

DRINK-DRIVING COUNTERMEASURES

A Study of the Victorian System

carried out by

J. Hendtlass, I.M. Bock and M.P. Ryan

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Abstract

In this study, a system analysis approach was used to describe and quantify the Drink-Driving Countermeasure System in Victoria, as it was in 1977. This approach involved a comprehensive description of the work carried out in the education-publicity, legislative, enforcement, judicial and medical rehabilitation areas and of the interaction of the components of the system and the environmental constraints under which it functions.

The study included a field survey which was conducted to identify the various activities within the system. In addition, data were collected for various samples of drivers in order to achieve an understanding of their characteristics and progress through the system.

This report contains information on how drivers entered the enforcement sub-system, their personal characteristics, blood alcohol concentration, prior conviction history, whether or not they were prosecuted and results of court hearings.

The results of this study have led to recommendations for improvements to the system and additional research.

NOTE:

This report is disseminated in the interest of information exchange. The views expressed are those of the author(s) and do not necessarily represent those of the Commonwealth Government.

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SUMMARY OF RESULTS

In this summary, the major findings of the study are presented in point-form under four categories, all of which correspond to the major components or sub-systems of the Drink-Driving Countermeasure System: the Education/Publicity, Legislative, Enforcement and Licence Restoration sub-systems.

Before discussing these results, the authors would like to make four points. First, it is important to remember that this report describes the system as it was in 1977. An effort has been made, however, to incorporate any important changes that have occurred since that time.

Secondly, this report points to several problems in the system. It would be unfortunate if bringing such problems to attention is regarded as criticism; it is hoped that it is seen as identifying areas which need some attention with a view to improving the overall efficiency of the System and its effectiveness in discouraging people from drink-driving. In no way do the problems identified reflect an absence of hard work or dedication on the part of those people working in the system.

Thirdly, an investigation of the system which is set up to discourage drink-driving necessitates a serious consideration of the environment in which that system operates. In Victoria, it operates in an environment where two-thirds to three-quarters of the adult population drink alcohol and three-quarters hold a driver's licence. About 60 per cent both drink and drive, and many of these people occasionally combine drinking and driving activities.

Lastly, a major weakness of the Drink-Driving Countermeasure System is the absence of data which may be used to evaluate the effectiveness of countermeasure activities. For example, no definitive measure exists of the extent of drink driving on Victorian roads.

MAJOR FINDINGS

THE EDUCATION AND PUBLICITY SUB-SYSTEM

- * In 1977, paid drink-driving publicity campaigns amounted to some \$60,000 - a minute proportion of the overall cost of Victorian drink-driving countermeasures. By contrast, it is estimated that the liquor industry spent more than 150 times this amount.
- * In 1977, at least 90 per cent of drink-driving information in the mass media was presented in the form of news, community announcements or other unpaid services.
- * Several initiatives have been developed to encourage responsible drinking and driving attitudes in school children, such as alcohol and drug education and pre-driver education courses.

THE LEGISLATION SUB-SYSTEM

- * The laws which make it illegal to drive with a blood alcohol concentration over .05 g/100 ml or while affected by alcohol are contained in the Motor Car Act 1958 and the Crimes Act 1958.
- * Any driver who is involved in a motor vehicle crash, gives reason to believe he has been drinking or is stopped at a Preliminary Breath Test Station or any road user over the age of 15 attending hospital after being involved in a crash is eligible for alcohol testing.
- * The definition of reasonable grounds for requiring a defendant to furnish a breath test is open to different interpretations by police and in the courts.
- * Blood samples taken at hospitals, within 2 hours after the crash are presumed to be not less than the levels at the time of offence.
- * Hospitals outside the jurisdiction of the Health Commission are not required under Section 80D of the Motor Car Act 1958 to take blood samples from injured road users over the age of 15 years.
- * Other charges may be laid without alcohol testing or analysis. For conviction, these require proof of driver impairment to such an extent as to be incapable of having proper control of a motor vehicle. Moreover, it is illegal to refuse a breath test or to obstruct a doctor from taking a blood sample.
- * In most cases, magistrates must impose minimum penalties on convicted drivers as set down in the legislation. These involve periods of licence cancellation and/or disqualification.

THE ENFORCEMENT SUB-SYSTEM

- * In 1977 48,385 drivers were tested for alcohol: Overall 25 per cent

were tested as the result of a casualty crash, 36 per cent by patrol procedures and 39 per cent by Preliminary Breath Test Station procedures.

- * Although as many as 70 per cent of men admit to occasional drink-driving behaviour the probabilities of detection are low. It is estimated that each week one in every 750 drivers over .05 g/100 ml is detected.
- * Some drivers appear more likely to be tested for alcohol than others, namely those with one or more of the following characteristics: those who have in fact been drinking, males, blue-collar workers, unlicensed drivers, those with prior criminal, traffic or drink-driving convictions, and drivers of cars or panel vans rather than motor cyclists.
- In 1977, about 14,000 drivers were found to have a B.A.C. over the legal limit. This represents 29 per cent of all drivers who were tested for alcohol, 0.7 per cent of licensed drivers in Victoria and 0.5 per cent of the total adult population of Victoria.
- Compared with drivers whose blood alcohol concentration was found to be below .05 g/100 ml, drivers over .05 g/100 ml were significantly more likely to have at least one of the following characteristics: male, employed in a blue-collar occupation, have a prior conviction history, and to be unlicensed.
- * Unlicensed drink-drivers, particularly those driving while disqualified, comprise a sub-group of drink-drivers which deserves special attention. Given their prior traffic, drink-driving and criminal records, many would appear to be regular offenders whose anti-social behaviour is not confined to the road.
- * A number of problems exist in the testing of participants in casualty crashes. Only 60 per cent of drivers taken to hospital were blood tested within the two hour limit and 20 per cent were not tested at all; less than three per cent of drivers not taken to hospital were breathalyzed, and approximately 26 per cent of the 11,836 blood samples taken from drivers in 1977 could not be used for prosecution.
- Almost 90 per cent of drivers with a blood alcohol level over .05 g/100 ml were prosecuted on a drink driving charge. Most drivers not prosecuted had been identified by hospital blood test procedures, and in 20 per cent of these cases the lack of prosecution was due to the fact that their blood samples were taken more than two hours after the police-reported crash time.
- Of drivers found to be over .05 g/100ml in 1977, patrol procedures have the highest prosecution rate (99 per cent) followed by Preliminary Breath Test Stations (74 per cent) and casualty crash procedures (29 per cent).
- * Ninety per cent of drinking drivers not prosecuted after being detected with a B.A.C. over .05 g/100 ml by patrol or Preliminary Breath Test Station procedures were asked to attend the Motorist Education Session at the Police Department.

- * The systems used by several organisations (for example, hospitals, the Motor Registration Branch, Information Bureau Records of the Police Department, Law Department) for recording statistical information in relation to drink-driving were found to be inconsistent among themselves and unreliable to varying degrees. In some cases, this may lead to non-conviction of a drink-driver or the imposition of a lesser penalty.
- * Only 20 per cent of drivers found to have an illegal B.A.C. as the result of blood test procedures were disqualified from driving.
- * Approximately 83 per cent of drivers identified with a B.A.C. over .05 g/100 ml were disqualified from driving. Magistrates found 96 per cent of the defendants brought before them guilty of a drink-driving charge, and imposed a period of disqualification from driving on 94 per cent of these people (that is, 90 per cent of all defendants).
- * Nearly 20 per cent of drivers who were disqualified from driving for a drink-driving offence were already unlicensed at the time of the offence, 50 per cent of drivers whose licence was cancelled for a drink-driving offence did not apply to have their licence restored, and one-third of these drivers had been unlicensed at the time of the offence.
- * There are several reasons for drink-driving cases being dismissed, the main ones being:
 - time of crash doubted
 - forms incorrectly completed
 - no evidence of driving
 - identity of driver doubted.

LICENCE RESTORATION

- * Approximately 825 drivers were referred to drink-driving rehabilitation courses. A wide variation exists however among Magistrates in relation to the court referral system to these courses.
- Over 90 per cent of drink-drivers attending rehabilitation courses had a B.A.C. over .15 g/100 ml when apprehended - a level which now (1981) carries a 2 year licence disqualification period for a first offence and 4 years for a second offence. Since drivers attend these courses at the end of the disqualification period, there is a 2 year or 4 year delay between the offence and treatment.
- * Magistrates granted 92 per cent of licence restoration applications despite the fact that police opposed 58 per cent of these applications.
- * Neither a driver's attendance at a drink-driving rehabilitation course nor alcoholism treatment seemed to make any difference to whether an application for licence restoration was granted or refused.

RECOMMENDATIONS

Education and Publicity

1. The effectiveness of sanctions, enforcement procedures, rehabilitation courses, drink-driving publicity and education should be evaluated whenever possible.
2. A long range forward work programme of publicity and education should be developed to achieve a gradual but consistent improvement in the community's attitudes and knowledge towards drink-driving and a reduction in drink-driving behaviour.
3. In view of the widely differing responsibilities and objectives of the many people and organisations within the Drink-Driving Countermeasure System, there should be a forward work program developed which aims to educate, and promote understanding and co-operation between the various sub-systems with the common goal of increasing road safety.

Legislation

4. In view of the fact that some offenders negate their evidentiary breath test by drinking alcohol after their screening test, the form of legislation existing in New South Wales and Tasmania which declares it an offence to alter one's blood alcohol concentration level before analysis should be adopted in Victoria.
5. A conviction for Refusing a Breath Test, which carries the highest minimum period of licence cancellation for a drink-driving offence, should be considered to be a prior conviction for all drink-driving offences and the convicted driver should require a court order to be relicensed.
6. Although a conviction for Driving Under the Influence is deemed to be a prior conviction for one where a blood alcohol concentration of .05 g/100 ml was exceeded, the reverse does not apply. This legislation should be reviewed.
7. Considering the extended periods of licence disqualification currently imposed on offenders with multiple convictions at high blood alcohol concentration, and the number who apparently do not apply for licence restoration, referral to rehabilitation treatment should be at the time of conviction, not licence restoration.
8. In view of the difficulties in prosecuting drivers whose blood samples are taken more than 2 hours after the accident, consideration should be given to extending this period.
9. Legislation should be introduced to give police the power to require a preliminary breath test from any driver who has committed a moving traffic offence.

Legal and Procedural Areas for Review

10. In view of the high workload involved in taking blood samples from casualty crash victims, and the relatively low number of convictions resulting from the activity, a detailed review of the blood alcohol testing system based on Sections 80D, 80DA and 80G of the Motor Car Act 1958 should be undertaken.
11. Given that Magistrates granted 92 per cent of licence restoration applications, an investigation of the licence restoration system should be carried out with particular reference to:
 - the use of the Magistrate's Court as the appropriate authority for granting applications for licence restoration
 - the criteria to be used in the consideration of licence applications.
12. The feasibility of introducing a legal requirement compelling hospitals outside the jurisdiction of the Health Commission to take blood samples from casualty crash victims should be examined.

Research

13. Considering the significance of licence disqualification as a drink driving countermeasure further studies should be carried out of its effects.
14. Given some shortcomings in the system for recording relevant statistical information, a review of the current system of recording licence, accident and conviction data should be carried out in order to develop a reliable computerised data base.
15. There is an urgent need for the changing drinking patterns and drinking environment in society to be monitored.
16. Existing data sources which provide estimates of the extent of the problem of alcohol on the roads should be continuously monitored.

Policy Initiatives

17. A Consultative Council on Drink Driver Rehabilitation Centres should be established, comprised of representatives of Magistrates, the Victoria Police, RoSTA, the Health Commission, Law Department and the Ministry for Community and Welfare Services.

These organisations are all currently involved in some aspects of the drink-driver rehabilitation system. It is appropriate for liaison on policy questions to take place at senior levels.

18. As potential new initiatives, the following suggestions could be further investigated to determine whether they would be practical and cost effective:

- (a) A policy of testing all drivers involved in reportable crashes for alcohol.
- (b) A policy of testing all drivers detected committing specified offences (such as speeding) for alcohol.
- (c) The assessment of all convicted drinking drivers for drinking problems, and referral to an appropriate course.
- (d) An increase in the amount of resources available to police, leading to an increase in the number of police on conspicuous traffic patrol.

CHAPTER 1

INTRODUCTION AND STUDY DESIGN

RATIONALE

As early as 1909, legislation was passed in Victoria which made it illegal to drive a motor vehicle while under the influence of alcohol. These laws reflected the public's concern about road safety and a recognition that alcohol was often a factor in road crashes (44). Since then, many different measures have been introduced in an attempt to prevent or reduce drink-driving behaviour. The Office of Road Safety of the Commonwealth Department of Transport recognised the need for a detailed investigation of current practices in the area and as a result, commissioned the Road Safety and Traffic Authority of Victoria to carry out a study. The terms of reference of this study were to identify and describe the Drink-Driving Countermeasure System operating in Victoria in terms of the movement of drivers through the system and the ways in which that movement is influenced.

Two recent projects in the United States have used a systems approach to gain a better understanding of the operation of countermeasures and how they affect drink-drivers. Much of the methodology of the present study has been drawn from their experience (62, 63, 64, 65). In the light of this past research, four precise aims for the Drink-Driving Countermeasure Study were formulated:

AIMS

1. To describe the Drink-Driving Countermeasure System as it now operates and to describe and quantify those elements of the system which are amenable to measurement.
2. To define the relationships between elements of the Drink-Driving Countermeasure System and to provide a basis for describing how changes in particular elements may affect other elements.
3. To describe the environment in which the Drink-Driving Countermeasure System operates and to outline some of the constraints under which it functions.
4. To make recommendations concerning Drink-Driving Countermeasures where they appear relevant.

It is important at this stage to clarify the meaning of terms which have been used in the statement of aims and indeed, throughout the report.

DEFINITIONS

DRINK-DRIVERS are those individuals who drive with a blood alcohol concentration in excess of .05g/100 mls.

DRINK-DRIVING COUNTERMEASURES are those measures intended to prevent, discourage or reduce drink-driving, to reduce the incidence of crashes involving alcohol, and to reduce the degree of trauma associated with those accidents that do occur.

THE DRINK-DRIVING COUNTERMEASURE SYSTEM is comprised of these measures and the interrelationships between them. This report deals largely with the movement of individuals from one sub-system to another, the number of individuals and their characteristics.

RESEARCH METHODOLOGY

In order to achieve the aims of the study, three different research techniques were used:

(a) Literature Review

The existing literature was searched for published information about those people who drink and those who drive in Victoria and elsewhere. A description of the environment in which the Drink-Driving Countermeasure System operates was made in the light of these publications. Some data was also obtained from published sources.

(b) Preliminary Survey

A comprehensive survey was undertaken to identify the activities which comprise the Drink-Driving Countermeasure System. This survey involved contact with many individuals who work in the system to obtain information about procedural matters, to establish personal contact, and to promote their acceptance of and co-operation with the study. A review of the legislation and publicity and education activities was also undertaken as part of this field survey.

(c) Collection of Detailed Information

Decisions about which sub-system on which data needed to be collected were made according to two criteria: availability of the data as indicated by the preliminary survey, and relevance of the data as indicated by the literature review. Decisions about which data to collect were made on the same basis.

Much of the information was retrospective and was obtained from official records. Several small studies, however, were carried out to describe the activities of certain parts of the system not previously documented, and to put into perspective those parts which have sometimes been viewed as representing the total system. Information was collected for eleven groups of drivers identified at particular points in the system. These were:

- A Drivers Killed in Fatal Crashes (N=448)
- B Drivers Not Killed in Fatal Crashes (N=238)
- C Drivers Taken to Hospital and Having a Positive Blood Sample (N=523)
- D Drivers in Crashes Attended by Ambulance Officers (N=978)
- E Drivers Breathalyzed Following Detection at Preliminary Breath Test Stations (N=397)
- F Drivers Not Breathalyzed Following a Screening Breath Test (Alcotest) at Preliminary Breath Test Stations (N=500)
- G Drivers Breathalyzed Following Detection by Police on Patrol (N=278)

- H Drivers Not Breathalyzed Following a Screening Breath Test (Alcotest) by Police on Patrol (N=499)
- I Drivers Attending Rehabilitation Courses (N=678)
- J Drivers Disqualified from Driving as the Result of a Drink-Driving Conviction (N=500)
- K Drivers Refusing a Breath Test (N=248)

Further details on these groups are contained in Appendix A.

Groups A, B, E, I, and K are total populations of drivers for 1977.

A sample only was studied for groups C, D, F, G, H, J.

Most of the relevant information which existed in Victoria had been collected primarily for enforcement or medical purposes rather than for research. This focus of attention necessarily influenced the type and quality of data able to be collected for the study. In addition, since the availability of data depended on co-operation and trust, some parts of the system were more open to study than others. These factors were also considered wherever compromise had to be made; all data were collected with an eye to accuracy rather than completeness, and with regard to co-operation rather than intrusion into the affairs of the agencies involved. The accuracy of particular information and the limitations imposed by using certain driver groups rather than others have been documented where appropriate.

It is important to remember that the Drink-Driving Countermeasure System described in this study is that which operates in the State of Victoria. Different laws and different social norms in other States and other countries will inevitably mean that their Drink-Driving Countermeasure Systems will work in a different way from the Victorian one.

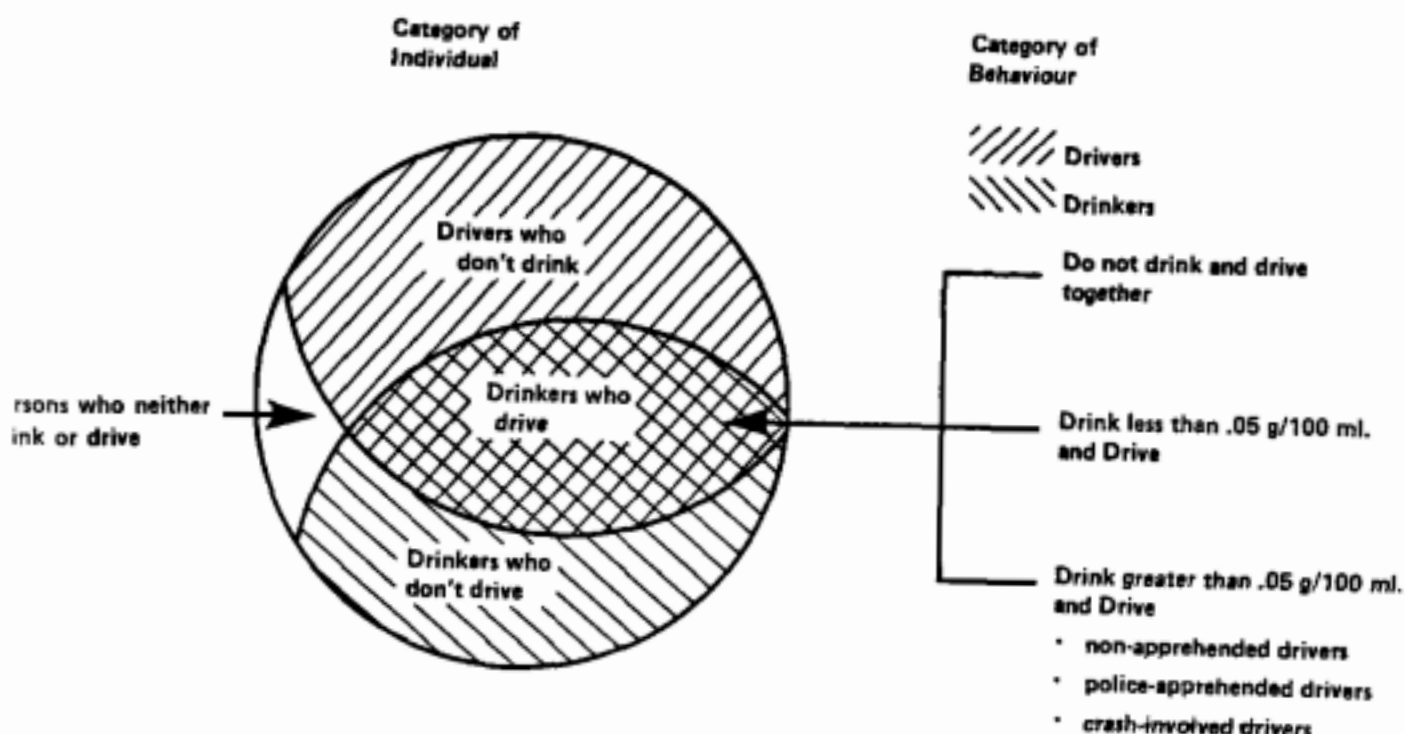
CHAPTER 2

LITERATURE REVIEW

The aspects of the Drink-Driving Countermeasure System reported on here exist to prevent, discourage or reduce drink-driving activities in Victoria. It is important, therefore, to place the results of this Study into perspective by describing the characteristics of people who engage in drink-driving behaviour, and the environment in which they drink and drive.

Drink-drivers may be seen as a particular group of people who belong to both the drinker and driver populations (Figure 1). For purposes of this study, drink-drivers are drinkers who drive motor vehicles while having a B.A.C. in excess of .05g/100 ml.

FIGURE 1: THE POPULATION IN TERMS OF DRINKING AND DRIVING ACTIVITY



ALCOHOL CONSUMPTION

(a) National Consumption Patterns

Available data indicate that around 130 million litres (102.7 million kilograms) of absolute alcohol are consumed by Australians each year (27).

An unknown quantity is produced by householders for personal use, and consequently this estimate under-estimates the real figure (21).

Figures from Victoria suggest that most of this alcohol is in beer, reflecting the view that Australia is among the heaviest beer-drinking nations of the world (Tables B-1 and B-2 Appendix B). Wine consumption has, however, risen in the last five years and as

well, many young people are reported to be turning to spirits (83). Two other important trends are the recent introduction and popularity of low alcohol beer and the growing tendency towards the use of packaged alcohol.

A 1975 survey of the alcohol content of beer from various countries indicated that Australian beer is intermediate in strength and that a slightly more restricted range of beer than in other countries is offered (Table B-3, Appendix B).

Despite the demonstration of a general relationship between alcohol consumption and alcohol-related deaths and other alcohol-related problems (1, 33, 35, 101, 111) the relationship between per capita consumption and the incidence of alcohol related social problems (including alcohol involved road crashes) is still a matter of controversy (33, 109).

(b) Individual Consumption Patterns

The problems associated with obtaining reliable information about drinking behaviour have been well documented (e.g. 5, 18, 38). Self-reports are subject to considerable distortion, particularly among alcoholics for whom denial is part of the recognised syndrome (38). Further problems arise in the definition of 'drinker' which, in the literature, has been taken to mean someone who uses alcohol once a week (5), once a year (9), or anywhere in between these extremes. The terms 'heavy drinker' and 'problem drinker' create even more difficulty for practitioners and researchers alike. However, it is apparent that most Australians consume alcohol; 3 out of 4 Victorian men and 1 in 2 Victorian women admit to consuming alcohol (5, 68).

Although the literature has been reviewed under two categories of drinker (a) light to moderate drinkers and (b) heavy drinkers, it is recognised that the degree of reliability of alcohol consumption data is such that there may be considerable overlap between the two categories. The findings of several studies concerning Australian drinkers have been summarised and are contained in Table B-4 Appendix B.

(i) Light to Moderate Drinkers

In Victoria, about 70 per cent of men and 50 per cent of women and teenage boys consider themselves to be drinkers (5, 14, 43). These figures increase to 90 per cent when looking at men and women in the Victorian workforce (16).

In the 1977 ABS Alcohol and Tobacco Consumption Pattern survey of people over 18 years of age, over 1.28 million Victorian drinkers reported that they consumed under 40 grams of alcohol per day. This is approximately 52 per cent of the total population and 85 per cent of all drinkers (5). Forty grams of alcohol is contained in approximately one and a half bottles of standard beer or three bottles of low alcohol beer.

(ii) Heavy Drinkers

Some professionals in the alcohol field consider that an individual who regularly drinks more than 40 grams of alcohol per day may be at risk of social and physical complications (89). Using blood alcohol concentration as a measure, several studies have suggested that people with an alcohol level of .15g/100 ml are likely to be 'problem drinkers' - normal drinkers would rarely drink beyond a blood alcohol concentration of between .05g/100 ml and .08g/100 ml (57, 90). Many heavy drinkers are also multiple drug users (47, 78, 121).

Over 231,000 individuals in Victoria consume more than 40 grams of alcohol per day. This is approximately 9 per cent of the total Victorian population over 18 years of age and 15.2 per cent of the Victorian population who claim to drink (5). Unfortunately all individuals surveyed were over 18 years of age, as there has been some indication that a number of people below the legal drinking age consume over 40 grams of alcohol per day (43).

The condition known as alcoholism has been associated with the consumption of 80 or more grams of alcohol per day (89). It is manifested by physical, social and economic impairment and appears to progress at a faster rate in women (137, 140). Between 4 and 9 per cent of Victorian men and 1 per cent of Victorian women have reported this level of consumption (5, 69, 89). It has been estimated that there are at least fifty thousand alcoholics in Victoria (75). Characteristics reported to be over-represented in alcoholic populations have included being male, aged 30 to 55 years, a heavy smoker (121), a shift worker, a tradesman or labourer (77, 121) and being married to an alcoholic (88). With regard to marital status, divorced or separated people are nearly ten times more numerous among alcoholics than in the population as a whole (88). Chronic alcoholics account for nearly 20 per cent of Victorian prisoners (13).

THE DRIVING POPULATION

There are a number of different kinds of surveys from which information on driving can be obtained.

(a) Information about drivers actually on the roads

This information can be obtained from roadside surveys. Although of interest, data about the driving population in Canberra obtained from a roadside survey in 1971/72 (34) is of limited value given the different population characteristics and urban transport system in Canberra. The best available figures for describing the driving population on Victorian roads is obtained from the Preliminary Breath Test Station statistics.

Preliminary Breath Test Station procedures allow police to select for alcohol testing drivers passing the testing station. In Victoria, these police efforts operate mainly between 6 pm and midnight on Thursday, Friday and Saturday nights (110). Although they are the best available figures for describing the general driving population on Victorian roads, information about these drivers cannot be considered representative. About 90 per cent of drivers tested at Preliminary Breath Test Stations in 1977 were men, 38 per cent were less than 30 years old, 55 per cent were employed in blue-collar occupations and 31 per cent had prior traffic convictions (112, 113).

(b) Characteristics of Licence Holders

The characteristics of licence holders are problematic in two aspects: firstly not all licence holders drive, and secondly individuals without licences are known to be driving on Victorian roads.

The few studies which have investigated the characteristics of Victorian Driver Licence Holders have not generated a great deal of data. Males are reported to comprise 64 per cent of this population (96) and in regard to age, 20 per cent are less than 26 years old, 36 per cent are in the 26-40 age bracket and 44 per cent are over 40 years old (95). As for their marital status, 69 per cent are married, 18 per cent are single and 13 per cent are divorced, separated or widowed (97). Nine per cent have committed some traffic offence (73, 96).

(c) Drivers Identified Through Crash Involvement

Characteristics of drivers identified through crash involvement differ depending on the severity of the crash. Very little is known about those involved in crashes in which there are no casualties (i.e. property damage only). Different sources of information about injured drivers tend to produce different findings. For example, some Victorian figures show that 18 to 20 year old men have more than double the representation of any other single age and sex group (88). In comparison, other Victorian and American data indicate that men under 20 are no more numerous in the crash population than those aged between 20 and 24 (101, 134). These discrepancies may, in part, be explained by the different ways in which workers in the field define injury in drivers. At times, a driver may be identified as injured if he is treated at a hospital (109), at other times he may be identified as injured if he is admitted to a hospital bed (102), or if he is treated at hospital and had a blood sample take (73), or if he is injured in the opinion of the member of the police force who reported the crash (96, 97, 128). No attempt has been made to differentiate between these different definitions (and thus, selection procedures) in this literature review, but these differences inevitably account for some of the variation among research reports.

Between 80 and 90 per cent of Australian drivers killed in motor vehicle crashes are reported to be men (55, 79, 94, 119) and over one third are less than 25 years of age. In regard to age, both

Australian and American research suggests that casualties among young drivers are heavy, even after accounting for their increased exposure to risk (24, 49, 50). Their potential crash involvement seems to be associated with their educational and occupational level and with both their own attitudes and those of their parents (2, 49, 50, 59). Other research work indicates that stress such as fatigue, temporary emotional disturbance or the effects of marital breakdown was associated with driver casualties (107).

DRINKING AND DRIVING

Most of the research carried out on drink-driving behaviour has attempted to explain the over-representation of drink-drivers among drivers involved in motor vehicle crashes. More recently, however, work in this area has been extended to include those drivers whom the police have detected violating the drink-driving legislation. A comprehensive body of literature has now evolved describing the demographic characteristics of drink-drivers who have been identified by different selection procedures.

Most Australian literature in this field has focussed attention on the proportion of driver casualties or police-apprehended drivers who have particular blood alcohol readings. Some of these studies have further compared these proportions with similarly alcohol-involved drivers who did not have a road crash (55, 98, 105, 106, 118). Summaries of the results of some Australian studies are provided in Appendix C.

THE DRINK-DRIVING POPULATION

(a) Drink-Drivers Identified in Roadside Surveys

Although no roadside survey has been undertaken in Victoria, Duncan's ACT study provides some detail on the characteristics of drink drivers in Canberra in 1978. (34). Duncan found that drink driving at high levels (over 0.08 g/100 ml) was almost exclusively confined to males. There were a negligible number of female drivers with high blood alcohol concentration levels. High blood alcohol concentration varied significantly with age peaking in the early thirties and early 50's. Whilst there was some indication that a greater proportion of tradesmen and manual labourers had high blood alcohol concentration levels this was found to be not significant when compared with other occupations. In addition, research findings from America and Canada have indicated that two main groups of drink-drivers identified by age, may be found on the roads - one in the 20 to 24 age-group and the other in the 30 to 34 age-group. (25, 120, 131).

(b) Drink-Drivers Identified by Preliminary Breath Test Station Procedures

Under Victorian legislation which was introduced in 1976, police may randomly select motorists and screen them for exceeding a blood alcohol concentration of .05g/100 ml. About 2 per cent of drivers tested in this way have been convicted of a drink-driving offence (110, 112, 113).

Drivers identified with a blood alcohol reading between .05 and .08 g/100 ml have been reported as having the following characteristics: 97 per cent were male; 35 per cent were in their twenties and 25 per cent were in their thirties; 30 per cent had committed at least one prior traffic offence and 14 per cent had committed at least one prior alcohol-related offence (113). Similar results have been found for drivers detected with a reading over .08 g/100 ml: 98 per cent were male; almost half were in their twenties and again 25 per cent were in their thirties, 75 per cent were employed in blue-collar occupations.

(c) Surveys of self reported drink driving behaviour

In 1971 a survey was carried out in Sydney by the NSW Traffic Accident Research Unit, that included questions on driving after drinking. Caution is always required in the interpretation of self report data. In that survey, 7.4 per cent of the total sample of 1197 admitted to driving after drinking frequently, a further 14.9 per cent admitted to doing so occasionally, and 20.6 per cent rarely (52).

During the period December 1978 - January 1979, 1150 people in Victoria were questioned about their drink-driving in the week prior to the survey. Twenty five per cent of licensed drivers admitted driving after drinking and calculations based on the amounts they reported drinking suggested that 10 per cent had driven at a B.A.C. of .05 g/100 ml or higher (95). Given that there were about 2 million licensed drivers in Victoria, it can be estimated that approximately 200,000 licensed drivers drove over .05 g/100 ml in Victoria in each week within the period November 1978 to January 1979.

CRASHES INVOLVING ALCOHOL

There appears to be a high proportion of alcohol-involved drivers in crashes which occur between 10 pm and 2 am at week-ends compared with other times of the week, even though more crashes occur at earlier times under heavier traffic conditions (96).

Rural crashes involve a higher proportion of drink-drivers than do metropolitan crashes (94, 96) and similarly, single-vehicle crashes involve a higher proportion than do multi-vehicle crashes (118).

(a) Drink-Driver Fatalities

Fifty to sixty per cent of drivers killed on Victorian roads who were tested for alcohol had been drinking prior to the crash (55, 73); about 50 per cent had readings over .05 g/100 ml (55) and 30 per cent had readings over .15 g/100 ml. Similar figures have been obtained in Queensland (117, 118, 135). In the case of single-vehicle fatal crashes, the percentage of drinkers markedly increases to between 72 and 89 per cent (15, 117, 119), and again, one third of these drink-drivers had readings greater than .15 g/100 ml. Country drivers tend to have higher blood alcohol readings than those killed in the metropolitan area (119). Most drink-driver fatalities have been reported to be men, half were employed in

blue-collar occupations, one quarter were less than 26 years old, and almost half have been described as being alcoholic or as having some kind of psychiatric illness (108, 133).

(b) Injured Drink-Drivers

Victorian figures indicate that between 14 and 28 per cent of hospitalised drivers whose blood samples were taken had been drinking, and that nearly half of these drivers had a blood alcohol concentration over .15 g/100 ml (53, 73, 104). Of those drivers detected in casualty departments with a blood alcohol level over .05 g/100 ml, two-thirds were men and almost two thirds were less than 30 years old (73). It seems that middle-aged men are also over-represented in this group of drink-drivers (105). Both in Australia and overseas, almost one third of hospitalised drivers have been described as alcoholics (39, 59, 133) and three-quarters of them were known to community agencies prior to the crash - 67 per cent through alcohol-related behaviour (132).

DRINK-DRIVERS IDENTIFIED BY POLICE PATROL PROCEDURES

Police may require a driver to submit to an alcotest or breathalyser test if by reason of the consumption of alcohol his driving is impaired. Most of these drivers have a blood alcohol reading much higher than .05 g/100ml. Because of the highly selective nature of detection by patrol procedures, drivers detected in this way may not be representative of the total population of drink drivers. Drivers identified by means of these procedures have been found to possess the following characteristics: almost all were men, 70 per cent were blue-collar workers; between 24 and 42 per cent were under 25 years old; and divorced and separated people were over-represented. (12, 31, 32, 84, 91, 98, 123).

Fifty-five per cent of those convicted of a drink-driving offence had been previously identified by police as 'problem drinkers' and 90 per cent have had serious alcohol-related problems (84, 91). In New South Wales, one-third of these convicted drink-drivers had a criminal record, one-quarter had committed serious traffic offences, one-quarter had committed drink-driving offences and 10 per cent had a history of all three (54). Forty per cent were reconvicted within thirty months of the original conviction (85).

In Victoria, the only drivers who routinely have their blood alcohol concentration measured are those who are injured in crashes or those who are detected by enforcement procedures. These enforcement procedures are more likely to result in particular types of people being tested, such as blue-collar workers and those in lower socio-economic groups (35, 50, 92, 101). As a consequence, even general assumptions cannot be made about the overall population of drink-drivers from which the study samples have been selected. Nevertheless, information about the age and sex of tested drink-drivers (Table 1) would suggest that they reflect the high proportion of men and under 25 year olds in the drinking and the driving populations (5, 35, 97, 101).

TABLE 1 AGE AND SEX COMPARISONS OF DIFFERENT SUB-GROUPS
OF THE VICTORIAN POPULATION

	% MALE	% AGED UNDER 25 YRS	REF. NO.
<u>General Population</u> (over 15 years)	50	24	4
<u>Drinkers*</u>			
Light-medium	58	62	5
Heavy	85	6	5
<u>Drivers</u>			
Licence-holders	63	21	95
Injury-crash	68	43	105
Killed	86	46	86
Preliminary breath test station	81	38	112
<u>Drinkers Who Drive</u>			
Licence Holders	60	19	97
<u>Drink-Drivers</u>			
Injury-crash	88	42	73
Killed	98	59	86
Preliminary breath test station	98	34	113
Self report survey	86	19	97

CHAPTER 3

THE EDUCATION AND PUBLICITY SUB-SYSTEM

This Chapter describes the Education/Publicity activities which were undertaken in Victoria in 1977. In general terms, this particular countermeasure may be described as any activity which is designed to prevent or reduce drink-driving behaviour by increasing people's knowledge or awareness of drink-driving and/or by changing their attitudes and behaviour in relation to drink-driving.

Advertising designed to change drink-driving or other driving practices is ultimately intended to reduce the number and severity of traffic crashes. Since 1959, however, overseas research has shown that little change in road crash figures can be expected to result from these efforts (136). Unfortunately the effects of Australian campaigns have not been measured except in terms of attitude change (11, 51). It has been well documented in the literature, however, that this change of attitude does not necessarily reflect a corresponding change of behaviour (e.g. 36). Similarly, there seems to be no evidence that knowledge about the effects of drink-driving alters people's behaviour and, in fact, it is thought by some writers that teaching explicit information may be counter-productive in related fields such as alcohol and drugs (26, 58, 116). This possibility cannot be excluded for drink-driving education.

In view of the fact that most drink-driving education and publicity has been directed at drinkers who drive, efforts directed at other groups of people such as drinkers or drivers have been investigated only when they contain specific drink-driving information. Some comparisons with the activities of the liquor industry have been included to put the drink-driving education and publicity effort into perspective.

EDUCATION AND PUBLICITY DIRECTED AT DRINKERS WHO DRIVE

The objective of most education/publicity activities directed at drinkers who drive would seem to be to reduce the number of drink-drivers on the road or the blood alcohol levels of those who do choose to drink and drive. Since most published research has shown that youth and being male are associated with drink-driving, the target group for these countermeasures has often been male drivers or more specifically, young male drivers.

There are two different opinions about drink-driving advertising campaigns among professional people who work in the drink-driving countermeasure system in Victoria. One group tends to promote the concept that it is acceptable to drink up to .05 g/100 mls in the belief that drivers have a right to know how to drink and drive while remaining within the law. People in this group argue that complete abstinence is an unrealistic request to make of drivers who know that the law permits a blood alcohol reading up to .05 g/100 mls. The second group considers that the complete separation of drinking and driving behaviour should be promoted on the grounds that, for any particular alcohol intake, the expected range of blood alcohol concentrations in the community is so wide as to place an unacceptably high proportion of drivers at risk of breaking the law or of being involved in a road crash.

On the other hand, the quite considerable amount of advertising by the liquor industry is aimed at encouraging the consumption of alcohol - even if the drinking they advocate is drinking one kind (or brand) of alcohol rather than another.

Several companies (e.g. Heinz, Phillip Morris, Reckitt and Coleman) have recently bought into the wine industry; and appear to use a different

advertising approach compared to the brewing group. Although the liquor industry is subject to a voluntary advertising code to which all known groups are party (3, 76), these companies sometimes promote wine as an essential part of enjoyment. Moreover, the expenditure on television advertising of wines is now nearly 150 per cent more than that spent by breweries, even though Australia is considered a beer-drinking country. It would seem, therefore, that it is no longer appropriate to consider the brewing industry as synonymous with the alcohol industry.

MASS MEDIA COMMUNICATIONS

(a) Print Media:

Information which is distributed through the mass media may be either paid advertising or unpaid publicity such as news, editorial comments, or community service announcements. Some publicity is also contained in television or film sequences or in advertisements for other products. Although the Road Safety and Traffic Authority did not sponsor any drinking-driving advertising in the print media in 1977, daily metropolitan newspapers printed about \$58,000 worth of unpaid publicity, often in response to particular legislative, police, or court activities (Table D-1, Appendix D). In comparison, the liquor industry spent \$862,000 on Melbourne metropolitan daily newspaper advertising in that year (22).

(b) Television

A comparison of television advertising expenditures in 1977 showed that drink-driving publicity (including unpaid community service announcements) amounted to only 5 per cent of that sponsored by the liquor industry. (Table D-2, Appendix D). In general, drink-driving television commercials in 1977 were designed to induce fear of the consequences (e.g. loss of driver's licence) as a means of reducing drivers' alcohol consumption. In contrast, both the brewing and the wine industries appear to have found that reinforcement of self-image and health-oriented advertising on television is successful in selling alcohol (72).

(c) Radio

Drink-driving advertising on radio cost the Road Safety & Traffic Authority \$24,000 in 1977 and private sponsors also spent about \$2,000. Several radio stations carried unpaid community service announcements estimated at \$96,000 if aired as paid advertising. In comparison, the liquor industry expenditure on radio advertising was \$640,000 (Table D-3, Appendix D).

(d) Outdoor

In 1977, the Road Safety & Traffic Authority authorised \$3,300 of hoarding advertising relating to drink-driving. No figures are available for other industries.

(e) Printed Literature

The Road Safety and Traffic Authority has available several educational pamphlets which are distributed with motor vehicle

registration renewals and through other outlets. This information reaches at least 25 per cent of the Victorian adult population each year (9).

(f) Lectures/Talks

Lectures designed specifically for drink-drivers are routinely undertaken as part of some drink-driver rehabilitation courses. As well, the Public Relations Division of the Victoria Police runs a Motorist Education Session which is an alternative procedure to prosecution for all driving-related offences. This procedure is directed at offenders and non-offenders alike - those requested to attend are encouraged to bring two friends with them. The main theme of the session is road safety and the contribution made by speed and alcohol is demonstrated in films and by discussion.

Many talks are delivered to service clubs and other community groups by road safety organisations such as the Road Safety & Traffic Authority and the Royal Automobile Club of Victoria. Several films, including 'Drugs, Drinking and Driving', 'Danger Level', 'Drinking, Driving and Surviving' and 'Knock on Any Door', may be used to describe and discourage drink-driving behaviour. Usually these films are shown as part of a more general road-safety programme.

EDUCATION AND PUBLICITY DIRECTED AT DRIVERS

Many studies evaluating the effectiveness of driver-education programmes have been published and these have been extensively reviewed elsewhere. It is apparent that few studies have shown driver education to have any significant effect on improving attitudes to road safety or on decreasing crash rates (74). However, it is possible that driver education programmes interact with other countermeasures (17). Post licence driver-education programmes in Victoria may be divided into categories according to the type of driver who attends them.

(a) Defensive Driving Course

These courses are run by the Road Safety & Traffic Authority, the Royal Automobile Club of Victoria and the Goulburn Valley Driver Training Complex, and are intended to improve the expertise of experienced drivers. About 1000 people attended these courses in 1977 (Table D-4, Appendix D).

(b) Industrial Driving Courses

These courses are run internally by some companies heavily committed to road transport, for example, the Gas and Fuel Corporation, Shell Oil Pty. Ltd., The Readymix Group, the State Electricity Commission and the Royal Australian Army. They are usually driver training rather than driver education courses. Other organisations, such as the Ambulance Service and Golden Fleece, employ outside experts such as the Road Safety & Traffic Authority and the Goulburn Valley Driver Training Complex to conduct a driving course geared to their own particular requirements. It is unusual for these courses to discuss drink-driving in any depth though several courses do show a drink-driving film.

EDUCATION AND PUBLICITY DIRECTED AT DRINKERS

Education and publicity is directed towards health related aspects of excessive drinking. Such information is available through the Alcohol and Drug and Forensic Services Branch and the Health Education Centre of the Health Commission. This information is generally delivered in talks and printed literature and is usually directed at service clubs, parents or interested professionals. There is little emphasis on drink-driving except where groups of young people such as apprentices, are involved. The Victorian Foundation on Alcoholism and Drug Dependence encourages a community approach to awareness of alcohol by facilitating seminars, but drink-driving is not necessarily discussed.

One important initiative in identifying potential problem drinkers has been the development of Industrial Alcoholism Programmes supported by the Victorian Foundation on Alcoholism and Drug Dependence and the Trades Hall Council. These are now incorporated into the management policy of about fifty companies, eight of whom appear to employ significant numbers of drivers. It has been reported that between 45 and 83 per cent of alcoholics drink during working hours (114) and many drive home after work. These activities may therefore be considered as a useful drink-driving countermeasure.

EDUCATION AND PUBLICITY DIRECTED AT POTENTIAL DRINK DRIVERS

These efforts are generally aimed at inducing responsible driving and drinking attitudes in school children. Pre-driver education is now (1981) a curriculum elective offered to fourth and fifth year secondary students in 123 Victorian schools and is designed to promote responsible attitudes to driving in the inexperienced driver group. A syllabus has been set down by the Joint Standing Committee on Traffic Safety Education which co-ordinates school road safety activities and this covers suggestions for the teaching of drink-driving subjects. Furthermore, curriculum material is in preparation which is intended to increase the emphasis on alcohol in this subject. The Road Safety and Traffic Authority, the Royal Automotive Club of Victoria and the Goulburn Valley Driver Training Complex address student audiences on road safety and may mention drink-driving to secondary school groups.

Education about alcohol may also be taught as part of health education in schools. Over half the secondary school students in Victoria receive some form of health education (Table D-5, Appendix D), but there seems to be little consistency among schools in the content of these courses. Teacher training in health education is part of the curriculum of most State Colleges but discussion of alcohol use incorporating drink-driving behaviour is not always included in these curricula. This lack of attention to alcohol may reflect society's unawareness of or ambivalence towards alcohol, it may also reflect research results suggesting that alcohol and drug education which relies on the teaching of explicit information may be counter-productive (e.g. 58, 116).

A third - and perhaps more effective - way to teach about drink driving in schools is to include the material in subjects taught as part of the normal syllabus. Material can be included in courses on biology, physics, legal studies, social science, and english. While there has been very little such material available, several such units are in preparation at this present time (1981).

In 1977 more than three-quarters of the drink-driving publicity in the mass media was broadcast in the form of unpaid news, editorial comments and

community service announcements. The decisions about the quantity, quality and presentation of this publicity are made by people such as news editors who publish or broadcast the news. The main criterion they use is that the material must be 'newsworthy'. This situation tends to give rise to sensationalism whereby attention is focussed on exceptional rather than routine cases, and facts may be of secondary importance.

In 1977, expenditure on alcohol advertising in Victoria was more than 150 times that of drink-driving advertising (Table 2). Consequently, education and publicity measures designed to reduce drink-driving behaviour are operating against an overwhelming amount of advertising which encourages consumption of a particular beverage. In view of this discrepancy in advertising expenditure, drink-driving publicity is at a considerable disadvantage unless more funds are made available in this area. Given that the amount of funds could never match the expenditure of the liquor industry, greater attention must be focussed on the evaluation of these campaigns so as to make them more effective. Some consideration could also be given to requiring the electronic media to broadcast one community service announcement from health, road safety or other agencies concerned with the adverse effects of excessive alcohol consumption for every three or four advertisements relating to the consumption of alcoholic beverages (129).

TABLE 2 COMPARISON OF DRINK-DRIVING AND LIQUOR INDUSTRY ADVERTISING EXPENDITURES 1977

	Drink-Driving Expenditure		Liquor Industry Expenditure
	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