparisons between all the rural areas. Another education and enforcement campaign in Whyalla, preceding this survey, indicated that the high seat belt compliance rate achieved could be maintained with on-going reminder promotion.

The frequency of self reported restraint use by drivers and passengers is reported in Table 2. There were no significant differences in self-reported restraint use after the intervention.

Table 2: Frequency of Self Reported Restraint Use by Drivers and Passengers

Frequency of use (%)	Driver		Passenger	
	May 98	Dec 98	May 98	Dec 98
Always wear a seat belt	78.7	78.0	74.4	74.4
Most of the time	14.8	15.3	16.7	15.3
Half of the time	2.6	2.9	3.3	2.9
Quarter of the time	1.5	0.6	0.8	1.2
Occasionally	1.6	1.6	4.4	5.3
Never	0.8	1.6	0.3	0.3
Total (N)	609	645	609	645

### Seating Position

Details of restraint use in Whyalla by seating position and survey period are shown in Table 3. The increase in observed restraint use from the February to the December survey was statistically significant for all seating

positions. In the March survey, restraint use rates increased further for front and rear seat passengers and decreased slightly for drivers.

Table 3: Whyalla Restraint Use by Seating Position

Restraint use (%)	Seating Position								
	Driver <sup>1</sup>			Front passenger <sup>2</sup>			Rear passenger <sup>3</sup>		
	Feb 98	Dec 98	Mar 99	Feb 98	Dec 98	Mar 99	Feb 98	Dec 98	Mar 99
Worn	86.1	94.2	93.4	82.6	89.6	92.5	73.2	86.8	89.4
Not worn	13.9	5.8	6.6	17.4	10.4	7.5	26.8	13.2	10.6
Total (N)	2255	2440	2508	593	676	681	291	319	385
	<sup>1</sup> X <sup>2</sup> <sub>1</sub> =88.85, p<.001			<sup>2</sup> X <sup>2</sup> <sub>1</sub> =13.20, p<.001			<sup>3</sup> X <sup>2</sup> <sub>1</sub> =17.91, p<.001		

Rear seat passengers were significantly less likely to use restraints compared to drivers in all three surveys (Feb '98 X<sup>2</sup><sub>1</sub>=32.82, p<.001, Dec'98 X<sup>2</sup><sub>1</sub>=24.86, p<.001, Mar'99 X<sup>2</sup><sub>1</sub>=8.16, p<.001). They continued to have the lowest compliance rate in the latest survey. Past research by Lane et al. (2), Lane (3) and Wise et al. (4) has also found rear seat passengers have the lowest level of restraint use for all seating positions, suggesting people perceive the rear compartment to be safer. Reasons for rear seat belt non-compliance were not explored in these surveys. Additionally, it is often difficult to see into a vehicle to observe restraint use in the rear seat, particularly in the centre of the rear where lap belts are common.

### Gender

The distribution of restraint use based on the vehicle occupant's gender, is presented in Table 4. Gender was not recorded for children estimated to be aged 13 years or less. Significance testing showed that all groups experienced an increase in restraint use from the first survey to the second survey. Males reported an increase in restraint use by 10 per cent from February to December which was twice the growth in female restraint use. However, the increase in male restraint use was not sustained in the March survey. There were no statistically significant differences in self-reported restraint use by gender after the intervention.

Table 4: Whyalla Restraint Use by Gender

Restraint use (%)	Gender								
	Child (0-13yrs) <sup>1</sup>			Adult Male <sup>2</sup>			Adult Female <sup>3</sup>		
	Feb 98	Dec 98	Mar 99	Feb 98	Dec 98	Mar 99	Feb 98	Dec 98	Mar 99
Worn	75.4	89.8	93.0	81.2	91.1	89.1	91.4	95.5	97.4
Not worn	24.6	10.2	7.0	18.8	8.9	10.9	8.6	4.5	2.6
Total (N)	398	371	469	1618	1766	1730	1129	1298	1374
	<sup>1</sup> X <sup>2</sup> <sub>1</sub> =27.28, p<.001			<sup>2</sup> X <sup>2</sup> <sub>1</sub> =70.31, p<.001			<sup>3</sup> X <sup>2</sup> <sub>1</sub> =17.17, p<.001		

Generally, sex differences were evident in seat belt wearing rates. Females had the highest levels of restraint use in each of the observational surveys, in comparison to males. This was consistent with the self-reported restraint use survey whereby both female drivers (82%) and female passengers (78%) were more likely to claim they 'always' wore a seatbelt than males (75%, 71% respectively). Males could become a target of future enforcement and public education interventions to increase seat belt wearing rates up to those of adult females.

### Age

It was difficult to examine age differences in restraint use for all three surveys due to inconsistent age categories between surveys. Nonetheless, it was found that younger vehicle occupants (children 13 years and under) were associated with lower seat belt wearing rates in the first survey. Following the first intervention, all age groups exhibited a statistically significant increase in restraint use. Of particular interest were the children up to 4 years, who had the highest restraint wearing levels in the March survey (99%) after having the lowest in February 1998 (72%). Initial focus group discussions indicated that people felt very strongly about children being restrained and so most of the printed pamphlets were aimed at providing information about child restraints.

Occupants aged between 14 and 24 years had the lowest wearing rate of 88 per cent in the March survey. This group can be identified as a group which may benefit from further targeted education.

### Behaviour Rationalisations

Respondents were asked a series of questions relating to their reasons for seat belt compliance and non-compliance. Their responses were unprompted and permitted to be multiple.

Safety issues ('I feel safer' 45%, "Important safety consideration' 27%) featured highly amongst the reasons given for restraint use followed by the threat of being caught by police and general habit. Contrary to other findings, this fear of enforcement decreased over the two surveys ('Might get caught if I don't' 34% in May,

26% in December) possibly because more people were wearing their seat belts and therefore fewer people needed to be concerned about being caught unrestrained.

Respondents were asked why they did not wear their seat belts when driving and as a passenger. The most common excuse given for not wearing a seat belt was 'I was travelling a short distance' (drivers 45% in May, 51% in December, passengers 27%, 32%). Other prevalent reasons mentioned by drivers were 'forgot' (19% 18%), 'stopping frequently' (15%, 15%) and 'couldn't be bothered' (9%, 6%). Passengers also reported they did not wear seat belts because they 'couldn't be bothered' (10%, 16%) or the 'seat belt didn't fit' (9%, 9%)

### **Police And Enforcement**

Initial discussions within focus groups suggested police were complacent about seat belt use. The findings indicate that some respondents were concerned about the lack of interest and enforcement by authorities but these concerns decreased after the intervention with increased police activity. The perceived likelihood of detection by police when unrestrained (certain-likely) increased statistically significantly following the campaign from 44 per cent to 55 per cent ( $X^2_2=14.57$ ,  $p<.001$ ).

### **Knowledge Of Penalties**

There was a highly significant increase in the percentage of people interviewed who knew the penalties incurred for not wearing a seat belt after the campaign ( $X^2_1=104.65$ ,  $p<.001$ ) (see Table 5). Sixteen per cent of people who attempted to estimate the cost of the fine received when unrestrained were correct in May 1998 compared to 44 per cent in December 1998.

*Table 5: Estimated Cost of Fine*

Estimated cost of fine (%)	Survey	
	May 98	December 98
<\$130	64.9	37.7
\$130 - \$150	15.9	44.2
>\$150	19.2	18.0
Total	522	599

The majority of respondents in both surveys agreed that the amount was adequate although significantly more thought it was too low following the campaign ( $X^2_2=8.17$ ,  $p<.016$ ). Furthermore, the percentage of people who knew they could get driver's licence demerit points, in addition to being fined, increased from 48 per cent in May to 69 per cent in December ( $X^2_2=63.67$ ,  $p<.001$ ).

Information on the amount of the fine and loss of demerit points was only featured in one television and one radio advertisement. It was also printed on one pamphlet although extensive distribution would not have been achieved until well after the campaign had ended.

### **Effectiveness Of Campaign**

Seventy four per cent of people surveyed were aware of the restraint use campaign in Whyalla, with the highest levels of awareness being among young females aged 18 to 30 (86%). Advertising was the most frequently recalled campaign activity, of which television was the most cited advertising media.

### **Media**

The majority claimed that the advertising made them think they were more likely to be hurt in a crash when unrestrained (70%) and more likely to be caught by police when not wearing a seat belt (70%). Additionally 28 per cent said advertising encouraged them to wear a seat belt although the majority (61%) claimed they always wore a seat belt anyway.

These results are positive, but as in any survey self reported attitudes and may not accurately reflect actual behaviour. Furthermore, these responses were given immediately after the campaign and therefore do not necessarily represent long term effects.

### **Enforcement**

Fewer people (55%) were aware that the police were specifically targeting restraint use than were aware of the mass media campaign (83%). Newspapers were the most commonly reported source of information about the seat belt blitz. It is likely that it may not have been only paid advertising but also reports in local news events.

Many respondents (47%) believed that police numbers had increased and young males (18-30 years) felt this most strongly (75%). These young males also felt they were more likely to be checked by police (93%) in comparison to the average respondent (81%).

## METHODOLOGICAL ISSUES

There was an increase in restraint use in Whyalla following the interventions described earlier in this report. However, there are a number of issues that need to be considered when interpreting results from this study.

### *General Increase In Wearing Rates*

The general increase in seat belt wearing rates observed in other South Australian towns during the course of this study highlights the importance of including such control data in the study design.

### *Regression To The Mean*

It is a well known phenomenon that unusually low, or high, rates are likely to regress towards the average, or mean, value over time. Consequently, it would be expected that with repeated observation the seat belt wearing rate in Whyalla would, even in the absence of any intervention, move closer to the average wearing rate for rural centres because it originally had the lowest wearing rates of all the regional centres. This would make any intervention appear more effective than it actually was. Baseline data should be collected in a number of surveys before the intervention takes place.

### *Lasting Effects*

The study was not designed to evaluate how lasting the effects of the intervention were in Whyalla since there was a campaign just before the last two surveys. It can be said that the intervention appeared to increase restraint use in the presence of public education and enforcement. It would be desirable for a future study of this type to be designed to measure wearing rates some time after the interventions had ceased.

### *Observational Limitations*

The amount of information that was collected was considerable, particularly in the case of a fully occupied vehicle. Great care needs to be taken to ensure the validity and consistency of wearing rate data collected in different surveys.

## CONCLUSIONS

The program appeared to be successful and the main achievements are summarised below.

- Observed restraint use levels for all vehicle occupants increased in Whyalla from 84 per cent in February 1998, to 93 per cent in December 1998. This increase was maintained four months later after supplementary education and enforcement. The increase brought the level of restraint use in Whyalla up to that of metropolitan Adelaide. Two other rural regions in South Australia also experienced increases in restraint use, but not to the same extent as in Whyalla. This general increase may be partially due to increased police enforcement of seat belt usage in the areas.
- Observed restraint use levels for all adult males increased by 10 per cent following the intervention. Despite these increases, male restraint use levels still remained below adult female levels.
- Young children up to 4 years of age had the lowest observed restraint use rate at 72 per cent in February 1998, but after the campaign it increased to the highest level out of all age groups at 99 per cent.
- Accurate knowledge of penalties (amount of fine, demerit points) incurred when unrestrained and caught by the police increased from 16 per cent to 44 per cent, and 48 per cent to 69 per cent respectively, after the intervention.
- All observed increases in restraint use levels were maintained after a second intervention in March 1999.

There were some methodological issues which may have led to an overestimate and uncertainty in the estimates of the effectiveness of the interventions, but it is likely that there was a meaningful increase in restraint use in Whyalla as a direct consequence of these interventions.

## REFERENCES

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