

**ATTITUDES TO DRINK-DRIVING:
ROADSIDE SURVEYS 1987-1989**

Jennifer M Barker, Vivienne M Moore, G Anthony Ryan

**NHMRC Road Accident Research Unit
University of Adelaide
GPO Box 498
Adelaide SA 5001
AUSTRALIA**

INFORMATION RETRIEVAL

Barker JM, Moore VM, Ryan GA (1990) **Attitudes to drink-driving: roadside surveys 1987-1989**. Adelaide: NHMRC Road Accident Research Unit, The University of Adelaide, Research report 3/90.

KEYWORDS: alcohol/ attitude (psychol)/ behaviour/ blood alcohol content/ breath test/ driver/ driving (veh)/ drunkenness/ enforcement (law)/ police/ publicity/ questionnaire*/ roadside survey*/ South Australia *

* non IRRD keyword

ABSTRACT: The police random breath testing (RBT) program in South Australia was increased markedly at Easter in 1987. This was accompanied by an intense public education program. The increased level of RBT was maintained thereafter but the level of publicity declined although there was a temporary increase at Easter in 1989. The effects on night-time driver blood alcohol concentrations (BACs) and attitudes to drink-driving were assessed by roadside surveys in metropolitan Adelaide in 1987 and 1989. Altogether 14 000 drivers were surveyed and reported attitudes were obtained for 40 per cent of drivers in 1987 and 33 per cent in 1989. There was a marked decline in drink-driving over Easter in both years but the 1987 decline was not sustained well. Changes in attitudes over the Easter periods were small and inconsistent. However, between 1987 and 1989 there was a statistically significant increase in driver perception of being caught if driving with a BAC above 0.08. Drivers most likely to drive if they thought that their BAC was above 0.08 were predominantly male, aged less than 30 years, had started driving and drinking before the age of 18 years, and were likely to drink alcohol daily and to have been charged with drink-driving offences.

The views expressed in this publication are those of the authors and do not necessarily represent those of the National Health and Medical Research Council, The University of Adelaide, the Medical Research Advisory Group of the Australian Associated Brewers, or the South Australian Department of Road Transport, Office of Road Safety.

ISBN 0 908204 18 3
December 1990

CONTENTS

Acknowledgements	iii
Summary	iv
Introduction	1
Methods	3
Results	7
Total Samples	7
Validity of Responses	8
Presentation of Results	8
Part A: Comparison of Respondents and Non-Respondents	10
Temporal Factors	10
Before Easter/After Easter	10
Day of Week	11
Hour of Night	11
Driver Characteristics	12
Age	12
Sex	12
BAC	14
Restraint Use	14
Number of Vehicle Occupants	15
Summary	16
Part B: Characteristics of Respondent Drivers	17
Age and Sex	17
BAC	19
Licences	20
Status of Licence	20
Age when First Licensed	20
Experience with Random Breath Testing	21
Drink-Driving Charges	22
Experience with Drinking Alcohol	23
Age when Social Drinking Started	23
Frequency of Drinking Alcohol	24
Summary	25

Part C: Attitudes to Drink-Driving	27
Overall Results	27
Changes over Easter	28
Attitudes and Driver Characteristics	31
Age and Sex of Driver	31
Driver BAC	34
Previous Experience with RBT	36
Drink-Driving History	38
Summary	40
Discussion and Conclusions	41
Recommendations	44
References	45

ACKNOWLEDGEMENTS

The roadside surveys described here were carried out under the direction of Dr A.J. McLean with the aid of grants from the Office of Road Safety, South Australian Department of Road Transport. This analysis of the questionnaires was supported by a grant from the Medical Research Advisory Group of the Australian Associated Brewers, whose assistance is gratefully acknowledged. Thanks are due to Craig Kloeden and Kieran McCaul who prepared the data for assessment and carried out the analysis of the total BACs, and to others who assisted with the surveys. A preliminary analysis of the attitudinal responses was carried out by Ben White and Andrew Wilson under the direction of Dr Oksana Holubowycz. The authors acknowledge with gratitude the work of Rae Tyler who typed the manuscript, and of Julie Freund, the Unit librarian.

SUMMARY

During the last decade the NHMRC Road Accident Research Unit at the University of Adelaide has carried out a series of roadside surveys to monitor the effectiveness of the police random breath testing (RBT) program in South Australia. The 1987 and 1989 surveys were conducted during the hours 10 pm to 3 am for seven weeks before Easter and seven weeks after Easter in both years. Approximately 7700 drivers were surveyed in 1987 and 6400 in 1989. Of these, about 40 per cent in 1987 and 33 per cent in 1989 returned questionnaires distributed at the time of the surveys. This report deals primarily with attitudes to drink-driving expressed by the questionnaire respondents.

The 1987 survey assessed the effects of a marked increase in RBT enforcement and an associated public education campaign at Easter in that year. The intensity of the RBT program continued unchanged thereafter but publicity decreased overall. There was a renewal of publicity about drink-driving at Easter 1989. The aim of the 1989 survey was to examine the durability of changes observed in 1987 and also any effects of the increase in publicity at Easter in 1989.

Data presented show characteristics of the night-time driving population of metropolitan Adelaide and compare the respondents and non-respondents to the questionnaire. There was no evidence that the changes observed in drink-driving behaviour and in attitude were due to differences in sample composition. Overall, in each year, the respondent group had higher proportions of older drivers and female drivers than the non-respondent group; nevertheless it provided a description of those likely to drive with a blood alcohol concentration (BAC) of at least 0.08 g/100mL. These drivers were predominantly male, aged less than 30 years, started both driving and drinking before the age of 18 years, and were likely to drink alcohol daily and to have been charged with drink-driving offences.

The survey results showed a decline in night-time drink-driving behaviour over Easter in both years. However, the decrease in 1987 was not maintained fully over the following two years and the level of drink-driving before Easter in 1989 was almost as high as that before Easter 1987 (approximately 25 per cent of respondents had positive

BACs and 4 per cent had BACs of at least 0.08). These behavioural changes were not paralleled closely by changes in attitude. Some changes in attitude were recorded over both Easter periods but they were inconsistent and not statistically significant. From 1987 to 1989 there was a statistically significant increase in the percentage of respondent drivers who thought that they were likely to be caught if they drove with a BAC over 0.08, but there was no statistically significant change in the percentage of those who reported that they were likely to drive if they thought that their BAC could be over the 0.08 limit. These results of the study are discussed in relation to the changes in the RBT program.

INTRODUCTION

Random breath testing (RBT) by the police in South Australia began in October 1981. The effectiveness of this program has been monitored by the NHMRC Road Accident Research Unit at the University of Adelaide through a series of roadside surveys carried out in the Adelaide metropolitan area since 1979. The first two surveys pre-dated the legislation and introduction of RBT, and later surveys were done in 1982, 1983, 1987 and 1989. The surveys recorded blood alcohol concentrations (BACs) assessed by breath testing randomly selected drivers, together with some basic data on the occupants of the cars involved; other information about the drivers, including their attitudes to drink-driving, was collected by questionnaire.

The results of the 1981, 1982 and 1983 surveys, which tested drivers on the road between 5pm and 3am, were reported by McLean et al. (1984). It was shown that, following the introduction of RBT, there was a 14 per cent fall in the proportion of drivers with a positive BAC, and this decline was maintained to a certain extent over the following 18 months. A similar decline in the percentage of drivers who were above the legal limit of 0.08 g/100mL occurred during the six months after RBT began, but this change was not maintained and after a further 12 months illegal drink-driving had returned to the pre-RBT 1981 level. Therefore, at that stage, the effectiveness of RBT as a deterrent to drink-driving apparently was limited to those who might drive with positive BACs below the legal limit.

Approximately 40 per cent of drivers completed and returned the questionnaires distributed at the time of those surveys, enabling assessment of concurrent attitudes. After RBT began, there was a fall in the percentage of drivers, other than drinking drivers aged less than 21 years, who reported that they were likely to drive if they thought that their BAC was above 0.08. This change persisted, though to a lesser degree, over the following year. There was also an increase in driver perception of the likelihood of being caught by the police if driving with a BAC above the legal limit. Overall, changes in these attitudes to drink-driving were not closely related to changes in drink-driving behaviour,

as the improvements in reported attitudes persisted for longer than the observed changes in behaviour.

These results indicated that RBT in South Australia initially was less effective than, for example, in New South Wales where the resources provided were much greater. In NSW RBT had a high profile from the beginning, resulting in a substantial and sustained decrease in the level of drink-driving (Cashmore 1985). The need for increased publicity and enforcement of RBT in South Australia was recognised and this was implemented at Easter in 1987.

This change in the level of enforcement was not foreshadowed in the media but was accompanied by extensive media publicity. The NHMRC Road Accident Research Unit's 1987 roadside survey was conducted during the seven weeks before and seven weeks after Easter, to assess the effects of the publicity and changed enforcement. A similarly timed survey in 1989 was carried out to assess the long term effects of the increased enforcement of RBT and of another period of special publicity at Easter in that year.

In most respects the same methods were used for the 1987 and 1989 roadside surveys as for the earlier surveys (McLean et al. 1980; McLean et al. 1984), but there were two important differences. The time at which the surveys were carried out was altered to the period 10pm to 3am, so that effort was concentrated on times when drink-driving was most likely to occur. Also changes were made to the questionnaire which altered some of the information gained from this source; details are given later in the report.

Analysis of the BAC data from the 1987 and 1989 roadside surveys has shown that in both years there was a large reduction (34 per cent in 1987, 40 per cent in 1989) in the proportion of drivers with illegal BACs in the after-Easter period compared with the before-Easter period (McCaul and McLean 1989; McLean et al. in preparation). Moreover, comparisons of the results for different years showed that while the lower levels of illegal drink-driving of each after-Easter period were not fully maintained to the next before-Easter survey, there had been a gradual overall decline in the levels observed

for the same daily time period since 1983 (McLean et al. in preparation). Therefore it might be expected that some change in driver attitudes has taken place over the same interval.

This report presents the results of analysis of the information gathered from the questionnaires distributed in the 1987 and 1989 roadside surveys.

METHODS

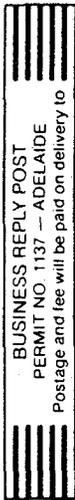
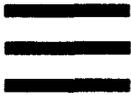
The procedures developed for use in the NHMRC Road Accident Research Unit roadside surveys have been described in detail by McLean et al. (1984) and were followed in the 1987 and 1989 surveys. In brief, two teams, each of two Unit research assistants, visited twenty metropolitan intersections controlled by traffic signals on a rostered basis. Sampling was carried out at each intersection as follows: at each light change to red during a sampling period, the first car to stop was approached and the driver was asked to cooperate by providing a breath sample and by completing and returning a reply paid mail questionnaire. Drivers were told that, if their BAC was positive and they returned their questionnaire, the BAC reading would be published in the local newspaper. The BAC level for each sample taken was recorded and also, for every car approached, the number of occupants and the sex, estimated age and seat belt use of the driver and, if there was one, of the front seat passenger. A subjective assessment of the sobriety of the driver was also recorded.

Sampling was conducted between the hours of 10pm and 3am and was carried out on Thursday, Friday and Saturday nights of every survey week and on two of the remaining four nights each week in turn. This meant that approximately twice as many drivers were surveyed on Thursday, Friday and Saturday nights as on the other nights of the week. The twenty sites used in these surveys were virtually the same as those used in the 1981, 1982 and 1983 surveys. They were on major roads and were selected so that no site was near an hotel, thus reducing the chance of testing a driver whose BAC might be over-estimated because of the presence of alcohol in the mouth.

The analysis of the BAC data from the surveys included some adjustments to increase the statistical validity of comparisons. These were weighting of BAC distributions to allow for variation in traffic flow and sampling, and correction for refusal bias (McLean et al. 1984). However, the data from the questionnaire responses have not been treated in this way and the results presented herein are based on the actual frequencies recorded for all variables.

The questionnaires used during the 1987 and 1989 surveys differed in some respects from those used in 1981-1983. Copies of the two questionnaires are presented in Figures 1 and 2 respectively and show that the information obtained from the 1987-1989 questionnaire was more extensive than that gained previously. New details requested in the second questionnaire were the driver's age when first licensed, number of times tested by police RBT Units and age of starting social drinking. The earlier question relating to the number of drinks usually consumed was felt to be less useful and was deleted. In addition, an important change was introduced to the wording of the question concerning the person's perceived likelihood of being caught by the police if driving with a BAC over the legal limit. The new wording made it clear that the response was to a hypothetical situation; responses to the earlier form of the question had indicated some confusion with actual behaviour. Also the possible responses to the two attitude questions were made mutually exclusive. These changes limited the comparisons which could be made between responses in 1981-1983 and those in 1987-1989. Whilst unfortunate in historical terms, these changes were considered necessary to ensure that the information collected from 1987 onwards would be more valid.

No postage stamp required
if posted in Australia



BUSINESS REPLY POST
PERMIT NO. 1137 — ADELAIDE
Postage and fee will be paid on delivery to

NH&MRC ROAD ACCIDENT RESEARCH UNIT
THE UNIVERSITY OF ADELAIDE
G.P.O. BOX 498,
ADELAIDE, S.A. 5001.

8222

8222

When you fill in and return the card you can find out what your blood alcohol level was (if it was above zero) by looking up this number in the back of Saturday's *The Advertiser*.

FOR RESEARCH PURPOSES ONLY: No names or other numbers are recorded.

NH&MRC ROAD ACCIDENT RESEARCH UNIT

Please answer the following questions:

How old were you when you first got a driver's licence (including L and P plate?)

..... years old

What is the status of your CAR licence?

- learners
- probationary
- full (even though you may have some demerit points)
- other. Please specify

If you thought that you could be over the .08 blood alcohol limit, would you drive?

- every time
- almost every time
- often
- occasionally
- rarely
- never

Imagine that you were driving with a blood alcohol level over .08, do you think you would be caught by the police?

- every time
- almost every time
- often
- occasionally
- rarely
- never

How many times have you been tested by a POLICE Random Breath Testing Unit in S.A.?

..... times

Have you ever been charged with a drink-driving offence?

- yes
- no

How old were you when you began to drink socially?

..... years old

How often do you drink alcohol?

- never or almost never
- about once a month
- about once a week
- a few times a week
- every day, or almost every day

How old are you? years old Sex: male female

Tear here and keep this piece (please see other side).

PLEASE POST THE CARD BACK TO US AS SOON AS POSSIBLE
(No stamp needed)

THANK YOU FOR YOUR HELP.

FIGURE 1: The two sides of the 1987-1989 questionnaire.

RESULTS

TOTAL SAMPLES

The total numbers of drivers surveyed and of questionnaires returned are shown in Table 1. Although the sample in 1989 was somewhat smaller than in 1987 several thousand drivers were tested in both years. It may be noted that the refusal rate was higher in 1989 than in 1987. Also the overall response rate for the questionnaire of 40.4 per cent for 1987 was very similar to the rates for earlier surveys, which ranged from 38.8 per cent to 40.4 per cent (McLean et al. 1984). However there was a decline to 32.8 per cent in 1989.

TABLE 1: Numbers of Drivers in the Surveys

Drivers	1987	1989
Total number approached	7713	6373
Number breathalysed	7111	5751
Refusal rate for breathanalysis	7.8%	9.8%
Number discarded due to age or sex mismatch	60	67
Total valid cases	7653	6306
% males (valid cases)	71.4%	68.7%
% aged less than 30 years (valid cases)	44.4%	41.7%
Number of valid questionnaires returned	3092	2093
Response rate for questionnaires	40.4%	32.8%

The data for sex and age of drivers included in Table 1 show that the samples for the two years were fairly similar in these respects, the percentages of males and of drivers aged less than 30 years being rather lower in 1989 than in 1987. In each year, the size and composition of the before-Easter and after-Easter samples were very similar. However, the refusal rates for breath analysis were lower after Easter compared with

before Easter in both years but especially in 1987, suggesting that the publicity about RBT at Easter had stimulated public interest. The questionnaire response rates were very similar for the before-Easter and after-Easter periods in both 1987 and 1989.

VALIDITY OF RESPONSES

In some cases when questionnaires were returned the information given for age and sex did not agree with the corresponding data recorded at the time of the survey. This could have resulted from deliberate error, from someone other than the driver completing the questionnaire, or from errors of judgement or recording on the part of the Unit staff who carried out the surveys. Estimates of driver age were recorded as one of four age groups: < 21 years, 21-29 years, 30-50 years and > 50 years. A mismatch was diagnosed when there was a difference of more than one of these groups between the roadside estimate of age and the age given on the questionnaire. The actual numbers of sex and age mismatches detected totalled 60 in 1987 and 67 in 1989, comprising approximately 1 per cent of all drivers surveyed in each year. Cases in which these irregularities were detected were discarded to minimise errors in the results.

In this report the results presented hereunder are for "valid cases" - that is, all cases in which there were no detectable discrepancies.

PRESENTATION OF RESULTS

The results obtained from the surveys are presented in three Parts. Part A compares questionnaire respondents with non-respondents as far as possible, to assess the extent to which results based on information gained from the questionnaires can be applied to the total sample of drivers. Part B describes for questionnaire respondents, driver characteristics such as age, sex, licensing history, and experience with random breath testing and with drinking alcohol. Part C examines driver attitudes to illegal drink-driving as reported in the questionnaires. In this report the general term "drink-driving" means driving with a positive BAC.

Where appropriate, the results are related to BACs of the drivers when surveyed, and to before-Easter and after-Easter periods.

It should be noted that there are variations between total numbers for different variables due to incomplete questionnaire responses in some cases. Also, there are some differences between data related to age in the three Parts of the results section. In Part A, driver age estimated at the roadside is used, as this is the only record available for non-respondents. In Parts B and C, driver age recorded on the questionnaires is used, for comparison with other questionnaire variables. The differences between the two age records are due to retention of cases in which estimated age and recorded age differed by only one age group.

PART A: COMPARISON OF RESPONDENTS AND NON-RESPONDENTS

As the response rate for the return of questionnaires was 40 per cent in 1987 and 33 per cent in 1989, it was important to assess the extent to which they could be considered representative of the total sample of drivers surveyed. Because drivers could be identified by the number on the questionnaire given to them, details recorded at the roadside could be linked to returned questionnaires and used to characterise those who did not return a questionnaire as well as those who did. In all of the tables below, cases in which the questionnaire data did not match the survey data have been excluded.

Temporal factors

Before Easter/After Easter

The response rates were very similar for both before and after Easter in each year for both total and BAC positive groups, with the rates for the latter group being rather higher. There was no readily available explanation for the lower response rate in 1989 (Table 2).

TABLE 2: Questionnaire Response Rates Before Easter and After Easter

Questionnaire Returned		All Respondents				BAC Positive			
		1987		1989		1987		1989	
		Before*	After*	Before	After	Before	After	Before	After
Yes	N	1598	1494	1065	1028	419	335	265	233
	%	40.2	40.6	33.6	32.8	42.8	43.6	37.3	36.0
No	N	2375	2186	2105	2108	559	434	445	414
	%	59.8	59.4	66.4	67.2	57.2	56.4	62.7	64.0
Total	%	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
	N	3973	3680	3170	3136	978	769	710	647

* Before = 7 weeks before Easter; After = 7 weeks after Easter.

Day of Week

Table 3 shows that the response rate was highest on Saturday nights in both years, and lowest on Friday nights in 1987 and on Thursday nights in 1989. About two-thirds of questionnaires were returned from Thursday, Friday and Saturday nights due, at least in part, to the higher sampling rates for these nights (p. 3). The relationship between day of week and response rate was statistically significant. Factors contributing to this relationship are likely to be complex and have not been examined fully in this study.

TABLE 3: Questionnaire Response Rate by Day of Week

Day of Week	1987		1989	
	Questionnaires Distributed	Response Rate	Questionnaires Distributed	Response Rate
	N	%	N	%
Monday	659	41.4	467	34.7
Tuesday	600	44.3	545	33.6
Wednesday	806	41.4	547	34.2
Thursday	1364	37.8	1203	29.8
Friday	1756	36.0	1463	31.0
Saturday	1935	44.5	1636	37.0
Sunday	533	39.2	445	32.4
Total	7653	40.4	6306	33.2

(1987: $X^2 = 36.6$, 6 df, $p < 0.001$; 1989: $X^2 = 20.8$, 6 df, $p < 0.01$)

Hour of Night

The response rates by hour of night are given in Table 4. These results show a progressive decline in response rate from 10pm to 3am in both years. The mean response rate was clearly exceeded in the two hours before midnight and therefore drivers late at

night were under-represented in the results of the questionnaire. The relationship between response rate and hour of night was highly significant statistically.

TABLE 4: Response Rate by Hour of Night

Hour	1987		1989	
	Questionnaires Distributed	Response Rate	Questionnaires Distributed	Response Rate
	N	%	N	%
10-11 pm	2024	44.6	1743	36.1
11-12 pm	1850	43.6	1602	35.3
12-1 am	1588	40.6	1302	32.6
1-2 am	1214	35.3	984	30.8
2-3 am	977	31.7	675	25.2
Total	7653	40.1	6306	33.9

(1987: $X^2 = 66.8$, 4 df, $p < 0.001$; 1989: $X^2 = 32.1$, 4 df, $p < 0.001$)

Driver Characteristics

Age

Table 5 shows that the respondents were somewhat older than the non-respondents in both 1987 and 1989, and these differences were statistically significant. The 1989 sample differed from the 1987 sample in that there were relatively fewer drivers aged less than 21 years and more aged over 50 years.

Sex

There were relatively more females amongst the respondents in both 1987 and 1989, but this was statistically significant only in 1987 (Table 6). The percentage of females in the total sample was slightly higher in 1989 than in 1987.

TABLE 5: Age Distribution for Respondents and Non-Respondents

Age*	1987		1989	
	Respondents	Non-Respondents	Respondents	Non-Respondents
years	%	%	%	%
< 21	9.5	16.2	6.2	11.1
21 - 29	26.4	33.9	25.9	35.3
30 - 50	46.9	39.8	45.3	39.8
> 50	17.2	10.1	22.6	13.8
Total	%	100.0	100.0	100.0
	N	3092	4561	2093
		4213		

(1987: $X^2 = 187.3$, 3 df, $p < 0.001$; 1989: $X^2 = 147.2$, 3 df, $p < 0.001$)

*Age estimated at the roadside

TABLE 6: Sex Distribution for Respondents and Non-Respondents

Sex	1987		1989	
	Respondents	Non-Respondents	Respondents	Non-Respondents
	%	%	%	%
Male	68.9	73.2	67.3	69.5
Female	31.1	26.8	32.7	30.5
Total	%	100.0	100.0	100.0
	N	3092	4561	2093
		4213		

(1987: $X^2 = 16.7$, 1 df, $p < 0.001$; 1989: $X^2 = 3.06$, 1 df, NS)

BAC

The distribution of BAC for respondents and non-respondents was fairly similar in both years (Table 7). However, there were relatively fewer drivers with positive BACs below 0.08 and more above 0.08 amongst the non-respondents compared with respondents; this effect was statistically significant only in 1987.

TABLE 7: BAC Distribution for Respondents and Non-Respondents

Driver BAC g/100mL	1987		1989	
	Respondents %	Non-Respondents %	Respondents %	Non-Respondents %
0	75.2	75.3	75.8	76.3
0.005 - 0.075	21.2	20.0	20.8	19.8
≥ 0.08	3.6	4.7	3.4	3.9
Total %	100.0	100.0	100.0	100.0
N	3043	4016	2056	3628

(1987: $\chi^2 = 6.88$, 2 df, $p < 0.05$; 1989: $\chi^2 = 1.45$, 2 df, NS)

Restraint Use

Table 8 shows that in both years, a larger proportion of non-respondent drivers failed to wear a seat belt, compared with respondents, a difference which was statistically significant. The percentage of drivers not wearing seat belts in 1989 was about half of that in 1987.

TABLE 8: Distribution of Restraint Use for Respondents and Non-Respondents

Restraint* Use	1987		1989	
	Respondents	Non-Respondents	Respondents	Non-Respondents
	%	%	%	%
Worn	92.4	84.1	97.0	95.5
Not Worn	7.6	15.9	3.0	4.5
Total %	100.0	100.0	100.0	100.0
N	3069	4517	2087	4198

(1987: $X^2 = 114.7$, 1 df, $p < 0.001$; 1989: $X^2 = 8.36$, 1 df, $p < 0.01$)

*Cases in which a restraint was known to be available.

Number of Vehicle Occupants

There were similar proportions of drivers with and without passengers amongst respondents and non-respondents (Table 9). Respondent drivers were accompanied by one passenger more often than were non-respondents, whereas non-respondent drivers were accompanied by two or more passengers rather more often than were respondents. These differences were statistically significant only in 1987.

TABLE 9: Occupancy of Vehicles for Respondents and Non-Respondents

Occupancy	1987		1989	
	Respondents	Non-Respondents	Respondents	Non-Respondents
	%	%	%	%
Driver Alone	51.8	51.9	50.1	50.4
Driver and One Passenger	34.1	31.9	36.0	34.3
Driver and Two or More Passengers	14.1	16.2	13.9	15.3
Total %	100.0	100.0	100.0	100.0
N	3092	4561	2093	4213

(1987: $X^2 = 7.65$, 2 df, $p < 0.05$; 1989: $X^2 = 2.90$, 2 df, NS)

Summary

The questionnaire response rates were similar before and after Easter in both 1987 and 1989, although the overall response rate was lower in 1989. Relatively more questionnaires were returned from Saturday nights and from the hours 10 pm to 1am. There were more persons aged 30 years or more, and more females among the respondents, compared with non-respondents. Respondents also tended to have lower BACs, higher seat belt wearing rates, and fewer passengers than non-respondents. These differences between respondents and non-respondents must be borne in mind when considering the results of the analysis of the questionnaires which follows.

PART B: CHARACTERISTICS OF RESPONDENT DRIVERS

Age and Sex

Tables 10 and 11 show the age and sex distribution of the respondents in 1987 and 1989, by BAC group. There was a similar age distribution in each year. Also there was an association between age and BAC: drivers aged 21-29 years were over-represented, and drivers aged over 50 years were under-represented, amongst those with a positive BAC. This association was statistically significant in 1987 but not in 1989.

The overall percentage of females was slightly higher in 1989 than in 1987, but this difference was not statistically significant. Males were notably more prevalent in the two groups with positive BACs than amongst those with a zero BAC. This relationship was highly significant in both years.

When the results for each year were divided according to the Easter period in which the respondents were surveyed, that is before Easter or after Easter, it was found that age and sex distributions were similar for both periods for all groups shown in Tables 10 and 11.

TABLE 10: Age of Respondents by BAC

Age years	All Respondents		BAC (g/100mL)					
			Zero		0.005 - 0.075		≥ 0.08	
	1987 %	1989 %	1987 %	1989 %	1987 %	1989 %	1987 %	1989 %
< 21	11.0	9.4	11.3	9.7	9.7	8.0	13.8	11.3
21 - 29	29.4	27.9	27.5	26.9	34.6	31.2	36.7	35.2
30 - 50	43.6	44.9	43.7	44.8	44.0	46.5	43.1	39.4
> 50	16.0	17.8	17.8	18.6	11.7	14.3	6.4	14.1
Total	% 100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
	N 3049	2072	2252	1540	641	426	109	71

(Age vs BAC 1987: $X^2 = 29.7$, 6 df, $p < 0.001$; 1989: $X^2 = 9.58$, 6 df, NS)

TABLE 11: Sex of Respondents by BAC

Sex	All Respondents		BAC (g/100mL)					
			Zero		0.005 - 0.075		≥ 0.08	
	1987 %	1989 %	1987 %	1989 %	1987 %	1989 %	1987 %	1989 %
Male	68.8	67.3	66.0	64.7	76.7	75.2	87.2	81.7
Female	31.2	32.7	34.0	35.3	23.3	24.8	12.8	18.3
Total	% 100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
	N 3062	2081	2263	1547	643	427	109	71

(Sex vs BAC 1987: $X^2 = 44.2$, 2 df, $p < 0.001$; 1989: $X^2 = 23.5$, 2 df, $p < 0.001$)

BAC

Details of the BAC levels of the respondents are presented in Table 12. Three-quarters of all respondents had zero BACs in each year and, overall, the proportions of those with BACs equal to or greater than 0.08 were almost identical in 1987 and 1989. For each category of drivers with positive BACs shown in Table 12, the values were lower after Easter compared with before Easter in both years and there were corresponding increases in the proportions of those with zero BAC, but these differences were statistically significant only in 1987. The proportional decline over Easter for the group with the highest BACs was substantial (30.9 per cent in 1987 and 21.1 per cent in 1989). However, the results for each BAC category show that by Easter 1989, the level of drink-driving had almost returned to the before-Easter level observed in 1987. It should be emphasized that these are the results for the questionnaire respondents only, not the total drivers surveyed.

TABLE 12: BAC Levels of Respondents, Before and After Easter

BAC g/100mL		1987			1989		
		All Respondents	Before Easter	After Easter	All Respondents	Before Easter	After Easter
Zero	N	2289	1143	1146	1558	780	778
	%	75.2	73.2	77.4	75.8	74.6	77.0
0.005-0.075	N	645	353	292	427	225	202
	%	21.2	22.6	19.7	20.7	21.6	20.0
≥ 0.08	N	109	66	43	71	40	31
	%	3.6	4.2	2.9	3.5	3.8	3.0
Total	%	100.0	100.0	100.0	100.0	100.0	100.0
	N	3043	1562	1481	2056	1045	1011

(Easter vs BAC 1987: $X^2 = 8.48$, 2 df, $p < 0.05$; 1989: $X^2 = 1.82$, 2 df, NS)

Licences

Status of Licence

The reported status of car licences was very similar in the two years of the study. More than 97 per cent of all respondents had full licences. Respondents with learner's, probationary or no licences were too few for meaningful statistical analysis. Nevertheless it may be noted that none of the learner drivers and less than 1 per cent of those with probationary licences had been drinking when surveyed in either year.

TABLE 13: Age When First Licensed to Drive by BAC

Aged When First Licensed years	All Respondents		BAC (g/100mL)						
			Zero		0.005 - 0.075		≥ 0.08		
	1987 %	1989 %	1987 %	1989 %	1987 %	1989 %	1987 %	1989 %	
< 17	50.5	50.1	48.5	49.0	57.3	54.1	58.6	53.7	
17 - 18	28.2	28.3	28.4	28.5	28.0	26.7	26.3	34.3	
19 - 20	7.5	8.4	8.2	8.3	5.2	9.0	5.1	3.0	
> 20	13.8	13.3	14.9	14.2	9.5	10.2	10.1	9.0	
Total	%	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
	N	2858	1910	2117	1410	597	401	99	67

(Age when First Licensed vs BAC 1987: $X^2 = 26.1$, 6 df, $p < 0.001$; 1989: $X^2 = 10.2$, 6 df, NS)

Age when First Licensed

The distribution of reported age when first licensed is shown in Table 13 for total respondents, those with positive BACs and those with BACs ≥ 0.08 . Half of the drivers surveyed first obtained their licences before the age of 17 years; only 13 per cent were older than 20 years when they gained their licence. Those aged less than 17 years were consistently over-represented and those first licensed when aged more than twenty years

were under-represented in the two BAC groups. These associations were statistically significant in 1987 but not in 1989.

Experience with Random Breath Testing

Approximately three-fifths of the respondents in 1987 and three-quarters in 1989 had been tested at least once by police RBT units (Table 14). Of those who had been tested the majority in both years had been tested once or twice and there was only a small increase in the percentage for this group from 1987 to 1989. Fewer than 10 per cent of all respondents in 1987 and approximately 13 per cent in 1989 had been tested five or more times. The effect of the increased level of RBT testing after Easter 1987 was shown more clearly in the survey results when only those respondents who had been tested at least once were considered. Of these, 63.1 per cent in 1987 and 53.7 per cent in 1989 had been tested only once or twice whereas 13.6 per cent in 1987 and 17.7 per cent in 1989 had been tested five or more times. While these effects were clear over a two year period, there were no statistically significant changes recorded over Easter in either year; nor was there an association between number of times tested and BAC level.

Table 14: Number of Times Tested by Police RBT Units

Number of Times Tested	All Respondents		BAC (g/100mL)						
			Zero		0.005 - 0.075		≥ 0.08		
	1987 %	1989 %	1987 %	1989 %	1987 %	1989 %	1987 %	1989 %	
0	39.4	27.1	39.8	28.2	38.0	23.3	37.4	24.3	
1 - 2	38.2	39.1	37.5	39.0	40.2	39.6	38.3	40.0	
3 - 4	14.2	20.9	14.4	20.2	13.9	24.3	15.0	15.7	
5 +	8.3	12.9	8.3	12.6	7.9	12.8	9.4	20.0	
Total	%	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
	N	3031	2049	2243	1523	643	420	107	70

(Times Tested vs BAC 1987: $X^2 = 1.87$, 6 df, NS; 1989: $X^2 = 9.52$, 6 df, NS)

Drink-Driving Charges

The reported drink-driving history of respondents to the survey questionnaire is shown in Table 15. A little less than 4 per cent of the respondents reported having been charged at least once with a drink-driving offence. In both years, there was a statistically significant relationship between drink-driving history and driver BAC: the proportion of drink-driving offenders was substantially higher in both BAC positive groups, particularly in the 0.08 and over group, than amongst drivers with zero BAC. When the results were separated into before-Easter and after-Easter periods, there were no statistically significant differences in either year.

TABLE 15: Reported Drink-Driving Charges, by BAC

Previous Drink-Driving Charge	All Respondents		BAC (g/100mL)					
			Zero		0.005 - 0.075		≥ 0.08	
	1987 %	1989 %	1987 %	1989 %	1987 %	1989 %	1987 %	1989 %
Yes	3.3	3.6	2.4	2.6	4.8	6.1	13.9	9.9
No	96.7	96.4	97.6	97.4	95.2	93.9	86.1	90.1
Total	% 100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
	N 3081	2083	2282	1548	644	427	108	71

(Charged vs BAC 1987: $X^2 = 48.9$, 2 df, $p < 0.001$; 1989: $X^2 = 19.6$, 2 df, $p < 0.001$)

Experience with Drinking Alcohol

Age when Social Drinking Started

The results for respondents' reported age at which they began social drinking, grouped into three age categories, are set out in Table 16. More than 80 per cent of all respondents in both years began drinking alcohol before the age of 21 years. Those who began social drinking before 18 years of age were over-represented amongst the drivers whose BAC was positive and particularly amongst those whose BAC was at least 0.08, whilst those who began drinking when older than 20 years were under-represented in both drinking groups. This was apparent in both years but was statistically significant only in 1987.

TABLE 16: Reported Age When Social Drinking of Alcohol Began, by BAC

Age When Social Drinking Began years	All Respondents		BAC (g/100mL)						
			Zero		0.005 - 0.075		≥ 0.08		
	1987 %	1989 %	1987 %	1989 %	1987 %	1989 %	1987 %	1989 %	
< 18	41.7	39.6	39.2	38.4	46.4	42.6	61.3	50.0	
18 - 20	40.3	42.3	41.4	42.4	39.7	41.1	29.2	41.4	
> 20	18.0	18.1	19.4	19.2	13.9	16.3	9.4	8.6	
Total	%	100.0	100.0	100.0	100.0	100.0	100.0	100.0	
	N	2797	1911	2016	1394	633	416	106	70

(Drinking Age vs BAC 1987: $X^2 = 32.9$, 4 df, $p < 0.001$; 1989: $X^2 = 8.58$, 4 df, NS)

Frequency of Drinking Alcohol

The results for reported frequency of drinking alcohol are given in Table 17. In both years, approximately 70 per cent of the respondents reported that they drank at least once a week. It is clear that those whose BAC was positive when surveyed, reported higher frequencies of drinking than applied to the total group and the highest proportion of daily drinkers was found in the BAC ≥ 0.08 group.

Table 17: Reported Frequency of Consumption of Alcohol, by BAC

Frequency of Drinking Alcohol	All Respondents		BAC (g/100mL)					
			Zero		0.005 - 0.075		≥ 0.08	
	1987 %	1989 %	1987 %	1989 %	1987 %	1989 %	1987 %	1989 %
Never	15.3	15.8	20.1	20.3	0.6	0.7	0.9	0.0
Once a Month	16.3	15.0	19.5	17.7	8.2	7.3	0.9	4.2
Once a Week	28.6	28.8	29.4	30.1	27.3	27.4	15.0	15.5
Few a Week	25.6	28.2	21.2	23.4	38.5	44.5	41.1	39.4
Daily	14.2	12.2	9.8	8.5	25.4	20.1	42.1	40.8
Total %	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
N	3072	2080	2273	1545	645	427	107	71

(Frequency vs BAC 1987: $X^2 = 417.1$ 8 df, $p < 0.001$; 1989: $X^2 = 274.4$, 8 df, $p < 0.001$)

Summary

This examination of the characteristics of drivers who responded to the questionnaire showed that approximately 40 per cent were aged less than 30 years and nearly 70 per cent were male. On the whole, the characteristics of respondent drivers were very similar in 1987 and 1989 and, with the exception of BACs, there did not appear to be any real differences between respondent drivers before and after Easter in either year.

Overall, about one-quarter of drivers had a positive BAC, and a little less than 4 per cent were above the legal limit. There was a reduction in the percentage of drivers with elevated BACs over Easter in each of the years surveyed, the fall being much greater in 1987 than in 1989. Following the after-Easter 1987 survey period, the percentage of

respondents with positive BACs rose until, before Easter in 1989, it was almost as high as in the same period in 1987. This applied to those whose BACs were positive but below 0.08 as well as to those who were over 0.08.

Of particular interest were those drivers whose BAC was above the legal limit of 0.08. In this group there was an over-representation of drivers aged under 30 years, of males and of those who gained their driving licence before the age of 17 years. There was also a prevalence of drivers who had commenced drinking alcohol early, over half having started before the age of 18 years compared with about 40 per cent for those with zero BAC. About 40 per cent drank daily, compared with less than 10 per cent of those with zero BAC. Furthermore, at least 10 per cent of this group had been charged with drink-driving offences, compared with under 3 per cent of those with zero BAC. Their experience of random breath testing does not appear to have been greatly different from that of the other drivers. The data also showed that the group of drivers with BACs between zero and 0.08 were more like those with the highest BACs than those with zero BAC, but they were less extreme.

Over the two surveys, there was an increase in the percentage of drivers who had been random breath tested by police at least once, from 60.6 per cent in 1987 to 72.9 per cent in 1989, and a corresponding increase in those who had been tested more than twice.

PART C: ATTITUDES TO DRINK-DRIVING

Overall results

Driver attitudes to drink-driving were sought through the two questions:

“If you thought that you could be over the .08 blood alcohol limit, would you drive?” and, “Imagine that you were driving with a blood alcohol level over .08, do you think you would be caught by the police?” (Figure 1). The overall results are shown in Table 18.

TABLE 18: Reported Attitudes to Drink-Driving

Questionnaire Response	Would Drive if BAC Could be > 0.08		Would be Caught if Drove when BAC > 0.08	
	1987 %	1989 %	1987 %	1989 %
Every Time	0.8	0.8	6.1	6.5
Almost Every Time	2.4	2.0	6.1	7.5
Often	3.0	3.0	10.2	11.3
Occasionally	15.8	12.8	36.5	38.7
Rarely	33.2	32.5	38.1	33.7
Never	44.8	48.9	3.0	2.4
Total	%	100.0	100.0	100.0
	N	2892	1970	2868
				1955

The numbers for some of the response categories were too small for satisfactory statistical analysis. Therefore the data were regrouped. The responses “every time”, “almost every time” or “often”, were classed as “likely” while the responses “occasionally”, “rarely” or “never” were grouped as “unlikely”. Thus, for each of the two

years approximately 6 per cent of drivers reported that they were likely to drive if they thought that their BAC was over 0.08 and between one-fifth and one-quarter thought that they were likely to be caught if they drove when their BAC was above the legal limit (Table 19).

TABLE 19: Reported Attitudes to Drink-Driving, Re-Grouped

Grouped Responses		Would Drive if BAC Could be > 0.08		Would be Caught if Drove when BAC > 0.08	
		1987	1989	1987	1989
Likely	N	180	114	641	494
	%	6.2	5.8	22.4	25.3
Unlikely	N	2712	1856	2227	1461
	%	93.8	94.2	77.6	74.7
Total	%	100.0	100.0	100.0	100.0
	N	2892	1970	2868	1955

(Drive vs Year $X^2 = 0.32$, 1 df, NS; Caught by Year $X^2 = 5.34$, 1 df, $p < 0.05$)

Although the proportion “likely to drive” was lower in 1989 than in 1987, this difference between the results for the two years was not statistically significant. However, the increase in the perception of being caught if driving with a high BAC in 1989 compared with 1987 was statistically significant.

Changes over Easter

When the results were separated into before Easter and after Easter groups, it was seen that there was a drop after Easter 1987 in the proportion of drivers who reported that they were likely to drive with a high BAC (Table 20). The after Easter 1987 level was

maintained into 1989, but there was no further decline associated with Easter 1989. While these changes in 1987 and between 1987 and 1989 showed desirable trends, they were not sufficiently large to be statistically significant.

In the case of perception of being caught (Table 20), there was a small increase after Easter 1987 and the level of this perception in 1989 was higher than in the after-Easter 1987 survey period. However, there was no increase in this perception over Easter 1989, in fact there was a small decline, and none of these differences were statistically significant.

TABLE 20: Reported Attitudes Before and After Easter

Attitude		1987		1989	
		Before Easter	After Easter	Before Easter	After Easter
Would drive if over 0.08					
Likely	N	103	77	57	57
	%	6.9	5.5	5.7	5.8
Unlikely	N	1386	1326	936	920
	%	93.1	94.5	94.3	94.2
Total	%	100.0	100.0	100.0	100.0
	N	1489	1403	993	977

(Drive by Easter 1987: $X^2 = 2.29$, 1 df, NS; 1989: $X^2 = 0.0$, 1df, NS)

Would be caught if driving over 0.08

Likely	N	312	329	262	232
	%	21.1	23.7	26.5	24.0
Unlikely	N	1166	1061	726	735
	%	78.9	76.3	73.5	76.0
Total	%	100.0	100.0	100.0	100.0
	N	1478	1390	988	967

(Caught by Easter 1987: $X^2 = 2.56$, 1 df, NS; 1989: $X^2 = 1.52$, 1df, NS)

Attitudes and Driver Characteristics

Age and Sex of Driver

Analysis of age and sex of the drivers in relation to the two attitudes indicated that those who were aged less than 30 years and those who were males were more likely to drive with a high BAC and had a lower perception of being caught than older drivers and females respectively (Tables 21 and 22). All of these relationships with age and sex were highly significant statistically. When the results for 1987 were compared with those for 1989, there were no statistically significant differences for the attitude "likely to drive if over 0.08" in any age or sex group. However, for both age groups, and for females, but not males, there were statistically significant increases, from 1987 to 1989, in the percentage of respondents who felt they were likely to be caught if driving with an illegal BAC. These results are consistent with those of McLean et al. (1984) in Adelaide, and Cairney and Carseldine (1989) in New South Wales.

TABLE 21: Effect of Age of Driver on Reported Attitudes

Attitude		Driver Age			
		1987		1989	
		< 30 yrs	≥ 30 yrs	< 30 yrs	≥ 30 yrs
Would drive if over 0.08					
Likely	N	113	67	64	49
	%	9.6	4.0	8.7	4.0
Unlikely	N	1064	1617	674	1165
	%	90.4	96.0	91.3	96.0
Total	%	100.0	100.0	100.0	100.0
	N	1177	1684	738	1214

(Drive vs Age 1987: $X^2 = 36.2$, 1 df, $p < 0.001$; 1989: $X^2 = 17.3$, 1df, $p < 0.001$)
(Drive vs Year < 30 years: $X^2 = 0.4$, 1 df, NS; ≥ 30 years: $X^2 = 0.01$, 1df, NS)

Would be caught if driving over 0.08

Likely	N	207	424	162	326
	%	17.7	25.4	22.0	29.2
Unlikely	N	965	1243	573	792
	%	82.3	74.6	88.0	70.8
Total	%	100.0	100.0	100.0	100.0
	N	1172	1667	735	1118

(Caught vs Age 1987: $X^2 = 23.6$, 1 df, $p < 0.001$; 1989: $X^2 = 11.2$, 1df, $p < 0.001$)
(Caught vs Year < 30 years: $X^2 = 5.27$, 1 df, $p < 0.05$; ≥ 30 years: $X^2 = 4.53$, 1df, $p < 0.05$)

TABLE 22: Effect of Sex of Driver on Reported Attitudes

Attitude		Sex of Driver			
		1987		1989	
		Male	Female	Male	Female
Would drive if over 0.08					
Likely	N	149	31	96	18
	%	7.5	3.4	7.2	2.8
Unlikely	N	1844	868	1234	622
	%	92.5	96.6	92.8	97.2
Total	%	100.0	100.0	100.0	100.0
	N	1993	899	1330	640

(Drive vs Sex 1987: $X^2 = 16.5$, 1 df, $p < 0.001$; 1989: $X^2 = 14.6$, 1 df, $p < 0.001$)
 (Drive vs Year Males: $X^2 = 0.04$, 1 df, NS; Females: $X^2 = 0.3$, 1 df, NS)

Would be caught if driving over 0.08

Likely	N	406	236	283	211
	%	20.5	26.5	21.4	33.3
Unlikely	N	1573	653	1038	423
	%	79.5	73.5	78.6	66.7
Total	%	100.0	100.0	100.0	100.0
	N	1979	889	1321	634

(Caught vs Sex 1987: $X^2 = 12.5$, 1 df, $p < 0.001$; 1989: $X^2 = 31.2$, 1df, $p < 0.001$)
 (Caught vs Year Males: $X^2 = 0.34$, 1 df, NS; Females: $X^2 = 7.77$, 1df, $p < 0.01$)

Driver BAC

The results illustrated in Table 23 show that there were differences of attitude between respondents who had a positive BAC when surveyed and those with a zero BAC. The proportion of drivers who were "likely to drive" if over 0.08 was greater than 10 per cent of those with a positive BAC and only about 4 per cent of those with a zero BAC in both years and this relationship was statistically significant in both years. The results showed also that those who had zero BACs when surveyed had higher perceptions of the likelihood of being caught than those who had positive BACs. This relationship was statistically significant in 1987 but not in 1989. The results for both attitudes indicate that there were desirable changes for drivers with positive BACs from 1987 to 1989.

When the results for those whose BAC was at least 0.08 were examined it was seen that the proportion who were "likely to drive" (31.5 per cent of 108 cases in 1987 and 18.3 per cent of 71 cases in 1989) was considerably higher than for the zero BAC and total positive BAC groups. This was consistent with the observed behaviour of this group. Similarly the results for "likely to be caught" indicated a low perception of being caught by this group (15.7 per cent of 108 cases in 1987 and 21.4 per cent of 70 cases in 1989) compared with the other BAC groups. Although these results suggest that there were desirable changes in attitudes of illegal drink-drivers between 1987 and 1989, the actual numbers were small and the differences were not statistically significant.

TABLE 23: Effect of Driver BAC on Reported Attitudes

Attitude		1987		1989	
		BAC Zero	BAC Positive	BAC Zero	BAC Positive
Would drive if over 0.08					
Likely	N	76	99	58	54
	%	3.6	13.2	4.0	10.9
Unlikely	N	2025	649	1384	442
	%	96.4	86.8	96.0	89.1
Total	%	100.0	100.0	100.0	100.0
	N	2101	748	1442	496

(Drive vs BAC 1987: $X^2 = 86.9$, 1 df, $p < 0.001$; 1989: $X^2 = 30.7$, 1df, $p < 0.001$)

Would be caught if driving over 0.08

Likely	N	501	133	372	108
	%	24.1	17.8	26.1	21.8
Unlikely	N	1577	616	1055	388
	%	75.9	82.2	73.9	78.2
Total	%	100.0	100.0	100.0	100.0
	N	2078	749	1427	496

(Caught vs BAC 1987: $X^2 = 12.4$, 1 df, $p < 0.001$; 1989: $X^2 = 3.4$, 1 df, NS)

Previous Experience with RBT

Approximately 61 per cent of drivers in 1987 and 73 per cent in 1989 reported that they had been tested at least once by a police RBT unit (see Table 14). It was expected that this driver experience with random breath testing would have had some effect on driver attitudes. Against this expectation, the results showed that there was no statistically significant relationship in either year between the driver attitudes and whether or not the drivers had been random breath tested.

However it appeared that the number of times a driver had been tested had some effect on the perception of being caught if driving with a high BAC. The results given in Table 24 show that there was a greater perception of the likelihood of being caught amongst those who had been tested three or more times than amongst those who had been tested only once or twice, or not at all. This trend was seen in both years but only in 1987 was the relationship statistically significant. There was no consistent effect of the number of times tested on reported likelihood of driving with an illegal BAC.

TABLE 24: Effect of Number of Times Tested by RBT Units, on Reported Attitudes

Attitude		1987			1989		
		No. of RBT Tests			No. of RBT Tests		
		None	1-2	> 2	None	1-2	> 2
Would drive if over 0.08							
Likely	N	62	68	47	26	48	38
	%	5.6	6.2	7.4	5.0	6.3	5.9
Unlikely	N	1052	1026	587	494	717	611
	%	94.4	93.8	92.6	95.0	93.7	94.1
Total	%	100.0	100.0	100.0	100.0	100.0	100.0
	N	1114	1094	634	520	765	649

(Drive vs Times Tested 1987: $X^2 = 2.4$, 1 df, NS; 1989: $X^2 = 0.9$, 1df, NS)

Would be caught if driving over 0.08

Likely	N	238	226	164	130	177	182
	%	21.6	20.8	26.2	25.3	23.3	28.1
Unlikely	N	866	862	463	383	583	465
	%	78.4	79.2	73.8	74.7	76.7	71.9
Total	%	100.0	100.0	100.0	100.0	100.0	100.0
	N	1104	1088	627	513	760	647

(Caught vs Times Tested 1987: $X^2 = 7.2$, 1 df, $p < 0.05$; 1989: $X^2 = 4.3$, 1df, NS)

Drink-Driving History

Further significant relationships were found between driver attitude to driving with an illegal BAC and whether or not the driver had a history of being charged with a drink-driving offence. Approximately 3.5 per cent of the drivers reported that they had previously been charged with drink-driving offences (see Table 15). The data presented in Table 25 show that the percentage of drivers likely to drive with illegal BACs was much higher for those who had been charged than for those who had not been charged; this relationship was highly significant statistically. Furthermore, in both years the percentage of drivers with drink-driving charges who were likely to drive with a high BAC was considerably higher than for any of the other groups of drivers examined in this study. Although this percentage was lower in 1989 than in 1987, the difference was not statistically significant.

On the other hand, there was no statistically significant association between perception of being caught and having been charged (Table 25). However, the results in both years show a trend which indicates that those who had not been charged had a greater perception of being caught than those who had been charged. It may be that many of these proven offenders have driven so frequently with high BACs and have been apprehended so rarely, that the risk of being caught again seems very small and they feel that they can continue to drink-drive with little risk.

There were no indications in the results that the attitudes of those who had been charged previously were improved over Easter in either year; there were, in fact, undesirable changes in both attitudes over Easter in 1987 and 1989, but the numbers involved were small and the differences between before-Easter and after-Easter periods were not statistically significant.

TABLE 25: Effect of Drink-Driving Offences on Reported Attitudes

Attitude		1987		1989	
		Charged with Drink-Driving		Charged with Drink-Driving	
		Yes	No	Yes	No
Would drive if over 0.08					
Likely	N	20	159	12	102
	%	20.4	5.7	16.4	5.4
Unlikely	N	78	2632	61	1789
	%	79.6	94.3	83.6	94.6
Total	%	100.0	100.0	100.0	100.0
	N	98	2791	73	1891

(Drive vs Offences 1987: $X^2 = 32.8$, 1 df, $p < 0.001$; 1989: $X^2 = 13.7$, 1 df, $p < 0.001$)

Would be caught if driving over 0.08

Likely	N	19	619	12	480
	%	19.0	22.4	16.4	25.6
Unlikely	N	81	2146	61	1396
	%	81.0	77.6	83.6	74.4
Total	%	100.0	100.0	100.0	100.0
	N	100	2765	73	1876

(Caught vs Offences 1987: $X^2 = 0.5$, 1 df, NS; 1989: $X^2 = 2.7$, 1 df, NS)

Summary

About 6 per cent of respondent drivers said that they were likely to drive if they had a BAC above the legal limit and about 25 per cent said that they were likely to be caught if they drove with a BAC above the legal limit. The proportion likely to drive was lower in 1989 than in 1987, but this difference was not statistically significant. The proportion who felt that they were likely to be caught was higher in 1989 compared with 1987, and this difference was statistically significant. Over Easter 1987 there were positive changes in both attitudes, that is fewer drivers were likely to drive, and more drivers felt they were likely to be caught, but these differences were not statistically significant. However, there were no consistent changes in attitudes found over Easter 1989.

These movements in attitudes mirrored the changes in distributions of BAC as measured in the same drivers, but at a smaller magnitude. There was a decline in the percentage of respondent drivers who had positive BACs, from 1987 to 1989, and smaller changes over Easter 1989 than in 1987. Between 1987 and 1989, there was a statistically significant increase in the perception of being caught if driving with an illegal BAC which was likely to have resulted from the increase in enforcement in 1987 and its continuation thereafter.

Drivers who reported that they were likely to drive with an illegal BAC were over-represented amongst males, drivers aged under 30 years, those with a positive BAC, and those who had been charged with a drink-driving offence. These groups of drivers also tended to have a lower perception of being caught if driving with a BAC above the legal limit, than their counterparts. In most cases there appeared to be some improvement in these attitudes between 1987 and 1989. Drivers who had been tested more than twice had a higher perception of being caught than those who had been tested less, but there was no change in their reported likelihood of driving if above 0.08.

Compared with other groups of drivers, those who had been charged with drink-driving offences were more likely to report that they would drive with an illegal BAC, and least likely to report that they would be caught. This group may, in fact, have the most accurate perception of the risk of being caught whilst drinking and driving.

DISCUSSION AND CONCLUSIONS

The results presented in this report provided considerable information about the characteristics, attitudes and drink-driving behaviour of the night-time driving population of metropolitan Adelaide. Questionnaires were returned by about 40 per cent of drivers surveyed in 1987, and about 33 per cent in 1989. Compared with non-respondents, among the respondents there were relatively more females and persons aged over 50 years. Also, non-respondents differed from respondents in that they tended to have higher BACs, fewer wore seat belts, and a bigger percentage were accompanied by two or more passengers.

The respondents in 1987 and 1989 were similar: there was a predominance of males, and of those aged 30 or more years; nearly all of the respondent drivers were fully licensed and half had been licensed first before the age of 17 years; the majority had been tested once or twice by police RBT units (overall experience with RBT was greater in 1989 than in 1987); fewer than 4 per cent had previous drink-driving offences; 40 per cent began social drinking before the age of 18 years and more than 80 per cent before 21 years of age; about 40 per cent drank alcohol more than once per week. Three-quarters of the respondent drivers had a zero BAC and fewer than 4 per cent had a BAC of 0.08 or more. With the exception of driver BAC levels, there were no statistically significant differences for these variables over the Easter period in either year. These findings supported the view that the results obtained were not due to any major differences in the composition of the samples during the surveys.

The results showed clearly that there was a decline in drink-driving over Easter in both 1987 and 1989. In relative terms, this decline was particularly marked for drivers with a BAC of at least 0.08, the group of particular interest in this study. The decrease in the percentage of drivers with illegal BACs observed over Easter 1987 coincided with increased publicity and enforcement of RBT at that time. However, the decreased level of drink-driving observed after Easter in 1987 was not fully maintained over the following two years: in the case of drivers with illegal BACs, the level before Easter in 1989 had returned to approximately 90 per cent of that before Easter in 1987. The decrease in BAC

levels observed over Easter 1989 was associated with some publicity but no further increase in enforcement of RBT. While the BACs of respondents on which these results were based were not adjusted as in the reporting of the total BAC results of the two surveys (McCaul and McLean 1990; McLean et al. in preparation), the adjusted and raw data showed similar changes in the level of drink-driving. The use of unweighted BAC levels for comparative purposes in the present study was therefore justified.

Changes in the reported attitudes of respondent drivers did not closely parallel changes in driver behaviour as assessed by BAC levels. Although some changes in attitudes were observed over Easter in both years, they were inconsistent and were not statistically significant. From 1987 to 1989 there was a statistically significant increase in the percentage of drivers who thought that they were likely to be caught if driving with an illegal BAC, but there was no statistically significant change for those who reported that they were likely to drive with an illegal BAC. These results applied equally to total respondents, to those with positive BACs and to those whose BAC was at least 0.08, with the exception that there were no statistically significant increases in the perception of being caught in the case of drivers with positive or illegal BACs between 1987 and 1989. Thus there was not a close relationship between these expressed attitudes and the drink-driving behaviour of respondents in these two surveys. A similar conclusion was reached in the analysis of the earlier surveys carried out by the NHMRC Road Accident Research Unit (McLean et al. 1984), although the recording of attitudes in those surveys was not directly comparable with that in the current study.

A plausible explanation of the behavioural and attitudinal changes observed in this study involves consideration of the separate and combined effects of RBT and publicity. Thus it seems clear that the doubling of the RBT effort in 1987, together with the attendant publicity campaign, had an immediate effect on drink-driving behaviour as shown by a marked fall in the percentage of drivers with an illegal BAC. However, while the intensity of the RBT effort continued after Easter 1987, the publicity decreased and the subsequent increase in illegal drink-driving may have been a consequence of this. Over the two year period to Easter 1989, the percentage of drivers who had been tested

increased, although only drivers who had been tested more than twice had an increased perception of the likelihood of being caught. Thus the experience of being tested, of itself, did not appear to have an immediate effect. The results suggest that the effect is cumulative and it may be that a relevant factor is recency of the experience: the question on experience with RBT did not set a time frame and, as RBT has been in operation in South Australia since 1981, the respondents were reporting on their experiences over several years. Finally, the results indicate that a resurgence of publicity at Easter 1989 had an immediate effect on behaviour, as shown by the decrease in the percentage of respondent drivers with BACs at or above 0.08, but no effect on the perception of being caught. The combination of increased RBT and publicity (in 1987) had a greater effect on drink-driving behaviour than an increase in publicity and no further change to the RBT program (in 1989). With little enhancement of public education in the intervening period, drink-driving almost returned to the before-Easter 1987 level during the two years to Easter 1989 in spite of the sustained high level of RBT.

Thus the results support the view that RBT alone is not sufficient to reduce drinking and driving. There appears to be a synergistic effect, in that the combined influence of RBT and a well-designed and targetted community education program has a greater impact than either alone. It is likely that, while change in drink-driving behaviour, driven by fear of being caught and the consequences, is immediate, changes in attitudes take place over a longer period. This is consistent with established theories on the relationship between behaviour and attitudes (Festinger and Carlsmith 1959). Therefore, to achieve a substantial change in community attitudes a long term, consistent and planned program of RBT and community education is required (Homel 1990). There should be enhanced publicity and public education campaigns at regular intervals, emphasizing the likelihood of being caught and the resulting adverse social, financial, and legal consequences.

RECOMMENDATIONS

It is recommended that:

1. the random breath testing program be planned and coordinated with a community education program aimed at reinforcing the perception of being caught if over the legal BAC limit, and emphasizing the consequences of being caught; and
2. further roadside surveys be carried out to monitor changes in drink-driving behaviour and related attitudes.

REFERENCES

- Cairney PT, Carseldine D. Drink-driving and random breath testing: a survey of knowledge, attitudes, beliefs and self-reported behaviours. Sydney: Roads and Traffic Authority, RN 3/89, 1989.
- Cashmore J. The impact of random breath testing, in New South Wales. Sydney: Attorney General's Department, New South Wales Bureau of Crime Statistics and Research, 1985.
- Festinger L, Carlsmith JM. Cognitive consequences of forced compliance. *Journal of Abnormal and Social Psychology* 1959; 58: 203-210.
- Homel R. Random breath testing in Australia. Paper presented at International Congress on Drinking and Driving, Edmonton, Canada, March 1990.
- McCaul K, McLean AJ. Publicity, police resources and the effectiveness of random breath testing. *Medical Journal of Australia* 1990; 152: 284-286.
- McLean AJ, Clark MS, Dorsch MM, Holubowycz OT, McCaul KA. Random breath testing in South Australia: effects on drink-driving, accidents and casualties. Adelaide: NHMRC Road Accident Research Unit, University of Adelaide, 1984.
- McLean AJ, Holubowycz OT, Sandow BL. Alcohol and crashes: identification of relevant factors in this association. Canberra: Commonwealth Department of Transport, Office of Road Safety, CR 11, 1980.
- McLean AJ, Kloeden CN, McCaul KA. Drink-driving in the general night-time driving population: Adelaide, 1989. Paper submitted for publication.

