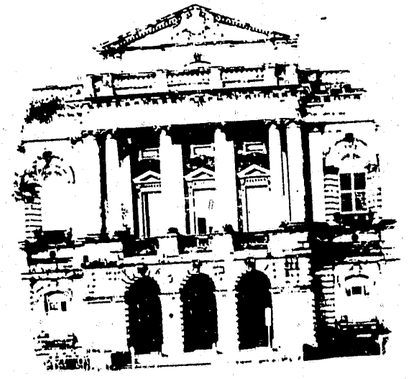
Alcohol and Drug Addicts Treatment Board,
South Australia

EVALUATION & MONITORING RESEARCH UNIT

RANDOM BREATH TESTS AND THE DRINKING DRIVER

Attorney-General's Department
Office of Crime Statistics



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RANDOM BREATH TESTS AND THE DRINKING DRIVER: THE SOUTH AUSTRALIAN EXPERIENCE

by Jill Bungey and Adam Sutton

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PREFACE

This Social Issues study has been prepared jointly by the Office of Crime Statistics and the Monitoring, Evaluation and Research Unit of the Alcohol and Drug Addicts Treatment Board. Both organisations have a interest in advancing research on drink-driving: the Board because of its responsibility for administering a Driver Assessment Clinic, the Office because it compiles and publishes statistics on persons appearing in courts for these offences. It is to be hoped that our example, of combining expertise and resources to investigate a topic of public interest, may be emulated by other research units within the South Australian Government.

The report was written by Jill Bungey, Senior Project Officer at the Alcohol and Drug Addicts Treatment Board, and Adam Sutton, Director of the Office of Crime Statistics. However, its preparation would not have been possible without significant effort by several members of staff in both research units. Particular acknowledgement is due to Barry Joyce, who located and coded extensive amounts of data, Nick Koshnitsky, who undertook the bulk of computer analysis, and Dale Raneberg who was responsible for considerable exploratory research and analysis of newspaper articles. Thanks also go to the Special Projects Section of the South Australian Police Department for making available data on RBT apprehensions and to Dennis Doolette in the Government Computing Centre for producing the computer graphics. Typing of drafts and of the final report has been most capably accomplished by Lesley Giles and Julie Huntley.

Finally, it should be emphasised that views expressed in this report do not reflect policies of the Attorney-General's Department, the Alcohol and Drug Addicts Treatment Board or the South Australian Government. Our primary purpose has been to encourage informed discussion and further research.

SUMMARY

1. In South Australia, as in most other industrial societies, there is continuing concern about the incidence of road accidents and the threat they pose to life and property. During 1980, 1981 and 1982 the State experienced 778 vehicle fatalities: eleven times more than homicides and other deaths due to intentionally inflicted injuries, and at least 60 percent more than the total suicides recorded during the same period. In fact, vehicle accidents are the fourth most frequent cause of deaths in South Australia, and by far the most important reason for mortalities among 15-24 year-olds.

2. A major objective of this report is to present an overview of measures taken to combat these problems, with particular emphasis on random breath testing (RBT). Introduced in October 1981, and to operate in South Australia for an initial period of three years, RBT has generated considerable controversy in political circles and among the mass-media. The current study cannot hope to resolve this debate, but it does try to assist readers by assembling relevant argument and evidence.

3. The starting point is a review of the extent to which alcohol contributes to accidents. Both from controlled experiments and observations of real-life conditions there is conclusive evidence that drinking impairs driving skills. This can occur even at relatively low blood alcohol levels, but the likelihood of accidents rises significantly at 0.08mg/100m. and increases dramatically over 0.12. Three out of ten road fatalities in South Australia involve at least one driver who had consumed alcohol. Younger males (18-24 years) are disproportionally at risk. Another major 'problem' group of drink-drivers appears to be older (over 25) males whose higher blood alcohol readings suggest possible alcohol-dependency.

4. In light of these broad profiles, the report then reviews countermeasures, which are divided into two major categories: those which attempt to change the behaviour of the drinking driver, and more indirect methods which concentrate on modifying physical or social environments. Of the first group, legal sanctions seem to have been the most effective. Undoubtedly, these have had at least some impact on the average motorist, although there is evidence of a minority group of 'high risk' recidivists impervious to all penalties. The usefulness of an alternative method of modifying behaviour - drink-driver education - has yet to be demonstrated. Among the second group - 'environmental' strategies - several successful initiatives have been documented. Most notable is the compulsory wearing of seatbelts, which has substantially

reduced rates of road deaths throughout Australia during the past decade. In several US states, increasing the minimum legal drinking age also appears to have lowered alcohol-related accidents among younger age-groups.

5. Unlike environmental measures which are directed at all motorists, random breath testing focusses on the alcohol impaired. Its main objective is to enhance general deterrence, by convincing drivers that there are high risks of detection. To assess its effectiveness in South Australia, this study assembles a wide range of indices. They include feedback from key sections of industry, opinion surveys, police and hospital statistics on road deaths and injuries, court appearances and Police Department reports on random breath testing activities. Generally, the results suggest that RBT has had an effect, but that this has not been as long term as some advocates might have expected.

6. The most definite feedback has been from private enterprise. Breweries, hotels, licensed clubs, restaurants and taxis all indicate a significant impact on business, especially in the first few months. Liquor sales were generally down and the taxi trade boomed, but over time these effects gradually became less marked. In addition, drinking patterns seem to have changed. City hotels increased lunch-time trade, whereas those close to residential areas experienced more patronage in the early evenings. These patterns have persisted and may reflect permanent change in drinking habits. Generally, it seems that people are now more likely to visit hotels within walking distance rather than travelling further afield by car.

7. Evidence concerning road accident injuries and fatalities is less clearcut. During the first three months of the system's operations there was a reduction in casualty statistics and in blood alcohol levels of accident victims admitted to hospitals, but figures tended to revert to pre-RBT levels during 1982. A redeployment and upgrading of the random breath testing system from April 1983 onwards may have interrupted the trend, but latest figures from RBT units suggest that the effect may again be "wearing off".

8. The report emphasises, however, that it may be misleading to attempt to measure the effectiveness of RBT in this state simply by comparing pre- and post- implementation data. Intense media interest, which peaked during June 1981, may well have created a "phantom" RBT effect on road accidents, which were abnormally low throughout the 1981 calendar year. Actual implementation could have been an anticlimax after the preceding publicity, and as a consequence the effect of the system less marked than it might otherwise have been.

9. In conclusion, it is argued that although there is evidence that RBT has been effective only in the relatively short term, this does not mean it should be discounted as a drink-drive countermeasure. Introduction of the new system in this State has been comparatively low key, with far fewer resources allocated than initially recommended. One factor that has emerged from this study is the importance of publicity and it is to be hoped that before the 'sunset period' for the legislation expires there will be an attempt to test this aspect more systematically. Finally, before adequate assessment can be made of RBT there will need to be evidence on whether, and in what circumstances, it is more cost effective than other road safety initiatives.

1. INTRODUCTION

Throughout the twentieth century, industrial societies increasingly have become aware of the threat that road accidents pose to life and property. The most immediate and shocking aspect of the problem is, of course, the number of drivers, riders, passengers and pedestrians killed each year. During 1980, 1981 and 1982 South Australia experienced seven hundred and seventy eight vehicle fatalities: eleven times more than the homicides and other deaths due to intentionally-inflicted injuries, and at least sixty percent more than total suicides recorded during the same period. Road accidents, in fact, are the fourth most frequent cause of death in this State, and by far the most important reason for deaths among fifteen to twenty-four year-olds.

TABLE 1 CAUSES OF DEATH, SOUTH AUSTRALIA, 1980 - 1982[1]

Age Groups	Motor Vehicle Accidents	Homicide	Suicide	Natural Causes[2]	Other[3]	TOTAL
Under 15	71	9	1	↑	735	816
15 - 24	313	17	87	209	170	587
25 - 34	116	17	97	↓	80	519
35 - 44	65	6	71	376	193	711
45 - 54	49	14	75	1189	463	1790
55 & Over	164	10	151	17028	7967	25320
TOTAL	778	73	482	18802	9608	29743

[1] Sources: Australian Bureau of Statistics, Causes of Death, 1980 & 1981. Registrar of Births, Deaths and Marriages for 1982.

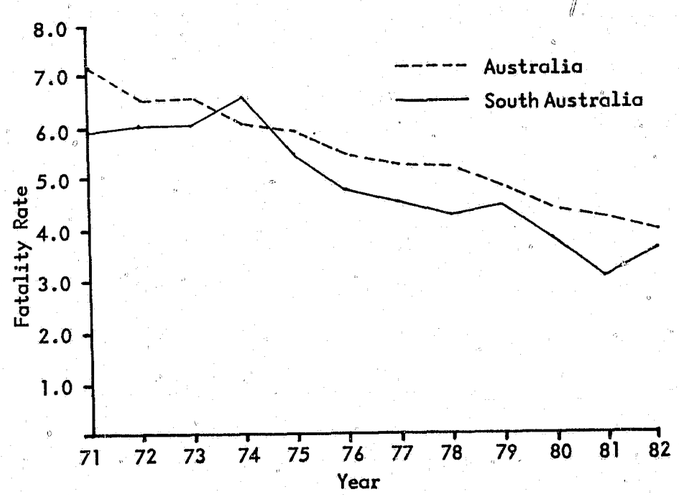
[2] 'Natural Causes' comprises cancer, heart disease and strokes.

[3] 'Other' includes non motor vehicle accidents.

A less publicised, but nonetheless important statistic is the immense physical and intellectual contribution lost to societies like Australia when young people suffer incapacitating injury. Although precise estimates are difficult, researchers have calculated that road accidents cost South Australians hundreds of millions of dollars per year*.

Despite consensus on the seriousness of the problem, however, there is very little agreement about the nature and causes of this "epidemic" or the success of government programs aimed at reducing its incidence. For example, it is often assumed that the road toll has been increasing inexorably. In fact, when numbers of deaths are compared with indices of vehicle use it becomes apparent that since 1970 there has been a downward trend - both Australia-wide and in this State.

FIGURE 1 ROAD FATALITY RATE PER 10,000 VEHICLES REGISTERED, 1971 TO 1982 +



+ Sources: Road Traffic Board of South Australia, Road Traffic Accidents, 1981 and Australian Bureau of Statistics, Causes of Death, 1982.

* Somerville and McLean (1981) have estimated that serious road accidents during a twelve month period in 1976/77 cost the South Australian community $274m. This figure was updated in terms of 1980 dollars to $395m. By 1983, this cost would be considerably higher.

Undoubtedly, initial impetus for the downturn was provided by a 'wave' of legislation during the early 1970's making it compulsory for vehicles to be fitted with seat-belts and for occupants to wear them*. Despite this, most discussion of the road toll has focussed not so much on physical aspects of vehicle or road design as on the human element. At various times, inexperienced or reckless driving and excessive speed have been identified as the major causes of accidents, and in recent years considerable concern has been expressed about the danger that drunken drivers pose to themselves and other road users. Every Australian state has introduced laws aimed at deterring motorists from driving after consuming significant amounts of alcohol, but even a cursory review reveals wide disparities in penalties prescribed and maximum blood alcohol levels permitted. Similarly, although most governments have used publicity to discourage driving and drinking, there has been uncertainty whether campaigns should attempt to shock, inform or persuade, and whether they should be directed at the whole of the community or some smaller target group of habitual infringers. Experts also are divided on how best to handle offenders once they have been detected: some argue for severe penalties whereas others contend that education or treatment are more appropriate for reducing recidivism.

The most recent - and in many respects most controversial - initiative for combatting drink-driving has been random breath testing (RBT). Victoria was the first Australian state to introduce RBT, and at least one evaluation (Cameron et al, 1980) claims success in reducing drink-driving. Following an enquiry by a bi-partisan Parliamentary Select Committee, South Australian Police also initiated an RBT program on 15 October 1981 for a test period of three years.

Despite its cautious endorsement by the Federal Government's House of Representatives Standing Committee on Road Safety (1980), RBT has been strongly opposed not only by groups within South Australia but by such authoritative bodies as the Australian Law Reform Commission (see Select Committee Report - Cameron, 1981). According to these critics, random breath testing is an inefficient use of police resources and represents a gross infringement of civil liberties.

* Seat-belt laws were first introduced in Victoria in 1970. Subsequently, they were adopted in Tasmania (1970), New South Wales (1971), South Australia (1971), Western Australia (1971) and Queensland (1971).

The main objective of the current study is to present evidence and arguments which may assist readers in making their own decisions on whether RBT has been, or is likely to be, a success in South Australia. It should be emphasised that it does not attempt a rigorous evaluation: such work is being conducted elsewhere*. However, we do consider that there is room in the middle ground for a document which helps clarify such important questions as: the effectiveness of alternative measures aimed at reducing drinking and driving; how RBT has worked in other jurisdictions; and whether the initial two years in South Australia seem to have had any discernable effect. First, then, to the most basic question of all: the relationship between road accidents and alcohol consumption.

* The South Australian Government has appointed the National Health and Medical Research Council's (N.H.& M.R.C.) Road Accident Research Unit as official evaluators.

2. EFFECTS OF ALCOHOL ON DRIVER PERFORMANCE

Despite the long-term interest expressed in the relationship between use of alcohol and road traffic accidents, it was not until the 1950's and early 1960's that research findings were published. A series of papers* reported on experiments designed to measure the effects of alcohol consumption on driver skills. Although the researchers had employed a variety of experimental methods, alcohol mixtures and tests of ability, it was consistently found that impairment could be detected, even at blood alcohol levels as low as 0.04 to 0.05 (40 to 50 mg/100m.). Subsequent work has suggested that alcohol particularly effects aspects of driving which require quick decisions or the performance of multiple tasks:

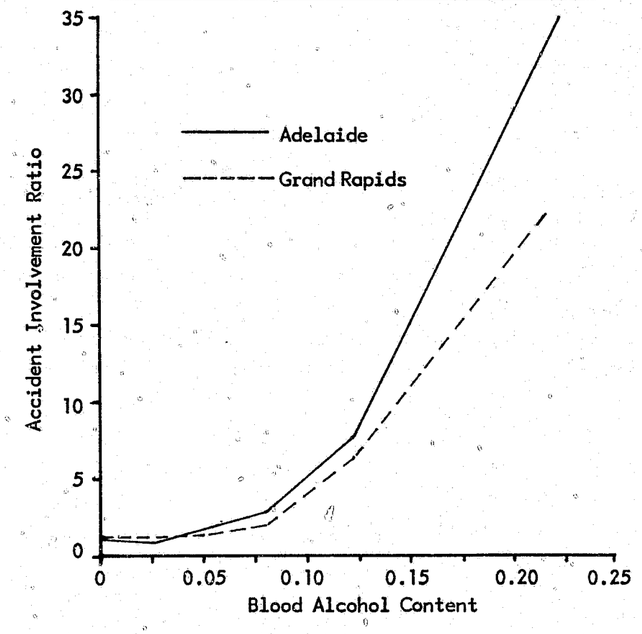
> "... if an alcohol affected driver concentrates on keeping the car positioned correctly on the road (a tracking task), he can do it reasonably well. Nevertheless, the probability that he will then notice some other event, such as a pedestrian crossing or a traffic light changing - is markedly reduced. If the driver's attention is distracted to some other task - such as retrieving a dropped cigarette - then the tracking task (keeping the car on the road) becomes the secondary task, and the car may well leave the road."
> (Report of the House of Representatives Standing Committee on Road Safety, 1980:6-7).

To explore the implications of these findings for every-day conditions, researchers then compared blood alcohol levels of people who had been involved in accidents with readings from other road users. Perhaps the best-known work along these lines is the so-called "Grand Rapids Study" (Borkstein et al, 1964), but more recent data have been produced by McLean et al (1980). They matched drivers involved in accidents within the Adelaide Metropolitan Area with a "control" group on the same routes**. Likelihood of becoming involved in an accident rose significantly at 0.08 and, as Figure 2 shows, there was a very dramatic increase once readings rose above 0.12.

* For example Bjever and Goldberg (1950); Coldwell et al (1958); Cohen et al (1958); Loomis and West (1958); Drew et al (1958). For more recent confirmation of these findings see Flanagan et al (1983), Landauer and Howat (1983).

** Drivers were matched on the basis of age-group and sex.

FIGURE 2 LIKELIHOOD OF ACCIDENT INVOLVEMENT IN RELATION TO BLOOD ALCOHOL CONCENTRATION OF DRIVER*



* Source: Figure derived from McLean et al, 1980.

It should be noted that the Adelaide study only examined accidents to which an ambulance was called, whereas the Grand Rapids study surveyed all types of accidents, from relatively minor scrapes through to fatal crashes. When attention focusses on South Australian data relating to more serious incidents, the involvement of alcohol becomes even more apparent. Twenty-three percent of all motor accident victims admitted to South Australian hospitals during the calendar years 1980, 1981 and 1982 were found to have consumed alcohol, and of these seven out of ten had readings above .08. Coroners statistics, moreover, indicate that for at least 28% of road fatalities - and more than 39% of those where "loss of control" appeared to be the main cause - a driver or rider had been drinking.

TABLE 2 BLOOD ALCOHOL CONTENT OF ROAD ACCIDENT VICTIMS ADMITTED TO HOSPITALS, AND OF DRIVERS OF VEHICLES INVOLVED IN ROAD FATALITIES, IN SOUTH AUSTRALIA DURING 1980 - 1982

Blood Alcohol Content	Accident Victims Admitted to Hospitals		Road Accident Fatalities[1]				
			% of Collisions (N=389)	% of Loss of Control (N=284)	Pedestrian Hit by Car (N=139)	TOTAL	
	No.	%				No.	%
None	17953	76.8%	72.0%	60.9%	89.9%	578	71.2%
Under 0.05	878	3.8	2.1	1.1	0.0	11	1.4
.05 - .079	650	2.8	3.6	2.1	2.2	23	2.8
.08 - .149	1650	7.1	6.4	9.9	4.3	59	7.3
.150 - .249	1763	7.5	8.7	20.8	1.4	95	11.7
.25 or More	491	2.1	7.2	5.3	2.2	46	5.7
TOTAL	23385	100.0	100.0	100.0	100.0	812	100.0

[1] Fatality numbers are based on all victims but the blood alcohol content refers to the driver most affected by alcohol.

Source: Department of Services and Supply, Forensic Science Centre. Coroner's Office, South Australia.

Confronted by such information, it is easy to understand why both the media and the general public often tend to identify alcohol as the major cause of vehicle fatalities and injuries, and to assume that any decrease in its consumption must automatically be followed by a corresponding drop in crashes. Claims to the effect that elimination of the drinking driver would mean "a virtual halving of the road toll" have become commonplace.*

* See Stacey, 1983:6. The example Stacey cites is from New Zealand's national weekly, The Listener.

Examined more closely, however, this view is simplistic. First, alcohol is by no means associated with the majority of accidents (see Table 2). Second, research evidence indicates that not all drivers are equally impaired by alcohol (Coldwell et al (1958), Gibson (1983)). Third, both hospital admissions and coroner's statistics suggest that persons involved in accidents have far higher concentrations of blood alcohol than the general population of drinking drivers (see Table 3 below). These last two findings have led at least some researchers to argue that rather than being a homogeneous population, drink-drivers may contain one or more "problem" sub-groups who are responsible for the great proportion of alcohol related crashes. This assumption, if correct, has significant implications for accident prevention strategies. Therefore it is important to review the information available on "profiles" of drinking drivers.

TABLE 3 BLOOD ALCOHOL CONTENT OF DRINK-DRIVERS AND ACCIDENT CASUALTIES*

Blood Alcohol Content	Drink-Drivers (Random Sample, 1979)[1]		Persons Admitted to Hospital (1980-1982)[2]	
	% of Total	Percentage of Drink-Drivers	% of Total	Percentage of Drink-Drivers
No Alcohol	91.6%	N/A	76.8%	N/A
0.01 - 0.049	3.8	45.2%	3.8%	16.4%
0.05 - 0.079	2.6	31.0	2.8	12.0
0.08 - 0.149	1.6	19.0	7.0	30.2
0.15 or More	0.4	4.8	9.6	41.4

Sources: [1] McLean et al, 1980.

[2] Department of Services and Supply, Forensic Science Centre.

* Note that Table 3 does not include drivers under the influence of drugs. It is now known that a range of legal and illegal drugs (from cough mixtures, aspirin, sedatives and tranquillizers through to cannabis and narcotics) can interact with alcohol and adversely affect driving performance. While there is evidence that these can be an important contributor to road accidents (Hendtlass, 1983), the need to focus and confine the scope of the present paper has forced us to exclude them from discussion.

3. PROFILE OF THE DRINKING DRIVER

Despite strong public awareness of the dangers of road accidents and the extent to which alcohol is a contributor, surprisingly little is known about the characteristics of drinking drivers. The stereotype - backed to some extent by statistics on court appearances and attendances at drink-driver rehabilitation centres - is that they are mainly young males in the 17-25 age-group, and older 'problem' drinkers. However, when attempts have been made to test such hypotheses by systematic research, results have been far less clearcut.

An excellent example is McLean et al's (1980) roadside surveys in Adelaide. Conducted in Mar/Apr 1979, these involved administering tests on a voluntary basis to more than 2270 males and 803 females stopping at red lights in the metropolitan area at various times of the night and day*.

After suitable weightings for traffic flows, the McLean study found that 8.4% of drivers had positive blood alcohol levels, and that 1.6% were at or above the prescribed level of 0.08. From the point of view of popular opinion, however, perhaps the most unexpected results were the high percentages of women - one in five motorists found to be over 0.05 were female - and that there were no strong correlations between age and blood alcohol readings:

> "Within most time periods, the age of the driver was only weakly related to BAC, although there was some indication of a higher rate of BAC readings among 21-29 year-old men (not those under 21) on Thursday, Friday and Saturday evenings, and a lower rate among men older than 50 during all time periods."**

At least partial confirmation of these findings has emerged from a Victorian study (Stewart and Ulman, 1978), which compared the characteristics of 255 drivers detected with blood alcohol levels of 0.08 or above during the first year of RBT with the same number of motorists selected at random from the 18,087 who returned negative readings.

* Because times elapsed at the lights did not allow questionnaires to be administered, ages of subjects were estimated by researchers. For similar practical reasons drivers of commerical vehicles and buses and riders of motorcycles were excluded.

** Homel, 1983:10 - emphasis is Homel's. He reanalysed McLean et al's original data to obtain "weighted" blood alcohol levels for age and sex groupings.

The researchers found little difference in terms of age or occupational status - although both groups contained substantial percentages under 30 years of age and a predominance of "lower status" workers. However, there was a somewhat higher percentage of males in the BAC positive than in the negative group (98.5% as opposed to 81.2%). Analysis of prior traffic records also indicated that the 'positive' group had worse records - particularly with respect to drink-driving offences.

TABLE 4 PRIOR TRAFFIC CONVICTIONS BY BAC RESULT, VICTORIA*

Prior Convictions	Positive BAC Group	Negative BAC Group
Prior Traffic Convictions (1 or more)	55.0%	30.2
Alcohol-Related Prior Traffic Convictions	18.8	3.9
Non-Alcohol-Related Prior Traffic Convictions	49.8	29.8

* Source: Derived from Stewart and Ulman, 1978.

Differences betweeen the Victorian data and McLean's study - particularly the discrepancies in numbers of males detected - may well be an artifact of the times during which RBT was operating: 4pm to 4am. Essentially, these could be described as the more'social' hours of the day, when males would be more likely to be driving and females to be passengers. Even allowing for these sampling variations, however, it is clear that neither study provides evidence to support the view that younger drivers are more likely to have positive blood alcohol levels.

Despite those findings, young males certainly are more likely to appear in courts for drink-drive offences. During 1981 - the year when RBT was introduced in South Australia - more than 93 percent of alleged drink-drivers were male, even though females held four out of 10 licences. Younger drivers, moreover, were far more likely to have been apprehended than older ones: 41 percent of prosecutions related to males between 18 and 24. Among licence holders, this group accounted for only 10 percent. The emphasis seems to have been slightly alleviated in 1982, following the introduction of RBT. Nonetheless, young males still were grossly overrepresented among drink-drive prosecutions.

TABLE 5 AGE AND SEX OF PERSONS APPEARING FOR DRINK-DRIVE OFFENCES EXPRESSED AS RATE PER 1,000 OF LICENCE HOLDERS*

Age	1981		1982	
	Male Rate/1000	Female Rate/1000	Male Rate/1000	Female Rate/1000
18 - 19	22.6	1.9	22.1	1.6
20 - 24	18.3	1.6	17.1	1.8
25 - 29	10.9	0.9	10.9	1.0
30 - 34	7.6	0.5	7.0	0.7
35 - 39	6.2	0.7	5.2	0.7
40 - 49	5.1	0.5	4.2	0.4
50 - 59	3.4	0.2	3.0	0.2
60 Plus	1.4	0.1	1.8	1.5

* For figures forming the basis for this table, see Appendix A Tables 2 and 6.

The court figures also suggest that members of the 'lower' socio-economic strata appear in disproportionate numbers. Almost one in five alleged drink-drivers appearing during 1981 and 1982 was unemployed, compared with only 4% of South Australia's adult population**. Further evidence that drink-drive arrests are far from evenly distributed throughout the community emerges from statistics on areas of residence: some local government areas had far higher rates of drink-drive appearances than others (see Appendix A, Tables 11 and 12).

** A small part of this overrepresentation of unskilled categories may be due to defendants deliberately downgrading their occupations in order to avoid identification.

TABLE 6 EMPLOYMENT STATUS AND LEVEL OF OCCUPATION; DEFENDANTS ON DRINK-DRIVE CHARGES, COURTS OF SUMMARY JURISDICTION, 1981 AND 1982

Occupation	% of Appearances 1981 (N=3812)	% of Appearances 1982 (N=3935)	% of South Aust. Adult Population*
Employed	69.0	66.1	56.0
Unemployed	18.4	20.1	3.7
Pensioner	3.3	3.5	20.8
Student	1.4	1.2	6.2
Home Duties	1.1	1.6	13.3
Other	0.1	0.3	N/A
Unknown	6.8	7.3	N/A

* Sources: Office of Crime Statistics and A.B.S. 1981 Census.

Note: Percentages unemployed are calculated from total adult population, not the adult workforce.

Perhaps the most interesting findings, however, emerge when blood alcohol levels, ages and previous records of PCA offenders are considered. As Table 7 (opposite page) shows, younger offenders generally had lower blood alcohol readings and fewer prior convictions.

Such figures suggest a strong correlation between increasing age and the extent to which a driver will be able to consume alcohol before attracting the attention* of law enforcement officials. Homel (1983) has taken this point further, and argues that enforcement procedures are used discriminately - particularly against young working class males. This certainly is one possible explanation for the significant discrepancies between profiles of the general drink-driving population and statistics on those appearing in court for such offences. Before becoming overly critical of law-enforcement procedures, however, it is important to look more closely at the characteristics of those arrested. One can commence by examining figures on attendances at centres such as the Driver Assessment Clinic operated by the South Australian Alcohol and Drug Addicts Treatment Board.

* The phrase "attracting the attention" is used advisedly. As subsequent discussion will show, we believe that rather than simply being discriminated against, more objective characteristics of younger drink-drivers may well lead to their higher likelihood of arrest.

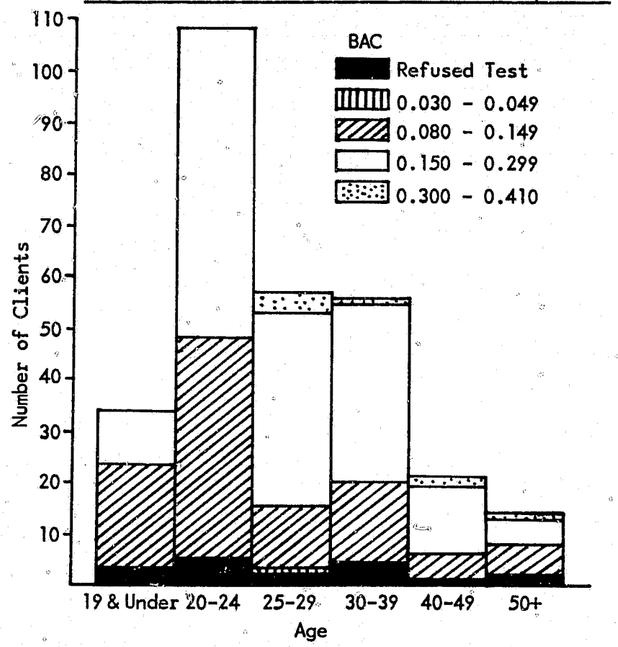
TABLE 7 PREVIOUS DRINK-DRIVE CONVICTIONS, AGE AND BLOOD ALCOHOL CONTENT FOR PERSONS DRIVING OVER THE PRESCRIBED CONTENT OF ALCOHOL, COURTS OF SUMMARY JURISDICTION, 1 JULY 1982 TO 30 JUNE 1983*

Previous Convictions and Blood Alcohol Content	Age Group			
	Under 20	20-24	25-39	40 & Over
Number	414	923	1120	506
Previous Convictions for Drink/Drive				
% No Priors	87.7	76.9	69.2	71.3
% 1 Prior	8.9	16.8	18.3	17.0
% 2 or More	3.4	6.3	12.5	11.7
Previous Convictions				
Average Blood Alcohol Content				
With No Priors	.131	.143	.161	.152
With 1 Prior	.140	.155	.167	.171
With 2 or More	.150	.165	.168	.190
Previous Convictions				
Average Blood Alcohol Content	.133	.146	.163	.159

* Source: Office of Crime Statistics. The 1982/83 financial year is the only period for which information on prior drink-drive (ie. DUI or PCA) convictions is available.

The Driver Assessment Clinic deals with offenders referred by courts after apprehension in the Adelaide Metropolitan Area for a second or subsequent PCA or DUI offence in three years. Given this reliance on the law-enforcement system as a source of clients, it is not surprising that the Clinic's reception figures are dominated by young, working-class males. Of 315 individuals examined during the 1982/83 financial year, 97% were males and 68% were under 30. Again, unskilled and semi-skilled workers were overrepresented, and some localities had far higher referral rates than others. More significantly, however, all age groups had high percentages of drivers over 0.15 when arrested, and younger drivers were no less likely than older ones to be among the 46% diagnosed as having a problem of alcohol dependence.

FIGURE 3 DRIVER ASSESSMENT CLINIC, AGE BY BLOOD ALCOHOL CONTENT FOR THE YEAR ENDED 30TH JUNE, 1983*



Note: Age broken down into 5 year intervals between 19 and 29, thereafter broken down into 10 year intervals.

* Source: South Australian Alcohol and Drug Addicts Treatment Board.

The point about figures such as these is that they indicate that even if law-enforcement procedures affect some groups more than others, they nonetheless are disclosing significant numbers of 'problem' drink-drivers among the younger age-groups. Another important factor to bear in mind is that younger drivers do seem far more often to be involved in alcohol related crashes - and after all, the justification for making drink-driving illegal is to prevent road deaths and injuries. Yet another study by Jack McLean and his colleagues at the University of Adelaide's Road Accident Research Unit (McLean, in Roder, 1981) brings out this issue.

The researchers compared 1,422 accidents known to have involved alcohol consumption with 2,400 'control' cases. Compared with the controls, alcohol related accidents were more heavily concentrated:

- on the 6pm to 6am time period - particularly from midnight to 1am;
- on Saturdays and - to a lesser extent - Sundays;
- on holiday weekends, and
- during light traffic.

Alcohol related accidents also had higher concentrations of males, 'younger' (ie. 18-24 year-old) drivers and involved earlier model cars and single vehicles. Finally, the study suggested that these crashes tended to result in higher numbers of casualties per incident, that injuries were generally more severe, and that seat belts were less often used - even when they were fitted.

Studies such as this provide strong support for the view that even though court and apprehension statistics may give a misleading picture of the extent to which young males should shoulder the brunt of the blame for drink-driving, there is nonetheless good reason for believing that these are among the offenders who constitute the greatest dangers to themselves and other road users. Further insight into this aspect - and confirmation that older males who have been drinking and become involved in fatal accidents tend to have higher blood alcohol levels - is provided by coronial statistics (see Table 8, over page).

In attempting to explain why young people, in particular, are more prone to serious crashes a number of possibilities have been suggested. One is that young people drive more hours per year, especially at night when accidents are more likely to occur. However, Simpson et al (1982) found that even allowing for this factor young males still are over-represented in fatal collisions. They see more plausibility in the argument that inexperience at drinking and inexperience at driving are a fatal combination, for there is evidence to support the view that "with young males the risk of fatal collision increases systematically with increases in BAC, and does not show the linear effect typical of older age groups" (page 53).

Whatever the reason, it is clear that drinking drivers are a far from homogeneous population, and that countermeasures should take account of this fact and assess the varying degrees of risk each sub-group poses. In light of this knowledge, it is useful briefly to review some of the steps that have been taken.

TABLE 8 BLOOD ALCOHOL CONTENT, AGE AND SEX OF DRIVERS INVOLVED IN FATAL ACCIDENTS IN SOUTH AUSTRALIA, 1980 TO 1982

Blood Alcohol	Age of Drivers Killed in Fatal Road Accidents					TOTAL	
	16-17	18-19	20-24	25-39	40+	No.	%
MALES							
None	24	23	37	56	75	215	58.7
Under 0.05	-	2	5	1	2	10	2.7
.05 - .079	3	3	2	2	2	12	3.3
.08 - .149	-	10	14	7	6	37	10.1
.15 - .249	6	8	24	19	11	68	18.6
.25 +	2	1	5	9	7	24	6.6
TOTAL MALES	35	47	87	94	103	366	100.0
FEMALES							
None	7	4	8	7	15	41	70.7
Under 0.05	-	-	-	1	-	1	1.7
.05 - .079	-	-	2	-	-	2	3.4
.08 - .149	-	-	3	1	2	6	10.3
.15 - .249	-	1	1	3	2	7	12.1
.25 +	-	-	1	-	-	1	1.7
TOTAL FEMALES	7	5	15	12	19	58	100.0

Source: Coroner's Office, South Australia.

Note that totals differ from Table 2 because only drivers killed in road accidents are included - passengers and pedestrians are excluded.

4. STRATEGIES FOR REDUCING DRINK-DRIVING

In reviewing countermeasures, one of the most important points to emerge is the sheer variety of methods used. Broadly speaking, however, they can be divided into two categories: those which try to change the behaviour of the drink-driver, and those which concentrate on modifying his or her environment. The following pages examine some of the better-documented initiatives in each category, paying attention not merely to how successful they appear to have been in reducing road trauma, but also to their ability to do so without incurring massive expenditure or causing widespread inconvenience to the general driving population.

4.1 Changing the Behaviour of the Drink-Driver

4.1.1 Legislation: General and Specific Deterrence

In many countries, the immediate response to recognition that driving after drinking can entail high risk of accidents has been to introduce legislation setting limits on blood alcohol concentrations allowable, and providing sanctions for drivers detected with excessive levels. Both within Australia and overseas, penalties have varied widely, but most commonly fines, suspension of licences and/or terms of imprisonment have been prescribed. Such penalties are presumed to have both a general deterrent effect - discouraging persons who may not have offended from driving after drinking - and to specifically deter individuals who have been caught from repeating the behaviour.

With respect to general deterrence, it often has been argued that the experience of some Scandinavian countries, where even first offenders can be gaoled, shows the effectiveness of harsh penalties. However, as Ross (1981) has pointed out, this may be a myth. There is no evidence that severe penalties are more effective as a general deterrent, and they may even be counter-productive: making police more likely to warn rather than charge offenders (see West and Hore, 1980). Far more important, it seems, is ensuring that relevant legislation be perceived to be enforced.

This was powerfully demonstrated in the United Kingdom, when new restrictions on blood alcohol levels were introduced under the Road Traffic Act of 1967. The Act took effect in the context of an intensive three-month public information campaign, strong enforcement was undertaken and many convictions were recorded. There was an immediate fall of 11% in total road casualties, and of 15% in fatal casualties.

However, the United Kingdom experience also showed that perception of risks of detection could wear off. Despite continued high levels of enforcement, casualties associated with drink-driving began to rise again after a few years (Ross, 1973; Sabey and Codling, 1975). By 1976, the situation had become more serious than in 1967.

The problem with relying on drink-driving legislation as a general deterrent, then, is that although potential offenders need to be convinced that there is a high probability of detection, over time it becomes apparent that the real chances of apprehension are low. Moreover to really ensure that drink-drivers have a significant chance of being caught would be immensely costly, both in financial terms and in goodwill toward police. A Canadian study (Lee, 1982) has estimated that to raise the chances of detection above current levels of one in 1,000 to 2,000 would require a 20-fold increase in enforcement. Such high levels of activity might well lead to complaints of a 'police state'.

Generally, Australian experience has paralleled these overseas findings. Although penalties have been upgraded significantly in the past ten years, so that all states now put this offence in the "serious crime" category, violations remain widespread. In Victoria, for example, Hendtlass et al (1981) have found that as many as 70% of males admit to occasional drink-driving. The point is not merely that risks of detection are comparatively low, but that powerful social forces favour this type of behaviour:

> "A complex network of social attitudes governs how, when and where people drink and the degree to which the law conflicts with these drinking norms will be an important factor in its success or otherwise as a deterrent ... there are strong social pressures encouraging drinking before driving; the need to conform to group norms is a powerful motivating force, especially among young men, and where the law and social norms are in conflict, the threat of social sanctions will probably outweigh the threat of legal sanctions for many individuals."
> (Henderson, in N.S.W. Bureau of Crime Statistics and Research, 1982:16)

Such considerations have led to suggestions that drink-drive legislation may have limited value for reducing levels of offending among the general population. At first glance, however, it does seem more successful in discouraging offenders who actually have been detected: studies indicate that the majority of those found guilty are not reconvicted. Despite such evidence, there are at least two grounds for reservations about the effectiveness of drink-drive laws even as a specific deterrent. The first is that since only a minor proportion of offenders on the road at any one time are ever apprehended, estimates of true levels of recidivism must remain uncertain. Second and even more importantly, work both in Australia and overseas indicates that there is a small group of "high-risk" recidivists who are impervious to all penalties.

A significant study along these lines is Willett's (1973) comprehensive review of the impact of the legal system on motoring offences in Britain. He found that more than a third (36%) of persons convicted of serious violations (for example causing death by dangerous driving, driving under the influence) would admit to having disobeyed a subsequent disqualification order, and that most had never been caught. Even more comprehensive evidence is Homel's (1980) follow-up of 1,000 drink-drive offenders in New South Wales. Homel isolated several "high risk" groups who would re-offend no matter what penalty had been received.

A disturbing point about both studies is the similarities which seem to exist between recidivists and populations most often involved in alcohol-related crashes (see page 15). Homel, for example, identifies "drink-drivers who are probably alcoholics" and "young males for whom drink-driving is only one aspect of a general offending pattern" as key recidivists, while Willetts found that repeat offenders tended to be younger than control groups of offenders, to have lower education and occupational status, and to be more likely to have had prior convictions both for motoring and non-motoring offences. If these researchers are correct it must be conceded that even as a specific deterrent, prosecution and punishment have limitations, and that alternative measures need to be investigated.

4.1.2 Education: Media Campaigns, School Programs and Rehabilitation Programs

One of the most important alternative measures has been education. Regardless of the medium and techniques used, or the size of the 'target' population, all these programs aim

to reduce drink-driving by first increasing awareness of the problem, then modifying attitudes and behaviour.

Mass media campaigns are possibly the best-known. Employed at one time or other by virtually every country with a sizeable driving population, they have been shown to have considerable effect in heightening awareness and even changing attitudes. However, both in Australia* and overseas**, hard evidence of their effectiveness (eg. reductions in blood alcohol levels of motorists or in alcohol-related crashes) has proven to be elusive. As Nathan and Lansky (1978) and Wilde (1975) have pointed out, simple verbal measures - which form the basis of most evaluations - are not necessarily valid indicators of actual behaviour.

There is similar uncertainty about the usefulness of a second type of program: education in schools. This can involve instruction on the effects of alcohol as part of a general alcohol/drug or health education course, or be incorporated in driving courses where information about the effects of alcohol on performance forms part of the curriculum.

An innovative program in South Australia, introduced on a test basis into six schools, showed that education of the first type can have potential for preventing student alcohol abuse and modifying the behaviour of recent heavy drinkers (Hewitson, 1978). It did not seem to have impact, however, on long-term users. Information from the United States, moreover, has suggested that unless used carefully such programs may even lead to experimentation (Smart and Fejer, (1974)). Clearly, it is important to adopt a low-key approach: encourage informed discussion of the topic and teach it within the broader context of health or general education programs.

Similar caution seems to be in order with student driver education. Very little evidence has been produced that such courses reduce accident-rates (for a review see Harrington, 1972) and some research indicates that it may even be counter-productive because more young people apply for driving licences. In the U.S. state of Connecticut, for example, elimination of high school driver education programs in some districts led to a drop by 57% in licence applications for 16-17 year-olds, and this corresponded with reductions in crashes among this age-group (Insurance Institute for Highway Safety, 1981).

* New South Wales Bureau of Crime Statistics and Research, 1982.

** Farmer (1975), Pierce et al, (1975).

A third important type of education has been rehabilitation programs, which generally concentrate on repeated drink-drive offenders. Interest in such schemes has intensified over the past decade as evidence increasingly indicates that recidivists do not respond to conventional penalties such as fines and licence suspensions.

The U.S. has extensive experience in this area, where the Department of Transport has conducted rehabilitation programmes for drink-drivers since 1970. Over 50 Alcohol Safety Action Programmes have been evaluated, and there is consistent evidence of increased knowledge-levels and changes in attitudes. However, it seems that these schemes are more successful with social than problem drinkers (West and Hore, 1980). Since there is strong evidence that a high percentage - perhaps the majority - of alcohol-related crashes are caused by heavier drinkers*, it is not surprising that some commentators have begun to argue that although ASAP programmes have consumed large amounts of public money, there is insufficient evidence that they are effective in reducing alcohol-related fatal crashes (West and Hore, 1980).

Such critics may see further support for their arguments in a recent report by the New South Wales Bureau of Crime Statistics (1982), which found that compared to a control group, entrants in a Sydney rehabilitation programme in 1976 actually recorded marginally higher reconviction rates during a two year follow-up period. However, the authors point out that sampling difficulties may have affected results: high risk defendants were more likely to be referred to the programme, and some participants may have volunteered in the hope of obtaining lighter sentences, rather than out of a genuine desire for rehabilitation.** Inconclusive results often arise due to difficulties in developing sound evaluation designs, and changes in behaviour are also difficult to measure and can be very gradual. As most evaluation studies only allow a short period for measuring behavioural change, a longer study period may produce more encouraging results. Nonetheless such findings do highlight problems - not only in rehabilitation but all educational schemes. There is ample evidence that they can bring about short-term changes in attitudes, but society-wide pressures and mores which favour drinking and driving make it extremely difficult for these to be translated into behaviour. Obstacles are

* See earlier discussion, page 15; also Moser, 1979.

** One should also note that further analysis of the data by the Bureau indicates that the programme may at least have achieved one positive result: the length of time elapsed before the first drink-drive re-offence by programme participants was longer than for comparison groups.

particularly significant in Australia, where alcohol consumption is strongly promoted (see Table 9) as a major recreational activity, and stereotypes associate "holding one's drink" with such attributes as adultness, sociability, manliness and virility. Moreover, the target audiences which it is particularly important for these programmes to reach - problem drinkers and recidivists - seem remarkably resistant to virtually all forms of persuasion.

TABLE 9: COMPARISON OF DRINK-DRIVING CAMPAIGN AND LIQUOR INDUSTRY ADVERTISING EXPENDITURES IN VICTORIA IN 1977*

Type of Media	Drink-Driving Campaigns		Liquor Industry Advertising
	Paid ($'000)	Estimated Unpaid Equivalent ($'000)	
Metropolitan Daily Newspapers	0	58	862
Metropolitan Television	35	68	1958
Radio	26	96	6415
TOTAL	61	222	9235
Expenditure Ratios	1	3.6	151.4

* Source: Hendtlass et al, 1981:19.

4.2 Other Measures

A common element among all the measures considered so far is that they concentrate on altering the habits and decisions of individuals. In light of their apparently limited effectiveness in bringing about long-term reductions in accidents and fatalities, ideas have begun to change. In particular, some governments have started to adopt broad strategies designed to keep the activities of drinking and driving separate, and to ensure that physical environments are more forgiving for the alcohol-affected motorist.

Dramatic illustration of the potential of the first approach has been provided by twenty U.S. states which increased the minimum legal drinking age by periods varying from one to five years. Evaluations in eight states showed that legislative change had been followed by an average reduction

of 21% in road fatalities among 18 to 21 year-olds (the range was 6% to 75%). Further evidence of the significance of minimum ages for alcohol consumption on road casualties is a recent authoritative study by Duke University. It surveyed 48 American states for the period 1970 to 1977, and showed that after the minimum age had been lowered from 21 to 18, drink-driving related fatalities among persons aged 18 to 20 increased by 7% (Time Magazine, 31/3/83). Canadian studies confirm the importance of this factor. After the drinking age in Ontario was lowered from 21 to 18 in July 1971, numbers of alcohol-related driving accidents among 15-19 year-olds increased by 75% (Gallant, 1982).

To date, no state in Australia has manipulated the minimum age for alcohol consumption as a means of combatting road accidents, although some do implicitly recognise the high vulnerability of young and inexperienced drivers by stipulating lower minimum blood alcohol levels for such road users.* In light of coronial and hospital statistics, there can be little doubt that an initiative along the lines of some U.S. states could have a significant impact on the frequency of accidents. Indeed in Australia, where there is increasing use of facilities in larger hotels (eg. discotheques) as centres for entertainment, young people are placed in a particular dilemma. On one hand, there is the emphasis placed on consumption of alcohol at such venues specifically designed for their age-group, and on the other the fact that the most convenient (sometimes the only) method of transport is to drive (or be driven) to the hotel. It can, of course, be argued that to impose restrictions on 18-20 year-olds that do not exist for other adults would be a gross infringement of their civil liberties. An alternative and more "democratic" way of imposing barriers between drinking and driving could be by modifying vehicles so that the alcohol-affected are prevented from driving.**

An objection commonly made to such measures is that they would be just as costly and inconvenient for the law-abiding as for the drunken motorist. Similar sentiments may help account for the comparative lack of emphasis that has been placed on a final option: making the physical environment more 'forgiving' for alcohol-impaired drivers. The following are among measures suggested by various experts:

* Tasmania makes it illegal to have any alcohol in the blood during the first year of driving, Western Australia and South Australia set lower BAC limits for probationary drivers (0.02% and 0.05% respectively).

** One example is an ignition interlock which could be fitted with a breath testing device, so that the vehicle will not start unless the driver has been "passed".

- relocation of roadside hazards such as utility poles, large trees, fences and guideposts, or their redesign to minimise potential impact-damage to vehicles and their occupants;
- design of road control devices to take account of the longer reaction-times of alcohol impaired drivers;
- making road signs more visible and use of larger lettering;
- implementation of vehicle-design features which would minimise injuries in accidents (eg. soft inside surfaces, bags that inflate on impact) (See South, 1982 for an overview)

To advocate such initiatives may seem to imply fatalistic acceptance of drink-driving, which many people denounce not merely from a pragmatic but from a moralistic point of view. However, it should always be remembered that in Australia the most significant factor in reducing the rate of road deaths and injuries - compulsory wearing of seat belts - is design related. Although undoubtedly important, alcohol is only one of a large number of factors contributing to road accidents, and measures to reduce risks for drinking drivers will have potential benefits for all. To quote H. Lawrence Ross (1981:99):

> "A vehicle and highway that are safe for a drunk driver are also safe for the driver who has a heart attack, one who dozes off, who drops his lighted cigarette into his lap, one who fails to see a stop sign or a vehicle approaching from an unexpected angle, etc."

5. RANDOM BREATH TESTING (RBT)

5.1 Introduction - RBT Overseas and in Australia

The preceding discussion provides some indication of the strengths and limitations of important drink drive countermeasures. Generally, it seems that those aimed at changing individual behaviour have had some success, but over time their effectiveness has tended to diminish. Alternatives, which concentrate on separating drinking from driving or on modifying the motorist's environment, offer better hope of long-term reductions in casualties but would inevitably involve significant expense.

In this context, it becomes easier to understand why governments have turned to random breath testing. Broadly speaking, the term RBT refers to any system of legislation which enables law enforcement officers to stop a driver and administer an alcohol breath test, regardless of whether there are reasonable grounds for suspecting that he or she has committed an offence. The philosophy behind this approach is to strengthen the effectiveness of law as a general and specific deterrent by increasing the drink-driver's perception of probabilities of apprehension.

Scandinavian countries, which consistently have adopted more stringent policies toward drink-driving than other nations, were pioneers in informal experiments with random testing. As long ago as 1936, for example, Norway introduced an informal system of 'random' roadblocks and breath testing, and neighbouring Sweden introduced the first RBT legislation - on a provisional basis in 1974. Even before then, however, in the early 1960's Britain had prepared a road traffic bill which allowed for random screening, but after public outcry about civil liberties implications government deleted the relevant provisions. Later, in 1975, police in Cheshire informally initiated an RBT campaign. According to Ross (1981) it had virtually no impact on road casualties until complaints about the practice attracted widespread media coverage.

Until France implemented RBT legislation in 1978, very few of these early initiatives had been subject to evaluation. However, Ross (1982) explored the impact of the French laws and concluded that these did reduce crashes, injuries and deaths. Effects turned out to be relatively short-lived, though: within a few months casualties reverted to previous levels - probably because the public began to realise that chances of detection remained low.

Locally, Victoria was the first state to move toward RBT, (in July 1976). At first, because police resources were limited, levels of testing were low (average of 8 hours per week), and the initiative seemed to have only weak influence on the number of alcohol-related accidents. Subsequently, however, - as part of a concentrated attempt to assess the potential of the new system - study periods of "increased" (average of 32 hours per week) and "intense" (average of 100 hours per week) activity were introduced. These lasted from four to eight weeks, and were accompanied by strong publicity. Evaluations produced some evidence that "increased" activity had reduced accidents - especially at night (Cameron et al, 1980) - and strong support for the view that "intensive" RBT could significantly cut down the risk of serious night-time casualties (Cameron, 1982). It also seemed that the benefits of an intensified operation would persist for at least two weeks after the testing period, and could spread to adjacent areas. Researchers suggested, however, that a month's operation may not have been sufficient for the system to achieve maximum effectiveness.

Following publication of these results, several other Australian states and territories have introduced RBT either on an experimental or a permanent basis. In most, information emerging about initial operation of schemes has been encouraging,* although it is far too early for conclusive assessment. When these final evaluations do occur, however, the Victorian and overseas experience suggest that they must take account of at least two important considerations.

One is that the term "Random Breath Testing" can embrace a variety of programs, differing not only in their intensity of application but in degrees of associated publicity, and that both these variables can be of immense importance in determining whether RBT has any effect. The other is that consistent evidence suggests that even if RBT does have an immediate impact, this may well diminish over time.

Of course, neither of these observations could be described as 'iron laws'. Nonetheless they are useful points to bear in mind when scrutinizing the South Australian experience.

* The Northern Territory implemented RBT on 1 February 1980. Subsequently, total road deaths fell by 14.2% in the 1980/81 financial year (4.7% in the Darwin region), and injuries were down by 10.3% (Northern Territory Traffic and Technical Services Directorate, 1982). New South Wales introduced RBT on 17 December, 1982 and early (February 1983 - see Homel, 1983) surveys have indicated strong public awareness of RBT and modifications in driving behaviour by at least 50% of respondents. The ACT, which introduced its RBT legislation simultaneously with NSW, experienced substantial reductions in serious road accidents during the first two months of operation. (Canberra Times, 18/2/83)

5.2 The South Australian Experience

5.2.1 Background

In political terms, initial impetus for adoption of RBT in South Australia occurred in September 1979 when the Liberal Party, in Opposition, enunciated a new health policy which included proposals for random testing. Subsequently, after winning a State election in October 1980, the new Liberal Government brought a Road Traffic Amendment Bill, with RBT provisions, before the Legislative Council. The Bill was not successful. Rather than rejecting random testing outright, however, the Upper House established a bi-partisan Select Committee to review the issue.

Both in written and verbal evidence received, the weight of opinion favoured random testing as a mechanism for reducing road deaths and injuries and for deterring and detecting offenders. Victoria's experience was seen as particularly significant. Some groups, however, were opposed - mainly on the grounds of the threat to civil liberties. Among these critics, doubts also were expressed about the validity of the Victorian evaluation, and there was concern over RBT's potential impact on employment in the liquor industry and on public respect for the police.

These reservations were noted in the Committee's final report to Parliament, in March 1981 (Cameron, 1981). The Committee recommended introduction of RBT, but on a "sunset" basis. Relevant legislation should be operative for an initial period of three years and should be evaluated independently. Only if these studies showed that the laws had been effective should they be reintroduced. The Committee also suggested that the capacity to conduct random breath testing should not extend to all police patrols, but be the province of officers at specially designated facilities. Manpower of the South Australian Police Department's Traffic Section should be increased to cope with the extra workload. Finally, separate penalties should apply for offenders detected at RBT stations, and these should not include imprisonment.

Although not all the Select Committee's recommendations were adopted, the major points were incorporated into the Road Traffic Act Amendment Act (No. 3), 1981, which was proclaimed on 18 June 1981. After a delay while administrative arrangements were finalised, the South Australian Police Department began to apply random breath testing on 15 October, 1981.

Actual operation of the new system brought to a head a divergence of opinion which had been developing for some time in the State's two major daily newspapers. The Adelaide Advertiser was generally supportive:

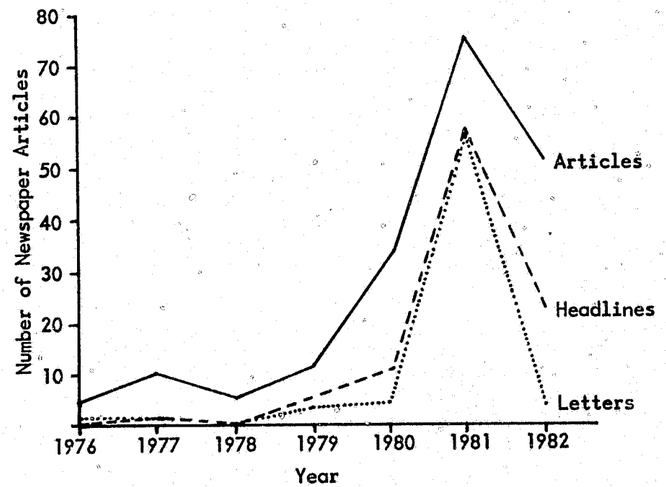
"Netting drink drivers. Tests aimed at reducing toll."
(Advertiser, 18/10/81 - Article)

The News, however, was so strongly opposed that the first alleged offender was treated almost as a martyr:

"First breath test 'victim' is youth, 17."
(News, 18/10/81 - Editorial)

Review of these two papers shows that the number of articles on RBT had been steadily increasing, from eight in 1976 to a peak of 191 in 1981 (Figure 4).

FIGURE 4 RANDOM BREATH TESTING IN SOUTH AUSTRALIA ; AN ANALYSIS OF THE NUMBER AND TYPES OF NEWSPAPER ARTICLES APPEARING IN THE SOUTH AUSTRALIAN MEDIA DURING THE YEARS 1976-1982*



* Source: Analysis of Sunday Mail, The Advertiser & The News.

In 1982 the number fell back to 77, by which time the approach had changed considerably. Prior to introduction of the legislation, treatment of the issue had been generally of the "public opinion" style: many letters were printed, and the media assumed the role of a public voice on the issue. In both papers, the tenor of the overwhelming majority of articles was against introduction. By contrast, four opinion polls conducted between 1977 and 1980 showed widespread and increasing public support for the introduction of random testing: in South Australia results ranged from a low of fifty percent in favour (1977) to a high of seventy-nine percent (1979).

When the legislation was passed, in June 1981, media interest was at its highest - but by now The News and The Advertiser had become sharply divided:

"The State Government's apparent determination to proceed with random breath testing legislation ... is to be applauded." (Advertiser, 2/6/81 - Editorial)

"The News opposes random breath testing."
(News, 3/6/81 - Editorial)

Conflicting views persisted throughout the initial twelve months of RBT operations, but opinion polls continued to reflect support for the measure - 70% in December 1981 and 76% in December 1982 (see Appendix D).

5.2.2 How the System Operates

Whereas the Select Committee recommended that six RBT groups, manned by 30 officers, should operate (three in the metropolitan area, and one in each of the South East, Riverland and Iron Triangle areas), for almost the first 18 months only two units were in use.

According to the Police Department's first report on the operation of RBT in South Australia for the period ending 30/6/82, one test team operated in the metropolitan area daily (Sunday excepted) - generally at three separate locations in shifts covering late afternoon to early morning. In country areas, one team operated on Thursdays, Fridays and Saturdays over a similar hour span, and returned on Sunday to operate at one or two locations, in the country or city, en route.

These procedures were reviewed early in 1983. Although no additional resources were provided, the South Australian Police Department did boost RBT by introducing a change in deployment strategies on 31 March, 1983. The move was timed to coincide with an intensive police road safety campaign that was held over the Easter holiday period, and was considered desirable because statistics had suggested that complacency may have developed among drivers about the possibility of being detected by an RBT unit (Advertiser, 29/3/83). By dividing existing teams into four units, which used the special RBT vans as "mother ships", and by including RBT as part of the normal function of country patrols in places where a breathalyser operator was based, it was at times possible to increase units in the metropolitan area from one to four, and in the country from one to eleven. (Advertiser, 29/3/83).

Throughout the entire period of its operation, Police Department policy on RBT has been that procedures should be quick, safe and orderly, and that motorists should receive courteous and professional treatment. Consistent with both safety considerations and the objective of raising drinking drivers' perceptions of the risk of being apprehended, warning signs, traffic cones and flashing lights are used.

Police activity at breath testing stations is confined to the taking of breath tests, and no records have been kept unless a positive alcotest is returned. In the event of a positive*alcotest the driver must wait for 20 minutes to undergo a breath analysis. If this proves negative, the driver is able to proceed without further delay. In the event of a positive breath analysis, however, the driver is not usually arrested but charged on summons and permitted (if possible) to go in the charge of some responsible person. Arrests at breath test stations are rare.

Breath test locations have been selected on the basis of three considerations:

- accident statistics (eg. approaches to collision centres);
- non discrimination as to area or business; and
- suitable site (eg. where motorists cannot detour).

5.2.3 Impact

In attempting to assess the impact of RBT, two types of information are available. The first consists mainly of qualitative impressions obtainable from representatives of relevant industries: hotels, clubs, breweries and taxis.

*Positive: i.e., preliminary reading over 0.08.

Second, there is quantitative data on the number and characteristics of persons apprehended for drink-drive offences, hospital admissions and road fatalities.

With regard to the first aspect - effects on private enterprise - telephone surveys have indicated that when RBT actually came into operation hotel trading dropped by an estimated 30%. Gradually, most of the lost trade was regained, but longer term changes do appear to have occurred in drinking patterns. Lunch time trade in city hotels is up, while early evening trade is down. Also, hotels closer to residential areas now appear to be attracting customers who, after work, would previously have patronised bars closer to their work places (News: 15/10/82). This suggests that people now visit hotels within walking distance rather than travelling further afield by car, or they decide to drink at home - for draught beer sales across the bar have declined, while sales of "package" liquor have increased (Spurr, 1983). Evidence from restauranteurs (Sunday Mail 10/10/82) also seems to support the view that drinking habits have changed. They have suggested that diners are drinking less and leaving earlier. Also, during the first year of RBT, licenced clubs experienced a 9 percent drop in general bar trade (News, 15/10/82).

Initially, after the introduction of RBT, there were signs that sales of low alcohol beer had gained ground. This could partially have been due to the South Australian Government's introduction of a licence fee differential between low alcohol and standard beers (2% and 9% of gross liquor purchases, respectively) in January, 1982.* However, spokespersons for breweries have suggested that the increased interest in low alcohol beer was largely attributable to the introduction of RBT and the associated publicity. As sales of low alcohol beer have since declined, this seems a likely explanation.

One major beneficiary from the legislation appears to have been the taxi industry. Initially, an overwhelming increase in demand was experienced between mid October, 1981 and the New Year of 1982. While this has levelled off, both bookings and "hail" business have remained at an increased level, especially on Thursday, Friday and Saturday nights.

* From 1/4/84, the licence fee for standard beer will increase to 12%, but will remain at 2% for low alcohol drinks.

Feedback from key sections of private enterprise suggest, then, that random breath testing had significant initial impact and may also have induced longer-term changes in patterns of drinking. More important than these impressions, however, is quantitative evidence on arrests and court appearances and on road casualties. Here, the indicators are more equivocal.

Between 15 October 1981 and 30 September 1983 - the latest date for which figures are avilable - a total of 159,208 tests were administered. Of these, only 1170 (0.73%) were shown by subsequent breath analysis to be above the 0.08 level. Percentages with illegal levels generally were higher in country than metropolitan areas.* As figures 5 to 8 confirm, use of the term "random" in relation to the new system really only relates to the way in which motorists passing RBT sites are pulled over for screening. Although testing occurred in most parts of South Australia, the Police Department appeared to concentrate mainly on times and geographical regions where accidents (including alcohol-related ones) were most frequent. Data on hours the new system operated also suggest that South Australian police attempted to emulate the Victorian practice, where high visibility of RBT units early in the evening seemed to deter people from subsequent drinking and driving.

* 0.87% as opposed to 0.62% - note that these figures are only for the period 1/10/81 - 30/6/82.

FIGURE 5 ALCOHOL RELATED ACCIDENTS[1] AND RANDOM BREATH TESTING IN SOUTH AUSTRALIA BY DAY OF THE WEEK (PROPORTIONATE DISTRIBUTION)

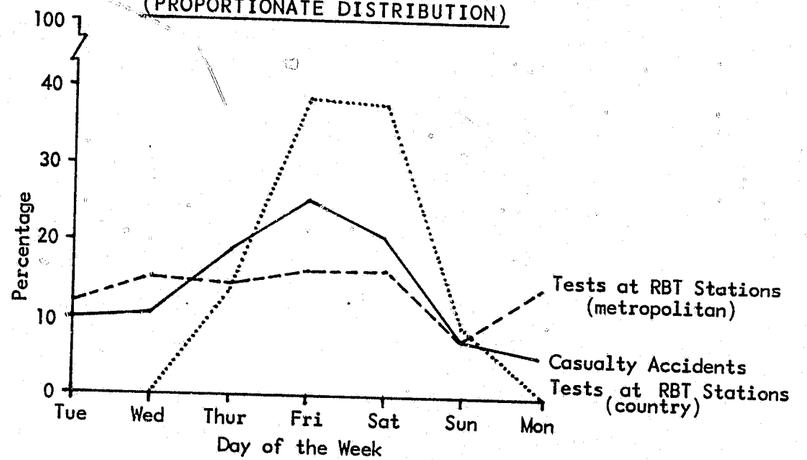
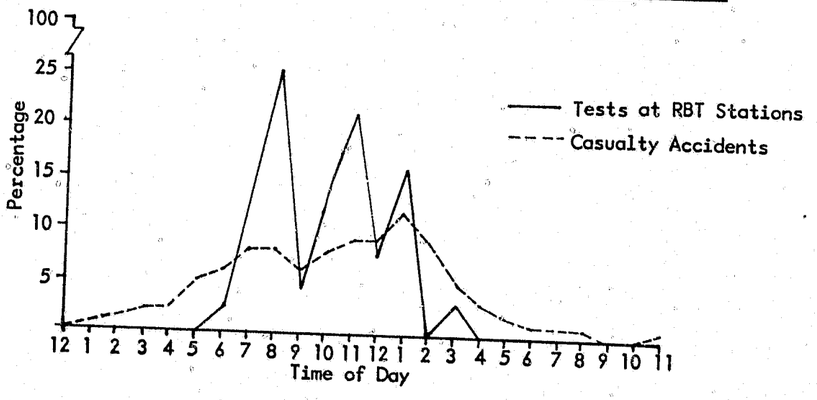


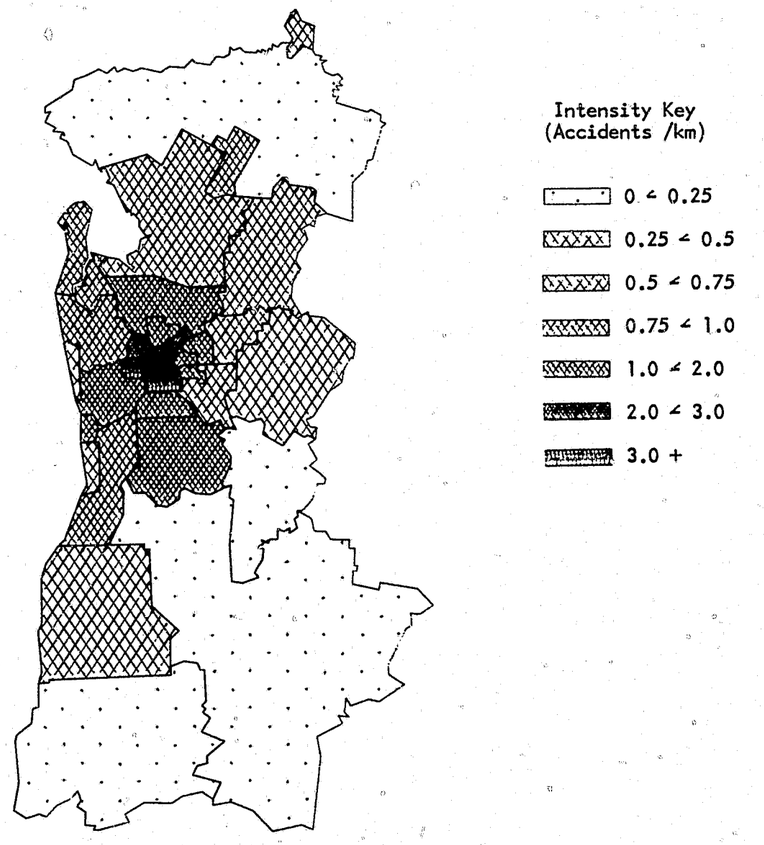
FIGURE 6 ACCIDENTS[1] AND RANDOM BREATH TESTING[2] IN SOUTH AUSTRALIA (PROPORTIONATE DISTRIBUTION)



[1] Year Ended 31st December 1980 (Source: Road Traffic Board of S.A. 1982)

[2] Period 15/10/81 to 30/6/82 (Source: Commissioner of Police, Breath Tests: First Statutory Report, 1982)

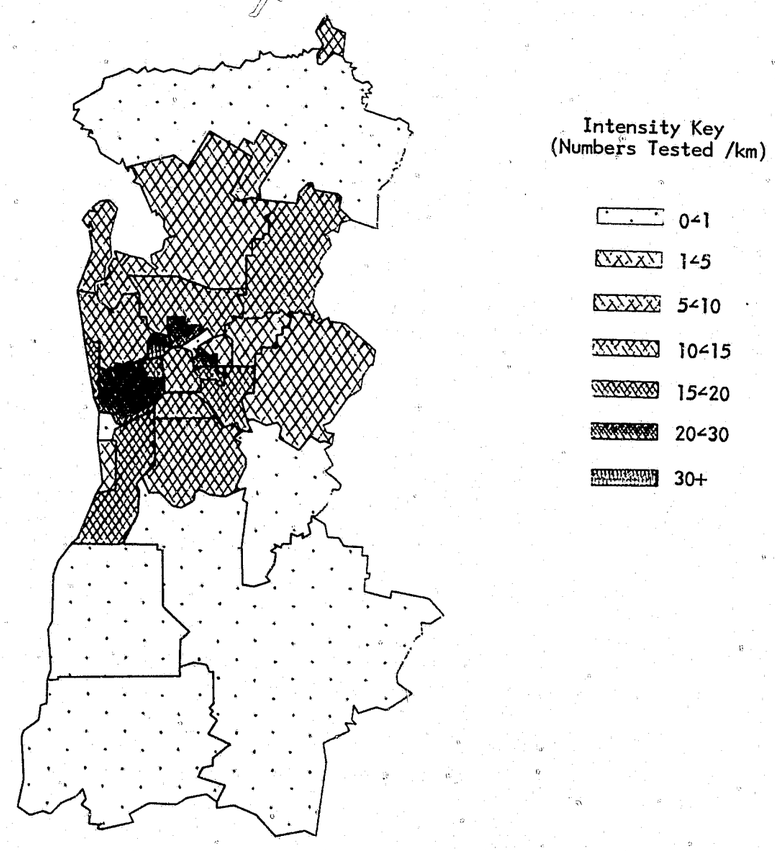
FIGURE 7 INTENSITY MAP OF ROAD ACCIDENTS PER LENGTH OF ROAD IN ADELAIDE METROPOLITAN AREA, 1981*



* Actual numbers and definitions are contained in Appendix A, Table 12.

Source: Derived from Road Safety Board and NAASRA Roads Study, Highways Department of South Australia.

FIGURE 8 INTENSITY MAP OF NUMBERS TESTED AT RBT STATIONS PER LENGTH OF ROAD IN ADELAIDE METROPOLITAN AREA, 15 OCTOBER 1981 - 30 JUNE 1982*



* Actual numbers and definitions are contained in Appendix A, Table 12. For further maps see Appendix A, Table 1 to 4.

Source: Derived from Police Commissioner's First Statutory Report on the Operation of Random Breath Testing in South Australia.

Concentration on days and locations where accidents were most frequent did not mean that random testing was notable for netting large numbers of drinking drivers. Compared with genuine random samples in the Adelaide metropolitan area taken before RBT was introduced (McLean, et al, 1980), percentages of motorists at testing units recording positive alcohol levels have, in fact, been quite low.* This does not necessarily mean that RBT was ineffectual. As preceding discussion has shown its main objective is to discourage, not detect, offenders. Drivers who had been consuming alcohol may simply have been able to avoid testing stations which have generally been sited conspicuously on main roads. In the light of this possibility, however, it would be unwise to use breath-test results as indicators of absolute levels of drink-driving in the community. At best, variations in percentages of positive results only provide information about the system's relative usefulness over time as a deterrent.**

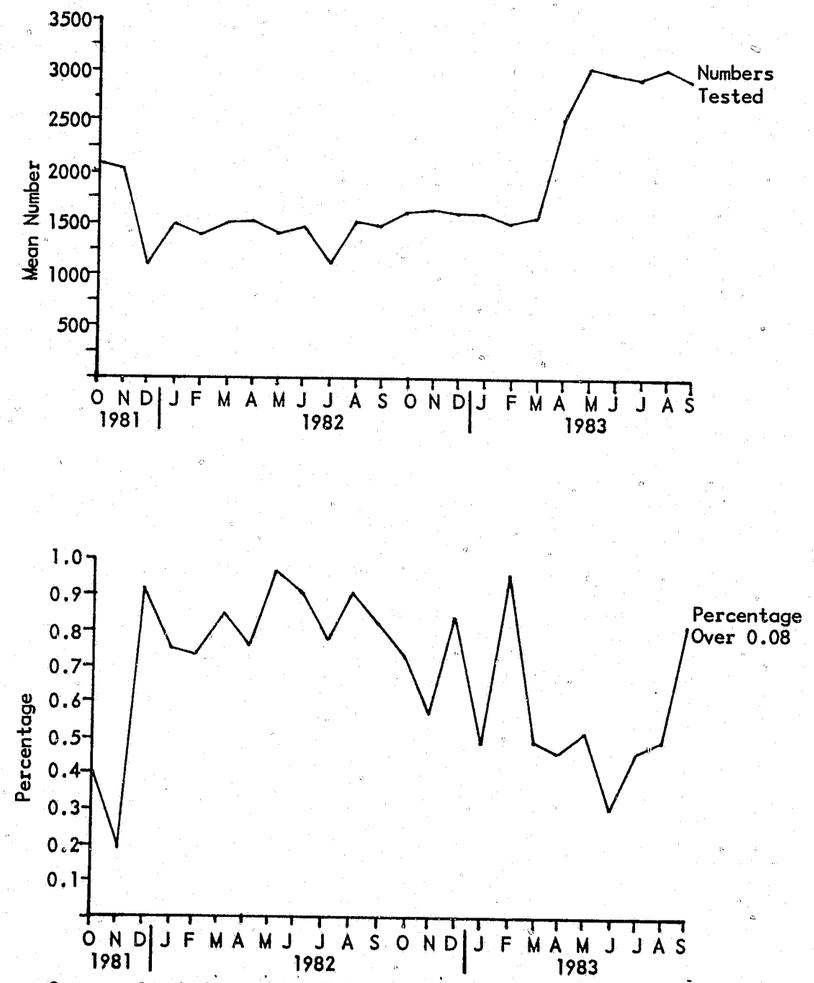
Viewed on this basis, the test results suggest that RBT had some effect on driving habits soon after being introduced, in the final quarter of 1981. However, the Christmas/New Year period saw a blunting of sensitivities and although proportions of positive tests dropped again in January, they remained far higher than the pre-Christmas levels. Thereafter, the percentages of drink-drivers detected by RBT remained fairly constant until March-April, 1983: the time when police procedures on deployment of units were reviewed (see page 30), and the number of motorists screened each month virtually doubled. This initiative was associated with a significant drop in percentages of positive blood alcohol readings recorded, and it was not until August-September 1983 that figures began to climb back to previous levels (see Figure 9 opposite).***

* McLean et al's research in 1979 showed that before RBT, approximately 8.4% of drivers in Adelaide had positive blood alcohol levels, and 1.6% were above 0.08.

** Note that even this use of RBT results relies on an assumption that offenders' success in avoiding testing stations will remain constant over time. This also is not certain.

*** Because the redeployment of RBT units was not conducted as a controlled study, some caution must be exercised in interpreting the variation in percentages following redeployment. It could also have been due to different types of road sections being attended.

FIGURE 9 NUMBER OF RBT TESTS ADMINISTERED AND MOVING AVERAGE OF PERCENTAGE OVER LEGAL LIMIT, SOUTH AUSTRALIA, 15 OCTOBER 1981 - 30 SEPTEMBER 1983

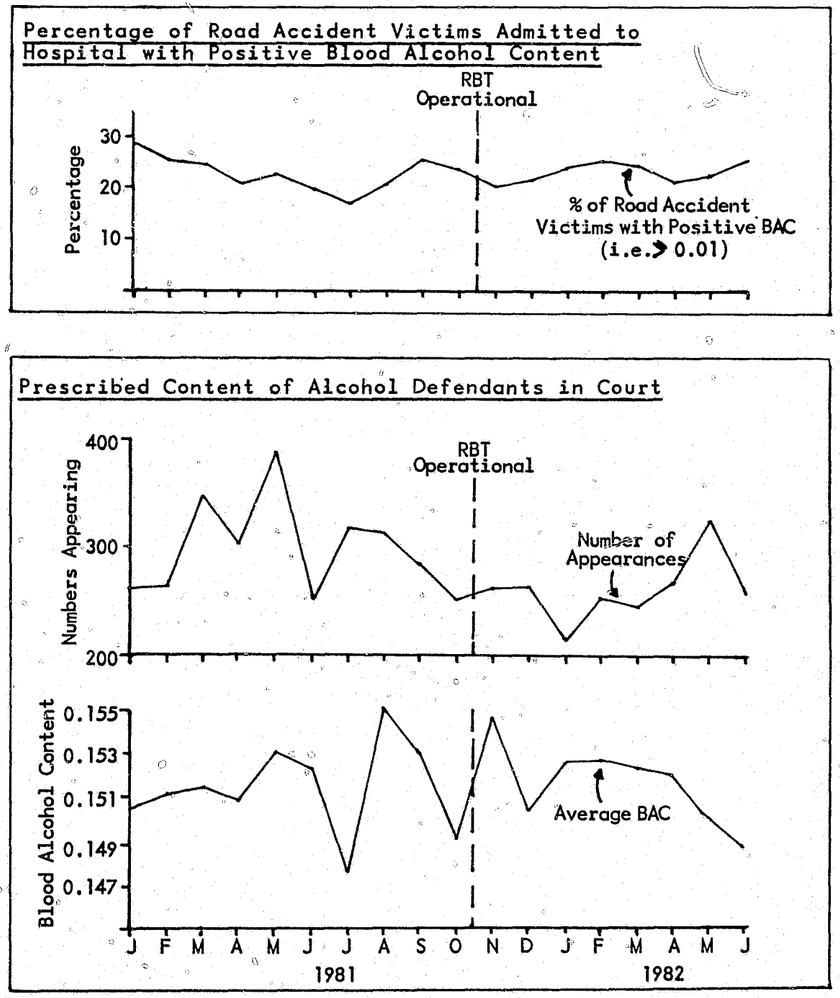


Source: South Australian Police Department. (Note: the moving average is calculated on a monthly basis).

Such results are consistent with Ross' (1981) argument - based mainly on overseas experience - that although RBT can have strong initial impact, this will tend to wear off over time as drivers appreciate that chances of detection remain low. Further support for such a view is provided by South Australian data on road injuries, hospital admissions and the blood alcohol levels of drink-drivers appearing in courts. Compared with averages for the preceding four years, the final quarter of 1981 recorded a significantly lower level of road fatalities (57 as opposed to 71) - particularly in rural areas - and a slight decrease in casualty accidents (down 4% - from 2074 to 1990).* Moreover, among those road accident victims who required treatment in hospital, percentages with positive blood alcohol readings fell (Figure 10). Finally, average BAC readings for defendants appearing in court for PCA offences committed during this period were somewhat higher - suggesting that all but the chronic drink-drivers may have been deterred. As with RBT screening results, however, these patterns were disrupted by the Christmas/New Year period, and gradually reverted to 'normal' levels during 1982. It is still too early to tell whether the changes to RBT procedures initiated during April 1983 had an appreciable effect on the figures.

* For metropolitan areas, the number of deaths in October - December 1981 was 29 compared to an average of 34 in preceding years, whereas in rural areas the figure was 28 as opposed to an average of 37. The fall-off in casualty accidents was far more evenly distributed: down 3.8% (1423 compared to 1479 average) in metropolitan areas, and 4.7% (567 compared to 595 average) in rural. For full details of these figures, obtained from the South Australian Road Traffic Board's annual Road Traffic Accidents publication, see Appendix A, Table 11.

FIGURE 10 HOSPITAL ADMISSIONS AND PCA DEFENDANTS IN COURTS OF SUMMARY JURISDICTION, JANUARY 1981 TO JUNE 1982

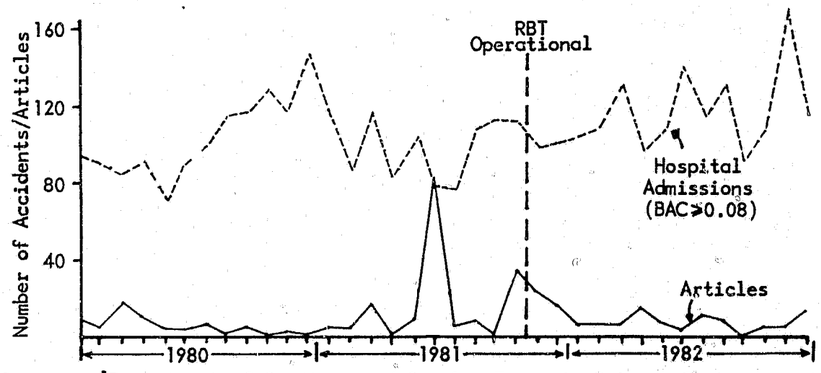


Sources: Department of Services and Supply; Forensic Science Centre and Office of Crime Statistics.

Figure 10 provides some grounds for believing that in South Australia, as in other states, RBT has had an effect on levels of drink-driving. It seems, however, that the initial impact was fairly short-lived - some 2-3 months - although the police decision early in 1983 to increase numbers of tests being administered may well have seen some renewal in its capacity to deter. In light of these findings, it is appropriate to ask whether and how the system might have been improved.

The first point to be made in this context is that devotion of resources to the system- particularly in the initial stages - was far less than the Parliamentary Select Committee which investigated this issue had recommended. Second, and equally importantly, use of RBT has not been associated with a specific program of publicity. Even though the Victorian evaluations highlighted the importance of this aspect, random testing was introduced - and has continued to operate - in this State on a fairly 'low key' basis. Perhaps this is inevitable, given the divisions RBT has generated in the media and in politics. An unintended consequence, however, is that the system seems to have received more attention in the printed media before than after it became operative. As Figure 11 shows, the peak of newspaper attention occurred in June 1981, when relevant legislation was enacted by Parliament - and this was the time when other indices of drink-driving (for example road deaths and injuries) reached their lowest ebb. To sum up, the fact that RBT in South Australia was introduced in a tentative fashion at the end of a fairly lengthy period of heightened publicity about drink-drive issues may well have prevented it from achieving maximum effectiveness.

FIGURE 11 ALCOHOL RELATED ACCIDENTS[1] AND NEWSPAPER ARTICLES[2]



Sources: [1]Department of Services and Supply, Forensic Science Centre. (Accident victims admitted to hospital).

[2]Analysis of Sunday Mail, The Advertiser & The News.

From a road safety perspective these results may seem disappointing, but they should not obscure the fact that even in its present form RBT has had a number of positive aspects. Although opponents of the new system had argued that it would be perceived as a threat to civil liberties and might even undermine respect for police, there is little evidence that this has occurred. An opinion poll in metropolitan Adelaide in September 1982 - eleven months after RBT was introduced - in fact has indicated that support was growing.

This survey also provides some backup for the claim by hotels, restaurants and other associated industries that RBT has had a lasting effect. Compared with 1981 figures, the proportion of motorists reporting that they had recently driven after consuming alcohol had dropped by 12 percent (from 49 percent in 1981 to 37 percent in 1982).*

Random breath testing also seems less "unrepresentative" in its selection of offenders than ordinary police patrols. As Table 10 (over) shows, higher percentages of women and older males are detected by this method - and as previous discussion (page 9) has shown, such groups drink and drive rather more than arrest figures indicate.

* Fischer and Lewis (1983) - see Appendix C for details. Like Homel (1983) in Sydney, they also found that young males were among those least in favour of random breath testing.

TABLE 10 MODE AND DATE OF APPREHENSION, BAC AND DEMOGRAPHIC CHARACTERISTICS, PERSONS APPEARING ON PCA CHARGES IN COURTS OF SUMMARY JURISDICTION, 18 MONTHS BEFORE AND AFTER RBT BECAME OPERATIONAL ON 15 OCTOBER 1981*

Characteristics Of PCA Defendants	18 Months Before RBT Operational	18 Months After RBT Operational	
	Police Patrol (N=3748)	Police Patrol[1] (N=3930)	RBT Station (N=605)
% Males	93.7	93.1	90.6
% Unemployed	18.8	28.2	14.7
% Never Married	59.5	65.9	48.8
Average Blood Alcohol Content	.153	.153	.133
Average Age (years)	29.1	28.5	32.8
% In Each Age Group			
. 18 - 19	16.6	16.2	7.5
. 20 - 24	35.2	34.5	23.6
. 25 - 29	18.9	18.6	20.4
. 30 - 39	19.5	17.0	25.0
. 40 & Over	9.8	13.7	23.5

* Sources: Office of Crime Statistics and South Australian Police Department. Only two thirds of the RBT apprehensions could be matched with court figures. Nonetheless analysis of RBT data (see Appendix D) indicates that this was a representative sample.

[1] Includes some RBT cases which could not be matched, accounting for at most 7% of the total in this column.

Finally, it should be noted that even if other key indicators are reverting to pre-RBT levels, sentences imposed have changed: hardly any drink-drive offenders are now being imprisoned, although durations of license suspensions and levels of fines have increased (Table 11). Of course, this is not a direct result of RBT, but a consequence of other legislative changes which accompanied introduction of the new system (see Appendix B). Nonetheless, in light of increasing evidence that imprisonment cannot be shown to be more effective than other penalties as a general or specific deterrent (page 17), the change is significant. Perhaps South Australia finally has moved away from the "Scandinavian myth" that only the threat of incarceration can prevent drink-driving.

TABLE 11 PENALTIES FOR PERSONS CONVICTED OF PCA OFFENCES IN COURTS OF SUMMARY JURISDICTION, 18 MONTHS BEFORE AND AFTER RBT BECAME OPERATIONAL ON 15 OCTOBER 1981*

Type of Penalty	18 Months Before RBT Operational	18 Months After RBT Operational
Imprisonment		
. Number	233	1
. Average Duration (months)	8.8	3.0
Licence Suspension		
. Number	3185	4176
. No. With Indefinite Suspension	53	90
. Average Duration (months)	7.9	9.7
Monetary Fines		
. Number	3392	4253
. Average Amount ($)	347	420
TOTAL CONVICTED WITH PENALTY	3625	4254

* Source: Office of Crime Statistics

6. CONCLUSIONS

At the outset of this report, the authors made it clear that they would not be attempting a comprehensive evaluation of Random Breath Testing. We have set ourselves a more modest target: collating data and arguments which might help readers make up their own minds. Nonetheless, in the light of information considered, at least some tentative conclusions seem possible.

One of the most important is that in many respects, South Australia's experience has been unique. In other states and overseas, implementation of RBT seems to have received almost unanimous support from the media. This has not been the case in South Australia, where random testing has been opposed not only by specific interest groups but by one of the two major daily newspapers. The dissenting views do not seem to have affected public opinion, for in the two years that RBT has been operating the majority in its favour seems actually to have increased. Nonetheless, they may well have influenced the way the new system was introduced: particularly in the early stages testing seems to have been less intensive and the deployment of units more 'low key' than in other states, and there was no coordinated and aggressive publicity campaign.

Possibly as a result of these factors RBT seems, paradoxically, almost to have had greater impact before it commenced operation rather than afterwards. Indications are that drink-driving dropped to its lowest ebb in June, 1981, when legislation went through Parliament and public debate was most intense. However, after that date almost four months elapsed before administrative arrangements could be completed and units deployed. During this time, media interest waned and there seems to have been a gradual increase in PCA offences. Once RBT actually became operative, on October 15, the trend was reversed - there can be little doubt that the new system did somewhat reduce road deaths and injuries during the final quarter of 1981. However, much of the effect appears to have dissipated during the Christmas/New Year period, and except for some months during 1983 when the redeployment had its effect, indicators of drink-driving again have been reverting to 'normal' patterns.

The distinctiveness of South Australia's approach to random testing has at least two important implications for attempts at evaluation. The first is that crude "before and after" comparisons - simply contrasting accident figures for the 12 months up to 15 October 1981 with the 12 months

following - would be misleading: 1981 was a far from 'average' year. Second, and even more importantly, it is clear that even when more appropriate bases for comparison are found, researchers in South Australia can only be assessing one version of RBT. Before final judgements are made, it is essential that there be more systematic experiments along the lines of those documented by Cameron and his colleagues in Victoria. These would put road safety experts, policymakers and planners in a far better position to decide not only whether the system can achieve its desired objectives, but what modes of random testing and what types of associated publicity can be most effective.

If and when such research does occur, it is to be hoped that it will also include controlled comparisons between RBT and other countermeasures. Our review of the literature has revealed a variety of ways in which communities can attempt to reduce the destructive side-effects of drink-driving. Some, like RBT, are concerned with the individual motorist's decision to consume alcohol whereas others concentrate on keeping these two activities separate or on modifying the road-user's environment. Undoubtedly, part of the attraction of programs concerned with treating or punishing individuals is that drink driving is seen as morally deficient, and therefore in itself worthy of intervention. However, this concern with ethics should not be allowed to obscure the fact that many of the more successful road safety measures - for example raising the minimum legal age for alcohol consumption or making the wearing of seatbelts compulsory - take an entirely different approach. They accept that driving per se can be a dangerous activity, and seek to protect all drivers, not just those who are irresponsible or alcohol impaired.

From this broader perspective, our view is that events during the past two years have confirmed that RBT can be effective - particularly in the shorter term and if associated with intensive publicity. However, its longer-term usefulness may well be more limited. Rather than being seen as a panacea for drink-driving it should take its place within a battery of countermeasures.

We also are convinced that rather than trying to arrive at simple "yes" or "no" answers about RBT, researchers and policy-makers should begin to address the more complex issue of whether, and in what circumstances, it is more cost-effective than other safety measures. To be able to tackle such questions, though, there may need to be some change in approaches to research. Despite the considerable number and excellent quality of papers written on this topic, and the

quantities of data produced, much of this information has been been of limited use as a guide for policy makers. This is because there are still very few guidelines for deciding which countermeasures will yield best returns from a particular investment of manpower and resources. Moreover, in spite of the masses of data now being accumulated on alcohol consumption, motor-vehicle use, and road accidents, there are still no clear answers to the most basic questions of all: who are the most dangerous drink-drivers in the community, why are they more at risk, and what are effective prevention strategies.

While it can be argued that additional research-funds are essential, a first priority should be the reordering of existing activities. Road safety in South Australia urgently needs a central body to standardise data-collections, coordinate the allocation of funds and priorities for research, and draw out the policy implications of studies. Such a move could ensure that maximum benefit is obtained from current and past research work, and also be a small, but important, step in making progress on the difficult and challenging task of reducing the massive cost to the community of road accidents.

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APPENDICES

APPENDIX A

TABLE 1 FATALITY RATE PER 10,000 MOTOR VEHICLES, AUSTRALIA, 1971-1982

YEAR		N. S. W.	RATE	V I C.	RATE	Q L D.	RATE	S. A.	RATE	W. A.	RATE	T A S.	RATE	N. T.	RATE	A. C. T.	RATE	A U S T.	RATE
1 9 7 1	F	1 249	7.18	923	6.69	594	8.18	292	5.88	332	7.45	130	8.06	50	17.42	20	3.27	3 590	7.12
	V	1 739 800		1 379 300		726 500		496 800		445 600		161 300		28 700		61 200		5 039 200	
1 9 7 2	F	1 092	5.90	915	6.34	572	7.35	312	6.04	340	7.29	106	6.29	53	16.56	32	4.46	3 422	6.52
	V	1 849 800		1 442 300		778 600		516 400		466 200		168 300		32 000		71 700		5 245 100	
1 9 7 3	F	1 230	6.31	935	6.17	638	7.62	329	6.01	358	7.29	105	5.98	55	16.08	29	3.52	3 679	6.55
	V	1 947 800		1 516 600		837 800		547 100		491 100		175 400		34 200		82 400		5 613 100	
1 9 7 4	F	1 275	6.22	806	5.00	589	6.49	382	6.61	334	6.34	111	6.03	44	11.99	31	3.31	3 572	6.00
	V	2 048 500		1 609 400		906 600		577 600		527 100		184 200		36 700		93 700		5 952 700	
1 9 7 5	F	1 288	5.97	910	5.35	635	6.75	339	5.44	304	5.34	122	6.23	64	20.13	32	3.04	3 694	5.89
	V	2 156 600		1 700 600		941 300		617 300		569 800		196 000		31 800		105 200		6 276 400	
1 9 7 6	F	1 264	5.74	938	5.27	569	5.46	307	4.79	308	5.03	108	5.26	51	14.96	38	3.26	3 583	5.44
	V	2 203 300		1 779 600		1 041 700		641 000		611 900		205 300		34 100		116 400		6 580 900	
1 9 7 7	F	1 268	5.63	954	5.22	572	5.36	306	4.38	290	4.43	112	5.35	47	12.34	28	2.94	3 578	5.25
	V	2 252 500		1 829 200		1 067 200		668 000		654 900		209 400		30 100		98 700		6 818 100	
1 9 7 8	F	1 384	5.94	869	4.54	612	5.42	291	4.27	345	4.96	106	4.86	68	14.49	30	3.09	3 705	5.21
	V	2 330 600		1 915 400		1 129 600		681 300		695 500		218 100		46 900		97 000		7 114 500	
1 9 7 9	F	1 290	5.35	847	4.29	613	5.18	309	4.48	279	3.88	93	4.10	53	11.69	24	2.25	3 508	4.77
	V	2 413 200		1 974 000		1 183 400		689 300		719 700		226 600		45 600		106 600		7 358 300	
1 9 8 0	F	1 303	5.17	663	3.38	557	4.43	269	3.80	293	3.93	100	4.36	63	13.40	30	2.84	3 278	4.33
	V	2 520 900		1 960 200		1 256 900		708 600		745 000		229 500		47 000		105 500		7 573 600	
1 9 8 1	F	1 292	4.92	766	3.76	594	4.38	222	3.06	238	3.08	111	4.68	70	13.06	29	2.65	3 322	4.20
	V	2 626 900		2 035 900		1 355 600		725 400		773 200		237 300		53 600		109 600		7 917 600	
1 9 8 2	F	1 253	4.50	709	3.26	602	4.18	270	3.63	236	2.99	96	3.89	60	10.31	26	2.32	3 252	3.90
	V	2 784 100		2 171 800		1 439 500		744 700		789 100		246 600		58 200		112 000		8 346 000	

Source: Road Traffic Board of South Australia, Road Traffic Accidents 1981 and ABS for 1982.

Note (F) Persons killed.

(V) Motor Vehicles (Excluding tractors, trailers, plant and equipment) on Register at 30th June each year.

APPENDIX A

TABLE 2 AGE AND SEX OF LICENCE HOLDERS IN SOUTH AUSTRALIA AS AT 1 JANUARY, 1982

Age Groups	Male	Female	Total
Under 18	12629	6641	19270
18 - 19	21006	14333	35339
20 - 24	58597	45256	103853
25 - 29	56023	46168	102191
30 - 34	54136	44395	98531
35 - 39	44924	36262	81186
40 - 49	68604	49083	117687
50 - 59	67365	41219	108584
60 & Over	67348	33784	101132
Total	450632	317141	767773

* Source: Department of Transport, Motor Registration Division.

APPENDIX A

TABLE 3 BLOOD ALCOHOL CONTENT OF PERSONS ADMITTED TO HOSPITALS, JANUARY 1980 TO JUNE 1983

Period	Number of Specimens	Number Positive (i.e. ≥ 0.01)	% Breakdown of Results					
			Nil	.01-.04	.05-.07	.08-.14	.15-.24	.25+
Jan 1980	674	137	79.6	3.5	2.5	7.1	5.9	1.1
Feb	609	128	78.9	3.6	2.2	7.8	5.0	2.1
Mar	638	130	79.6	3.2	3.7	6.4	6.1	0.7
Apr	618	118	80.9	2.5	1.2	7.2	6.1	1.7
May	512	106	79.2	4.1	2.1	4.8	7.8	1.7
Jun	612	127	79.2	3.4	2.7	6.2	6.2	2.1
Jul	622	140	77.4	3.5	2.7	6.5	6.5	3.0
Aug	630	157	75.0	3.6	3.0	6.5	10.0	1.7
Sep	670	161	75.9	3.5	2.8	7.1	8.3	2.0
Oct	703	173	75.3	3.1	3.1	6.4	9.6	2.2
Nov	622	169	72.8	6.1	2.0	6.7	9.6	2.5
Dec	807	199	75.3	3.7	2.4	9.1	7.6	1.6
Jan 1981	588	168	71.4	3.5	5.2	8.6	9.5	1.5
Feb	525	135	74.2	5.5	3.0	6.0	8.3	2.6
Mar	647	165	74.4	3.8	3.4	8.3	8.3	1.5
Apr	626	131	79.0	3.8	3.1	6.3	5.4	2.0
May	621	141	77.2	3.2	2.5	6.9	7.4	2.5
Jun	615	123	80.0	4.2	2.4	4.8	5.6	2.7
Jul	643	111	82.7	3.4	1.2	5.5	5.4	1.5
Aug	690	144	79.1	3.4	1.5	6.6	7.5	1.5
Sep	579	146	74.7	2.5	3.1	8.2	7.9	3.2
Oct	675	162	76.0	4.0	3.4	5.6	8.7	2.2
Nov	713	155	78.2	4.9	2.8	6.1	6.4	1.4
Dec	703	151	78.5	4.2	2.7	5.5	7.2	1.7

TABLE 3 (continued)

Period	Number of Specimens	Number Positive (i.e. ≥ 0.01)	% Breakdown of Results					
			Nil	.01-.04	.05-.07	.08-.14	.15-.24	.25+
Jan 1982	588	141	76.0	3.7	2.0	8.5	6.9	2.7
Feb	601	155	74.2	3.8	3.4	9.4	7.9	0.9
Mar	750	184	75.4	4.8	2.4	8.0	6.6	2.6
Apr	658	139	78.8	2.8	3.1	6.2	5.9	2.8
May	670	151	77.4	3.7	2.6	6.1	7.6	2.3
Jun	730	184	74.7	3.9	2.1	7.8	8.0	3.1
Jul	686	161	76.5	3.3	3.3	7.2	6.5	2.9
Aug	619	163	73.6	2.2	2.9	7.9	10.1	3.0
Sep	581	128	77.9	3.2	2.5	6.7	7.5	1.8
Oct	649	152	76.5	3.8	2.4	6.3	8.9	1.5
Nov	789	227	71.2	3.5	3.5	9.5	10.2	1.9
Dec	722	172	76.1	4.5	3.3	7.3	6.9	1.6
Jan 1983	554	130	76.5	3.6	3.6	7.4	7.5	1.2
Feb	679	173	74.5	3.8	3.5	7.0	8.8	2.2
Mar	704	180	74.4	4.1	2.9	8.0	8.6	1.7
Apr	599	142	76.2	3.1	3.6	8.1	7.1	1.6
May	746	173	76.8	2.4	2.4	7.9	8.4	2.0
Jun	650	155	76.2	3.2	3.1	7.4	8.0	2.2

Source: Random Breath Testing statistics, Motor Transport Department of Service and Supply; Forensic Science Centre.

APPENDIX A

TABLE 4 BLOOD ALCOHOL CONTENT OF DRIVER AND VICTIM, FOR TYPES OF VEHICLES AND VICTIM STATUS, ACCIDENT FATALITIES, SOUTH AUSTRALIA, 1980 - 1982

Blood Alcohol Level	Type of Vehicle				Victim Status			TOTAL
	Car	Truck	Motor Cycle	Cycle	Driver	Passenger	Pedes-trian	
BAC of Driver*								
None	452	20	76	30	283	171	124	578
Less than .05	5	-	6	-	11	-	-	11
.05 - .079	21	-	1	1	14	6	3	23
.08 - .149	46	-	12	1	43	10	6	59
.15 - .249	74	7	14	-	75	18	2	95
.25 +	40	-	5	1	25	18	3	46
BAC of Victim								
None	452	18	79	31	295	176	109	580
Less than .05	12	-	6	-	10	3	5	18
.05 - .079	18	2	1	-	12	6	3	21
.08 - .149	48	2	10	1	41	14	6	61
.15 - .249	75	5	14	-	71	15	8	94
.25 +	33	-	4	1	22	9	7	38
TOTAL	638	27	114	33	451	223	138	812
Percentage	78.6	3.3	14.0	4.1	55.5	27.5	17.0	100.0

* BAC is of driver involved in the road fatality.

Source: Coroner's Office, South Australia.

APPENDIX A

TABLE 5 DISTANCE FROM RESIDENCE OF VICTIM TO ACCIDENT LOCATION FOR ROAD FATALITIES, PERSONS RESIDENT IN METROPOLITAN ADELAIDE, 1980 - 1982

Residence of Fatal Road Accident Victims	Distance from Residence to Accident*						TOTAL
	Same LGA	1-5 km	6-10 km	11-20 km	21 & Over	Country	
Adelaide	3	2	1	-	-	-	6
Brighton	1	1	1	1	1	-	5
Burnside	8	3	1	5	5	2	24
Campbelltown	10	1	5	6	-	3	25
East Torrens	-	-	1	-	-	-	1
Elizabeth	11	-	10	1	2	6	30
Enfield	10	5	6	2	-	4	27
Gawler	5	-	-	1	1	-	7
Glenelg	2	-	1	-	-	-	3
Henley & Grange	1	-	-	-	1	-	2
Hindmarsh	3	2	-	-	3	-	8
Kensington & Norwood	-	3	1	-	-	-	4
Marion	10	2	6	3	1	1	23
Meadows	2	-	-	2	-	-	4
Mitcham	8	-	6	-	-	2	16
Munno Parra	1	-	1	7	1	2	12
Noarlunga	16	-	-	5	2	1	24
Payneham	2	2	-	1	-	-	5
Prospect	3	4	-	1	2	1	11
Port Adelaide	14	-	1	-	-	6	21
Salisbury	16	-	5	6	1	5	33
Stirling	3	-	-	-	-	2	5
St. Peters	-	2	-	1	-	4	7
Tea Tree Gully	7	-	1	9	1	3	21
Thebarton	6	1	2	-	-	2	11
Unley	9	3	1	-	1	3	17
Walkerville	1	-	1	-	1	1	4
West Torrens	10	9	1	3	1	2	26
Willunga	1	-	-	-	2	-	3
Woodville	14	2	15	1	2	9	43
TOTAL	177	42	67	55	28	59	428
Percentage	41.4	9.8	15.7	12.9	6.5	13.8	100.0

* Distance calculated from centroids of local government areas.

Source: Coroner's Office, South Australia.

APPENDIX A

TABLE 6 MODE AND DATE OF APPREHENSION, AVERAGE BLOOD ALCOHOL CONTENT, SEX AND AGE; PERSONS APPEARING ON PCA CHARGES IN COURTS OF SUMMARY JURISDICTION, SOUTH AUSTRALIA, 18 MONTHS BEFORE AND AFTER RBT BECAME OPERATIONAL ON 15 OCTOBER, 1981*

Age Group	18 Months Before RBT Operational				18 Months After RBT Operational							
	Police Patrol				Police Patrol+				RBT Station			
	Male		Female		Male		Female		Male		Female	
	No.	Average BAC	No.	Average BAC	No.	Average BAC	No.	Average BAC	No.	Average BAC	No.	Average BAC
18 - 19	529	.137	37	.138	575	.134	38	.140	38	.132	5	.105
20 - 24	1106	.143	78	.145	1209	.147	104	.144	124	.130	16	.134
25 - 29	601	.159	39	.152	667	.160	45	.170	109	.128	9	.122
30 - 34	405	.165	27	.175	384	.164	22	.163	65	.145	10	.118
35 - 39	211	.161	19	.144	218	.163	25	.163	65	.142	7	.144
40 - 49	273	.163	19	.173	262	.174	18	.178	60	.135	7	.106
50 & Over	249	.173	8	.172	229	.163	13	.152	64	.131	3	.152
Unknown	138	.153	9	.225	116	.141	5	.168	22	.131	11	.125
TOTAL	3512	.153	236	.153	3660	.153	270	.154	547	.134	58	.125

* Sources: Office of Crime Statistics and South Australian Police Department. Only two thirds of the RBT apprehensions could be matched with court figures. Nonetheless analysis of RBT data (see Appendix D) indicates that this was a representative sample. Unknown Blood Alcohol Content are combined in the 'Unknown' age group.

+ Includes some RBT cases which could not be matched, accounting for at most 7% of the total in this column.

APPENDIX A

TABLE 7 NUMBER AND BLOOD ALCOHOL CONTENT; PERSONS APPEARING ON PCA CHARGES IN COURTS OF SUMMARY JURISDICTION, SOUTH AUSTRALIA, JANUARY 1981 TO JUNE 1982*

Month of Offence	PCA Defendants		
	Number	Blood Alcohol Content	
		Average (mean)	Standard Deviation
Jan 1981	262	.1501	.0481
Feb	265	.1506	.0458
Mar	349	.1508	.0456
Apr	304	.1504	.0482
May	391	.1525	.0470
Jun	252	.1519	.0511
Jul	319	.1460	.0427
Aug	313	.1546	.0527
Sep	285	.1523	.0508
Oct	252	.1485	.0442
Nov	262	.1541	.0514
Dec	265	.1498	.0471
Jan 1982	214	.1521	.0469
Feb	249	.1522	.0530
Mar	242	.1452	.0564
Apr	264	.1514	.0499
May	326	.1494	.0457
Jun	260	.1480	.0435

* Source: Office of Crime Statistics

APPENDIX A

TABLE 8 MODE OF APPREHENSION AND PREVIOUS DRINK-DRIVE CONVICTIONS; PERSONS APPEARING FOR PCA CHARGES IN COURTS OF SUMMARY JURISDICTION, SOUTH AUSTRALIA, 1 JULY 1982 TO 30 MARCH 1983*

Number of Previous Drink-Drive Convictions	Police Patrol[1]		RBT Station	
	Number	Percentage	Number	Percentage
None	2116	74.2	360	79.8
One	470	16.5	60	13.3
Two	170	6.0	21	4.7
Three or More	77	2.7	7	1.5
Unknown	17	0.6	3	0.7
TOTAL	2850	100.0	451	100.0

* Sources: Office of Crime Statistics and South Australian Police Department. Only two thirds of the RBT apprehensions could be matched with court figures. Nonetheless analysis of RBT data (see Appendix D) indicates that this was a representative sample. Only cases from 1 July 1982 are considered, as previous drink-drive convictions were not collected before this date.

[1] Includes some RBT cases which could not be matched, accounting for at most 7% of the total in this column.

APPENDIX A

TABLE 9 DRIVER ASSESSMENT CLINIC COURT REFERRALS; BY BAC, AGE AND SEX
SOUTH AUSTRALIA, 1 JULY 1982 - 30 JUNE 1983 *

Blood Alcohol Content	Refused Test		0.08 - 0.149		0.15 - 0.299		0.3 - 0.41		Not Stated*		Total		Grand Total	%
Sex / Age	M	F	M	F	M	F	M	F	M	F	M	F		
19 & Under	1		9		13				1		24		24	8
20 - 24	1		42	2	71	4	3		5		122	6	128	40
25 - 29	3		22		35				1	1	61	1	62	20
30 - 39	4		17		42	3	2		5		70	3	73	23
40 - 49			4		10				1		15		15	5
50 - 59	1		3		3		1		1		9		9	3
60 & Over			2		2						4		4	1
Total	10		99	2	176	7	6		14	1	305	10	315	100%
Grand Total	10		101		183		6		15		315			
%	3		32		58		2		5		100%			

* Note that this category includes individuals with D.U.I. offences and no B.A.C.

APPENDIX A

TABLE 10 OCCUPATION OF EMPLOYED MALES AT DRIVER ASSESSMENT CLINIC, SOUTH AUSTRALIA 1 JULY 1981 - 30 JUNE 1982

Occupation	Driver Assessment Clinic (1) %	South Australia employed males (2) %
Professional, technical	3.2	11.9
Administrative, executive, managerial	6.5	8.3
Clerical	2.2	8.0
Sales	4.9	6.8
Farmers, fishermen, etc.	2.2	9.9
Miners, quarrymen, etc.	1.1	0.4
Transport, communication	6.0	6.3
Tradesmen, production-process, labourers	65.8	39.6
Service, sport and recreation	8.1	4.6
Armed Service	-	0.9
Not stated or inadequately described	-	3.3

Source (1) Alcohol and Drug Addicts Treatment Board
(2) ABS 1981 Census

APPENDIX A

TABLE 11 ROAD TRAFFIC ACCIDENTS AND CASUALTIES, SOUTH AUSTRALIA, OCTOBER TO DECEMBER QUARTER, 1977 - 1981 *

Period	Adelaide Statistical Division		Rural		South Australia	
	Persons Killed	Casualty Accidents	Persons Killed	Casualty Accidents	Persons Killed	Casualty Accidents
Oct - Dec 1977	34	1418	37	673	71	2091
Oct - Dec 1978	29	1541	42	564	71	2105
Oct - Dec 1979	34	1592	34	564	68	2156
Oct - Dec 1980	38	1364	36	578	74	1942
Average of Oct-Dec 1977-80	33.8	1478.6	37.3	594.8	71.0	2073.5
Oct - Dec 1981	29	1423	28	567	57	1990

* Source: Road Traffic Board of South Australia, 1977 - 1981.

APPENDIX A

TABLE 12 ROAD LENGTH, ROAD ACCIDENTS, RANDOM BREATH TESTS, RESIDENCE OF DRINK-DRIVE DEFENDANTS IN COURT, FOR ADELAIDE METROPOLITAN LOCAL GOVERNMENT AREAS

Local Government Area	Road Length[1] (km)	Road Accidents[2]		R.B.T.[3]		Drink Drivers in Courts[4]
		Injury	Fatal	Numbers Tested	Number Over 0.08	
Adelaide	127	520	3	1092	5	45
Brighton	120	75	1	518	1	50
Burnside	205	126	5	2750	26	96
Campbelltown	233	148	3	1037	2	95
East Torrens	139	69	2	350	-	7
Elizabeth	210	169	2	626	6	125
Enfield	366	532	9	2855	17	331
Gawler	60	40	4	434	5	39
Glenelg	58	68	1	-	-	40
Henley & Grange	89	37	-	1465	8	56
Hindmarsh	52	114	2	3481	31	35
Kensington & Norwood	86	91	1	1515	12	33
Marion	360	287	5	3867	22	169
Meadows	686	116	6	436	1	24
Mitcham	248	348	4	2411	14	119
Munno Para	511	120	7	-	-	69
Noarlunga	488	228	3	69	1	172
Payneham	74	97	1	233	1	36
Prospect	94	123	1	2211	13	49
Port Adelaide	179	157	11	1386	13	183

CONTINUED

1 OF 2

TABLE 12 (continued)

Local Government Area	Road Length[1] (km)	Road Accidents 2		R.B.T. 3		Drink Drivers in Courts 4
		Injury	Fatal	Numbers Tested	Number Over 0.08	
Salisbury	613	414	10	2665	10	241
St. Peters	48	78	2	1175	5	32
Stirling	256	46	-	-	-	19
Tea Tree Gully	410	241	10	3052	26	170
Thebarton	41	126	5	732	5	42
Unley	192	205	3	995	5	115
Walkerville	34	69	-	-	-	18
West Torrens	232	250	6	6326	48	163
Willunga	352	37	1	-	-	11
Woodville	431	385	7	2670	16	255

Note: (1) Road Length: Sum of sealed (bitumen, asphalt, concrete surface) and paved (gravel, limestone pavement)

Source: NAASRA ROADS STUDY, Highways Department South Australia, January 1983 (Currency 1981)

(2) Road Accidents: Source: Road Safety Board, Highways Department South Australia, (Currency 1981)

(3) R.B.T.: Random Breath Tests, numbers tested and number with BAC over 0.08.

Source: Police Commissioner's first Statutory Report on the operation of Random Breath Tests in South Australia (Currency; 15 October 1981 - 30 June 1982)

(4) Drink/Drivers in Courts: Persons appearing for driving with the prescribed content of alcohol and driving under the influence in Courts of Summary Jurisdiction, 1 July 1982 - 30 June 1983.

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TABLE 13 ROAD LENGTH, ROAD ACCIDENTS, RANDOM BREATH TESTS, RESIDENCE OF DRINK-DRIVE DEFENDANTS IN COURT, FOR LOCAL GOVERNMENT AREAS OUTSIDE METROPOLITAN ADELAIDE

Local Government Area	Road Length[1] (km)	Road Accidents[2]		R.B.T.[3]		Drink-Drivers in Courts[4]
		Injury	Fatal	Numbers Tested	Number Over 0.08	
Angaston	150	16	-	406	3	44
Balaklava	372	5	1	30	1	4
Barmera	153	22	1	357	3	15
Barossa	178	19	-	-	-	6
Beachport	528	16	-	6	-	4
Berri	157	23	-	666	12	32
Blyth	331	4	1	-	-	3
Browns Well	802	1	-	-	-	-
Burra Burra	494	23	-	-	-	8
Bute	736	9	-	-	-	1
Carrieton	615	3	-	-	-	1
Central Yorke Peninsula	772	14	2	226	-	9
Clare	239	14	-	75	-	9
Cleve	827	11	1	-	-	-
Clinton	381	10	2	-	-	1
Coonalpyn Downs	694	12	-	-	-	3
Crystal Brook	197	4	-	30	-	5
Dudley	86	3	-	-	-	2
Elliston	845	5	1	-	-	4
Eudunda	484	7	-	29	-	4

TABLE 13 (continued)

Local Government Area	Road Length[1] (km)	Road Accidents [2]		R.B.T. [3]		Drink-Drivers in Courts [4]
		Injury	Fatal	Numbers Tested	Number Over 0.08	
Franklin Harbor	588	5	2	-	-	-
Georgetown	153	3	-	-	-	-
Gladstone	118	3	-	3	-	2
Gumeracha	196	37	3	-	-	7
Hallett	1383	3	1	-	-	-
Hawker	343	3	-	-	-	-
Jamestown (town)	31	2	-	224	1	5
Jamestown	252	3	-	-	-	1
Kadina	309	17	1	573	6	8
Kanyaka-Quorn	424	13	-	-	-	2
Kapunda	353	30	5	100	-	4
Karoonda East Murray	980	5	1	-	-	-
Kimba	145	8	-	30	1	4
Kingscote	655	17	-	56	-	9
Lacepede	561	18	1	19	1	7
Lameroo	336	9	-	31	1	3
Laura	110	4	-	-	-	1
Le Hunte	2275	4	1	15	-	2
Light	467	13	1	-	-	12
Lincoln	948	19	2	62	-	5

TABLE 13 (continued)

Local Government Area	Road Length [1] (km)	Road Accidents [2]		R.B.T. [3]		Drink-Drivers in Courts [4]
		Injury	Fatal	Numbers Tested	Number Over 0.08	
Loxton	317	26	2	286	4	21
Lucindale	515	2	-	30	-	1
Mallala	468	38	-	155	-	5
Mannum	261	16	1	69	2	1
Meningie	349	25	1	157	2	14
Millicent	526	33	1	278	3	36
Minlaton	419	8	1	85	-	4
Moonta	25	6	-	-	-	4
Morgan	359	16	-	-	-	-
Mount Remarkable	666	25	1	555	4	7
Mount Barker	206	47	3	154	1	28
Mount Gambier (town)	148	95	4	-	-	140
Mount Gambier	522	23	1	1024	5	25
Mount Pleasant	246	13	-	-	-	2
Murat Bay	1343	18	2	175	1	17
Murray Bridge	232	63	2	405	4	73
Naracoorte (town)	52	36	2	-	-	23
Naracoorte	785	1	-	319	1	6
Onkaparinga	245	33	2	-	-	11
Orroroo	232	3	2	82	-	2

TABLE 13 (continued)

Local Government Area	Road Length [1] (km)	Road Accidents [2]		R.B.T. [3]		Drink-Drivers in Courts [4]
		Injury	Fatal	Numbers Tested	Number Over 0.08	
Owen	445	3	-	77	2	1
Paringa	86	11	-	-	-	4
Peake	359	5	1	-	-	1
Penola	695	22	2	-	-	12
Peterborough (town)	40	16	1	-	-	15
Peterborough	450	-	-	156	2	-
Pinnaroo	455	5	1	-	-	-
Pirie	210	-	-	-	-	1
Port Macdonnell	316	15	1	-	-	11
Port Augusta	139	63	1	742	10	131
Port Broughton	252	6	1	48	-	3
Port Elliot & Goolwa	336	15	-	42	-	7
Port Lincoln	99	42	-	543	1	89
Port Pirie	92	81	-	-	-	103
Port Wakefield	231	10	1	61	-	4
Redhill	214	4	-	-	-	-
Renmark	226	28	1	359	3	31
Ridley	336	11	2	-	-	1
Robe	349	6	-	-	-	2
Robertstown	809	3	-	-	-	3

TABLE 13 (continued)

Local Government Area	Road Length [1] (km)	Road Accidents [2]		R.B.T. [3]		Drink Drivers in Courts [4]
		Injury	Fatal	Numbers Tested	Number Over 0.08	
Saddleworth & Auburn	404	7	-	17	-	4
Snowtown	910	11	-	72	-	7
Spalding	55	2	-	-	-	-
Strathalbyn	427	21	-	50	-	12
Streaky Bay	1029	9	-	-	-	4
Tanunda	74	14	-	78	-	3
Tatiara	1315	33	-	208	2	14
Truro	481	8	1	-	-	1
Tumby Bay	787	9	-	27	-	8
Victor Harbor	203	26	2	282	1	15
Waikerie	305	30	1	338	4	15
Wallaroo	36	6	-	-	-	7
Warooka	236	6	-	-	-	3
Whyalla	172	162	3	1075	13	196
Yankalilla	181	36	-	-	-	4
Yorketown	467	13	-	-	-	4
Monarto Commission	-	-	-	-	-	1

TABLE 13 (continued)

Local Government Area	Road Length [1] (km)	Road Accidents [2]		R.B.T. [3]		Drink Drivers in Courts [4]
		Injury	Fatal	Numbers Tested	Number Over 0.08	
Unincorporated -						
. Far North	-	69	4	-	-	30
. Flinders Ranges	-	11	-	-	-	3
. Lincoln	-	-	-	-	-	-
. Lower North	-	-	-	-	-	-
. Murray Mallee	-	1	-	-	-	-
. Pirie	-	11	2	-	-	1
. Riverland	-	3	-	60	1	-
. West Coast	-	9	2	-	-	6
. Whyalla	-	11	1	-	-	1
. Yorke	-	-	-	-	-	-
. Unincorporated	61	7121	196	0	0	163

Note: (1) Road Length: Sum of Sealed (bitumen, asphalt, concrete surface) and Paved (gravel, limestone pavement)

Source: NAASRA ROADS STUDY, Highways Department South Australia, January 1983 (Currency 1981)

(2) Road Accidents: Source: Road Safety Board, Highways Department South Australia, (Currency 1981)

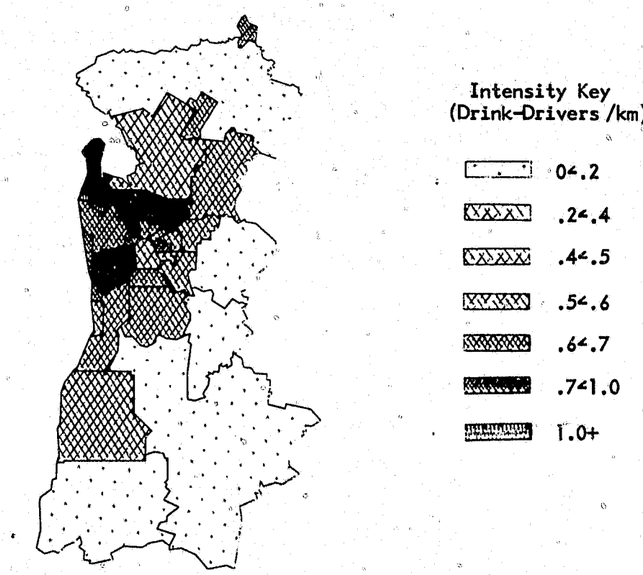
(3) R.B.T.: Random Breath Tests, numbers tested and number with BAC over 0.08.

Source: Police Commissioner's first Statutory Report on the operation of Random Breath Tests in South Australia (Currency; 15 October 1981 - 30 June 1982)

(4) Drink/Drivers in Courts: Persons appearing for driving with the prescribed content of alcohol and driving under the influence in Courts of Summary Jurisdiction, 1 July 1982 - 30 June 1983.

APPENDIX A

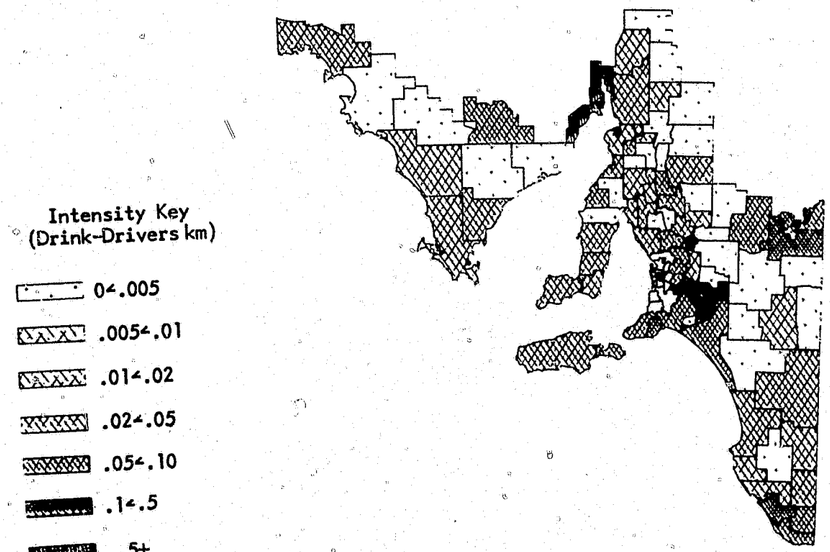
FIGURE 1 INTENSITY MAP OF RESIDENCE OF DRINK-DRIVERS APPEARING IN COURT, PER LENGTH OF ROAD IN ADELAIDE METROPOLITAN AREA, 1 JULY 1982 - 30 JUNE 1983*



* Actual numbers and definitions are contained in Appendix A, Table 12.
Source: Office of Crime Statistics.

APPENDIX A

FIGURE 2 INTENSITY MAP OF RESIDENCE OF DRINK-DRIVERS APPEARING IN COURT, PER LENGTH OF ROAD OUTSIDE ADELAIDE METROPOLITAN AREA, 1 JULY 1982 TO 30 JUNE 1983*

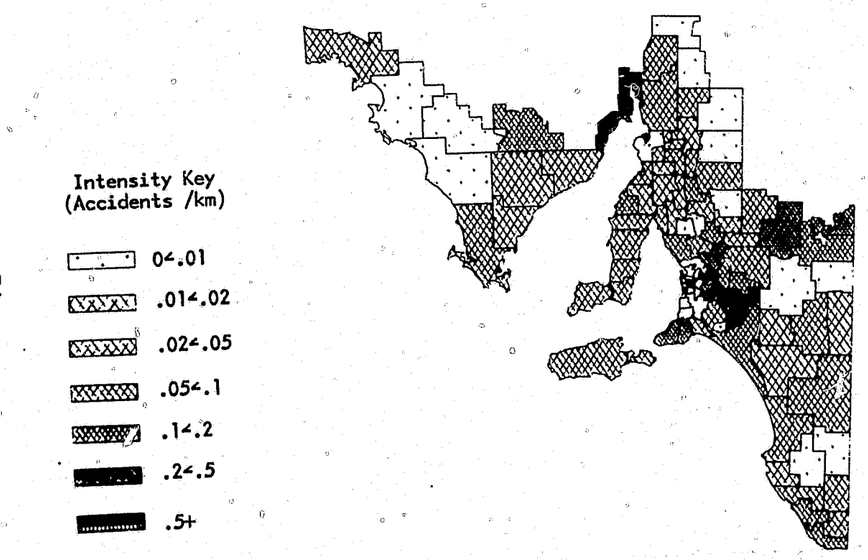


* Actual numbers and definitions are contained in Appendix A, Table 13.
Adelaide metropolitan area is not included in this map, but in Appendix A, Figure 1.

Source: Office of Crime Statistics.

APPENDIX A

FIGURE 3 INTENSITY MAP OF ROAD ACCIDENTS PER LENGTH OF ROAD OUTSIDE ADELAIDE METROPOLITAN AREA, 1981*

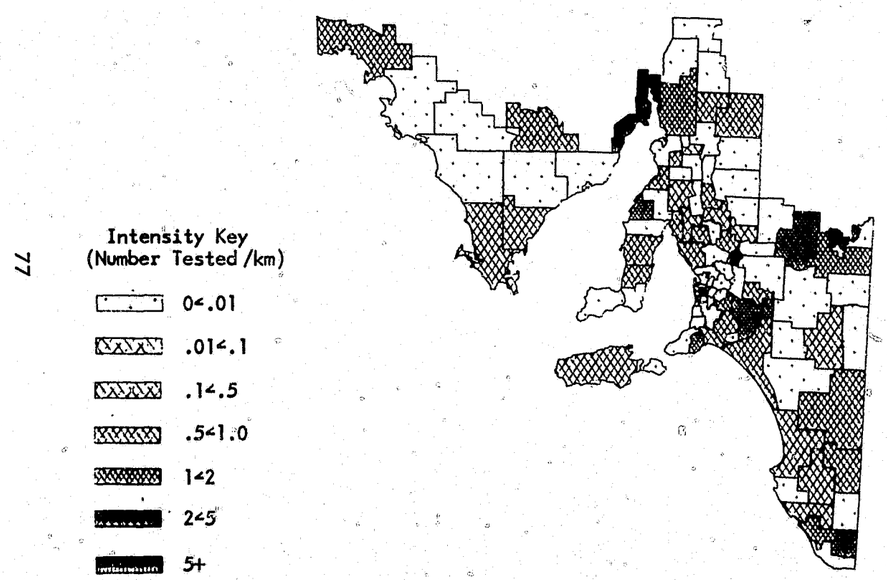


* Actual numbers and definitions are contained in Appendix A, Table 13. Adelaide metropolitan area is not included in this map, but in Figure 7.

Source: Derived from Road Safety Board, Highways Department of South Australia.

APPENDIX A

FIGURE 4 INTENSITY MAP OF NUMBERS TESTED AT RBT STATIONS PER LENGTH OF ROAD OUTSIDE ADELAIDE METROPOLITAN AREA, 15 OCTOBER 1981 - 30 JUNE 1982*



* Actual numbers and definitions are contained in Appendix A, Table 13. Adelaide metropolitan area is not included in this map, but in Figure 8.

Source: Derived from Police Commissioner's First Statutory Report on the Operation of Random Breath Testing in South Australia.

APPENDIX B LEGISLATION : DRINK-DRIVE PENALTIES IN SOUTH AUSTRALIA

Penalties for DUI and PCA were changed by "Road Traffic Act Amendment Act (No. 3), 1981" which was assented to on the 18th June 1981.

TABLE 1 PENALTIES FOR DRIVING UNDER THE INFLUENCE (DUI)

Type of DUI Offence	Before 18/6/81		After 18/6/81	
	Min.	Max.	Min.	Max.
First Offence				
. Imprisonment	0	3 mths.	0	3 mths.
or . Fine	$ 60	$ 200	$ 400	$ 700
. Licence Suspension	3 mths.	indefinite	6 mths.	indefinite
Second Offence				
. Imprisonment	1 mth.	6 mths.	0	6 mths.
or . Fine	-	-	$ 600	$ 1000
. Licence Suspension	6 mths.	indefinite	36 mths.	indefinite
Third & Subsequent Offence				
. Imprisonment	3 mths.	12 mths.	0	6 mths.
or . Fine	-	-	$ 600	$ 1000
. Licence Suspension	36 mths.	indefinite	36 mths.	indefinite

TABLE 2 PENALTIES FOR DRIVING WHILST HAVING THE PRESCRIBED CONTENT OF ALCOHOL IN BLOOD (PCA)

Type of PCA Offence	Before 18/6/81 BAC .08 or More		After 18/6/81			
			Lesser Offence*		Greater Offence*	
	Min.	Max.	Min.	Max.	Min.	Max.
First Offence						
. Fine	0	$ 100	$ 300	$ 600	$ 400	$ 700
. Licence Suspension	0	12 mths.	3 mths.	indef.	6 mths.	indef.
Second Offence						
. Imprisonment	0	3 mths.	-	-	-	-
or . Fine	$ 100	$ 300	$ 500	$ 800	$ 600	$1000
. Licence Suspension	6 mths.	36 mths.	12 mths.	indef.	36 mths.	indef.
Third & Subsequent Offence						
. Imprisonment	1 mths.	6 mths.	-	-	-	-
or . Fine	-	-	$ 600	$1000	$ 600	$1000
. Licence Suspension	24 mths.	indef.	24 mths.	indef.	36 mths.	indef.

* Note: Lesser Offence: Blood Alcohol Content (BAC) was 0.08 and less than 0.15 grams in 100 millilitres of blood.

Greater Offence: BAC 0.15 grams or more in 100 millilitres of blood.

APPENDIX C OPINION POLLS ON RANDOM BREATH TESTING

Fischer and Lewis (1982) conducted two opinion polls in the Adelaide Metropolitan Area on attitudes to Random Breath Testing; one in September 1981 (the month before RBT was introduced), the other in September 1982. After adjustment for sampling bias, they recorded the following opinion shift in favour of RBT.

TABLE 1 OPINION POLL ON ATTITUDES TO RBT: ADELAIDE, SEPTEMBER 1981 AND SEPTEMBER 1982

Attitude to RBT	Date of Survey	
	September 1981	September 1982
In favour	55 %	63 %
Neutral	12	12
Against	33	25
TOTAL	100	100

Their surveys also revealed:

" ... a marked difference between the male and female responses: males 56 in favour, 30 against (56-30), females 75-13 in favour (in 1981, males 47-40, females 70-19);

... a similar difference separated the over 30 age group from the under-30's. Over 30's were 71-18 in favour, under 30's were 53-30 in favour, with the least in favour coming from the 20-24 age group (47-40). (A similar difference between age groups was observed in 1981)." (page 6)

APPENDIX C OPINION POLLS ON RANDOM BREATH TESTING (cont.)

The Advertiser published the following opinion poll on 22nd December 1982.*

Random breath tests supported

Eighty-one per cent of Australians agree with the introduction of random breathalyser testing of drivers, says the Gallup Poll.

Only 18 p.c. disagree. One per cent are undecided.

A further poll result shows that 13 p.c. of people have been breath-tested at some time.

These include 16 p.c. of people in Victoria, where random breath testing started in July, 1976.

The poll was taken this month among 2061 people throughout Australia.

Those interviewed were asked:

1. Do you agree or disagree with the introduction of random breathalyser testing of drivers?

2. Have you been breath-tested?

The first question was exactly the same as one asked by the Gallup Poll in December last year and in March, 1979.

A comparison of results among the three polls shows increasing support for random breathalyser testing.

	Dec. 1982	Dec. 1981	Mar. 1979
INTRODUCE RANDOM BREATHALYSER TESTING			
Agree	81	66	73
Disagree	18	18	26
Don't know	1	2	1

In the latest poll, considerably more women than men (88 p.c. against 73 p.c.) favored random tests.

More Lib.-NP voters (86 p.c.) than ALP voters (76 p.c.) favored tests.

People in Victoria (93 p.c.) especially agreed with the introduction of tests.

In NSW, where random breath testing started at the weekend, 77 p.c. of people agreed with its introduction.

Men (21 p.c.) and younger people (17 p.c.) had been breath-tested at some time to a greater extent than women (5 p.c.) and older people (9 p.c.).

The tables show detailed analyses of percentage results by States, sex, age and political party supported. Results for the smaller States necessarily have a wider possible margin of error than those for the larger States.

	All	NSW	Vic	Qld	SA	WA	Tas
INTRODUCE RANDOM BREATHALYSER TESTING							
Agree	81	77	93	75	76	72	77
Disagree	18	21	7	25	21	28	20
Don't know	1	2	—	3	3	—	3
WHETHER EVER BEEN BREATH-TESTED							
Yes	13	14	16	10	11	9	14
No	86	85	84	89	88	90	85
Don't know	1	1	—	1	1	1	1

INTRODUCE RANDOM BREATHALYSER TESTING	ALL	MEN	WOMEN	AGE GROUPS 16-39	AGE GROUPS 40+
Agree	81	73	88	80	81
Disagree	18	25	11	19	17
Don't know	1	2	1	1	2

INTRODUCE RANDOM BREATHALYSER TESTING	L-NP	ALP	AD
Agree	86	76	87
Disagree	13	22	13
Don't know	1	2	—

WHETHER EVER BEEN BREATH-TESTED	ALL	MEN	WOMEN	AGE GROUPS 16-39	AGE GROUPS 40+
Yes	13	21	5	17	9
No	86	78	94	83	90
Don't know	1	1	1	—	1

WHETHER EVER BEEN BREATH-TESTED	L-NP	ALP	AD
Yes	11	15	13
No	88	85	87
Don't know	1	—	—

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APPENDIX D RANDOM BREATH TEST SAMPLE

At the court level, persons apprehended at RBT stations cannot be distinguished from persons apprehended for PCA offences by police patrols. To overcome this problem, the South Australian Police Department supplied the Office of Crime Statistics with a computer list containing details of apprehensions at RBT stations. The list showed date of birth and date of arrest of each person apprehended, and an attempt was made to match these dates with the same variables in the Office's computer file on PCA defendants in Courts of Summary Jurisdiction.

The Police file comprised 757 records relating to RBT apprehensions during an 18 month period, 15 October 1981 to 15 April 1983, of which 4 had unknown dates of birth and 6 were juveniles. After comparing dates of birth and offence, however, only 541 records could be matched. None of the 6 juveniles were matched as the Office's computer file relating to PCA defendants in court, does not have birthdates of juveniles. Only one of the records with unknown birthdate could be matched. Failure to match the other 207 cases was probably due to transcription errors either in the Police Department or in courts.

Because of these problems, the 540 matched records could only be considered a sample (72%) of the 753 PCA defendants apprehended at RBT stations whose ages were known. The age distributions for the RBT apprehensions, the matched RBT court defendants and the expected frequencies of RBT defendants in court is shown in the following table.

TABLE 1 AGES OF MATCHED AND UNMATCHED RBT APPREHENSIONS: SOUTH AUSTRALIA, 15 OCTOBER 1981 TO 15 APRIL 1983

Age Group	All RBT Apprehensions	Matched RBT Court Defendants	Expected RBT Court Defendants
17 - 18	23	6	16
19	30	22	22
20	33	27	24
21	29	25	21
22	32	19	23
23	47	32	34
24	31	22	22
25	41	30	29
26	35	28	25
27	29	25	21
28	29	17	21
29	32	24	23
30 - 31	42	28	30
32 - 33	24	18	17
34 - 35	46	35	33
36 - 37	38	31	27
38 - 39	29	19	21
40 - 41	29	20	21
42 - 45	19	13	14
46 - 49	40	33	29
50 - 54	31	20	22
55 - 59	40	32	29
60 & Over	24	14	17
TOTAL	753	540	541
Mean (year)	32.8	32.6	-
Standard Deviation	14.05	12.85	-

However, statistical tests indicate that age-distributions of the matched RBTs do not differ significantly from the total population of known RBT arrests: the

$$\chi^2 = \sum \frac{(\text{matched-expected})^2}{\text{matched}} \leq \chi^2_{.1}$$

at the 0.1 level of significance. Calculating χ^2 with 23 degrees of freedom, gives

$$\chi^2 = 12.95 \leq \chi^2_{.1} = 32.00$$

As the matched RBT cases appear to be a random sample of the total RBT population, they have been used in a number of tables (Table 10, Appendix A, Table 6 & 8) to show differences in age, sex, occupation, blood alcohol content etc. between persons apprehended for PCA at RBT stations and elsewhere.

It should be noted, however, that the unmatched RBT files are still contained within the remaining PCA apprehensions. However, these 216 cases (7.6% of the total 'other' group of 2850 appearances) should not effect the patterns which have emerged.

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- Vol. 1 No. 2 Report for the Period Ending 31st March, 1979 (June, 1979)
- Vol. 1 No. 3 Report for the Period Ending 30th June, 1979 (September, 1979)
- Vol. 2 No. 1 Report for the Period Ending 30th September, 1979 (December, 1979)
- Vol. 2 No. 2 Report for the Period Ending 31st December, 1979 (March, 1980)
- Vol. 2 No. 3 Report for the Period Ending 31st March, 1980 (July, 1980)
- Vol. 2 No. 4 Report for the Period Ending 30th June, 1980 (September, 1980)
- Vol. 3 No. 1 Report for the Period Ending 30th September, 1980 (December, 1980)
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- No. 5 Statistics from Courts of Summary Jurisdiction: Selected Returns from South Australian Courts: 1st July - 31st December, 1979 (September, 1980)

APPENDIX E PUBLICATIONS OF THE SOUTH AUSTRALIAN OFFICE OF CRIME STATISTICS (continued)

No. 6 Statistics from Courts of Summary Jurisdiction: Selected Returns from South Australian Courts: 1st January - 30th June, 1980 (December, 1980).

No. 7 Statistics from Courts of Summary Jurisdiction: Selected Returns from South Australian Courts: 1st July - 31st December, 1980 (September, 1981)

No. 8 Statistics from Supreme and District Criminal Courts: 1st July 1980 - 30th June, 1981 (November, 1981)

Series A : Statistical Reports

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No. 4 Crime and Justice in South Australia: 1st January - 30th June, 1982 (February, 1983)

No. 5 Statistics from Criminal Courts of Summary Jurisdiction: 1st January - 30th June, 1982 (September, 1983)

Series B : Research Bulletins

No. 1 Shoplifting in South Australia (September, 1982)

Series C : Research Reports

No. 1 Sexual Assault in South Australia (July 1983)

Note: Publications available from the Office of Crime Statistics (12th Floor, S.G.I.C. Building, Victoria Square, Adelaide) and the South Australian State Information Centre.

END