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Inquiry into The Effects of Drugs (Other Than Alcohol) On Road Safety In Victoria
Chairman's Preface

This Report concludes the Inquiry into the effects of drugs (other than alcohol) on road safety in Victoria. It identifies how drugs reduce a person's capacity to perform safely all of the driving functions and proposes new methods for dealing with impaired drivers.

Drug abuse remains a scourge. It affects every level of our society and no one is immune from the threat of being killed or injured in a crash involving a drug-impaired driver. When drugs are taken and the person drives the likelihood of becoming a road toll statistic increases dramatically.

Victoria's relative success in reducing the involvement of alcohol in road crashes has now highlighted the involvement of drugs in crashes. The Committee was disturbed by the results of coronial inquiries which reveal that drugs are present in about one quarter of Victorian driver fatalities, a level comparable to that of alcohol. The extent to which drug presence contributed to such crashes is not clear and similar studies are needed of injured drivers.

Scientific evidence shows many drugs can affect driver performance and such drugs are present in what appear to be an abnormal proportion of Victorian driver fatalities. Estimates of the magnitude of the problem range as high as one eighth of the road toll. Significant countermeasures are needed.

The subject is complex as driver impairment can be due to prescription or over-the-counter medications, illegal drugs, abuse of substances such as butane or from stimulants used to try to combat driver fatigue. Combinations of drugs, especially with alcohol, can accentuate impairment. Consequently a multi-faceted approach is necessary ranging from measures aimed at adolescent drivers through to guidance in the use of medications. The use of stimulant drugs in the road transport industry has also been addressed.

The Committee has developed a range of countermeasures encompassing prevention, detection, action and research. Fundamental to the recommendations is the notion of driver impairment. There is no current scientific agreement on 'safe' and 'unsafe' levels for drugs when people drive.
The Committee consulted widely with road safety organisations in Victoria, other Australian jurisdictions and relevant overseas authorities. This process examined Australian and overseas driver impairment testing techniques from which the Committee developed a proposal which provides for systematic police observations of impairment firstly at the roadside and later, where necessary, in a controlled indoor environment. The tests proposed are more extensive than currently used elsewhere in Australia but less intense than required in parts of the United States. To provide additional legal protection for drivers the Committee recommends that the second impairment test be video recorded.

Some of the countermeasures may seem hard-hitting but the situation requires a very definite response from Government. The Committee's objective is to save lives.

At the same time care has been taken to preserve the delicate balance between police discretion and citizens' rights.

In the report on Demerit Points in November 1994 I mentioned that while Victoria has been a world leader with many road safety innovations the Committee was concerned that we are behind international best practice in gaining value from road safety related information databases. The current inquiry has again revealed difficulties in extracting and correlating data held by Victorian agencies. The Committee's recommendations emphasise the importance of co-ordinated information databases for scientific research, countermeasure development and monitoring implementation effectiveness.

I would like to thank all those who so readily co-operated with the Committee.

I also thank my Deputy Chairman Mr David Cunningham MP and the Committee members for their work in this Inquiry.

Finally I thank the Committee staff - Executive Officers Mr Geoff Westcott and Mr Barry Aitken, Senior Research Officer Mr Graeme Both and Office Manager Mrs Lois Grogan and consultants Associate Professor Geoffrey Bentley and Mr Gerald Mayhead for their professionalism and dedication.

John I. Richardson, MP
Chairman
Executive Summary

A Community Issue

Victoria has a long established history of reviewing road safety. The Road Safety Committee of the Parliament has operated in a variety of forms since 1967 and its reports have led to ground-breaking legislation such as the mandatory wearing of seat belts, the 0.05 per cent limit in blood-alcohol concentration and random breath testing.

For decades Victorian governments have given significant attention to establishing effective drink-driving countermeasures. This focus on alcohol has tended to mask the involvement of drugs in road crashes. As road safety countermeasures, particularly against drink-driving and speeding, have become more successful drug-driving has become more apparent.

The presence of potentially impairing drugs in dead and injured drivers is unacceptably high. Available research has shown that a quarter of all fatalities had drugs in their bodies and it is now known that drivers who consume drugs alone or with alcohol have a higher risk of being in a fatal crash than drivers who are drug free.

The cost of the road toll attributed to road crashes where drugs alone or when mixed with alcohol were present was $143 million in 1993 or one-eighth of the State’s road toll according to VicRoads. In 1993 the average cost in Australia of a road fatality was $752,400, a hospital injury $113,100, a medical injury $11,900 and property damage $5,000 according to the Bureau of Transport and Communications Economics. What these figures cannot show is the pain and suffering to individuals, families and friends.

Growing concern among police, coroners and road safety organisations about the use of both legal and illegal drugs contributed to the establishment of this Inquiry in 1994 and the Premier’s Drug Advisory Council in 1995.
Drugs of all types are widely used in Victoria as they are in other comparable Western communities. Some such as alcohol are purely recreational, some are medications for the ill or elderly and some are illegal drugs or substances of abuse.

In most instances drugs are not required for a person to drive a motor vehicle safely. Whether they are used for medicinal or illegal purposes they can impair a person's ability to drive safely.

In Victoria, the Road Safety Act 1986 forbids the driving of motor vehicles while under the influence of drugs and gives Victoria Police authority to remove incapable drivers from the road. The Act does not give police authority to require blood or urine samples from drivers suspected of being impaired.

National and International Overview

The Committee conducted inspections in the United Kingdom, the Netherlands and the United States. Information was obtained from other European nations and several legislatures in the United States as well as Canada, New Zealand and all States and Territories of Australia.

Research and government action to address some aspects of drugs and road safety was under way in some countries but the Committee did not discover any co-ordinated approach to the issues. A national approach to the issue in Australia is required. The Committee found that in Australia each State is at present focusing on its own drug-driving problems rather than developing a national program. One of the Committee's recommendations is to seek co-operation between the States particularly in the study of fatal crashes.

The Committee was impressed by the New South Wales Drug-Driving Task Force as it used a task force approach to develop policy and co-ordinate the delivery of its recommendations.
Drugs and Driving

Research has not been able to establish confidently for other drugs the point at which a particular drug makes a driver unsafe on the road. Scientists disagree on what driving-related tasks are important to road safety or even how experiments should be conducted.

No internationally agreed testing procedures exist for measuring the effect of drugs on driver performance. The Committee recommends that Australia's Federal Office of Road Safety seek the development of international scientific guidelines.

Drugs and Road Safety

In Victoria drugs of most concern are amphetamines and other stimulants, benzodiazepines (minor tranquillisers) and cannabis.

Victoria's success in reducing the involvement of alcohol in fatal crashes from nearly 50 per cent in the late 1970s to 23 per cent in 1995 has highlighted the involvement of drugs. The presence of drugs other than alcohol in dead Victorian drivers is increasing. Limited data available to the Committee indicated that the incidence of drugs in drivers killed is now comparable to the incidence of alcohol. However the extent to which drug presence contributed to the crashes was not clear.

It was argued before the Committee that drugs were more likely to cause crashes where urgent decisions were required leading to increased numbers of injuries in traffic incidents.

No information is maintained in Victoria on drugs found in drivers injured in crashes and blood samples routinely collected in hospitals are not analysed for drugs. There is no central collection of evidence of possible drug involvement in injury crashes. The Committee is therefore recommending establishment of a database to maintain information from police, hospitals and coroners on drugs involved in road crashes.
While the possible combinations of drugs, alcohol and their effects on road users are vast and unpredictable a new strategy using a common message to prevent and deter people from driving while impaired is required.

Driver Impairment

The basis for the Committee's recommendations is the notion of impairment.

The Committee has rejected the restrictive and proscriptive guidelines of 'driving under the influence of drugs' in the current Road Safety Act in favour of 'driving while impaired'. It has adopted this approach because evidence has shown that science is yet to establish categorical levels for drugs and substances in the body that determine when drivers become an unacceptable risk on the road. The Committee recommends that the Act be amended.

The Committee's proposal for police action is based on observation of the behaviour of drivers rather than on the issue of consumption of a particular drug. Impairment is a reduced ability to perform adequately the various elements of the driving task. It can be caused by health or physical conditions, fatigue, psychological conditions, distraction or inappropriate consumption of alcohol, drugs or other substances.

Drivers observed to be impaired would be removed from the road even if they had consumed relatively small, even therapeutic, doses of a drug. Where police had reasonable cause to suspect, after two impairment assessment tests, that impairment was drug-related they would take blood and urine samples to confirm their observations if they intend to proceed to prosecution. The Committee recommends that the taking of body fluids be authorised.

Managing Driver Impairment

The Committee found that standardised impairment testing is not widely practised in Australia and there is none in Victoria. The Committee concentrated on the United States as the major user of such a testing program.

The program was developed in the 1970s by the Los Angeles Police Department. It is a standardised, systematic method of observing and examining drivers suspected of being impaired by alcohol and/or drugs.
Police are trained as drug recognition experts to recognise behaviours and physiological conditions associated with seven categories of drugs. The program has been widely evaluated for its accuracy and is now used in many American States.

However the Committee found that such an intensive level of police training would not be justified for Victoria. It also found that the judicial environment in the United States differs so much from Victoria that their legislative and testing requirements were not readily transferable.

The Committee proposes adoption of an Impaired Driving Detection Procedure based on a modification of the Los Angeles Model. It does not contain elements such as the darkroom eye examinations and measurements of blood pressure, body temperature and pulse rate. The Procedure proposed is more extensive than the procedures being used in New South Wales as it requires a second systematic set of observations to be conducted indoors by a more highly trained police officer.

When police suspect a driver of impairment they would require the driver to stop and undertake a standard breathalyser test. If the breathalyser shows that the driver’s blood alcohol concentration is within legal limits but the police officer suspects impairment the driver could be required to leave the vehicle and undertake a roadside impairment assessment test. Failure of this test is the precursor to the second or standard impairment assessment test.

The standard impairment assessment test would determine whether impairment was due to drugs or another cause, such as ill-health, medication or age. Failure of the second assessment will require the police to determine if the prosecution is to proceed. If the case is to proceed a qualified person shall obtain blood and/or urine samples from the driver for analysis to identify any drug(s) present.

The Committee is recommending that the Procedure be devised by a specialist working party of experts including a public advocate and that the impairment testing proposal and the taking of blood and urine samples from drivers be authorised by amendment of the Road Traffic Act. The legislation would also require the video recording of the second test to protect the rights of drivers and ensure that police followed procedures.
Countermeasures

The Committee has built upon the Procedure by developing and recommending further countermeasures designed to create an overall strategy of prevention detection, action and research. The Committee’s recommendations include:

Prevention

• Deterrence publicity.
• Publicity and education particularly of adolescents and drug users at risk, such as the elderly and drivers of commercial vehicles.
• Training of medical, nursing and pharmacy students and medical, nursing and pharmaceutical workers on the effects of drugs on driver performance.
• A requirement for pharmaceutical manufacturers, doctors and pharmacists to advise consumers on drugs and their effects.
• Labelling of medications with text and symbols to warn of their effects on driving skills when taken with alcohol.
• A requirement that all drivers of commercial vehicles be free of any impairing drug beyond a prescribed dosage.
• The principle apply that where a fine is imposed on a driver found to be impaired while in charge of a commercial vehicle the same fine shall be imposed on the employer.

Detection

• Training and retraining of Victoria Police on the Procedure.
• Education of magistrates, prosecutors and the legal profession.
• A central database of all records of impairment and laboratory tests.

Action

• Providing for the establishment of procedures for the recovery of a licence suspended or cancelled due to driver impairment.

Research

• Support for a national strategy for research to guide government policy.

To implement the proposals of the Committee and the countermeasures it has developed a widely representative task force similar to the New South Wales Drug-Driving Task Force must be established.
The task force should include health, law, police, transport, pharmaceutical authorities and a public advocate with a brief to develop policies and strategies and monitor their implementation.

The Committee has recommended that a further review be conducted during the life of the next Parliament.
Recommendations

Chapter 4. Drugs and Driver Performance

1. That the Federal Office of Road Safety be urged to seek the development of international scientific guidelines, procedures and methods of comparison for the conduct of drug impairment experiments on driving performance.

Chapter 5. Drugs and Road Safety

2. That Victorian crash fatality studies be continued and the co-operation of other Australian States be encouraged so as to increase sample sizes.

3. That an investigation into the role of drugs in injury crashes be undertaken to define which driver groups are users of illegal and medicinal drugs so as to provide guidance in developing countermeasures.

4. That information on the type and amount of illegal and medicinal drugs found in deceased or injured persons obtained by police, coronial services and public hospitals be held in a single database managed by VicRoads to determine the frequency and cause of driver impairment.

Chapter 6. Driver Impairment

5. That the offence of driving under the influence of a drug be replaced by the offence of driving while impaired.

6. That the Road Traffic Act 1986 be amended to incorporate a generic definition of a drug based on the legislative models found in Queensland and California.

Chapter 7. Managing Driver Impairment

7. That the Road Traffic Act 1986 be amended to give Victoria Police specific power to require drivers suspected of being impaired to undergo a roadside test of impairment and if necessary a second more detailed test.
8. That a specialist working party determine the components of the test procedures.

9. That where a driver fails the second impairment test and Police conclude that the impairment may be drug-related and prosecution is contemplated a sample of blood and/or urine shall be provided and analysed for drugs.

Chapter 8. Countermeasures to Driver Impairment

10. That an integrated campaign of information and education be provided to each sector of the driving community from the adolescent pre-driver through to the older motorist highlighting the risks of driver impairment due to drugs.

11. That publicity emphasise that combinations of drugs, or drugs mixed with alcohol, increase the risks of injury or death in a crash.

12. That emphasis on the effects of drugs on driver performance and road safety be incorporated in driver training curriculums and materials and licence testing procedures.

13. That pharmaceutical manufacturers be required to advise the Federal Government of the drugs and the dosages that may impair driver performance so that Australian police forces can be advised of the potential levels of impairment and to enable the medical profession and patients to make a decision on other medicinal alternatives.

14. That a Code of Practice and associated publicity campaign be developed for pharmaceutical manufacturers, doctors and pharmacists to advise patients on the possible effects on driver performance of drugs they are producing, prescribing and dispensing.

15. That a climate be created which encourages patients to accept personal responsibility for seeking information from their doctors or pharmacists about the driver-impairing effects of prescribed medication.
16. That the symbols of a motor vehicle and a wine glass in red circles with red diagonal slashes be affixed to all medications that may impair driving particularly if consumed with alcohol.

17. That manufacturers affix the warning labels to their products prior to distribution to pharmacists.

18. That warning labels remain clearly visible and not be covered or removed by pharmacists.

19. That training courses and information on the effects of drugs on driver performance and road safety continue to be developed and provided to qualified and student medical, nursing and pharmacy professionals.

20. That any person who drives a commercial vehicle under the provisions of the Road Traffic Act 1986 be free of any drug or substance of impairment beyond a prescribed dosage.

21. The principle apply that when a fine is imposed on a driver found to be impaired while in charge of a commercial vehicle the same fine shall be imposed upon the employer.

22. That fatigue management programs in the road transport industry be supported to eradicate the abuse of stimulant drugs taken to combat driver fatigue.

23. That proposed driver impairment assessment legislation and police training be supported by publicity which stresses impaired drivers will be detected, tested and where appropriate, penalised.

24. That a specialist working party headed by Victoria Police develop the education, training, accreditation, operating procedures and data recording methods required under the Impaired Driving Detection Procedure.

25. That a public advocate be a member of the specialist working party.
26. That police be trained to conduct roadside driver impairment tests and presentation of evidence in court.

27. That police officers trained in the application of the Standard Impairment Assessment test be located at every 24 hour police station.

28. That overseas experience with the Drug Recognition Expert procedures be monitored to determine whether elements need to be included in Victorian procedures.

29. That all drivers suspected of being impaired be recorded by video camera when undergoing the Standard Impairment Assessment test.

30. That a central database be maintained by VicRoads to record the results of all police observations, driver impairment tests conducted in the field and at a police station, chemical testing of blood and urine and any subsequent action taken for instances of suspected driver impairment not due to alcohol.

31. That the identity of a person suspected of driver impairment be held in confidence by the Victoria Police and not be included in a central database unless convicted.

32. That standard analytical methods, quality control procedures and performance targets be set for the screening of urine and blood samples for drugs at police and forensic laboratories.

33. That computerised techniques for the testing of blood samples presently being developed be supported to ensure prompt delivery of test results.

34. That police be authorised to require driver impairment tests and body fluid samples from any driver involved in a crash where the police have reasonable cause to suspect drug-related impairment.

35. That blood and urine samples must be taken by a suitably qualified person.
36. That the Task Force headed by VicRoads establish procedures for the recovery of a licence suspended or cancelled due to driver impairment.

37. That research be undertaken on groups of impaired drivers, their attitudes and lifestyle patterns to guide the development of countermeasures.

38. That a national research strategy on drugs and road safety be encouraged to guide the conduct of future investigations, assessment and data recording methods.

39. That specific attention be given to research into the effects of combinations of drugs, including alcohol, on driver performance and their involvement in road crashes.

40. That the Government establish a Task Force led by VicRoads of road safety, health, justice, police, pharmaceutical, motoring and transport organisations and a public advocate to establish priorities, co-ordinate activities, oversee the work of specialist working groups and monitor implementation of a plan to address the effects of drugs other than alcohol on road safety in Victoria.

41. That the Committee review the issue during the term of the 54th Parliament.

Committee Office
11 November 1996
IV Introduction

The Road Safety Committee

The Victorian Road Safety Committee is constituted under the Parliamentary Committees Act 1968, as amended.

The Committee comprises nine members of the Parliament drawn from both Houses and all parties. The Chairman is elected by the Committee.

Section 4EE describes the functions of the Committee as:-

The functions of the Road Safety Committee are to inquire into, consider and report to the Parliament on any proposal, matter or thing concerned with road trauma or safety on roads and related matters, if the Committee is required or permitted to do so by or under this Act.

Committee Address

Correspondence: The Chairman
Road Safety Committee
35 Spring Street
MELBOURNE 3000
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Internet Address: http://www.vicnet.net.au/~parlrsc/

A full description of the work of the Committee and the Victorian Parliamentary system is provided in Appendix Three.
Committee Membership

Mr John I. Richardson, MP
Mr David J. Cunningham, MP
The Hon. Ian M. J. Baker, MP
The Hon. Ronald A. Best, MLC
The Hon. Burwyn E. Davidson, MLC
Mr Craig A. C. Langdon, MP
Mr. F. Peter McLellan, MP
The Hon. Brian W. Mier, MLC
The Hon. E. Graeme Stoney, MLC
The Hon. Douglas T. Walpole, MLC
The Hon. Sue deC. Wilding, JP, MLC

Chairman
Deputy Chairman

(until 5 March 1996)

Staff

Mr Geoffrey Westcott
Mr Barry Aitken
Mr Graeme Both
Mrs Lois Grogan
Mr Gerald Mayhead
Honorary Associate Professor
Geoffrey Bentley, PhD, DSc.

Executive Officer (until 22 March 1996)
Executive Officer (from 13 May 1996)
Senior Research Officer
Office Manager
Editorial Consultant
Scientific Consultant

Inquiry into The Effects of Drugs (Other Than Alcohol) On Road Safety In Victoria
Terms of Reference

On 25 October 1994, the Road Safety Committee was requested by the then Minister for Roads and Ports, The Hon. W. R. Baxter, MLC, to conduct an Inquiry under the following terms of reference: -

Pursuant to Section 4F(1) of the Parliamentary Committees Act 1968, His Excellency the Governor in Council refers the following matter to the Parliamentary Road Safety Committee:

To inquire into and make recommendations upon the risks associated with driving after consumption of drugs (other than alcohol), having regard to road safety, social and economic issues, and in particular to –


2. Report on the health, social and economic costs of such drug use in relation to road safety.

3. Report on methods of detection and measurement of drug (other than alcohol) use by drivers.

4. Report on methods for measuring driving impairment and crash risk of drivers who have consumed drugs (other than alcohol).

5. Report on evidence which could be admissible in determining legal sanctions against drivers who have consumed drugs (other than alcohol).

6. Report on the status and effectiveness of drug driving countermeasures, including legislation, operating in other States of Australia and other comparable overseas jurisdictions.

7. Report on ways to reduce crash risk associated with driving which is impaired by the consumption of drugs (other than alcohol) in Victoria, including the roles of research, information campaigns, public education and legislation.

The 52nd Parliament was dissolved on 5 March 1996 before the Road Safety Committee had made its final report and the reference lapsed.

The Committee resolved at its first meeting after the opening of the 53rd Parliament to seek the continuation of the reference. On 30 May 1996 the Minister for Roads and Ports, the Hon. G. R. Craige, MLC, reissued the above terms of reference to the Committee.
The Methodology of the Review

The review methodology allowed the Committee to consider the seven terms of reference collectively rather than on an individual basis.

The issue of drugs and road safety is complex, and interwoven with social and philosophical issues on the use of substances that, if used incorrectly, can become drugs of addiction and impair a person’s capacity to undertake normal tasks such as the effective operation of a motor vehicle. The Report has been drafted to reflect this complex interrelationship with specific mention of the terms of reference only when required.

Members of the Committee became fully acquainted with the issues, terms of reference and the areas of particular concern through an extensive national and international research and discussion program. Advice was constantly sought from leading experts on road safety and the effects of drugs on driving performance.

This is the Committee’s second and final report. Because of the complex and controversial nature of the Inquiry the Committee first commissioned background papers.

Thirteen papers on various aspects of the effects of drugs other than alcohol on road safety were prepared by eminent persons and practitioners in day-to-day contact with the issues. The purpose of the papers was to provide a focus, a stimulus and catalyst for public and professional participation in the Inquiry methodology.


Following the release of the First Report the Committee invited submissions from interested groups and members of the public.

Seventy submissions were received. Thirteen submissions were from overseas countries, 24 from government agencies, 23 from non-government agencies and 10 from individuals.
Seventy witnesses gave evidence to the Committee at hearings held in Melbourne, Canberra, Sydney, Brisbane, Adelaide, Perth and Hobart.

The individuals and organisations who made submissions and those who appeared before the Committee are listed as Appendices One and Two.

The Committee recognised early in the Inquiry that its Report must reflect international experience and an overseas inspection program was conducted in July 1995. Information was sought from representatives of police, road safety and academic authorities in the Netherlands, the United Kingdom and the United States. Discussions with Canadian researchers were also held when the Committee was in Washington, DC.

During the Inquiry the tri-annual International Conference on Alcohol, Drugs and Traffic Safety (ICADTS) was held in Adelaide in August 1995. Representatives of the Committee attended the conference and met with policy makers and leading figures in international research on the issues before the Committee.

The Committee believes that its review methodology has produced recommendations which reinforce the need for the State to consider new management strategies for those who consume drugs inappropriately and drive. The recommendations cover a broad spectrum of countermeasures.

* * * *
Report Structure

The Report has been designed in two volumes to address the needs of the broad readership base. Both volumes will be available in the traditional bound paper format and in the electronic medium on the Internet.

Volume One

Volume One contains the Report of the Committee, the evidence put before it, its deliberations and findings.

Volume Two

Volume Two contains detailed evidence and research data that builds on the information that has been cited in Volume One.

Information Segments

In Volume One where the Committee believes that further information may be of interest to readers an IS or Information Segment number appears. These numbers appear in a numerical sequence in Volume Two to indicate the additional information that may be of relevance and interest to a smaller number of readers from the road safety or scientific field.

An example is IS 3.4. IS means an Information Segment is available with the number 3 indicating the chapter and the number 4 identifying that it is the fourth consecutive reference for the chapter.

The Committee's Internet address is: http://www.vicnet.net.au/~parlrsc/
Definitions and Terms

'Drivers'

Throughout the Report 'drivers' means both operators of motor vehicles and riders of motorcycles but not pillion passengers. Where there is a distinction between these two categories of vehicle operators it is mentioned in the text.

'Cannabis'

For consistency of style the Committee uses 'cannabis' rather than 'marijuana' in the Report except when directly quoting evidence or reproducing tables using 'marijuana'.

'Drugs'

For simplicity the Committee uses 'drugs' to mean 'drugs other than alcohol'. Wherever a reference to drugs includes alcohol it is specifically mentioned.
1. Background to the Report

1.1 Why the Inquiry?

The incidence of drugs in casualty crashes has been known for many years but government and community attention has focused on the effects of alcohol, the drug most associated with impaired driving. For decades governments have given significant attention to establishing effective drink-driving countermeasures. As a result community attitudes have been so changed that there is wide acceptance in Victoria of the Transport Accident Commission slogan: "If you drink, then drive, you're a bloody idiot".

The focus on alcohol as a primary cause of driver impairment has tended to mask the involvement of drugs in road crashes, whether used individually or in combination with alcohol. However, as road safety countermeasures particularly against drink-driving and speeding have become more successful, drug-driving has been identified and become more apparent. Victorian governments have become increasingly aware that drug-driving is becoming a significant road safety problem. What is not known is how drugs affect road safety, the cost to the community and how best to address the issue.

Police and road safety agencies have been expressing growing concern and there has developed a perception in the community that the issue is not being addressed.

Current Victorian laws are ineffective as police do not have the power to require blood or urine samples from drivers suspected of being drug-affected. Police told the Committee in evidence that they were therefore reluctant to prosecute drivers in this situation.

The Government therefore has asked the Committee to investigate the issues and report to the Parliament.
1.2 Previous Studies in Victoria

Victoria Police

In 1983 Dr Jane Hendtlass, as senior research consultant for Victoria Police, investigated and compared the use of alcohol and medications by night-time drivers in Victoria and Northern Ireland. In 1985 she reported that, of nearly 200 Melbourne drivers and pedestrians killed or involved in fatal road accidents, 44 per cent had used drugs other than alcohol, caffeine and nicotine.

Social Development Committee

In May 1984 Road Safety in Victoria, the first report of a wide-ranging inquiry by the Social Development Committee of the Parliament, canvassed measures for reducing drug use by drivers. It contained a Royal Automobile Club of Victoria consultants' report suggesting that doctors advise drivers on medication use and that drug labels include warnings of possible driving impairment.

The final report of the Social Development Committee in October 1984 recommended research into the effects of drugs on crash risk for various categories of road user. The government of the day responded to the committee's recommendation that it was:

... awaiting the results of major research by the Commonwealth and New South Wales governments before deciding the direction of future action.

At the time of the present Inquiry a decade later the Committee has been unable to find any evidence of further action.

Ministry of Transport Working Party

In 1986 the Victorian Government created a working party to report on drugs and driving. The working party comprised representatives from the Road Traffic Authority, Victoria Police, Royal Automobile Club of Victoria, Health Department, Victorian Pharmaceutical Society and the medical profession. The working party produced a comprehensive 77-page report containing 12 recommendations.
The report recommended:

- establishment of a small expert group to research the extent and nature of the problem and to monitor interstate developments.
- a formal review to develop a case for legislative change.
- warning labels on medications.
- education of medical and pharmaceutical students and school students.
- monitoring and enforcement of the driving hours of commercial drivers as well as preventing people with drug-related problems from holding commercial vehicle licences.

It appears to the Committee that, like the 1984 Social Development Committee recommendation, few if any of the working party's recommendations were implemented.

**Victorian Institute of Forensic Pathology**

In 1993 the Victorian Institute of Forensic Pathology published its preliminary results on the incidence of drugs in the bodies of 281 dead Victorian drivers for the period 1990 to early 1993. The study showed that drugs other than alcohol were present in 20 per cent of dead drivers and alcohol present in 32 per cent with some overlap between the two groups.

The Institute study also undertook a 'responsibility analysis', a scientific method for estimating the likelihood that a fatal crash is caused by driver impairment due to drugs. By comparing the presence of drugs with driver responsibility the study showed that there was a small but significant involvement of drugs in fatal accidents.

In May 1996 Professor Olaf Drummer, Assistant Director of the Victorian Institute of Forensic Pathology, provided further information on the incidence of drugs in dead Victorian drivers and the relative responsibility for crashes of various groups of drivers, this time from 1994 to mid-1995. The Institute's new figures showed that the presence of drugs other than alcohol had risen to 24 per cent but alcohol had decreased to 28 per cent of dead drivers.
Therefore nearly one quarter of dead Victorian drivers had drugs present in their bodies, a proportion comparable with that of alcohol. The most important indicator in this study was that the presence of alcohol fell from 32 per cent in 1990-1993 to 28 per cent while the presence of drugs continued to rise from 20 per cent to 24 per cent. Due to the size of the sample the change was not statistically significant but was nevertheless, disturbing.

Ministerial Working Group Report

In addition to the findings by the Institute of Forensic Pathology, Victoria Police and VicRoads also expressed concern about drug-impaired driving. They were disturbed that current Victorian laws were perceived to be ineffective in practice.

These concerns led to a direction from the Minister for Roads and Ports, the Hon. W R Baxter, MLC, and the Minister for Police and Emergency Services, the Hon. P J McNamara, MP, that a working group examine road safety issues associated with drugs and driving.

The working group comprising representatives of VicRoads, the Department of Justice and Victoria Police presented a report to the Ministers on 12 November 1993. They recommended that:

.. the Ministers initiate a Parliamentary Road Safety Committee Inquiry into drug (other than alcohol) impaired driving in Victoria.9

Their report suggested terms of reference for the inquiry. These were subsequently amended and referred to the Committee on 25 October 1994.

During the Committee's Inquiry there were two concurrent events which impacted on the Committee's deliberations - a report by the Premier's Drug Advisory Council and further data from the Institute of Forensic Pathology.

Premier's Drug Advisory Council

In November 1995 the Premier, the Hon. J G Kennett, announced the formation of the Premier's Drug Advisory Council to recommend measures to deal with illegal drugs in Victoria.
The purpose of the Council was to:

... conduct an intensive public investigation into the trade and use of illicit drugs in Victoria.\textsuperscript{10}

The Council's 160-page report was released on 10 April 1996. From 80 recommendations, two related to road safety. They were:

7.10 Dangerous, reckless or careless driving and driving under the influence of a drug to such an extent as to be incapable of proper control of the vehicle are already offences under the Road Safety Act, 1986. Learner or provisional permit drivers found guilty of careless, reckless or dangerous driving while driving impaired by marijuana should be disqualified from driving for an extended period and required to participate in education programs. Protocols should be developed to assist policing of these provisions.

7.11 Research should be funded to establish a test for short-lived metabolites of cannabis products in saliva or breath to allow, in due course, the introduction of roadside testing for cannabis in a manner comparable to alcohol breath testing.\textsuperscript{11}

The report of the Council and a subsequent parliamentary debate in May 1995 led to a comprehensive range of strategies proposed by the Government to address the incidence of drugs in Victoria.\textsuperscript{15 13} The Premier's Drug Advisory Council was aware of the Inquiry being conducted by the Committee and indicated that the Council's recommendations relating to road safety need to be considered in conjunction with the Committee's Report.

The most contentious recommendation of the Council, not supported by the Government, was the decriminalisation of cannabis. This proposal may have had significant road safety implications had it been adopted.

The Council's report and recommendations were debated in a special sitting of both Houses of the Parliament on 31 May 1996. Subsequently the Premier announced a package of measures which included the reference of a number of issues to the Drugs and Crime Prevention Committee of the Parliament. The terms of reference required that the committee monitor and evaluate:

- the effectiveness of a drug reform strategy announced in response to the Advisory Council's report.
- national and international experience with drugs.
two research projects, one on the linkage between cannabis use and schizophrenia and other mental illness and the other on the effects of cannabis use on driving and a roadside testing mechanism.\textsuperscript{12}

The Drugs and Crime Prevention Committee is required to table a preliminary report by December 1997 and a second report by June 1999. IS 1.3

1.3 Effects of Alcohol

The problem of alcohol-affected driving has been well researched world-wide. The relationship between blood-alcohol concentration and increased safety risk has been well demonstrated. There are simple breath-testing devices available. Legislation based on blood-alcohol concentration operates effectively. Publicity and rehabilitation measures for drink-driving are now in place.

The management of other drugs is not so well understood nor are effective countermeasures so well established.

Therefore, whereas the Committee's terms of reference specifically exclude alcohol the Committee, in considering the effects of drugs on road safety, has been obliged to take some alcohol-related matters into consideration, namely:

- drug-affected drivers often also consume alcohol, possibly altering the effect of the drugs.
- the social and psychological characteristics of drivers affected by drugs may be similar to drivers with significant alcohol problems.
- community acceptance of random stopping and testing of drivers for alcohol concentration could provide the basis for a similar procedure for drug impairment testing.
- penalties for drug-impaired driving could be based upon those imposed for a similar level of impairment in alcohol-affected driving.
- there would be a need for convicted offenders to demonstrate successful drug and/or alcohol rehabilitation before regaining authority to drive.
Footnotes

6 *Drugs and Driving in Victoria - A Report to the Minister for Transport*, June 1986.
8 Drummer, O H, Correspondence, 30 May 1996.
11 Ibid., p.131.
2. Drug Use in the Community

2.1 A Community Issue

Drugs of all types are widely used in Victoria as they are in other comparable Western communities. Some such as alcohol are purely recreational, some are medications for the ill or elderly and some are illegal drugs or substances of abuse.

In most instances drugs are not required for a person to drive a motor vehicle safely. Whether they are used for medicinal or illegal purposes they can impair a person’s ability to drive safely.

The effect of drugs on driving performance is central to this Inquiry. Medicinal drug taking is accepted within the community because of the benefits that such drugs confer on the health of the individual. It is when these substances cause impairment that the community must establish what constitutes acceptable behaviour.

Future strategies undertaken as the result of this Inquiry, in the environments of either transportation or health, must recognise the direct causal link between the level of drugs taken in the community generally and the number of drug-impaired drivers on our roads. Strategies in either environment to reduce the level of drug taking will directly affect the other.

Table 2.1 Drugs and the Community

<table>
<thead>
<tr>
<th>ALCOHOL</th>
<th>ILLEGAL DRUGS</th>
<th>MEDICATION</th>
<th>SUBSTANCE ABUSE</th>
</tr>
</thead>
</table>

Inquiry Into The Effects Of Drugs (Other Than Alcohol) On Road Safety In Victoria
Alcohol

Alcohol is the most common drug used in Western society. Like all drugs it is capable of being a drug of addiction and, when inappropriately used to excess, capable of destroying the lives of users and of those around them.

Victoria has had aggressive drink-driving campaigns for many years to lower the incidence of drink-driving. The success of those campaigns is without question but, as the Committee has noted earlier in this Report, this success provides the opportunity to address other driving impairment issues.

While the Committee is not considering alcohol specifically in this Inquiry it is obliged to consider how the use of alcohol can impair driving skills when used with other drugs.

Illegal Drugs

What constitutes an illegal drug in Victoria is set out under the Drugs, Poisons and Controlled Substances Act 1981 and the Drugs, Poisons and Controlled Substances Regulations 1995. The community has a broad understanding of what constitutes illegal drugs, such as cannabis, heroin, cocaine, ecstasy and their derivatives as these drugs have a high media profile due to active police involvement intended to reduce or remove access to them.

To determine what proportion of the population uses illegal drugs remains difficult. The main source of information has been government-funded household-based questionnaire surveys by market research companies.

Five surveys have been conducted since 1985. The results of the most recent survey of some 3850 Australians in 1995 showed that 17 per cent said they had used an illegal drug in the previous year, including 13 per cent of the total who said they had used cannabis.1

VicRoads, in its submission to the Inquiry, provided a table of the level and types of drugs used in the Victorian community based on a 1993 household survey.2
Table 2.2 Drug Use in the Victorian Community - 1993

<table>
<thead>
<tr>
<th>Drug</th>
<th>% used in last 12 months</th>
<th>% ever used</th>
</tr>
</thead>
<tbody>
<tr>
<td>Alcohol</td>
<td>74</td>
<td>95</td>
</tr>
<tr>
<td>Pain-killers</td>
<td>2</td>
<td>82</td>
</tr>
<tr>
<td>Tranquillisers</td>
<td>1</td>
<td>35</td>
</tr>
<tr>
<td>Any Illegal Drug</td>
<td>14</td>
<td>34</td>
</tr>
<tr>
<td>Cannabis</td>
<td>8</td>
<td>30</td>
</tr>
<tr>
<td>Amphetamines</td>
<td>1</td>
<td>7</td>
</tr>
<tr>
<td>Hallucinogens</td>
<td>1</td>
<td>5</td>
</tr>
<tr>
<td>Barbiturates</td>
<td>NA</td>
<td>4</td>
</tr>
<tr>
<td>Cocaine</td>
<td>NA</td>
<td>2</td>
</tr>
<tr>
<td>Heroin</td>
<td>NA</td>
<td>2</td>
</tr>
<tr>
<td>Inhalants</td>
<td>NA</td>
<td>3</td>
</tr>
<tr>
<td>Ecstasy</td>
<td>1</td>
<td>1</td>
</tr>
</tbody>
</table>

NA: Data not available.

Note: The definition of pain killers and tranquillisers is not known.


While the Committee recognised that this survey was not exhaustive and was not verifiable, as it must rely on the respondent giving truthful information, it accepted these figures as an indicator for the driving community.

Medication

Medications can be either prescribed or available without prescription at pharmacies, supermarkets or service stations. Estimates of prescription drug use can be obtained from the national Pharmaceutical Benefits Scheme.

Of the 250 most frequently prescribed drugs under the scheme approximately 25 per cent are either known or suspected of being capable of impairing their user's skills.3
Professor Graham Starmer of the University of Sydney recognised the potential for driver impairment:

By any standards the frequency of drug usage in Australia is high with approximately 20% of prescriptions being for central nervous system-active drugs.\(^4\)

A 1989 national survey of general medication use showed that over 70 per cent of the community had used some form of medication in the previous two weeks.\(^5\)

In a paper *Drugs and Driving: The Issues from the Motorists' Perspective*, in the Committee's First Report, Ms Karen McIntyre, Manager, Road Safety and Education, Royal Automobile Club of Victoria referred to the overuse and excessive prescription of some medications.\(^6\) Of particular concern are benzodiazepines (minor tranquillisers) and sleeping pills.\(^7\)

Drug use by older people is an even more complex problem. In her paper Ms McIntyre said:

Surveys have shown that over the age of 75, some 80% of the population are on regular drug treatment. About one third of this group are taking multiple drugs, three to four at any one time. These drugs usually include analgesics, psychotropic drugs and drugs used to treat cardiac failure.

...While not all drugs may have effects on driving, some would, and the combination of drugs often increases the effects. Benzodiazepines were prescribed in 15 per cent of the population.\(^8\)

Her evidence was supported by VicRoads in its submission to the Inquiry:

... as the incidence of an impairing drug in the population of drivers increases then so does the potential for road safety problems.\(^9\)

Given the plethora of medications and their increasing use, the changing age profile of the community as the post-war generation moves towards old age and the growing commercialisation of the pharmaceutical industry, the effects of drugs on driving skills is likely to increasingly emerge as a matter to be addressed.
Substance Abuse

The inhalation of fumes from substances intended for other purposes, such as glue, paint, petrol, dry-cleaning fluid, nail polish and butane heighten sensations and create a sense of well-being and can impair or change behaviour.

Combining this behaviour with driving skills can have tragic results. The Committee has been made aware of the effect of substance abuse through a letter from the Attorney-General, the Hon Jan Wade, MP, describing a road accident which resulted in the death of an innocent person. The substance being abused was butane which had not been declared a drug under the Road Traffic Act 1986 and the offending driver could not be prosecuted.

2.2 A Health Issue

Road Safety and Health

Victoria has been a leader in the development of high-profile health promotion campaigns such as the ‘Quit’ anti-smoking and ‘Life. Be In It’ programs.

In the past road safety issues have been addressed simply by making laws and expecting police enforcement to solve a problem. Over time there developed a recognition that a more comprehensive, multi-disciplinary and multi-agency approach is necessary with a major emphasis on the integration of preventive measures including deterrent-based publicity campaigns which support high levels of police activity.

Examples where preventive road safety programs have been aggressively pursued with government and community support have included the introduction of cameras to measure vehicle speeds on the road and booze buses for random breath testing for alcohol.

In both cases massive resources have been allocated by government. In Victoria the community spends approximately $30 million annually on each program.\textsuperscript{10} By comparison, the total expenditure to date on drugs and driving has been approximately $200,000.
Drug Abuse and Road Safety

The submission of the Department of Human Services, Victoria, gave an overview of the misuse of drugs in Victoria referring to multi-drug abuse and the abuse of prescribed drugs at levels far in excess of recommended therapeutic doses. The latter practice, the submission said, was often associated with obtaining prescriptions for drugs by 'doctor shopping' which is obtaining drugs from a number of general practitioners.11

The Committee also heard evidence in Australia and overseas that drug-impaired drivers frequently were found to have consumed more than one drug.

Any measures which reduce drug use and substance abuse in the general community are likely to have road safety benefits. The Committee therefore concluded that drugs and road safety should be viewed from the perspective of drugs and general safety in the community and there should be a close integration of measures to improve the health of people on medication, to treat drug users and to take action to improve road safety.

Footnotes

2 VicRoads, Submission, Table 1, July 1995, p.13.
4 VicRoads, op. cit., p.12.
6 McIntyre, K D, Drugs and Driving: The Issues from the Motorists' Perspective, Inquiry into the Effects of Drugs (Other than Alcohol) on Road Safety in Victoria, Parliamentary Road Safety Committee, First Report, May 1992, pp.181-182.
7 Ibid., p.181.
8 Ibid., pp.180-181.
9 VicRoads, op. cit., p.12.
10 Ibid., p.29.
3. National And International Overview

3.1 Background

To undertake the sixth term of reference given to the Committee an extensive research and inspection program to obtain information on the effects of drugs and driving was essential.

The Committee was required to:

6. Report on the status and effectiveness of drug driving countermeasures, including legislation, operating in other States of Australia and other comparable overseas jurisdictions.

This chapter examines various approaches to drugs and driving in each State of Australia, in countries visited by the Committee as a part of its international inspection program and through models elsewhere in the world which the Committee obtained through its research program. Where possible comment is made on the success of each program.

Management of drug-driving is an emerging community issue that has only in the past two decades been supported by research. There is an increasing body of evidence that legislative change to detect drug impaired drivers on our roads is a necessity.

3.2 Victoria

In Chapter One of this Report the Committee described circumstances that led to this Inquiry and the Government's growing concern with people who take drugs and drive.

Victorian legislation to prevent people from driving under the influence of drugs is Section 49 (1) of the Road Safety Act 1986.
The section states that:

A person is guilty of an offence if he or she -

(a) drives a motor vehicle or is in charge of a motor vehicle while under the influence of intoxicating liquor or of any drug to such an extent as to be incapable of having proper control of the motor vehicle.

The Act gives Victoria Police authority to remove 'incapable' drivers from the roads.

A major difficulty with the Act is its failure to give police authority to require blood or urine samples from drivers suspected of impairment.

Section 62(1) of the Act states:

A member of the police force who is of the opinion on reasonable grounds that a person, driving or about to drive a motor vehicle, is by reason of his or her physical or mental condition incapable of having proper control of his motor vehicle may do all or any of the following things, namely:

(a) forbid the person to drive the motor vehicle while so incapable;

(b) require that person to deliver up forthwith all ignition or other keys to the motor vehicle in his or her possession;

(c) take such steps as may in the opinion of the police force be necessary to render the motor vehicle immobile or to remove it to a place of safety.¹

This provision, designed primarily to deal with an acute medical condition after a crash or deteriorated health, at least provides an opportunity to prevent a temporarily impaired driver from proceeding until fit to do so. Victoria has no standard operating procedure or test to determine if a person is physically or mentally impaired. The decision rests with the detecting police officer.

The current definition of drug for the purposes of driving under the influence (DUI) is defined in Section 3 of the Act:

Drug means any substance or preparation for the time being declared by Order made by the Minister and published in the Government Gazette to be a drug for the purposes of this Act.²
Victoria Police noted in its submission to the Committee that the last order was made in 1987 and that the process to have new drugs declared has not kept pace with the development of many hundreds of new substances that have since come into use.\textsuperscript{3}

The Victorian Drug Strategy commenced in 1985 as part of the national approach to drugs. The strategy placed strong emphasis on:

\textldots{} community-government collaboration in meeting the goals set by the National Campaign Against Drug Abuse.\textsuperscript{4}

A review of the performance of the first six years of the Victorian strategy was published in 1991.\textsuperscript{5} Road safety featured prominently but only in terms of drink-driving.

The Victorian Drug Strategy Unit established within the former Department of Health, now the Department of Human Services, has published a strategy document and handbook of statistics gathered from surveys.\textsuperscript{6} A monitoring and reporting framework has been established and performance indicators and targets developed.\textsuperscript{7}

One of the 15 objectives of the Victorian strategy relates to road crashes and an associated indicator refers to the percentage of drivers killed in road accidents with drugs other than alcohol in their bodies.\textsuperscript{8}

The Department's submission described the current five-year strategic plan of the Victorian Drug Strategy to reduce drug related harm in Victoria. The submission includes the key features of the plan, the principles for program development and an outline of the three objectives that are of direct relevance to the Inquiry. The objectives are:

\begin{itemize}
  \item Reduce the number of road accidents involving drivers, passengers, cyclists and pedestrians who have consumed alcohol or other drugs above acceptable limits.
  \item Reduce the number of young people who misuse minor tranquillisers and other prescribed drugs, stimulants, steroids and inhalants.
  \item Reduce the community prevalence of use of the major illicit drugs.\textsuperscript{9}
\end{itemize}
Increasing concern by police, coroners and road safety organisations about illegal drug use in Victoria has in part led to this Inquiry. This concern was integral to the establishment in December 1995 of the Premier's Drug Advisory Council.

The range of issues covered by both the Premier's Drug Advisory Council and a similar Western Australian task force on drugs has demonstrated the ongoing complexity of issues involved in the misuse of drugs. Road safety is but one aspect.

3.3 Interstate Overview

New South Wales

The New South Wales legislative framework is described by Dr Judith Perl in the Committee's First Report. Legislation in New South Wales has developed from the Traffic Act 1909.

'Drugs' for the purposes of the Traffic Act are defined as alcohol, those included in the Drug Misuse and Trafficking Act (mainly illicit drugs), drugs listed in Schedule 8 of the Poisons Act and those Drugs listed in Schedule N of the Motor Traffic Regulations.

Under Section 5AA of the Traffic Act a police officer can require a person to submit to an assessment of his or her sobriety if the officer reasonably believes the driver is under the influence of a drug after having undergone a negative breath analysis test for alcohol. Blood and urine samples may be taken by a medical practitioner.

The Parliament of New South Wales established a joint standing committee in 1982 specifically to examine road safety issues. The Committee, known as Staysafe, in its first report in 1982 Alcohol, Other Drugs and Road Safety made recommendations on drugs and driving which included:

- better education of the medical profession and the public on the potentiating effects of alcohol on many prescribed drugs (including labelling).

- a review of legal drugs which might be banned from sale because of their influence on driving, with or without alcohol, because there are safe alternatives (eg. certain anti-histamines).

Inquiry Into The Effects Of Drugs (Other Than Alcohol) On Road Safety In Victoria
• review of laws and enforcement relating to illegal possession of drugs. 12

Staysafe has been active in seeking legislative change and has released a series of reports over the past decade on road safety issues.

• December 1987

Compulsory blood and urine samples were introduced for cases where police observations indicated potential drug use by a driver. State legislation was amended in 1990 to permit also the taking of blood samples from injured drivers at hospitals for testing for drugs as well as alcohol.

• September 1991

Following a Coroner's report on a bus crash at Grafton (NSW) in October 1989, in which a truck and a bus collided killing 20 people, the list of drugs specified in Schedule N of the Motor Traffic Regulations 1935 was amended to include ephedrine. 13 The Coroner found that the driver of the truck was at fault and that his blood-ephedrine concentration was much higher than blood levels expected in chronic users of ephedrine. 14

• March 1992

Staysafe released its 19th report which specifically addressed the issue of alcohol and other drugs on New South Wales roads. The report focused on the problem and recommended countermeasures. 15 3.1

• August 1992

A Drug and Driving Task Force recommended by Staysafe was established. Its membership includes representatives from:

• Road Safety Bureau, New South Wales Roads and Traffic Authority
• New South Wales Police
• Transport Workers Union
• National Roads and Motorists Association (NRMA)
One of the Task Forces first tasks was to commission Dr Michael Henderson, a former head of the Road Safety Bureau, to undertake an extensive review of literature on issues relating to drugs and road safety.\(^15\)

- **October 1993**

Staysafe's 20th report addressed the same topic but focused on offences, penalties, management and the rehabilitation of drivers convicted of drink-driving and drug-driving.\(^15^3^2\)

Research which relates directly to the Committee's terms of reference includes:

- a feasibility study of random drug testing for heavy vehicle drivers.\(^16\)
- a comparison of drugs present in serious crash casualties and others admitted to hospital.\(^17\)

At the 'Road Safety 2000' conference in Sydney in October 1994 delegates established that the level of drugs in road accidents has not been constantly monitored in the past by any Australian State, including New South Wales.\(^18\)

- **November 1994**

The Task Force published *The New South Wales Drug-Driving Strategy*. The 12-page document put the problem into perspective, identified issues to be addressed, established a series of goals and set a broad strategy direction.\(^15^3^3\)

The report proposed a series of key actions in education and information, legislation and enforcement, road transport industry regulation and research.\(^19\)

**Queensland**

Queensland legislation on drugs and driving is based on Section 16(1)(a) of the *Traffic Act 1949-1995*. 
The Act states:

*Any person who whilst he is under the influence of liquor or a drug drives, attempts to put into motion or is in charge of a motor vehicle, tram, train or vessel is guilty of an offence.*

A drug is defined under the Act:

*Drug means every substance or article which is a dangerous drug under and within the meaning of the Drug Misuse Act 1986 or any other substance, article, preparation or mixture (with the exception of liquor) whether gaseous, liquid, solid, or in any other form which, when consumed or used by any person, deprives the person either temporarily or permanently of any of the person's normal mental or physical faculties.*

Queensland police officers have authority under Section 16A(90)(a) to require the taking of blood and urine samples if the driver exhibits external signs of impairment which are inconsistent with a breath-alcohol analysis. A two-hour time limit applies.

Blood samples to test for impairment can be taken under Section 16A (8)(c) of the *Traffic Act 1949-1995* where a person is at a hospital for treatment.

Queensland has no statutory provision for the conduct of impairment tests and the police force has no standard operating procedure for the conduct of such tests.

The Queensland Department of Transport has been developing a fatigue management program on behalf of Austroads, the national association of state and federal road transport and traffic authorities in Australia and New Zealand.

Mr David Stewart, an occupational health and safety consultant, outlined in his paper for the First Report the work of the Road Transport Forum and the project Team 200 in addressing driver fatigue. The purpose of Team 200 is to improve safety, professionalism and efficiency in the road transport industry.

The Committee received a comprehensive briefing on the status of the fatigue management program when the Committee met Queensland representatives in December 1995.
South Australia

Authority in South Australia to remove from the road persons who may be impaired by drugs is contained in Section 47(1) of the *Road Traffic Act* 1961.

The legislation provides that a person must not:

(a) drive a vehicle; or

(b) attempt to put a vehicle in motion,

whilst so much under the influence of intoxicating liquor or a drug so as to be incapable of exercising effective control of the vehicle.

Mental or physical illness is not excluded from the definition when these conditions are due to the influence of drugs. Once the offending driver has been charged under Section 81 of the *Summary Offences Act* a medical examination can be conducted according to guidelines defined by police.

The South Australian Department of Transport is currently studying drug involvement in road crashes that result in drivers being treated at hospitals. The Committee received details of progress when it met representatives of the Department in Adelaide in February 1996.  

Western Australia

The *Road Traffic Act* 1974 remains Western Australia's legislative base for taking action against persons who drive while impaired. Section 63(1) of that Act states:

A person who drives or attempts to drive a motor vehicle while under the influence of alcohol, drugs, or alcohol and drugs to such an extent as to be incapable of having proper control of the vehicle commits an offence, and the offender may be arrested without warrant.

Sub-section 63(4) also provides for a person charged with an offence to have the right to a medical examination by a medical practitioner of his or her choice.

Section 66(11) provides that a blood test or a urine test or both may be required if:

(a) there is no alcohol in the blood of the person; or

(b) that the percentage of alcohol present in the blood is such that it does not reasonably explain the conduct, condition or appearance of the person of which the requirement was made.
There is no legislative requirement for a suspected driver to submit to an impairment test. In practice, tests are performed while a driver is waiting for the nominated doctor to arrive to undertake a medical examination and to take blood and urine samples. Impairment tests involve the noting of a driver's general physical condition and the performance of handwriting and divided attention tasks.

Like the Parliaments of Victoria, New South Wales and Queensland the Legislative Assembly of the Parliament of Western Australian has established a Select Committee on Road Safety. Formed in August 1993, the Committee has initiated a wide-ranging investigation of crash countermeasures.

The Select Committee undertook an overseas inspection tour in mid-1995. A résumé of the information and opinions obtained on that tour was published in their sixth report on driver licensing.

Comments made to the Western Australian Select Committee in Los Angeles, Sacramento, Washington, DC, Toronto and Ottawa were similar to those made to this Committee.

The Western Australian report on alcohol, drugs and fatigue was tabled on 13 June 1996 and, until the release of this Report, represented the most recent examination of the issue within Australia. The Western Australian report contained 20 recommendations of which 11 directly targeted drugs and their effects on driving.

The recommendations can be summarised as:

- test blood samples for drugs (as well as alcohol) be taken from hospitalised crash victims for at least 12 months.
- education programs on alcohol, drugs and fatigue be established in the transport industry.
- programs and campaigns mention the dangers of driving following drug taking.
- data from a study by Dr David Joyce be used to try to determine levels of concentration to measure drug impairment of drivers.
• Western Australian police investigate the feasibility of roadside saliva procedures.

• consideration of how an alcohol and drug policy could be adopted in the road transport industry.

• police to review drug detection and prosecution procedures, fines, testing costs, etc.

• increased police awareness of the need to identify drug-impaired drivers, including instruction by drug recognition experts (DREs).

• the Western Australian Health Department to review advertising strategies warning against driving after taking an impairing drug.

Another select committee of the Western Australian Parliament, commissioned to inquire into heavy transport also recently published its findings. While primarily focused on heavy vehicle issues, it mentioned the link between fatigue, alcohol and drugs and recommended:

• the Western Australian Road Safety Council develop strategies for combating heavy vehicle driver fatigue.

• Worksafe examine whether and to what extent, driver fatigue is linked to exposure to diesel emissions.30

• the Western Australian Department of Transport consider how an alcohol and drug policy could be universally adopted in the road transport and rail freight transport industries.31

Tasmania

Legislative power on drug-driving in Tasmania is in Section 4 of the State’s Road Safety (Alcohol and Drugs) Act 1970 which specifically provides authority to detect and remove persons who may be impaired. It states:

A person who drives a vehicle while under the influence of -

(a) intoxicating liquor, or

(b) a drug

to such an extent as to be incapable of having proper control of the vehicle, is guilty of an offence.
Tasmanian law requires the driver to submit to a medical examination to determine whether their condition is wholly or partially due to the taking or administering of drugs. If the driver submits to an examination he or she is deemed to have submitted to having a blood or urine specimen taken, not both.

In 1994 the Government of Tasmania established a Road Safety Advisory Council jointly chaired by the Minister for Transport and the Minister for Police and Emergency Services. Its purpose is to bring together principal participants in road safety to provide strategic and integrated advice to the Government. In December 1994 the Council considered the issue of drug-driving and concluded that:

... whilst drug usage loomed as a distinct road safety threat, a full response needed to await further resolution of a number of issues.32

The Department of Transport's current approach is that:

- reduction of drink driving will continue as the major anti-drug road safety thrust for the immediate future.

- reducing the road safety risks of prescription drugs will be tackled immediately at two levels:
  - steps will be taken in conjunction with health authorities to determine where appropriate, whether packaging of prescription drugs should include warnings about effects on driving.
  - the feasibility of a promotional campaign warning against the road safety risks posed by some prescription drugs and centred upon pharmacies and doctor's surgeries, will be assessed.

- countermeasures to tackle cannabis usage need to await further research and development in a number of areas.33

Northern Territory

Section 19(1) of the Northern Territory's Traffic Act 1987 provides that:

A person shall not, on a public street or public place -

(a) drive,

(b) start the engine of, or:

(c) put in motion,

a motor vehicle if that person is under the influence of intoxicating liquor or a drug or psychotropic substance to such an extent as to be incapable of having proper control of the motor vehicle.34
There are no specific statutory provisions for impairment testing or the compulsory taking of blood specimens. A blood and urine sample may be obtained only where a driver has been injured in a crash and taken to hospital.\textsuperscript{35}

The Northern Territory has a widely representative Road Safety Council established by the Territory Government but no Parliamentary Road Safety Committee.

\textbf{Australian Capital Territory}

The Australian Capital Territory's drug-driving authority is contained in its \textit{Motor Traffic (Alcohol and Drugs) Act 1977}. Section 24 of that Act states:

\begin{quote}
A person who drives a motor vehicle on a public street or in a public place while under the influence of intoxicating liquor or a drug to such an extent as to be incapable of having proper control of a motor vehicle is guilty of an offence.
\end{quote}

Section 29 of the Act also provides that driving while impaired is culpable driving carrying a maximum sentence of imprisonment for seven years. Section 29(4) states:

\begin{quote}
For the purposes of this section, a person shall be taken to drive a motor vehicle culpably if the person drives the vehicle -

(a) negligently; or

(b) while under the influence of alcohol, or a drug, to such an extent as to be incapable of having proper control of the vehicle.
\end{quote}

Section 16 of the Act describes the process for collecting evidence of intoxication if a driver is to provide a breath test or has been arrested for an offence under Section 24 for culpable driving.

Section 16 also requires that the police officer has reasonable cause to suspect a driver has a drug other than alcohol in his or her body or that the driver's behaviour is not entirely due to alcohol.
3.4 National Bodies

Drugs and road safety have also been considered at a national level for some years. Reports from the Australian Law Reform Commission in 1976 and the House of Representatives Standing Committee on Road Safety in 1980 are two examples.

The federal approach to road safety has been characterised by the number of federal bodies, jointly funded state and federal bodies and private industry bodies as well as lobby groups all developing proposals for the management of road transport. As a consequence it has taken until recent years to establish a truly national approach.

Federal Office of Road Safety

The Federal Office of Road Safety (FORS) is a Commonwealth Government agency providing policy advice and research on road safety to governments. The Federal Office of Road Safety has been reviewing driver-impairment tests used overseas with the aim of recommending a standardised approach for the tests in Australia. The research includes examination of a legal and regulatory framework.

Other research, headed by Professor Graham Starmer of the University of Sydney, is also being conducted under FORS’ auspices and has been published in a series of reports on:

- the involvement of drugs in traffic safety.
- the use of saliva for identifying drugs in blood.

A final report on saliva testing from Professor Starmer is in preparation.

The Federal Office of Road Safety is also managing an Austroads project examining the feasibility and methodology of setting up a national database on the incidence of drugs in the blood of drivers killed in road accidents. It involves consultation with State and Territory authorities on their perceived needs, identifying potential data sources and developing collaboration.
The Office is funding a number of research projects to investigate the effects of driver fatigue and to identify potential countermeasures. It has commissioned Worksafe Australia to investigate strategies to combat fatigue in the long-distance road transport industry and three reports have been published on:

- current industry practices.41
- attitudes to various fatigue management strategies.42
- an evaluation of alternative work practices using objective measurements of fatigue and driver performance in on-road trials of two-up and single driving on a series of 12-hour trips on the Perth to Broome route.43

A summary of the overall process to date was presented at an international conference on fatigue and transportation in Fremantle in February 1996.44

National Road Transport Commission

The National Road Transport Commission was established in 1992 under an inter-government agreement to develop a national package of transport laws.

One of the major aspects of its work is the development of professional driver safety standards, certification and legislation. Fatigue, driving hours and to a lesser extent drug use are matters that the Commission is examining.

It has investigated compliance and enforcement and is developing enabling legislation and regulations based on the notion that persons other than the driver or owner of a heavy vehicle could be responsible for breaches of regulations. Under a proposed National Road Transport Law the Commission has developed provisions based on a 'chain of responsibility' where managers of freight companies or customers who demand that drivers exceed speed limits or permitted driving hours to meet delivery schedules might be liable for penalties.45
Draft legislation has been prepared by the National Road Transport Commission to limit long distance driving to a maximum of 12 hours plus an extra two hours for non-driving work in any 24 hour period. One continuous rest period of 24 hours in any seven day period is also required. The proposal requires drivers to receive a minimum rest break from driving and working of 10 hours in any 24 hour period of which six hours must be continuous.

The approval of road agencies in each State was obtained in July 1996 and the draft legislation is to be released by the Commission for public comment. Following the consideration of public comments the matter will be referred to each Transport Minister for approval.

This work is of relevance to this Inquiry as many truck drivers claim they take drugs to stay awake because supervisors, managers, owners or customers demand that they either achieve delivery by a certain time or have their employment or delivery contract terminated.

A paper by owner-truck driver Ken Wilkie in the Committee’s First Report provides information on drug use in the industry.

This proposed legislation will be a sensible approach to addressing fatigue and could remove the pressure being placed on drivers to act irresponsibly to maintain delivery schedules. The Committee supports this proposal.

Austroads

Austroads in 1992 included in its report Management of Heavy Vehicle Driver Safety, a chapter on alcohol and other drugs. It recommended:

Research into the extent of drug problems and also the effective methods for deterring and policing the use of drugs by heavy vehicle drivers be continued and consolidated.

Educational campaigns be developed to address the problems created by the use of impairment drugs by heavy vehicle drivers.
National Road Safety Strategy

The National Road Safety Strategy was published in 1992 to bring together all State governments and the Federal Government in a truly national assault on the Australian road toll.

The strategy is the first national approach by governments, industry and community groups to reducing the road toll and the following paragraphs describe the direction taken on road safety and drugs other than alcohol.

In 1992 the National Road Trauma Advisory Council released the results of a sub-committee report on alcohol, drugs and fatigue.\(^{3.6}\)

Priority recommendations of relevance to this Inquiry were:

- Medical practitioners through medical associations be asked to advise patients on the effects of driving while using prescribed drugs, including their interaction with alcohol.

- Pharmacists through the Pharmaceutical Guild be asked to provide patients with information on the effects of drugs on driving performance and their interaction with alcohol and that labelling information on drugs capable of causing driver impairment be improved.

- Introduce an offence to drive while under an excess level of a prescribed drug, possibly using the New South Wales proscribed list as a guide.

- Support be given to public education programs on fatigue aimed at general drivers and heavy vehicle drivers through driver training courses and mass media campaigns (including roadside campaigns).

- Support and encourage elsewhere Victorian public education initiatives, particularly road signing advisory campaigns and promote best practice in this area elsewhere.\(^{39}\)

In 1994 a National Road Safety Action Plan was compiled by representatives of Federal, Territory and State government agencies containing priority actions and recommendations. The only priority action relating to drugs other than alcohol was:

*Federal, State and Territory Governments adopt a range of regulatory alcohol and drug countermeasures and industry promoted initiatives to reduce the level of alcohol and drug induced trauma specifically including:*
- medical and pharmaceutical practitioners advise patients of effects of alcohol and drugs on driving impairment.

The target of the action plan was a package of nationally consistent measures to be agreed by June 1994 and implemented by December 1995.\textsuperscript{50}

Other recommendations relevant to this Inquiry were:

3. Federal, State and Territory health authorities will request and encourage health and medical practitioners and pharmacists, as an element of primary health care, to advise patients on driving and pedestrian impairment effects of prescribed drugs and also the effects of alcohol interaction with drugs:

3.1 the pharmaceutical industry will be encouraged by all governments to promote use of drugs that do not impair driving performance, in lieu of those that do;

3.2 the medical and health care professions will through the College of General Practitioners and other appropriate colleges be encouraged by all governments to promote use of drugs that do not impair driving performance, in lieu of those that do.\textsuperscript{51}

Road safety research and development programs complementary to the action plan were published in November 1994.

Relevant areas were identified for priority research:

Alcohol and drugs

Determine the prevalence of drug use and its relation to crash involvement. Specific projects identified were:

1. Victorian Institute of Forensic Pathology. Involvement of drugs other than alcohol in road trauma;

2. Roads and Traffic Authority of New South Wales (RTA). Drug testing for heavy vehicle drivers;

3. RTA. Research into the effects of drugs on driving;

4. Federal Office of Road Safety: Incidence of drug use: non-crash-involved driver; and

5. AUSTROADS. Feasibility of national database on drugs in driver fatalities.\textsuperscript{52}
An updated action plan was adopted at the 7 June 1996 meeting of the Australian Transport Advisory Council (ATAC). The reference to drugs and road safety was essentially the same.\(^5\)

### 3.5 International Overview

The Committee was obliged by its sixth term of reference to examine legislation in comparable overseas jurisdictions and it acquired this data through research and an international inspection program.


The Committee obtained information from New Zealand, several legislatures within the United States, Canada, Germany, the United Kingdom, the Netherlands and Norway. Information on other European nations was obtained from a comparative study undertaken by the University of Limburg in Maastricht.

Committee members discovered from these overseas inspections, from discussions in Adelaide with leading researchers and policy makers at the 13th International Conference on Alcohol, Drugs and Traffic Safety and from international road safety literature that while research and action to address drug-driving continues in other countries, there is no evidence anywhere of a coordinated national approach.

**New Zealand**

New Zealand has a comprehensive road safety action plan but it does not identify drugs as an issue to be addressed.

Section 58(1) (e) of the *Transport Act 1962* states that a person commits an offence who:
Drives or attempts to drive a motor vehicle on any road while under the influence of drink or a drug, or both, to such an extent as to be incapable of having proper control of the vehicle.54

The Land Transport Safety Authority advised that the term 'drug' is not defined in the Act and legal decisions have held that it may include sniffing substances such as glue and using medications such as insulin.55

A preliminary breath test may be administered but there is no legislative requirement to do so and subsequent actions do not depend on the result of such a test. The Act authorises the taking of a blood sample only. There is no time limit and police decide whether to require a sample but they must have 'due cause'.56

United States

The United States National Transportation Safety Board gave the Committee a brief summary of state laws within the United States relating to driving while impaired by drugs.57

Committee members also spoke with the Board about research on drug-related truck accidents and random drug testing programs in the trucking and bus industries.

All of the state laws were variants of the 'driving under the influence of alcohol' offence and there were no specific offences solely relating to drug impairment.

Regulations varied widely from state to state, ranging from a simple 'any impairing substance' and 'any drug' to 'any drug or combination of alcohol and a drug' and very specific codes such as Massachusetts legislative definition of 'marijuana, narcotic drugs, depressants or stimulant substances all as defined in Ch 94C 1 or vapours of glue'.

California has misdemeanour offences for 'driving under the influence of alcohol or drugs or a combination of alcohol and drugs' and for 'a person addicted to any drug to drive'. An exception is made for persons in a methadone program but it is a felony offence to drive under the influence and commit an unlawful act or neglect a duty causing bodily injury to another.58
The Californian definition of drug is based on a generic description:

*The term 'drug' means any substance or combination of substances, other than alcohol, which could so affect the nervous system, brain or muscles of a person as to impair, to an appreciable degree, his ability to drive a vehicle in a manner that an ordinarily prudent man, in full possession of his faculties, using reasonable care, would drive a similar vehicle under like conditions.*

The most significant features of the United States enforcement process were not the wording of drug-driving legislation but:

- the Fourth and Fifth amendments to the United States Constitution which require police to demonstrate a high standard of 'reasonable cause' before any body samples can be obtained which may incriminate a driver.

- the Drug Recognition Expert program.

- the involvement of juries in 'driving under the influence' trials where the police must provide 'expert' opinion to convince juries of the level of driver impairment. In Victoria such cases are heard by a magistrate.

The Committee concluded that the judicial environment in the United States is so different from that in Victoria that their legislative arrangements are of little relevance in suggesting improvements to the Victorian system.

**Canada**

Canadian legislation also does not suggest any worthwhile improvements to Victorian legislation.

In July 1995 Canadian drug researchers informed the Committee that Canadian police find it difficult to achieve a conviction for 'driving under the influence' or a blood-alcohol offence. Canada has adopted a 0.08 per cent blood alcohol limit and police use breathalyser equipment but there have been successful legal challenges to breathalyser readings. There is no law requiring a driver to submit to any physical test of co-ordination.
This situation is compounded by a ruling of the Supreme Court of Canada that any person arrested for alcohol or other impaired driving offences has the right to consult a lawyer prior to submitting to a breathalyser test.

Some provinces, especially British Columbia, have shown interest in the drug recognition expert approach. The Committee was advised that, even if such a program were introduced, Canadian courts might still not accept evidence of driver impairment as past judgements have so strongly favoured drivers. Some courts do not require drivers to give evidence that is potentially incriminating.

United Kingdom

The laws of the United Kingdom were the precursor to Victorian law. The Victorian Parliament follows the Westminster system and our courts are based on English legal precedents.

Our society and community expectations are similar so any comparison of how British jurisdictions manage drug-driving is of interest to the Committee.

Road safety legislation in the United Kingdom is based on the Road Traffic Act 1988. Section 4 of the Act describes driving while impaired as:

A person who, when driving or attempting to drive a motor vehicle on a road or other public place is unfit to drive through drink or drugs is guilty of an offence.

The law draws no distinction between a person unfit to drive through the consumption of medically prescribed drugs and the person unfit through drug misuse.

A British Appeals Court has ruled that a person is unfit to drive if he or she takes insulin and is guilty of an offence under Section 4 of the Act. Civil law claims of negligence have been made against medical practitioners who have prescribed drugs to individuals who have subsequently claimed that they were not fully and correctly informed of possible side-effects.
Continuing drug misuse and drug dependency are disabilities which must be reported to a driver licensing authority by drivers and applicants for a driving licence.\textsuperscript{62} Drug impaired drivers can be removed from the road if a police officer has conducted a breathalyser test and, at a police station, a police surgeon, on examination, believes the driver to be drug impaired.

The Committee was informed by United Kingdom government officials that much of their research on drug-driving was out-dated although new research was planned.\textsuperscript{63}

**The Netherlands**

The Committee met with road safety officials in The Hague in July 1995. The officials described a study by the University of Utrecht which suggested that each year about 50 fatalities occurred and 400 persons needed attention at hospital due to the use of medicines.\textsuperscript{64}

While some of the 3000 samples of blood or urine obtained annually from drivers charged with driving under the influence of alcohol are tested for drugs no statistical summaries were available.

The Committee was informed that the Netherlands have no routine coronial investigations of accidental deaths as exists in Victoria.

**Germany**

The German road safety organisation, Bundesanstalt fur Strabenwesen (BAST), said in its submission to the Inquiry that, if a driver had a breath test result below the legal limit of 0.08 per cent and the police officer still suspected drug involvement, the officer could require a blood sample to be taken from the driver at a police station or hospital and that the driver undergo a medical examination and undertake an assessment of driving ability.\textsuperscript{65}

German legislation embodies the notion of 'dual competence' as offences for 'driving under the influence' exist under both the criminal code and the administrative code.
The relevant criminal code is:

... conducting a vehicle on public roads, even though incapable of driving the vehicle safely because of the consumption of alcoholic beverages or other intoxicants and endangering life or limb of another person or property to a significant degree.\(^{66}\)

Within the German criminal code there is also the concept of 'total intoxication'. Total intoxication is where a person commits an illegal act when totally intoxicated and without any deliberative thought processes.

In the administrative code there are currently no regulations for illegal drugs. However, the government is preparing an amendment of paragraph 24 of the Strassenverkehrsgesetz (traffic regulations) to provide for:

Whoever conducts a vehicle on public roads under the influence of Cannabis, Heroin, Morphine or Cocaine is admitting an administrative offence. The identification of the substance in the blood sample counts as proof. This amendment does not apply if the substance was prescribed by a physician for a specific illness. The list of the above mentioned drugs can be changed or amended if called for by scientific knowledge.\(^{67}\)

An expert group has developed detection standards for German forensic toxicology laboratories involved in the determination of the drugs specified above in blood.\(^{68}\) These standards are solely for the accuracy of laboratory tests and do not reflect a correlation between driving impairment and blood-drug concentration.

**Norway**

Norwegian legislation requires that police suspecting drugs when attending accidents or observing irregular or dangerous driving require a driver to undergo a roadside breath test and, later, give a blood sample and undergo a standard clinical examination by a doctor.

Blood samples are sent with the results of the clinical examination to the National Institute of Forensic Toxicology for analysis for alcohol and most commonly abused drugs.
An expert witness statement is compiled based on the analysis, the outcome of the clinical examination and police reports and including information on the driver's tolerance to the drugs. The expert witness is usually a doctor specialising in clinical pharmacology working in or connected to the Institute.

The expert witness evaluates whether there was impairment while driving and possibly the degree of impairment. Expert witness statements are usually given in writing and only in 10 to 30 per cent of cases does the witness have to go to court or be available to the court for a telephone interview or examination.69

It has been found in Norwegian cases where the witness statement concluded 'impaired' or 'likely impaired' that more than 90 per cent of drivers were convicted.70

The Committee noted that the blood sampling decision can be made on the police officer's suspicion regardless of the driver's co-operation in a roadside test or clinical examination.

The blood sample is often taken before the clinical examination. Under Norwegian law a blood sample can be taken against the will of the driver and with force if necessary if intoxication is suspected. There is no penalty for the driver for refusing to participate in a clinical test.71

The detection of a drug in blood or urine is in itself not sufficient for the court since the law requires evidence of impairment or influence during the act of driving.72

Norwegian police have gained valuable experience concerning the evaluation of suspects who might be driving under the influence of drugs other than alcohol. This is reflected in the relatively high number of drivers found to be under the influence of drugs compared to other countries.73

In 1993 the National Institute of Forensic Toxicology received 5500 samples from drivers suspected of being under the influence of alcohol alone and nearly 3000 from drivers suspected of being under the influence of drugs.74
This sample base is in a population of 4.3 million and with 3 million motor vehicles which is almost identical to that of Victoria.

The Committee noted the Institute's well-integrated documentation of behavioural and laboratory test results which provide a comprehensive database for research.

The European Union

The Committee was fortunate in that a study of drugs other than alcohol and driving in some countries in the European Union had been conducted by Dr Johan de Gier of the University of Limburg at Maastricht, the Netherlands.

Dr de Gier's report summarises legislation in Germany, Denmark, Spain, France, the United Kingdom, the Netherlands, Sweden and Italy.

It notes that road traffic Acts in all member countries of the Union prohibit operation of a power-driven vehicle by any person incapable of driving properly due to the influence of a drug. Unfortunately there is no legal definition of what constitutes driving under the influence of any drug other than alcohol.

While the report recognised the trend towards broader legal definitions of driving under the influence of drugs in Germany, in other member nations such as Sweden forensic investigators were legally prohibited from looking for other drugs if blood-alcohol levels exceeded the legal limit which in Sweden is 0.02 per cent. Dr de Gier’s report indicated that all European experts have agreed that broader drug screening tests are needed.\(^75\)

Roadside tests are not used in the countries studied excepting Sweden where urine testing is sometimes used where blood-alcohol tests prove negative when a person is showing signs of 'being under the influence'.\(^76\) The sole statistic on drug-driving offences was in the Netherlands where there has been a 38 per cent increase between 1993 and 1994 in police requests for drug tests while blood-alcohol testing increased by only 20 per cent.\(^77\)
Dr de Gier produced a report in 1993 on driving licences and known use of legal or illegal drugs in eight European countries (this time including Belgium and excluding Sweden). It focused on how authorities in member countries were meeting their obligations when issuing or renewing driving licences by ascertaining applicants' lack of impairment due to the use of legal or illegal drugs.

The report provided more detail on drug-driving regulations and procedures, but:

Most driver licensing authorities could not provide data to illustrate the effectiveness of police enforcement nor could they show any statistics on the results of body fluid analysis and subsequent DUI convictions, including the suspension and endorsement of driving licences.78

3.6 Conclusion and Findings

Research and government action to address drugs and road safety are occurring in other countries but the Committee did not discover any co-ordinated state or national approaches.

As noted previously, the Committee concluded that the judicial environment in the United States differs so much from that of Victoria that their legislative arrangements were inappropriate for improvement to Victorian legislation.

Similarly, laws in Canada, New Zealand and the European Union appeared to provide no guidance for change in Victoria and the German initiatives were only proposals and still appeared inferior to laws at present in New South Wales.

One nation from which Victoria could usefully learn is Norway which has a high rate of drug-driving detection due to:

- an alert police force.
- systematic examination and recording of driver impairment.
- the National Institute of Forensic Toxicology providing expert witness advice, databases and analysis of blood samples.
- capable and interested researchers publishing results.
One key international mechanism for co-operation and the exchange of information is the International Council on Alcohol, Drugs and Traffic Safety where working groups of researchers and policy-makers exchange ideas and develop recommendations.

In Australia the Committee found each State so far had focused on its own drug-driving problems rather than developing a conceptual model or standard that might be developed and implemented by other States although the National Institute of Forensic Science's working party into drugs and driving proposed a national model in August 1995.\textsuperscript{79}

The Committee found that New South Wales had been the most active State in initiating investigations and countermeasures and the New South Wales Drug Driving Strategy task force approach to strategy development may be a useful model for Victoria.

In the absence of an agreed national approach Victoria must draw on the best aspects of other Australian and international systems suitable for Victorian conditions.

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Chapter Three

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4. Drugs and Driver Performance

4.1 What is a Drug?

The key question facing the Committee is what is a drug? The Committee sought the widest interpretation in order to reflect the constantly changing content of drugs. It reviewed all comparable legislation and definitions in Australia and overseas and definitions in use in the jurisdictions described in Chapter Three of this Report.

The Committee adopted this definition:

... any substance taken by mouth, injected or inhaled which might adversely affect any aspect of the ability to drive safely.

A number of groups of drugs have been shown to have adverse effects on brain performance. They include:

- Amphetamines and stimulants.
- Anti-convulsants, eg, carbamazepine, phenytoin.
- Anti-depressants, eg, amitriptyline, dothiepin.
- Anti-diabetic drugs, eg, tolbutamide, gliclazide.
- Anti-histamines, eg, pheniramine, diphenhydramine.
- Anti-hypertensives, eg, verapamil, propranolol.
- Anti-psychotics, eg, thioridizine, haloperidol.
- Barbiturates.
- Benzodiazepines (minor tranquillisers), eg, diazepam, temazepam, oxazepam.
- Cannabis.
- Narcotics, eg, morphine, codeine, methadone.¹

Pharmacologically and socially the drugs of most concern are amphetamines and stimulant drugs, benzodiazepines and cannabis. IS 4.1
Amphetamines, which include Speed (methamphetamine) and Ecstasy (methylenedioxy-methamphetamine), ephedrine and pseudo-ephedrine induce short-term stimulation which increases awareness and confidence and reduces symptoms of sleeplessness. Chronic use can lead to fatigue, restlessness, hearing and sight hallucinations and psychotic personality changes.

Benzodiazepines are sedatives and impair reaction times and co-ordination skills.

Cannabis impairs reaction time, reasoning and overall brain function. Its effects can last several hours and appear to vary according to quantity, quality and content.

The Committee found that the paper by Professor Olaf Drummer, Assistant Director of the Victorian Institute of Forensic Pathology, in the Committee's First Report provided an excellent summary of the complexities of drugs and their effects on individuals, types of drugs and the effects of selected drugs.2

Drugs and Impairment

The difficulty facing legislators is that drugs are available either at a pharmacy or supermarket, by prescription or by illegal means. The number and types of drugs are constantly expanding with increasing scientific and medical knowledge of the treatment of human ailments and the development of new recreational drugs.

Evidence to the Committee showed that many drugs can adversely affect brain functions to the point where driving skills are impaired.3 These include tranquillisers, sleeping pills, many analgesics such as codeine, slimming tablets and stimulants such as ephedrine and amphetamines.

The principal drugs of concern are those which can affect those parts of the brain which control a person's ability to react to external stimuli and which decrease driver skills. Such drugs can be divided into these categories:

- central nervous system (CNS) depressants. IS 4.2
- narcotic analgesics. IS 4.3
Drugs and Driver Performance

- cannabis. IS 4.4
- central nervous system stimulants. IS 4.5
- inhalants. IS 4.6

While many drugs are capable of causing impairment the Committee received evidence that a drug taken or found in a person’s blood or urine cannot be assumed to have caused measurable impairment.

The multiple use of drugs, particularly combinations such as alcohol and cannabis, multiple tranquillisers or analgesics with other drugs can cause significant impairment increasing substantially the probability of a crash.4

In most cases where therapeutic medical drugs are taken according to directions, significant impairment of driving skills is highly unlikely. However the Committee was made aware that some therapeutic drugs will cause impairment.

Drugs and the Individual

The effect of a particular drug or combination of drugs on an individual is not easy to predict. The Committee was told:

... we are as different on the inside as we are on the outside.

The Committee’s research indicates that the skills and capacities in each person can be affected at differing levels of drug consumption until safe driving becomes impossible. Each of the following skills can be affected, either individually or in a random combination.

The skills and capabilities necessary to drive effectively include:

- sight.
- hearing.
- an ability to perceive hazards and identify risk-taking behaviour.
- concentration, alertness and reaction time to make decisions.
- physical competence to undertake steering and braking movements.
- accuracy of movements such as steering the vehicle within traffic lanes.
Chapter Four

The effect of drugs on driver skills varies between individuals depending upon age, gender, health, drug use history, weight and, in some instances, personality.

The effects will vary also depending upon illness, fatigue, stress, hormonal cycle, time of day, time since a drug has been taken, interactions with other drugs (in particular alcohol), tolerance developed to a drug's effects and social or work situations.

Studies have shown also that people given a placebo can behave like those given actual drug doses. This has been observed with cannabis by Chait and Perry in 1992.

Research has also demonstrated that behaviour can vary depending upon whether a person is alone or in a group. In some scientific studies it appears that volunteers have been able consciously to compensate partially for some of the adverse effects of a drug, such as cannabis, but not for others.

With stimulants any short-term benefit to concentration can be outweighed by long-term health effects such as heart attacks.

Studies have also shown that the period of performance impairment in a test may not correspond with subjective feelings.

Withdrawal from a drug may be at least as impairing as the drug itself. In some instances flashbacks - recurrence of the effects of a drug - can occur months after a drug has been taken. This is a trait of some highly concentrated forms of cannabis such as hashish.

It has been argued by Professor Starmer and D J Mascord of the Department of Pharmacology at the University of Sydney in 1994 that the appropriate use of drugs may restore a driver's ability towards the normal competent level. However they stated that "this proposition should not be taken for granted" and provided the following example:

Clinically anxious patients are also poor drivers but although treatment with benzodiazepines tranquillisers will improve their clinical condition there is no improvement in their driving ability.
4.2 Detecting And Measuring Drug Use

The third term of reference to the Committee was to:

3. Report on methods of detection and measurement of drug (other than alcohol) use by drivers

The Committee addressed this term of reference by examining the chemical methods that are used to detect drug presence from a sample of body fluid. The types of samples that have been used by researchers include blood, urine, saliva, hair and breath.

The simpler broad scale breath testing methods used in alcohol detection have no equivalent test for the detection of other drugs.

The effectiveness of each of the methods commonly used by researchers to detect and measure the levels of drug impairment was considered by the Committee. This issue like many others in this Inquiry reflected the emerging nature of drug impairment and its effects on driving performance.

It became evident to the Committee that a significant amount of work needs to be undertaken in this field. Existing detection methods remain slow and often cannot relate the test results to the degree of impairment.

VicRoads in its submission referred to these deficiencies and stated the relationship between the analytical result and the degree of behavioural impairment of an individual is:

... not understood for urine sample testing and relatively unknown for blood samples (except for large toxic or lethal doses).

The submission concluded:

... this is because the relationships between impairment and drug dosage, drug body fluid concentrations over time, drug metabolism and drug elimination are not well known for the majority of behavioural impairment drugs.

The Committee examined the following procedures:
Chapter Four

• Urine and blood testing.
• Saliva testing.
• Hair sample testing.
• Occupational testing.
• Chemical testing of urine.
• Breath testing.

Each of these procedures relies on the establishment of laboratory testing standards and quality control assurance techniques. These standards have not been developed and:

Although all laboratories use calibration or reference standards as a function of normal operation Australia differs from America in that we do not have either:

• approved Australian Testing Standards for non-alcoholic drugs, so laboratories using different analysis methods may produce different results in terms of detection limits; or
• established national external quality control systems to ensure that the laboratories are able to effectively detect the drugs in real-life body fluid samples.¹³

During its overseas inspection program in the United States the importance of setting quality control standards was emphasised. Some laboratories previously used by police forces for toxicological analysis had been removed under quality assurance programs when they were unable to maintain external testing standards.

Testing laboratories must meet ‘best practice’ performance measures or an Australian Standard:

The above factors result in a wide range of performance for Australian laboratories and whilst some are able to demonstrate "best practice" performance others fail to demonstrate competence.¹⁴

Quality control of laboratories is an important aspect in the detection and measurement of drug use. An Australian Testing Standard for drugs needs to be developed and implemented nationally by all forensic laboratories. This process must include external quality control systems and ‘benchmarks’ to measure performance.
Urine and Blood Testing

Most jurisdictions require a sample of blood and urine to be provided for testing in an analytical laboratory when driver impairment is suspected. In parts of the United States only one sample is required.

The urine sample is usually used as a screening device to guide the selection of drugs that need to be analysed in the blood sample. One of the difficulties with this approach is that if the laboratory only tests for a small number of common drugs using techniques or equipment that detects high concentrations of the substance being sought other levels of impairment are overlooked. The Committee found that it was not uncommon for laboratories, particularly with urine samples, to only test for four or five common substances.

These decisions may be economically based as the current processes are costly and slow. The Victorian Council for Civil Liberties:

*opposes legislation which requires the establishment of expensive, analytical procedures which will be required to successfully prosecute alleged drug-drivers.*

The costs to the Western Australian Police Department to analyse a sample from a driver suspected of drug impairment are $64 for doctor to take a sample, $400 for chemical testing in a laboratory, $500 for a pharmacologist's expert opinion and $250 per hour plus transport cost if the expert testifies in court. These costs justify concern.

The Committee is of the view that the growing number of sophisticated mass spectrometer machines in Australia may lead to a fall in the unit cost of laboratory tests. The Committee was aware of work being done by Dr Stuart McLean of the School of Pharmacy at the University of Tasmania on a computerised scanning technique to speed both the numbers of samples and the drug range being analysed.

The Committee considers that although the costs of laboratory analysis and expert opinions are important factors they must be always measured against the very high costs associated with road trauma and road safety countermeasures.
Saliva Testing

A relatively new drug detection technique uses saliva samples taken by rubbing a cotton swab on the inside of the mouth which is less invasive and less expensive than collecting urine or blood samples.

Dr J McLean, Director of the National Health and Medical Research Council Road Accident Research Unit provided details about a university research project conducted in Adelaide that considered this technique for data collection from motorists passing sites of previous road crashes at similar times of day and days of the week. IS 4.8

Attempts have been made to determine the relationship between the results of saliva concentration and blood concentration but the issue is complex and unresolved at this time. IS 4.9

The largest collection of saliva samples from drivers was in a German Roadside Survey from 1992 to 1994. The purpose of the Survey was to determine the use of psychotropic drugs amongst the general German driving population and compare it with the crash-involved population. IS 4.10

The German researchers considered that the technique provided reasonable estimates of the size of the drug problem. The major difficulty is that the costs of the exercise exceed its benefits. Of a total of 3200 saliva samples obtained only 47 were found to be positive in the detection of drugs. To obtain a more statistically significant sample of 200 positive cases, nearly 20,000 samples would need to be taken at a cost of about DM 1.5 million or $A 1.4 million.18

The saliva technique has also been used in Australia in a 1994 study by Professor Starmer and colleagues at the University of Sydney for the Federal Office of Road Safety.19

Attitudinal and behavioural information about drug taking was obtained from a sample of 1700 drivers interviewed at roadside rest areas or cafes throughout rural Australia. Saliva samples were obtained and later analysed in a laboratory for an extensive range of legal and illegal drugs.
An analysis of 618 samples indicated that:

- 5 per cent of truck drivers used illegal stimulants compared with 1 per cent of bus drivers and general motorists.

- 16 per cent of truck drivers used legally available stimulants compared to 2 per cent for bus drivers and general motorists.

- 2 to 4 per cent of all driver classes used legal and illegal central nervous system depressants.

- only three samples tested positive for cannabis and they were all general motorists.\textsuperscript{20}

The Committee noted that only a small number of drivers were involved and the study was skewed towards long-distance drivers in rural Australia. The survey provided the only recent scientific evidence on drug presence in the general Australian driving population.

In commenting on this study the Federal Office of Road Safety stated that:

\textit{... saliva analysis is a valid research method for screening for a wide variety of drugs which may affect driving skills, in a non-invasive and more easily obtainable manner than blood or urine samples.}

\textit{However, currently this is not a viable enforcement tool because of costs, time constraints and lack of information about the risks associated with different doses of drugs.}\textsuperscript{21}

The Committee agrees with this conclusion.

**Hair Samples**

Hair samples have also been used in Germany for the monitoring of drug abstinence of drug addicts.\textsuperscript{15} Hair samples indicate in their molecular cell growth whether and when drugs have been consumed. The hair samples are measured to detect when drugs have been consumed and assumptions can be made as to whether they are still present in a person's system.

The Committee is of the view that the German use of this technique should be monitored.
Occupational Testing

Drug use in the workplace has been examined to some extent with the emphasis being on alcohol. Occupational health and safety has been a major industrial issue throughout the Western world including Australia in the past decade and many alcohol and drug-taking studies have been undertaken and countermeasures introduced. 15 4.12

The Committee found that occupational testing is relevant to this Inquiry because:

- success in achieving a "drug free" working environment will have indirect road safety benefits as there will be fewer drug-impaired drivers on the road - particularly in the commercial driver category.

- employee education and information on drug-impairment will complement specific drug-driving messages;

- there are strong commercial incentives for employers to prevent drug-impaired employees from operating expensive equipment (eg pilots, train drivers, petroleum drilling and refinery workers).

- the potential commercial market for "on-the-spot" drug-testing products is many times greater than that for rapid roadside testing and any new techniques are likely to first appear in those employee environments.

Advice to the Committee particularly in the United States of America where these programs are applied intensively indicated that the use of alcohol and drugs by commercial transport operators has been reduced.

Drug prevention and testing programs that cover nearly 8 million employees in safety-sensitive jobs have been required by the United States Federal Government since the late 1980s. An overview of the program was given by the Chairman of the United States National Transportation Safety Board at the International Conference on Alcohol, Drugs and Traffic Safety in Adelaide in August 1995.22
The Committee noted that while the program targeted employees in positions requiring a high attention to safety the wider objective of the federal program was the establishment of drug-free work environments as part of an overall emphasis to rid American society of illegal drug abuse. Seven million commercial vehicle drivers are part of a drug use prevention and testing program.\textsuperscript{13}

Under the \textit{Omnibus Transportation Employees Testing Act} 1991, the United States government provided funding of \$US 5 million ($A 6.25 million) to study the feasibility of conducting random roadside drug and alcohol tests. Pilot studies were conducted in Nebraska, Minnesota, Utah and New Jersey in 1992 and 1993 to:

- determine the level of drug and alcohol abuse in the motor carrier industry.

- evaluate the feasibility of an on-going program (testing methodologies, logistics, legal implications).

- gather information to aid in drug and alcohol management.\textsuperscript{23}

The results of these tests indicated that 4.6 per cent of commercial vehicle drivers tested positive for drug use. It should be noted that while alcohol breath testing of drivers was conducted at the roadside the analysis of urine samples for illegal drugs was done later at a laboratory.\textsuperscript{24} \textsuperscript{14}

\textbf{Chemical Testing of Urine}

Another method of detecting the presence of drugs or impairing substances is the chemical testing of urine. The analytical process for this test has been developed into a form that can be delivered at the roadside to provide a preliminary means for detecting drugs of abuse and their metabolites in urine. All positive tests need to be confirmed by a further more accurate method and preferably by gas chromatography or mass spectrometer.\textsuperscript{25}

In an inquiry in 1989 into heavy vehicle safety the New South Wales Staysafe Committee recommended that the abuse of stimulant drugs required:

\ldots the situation to be closely investigated, with a view to possible random testing of heavy vehicle drivers for drugs.\textsuperscript{26}
In 1991 and 1994 Dr Michael Henderson, former head of the Road Safety Bureau of the New South Wales Roads and Traffic Authority conducted two investigations for the Authority on the cost and practicability of random urine testing of drivers of heavy trucks in Australia. The investigations reviewed overseas experience, sample sizes, commercial drug testing kits and made estimates of unit testing costs which ranged from $50 to $100 per sample.

Urine sampling techniques were used by Dr Brookoff and his associates in Memphis, Tennessee in 1993. People arrested for reckless driving who were not impaired by alcohol were required to provide a urine sample which was tested for cocaine and marijuana at the scene of the arrest. The results of the drug tests for the 150 drivers were compared with evaluations of intoxication made at the scene by a police officer. The results found that the 38 drivers who tested positive for cocaine use and the 70 per cent of drivers who tested positive for cannabis were confirmed by later laboratory tests. The authors of the Tennessee test concluded that chemical testing at the scene was a practical means of identifying drivers under the influence of illegal drugs and a useful adjunct to standard behavioural testing.

The Federal Office of Road Safety referred to the University of Sydney and Memphis studies and indicated that both studies had technical limitations. The test may not be relevant to Australian conditions where cocaine and marijuana abuse may not reflect the American experience.

Despite these views the Committee did not consider these developments should be precluded from future use in Victoria. The issue of urine testing at the roadside needs to be monitored to ascertain its long term application and effectiveness.

• **Timeliness of Results**

During the Inquiry the Committee heard evidence of long delays in Australian police forces receiving the results of laboratory tests of body fluid samples. This appeared to be due both to work priorities and shortage of skilled laboratory personnel to conduct the tests and interpret the results.
In Hobart the Committee heard from Dr Stuart McLean of the School of Pharmacy, University of Tasmania of an automated procedure for laboratory drug analysis. 184.17

The Committee notes that while there will be some reduction in the time required to produce the results of a batch of blood samples the two main advantages for the chemical laboratories are:

- a wider range of drugs can be searched for.
- the reduction in time required by the analyst reviewing and interpreting the chromatographs.

The success of this procedure would provide a significant road safety benefit as it would allow prompt decisions on treatment and prosecutions to be made.

Breath Testing

One of the issues raised late in the Inquiry was the possibility of roadside saliva and breath testing devices. No tests currently exist.

The report of the Premier's Drug Advisory Council Drugs and Our Community in March 1996 alluded to a potential for roadside breath testing methods and recommended:

*Research should be funded to establish a test for short-lived metabolites of cannabis products in saliva or breath to allow, in due course, the introduction of roadside testing for cannabis in a manner comparable to alcohol breath testing.*30

On 31 May 1996 the Chairman of the Council, Professor David Penington, AC, addressed the Victorian Parliament on the proposals contained in the report. In that address Professor Penington referred to the existence of or potential to develop a test:

*In 1988, in California, a test was reported in literature, which we followed up, with radioimmunoassay for that metabolite, and there are at least two companies in Australia that could convert that test to a roadside test.*31
Following his address to the Parliament the Committee wrote to Professor Penington requesting that he identify the two companies he cited. The response from the companies was that neither had a commercial test but they were confident the development was feasible. One company suggested product development costs would be $750,000. Estimates of the development times ranged from "18-24 months" to "two to three years".

Professor Penington suggested the Committee discuss the situation further with Professor Olaf Drummer, as:

... more preliminary research would be needed to relate blood, breath or saliva levels to evidence of psychomotor impairment before embarking on a program of roadside testing.

Professor Drummer's response was:

In my view, the cost efficiency for roadside detection devices for drugs is quite low and therefore would only be viable in isolated cases rather than any mass screening device to be used in conjunction with the breathalyser.

The Committee became aware of research being conducted by Dr R Parsons, a Research Associate with the Department of Chemistry at the University of Tasmania. For several years Dr Parsons has been investigating the use of a test, conceptually similar to a 'litmus' test, to detect cannabis in a breath sample by the change of colour of a strip or disc impregnated with a dry chemical re-agent. The strips or discs would simultaneously detect a number of drugs such as cocaine, heroin and cannabis.

The Committee met with Dr Parsons in June 1996 to consider his proposed test. The first stage of his work involves developing a breath detection method for cannabis. A second stage would attempt to detect and quantify cannabis and other drugs in saliva. Dr Parsons said that the development of the process could take two to three months and would then have to be tested on 100 to 200 people. At the time of the meeting he had only tested five students on one occasion and had published no papers on the proposal.
Potential applications of such a device could be:

- where a line of drivers has been stopped at a random breath testing station and police have not had an opportunity to view a person driving. A ‘positive’ test may result in the need for the driver to undertake a roadside impairment test.

- where a driver has failed a roadside or indoor test and police need to confirm that the observed impairment was clearly drug-related before using more time consuming, invasive and expensive methods by taking blood and urine samples.

- where a person is injured and cannot take any form of behavioural impairment test or the taking of a blood sample was not medically desirable in the circumstances.

Recognising the legal and practical enforcement difficulties that were experienced by police in the early days of alcohol breathalyser development, the Committee considers the development times suggested by the two Australian companies and Dr Parsons are optimistic.

It has been established that a breathalyser can detect alcohol because alcohol vaporises. Determining the alcohol level in the breath provides a reliable estimate of blood alcohol concentration and the Courts accept this evidence.

Other drugs, particularly cannabis, are absorbed into the fatty tissues of the body where they may remain for up to some weeks. Dr Parsons says that tetrahydrocannabinol (THC) stays in saliva for six hours and this has been verified by tests in America.37

The Committee concluded that even if a machine could provide a measurement of drug presence in breath or saliva it would only indicate that such a drug had been used in recent hours. In the absence of a recognised standard of drug concentration related to driver impairment and increased crash risk, as exists for alcohol, the detection or measurement by itself is not useful for prosecution purposes.
Until scientific evidence indicates that a particular level of drug in a body sample leads to higher road crash risk the primary methods of detecting driver impairment must remain with structured impairment procedures followed at the roadside or indoors. The Committee will reiterate throughout this report that the laboratory detection of drug presence and measurement is complementary evidence to support the behavioural observations made by police.

4.3 Drugs and Driving

The Committee did not commission its own literature review on the effects of drugs on driver performance as a number of relevant reviews and other sources of information were available. 15 4.20

The Committee examined the results of the following research into the effects of various drugs on driver performance:

- laboratory studies.
- driving simulator studies.
- on-road studies.

Laboratory Studies

Laboratory procedures remain the main testing method for most scientific research at a primary level. Tests isolate a specific human function and determine the skill of the person to perform that function. Most laboratory studies on drugs test each volunteer before and after taking the drug.

The choice of tests and selection of drugs relies on the researchers’ assessment of the relationship of the tests to the tasks involved in driving.

Dr G B Chesher of the Department of Pharmacology at the University of Sydney said that:

... no battery of separate tests comprehensively defines the actual tasks of driving.38
Drugs and Driver Performance

He quoted Dr K Joscelyn and others of the University of Michigan whose report in 1980 claimed that the plethora of methods employed in laboratory studies limited their validity:

... many tests routinely employed have limited validity or no demonstrable relation to real-world driving. Measuring the 'same' behaviours often differ, raising questions about the comparability of experimental findings.39

Laboratory tests can screen for drugs with a potential to impair specific behaviours. However, Dr Chesher believes that results from tests should not be the sole basis for any assessment of a drug's potential for impairing driver skills or for increasing the probability of a crash. For this reason he argues that:

... evidence for the traffic hazard associated with any drug should be confirmed by studies of actual driving (either using driving simulators or a real car) and by studies using epidemiological methods.40

Driving Simulator Studies

A driving simulator is laboratory-based. Early driving simulator studies did not provide interaction between the actions of the driver and the 'driving scenery' which was generally a film of the road to be covered. Evidence to the Committee indicated that early studies did not provide the driver with any real capacity to control the scenery being shown as a result of their driving performance.41

The Committee recognised that the tests are only a simulation of real life driving and that driving simulators can vary greatly in the degree to which they can simulate reality.

Dr Chesher noted in his paper in the Committee's First Report that:

... all but the most sophisticated and extremely expensive simulators are to the test subject, still a laboratory piece of equipment.42

Simulators can lack realism in the dynamics of driving and the visual presentation of the road and other traffic. Nevertheless they are able to present simulated dangerous situations to which the driver must respond.43
There have been rapid advances in recent years in the sophistication of simulators and two advanced machines have been recently developed in Victoria with funding from the Transport Accident Commission.44

These more sophisticated simulators provide an opportunity to test some aspects of fatigue and drug-related driving impairment which cannot be contemplated in on-road studies.

On-Road Studies

Driving studies with a real car conducted in an open field, such as an aerodrome, present a more realistic experience of a motor vehicle than do fixed or laboratory simulations. However, they usually require the driver to undertake manoeuvres, such as weaving between cones, that are not necessarily part of a normal driving pattern.

Studies undertaken in on-road traffic require great care to avoid danger to both the people conducting the experiment and other road users. This restricts these studies and they become somewhat similar to a test for a driving licence for both the researcher and the test driver.45

The Committee met Dr Alison Smiley, a Canadian expert, when it visited North America in July 1995. Dr Smiley described the effects of drugs on driving using on-road and driver simulator studies and stated her belief that even these studies are artificial and a simulation of real driving.46

On-road driving studies vary considerably in their experimental design and in the tests of driving employed. Reviews of these studies have been published.47

Summary

The Committee found that there was no consensus among scientific experts throughout the world on the most appropriate way to test the effects of drugs.

Most studies have been laboratory-based but recent development of better driving simulators and technical developments in monitoring and recording equipment have led to new testing approaches particularly for on-road tests.
Advocates of these new simulators stress that they are more realistic. Their detractors argue that while they are more realistic they are still controlled versions of real driving experiences and their results are no more valid than laboratory experiments which are simpler to conduct and control.

The Committee does not have a view on the relative scientific validity of these different testing procedures. It notes the divergence of views and interpretations from scientists and road safety practitioners which it encountered during the Inquiry.

At this time it is not possible to determine unsafe drug-driving levels for all impairing drugs as has been done with the 0.05 per cent blood alcohol concentration for alcohol.

The issue of the best testing method must be resolved by the scientific community. Clearly there is a need for future international guidelines to provide procedures for collecting quantitative evidence. Legislators must be confident they have information soundly based on research methods which apply in similar jurisdictions.

4.4 Cannabis and Driving

In commencing its review of cannabis research the Committee wishes to clearly indicate that when interpreting the results of scientific studies it is important to understand that there is no standard cannabis measure as there is with a cigarette or a standard glass of beer or wine.

The United States National Institute on Drug Abuse produces 'standard' cannabis cigarettes for research purposes which have a confirmed tetrahydrocannabinol or THC level but the Committee noted there is no quality or THC concentration control on cannabis available on the street. The level of cannabis used in research bears no relation to what may be found in purchases made on the street.

Therefore the results of experiments quoted in this chapter will generally underestimate the effect of cannabis on drivers in the real world.
Dr David Joyce, an expert pharmacologist of the University of Western Australia observed from his study:

*Experimental studies, such as that of Robbe (1994) describe the consequences to driving of mild or trivial intoxication under supervision. Information from this study should serve to inform legislators and the public that the effects of cannabis intoxication on driving may be much more severe than have been observed experimentally.*

The Committee has given specific attention to cannabis and its effects on driving as it was the subject of public discussion during the preparation of the Report. Additional information has been provided throughout the Report to expand the community’s knowledge about the effects of this drug.

**Laboratory Studies**

The effects of cannabis on driving have been subject to laboratory testing and data from those tests has been reviewed by H Klonoff in 1983, Dr H Moskowitz of the University of California in 1985 and by Dr Chesher in 1986. The three reviews demonstrated that cannabis depending on the dosage will reduce the performance of specific tasks.

The Committee noted that the doses of cannabis used in these tests were lower than those potentially used by smokers of cannabis generally. The tests were conducted with the assistance of volunteers in the 1980s and ‘street’ variations and different levels of THC could not be applied for ethical reasons. However the studies indicated that the doses produced effects which were as great as those generally experienced by volunteers in their social use of the drug.

**Driving Simulator Studies**

The effects of cannabis on performance in a driving simulator have been reviewed by Dr Moskowitz, by Dr Hindrik Robbe of the University of Limburg, Maastricht, the Netherlands and by Dr Smiley.

They examined studies undertaken in the late 1960s and early 1970s that showed no significant effects of low doses of cannabis on car control.
However, they noted cannabis produced:

- increased decision latency before starting, stopping or overtaking.
- impaired monitoring of a speedometer.
- reduced risk-taking behaviour in tasks requiring a decision to overtake a vehicle in the presence of an oncoming car.\(^54\)

In later simulator studies in the early 1980s, new apparatus with more realistic driving dynamics and an interaction between scenery and driving manoeuvres had been developed which demonstrated the consumption of cannabis affects car control.\(^55\)

The 1981 study by Dr Smiley, Dr Moskowitz and Zeidman found that cannabis had a twofold effect. Firstly it increased the variability of the driving function and led the driver to miss signs that indicated the need to follow another route. Secondly the consumption of cannabis resulted in the test subjects driving in a more conservative manner by maintaining a longer headway when following a car, refusing more opportunities to overtake and, when they did overtake they began to do so at a greater distance from the other vehicle.\(^56\)

**On-Road Research**

The paper by Dr Chesher in the Committee’s First Report provides an extensive description of seven on-road studies conducted since 1974.\(^57\)\(^15\) \(^4.21\)

The most recent and comprehensive on-road study of the effect of cannabis on driving is that conducted from 1990 to 1992 by Dr Robbe and Professor James O’Hanlon of the University of Limburg at Maastricht.

The study was sponsored by the United States National Highway Traffic Safety Administration (NHTSA).\(^58\) The Committee visited Maastricht during its review of comparable jurisdictions in July 1995 and held discussions with Dr Robbe on his work.

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\(^{54}\) Inquiry Into The Effects Of Drugs (Other Than Alcohol) On Road Safety In Victoria
A feature of the Maastricht group's methodology was that the dose of THC was determined in a pilot study using the volunteers who were to take part in the main study. The aim was to estimate the dose these volunteers generally would use on a social occasion. As a result, a dose of 300 ug/kg was chosen as the maximum amount that could be used in on-road driving studies. This dose was considerably higher than the 100-200 ug/kg typically administered in other studies.

Three driving studies were conducted by the Maastricht group:

- on a closed section of dual carriageway rural highway with no traffic.
- on a similar section of rural highway with traffic.
- in city traffic at Maastricht.

In the first and second tests they found that the most significant performance measure was the standard deviation of lateral position (SDLP) of the vehicle. These tests used a video camera to measure the sideways movement of the vehicle within its traffic lane. This standard deviation of lateral position was considered to be a proxy of the 'automatic' function of the brain in how it processes information in the driving task.

In the first two tests, cannabis produced a dose-related increase in the sideways movement of the vehicle. In highway traffic under the influence of cannabis mean speed was marginally reduced and the headway distance from the lead vehicle increased slightly.

The third test, under city driving conditions, used drivers who had consumed a low dose of cannabis of 100 ug/kg. Comparative tests were conducted on volunteer drivers who had consumed alcohol to a blood-alcohol concentration of 0.04g per cent. Results of this test showed that this modest dose of alcohol, but not cannabis, produced a significant impairment of driving performance in comparison with placebo conditions.

Although alcohol impaired driving performance the drivers did not perceive it. Cannabis alone did not impair driving performance yet the volunteers thought it had. After consuming alcohol the volunteers tended to drive marginally faster while volunteers who had only consumed cannabis decreased their speed.
Dr Robbe concluded that:

- Current users of cannabis prefer THC doses of about 300 ug/kg to achieve their desired 'high'.

- It is possible to safely study the effects of cannabis on driving on highways or city streets in the presence of other traffic.

- Cannabis smoking impairs fundamental road tracking ability with the degree of impairment increasing as a function of the consumed THC dose.

- Cannabis smoking which delivers THC up to a 300 ug/kg dose slightly impairs the ability to maintain a constant headway while following another car.

- A low THC dose (100 ug/kg) does not impair driving ability in urban traffic to the same extent as a blood alcohol concentration (BAC) of 0.04g%.

- Drivers under the influence of cannabis tend to over-estimate the adverse effects of the drug on their driving ability and compensate when they can by increasing effort to accomplish the task, increasing headway or slowing down or a combination of these.

- Drivers under the influence of alcohol tend to under-estimate the adverse effects of the drug on their driving ability and do not compensate.

- The maximum road tracking impairment after the highest THC dose (300 ug/kg) was within a range of effects produced by many commonly used medicinal drugs and less than that associated with a blood alcohol concentration (BAC) of 0.08g% in previous studies employing the same test.

- It is not possible to conclude anything about a driver’s impairment on the basis of his or her plasma concentrations of THC and THC-COOH determined in a single sample.\textsuperscript{62}
Comparing the Effects of Cannabis and Medications

The Maastricht research group has conducted many studies with the same methodology and accumulated much data on the effects of other drugs such as normal prescription medications. The research group recorded the extent of impairment by the sideways movement of vehicles. The largest deviation caused by cannabis was 3.7 cm on a closed highway and 2.9 cm on an open highway.

In earlier studies drugs such as diazepam (Valium) and lorazepam (Ativan) produced increases of 7 cm and 10 cm respectively. Dr Robbe commented:

*In so far as its effects on SDLP are concerned THC was just another moderately impairing drug.*

Dr Robbe went on to say that the effects of cannabis differ qualitatively from those of other depressant drugs, especially alcohol:

*Very importantly our city driving study showed that drivers who drank alcohol overestimated their performance quality whereas those who smoked marijuana underestimated it.*

*Perhaps as a consequence, the former invested no special effort for accomplishing the task whereas the latter did, and successfully.*

*This evidence strongly suggests that alcohol encourages risky driving whereas THC encourages greater caution, at least in experiments.*

Finally Dr Robbe contrasted the effects of cannabis measured in individual laboratory-based tests with on-road tests:

*The results of these studies corroborate those of previous driving simulator and closed-course tests by indicating that THC in single inhaled doses up to 300 μg/kg has significant, yet not dramatic, dose-related impairing effects on driving performance.*

*They contrast with results from many laboratory tests, reviewed by Moskowitz (1985), which show that even low doses of THC impair skills deemed to be important for driving, such as perception, coordination, tracking and vigilance.*

*The present studies also demonstrated that marijuana can have greater effects in laboratory than driving tests. The last study, for example, showed a highly significant effect of THC on hand unsteadiness but not on driving in urban traffic.*
Dr Robbe's book, *Influence of Marijuana on Driving*, published in 1994 reported two instances during on-road tests where drivers who had consumed cannabis failed to perceive dangerous situations and the accompanying driver had to intervene. The Committee discussed this issue with Dr Robbe in Maastricht and the issue formed part of a keynote address at the International Conference on Alcohol, Drugs and Traffic Safety in Adelaide in 1995.

The instances referred to by Dr Robbe were:

> In one case the driving instructor twice warned the subject to avoid a screwdriver lying on the road but when he failed to react the instructor did by steering away from the object.

> ... In the other case the subject failed to decelerate as he approached the turning point. The instructor told him to do so whereupon the subject abruptly brought the vehicle to a stop using the brake.66

In his paper to the Adelaide Conference, Dr Robbe concluded:

> Although THC’s adverse effects on driving performance appeared relatively small in the tests employed in this program, one can still easily imagine situations where the influence of marijuana smoking might have a dangerous effect, i.e., emergency situations which put high demands on the driver’s information processing capacity, prolonged monotonous driving and after THC has been taken with other drugs, especially alcohol.

> Because these possibilities are real, the results of the present studies should not be considered as the final word. They should however serve as the point of departure for subsequent studies that will ultimately complete the picture of THC’s effects on driving performance.67

The Maastricht researchers have recently received funding from the United States National Highway Traffic Safety Administration to conduct a further series of experiments involving a combination of alcohol and cannabis. The experiments are to be conducted under traffic conditions using the legal alcohol limit (0.05 per cent BAC).

The Committee noted that even though the Maastricht researchers used higher dosages of cannabis in the two highway experiments than most earlier on-road experiments, many cannabis-using drivers detected by police for poor driving or involvement in crashes had consumed higher doses and were grossly impaired. The research is important but only gives one perspective of the effects of cannabis on driving.
Meta-Analysis

A problem which the Committee identified early in its Inquiry was a need to compare meaningfully the results of all studies.

This is now possible in a new approach to the interpretation of scientific studies, meta-analysis, which uses a computer database containing the results of many studies to compare results. Two initial applications of this technique to drugs and driving were presented in Adelaide to the International Conference on Alcohol, Drugs and Traffic Safety.

Papers by Professor Gunter Berghaus and Messrs N. Scheer and P. Schmidt from the University of Cologne, Germany, explained how they analysed 150 experimental studies in laboratories, in driving simulators and on-road. They used a systematic questionnaire to extract and code information on the drivers such as:

- number, age, sex and user behaviour of the drivers.
- manner of drug treatment.
- time between drug intake and testing.
- tasks presented.
- experimental findings on drug effects.68

The subsequent data was examined by sophisticated statistical sampling techniques.

To the Committee's knowledge this is the first time such an approach has been applied to produce detailed statements on the nature, intensity and duration of drug impairment matched against dosage, user behaviour, treatment and other variables.

The University of Cologne drew a number of conclusions from this approach, some of which conflicted with some individual studies. The smoothing effect of comparing many results produced the following observations on cannabis:

- impairment is observable in every performance area connected with the safe driving of a vehicle.

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impairment is concentrated within the first two hours of starting to smoke.\textsuperscript{69}

- there is an order of rank for the eight performance areas indicating cannabis-related impairment.

- impairment is more dominant in the initial absorption phase than in elimination of the drug from the bloodstream.

- frequent users reveal less impairment than inexperienced users.

- the higher the dose, the more obvious the impairment.

- impairing effects of cannabis are overestimated by the users and they are more able to compensate for these effects than users of alcohol.

- the maximum 'high' is achieved later than the maximum blood concentration of THC.

- a subjective effect ('feeling') occurs after one or two inhalations.

- some physiological effects are: increase in heart rate, increase in blood pressure, enlargement of the pupils of the eyes and injection of the conjunctives (reddening of the white of the eye which connects the inner eyelid and the eyeball).

- observable symptoms disappear quickly during the early elimination phase.\textsuperscript{70}

Dr Hans-Peter Kruger of the University of Wurzburg has performed a similar analysis on the effect of low doses of alcohol.\textsuperscript{71} Meta-analysis made it possible to establish alcohol and cannabis dosages that have equal effects.

A comparison was presented by Dr Kruger and Dr Berghaus at the Adelaide Conference on Alcohol, Drugs and Traffic Safety.\textsuperscript{15 4.22} The Committee noted that the discussion of their paper at the conference revealed some disagreement between leading researchers on the usefulness of meta-analysis in interpreting information or for policy development.
Nevertheless the paper seeks to answer scientifically the question frequently asked, 'How do you compare a particular dose of cannabis with a dose of alcohol?'

The Committee has concluded that it is too early to confidently draw any quantitative conclusions on the equivalent doses of alcohol and cannabis but it considers that meta-analysis provides a potential framework for the future as a means of making sense of the results of hundreds of diverse experiments.

4.5 Research on Medications and Driving

Overview

Several of the papers in the Committee's First Report refer to the potential for impairment of driver skills by medications. This concern was shared by:

- Professor Drummer of the Victorian Institute of Forensic Pathology.
- Dr Michael McDonough, Director, Drug Services Unit, Box Hill Hospital, Melbourne.
- The Victoria Police Accident Investigation Section.
- Ms Karen McIntyre, Manager, Road Safety and Education, Royal Automobile Club of Victoria.
- Dr Jane Hendtlass, former senior research consultant for Victoria Police.
- Macedon and District Road Safety Council.

Some information for the Committee was contained in papers by Dr Michael Henderson, a private road safety consultant and former head of the Road Safety Bureau of the New South Wales Roads and Traffic Authority and Professor Starmer. These were literary reviews of many published results of scientific experiments on the effects of medications. Some are included in the bibliography in Volume Two of this Report.

University of Surrey

The Committee held extensive discussions with Professor Ian Hindmarsh and his colleagues of the Human Psychopharmacology Research Unit, University of Surrey, when the Committee visited the United Kingdom.
The Unit undertakes laboratory-based experiments on drug-related incidents in the home, at recreation and in the workplace. Part of its work is the study of the effects of medications on driving-related tasks. Over the past 20 years the unit has assessed the psychopharmacological profiles of more than 200 different psycho-active substances with research which has produced over 350 articles in scientific and medical literature.\textsuperscript{15} \textsuperscript{423}

Professor Hindmarch concluded that:

- There is often a significantly different driving response between formulations of older types of drugs and newer formulations;

- Some commonly-prescribed drugs can have specific performance-impairing effects at least equivalent to illegal quantities of alcohol.

- Impairing effects can increase if even relatively small amounts of alcohol or other drugs are taken.

He said that tricyclic anti-depressants alone or combined with alcohol can produce impairment equivalent to illegal doses of alcohol (0.08 per cent BAC in the United Kingdom). The effect of alcohol and other drugs on the extra stopping distance required at 70 mph was shown to the Committee in the following table:

<table>
<thead>
<tr>
<th>Peak effect</th>
<th>Extra Stopping Distance at 70 mph (112Km/h)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Amitriptyline 50mg-Study 1</td>
<td>12</td>
</tr>
<tr>
<td>Amitriptyline 50mg-Study 2</td>
<td>11.2</td>
</tr>
<tr>
<td>Amitriptyline 50mg-Study 4</td>
<td>9</td>
</tr>
<tr>
<td>Dothiepin-Study 3</td>
<td>8.8</td>
</tr>
<tr>
<td>Amitriptyline 50mg-Study 5</td>
<td>7.5</td>
</tr>
<tr>
<td>Alcohol 80mg/100ml</td>
<td>6.7</td>
</tr>
</tbody>
</table>

Source: Hindmarch, I., Antidepressants and Fitness to Drive, University of Surrey, United Kingdom

Inquiry Into The Effects Of Drugs (Other Than Alcohol) On Road Safety In Victoria
Benzodiazepine and Driver Impairment

A recent study by Kuitunen et al of the University of Helsinki, Finland, analysed the relationship between blood concentration and performance impairment due to benzodiazepine in 327 Finnish drivers. They noted:

For the first time to our knowledge a clear concentration response relationship between blood benzodiazepine levels and psychomotor performance related to driving was demonstrated with suspected drivers.

The authors concluded:

... benzodiazepines affect skills relevant to driving and add to the effects of alcohol.

The Committee considered that while this in itself was an important new scientific conclusion, the most significant policy implication for Victoria was that it stressed the need for a database linking police observations of impaired drivers and results of detailed chemical tests. The Finnish researchers were able to use data that had been systematically assembled nearly 10 years earlier.

Methadone and Driving

Methadone is a medication prescribed under special conditions as a substitute for heroin. Increasingly, doctors are facing the question of the fitness of methadone patients to drive.

There are now over 3,200 heroin addicts in Victoria receiving methadone and the number is increasing. The Committee addressed this issue in Australia and overseas because there are conflicting opinions in the scientific community. One aspect which the Committee noted was that, in many of the reported instances of impaired driving or crashes where methadone was detected in drivers, there was also evidence of alcohol, heroin or other substances.
A further factor is that methadone-treated patients, like most drug addicts, often have personality disorders and socially-disrupted lifestyles which are likely to affect their driving behaviour regardless of the effect of drugs.

The Committee concluded that patients treated with methadone are a high-risk group and stringent monitoring of their drug use and subsequent behaviour is required if they are not to be a road safety hazard.

4.6 Standardisation of Research

A difficulty faced by the Committee and members of the community who want to understand the effects of drugs on human performance is the lack of standard approaches to conducting and reporting experiments.

In recent years interested groups of leading researchers have started the process of advancing standardisation. Details of their work have been be viewed by the Committee and a summary is in Volume Two of this Report. 15.4.25

Standard approaches to the conduct and reporting of experiments do not appear to exist. The Committee considers that there is a need for international research guidelines.

In many instances the research is being conducted within universities or colleges for individual purposes and has not emerged into the mainstream data analysis techniques used by road authorities. The Committee was frustrated throughout its Inquiry by not being able to find any substantial amount of data that was comparable with other research results. This deficiency must be overcome in the future through increased national and international co-operation and the introduction of common reporting methods of tests that have been conducted to allow easier comparisons to be made.
4.7 Conclusion and Findings

Drugs affect each individual in a variety of ways. There are wide variations in levels of physical and psychological response to the effects of a drug or combination of drugs between individuals and for each individual in different circumstances. In addition there are thousands of drugs and millions of combinations. A simple response is not possible.

Scientists are still scratching the surface of knowledge on this diverse and complex subject. The lack of agreement between scientists on what driving-related tasks are important from a road safety viewpoint and the manner in which experiments should be conducted are of concern to the Committee as drug-driving is causing injury and loss of life in the Victorian community.

The body of knowledge on the effects of drugs on driving performance is limited in comparison to that of alcohol and the acquisition of knowledge is not being assisted by the absence of internationally agreed testing procedures to measure the effect of drugs on driver performance. International guidelines are required as a matter of urgency. This approach needs to be fostered primarily by the Federal Office of Road Safety within the international forum.

The Committee supports the work of the International Council on Alcohol, Drugs and Traffic Safety in developing suitable experimental guidelines for drug research so that any future Committee need not have to face even greater numbers of often conflicting study results and interpretations.

Based on scientific evidence available to the Committee it has concluded:

- many drugs commonly consumed by drivers can impair driving performance.

- cannabis can impair both observed and measured driving performance but in a way different from that of alcohol.

- a combination of drugs which includes alcohol generally increases driver impairment.
• much more is unknown about the effects of drugs on driving performance than is known.

The Committee has accepted that laboratory tests have shown many drugs to impair tasks related to driver performance. Despite the limited volume of driving simulator studies and even fewer on-road experiments to measure the effects of drugs on driver performance the Committee has found that sufficient evidence exists for the Parliament to recognise that some drugs can impair driver performance.

RECOMMENDATION

1. That the Federal Office of Road Safety be urged to seek the development of international scientific guidelines, procedures and methods of comparison for the conduct of drug impairment experiments on driving performance.

Footnotes

1 Drummer, O H, Introduction and Overview of Area, Victorian Institute of Forensic Pathology, Drugs and Driving Workshop, Report, June 1993, p.10.
3 Impairment here means a state where a person's perception, reaction, judgement and co-ordination have been adversely affected.
4 Drummer, O H, op. cit., 1995, p.3.
5 Robbe, H W J, Influence of Marijuana on Driving, Institute for Human Psychopharmacology, University of Limburg, Maastricht, 1994, p.34.
7 Robbe, H W J, op. cit., p.36.
8 Ibid, p.89.
11 Ibid.
12 Ibid, p.33.
13 Ibid.
14 Ibid.
17 Dr Stuart McLean, Minutes of Evidence, Hobart, 13 June 1996, pp.450-460.
20 Kruger et al, op cit., p.62.
26 Parliament of New South Wales, Joint Standing Committee on Road Safety (Staysafe), *Alert Drivers, and Safe Speeds, for Heavy Vehicles*, Report 15, September 1989, p.16.
29 Federal Office of Road Safety, op. cit.
32 AMBRI Pty Ltd, Correspondence, 15 July 1996, and Agen Biomedical Ltd, Correspondence, 16 July 1996.
33 Penington, D, Correspondence, 14 June 1996, p.2.
34 Drummer, O H, Correspondence, 5 August 1996.
36 Ibid, p.466.
37 Ibid, p.463.
40 Chesher, G B, op. cit., p.76.

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42 Chesher, G B, op. cit., p.79.
43 Ibid.
45 Chesher, G B, op. cit., p.80.
48 Chesher, G B, op. cit., p.80.
52 op. cit., p.76.
54 Chesher, G B, 1995, op. cit.
59 Chesher, G B, op. cit., p.84.
60 Ibid.
62 Ibid. p.178.
63 Ibid. p.172.
64 Ibid. p.173.
65 Ibid. p.170.
66 Ibid. p.97.
69 Ibid., p.405.
Ibid., pp.408-409.


McIntyre, K, *Drugs and Driving from the Motorist’s Perspective*, Inquiry into the Effects of Drugs (Other than Alcohol) on Road Safety in Victoria, Parliamentary Road Safety Committee, First Report, May 1995, pp.171-188.


5. Drugs and Road Safety

5.1 Background

The first two terms of reference require the Committee to:


2. Report on the health, social and economic costs of such drug use in relation to road safety.

This chapter first reviews the incidence of drugs other than alcohol in people involved in crashes or detected for traffic offences in Victoria. It then considers the relative crash risk of drug-impaired drivers and puts into perspective the magnitude of the problem.

5.2 Incidence of Drug Use

The Committee examined three areas of road safety risk, using Australian and overseas data:

- driver deaths.
- driver injuries.
- drivers detected for traffic offences.

Driver Deaths

The Committee found that data available on drug consumption in deceased Victorian drivers was so limited that it was unable to make an appropriate measure of drug consumption by drivers against the total driving population of three million in Victoria.

The Committee had sought to identify the types of drugs being consumed and whether they could be correlated against the age profiles of deceased drivers. These issues would be of importance in the design of countermeasures.
The Victorian Institute of Forensic Pathology was the only source of data available to the Committee to reflect Victorian conditions. Professor Olaf Drummer, Assistant Director of the Institute contributed to the Committee's First Report reviewing the prevalence of drugs in 1,045 fatal crashes in Victoria, New South Wales and Western Australia over a three-year period from 1990 to 1993.1

VicRoads quoted the Institute's research on Victorian driver deaths in its submission.2 Only 490, or 58 per cent, of all driver deaths in Victoria during this period were considered as the other 42 per cent of deaths had insufficient information to undertake a crash responsibility analysis. However VicRoads noted that there is no known systematic error to suggest that this data is not representative.3

The types of drugs found in the Institute's study are shown in the following table.

Table 5.1 Drugs Involved in Driver Fatalities, 1990-1993

<table>
<thead>
<tr>
<th>DRUG</th>
<th>VIC n=490</th>
<th>NSW n=262</th>
<th>WA n=293</th>
</tr>
</thead>
<tbody>
<tr>
<td>Drugs other than alcohol (without alcohol)</td>
<td>22.0</td>
<td>18.4</td>
<td>27.0</td>
</tr>
<tr>
<td>(with alcohol)</td>
<td>(13.0)</td>
<td>(9.5)</td>
<td>(14.0)</td>
</tr>
<tr>
<td>Cannabis</td>
<td>9.6</td>
<td>10.7</td>
<td>13.0</td>
</tr>
<tr>
<td>Benzodiazepines-minor tranquillisers</td>
<td>4.5</td>
<td>1.9</td>
<td>1.7</td>
</tr>
<tr>
<td>Amphetamines and related stimulants</td>
<td>3.9</td>
<td>4.2</td>
<td>3.1</td>
</tr>
<tr>
<td>Opiates</td>
<td>3.3</td>
<td>2.7</td>
<td>1.7</td>
</tr>
<tr>
<td>Miscellaneous drugs (anaigesics)</td>
<td>5.3</td>
<td>2.7</td>
<td>9.6</td>
</tr>
<tr>
<td>(anti-depressants)</td>
<td>(1.6)</td>
<td>(3.4)</td>
<td>(1.0)</td>
</tr>
<tr>
<td>Alcohol</td>
<td>32.0</td>
<td>34.0</td>
<td>44.0</td>
</tr>
</tbody>
</table>

Source: VicRoads4

In May 1996 Professor Drummer provided the Committee with information on a further 287 drivers killed on Victorian roads over the period 1994 to the end of June 1995.5
Professor Drummer amalgamated this data and established an indicator for the prevalence of drugs over the entire period of the study, 1990 to mid-1995, combining two sets of Victorian data, 1990-1995 and data from New South Wales and Western Australia, 1990-1993.

Table 5.2 Prevalence of Drugs in Driver Fatalities, Victoria, New South Wales and Western Australia

<table>
<thead>
<tr>
<th>Drug Class</th>
<th>Number (1332)</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Drug-free</td>
<td>694</td>
<td>52.0</td>
</tr>
<tr>
<td>Alcohol</td>
<td>455</td>
<td>34.0</td>
</tr>
<tr>
<td>Alcohol-only</td>
<td>333</td>
<td>25.0</td>
</tr>
<tr>
<td>Alcohol plus drug</td>
<td>123</td>
<td>9.2</td>
</tr>
<tr>
<td>Drugs only</td>
<td>182</td>
<td>13.7</td>
</tr>
<tr>
<td>Drugs</td>
<td>305</td>
<td>23.0</td>
</tr>
<tr>
<td>Cannabis</td>
<td>154</td>
<td>11.6</td>
</tr>
<tr>
<td>Benzodiazepines</td>
<td>44</td>
<td>3.3</td>
</tr>
<tr>
<td>Amphetamines/</td>
<td>49</td>
<td>3.7</td>
</tr>
<tr>
<td>stimulants</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Opiates</td>
<td>35</td>
<td>2.6</td>
</tr>
<tr>
<td>Other drugs</td>
<td>84</td>
<td>6.3</td>
</tr>
</tbody>
</table>

Source: Professor O. Drummer, May 1996

From this overall Australian experience the Victorian situation was explained by Professor Drummer. Drummer's study showed that for the period 1990-1995:

- 45 per cent of drivers in Victorian fatalities had taken at least one drug including alcohol.
- alcohol was detected in 30 per cent of the drivers.
- drugs other than alcohol were detected in 23 per cent.
- alcohol was present in about one-third of the drivers in which a drug was also present.
- cannabis was the most frequently detected drug other than alcohol at 10 per cent.
Table 5.3  Comparison of 1990-1993 and 1994-mid 1995 Victorian Data

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Drug-free</td>
<td>262</td>
<td>54.0</td>
<td>162</td>
<td>57.0</td>
</tr>
<tr>
<td>Alcohol</td>
<td>158</td>
<td>32.0</td>
<td>81</td>
<td>28.0</td>
</tr>
<tr>
<td>Alcohol-only</td>
<td>122</td>
<td>25.0</td>
<td>55</td>
<td>19.0</td>
</tr>
<tr>
<td>Alcohol plus drug</td>
<td>36</td>
<td>7.3</td>
<td>26</td>
<td>9.1</td>
</tr>
<tr>
<td>Drugs only</td>
<td>70</td>
<td>14.3</td>
<td>44</td>
<td>15.3</td>
</tr>
<tr>
<td>Drugs</td>
<td>106</td>
<td>21.6</td>
<td>70</td>
<td>24.4</td>
</tr>
<tr>
<td>Cannabis</td>
<td>47</td>
<td>9.6</td>
<td>32</td>
<td>11.1</td>
</tr>
</tbody>
</table>

Source: Professor O. Drummer, May 1996

The Committee examined the data for the two periods to determine what changes, if any, had occurred. The data indicated:

- an increase in the incidence of drugs from 21.6 per cent to 24.4 per cent of total driver fatalities.
- a decline in the incidence of alcohol from 32 per cent to 28 per cent of total driver fatalities.
- a slight increase to 11 per cent in the incidence of cannabis detected in drivers.

The size of the most recent sample of 287 cases is considerably less than the earlier sample of 490 cases. The increase in drug presence from 22 per cent to 24 per cent in the second sample may be part of an upward trend but is not yet statistically significant.

Victoria's success in reducing the involvement of alcohol in fatal crashes from nearly 50 per cent of drivers with over 0.05 blood-alcohol concentration in the late 1970s to 23 per cent in 1995 has highlighted the involvement of drugs.6

An issue of concern to the Committee in interpreting these figures was:

- whether drug presence in the dead drivers merely represented drug use in the general driving population.

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Drugs and Road Safety

- whether particular drug users were over-represented in driver fatalities, such as elderly people taking prescription medicine or young people taking illegal drugs, as a proportion of the total number of people in road fatalities.

Based on the drug use profile established in Professor Drummer's figures could the Committee assume that it was reflective of the total driver population?

Professor Drummer's figures do not give an age profile which the Committee considers essential for the development of countermeasures. Without this profile the Committee could not tell whether the drug-driving population was uniform or separated into various age groups. Future studies need to look at age profile figures to better determine what is occurring.

The Committee sought an age profile of driver fatalities. The Victorian Road Safety Strategy 1995-2000 published in 1994 found that 29 per cent of drivers killed were 17 to 25 years of age and 17 per cent were aged 60 years or over. The strategy established that young drivers and older drivers, given their comparatively lower levels of travel, were over-represented in driver fatalities.

Table 5.4  

<table>
<thead>
<tr>
<th>Age of Drivers</th>
<th>0</th>
<th>5</th>
<th>10</th>
<th>15</th>
</tr>
</thead>
<tbody>
<tr>
<td>under 20</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>20-29</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>30-39</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>40-49</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>50-59</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>60-69</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>70+</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

The strategy also showed that a driver's risk of death could be measured by age group. Drivers aged 70 plus had a risk factor of 15 when measured against drivers aged 30 to 39 who had a risk factor of one. This age relationship is shown in Table 5.4.7

Despite the shortage of other statistical data it is clear that the incidence of drugs other than alcohol in Victorian driver fatalities is increasing.

The Committee gave consideration to whether fatality studies were effective or appropriate given the small number of persons who can be assessed for examination. VicRoads, in its submission, identified a number of advantages in the use of fatality studies:

1. *that death is the most serious consequence of road accidents and effective countermeasures identified from fatality studies are most important.*

2. *the integrity and extent of the data allows for a more detailed investigation of accident causation.*

3. *the relative ease of obtaining body fluid samples, whereas representative specimens from crash survivors or from the non-crash driver population are more difficult to obtain.*

However VicRoads considered that this approach has two major disadvantages:

1. *they provide a limited view of the total road crash population, less than one percent of crash drivers.*

2. *the causes of fatal crashes may be different to less severe crashes.*

Fatal crashes are more often single vehicle incidents and represent more of the extreme behaviours that have severe consequences. VicRoads therefore argues that drugs are more likely to be a cause in non-fatal crashes, for instance in traffic and at intersections where more urgent decision-making can be required. In such situations impairment due to drugs may be more critical.

The Committee found that the fatality studies by the Institute of Forensic Pathology are an important indicator of drug-related crashes in Victoria. The Committee also noted that the Western Australian Task Force on Drug Abuse has recently published an analysis of statistics on drug-related traffic fatalities.
The Victorian studies should continue and where possible be supplemented by data from other States.

**Driver Injuries**

- **Victoria**

The paper, *Drug Use in the Transport Industry*, by the Accident Investigation Section of the Victoria Police in the Committee's First Report provided information on drug use by 122 drivers surviving life-threatening injuries in 1993. However this was not a representative sample of all injured drivers.

The Committee found that no other information had been maintained in Victoria on drugs found in drivers injured in road accidents.

In his paper in the Committee's First Report, *A Clinician's Perspective*, Dr Michael McDonough, Director of the Drug Services Unit at Box Hill Hospital, raised the issue of the detection of drug abusers in Victorian rehabilitation hospitals for road crash patients.

The Committee asked the Transport Accident Commission about its experience as a third-party insurer and provider of benefits to crash victims and their families. The Committee was surprised to find that information from blood samples routinely collected in emergency care hospitals was not being analysed by the Commission to detect possible drug involvement and no system existed to ensure that this information was passed on to their rehabilitation hospitals.

The Committee could not find any evidence that the Commission knew what proportion of persons entering its rehabilitation hospitals had been affected by drugs other than alcohol at the time of their crash. This information would appear essential for the rehabilitation of patients and for the Commission to target drug-taking countermeasures.

The Commission spent $27.5 million on accident prevention programs and grants in the 1994/95 financial year. This expenditure included the successful media and community awareness programs, school and traffic education and contributions to enforcement and research grants.
No expenditure to ascertain what part of the road toll was due to drugs other than alcohol appears to have been made. The Committee’s view is that without such knowledge the Commission would not be able to effectively target any advertising campaigns on drug-driving.

Data on the incidence of drug-impaired drivers may also be held by individual emergency care hospitals and medical centres. This information may not be currently in a readily available form as its collection is considered secondary to the treatment of crash victims in casualty. Blood samples collected by emergency care doctors provide a further source of research data on the involvement of drugs in road crashes. The potential for this information to be collected and integrated into one central database needs to be pursued. The management of this empirical database should be undertaken by VicRoads.

This research information will be of a sensitive personal nature as the blood samples may contain evidence of the illegal consumption of a drug. The legal implications of the database and the privacy and rights of individuals will need to be carefully considered.

- **New South Wales**

The Committee read results of urine tests on seriously injured crash victims made by a road trauma team at Liverpool Hospital in Sydney for the period October 1992 to October 1993. The results comprised drug and alcohol urine profiles from 262 persons, of whom 164 were drivers, 55 passengers, 12 cyclists and 31 pedestrians.

The road trauma team found:

- **sixteen percent of the drivers had an alcohol concentration of greater than 0.08% ;**

- **twenty percent of drivers had high drug levels in their urine, principally cannabis (15%) and benzodiazepines (3%).**

In contrast to other studies the team found only four cases where both alcohol and drugs were used.
The team suggested that:

*It is possible that some drivers may take cannabionoids to avoid police detection during random breath tests.*

Ms Rosemary McClean, Senior Policy and Planning Officer with the Australian Drug Foundation, described some of the comments received from probationary drivers in their studies. She said a view held by a number of young people was that they used cannabis instead of alcohol because it would not endanger the keeping of their licence. One comment was:

*I am on P Plates so smoking marijuana is okay; I can't get breathalysed for it.*

This opinion has been expressed to the Committee on other occasions, although other witnesses have disagreed with the view. The Victoria Police Accident Investigation Section drew this to the Committee's attention:

*When asked about alcohol consumption they indicate an awareness of the dangers and consequences of drink/driving and limit their consumption accordingly, however this is not so with other drugs which do not have an arbitrary limit. A common answer when asked what effect a drug has on the user's ability to drive is, 'It just relaxes me'. Such a response is predictable.*

In the Committee's view, this reinforces the complexity of the issue and the need for a database of similar evidence on injured Victorian drivers before this issue can be resolved.

- **South Australia**

The Office of Road Safety of the South Australian Department of Transport recently conducted a study of the incidence of drugs in injured drivers attending hospitals for treatment.

The first results were reported to the National Road Safety Research and Enforcement Conference in Fremantle in November 1995 by Ms Christine Hunter, Senior Project Officer of the Department of Transport's Office of Road Safety and Mr Robert L Lokan.20
The Committee received updated figures from the study when in Adelaide in February 1996.21

The results showed that consecutive samples from 749 drivers who survived crashes were screened for alcohol, cannabinoids, various amphetamines including methamphetamine and benzodiazepines. Drugs were screened by radioimmunoassay and alcohol was quantified by gas chromatography.

Alcohol was found in 15 per cent of the drivers, with 13 per cent above the legal limit of 0.05 per cent. Drugs were detected in 21 per cent of the drivers. Alcohol only and cannabis only were each detected in almost 10 per cent of the drivers.18 5.2

The study is significant in that it is planned to use a responsibility analysis technique to examine the contribution of drugs and alcohol separately and in combination, to non-fatal crashes. This will complement the work on fatalities by Professor Drummer mentioned earlier.

An interesting preliminary result of the study was the significant difference in the incidence of drugs and alcohol in drivers of vehicles and motorcyclists. Alcohol use was found to be extremely rare for motorcyclists but they were three times more likely than vehicle drivers to test positive for cannabis (24% versus 8%).

In the light of these differences it is planned to examine separately for drivers and motorcyclists the incidence of various drug combinations in one-vehicle and two-vehicle crashes. The final results are expected in late 1996.

The Committee considers that the South Australian study would complement work that needs to be conducted in Victoria.

This could be achieved by the establishment of central data collection where information on death and injury and, in particular, drug impairment requiring medical or hospital or police attendance is collected to be forwarded to one common database. The Committee reiterates its view that the collection of this data should be able to produce monthly and yearly figures or any combination of driver statistics.
While this Inquiry is about drugs and driving, future inquiries may need such information and it should be available.

### 5.3 Drivers Detected for Traffic Offences

Victoria Police publish statistics on traffic offences. In mid-1995 these statistics indicated that in both 1992-1993 and 1993-1994 approximately 240 bookings were made for 'driving under the influence of drugs'. However, when the Committee sought to investigate these figures further there was a paucity of information.

On behalf of the Committee the Department of Justice in October 1995 requested further information from a police district which had reported 27 cases of driving under the influence of drugs other than alcohol but subsequent investigations revealed that only two cases had been recorded.

Victoria Police were asked to determine the true situation and replied:

>The issue of the actual number of cases of this type of offence occurring over any given time period is not known and can only be approximated on the figures given for calendar or financial years. This approximates 240 cases in Victoria. However this figure is based in many cases on the suspicion of a person committing the offence in conjunction with other offences involving driving and therefore must be questioned.

Police have subsequently revised published statistics and are currently quoting lower figures.

The Committee is concerned about the apparent inaccuracy of police statistics and the lack of an overall statistical picture of the current situation relating to driving under the influence of drugs in Victoria.

Victoria Police in correspondence provided results of analysis of 260 blood samples obtained by its Accident Investigation Section during the section's investigation of motor vehicle collisions for two financial years, 1993-94 and 1994-95. For simplicity within this Report the results for the two financial years have been combined and averaged.
Table 5.5  Combined Blood Sample Analysis 1993-1995

<table>
<thead>
<tr>
<th>Drugs Found</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>No drugs detected</td>
<td>32</td>
</tr>
<tr>
<td>Alcohol only detected</td>
<td>26</td>
</tr>
<tr>
<td>Drug(s) including alcohol detected</td>
<td>42</td>
</tr>
<tr>
<td></td>
<td>100</td>
</tr>
</tbody>
</table>

Frequency by drug class:
- Alcohol 40
- Cannabinoids 27
- Opiates 17
- Benzodiazepines 12
- Stimulants 6

Source: Victoria Police, March 1996

The Committee found by subtracting the 26 per cent of sole alcohol users from the 40 per cent frequency of alcohol use, 14 per cent had combined alcohol and other drugs. Throughout the Inquiry the Committee noted both the significant overlap between alcohol and drugs and the use of drug combinations.

5.4 Drug Presence in Road Crashes

Victoria

The Committee sought the best possible assessment of drug presence in drivers in Victorian crashes. It compared three sources of information to estimate the proportion of cases involving drugs and alcohol, both alone and in combination:

Crashes: Fatal and serious crashes investigated by the Victoria Police Accident Investigation Section.

Injuries: As a proxy for Victoria, data from the South Australian Department of Transport on injured drivers attending hospital who had consumed drugs.
Deaths: Data from the Victorian Institute of Forensic Pathology on dead Victorian drivers.

Table 5.6 Comparison of Data on Crashes, Injuries and Deaths

<table>
<thead>
<tr>
<th>Category</th>
<th>Crashes %</th>
<th>Injuries %</th>
<th>Deaths %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Drugs</td>
<td>42</td>
<td>21</td>
<td>23</td>
</tr>
<tr>
<td>- without alcohol</td>
<td>28</td>
<td>16</td>
<td>15</td>
</tr>
<tr>
<td>- with alcohol</td>
<td>14</td>
<td>5</td>
<td>8</td>
</tr>
<tr>
<td>Alcohol</td>
<td>40</td>
<td>15</td>
<td>30</td>
</tr>
<tr>
<td>- alone</td>
<td>26</td>
<td>10</td>
<td>23</td>
</tr>
<tr>
<td>- Drugs &amp;/or alcohol</td>
<td>68</td>
<td>31</td>
<td>45</td>
</tr>
</tbody>
</table>

Source: Compiled by Committee from above sources.

The Committee stresses that the different sources of the data and the small number of cases involved prevent any firm conclusions being drawn at this time for Victoria. However it does indicate that the incidence of drugs in drivers killed or injured is relatively high and comparable to the incidence of alcohol.

Western Australia

The Committee heard evidence in Perth from Dr David Joyce, an expert pharmacologist at the University of Western Australia. Dr Joyce conducted for the Traffic Board of Western Australia an analysis of drug-impaired drivers detected by police over five years. The analysis was based on 513 drivers who had shown a degree of intoxication not explained by alcohol and then had tested positive for one or more drugs other than alcohol.

Almost 40 per cent of the drivers had been involved in road crashes. Dr Joyce found on average, drivers were regarded as severely impaired and clearly had difficulty with speech and/or walking.
Table 5.7  Main Drug Groups Detected in the Western Australian Study

<table>
<thead>
<tr>
<th>Drug group</th>
<th>Incidence %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cannabis metabolite</td>
<td>78</td>
</tr>
<tr>
<td>Alcohol</td>
<td>38</td>
</tr>
<tr>
<td>Amphetamines</td>
<td>25</td>
</tr>
<tr>
<td>Benzodiazepines</td>
<td>21</td>
</tr>
<tr>
<td>Opiates</td>
<td>19</td>
</tr>
<tr>
<td>Other drugs</td>
<td>7</td>
</tr>
<tr>
<td>Anti-depressants</td>
<td>3</td>
</tr>
</tbody>
</table>

Source: Dr D. Joyce, Minutes of Evidence, February 1996

Multiple use of drugs was evident in almost three-quarters of the drivers. The most common drug was cannabis in 400 drivers but in more than 300 of these cases it had been taken in conjunction with alcohol and/or amphetamines, opiates or benzodiazepines.

In 96 drivers, cannabis was the sole intoxicant. Dr Joyce said:

That gives us one of the largest groups of purely cannabis-affected drivers available for study anywhere in the world.25

The incidence of amphetamines usually with other drugs including alcohol was also surprisingly large in comparison with other statistics on the general use of amphetamines in the general driving-age population which was typically 1 per cent in the previous 12 months.

In discussions with the Committee, Dr Joyce stated that:

- drivers in the sample were so grossly affected for it to be obvious.
- they represent only a small proportion of the overall problem.
- a policeman or member of the public has to observe or report their behaviour. Hence, many drug-affected drivers go undetected.
- 70 per cent had used more than one drug and often a cocktail of many drugs.
• among drivers involved in crashes there is a higher rate of drug usage and drug intoxication than we currently believe.26

The significance of Dr Joyce’s work is that he is not observing volunteers given low dosages of cannabis or medications but high-dose users.

Contrary to some scientific opinion, drivers grossly impaired by cannabis were likely to speed as well as exhibit poor vehicle control. The likelihood of increased risk-taking behaviour appeared to rise with the cannabis metabolite concentration. Dr Joyce’s findings:

.... contrasted with the image of cannabis as a drug which does not cause severe driving impairment, .... 27

The publication of Dr Joyce’s research conducted for the Traffic Board of Western Australia will greatly assist other researchers in assessing the incidence of drug-impaired driving within their own communities.28 No similar study has been done in Victoria but it can be deduced that what is true for Western Australia could be true for Victoria. When examined with Professor Drummer’s fatality studies the magnitude of drug involvement in dangerous driving becomes more apparent.

5.5 Drug Presence in Overseas Road Crashes

Many studies overseas have indicated the presence of drugs in road crashes.

The Committee sought to determine whether the use of drugs by drivers in Victoria was comparable to experience overseas and whether that experience could inform the Committee in developing its recommendations to the Parliament.

Two examples are:

Chicago

The Victorian Department of Human Services in its submission provided information on a study in Chicago reported in 1994.29
The study used a review of the medical charts of hospitalised drivers, police reports and blood-alcohol levels and urine-drug screens. From a sample group of 625 patients over 32 per cent were legally drunk and had greater than 0.10 per cent blood-alcohol concentration and 22 per cent had positive drug screens, with cocaine the drug most prevalent.

The study concluded that an extremely high level of drug impairment existed in this sample of seriously injured motorists. The majority were not charged.30

**European Union**

A comprehensive survey of drugs and driving in the European Union was led by Dr Johan de Gier of the University of Limburg, Maastricht, the Netherlands, using comparable information from experts in eight countries in the Union.15 5.4 The study provided information to the European Community Commission General Directorate VII (Transport) in Brussels.31

The Committee recognised that there would be differences between Australia and Europe but felt that there was sufficient commonality on the outcome of the study for it to be relevant to this Inquiry.

The study was published in April 1995 and presented to the Committee in Maastricht. Key results were:

- **Psychotropic medication use varied significantly, for example, 5.7 per cent of the population in Spain (used in the past two weeks) and 23 per cent in the Netherlands (used in the past year). Differences were partly due to different groups of medications used for assessment and whether use was occasional or constant.**

- **Medicinal drug use varied from 1.2 per cent in Denmark and Germany to 2.5 per cent in Spain.**

- **Illicit drug use in the past year varied from approximately 5 per cent in Germany, Denmark, the Netherlands and Sweden to approximately 15 per cent in Spain.**
• Cocaine and cannabis use increased in some countries, revealing marked differences between countries in drug use patterns.

Despite the limited availability of directly comparable information, the overall conclusion of Dr de Gier's study was that:

... very conservatively and excluding illicit drug use an average of 10% of the presumed driving population regularly drives under the influence of impairing drugs. Only an average of 1.5% of those taking psychotropic medication are considered to be 'addicted' (in other words taking drugs chronically for many years). A much smaller percentage (1-2%) is using illicit drugs, but drivers taking these are over-represented amongst drivers detained on suspicion of driving under the influence of drugs other than alcohol.\(^{32}\)

The Committee noted a paucity of directly comparable data in Europe which was similar to the situation in Australia.

5.6 Problem Groups of Drug-Impaired Drivers

A key question for the Committee was which group of drivers drove while impaired. The Committee asked witnesses at its hearings in Australia:

From your knowledge of the drug-taking population to what extent do you believe that driving while impaired by drugs is contributed to by the following groups:

(a) drug/addicts/abusers;
(b) occasional recreational users;
(c) people using stimulants to combat fatigue; and
(d) people on prescription drugs, possibly affected by inappropriate doses or by drug interaction with alcohol.

The Committee found that nobody could answer this question. Yet it is an important question since the issue affects the allocation of both research and countermeasure resources.

The only significant quantitative information on the presence of drugs in impaired drivers currently available is drug analysis results for drivers detected by police in New South Wales and Western Australia and preliminary results from the South Australian Department of Transport study of injured drivers.
Table 5.8 shows for each of these groups of drivers, a proportional breakdown by drug group of drivers who had drugs other than alcohol in their blood samples.

Table 5.8  Prevalence of Drugs in Drug-impaired Drivers

<table>
<thead>
<tr>
<th>Drug Group</th>
<th>A %</th>
<th>B %</th>
<th>C %</th>
<th>D %</th>
<th>Average Incidence %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cannabis</td>
<td>68</td>
<td>80</td>
<td>78</td>
<td>67</td>
<td>65-80</td>
</tr>
<tr>
<td>Stimulants</td>
<td>22</td>
<td>34</td>
<td>25</td>
<td>13</td>
<td>20-30</td>
</tr>
<tr>
<td>Benzodiazepines</td>
<td>28</td>
<td>25</td>
<td>21</td>
<td>28</td>
<td>20-30</td>
</tr>
<tr>
<td>Narcotics</td>
<td>32</td>
<td>47</td>
<td>19</td>
<td>NT</td>
<td>20-40</td>
</tr>
<tr>
<td>Anti-depressants</td>
<td>NL</td>
<td>3</td>
<td>3</td>
<td>NT</td>
<td>0-5</td>
</tr>
<tr>
<td>Others</td>
<td>23</td>
<td>8</td>
<td>7</td>
<td>NT</td>
<td>5-20</td>
</tr>
</tbody>
</table>

NT: means ‘not tested’  NL: means ‘not listed’

Source: Developed by Committee from police and accident statistics

The 'average incidence' column is an estimate by the Committee of the likelihood of each drug being detected in samples obtained by the police or at a hospital. The sum of that column exceeds 100 per cent due to multiple drug use.

The use of cannabis is dominant in the available data. Apart from benzodiazepines the incidence of other general prescription drugs is relatively low. Interestingly much official focus and action to date, including Transport Accident Commission advertising, has concentrated on medications.

The relative significance of the 'occasional users' group is unknown. This is an area where the Committee considers further sociological studies are needed.
5.7 Road Safety Risks

The Committee addressed its reference requiring it to establish road safety risks associated with drug use by examining information on risk factor models that have been developed to assess the difference between persons who are not impaired and those who may be.

The Committee examined a limited number of methods of assessing risk factor. This issue was common to other parts of this Inquiry as very little information has been developed on how road safety risks were affected by drugs. The Committee’s consideration of this issue commences with a crash study that has developed a risk model based on the consumption of prescription drugs by the elderly.

Risk Analysis

- Prescription Drugs and the Elderly

In 1979 a study by D Skegg, Minor Tranquillisers and Road Accidents, identified that tranquillisers are associated with increased crash risk:

> The study investigated over 43,000 patients who were given prescriptions over a 2 year period and determined whether they were killed or injured in a traffic accident.

> The most important result from this study was that there was a highly significant correlation for fatal accidents and minor tranquillisers, with patients taking tranquillisers being 4.9 times more likely to be killed than the control group.\(^{33}\)

In 1992 a study conducted by W Ray on crash risk associated with prescription drugs reaffirmed this view. Ray’s study examined crash records and prescriptions for 16,262 drivers aged between 65 and 84 years in Tennessee, USA.\(^{34}\)

VicRoads say that the significance of Ray’s results can be shown by comparing them with the well documented risks for alcohol crashes of a relative risk of 1.5 to 2 for a blood-alcohol concentration (BAC) of 0.06 per cent and 5.5 for BAC greater than 0.10 per cent.\(^{35}\)
Table 5.9  Prescription Drugs and the Elderly. Relative Risk of an Accident

<table>
<thead>
<tr>
<th>Drug</th>
<th>Relative risk</th>
</tr>
</thead>
<tbody>
<tr>
<td>Drug Free</td>
<td>1.0</td>
</tr>
<tr>
<td>Prescription Drugs</td>
<td></td>
</tr>
<tr>
<td>...Any psychoactive drug</td>
<td>1.5</td>
</tr>
<tr>
<td>Cyclic anti-depressants (high doses)</td>
<td>2.2</td>
</tr>
<tr>
<td>Benzodiazepines</td>
<td>1.5</td>
</tr>
<tr>
<td>Anti-histamines</td>
<td>1.1</td>
</tr>
<tr>
<td>Opiate analgesics</td>
<td>1.1</td>
</tr>
<tr>
<td>Alcohol</td>
<td></td>
</tr>
<tr>
<td>BAC 0.06%</td>
<td>1.5 - 2</td>
</tr>
<tr>
<td>BAC &gt; 0.10%</td>
<td>5.5</td>
</tr>
</tbody>
</table>

Source: VicRoads

Table 5.9 shows that drivers using benzodiazepines have a relative crash risk comparable to a BAC of 0.06 per cent and a high dose of cyclic anti-depressants a crash risk comparable to a BAC greater than 0.10 per cent.

Although these results are for American drivers, they would be representative of the older driver population in Australia and the results suggest that elderly drivers need to be warned of the increased risk of injury crashes when taking prescribed psychoactive drugs, particularly anti-depressants.36

Although the two studies investigated different groups of drivers both found that crash risk increased with tranquilliser use.

- Stimulants and Heavy Vehicle Drivers

The Victoria Police State Highway Task Force provided anecdotal evidence in the Committee's First Report of stimulant use by truck drivers.37 This evidence was supported by Professor Drummer's figures which found that stimulants were present in 21 per cent of dead truck drivers compared to 3.9 per cent in all dead drivers.38 Professor Drummer calculated that truck drivers with stimulants detected had a 3.7 relative risk factor of being in a fatal crash.
While the number of truck drivers involved in Professor Drummer's study was not large enough for a statistically significant result his view was supported by other evidence that stimulants are a substantial problem with drivers of heavy vehicles.

Dr Judith Perl of the Clinical Forensic Medicine Unit of the New South Wales Police Service in her paper to the Committee indicated that, of 260 samples processed under New South Wales drug legislation in 1990, 237 or 90 per cent were positive. Of the positive samples 22 per cent were stimulants and half were taken from heavy vehicle drivers. Half of the heavy vehicle drivers had been detected by the police because of erratic driving. This indicates a significant over-representation of stimulant impairment in heavy vehicle drivers. Over 400 samples were processed under New South Wales drug legislation in 1992 and 84 per cent were positive for drugs and stimulants. However the breakdown of these figures to separate heavy vehicle drivers has not been published.

- **Responsibility Analysis**

A further method of assessing the role of drugs in motor vehicle accidents is by responsibility analysis. The analysis model is based on the concept that if responsibility for a crash can be determined, driver groups who have consumed drugs are more likely to have been involved than drug-free driver groups.

Professor Drummer's paper in the First Report included a responsibility analysis of 1045 dead drivers in Victoria, New South Wales and Western Australia in the period 1990-1993.

The following table shows the results of the analysis of 1332 drivers updated to represent the period 1990 to mid-1995.
Table 5.10  Responsibility Analysis of Dead Drivers in Victoria, New South Wales and Western Australia 1990 - 1995

<table>
<thead>
<tr>
<th>Drug or drug group</th>
<th>Number</th>
<th>Culpability Ratio</th>
<th>Risk Ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>Drug and alcohol free</td>
<td>694</td>
<td>2.5</td>
<td>1.0</td>
</tr>
<tr>
<td>Alcohol-only</td>
<td>333</td>
<td>15.0</td>
<td>5.7</td>
</tr>
<tr>
<td>Alcohol plus drug</td>
<td>123</td>
<td>21.8</td>
<td>8.6</td>
</tr>
<tr>
<td>Cannabis</td>
<td>55</td>
<td>1.9</td>
<td>0.7</td>
</tr>
<tr>
<td>Benzodiazepines</td>
<td>13</td>
<td>4.5</td>
<td>1.8</td>
</tr>
<tr>
<td>Amphetamines/stimulants</td>
<td>25</td>
<td>4.7</td>
<td>1.9</td>
</tr>
<tr>
<td>Opiates</td>
<td>14</td>
<td>6.0</td>
<td>2.4</td>
</tr>
</tbody>
</table>

Source: Professor O. Drummer, May 1996

The table indicates that compared to a drug and alcohol free driver group the relative risk of being involved in a crash in Professor Drummer’s study is:

- 5.7 times higher for drivers who had taken alcohol.
- 8.6 times higher for drivers who had taken alcohol plus one or more other drugs.

The major advantage of the concept is that it directly addresses the cause of a crash rather than relying on experimental research which may not be relevant to an actual situation.42

The major disadvantage of using responsibility analysis of road fatalities is that large samples are needed to establish a statistically significant information base. VicRoads believes that a sample of as many as 3500 drivers would be necessary to detect drug impairment and then only under ideal conditions.43

The Committee agrees that the sample sizes of Australian fatalities in the Victorian Institute of Forensic Pathology study are small. The results of Professor Drummer’s first study have been confirmed in the later work and this type of statistical study needs to be continued.
• Significant Relative Risk

VicRoads stated that relative crash risk can be estimated from responsibility data by assuming that 'non-responsible' drivers comprise a representative sample of drivers on the road. The crash involvement of a particular group can then be compared with 'responsible' drivers to calculate relative crash risk.\(^4^4\)

Some key results quoted by VicRoads are given in Table 5.11.\(^4^5\) The table shows that, for all alcohol and all alcohol-drug combinations, the relative risk of being killed in a fatal crash is significantly greater than for drug-free drivers.\(^5^5\)\(^6^6\)

Table 5.11 Relative Risk in Fatality Studies in Australia and USA

<table>
<thead>
<tr>
<th>Drug</th>
<th>Relative risk</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Australia</strong></td>
<td></td>
</tr>
<tr>
<td>Drug Free</td>
<td>1.0</td>
</tr>
<tr>
<td>Alcohol-only</td>
<td>6.0</td>
</tr>
<tr>
<td>Alcohol plus drugs</td>
<td>9.0</td>
</tr>
<tr>
<td><strong>USA</strong></td>
<td></td>
</tr>
<tr>
<td>Drug Free</td>
<td>1.0</td>
</tr>
<tr>
<td>Alcohol BAC &lt; 0.10%</td>
<td>1.5</td>
</tr>
<tr>
<td>Alcohol BAC &gt; 0.10%</td>
<td>7.3</td>
</tr>
<tr>
<td>Alcohol + THC</td>
<td>8.4</td>
</tr>
<tr>
<td>Alcohol + Carboxyl THC</td>
<td>6.4</td>
</tr>
<tr>
<td>Alcohol + Cocaine</td>
<td>3.4</td>
</tr>
<tr>
<td>Alcohol + Amphetamines</td>
<td>5.3</td>
</tr>
<tr>
<td>Alcohol + Benzodiazepines</td>
<td>indefinitely large</td>
</tr>
<tr>
<td>Alcohol + 1 other not above</td>
<td>indefinitely large</td>
</tr>
<tr>
<td>Alcohol + 2 or more other</td>
<td>10.6</td>
</tr>
</tbody>
</table>

Source: VicRoads

• Types of Collision

Vehicle collision patterns may reflect drug impairment. For example drug impairment may be more likely to cause drivers to cross the centre line or move off to the side of the road and be unable to take sufficient corrective action.
Dr Kenneth Terhune studied these types of crashes. Apart from cocaine users all drug groups show collision rates which are substantially higher than the drug-free group. The results involving alcohol plus drugs, apart from alcohol plus amphetamines, were high enough to achieve a statistical significance.

The Terhune study uses different methods of analysis. Terhune concluded that collision type analysis may be more sensitive than responsibility analysis and that both single and multiple drug combinations may be contributing to fatal crashes.

- **Drug Users, Traffic Offenders and Road Accidents**

The Committee noted that Victorian authorities are unable to compare crash records with arrests and prosecutions.

In the 1994 report of its Inquiry into the Demerit Points Scheme the Committee quoted the Californian Department of Motor Vehicles and its ability to compare crash records with driving offences to show that crash rates increased with the number of offences. This comparison is possible as the department can link its driver records with the state's Criminal Justice Department's records of arrests and prosecutions.

The Department of Motor Vehicles informed the Committee in Sacramento of the results of a study which showed that people convicted of general drug offences also had higher rates of traffic offences and motor accidents. No similar database link exists in Victoria.

**Proposed Study of Collision Types**

Terhune et al state that injury data may better reflect drug impairment effects than fatality data.

While collision type analysis of serious injury and fatality data has been possible in Victoria for many years a recent change in legislation makes possible the chemical analysis of blood for drugs other than alcohol from injured drivers attending a hospital.
Victorian researchers now have injury data and the results of blood analysis of injured drivers to study drug impairment. The only additional costs of such a study would be for additional chemical tests and the comparison of results.

VicRoads says the costs of such a study could be minimised by:

- using basic blood screening methods instead of high-cost confirmation techniques.
- limiting the drug screens to the most important groups, such as amphetamines, cannabis, benzodiazepines and opiates.

VicRoads has estimated that, based on current drug testing costs for the 10 major drugs of abuse using a sample size of 3500 injured drivers, the cost of blood sample tests would be approximately $175,000. The overall cost of the study would be approximately $250,000.50

The Committee supports this proposal as it would increase Victoria’s knowledge of drugs used by injured driver groups, provide their ages and other social profile data and enable better targeting of countermeasures.

5.8 The Road Safety Cost of Drugs

The second term of reference to the Inquiry requires the Committee to examine:

... the health, social and economic costs of such drug use in relation to road safety.

The Committee could not precisely estimate the health, social and economic costs because of the lack of conclusive evidence as to the proportion of the road toll that can be attributed to drug use. The Committee sought an estimation from Federal and State bodies which had collected road crash data over a long period.

Professor D J Collins, Associate Professor of Economics at Macquarie University and Ms H Lapsley, Senior Lecturer in Health Economics at the University of New South Wales, produced the first comprehensive estimates of the costs of alcohol, tobacco and illegal drug abuse in Australia in 1991 as part of the Federal Government’s campaign against drug abuse.51
They estimated the total economic cost of drug abuse as a whole in Australia to be a minimum of $14.4 billion in 1988. The major components of this amount were attributed to alcohol at 42 per cent and tobacco at 47 per cent. The remaining 11 per cent was attributed to illegal drugs. The cost attributed to the abuse of pharmaceutical drugs was considered to be significant but unknown.

Collins and Lapsley highlighted in their paper in the First Report the sources of data for their cost estimates and the theoretical and methodological problems that arise in the estimation of a true cost of drugs and road safety.

The Bureau of Transport and Communications Economics estimated in 1993 that the overall cost to Australia from road crashes was $6,100 million. The Bureau divided these costs as shown in the following diagram:

![Table 5.12 Costs By Category - 1993](image)

**Source:** Bureau of Transport and Communications Economics

The total cost for each of these categories was:

- Lost earnings of victims, $829 million.
- Family and community losses, $588 million.
- Vehicle damage, $1868 million.
- Pain and suffering, $1463 million.
- Insurance administration, $571 million.
• Other costs, including re-admission to hospital, medical treatment and rehabilitation, crash investigation, travel delay, losses to non-victims and ambulance and legal services, $817 million.\(^{56}\)

In 1993 the average cost of a road fatality was $752,400, a hospital injury $113,100, a medical injury $11,900 and property damage $5,000.\(^{57}\)

Adjusted for a 9.6 per cent increase in the Consumer Price Index to June 1996 the average community cost of a fatal crash would be $823,900, a hospital injury $124,000, a medical injury $13,000 with property damage $5,500.\(^{57}\)

The Committee could not establish if the total cost of road crashes to the Australian community had also increased. Information from the Federal Office of Road Safety\(^{58}\) indicated that Australian fatality rates had decreased from an average of 13.66 per 100,000 people in 1990 to 11.17 in 1995. Victorian fatalities for all road users had decreased from 548 persons in 1990 to 418 in 1995, a reduction of approximately 24 per cent. This would dramatically affect costs to the community.

VicRoads, in its submission, made an economic cost estimate based on the proportion of crashes in which drugs and/or drugs and alcohol were involved and the relative risks of such crashes. The estimation process is demonstrated in the following table:\(^{59}\)

**Table 5.13  Estimation of Relative Risk**

<table>
<thead>
<tr>
<th>Group</th>
<th>% of Drivers Killed in Crashes</th>
<th>Relative Risk Index</th>
<th>Proportion Saved if Risk Reduced to 1</th>
<th>% of Crashes Saved by Eliminating Alcohol/Drugs</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Formulae</strong></td>
<td>Column 1</td>
<td>Column 2</td>
<td>Column 3 equals Col 2 - 1.0 /Col 2</td>
<td>Column 4 equals Col 1 x Col 3</td>
</tr>
<tr>
<td>Drug Free</td>
<td>51</td>
<td>1</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Alcohol Only</td>
<td>27</td>
<td>6</td>
<td>0.83</td>
<td>22.5</td>
</tr>
<tr>
<td>Drugs Only</td>
<td>13</td>
<td>1.4</td>
<td>0.28</td>
<td>3.7</td>
</tr>
<tr>
<td>Drugs plus Alcohol</td>
<td>9</td>
<td>9</td>
<td>0.88</td>
<td>8.0</td>
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</tbody>
</table>

Source: VicRoads
The table shows that, if the relative risk of the drug-free driver group is given a value of 1, the relative risk of other driver groups is as shown in column 3.

VicRoads estimated that eliminating all crashes involving drugs alone or with alcohol would save 11.7 per cent of the total Australian road toll cost or $713 million.

Based on national crash incidence statistics the Victorian component of the 1993 Australian road toll was estimated to be 20 per cent and so the potential savings to Victoria by eliminating drugs and drugs with alcohol would amount to $143 million.18 5.9

VicRoads concluded that the road toll could be reduced by one-eighth if successful countermeasures could be identified and implemented.60

The Committee also received estimates from other Australian and international road safety bodies on their estimate of the proportion of the total annual cost of road crashes caused by drugs alone or with alcohol.

Road safety experts from New South Wales, commenting on the VicRoads estimate, gave varying figures for New South Wales.

Dr Michael Henderson, former head of the Road Safety Bureau of the New South Wales Roads and Traffic Authority, believed the cost to be 1 per cent of the total annual cost of road crashes while the Roads and Traffic Authority itself considered the cost to be 7 to 8 per cent.61

The Federal Office of Road Safety (FORS) when it met the Committee suggested that eliminating the contribution of drugs and drugs with alcohol from a fatal crash would lead to savings of no more than 7 per cent.62 The Federal Office of Road Safety concluded that the use of recreational, prescription and stimulant drugs without alcohol did not appear to be a major factor in serious road crashes.63 However the Office indicated that not all victims of road crashes were tested for drugs and in 1992 about half of the drivers killed did not have toxicology reports undertaken.64
The only quantitative estimate of the cost of road crashes found by the Committee overseas was at a briefing in Maastricht in the Netherlands where Dr de Gier quoted the conclusion of a report he had made to European transport authorities. He said:

_A very conservative estimate is that 10% of the adult population drives under the influence of impairing drugs with twice the risk of being involved in a traffic accident._

The Committee concluded that, whatever the appropriate estimation of road crashes due to alcohol and drugs, it represents a significant proportion of total road crashes in Australia.

### 5.9 Conclusion and Findings

The Committee finds that the presence of potentially impairing drugs in dead and injured drivers is unacceptably high.

Evidence from Australian fatality studies shows drug and drug-plus-alcohol driver groups to have a higher responsibility rate for crashes than drug-free driver groups. These support American studies which have shown that, for all alcohol and alcohol-drug combinations, the relative risks of being killed in a fatal crash significantly increased six to nine times compared with drug-free drivers.

There is insufficient information presently available to determine an accurate percentage of the overall cost of road crashes related to the use of drugs. Hence it is not possible to determine the true health, social and economic costs of drug use in relation to road safety.

VicRoads' estimate, based on the incidence of drugs in road fatalities and approximate and statistically unreliable relative risk factors, is that the potential savings if all Victorian drug-related crashes were eliminated is $143 million. Thus there is potential to reduce the cost of the road toll by about one-eighth if successful countermeasures can be identified and implemented.
In the context of the overall safety performance of the Victorian road transport system this potential for reduction warrants significant action and resources. The Victorian community at present spends approximately $30 million a year to counter drink-driving and a further $30 million annually to counter speeding. By contrast the allocation to drugs and driving to date is approximately $0.2 million.\textsuperscript{67}

Australian fatality studies need to be continued and supplemented by similar data from injury crashes.

A new investigation of the role of drugs in injury crashes needs to be undertaken by the Committee’s proposed working party described later in this report. The study needs to assess driver injury records and blood samples already taken for alcohol testing to define which driver groups are users of illegal or medicinal drugs that lead to a road crash. The study should then provide guidance on how countermeasures may be implemented.

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**RECOMMENDATIONS**

2. That Victorian crash fatality studies be continued and the co-operation of other Australian States be encouraged so as to increase sample sizes.

3. That an investigation into the role of drugs in injury crashes be undertaken to define which driver groups are users of illegal and medicinal drugs so as to provide guidance in developing countermeasures.

4. That information on the type and amount of illegal and medicinal drugs found in deceased or injured persons obtained by police, coronial services and public hospitals be held in a single database managed by VicRoads to determine the frequency and cause of driver impairment.

---

**Footnotes**

Drugs and Road Safety

3 Ibid.
4 Ibid, Table 2, p.15.
5 Drummer, O H, Correspondence, 30 May 1996.
6 Vic Roads, Correspondence, 25 June 1996.
9 Ibid.
10 Ibid.
11 Western Australia, Task Force on Drug Abuse, Drug Related Traffic Fatalities in Western Australia, Statistical Bulletin, Number 1, May 1996.
13 McDonough, M, A Clinician’s Perspective, Inquiry into the Effects of Drugs (Other than Alcohol) on Road Safety in Victoria, Parliamentary Road Safety Committee, First Report, May 1995, pp.29-41.
17 Ibid., p.855.
19 Victoria Police, op. cit., p.46.
21 South Australia, Department of Transport, 14 February 1996.
22 Victoria Police, Correspondence, 7 March 1996.
23 Ibid.
25 Ibid. p.404.
26 Ibid. pp.405-406.
27 Joyce D A, Illicit drugs, driving impairment and road trauma in Western Australian drivers, Report to Traffic Board of Western Australia, 7 October 1996, p.13.
28 Ibid.
29 Victoria, Department of Health and Community Services, Submission, 15 September 1995, p.13.
31 de Gier, J J, Drugs other than Alcohol and Driving in the European Union, Institute of Human Psychopharmacology Report, IHP 95-54, Maastricht, April 1995.
32 Ibid, p.28.
35 VicRoads, Submission, op. cit., p.16.
36 Ibid., p.17.

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VicRoads, op. cit., p.22.


VicRoads, op. cit., p.18.

Ibid.

Ibid. p.20.

Ibid. Table 5, p.21.


Ibid.


Ibid., p. viii.

Ibid., p. 89.


Ibid. p.2.

Ibid.


VicRoads, op. cit., p.28.

Ibid., p.29.


Makeham, P, Minutes of Evidence, Canberra, 4 December 1995, p.158.

de Gier, J J, *Drugs other than Alcohol and Driving in the European Union*. op. cit.

de Gier, J J, Maastricht, 3 July 1996.

VicRoads, op. cit., p.29.
6. Driver Impairment

6.1 Background

The Committee's terms of reference require it to examine the effects of drugs other than alcohol on drivers but found that this was only a part of the issue of impaired driving on Victorian roads.

It has therefore accepted the concept of driver impairment which includes all causes of reduced driving skills.

This proposal departs from the established practice of gazetting proscriptive lists and schedules of prohibited drugs and substances that relate to road safety which the Committee found to be out of date, limited in definition and do not meet the requirements of road safety authorities.

Victoria Police, in a submission to the Committee, considered causation:

The cause of driver impairment may result from a number of factors; alcohol consumption, drug ingestion, injury, infirmity, the natural aging process or a combination of these factors.

Table 6.1 Factors Affecting Driver Performance

- ALCOHOL
- ILLEGAL DRUGS & OTHER SUBSTANCES
- MEDICATION
- FATIGUE AND SLEEPINESS
- AGE AND ILLNESS
For the Committee to consider drugs, both illegal and medicinal, without considering the effects of alcohol, fatigue and sleeplessness and age or illness on driver performance would lead to false assumptions and difficulties in developing countermeasures.

This view was shared by the Victoria Police:

_The presence of drugs in drivers of itself is not the issue. The issue is driver impairment caused by drugs. Impairment cannot merely be established by quantification of drugs present in drivers as there is no direct correlation. That is not to say high levels of some drugs prima facie cause impairment. As a matter of law, how is this issue to be dealt with?_

Evidence to the Committee demonstrated that alcohol mixed with some prescription drugs causes driver impairment. Erratic behaviour by a driver may be due to illness or some cause other than drugs or alcohol.

The Committee has formed the view that the Report should focus on the concept of impairment requiring the police and VicRoads to remove impaired drivers from our roads until they can demonstrate that they are not impaired:

_The fundamental philosophy must be to remove impaired drivers from the road without delay to provide a safer environment for the community._

### 6.2 Concept of Driver Impairment

In accepting the concept of impairment, the Committee rejected use of the term 'driving under the influence' (DUI) because of its long association with drink-driving and its overtones of drunkenness when the objective should be to reduce driver impairment.

The Committee defined driver impairment as:

_A reduced ability to perform adequately the various elements of the driving task._
Elements of the driving task identified by the Committee include:

- perception of potential hazards.
- judgement - making decisions about an appropriate response.
- undertaking appropriate physical actions such as braking, steering and using the horn.

Impairment is a reduction in capability. When considering a level of driving impairment that the community should regard as unacceptable the Committee noted that there must be a clear definition of driver capability. Definitions accepted for the purposes of medical review for driver licensing or work safety may be relevant.

The Committee acknowledged that there are difficulties inherent in the different capabilities of people and their reactions to drugs compared with a single standard of acceptable behaviour which can be set by scientific or judicial processes. The period of impairment is also a significant consideration in that the duration of the effects of drugs can vary from a few minutes to weeks.⁴

It is important that any objective assessments or tests to determine impairment are conducted as soon as possible after apprehension by police or following a crash.

### 6.3 Causes of Driver Impairment

There are four loosely defined conditions with potential for driver impairment:

- health and physical conditions.
- psychological conditions.
- inappropriate consumption of alcohol, drugs and/or other substances.
- distraction from the driving task.

Each cause may affect differently each person's ability to drive and will not be consistent for every person. The effect can be very small or it can be a gross degradation in driver performance. Irrespective of the level the person is not in full control of the vehicle.
The current offence under Victorian legislation is 'driving under the influence of drugs', Section 49(1)(a) of the Road Safety Act 1986 which embodied the:

... requirement to prove impairment to the extent of being incapable of proper control of a motor vehicle is extreme. Being impaired to this extent represents a gross threat to the safety of the driver and other road users.

The section provides:

49. (1) A person is guilty of an offence if he or she-

(a) drives a motor vehicle or is in charge of a motor vehicle while under the influence of intoxicating liquor or of any drug to such an extent as to be incapable of having proper control of the motor vehicle.

Current legislation provides for consideration of driver impairment only in extreme situations where the police are required to establish evidence that the driver was 'incapable'. What constitutes 'incapable of having proper control' is not defined in the Road Safety Act 1986 and contrary to alcohol impairment where specific provisions have been included it remains difficult to establish prima facie evidence for cases where a drug impairment offence occurs.

The question as to what prima facie evidence should be required to allow this matter to be dealt with is considered in Chapter Seven.

Health and Physical Condition

Every driver experiences changes in health and physical capacity that may impair driver performance, such as:

- inherent or long-term illness, such as epilepsy, diabetes, arthritis, congenital physical disabilities and sleep disorders. ^5 6.1
- ageing, such as diminished eyesight, deafness, the onset of terminal disease.
- short-term illness, such as a heart attack, shock or concussion.
- psychiatric and mental disabilities or illnesses, such as schizophrenia or manic depression.
- fatigue through overwork, excessive hours of driving, lack of rest or lack of nourishment. ^5 6.2
VicRoads manages a medical review process in Victoria for drivers who have long-term illness or physical disabilities. This involves a doctor making an assessment, using VicRoads guidelines, of a person's medical capability to gain or retain a driver's licence.

In European Union countries there is a range of practices including a requirement for driver's licence applicants to declare regular drug use or abuse of drugs as well as any other medical factors that might affect driving.

The Committee did not explore the Medical Review process in depth but it holds the view that the current Victorian practice may be imprecise and not very effective. This is an area warranting future review.

Psychological Conditions

Psychological conditions impairing driver performance can include emotions such as grief, anxiety, depression, anger and despair.

These conditions often relate to disturbed social relationships which can result in short-term dangerous driving rather than an ongoing deficiency in driving skills.

Appropriate Drug Use

The predominant view of researchers and enforcement agencies is that some drugs impair driver performance but the Committee found that, in some instances, drugs can improve performance. Diabetics, manic depressives and epileptics on medication may be in fact safer drivers with medication than without that treatment. A report of a Parliamentary Select Committee on Road Safety in Western Australia highlighted evidence that drugs can either improve or impair driver skills:

... some drivers who do not take drugs for particular medical conditions may in fact be worse drivers than if they had taken a drug. For instance Starmer (1994) has stated that tricyclic anti-depressants, which are intrinsically sedative in nature and cause driving impairment in normal individuals, will improve the driving ability of depressed patients. On the other hand, de Gier (1986) reported that clinically anxious patients are also poor drivers and while treatment with benzodiazepine tranquillisers will improve their clinical condition, there is not improvement in their driving ability.
A difficulty facing legislators is to balance the therapeutic use of medications by individuals with the safety of the road using community.

**Distraction from the Driving Task**

Driver impairment can also occur through distractions seen or heard and not associated with the normal driving task. Common examples are:

- talking or listening to passengers.
- listening to a radio or sound system.
- using a mobile phone or CB radio.
- smoking and eating.

External distractions can be signs and billboards, road conditions and roadworks, other road users, the countryside or extreme weather conditions.

**6.4 Need For Legislative Change**

The Committee has found that Victoria Police are restricted in their administration of the *Road Safety Act* by 'driving under the influence' provisions which require that police establish:

... that a person was incapable of having proper control of a motor vehicle at the relevant time due to impairment caused by the presence of a drug. It is not sufficient to establish that a drug was present and that drug had an affect on a persons ability to drive. The prosecution must go further. It must establish impairment by a drug and the level of impairment prevents proper control of a motor vehicle.\(^8\)

The Committee is convinced that Section 49 of the Act and any ancillary clauses need to be amended by introduction of the new concept of driving while impaired so that police have sufficient powers to remove drivers affected by drugs. The amendment should enable prosecution based on:

*Observation of the behaviour and impairment of drivers rather than the consumption of a particular drug.*
The secondary supporting requirement then would be that chemical tests of body fluid samples should reinforce observed evidence when observation by police has indicated that driver impairment could be drug-related.

The Committee adopted this approach because it found that categorical levels for drugs and substances in the body which determine when drivers become an unacceptable risk to themselves or other road users have not been established.

There is no current scientific agreement on 'safe' or 'unsafe' levels for drugs for people when they drive.

Adequate legislative provisions already exist for police to remove from the road people driving under the influence of alcohol but police now require a process for removing people observed driving in a manner that indicates impaired skills that are not due primarily to alcohol.

The Committee finds that the requirement to gazette declared drugs and substances under the Road Traffic Act 1968 needs to be removed. The Drugs, Poisons and Controlled Substances Act and Schedule may be relevant to police and the Department of Human Services in their consideration of other drug offences but it is inadequate in relation to road safety.

The Committee’s view is that the current definition of a drug is ineffective in relation to road safety.

The definition is in Section 3 of the Road Traffic Act 1986:

*Drug means any substance or preparation for the time being declared by Order made by the Minister and published in the Government Gazette to be a drug for the purposes of this Act.*

Victoria Police, in its submission, stated that:

*the process to have new drugs declared does not keep pace with the development of new substances and preparations.*

The schedule had last been updated on 2 December 1987. The Committee has been unable to establish why this inadequacy has been allowed to continue.
The Committee heard evidence from police throughout Australia supporting the need for an effective definition of a drug. In Chapter Three of this Report, the Committee outlined legislation in each Australian State and overseas and found definitions of a drug in Queensland and California legislation to be the most comprehensive.

The Queensland legislation states:

*Drug means every substance or article which is a dangerous drug under and within the meaning of Drugs Misuse Act 1986 or any other substance, article, preparation or mixture (with the exception of liquor) whether gaseous, liquid, solid, or in any other form which, when consumed or used by any person, deprives the person either temporarily or permanently of any of the person's normal mental or physical faculties.*

Californian legislation states:

*The term ‘drug’ means any substance or combination of substances, other than alcohol, which could so affect the nervous system, brain or muscles of a person as to impair, to an appreciable degree, his ability to drive a vehicle in a manner that an ordinarily prudent man, in full possession of his faculties, using reasonable care, would drive a similar vehicle under like conditions.*

Each definition would correct deficiencies in the Victorian Act which were identified by Victoria Police:

*The narrow form of this definition does not take into account substances which are outside of the normal perception of what is considered to be a drug. Such substances include, kava, hemlock and solvents.*

The Victoria Police have proposed in their submission a new definition of a drug following the Queensland provisions replacing the definition used in Victoria.

The Committee supports the suggestion by Victoria Police that the definition be based on the *Queensland Traffic Act 1949-1985* or Californian legislation emphasising that future legislation should not be tied to any requirement to declare in the Victorian Government Gazette what constitutes a drug or substance of impairment.
6.5 Conclusion and Findings

The Committee seeks amendment to the Road Traffic Act 1986 to replace 'driving under the influence' with a definition of 'driving while impaired'.

This conceptual change would allow persons who have consumed even relatively small drug dosages but are observed to be impaired to be removed from the road. Such doses might not adversely affect a person's performance of general functions but can be life-threatening when driving a vehicle.

The Committee found that generic descriptions of 'drug' as found in Queensland and Californian legislation are appropriate models.

RECOMMENDATIONS

5. That the offence of driving under the influence of a drug be replaced by the offence of driving while impaired.

6. That the Road Traffic Act 1986 be amended to incorporate a generic definition of a drug based on the legislative models found in Queensland and California.

Footnotes

2 Ibid.
3 Ibid.
4 Drummer, O H, A Review of the Contribution of Drugs in Drivers to Road Accidents, Inquiry into the Effects of Drugs (Other than Alcohol) on Road Safety in Victoria, Parliamentary Road Safety Committee, First Report, May 1995, pp.21 & 25.
5 Victoria Police, op. cit., p.2.
6 de Gier, J J, Driving Licences and Known Use of Licit or Illicit Drugs, Institute for Human Psychopharmacology report IHP 93-39, Maastricht, 1993, p.19
7 Parliament of Western Australia, Legislative Assembly, Select Committee on Road Safety, Alcohol, Drugs and Fatigue, 13 June 1996, pp. 24-25.
8 Victoria Police, op. cit., p.2.
9 Ibid., p.3.
10 Ibid.
12 Queensland Traffic Act 1949-1985, Section 16.
14 Victoria Police, op. cit. p.3.
15 Ibid, p.4.
7. Managing Driver Impairment

7.1 Background

This chapter examines methods currently used for assessing and recording driver impairment in Australia and overseas. This data is then used to develop an impairment testing procedure proposed by the Committee for Victoria.

The chapter addresses the Committee's fourth and fifth terms of reference:

4. Report on methods for measuring driving impairment and crash risk of drivers who have consumed drugs (other than alcohol).

5. Report on evidence which could be admissible in determining legal sanctions against drivers who have consumed drugs (other than alcohol).

The Committee agreed early in its Inquiry to concentrate on recognised models of driver impairment. As Victoria has no routine structured driver impairment tests the Committee examined the limited number of Australian and overseas models, the most significant being the Drug Recognition Expert Program initiated by the Los Angeles Police Department in the United States.

7.2 Testing Methods

Impairment tests can be conducted by police or medical practitioners. Both methods have been used in Australia. They generally involve observing a driver's ability to respond to requests to perform specific tasks such as walking a number of steps. Observations can provide information to assess a driver's physical condition, attitude and actions. Tests can be structured or unstructured.

The paper in the Committee's First Report by Dr Judith Perl of the New South Wales Police Service provides an example of a checklist provided to assist police to perform roadside observations and assessment. The observations made by police may become admissible evidence when the matter is brought before the court.
Behavioural observations may be supplemented by physical data such as pulse rate, heartbeat, skin colour, muscle tone and eye movements. In Australia such measurements are usually made by police doctors but in the United States they are generally performed by specially trained Drug Recognition Expert police.

**Tests by Police**

The simplest roadside assessments involve observations of psychomotor tests and divided attention tests. The most complex behavioural tests involve divided attention tasks, vital physical sign measurements and a knowledge of the pharmacology of drugs.

Driver tasks involving vigilance, information processing under varying circumstances, risk-taking and visual search and recognition are all involved in any assessment of a person's ability to drive effectively.²

Sergeant Thomas Page of the Los Angeles Police Department informed the Committee that studies at Johns Hopkins University in the United States had found:

> ... there are approximately 1,500 separate tasks involved in motor vehicle operation, many of which are done simultaneously.³

There are two levels of proven behavioural impairment tests used successfully by police forces overseas, mostly in the United States. They are:

- Standardised Field Sobriety Test (SFST).
- Drug Evaluation and Classification (DEC) Program.⁴

**Standardised Field Sobriety Tests**

In the early 1980s the United States Department of Transportation supported research which led to the development of a Standardised Field Sobriety Test which now forms part of the curriculum for police officer training in 'driving under the influence' detection skills throughout the United States. IS ⁷²
The three tests selected as the basis of the Standardised Field Sobriety Test were:

- the horizontal gaze nystagmus test.
- a walk and turn test.
- a one-leg stand test.\(^5\) \(^7.3\)

The tests have been evaluated by Dr Marcie Burns of the Southern California Research Institute and found to be effective in detecting drivers under the influence of alcohol and/or drugs in both laboratory and field trials. Elements of the Standardised Field Sobriety Tests are used by police trained as Drug Recognition Experts.\(^6\)

The two key advantages of the tests are primarily that they have been developed from a scientific base and secondly that they use a standardised field application procedure. This ensures that trained police officers at the roadside can establish in a consistent manner if there is driver impairment.

- **Drug Evaluation and Classification Program**

During the 1970s the Los Angeles Police Department developed the Drug Recognition Expert Program to train police officers to recognise driver behaviours and physiological states associated with seven categories of psychoactive drugs.\(^7.4\) The Drug Recognition Expert Program became the Drug Evaluation and Classification Program when it was more widely adopted in the United States.

The program has 12 steps and includes blood pressure, body temperature, pulse, eye movement, pupil size, skin colour and muscle tone, observations often performed by medical practitioners.
Table 7.1  The 12-Step Drug Recognition Expert Procedure

1. Breath test for alcohol.
2. Interview of the driver by the apprehending police officer.
3. Preliminary examination, including first pulse measurements.
4. Eye examination, including horizontal and vertical gaze nystagmus and eye convergence.
5. Divided attention testing, including Romberg balance test, walk and turn test, one-leg stand test and finger-to-nose test.
6. Vital signs measurements, blood pressure, body temperature and second pulse rate.
7. Darkroom examination in room light, near total darkness, indirect artificial light and direct light.
9. Injection sites examinations and third pulse measurement.
10. Statements and interrogation of driver.
11. DRE forms opinion on reason for impairment and drug(s) involved.
12. Toxicological tests, ie body fluid sample taken and analysed.


Police officers trained in the program are known as Drug Recognition Experts (DREs). Officers are trained to recognise drugs and impairment through established training and certification procedures. Initial training takes about two weeks and on-going experience with impaired drivers is essential for officers to retain skills and official accreditation.

Police can request that a Drug Recognition Expert examine someone who has been apprehended and is shown by a breath test to have a blood-alcohol concentration too low to explain the driver's behaviour.

The program is a standardised, systematic method of examining a driver suspected of being impaired by alcohol and/or drugs in order to determine:

- whether the driver is impaired.
- whether the impairment is drug-related or medically related (illness or injury).
if the impairment is drug-related the broad category of drug or combination of categories likely to have caused the impairment.\(^8\)

The drugs detected can be categorised according to the observable behavioural signs they generate:

- central nervous system depressants.
- central nervous system stimulants.
- hallucinogens.
- phencyclidine (PCP).
- narcotic analgesics.
- inhalants.
- cannabis.\(^9\)

Tests by Doctors

The involvement of medical practitioners in testing for driver impairment has a long history in most Western countries. Charges for 'driving under the influence of alcohol' in most jurisdictions require a blood sample to be taken by a doctor and it provides an obvious opportunity for the doctor to make an assessment of whether illness or injury is involved.

Similarly a doctor could make an assessment if a blood test was required from a driver injured in a crash.

In most countries doctors also continue to have some role in assessing fitness to hold a driver's licence when a person is suffering from illness, injury or a medical condition.

In Australia the States have different requirements for tests to be conducted by a doctor. In South Australia, Western Australia, Australian Capital Territory and Tasmania medical assessments by a doctor are required before blood and urine samples can be taken. In New South Wales and Queensland medical intervention is limited to the taking of blood on the request from police. Victoria and the Northern Territory do not have any formal procedure for medical intervention and samples may be taken only when an injured driver is hospitalised.
In some overseas jurisdictions the use of doctors to conduct tests is more common. In Germany a person convicted of driving under the influence of drugs or alcohol may be required to have a medical examination to prove himself or herself drug-free as a part of the process of regaining a licence.\textsuperscript{10}

Norway requires an examination by a doctor after a driver has failed a standard roadside driver impairment test and the apprehending police officer suspects drug involvement.\textsuperscript{11} The examination includes:

- tests of impairment.
- measurement of pulse rate and other physiological measures.
- screening for various neurological signs.
- evaluation of mental state.
- tests of memory and cognition.

The results are recorded on a standard form. The driver must provide body fluid samples if requested by police. The Committee noted that the blood sample may be taken before the clinical examination.\textsuperscript{12}

Drivers suspected of being under the influence of drugs in Finland are taken to a municipal health centre where a Clinical Test for Drunkenness is conducted by a medical practitioner and when requested by police to take blood samples.\textsuperscript{13}

The test was developed in the 1950s for screening alcohol-induced impairment but has been used also to provide information on drug influence.\textsuperscript{15,6} A key feature of the procedure is the use of a numerically weighted scoring system which enables the extent of impairment to be approximately quantified.

The Committee noted that while the test is conducted within a recognised medical clinic, the doctor is required only to use observational skills for which non-medical persons and police could be trained.
Comparison of Procedures

The Committee obtained evidence on police procedures in each Australian State to test for driver impairment caused by drugs other than alcohol. It noted that no standardised national procedure exists in Australia.

Victoria has no test procedure.

A comparison of driver impairment tests used in Australian States with the Drug Evaluation and Classification Program in the United States has been made available to the Committee. Table 7.2 compares the following elements:

- police officers' observations, including the questioning of drivers.
- handwriting tasks.
- divided attention tasks.
- measurement of vital signs.
- eye examinations, including a dark room test in the case of the Drug Evaluation and Classification Program.
- toxicological tests.
### Table 7.2  Comparison of Driver Impairment Standards

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**HANDWRITING TASKS:**

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<td>Write alphabet</td>
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<td>Pick up coins</td>
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**DIVIDED ATTENTION TASKS:**

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<td>-</td>
<td>Y</td>
<td>-</td>
<td>Y &amp; y</td>
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<td>Y</td>
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<tr>
<td>One leg stand</td>
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<td>-</td>
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Table 7.2 (continued)

**VITAL SIGNS:**

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<td>Pulse</td>
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<td>y</td>
<td>y</td>
<td>y</td>
<td>Y</td>
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<tr>
<td>Temperature</td>
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<tr>
<td>Integrity of limbs</td>
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<td>y</td>
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<td>Knee jerks</td>
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<tr>
<td>Lack of convergence</td>
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<td>Pupil size</td>
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**OTHER DARK ROOM EXAMINATIONS:**

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<tbody>
<tr>
<td>Nasal area</td>
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<td></td>
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<tr>
<td>Oral cavity</td>
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**TOXICOLOGICAL TESTS:**

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<tbody>
<tr>
<td>Blood</td>
<td>y</td>
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<td>y</td>
<td>y</td>
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<td>y</td>
<td>y or</td>
<td>Y</td>
</tr>
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<td>y</td>
<td>y</td>
<td>y</td>
<td>y</td>
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**Legend:**

- Lower case = performed by a medical practitioner/police medical officer.
- UPPER CASE = performed by police or a drug recognition expert in jurisdictions which have the Drug Evaluation and Classification Program.
Chapter Seven

7.3 Are Impairment Tests Effective?

The Committee found a limited number of impairment testing systems are used in normal daily police environments in the United States and the European Union. It found that standardised impairment testing is not widely practised within Australia and there is none in Victoria. It therefore concentrated on the major user of impairment testing systems, the United States.

In the United States in July 1995 the Committee conferred with the Los Angeles Police Department and other police forces on the success of its Drug Recognition Expert Program and the Drug Evaluation and Classification Program which developed from it. At the time of the Committee's visit police agencies in 28 states had adopted the program. The United States has approximately 4,000 trained drug recognition experts and 400 instructors certified by the International Association of Chiefs of Police.¹⁶

The social environment in Los Angeles in the early 1970s which led to the development of this program was very different from that of Australian cities at the time. In urban Los Angeles police officers experienced a significantly different range of social problems, violence and drug abuse which are still not comparable to cities in Australia.

The Committee recognised that the scope and magnitude of problems facing American and Australian legislators were different but the methods and experiences of American police forces in managing problems common to both countries could be of benefit.

Until the development of the Drug Recognition Expert Program no co-ordinated method of evaluating the level of driver impairment was used by the Los Angeles Police Department. Each police officer had to deal individually with growing drug abuse and associated road safety problems.
Managing Driver Impairment

Sergeant Thomas Page of the Los Angeles Police Department stated that:

Each officer would develop his or her own procedures for determining if the individual was under the influence of alcohol and/or drugs. Junior officers would model their procedures after those used by senior officers and would often add their own nuances to the procedures. These roadside sobriety tests would frequently include variations of 'counting exercises', alphabet tests, coin pick-ups and questioning techniques.\textsuperscript{17}

From this process the Los Angeles program adopted a standardised procedure containing direct observation techniques which could be supported by laboratory analysis of urine or blood specimens taken following a crash or apprehension of a driver. The corroboration of trained police officers' findings and the acceptance by Los Angeles courts of their evidence as expert testimony gained the Department's program national recognition.\textsuperscript{18}

The program was evaluated in 1984, 1985 and 1992.

In 1984 the American National Institute on Drug Abuse and the National Highway Traffic Safety Administration (NHTSA) sponsored a controlled laboratory evaluation of the process by the Johns Hopkins University.\textsuperscript{15} \textsuperscript{7.7} Drug recognition experts participating in the evaluation were able to correctly identify 95 per cent of subjects who were drug impaired.\textsuperscript{19}

Following these successful results the National Highway Traffic Safety Administration conducted a field validation study of the program.\textsuperscript{20} The 1985 study involved a larger group of drug recognition experts and drivers actually arrested for suspicion of driving under the influence of drugs.\textsuperscript{15} \textsuperscript{7.8}

The Administration used an independent laboratory to conduct blood analyses of samples obtained from each arrested driver to compare with the opinion developed by each drug recognition expert. The laboratory tests confirmed the views formed by each DRE as to the impaired state of the driver in 94 per cent of cases.

The overall conclusion of the two studies was:

The LAPD drug recognition procedure provides the trained police officer with the ability to accurately recognise the symptoms of many types of drugs used by drivers.\textsuperscript{21}

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The success of the 1985 evaluation prompted the Administration to fund standardisation of the program and development of a curriculum package for administrators, police instructors and police students which was completed in 1987.22 It was then re-named the Drug Evaluation and Classification (DEC) Program.

In 1988 the Administration funded a large-scale expansion of the program to encourage police agencies across the United States to adopt the program.23

The most comprehensive evaluation of the program was completed for the National Highway Traffic Safety Administration in 1992 when the program was operating in 23 American states.24 The study by the Preusser Research Group reaffirmed that drug recognition experts were able to identify drivers who were impaired by drugs other than alcohol.15 7.9

The consultant's conclusion was:

DECP programs are associated with a marked increase in impaired driving charges against suspects whose impairment is related to one or more drugs other than alcohol.25

The Administration has maintained its role in the program by sponsoring curriculum update conferences, co-ordinating courses nationwide, developing and issuing training materials and generally providing administrative support for the program.26

An independent evaluation of the program was conducted in 1994 by Dr Marcie Burns of the Southern California Research Institute in conjunction with the Arizona Department of Public Safety.27 15 7.10 Dr Burns examined the records of 500 drug recognition expert evaluations and concluded that:

... the DRE program, supported by the toxicology laboratory, is a valid method for detecting and classifying drug-impaired individuals.28

When in Washington, DC, the Committee discussed a number of issues with Authority staff. The following points were noted:

- the program adds a set of skills which increases the professionalism, self-perception and departmental perception of traffic police units.
- the skills can be used in a variety of non-traffic situations such as prison work release programs.

- the original program expectations of one evaluation per week for each officer were not met which raises the question of skill retention.

- after introduction of the program drug-driving charges and convictions increased and these increases were highest in the first one or two years of the programs.²⁹

The outcome of this study appeared to demonstrate that while drug recognition expert skills increase potential for the detection of drug-affected people, the skills required need to be exercised constantly. This assumes a higher level of drug-affected drivers than may be the case in Victoria. The question then is whether such a high level of police training and police intervention is required. This is addressed later in this chapter.

### 7.4 A Program for Victoria

The Committee received evidence on existing behavioural testing procedures in other Australian States and overseas and considered the suitability of a Drug Recognition Expert Program for Victoria.

The need and justification for such a program can be determined only by the number of drug-affected drivers, the cost of training and equipment for police and the likelihood of success with cases brought to court.

The Committee sought information on what work had been done in Victoria on the use of a structured impairment test and the use of specialist field officers.

VicRoads outlined in its submission work it had undertaken to evaluate the need for a drug evaluation and classification program by:

- conducting a national police workshop in conjunction with the Victorian Institute of Forensic Pathology and the Federal Office of Road Safety.
developing a pilot roadside impairment test for Victoria Police.\textsuperscript{30}

The results of both of these activities were of importance to the Committee in assessing the direction to be taken in its recommendations to the Parliament.

National Police Workshop

The national police workshop held in Melbourne on 22 June 1994 was attended by approximately 40 people.\textsuperscript{31}\textsuperscript{15} 7.11 VicRoads said that the views formed by police and road safety representatives were:

- In each State there has been a decline in the traditional skills needed for Driving Under the Influence (DUI) enforcement. This has been due to a change in emphasis in enforcement practices. In the past enforcement focused on stopping alcohol impaired drivers, which were identified using observation skills and then tested using some form of field sobriety test. The current approach in all States is to emphasise the deterrence effect of Random Breath Testing, which stops all drivers and relies on new technology (breath testing devices for alcohol).

- Each State has a different system for dealing with road safety problems caused by non alcoholic drugs. There are major differences in approaches which vary from limited legislation in Victoria to more enforceable legislation in New South Wales. However no Australian State has a scientifically validated Standardised Field Sobriety Test or a DEC Program.

- Each State has limited knowledge of both Standardised Field Sobriety Tests and the DEC program and has not evaluated their suitability for Australian use. The general impression of all State's representatives from the workshop was that the program was effective but had relatively high training requirements and associated costs.

- The New South Wales system would be improved by:
  - adopting the Queensland legislation definition of a “drug”.
  - implementing a behavioural toxicology system to give some valid estimate of the degree of impairment relative to an alcohol benchmark.

- Zero blood non alcoholic drug legislation should be considered for those drugs which are a road safety problem and have little medical justification, such as amphetamine type stimulants.\textsuperscript{32}
Pilot Behavioural Testing Program

Training in the traditional police skills of observing and recording suspects' particulars in addition to more sophisticated observational techniques would be required under a drug evaluation and classification program unless assessment of suspects for drugs could be reduced to a mechanised system of measurement like the 0.05 per cent blood-alcohol testing method for alcohol.

No roadside testing method similar to the blood-alcohol test exists and all assessments of the level of drug impairment can be made only through observation and recording. VicRoads' submission emphasises the lack of standard procedures, both in practice and legislation, for conducting behavioural tests in Victoria.

In particular, the submission highlights cost differences between a Standardised Field Sobriety Test and a full Drug Evaluation and Classification Program:

While the costs associated with the DEC program in terms of police training and chemical testing are high the costs of Standardised Field Sobriety Tests are relatively low. For example the Standardised Field Sobriety Test requires only 16 hours of training per person while the full DEC program requires 196 hours.33

To consider whether a Standardised Field Sobriety Test could be implemented in Victoria, a pilot training program for Victoria Police was conducted in 1994.7.12

The outcome was:

- participants developed an understanding of drug terminology, categories and drug effects.
- participants quickly became familiar with measuring vital signs and administering Standardised Field Sobriety Tests, to both sober and impaired persons.
- while performance on the three Standardised Field Sobriety Tests directly decreased with increasing BAC, eye measurements and vital sign measurements were difficult to relate to BAC levels in a consistent manner.34

The pilot course was valuable in raising awareness and increasing sobriety detection skills for Standardised Field Sobriety Tests but it also showed that a great deal of further training would be required to achieve expert or professional levels in evidence on the effects of drugs.35
Views of the Community

Submissions to the Inquiry offered a range of views and concerns as to the need for the American approach and its effectiveness in the Australian road safety environment. The Committee has reproduced a representative sample of the views put before it:

- Federal Office of Road Safety

The Federal Office of Road Safety stated that the Drug Evaluation and Classification Program is resource-intensive and the on-going success rate of trained experts relies on their being able to continuously reinforce their training by frequently carrying out the procedure.

Current evidence on the extent of drug involvement in Australian road crashes suggests that such experts would be insufficiently utilised for them to maintain the required skill level.

FORS is also unaware of any evaluation or monitoring that indicates whether Drug Evaluation and Classification Programs have had any effect on drug-driving rates or drug-related crash involvement.\(^\text{36}\)

The Office concluded that the program does not appear appropriate for Australia.

The Federal Office of Road Safety has been collaborating with VicRoads in a review of research on tests with the intention of consulting with relevant Australian authorities to develop recommendations for a standardised approach to testing in Australia.\(^\text{37}\)

- Canada

Canada has a similar constitutional background to that of Australia and the views of Canadians were of interest to the Committee.

Mr G W Mercer, Senior Analyst with the Insurance Corporation of British Columbia, advised the Committee in June 1996 that some Canadian provinces investigated and evaluated the Drug Evaluation and Classification Program to see if it had application for Canada.\(^\text{38}\)
The Corporation financed the training of 25 police officers from British Columbia as drug recognition experts late in 1995.

Mr Mercer said a few charges had since been laid but no case had yet gone to court. He said the problem was that under Canada's criminal code there were no provisions to test for drugs other than alcohol even though it is illegal to drive in Canada while impaired by drugs.

He considered that if DREs laid charges on the basis of behavioural rather than chemical evidence courts might accept evidence in the way that they accept behavioural evidence of alcohol impairment.

- **Department of Human Services**

The Victorian Department of Human Services submitted that the Los Angeles Police Department model of the program warrants serious consideration but added:

> The cost-effectiveness of this model in the circumstances of drug use in Victoria may be considerably different from that in Los Angeles, where drug use prevalence and patterns may be profoundly different.\(^{39}\)

The Department's submission warns that many cases of driving under the influence of drugs could be missed if reliance was placed solely on assessment of driver impairment. It refers to a study by D Brookoff in Memphis, Tennessee of drivers detected for reckless driving whose urine was chemically tested on the spot for cocaine and marijuana:

> Nearly half the drivers intoxicated with cocaine performed normally on standard sobriety tests.\(^{40}\)

These drivers would have escaped a conviction for driving under the influence of drugs.

If reliance had been solely on sobriety testing they would not have benefited from programs designed to help them acknowledge their drug problem and commence treatment.\(^{41}\)
Dr. E. Ogden

Dr Edward Ogden, the former Victorian police medical officer who devised the Victorian pilot behavioural testing program, provided the Committee with evidence on the testing program and a copy of the course training manual. He said that:

We taught that course to some 60 police officers, representing the Accident Investigation Section and the State Task Force. They have been using the technique for almost a year, and from time to time they have sent in results of their evaluations.

..... The police officers who did that course have found it useful and they believe it has improved their ability to detect and document moderate to severe impairment.

My difficulty with the DRE program is that it remains somewhat subjective. It really requires the examining officer to be very professional and, therefore, because there are subjective parts to it, it could of course be exaggerated by an officer, wittingly or unwittingly, in either direction. So part of the challenge, I think, is to come up with something more independent.

Dr Ogden also made reference to the need for more objective measures of driver impairment based on new technology. This is discussed later in this chapter.

Development of a National Model

In August 1995 a Working Party on Drugs and Driving issued a report which provides the first step towards development of a national model for legislation and enforcement practices for driving under the influence of drugs offences in Australia. The report contained 16 recommendations on various elements of a proposed national model.

The Working Party was chaired by Professor O. Drummer, Assistant Director of the Victorian Institute of Forensic Pathology. Membership included Dr J. Perl, New South Wales Police forensic pharmacologist, Dr D. Joyce, University of Western Australia, Dr P. Swann, VicRoads, Senior Sergeant M. Boorman, Victoria Police and Senior Sergeant R. Laslett, South Australia Police.
7.5 Victoria Police Proposal

Victoria Police made two submissions to the Inquiry.

In September 1995 the Police proposed use of the drug recognition expert approach similar to the United States model. At a public hearing in September 1995 the Police expressed concerns about the staff resources and training implications in establishing and maintaining such an approach over the entire State.

Following further discussions between the Committee and senior police officers, Victoria Police made a second submission in May 1996 in which they proposed a method of managing driver impairment which was less labour intensive and costly and reflected suggestions made by the Committee.

The impaired driving detection procedure recommended by the Victoria Police was considered by the Committee. The procedure recommended by the Victoria Police appears as Table 7.3 on the following page.
Table 7.3 Victoria Police
Proposed Impaired Driving Detection Procedure

Legend:
BAC = Blood alcohol concentration  PCA = Percent Concentration of Alcohol
O/C T.A.S. = Officer in Charge, Traffic Alcohol Section

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Two impairment assessment phases were proposed in the Police submission:

- Roadside Impairment Assessment.
- Standard Impairment Assessment.

Roadside Impairment Assessment

The Roadside Impairment Assessment recommended by Victoria Police consists of:

**Phase 1:**
- initial observation of vehicle in operation.
- driving behaviour indicates that police should intercept the vehicle.
- observation of stopping sequence.

**Phase 2:**
- face-to-face observation and interview of driver.
- observation and interview of driver indicates driver should alight from vehicle.
- observation of driver alighting from vehicle.

**Phase 3:**
- preliminary breath test for presence of alcohol.

If the driver is within the legal alcohol limit but appears to be impaired the police officer would proceed to Phase Four.

**Phase 4:**
- roadside impairment assessment.
- driver accompanies police to police station for indoor impairment assessment.48

If a driver passed the roadside impairment test and is not impaired by alcohol he or she would be free to continue the journey. However if the test is failed the driver would be required to go to a police station or another controlled environment for a second test.
Standard Impairment Assessment

The second test proposed by Victoria Police is designed for police to recognise impairment and consists of 8 major components:

1. breath alcohol test.
2. interview by police.
3. preliminary examination. A structured series of questions, observations and simple tests (eg, 30 seconds time test).
4. eye examination (eg, horizontal and vertical gaze nystagmus).
5. divided attention tests (eg, walk and turn test, one-leg test).
6. suspect statements and other observations.
7. impairment identified.
8. body fluid sample obtained.49

The Committee was aware that the Police proposal was only in a conceptual form and that there was a need for further development in consultation with other agencies.

7.6 Comments on the Victoria Police Proposal

Comments on the Victoria Police proposal were sought from the Department of Human Services, the Royal Automotive Club of Victoria and VicRoads. Each organisation gave support but emphasised a need for further clarification and amendment. 15 7.14

• Department of Human Services

The Department of Human Services supported the broad directions of the Victoria Police Proposal:

... it is consistent with the Department's submission to the Inquiry, and with injury prevention policy.50

One area of concern was:

... the dearth of scientific evidence about the relationship between drug concentrations in body fluids and impairment of driving skills.51
The Committee has recognised this dearth of scientific evidence but there is no formal procedure for collecting primary admissible evidence in body fluids which is supported by legislation. Therefore it is impossible to obtain data to demonstrate the level of drug concentrations in body samples to confirm the perception of a police officer that a driver is impaired.

The Department was further concerned that the apparent exclusion of drivers with a blood-alcohol concentration higher than 0.05 per cent from impairment testing:

... will prevent the identification of impaired drivers whose impairment is caused by the co-abuse of alcohol and drugs.\(^5^2\)

- Royal Automobile Club of Victoria

The Royal Automobile Club of Victoria (RACV) supported the overall initiatives proposed in the Victoria Police submission and said:

... it is imperative to remove impaired drivers from the roads and [supports] the principle that driver impairment rather than the presence of drugs in a driver's system should be the criterion on which any legal provisions are made.

RACV believes in the philosophy that prosecution will not always be effective in altering the behaviour of drug impaired drivers and that education and rehabilitation need to be incorporated into the system.

Behaviour-based impairment tests used in conjunction with evidential breath tests and blood and urine samples is also supported as the most effective means available at present of detecting drug-impaired drivers.\(^5^3\)

Like the Department of Human Services, the RACV held a number of concerns which it believed needed to be examined if the proposal was to proceed. The Club supported use of an indoor impairment assessment:

It is important, however that this assessment be developed under the guidance of road safety professionals and the procedure should be thoroughly evaluated to ensure that it is effective before it is implemented. The public should also be educated about the assessment procedure and be informed of what their individual rights are.\(^5^4\)
The RACV concluded:

RACV is concerned that a provision to deal with drivers who have a low level of alcohol as well as a therapeutic drug at therapeutic dosage in their systems could be unfair to drivers who have not received information about the combined effects of alcohol and prescribed medication.\(^55\)

The Committee noted the RACV's concerns which indicated some of the issues to be resolved in developing both the roadside impairment test and the standard impairment test.

- **VicRoads**

VicRoads noted:

The submission states that driver impairment will be measured by firstly a "Roadside Impairment Assessment" and a "Standard Impairment Assessment". Both of these assessments use key elements of the USA 'Standardised Field Sobriety Test" and "Drug Evaluation and Classification" programs.

It is important to note that these behavioural tests have been specifically developed for impairment caused by drugs and have been validated for drug impairment. It would be very difficult to interpret the results of these tests in situations where drugs were not involved.\(^56\)

### 7.7 Procedure Proposed by the Committee

The notion of impairment is fundamental to the Committee’s proposal.

As a result of the information gathered by the Committee and through the submission and public hearing processes plus its overseas tour of inspection the Committee considers that the model developed by the Victoria Police for detecting and removing impaired drivers from Victorian roads provides a basis for its recommendations.

The Committee has made changes to the program which it considers necessary to reflect its experiences elsewhere in its Inquiry. In particular the Committee highlights the need for the model to be developed into an effective and equitable process by a specialist working party.
While the American Drug Evaluation and Classification Program has been demonstrated to the Committee to be a useful model to follow the Committee does not consider that evidence of the current number of drug impaired drivers in Victoria would justify the Government in committing itself to such an intensive program.

There are already significant training requirements in the Committee's proposal which would require re-allocation of resources. Any proposal must recognise the financial constraints on government.

The concept developed by the Committee for the assessment of impaired drivers is supported by the Victoria Police, Department of Human Services, the Royal Automobile Club of Victoria and VicRoads. It would require changes to the Road Traffic Act 1986 and associated regulations.

The procedure is an improvement on existing best practice in Australia such as procedures in New South Wales and Western Australia. The proposal would need to be further developed by a specialist working party mentioned later in this chapter.

The proposal has four key elements:

1. Legislation

Legislation is required to give Victoria Police specific powers to:

- require drivers to undertake behavioural impairment tests.
- when prosecution is proposed drivers be required to provide body fluid samples.
- penalise drivers failing to co-operate with tests and/or providing body fluid samples.
- suspend a driver's licence until he or she is fit to drive again.
The Committee’s fundamental proposition is that someone who is impaired must not drive. This builds on existing provisions in the Road Traffic Act 1986 under which impaired drivers can be removed from the road. Police could suspend a driver's licence immediately after failure of the standard impairment assessment test or after receiving results of a subsequent chemical analysis. This procedure would be similar to the situation with drivers whose blood alcohol concentration (BAC) is in excess of the legal limit.

2. Roadside Impairment Assessment.

When police suspect a driver of impairment they would require the driver to stop and undertake a standard breathalyser test.

If the breathalyser shows that the driver's blood alcohol concentration is within legal limits but the police officer suspects impairment the driver could be required to leave the vehicle and undertake a roadside impairment test. Failure of this test is the precursor to the second or standard impairment assessment test.

Persons who pass the Roadside Impairment Assessment test would be free to continue on their journeys.

3. Standard Impairment Assessment

A more intensive test would be conducted in a controlled indoor environment and observed by a specially trained police officer.

This assessment would determine whether impairment was due to drugs or another cause, such as ill-health, medication or age. The assessment should be recorded on video to be used as admissible evidence to protect the driver's rights and monitor police adherence to procedures.

Failure of the second assessment will require the police to determine if the prosecution is to proceed. If the case is to proceed the police shall require a qualified person to obtain blood and/or urine samples from the driver for analysis to identify any drug(s) present.
A driver failing the second assessment would not be permitted to drive until it could be demonstrated at a later time that he or she was no longer impaired.

Records of all police observations including visual recordings and written records should be kept in a standard format. This would ensure compliance with authorised procedures and provide records to compare the results of the analysis of body fluids for the presence of drugs to the observed degree of impairment.

4. Laboratory Testing of Body Fluid Samples

On receipt of the laboratory analysis results police could decide to either prosecute the driver or refer the driver to health or driver re-education processes.

Combinations of Alcohol and Other Drugs

The Committee does not support the practice in some jurisdictions such as New South Wales where a high breath-alcohol reading excludes tests for other drugs.

Evidence to the Committee was that alcohol and drugs of impairment when mixed together create an effect different from that of alcohol or drugs alone. Legislation therefore must not exclude one cause of impairment from the other. The Committee recognises this in its recommendation that legislation address 'driver impairment'.

7.8 Selection of Impairment Test Components

The components of the Impaired Driving Detection Procedure need to be established by a specialist working party. The working party should include representatives of police, road safety and health agencies experienced in the behavioural, scientific and medical issues that need to be considered. A public advocate must be a member of the specialist working party during the selection of these procedures.
The tests selected should reflect the need to establish a national approach to what is a common problem. The recommendations of the National Institute of Forensic Science Working Party on Drugs and Driving to use tests such as the walk and turn, one-leg stand and horizontal gaze nystagmus should be considered as a part of the test selection process.\textsuperscript{57}

When developed the procedure should be released for public comment.

7.9 Rights of the Individual

The Committee insists that the legal rights of the individual be protected.

One means of addressing this concern would be to record by video suspects undertaking the second assessment test. Police video and written records of the procedures followed for each test should be retained so that the accuracy of observations remains beyond doubt.

The recording of suspects would also lead to a better understanding of observations of behaviour and police training could be constantly attuned to changes.

The rights of the individual will be protected by the inclusion of a public advocate on each specialist working party. The Committee stresses that there must be no diminishing of safeguards which prevent injustice to individuals.

7.10 Emerging Technology

During the Inquiry the Committee obtained information on new technology which is attempting to develop more objective measures of impairment. Although such devices are currently only at the experimental stage Victorian road safety authorities should monitor them for their potential use in drug-driving enforcement and research.
Some examples of emerging technology are: IS 7.15

- a Simulated Evaluation of Drug Impairment (SEDI) machine.
- hazard perception tests.
- eye measuring devices.
- remote viewing and recording of a suspect's impairment.

A major feature of each is the recording of observations or the results of a driver's performance of a task. This may assist both prosecution and research in the future.

7.11 Conclusion and Findings

The Committee has considered methods of measuring driver impairment, in particular observations of driver behaviour conducted by:

- police with minimal training (New South Wales and Western Australia).
- highly trained police (American Drug Recognition Experts).
- medical practitioners (especially Norway and Finland).

While the Drug Recognition Expert approach may be appropriate for American political, legal and social conditions, the Committee concludes that the Drug Recognition Expert model is not directly applicable to Victoria.

The Committee proposes adoption of an Impaired Driving Detection Procedure based on a modification of the Los Angeles Model. It excludes elements such as the darkroom eye examinations and measurements of blood pressure, body temperature and pulse rate.

Nevertheless, the Procedure proposed is more extensive than the procedure being used in New South Wales as it requires a second systematic set of observations to be conducted indoors by a more highly trained police officer.
Future technology may be able to supplement police observations with more objective measurements particularly in hazard perception, judgement and risk taking which cannot be readily identified by physical observations. There are also possibilities of remote viewing through video conferencing to assess suspects at the roadside, in a booze bus or at remote locations.

The Committee has examined each proposal and drawn on the comments of key Victorian organisations in developing an Impaired Driver Assessment Procedure for Victoria. The components of the procedure need to be established by a specialist working party and on its development it would become one part of an integrated program to ensure people remain aware that they cannot drive if impaired by drugs.

RECOMMENDATIONS

7. That the Road Traffic Act 1986 be amended to give Victoria Police specific power to require drivers suspected of being impaired to undergo a roadside test of impairment and if necessary a second more detailed test.

8. That a specialist working party determine the components of the test procedures.

9. That where a driver fails the second impairment test and Police conclude that the impairment may be drug-related and prosecution is contemplated a sample of blood and/or urine shall be provided and analysed for drugs.

Footnotes

1 Perl, J, Drug Law Enforcement and Legislation in New South Wales, Inquiry into the Effects of Drugs (Other than Alcohol) on Road Safety in Victoria, Parliamentary Road Safety Committee, First Report, May 1995, pp.110-111.
2 VicRoads, Submission, p.37.
4 VicRoads, op. cit., p.47
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5 Ibid., p.38.
6 Ibid.
8 VicRoads, op. cit., p.40.
9 Ibid.
10 Bundesanstalt für Strassenwesen, Germany, Submission, 18 September 1995, p.2.
12 Ibid., p.2.
14 Victoria Police, Minutes of Evidence, 19 September 1995, pp.18-32.
17 South Australia Police, Minutes of Evidence, 14 February 1996, pp.339-351.
20 Victoria Police, Minutes of Evidence, 17 June 1996, pp.496-520.
22 Page, T E, op. cit., p.131.
23 Ibid, p.123.
27 Page, T E, op cit., p.130.
29 Unlike Australia, which has State police forces, the Committee discovered that each American State has a multitude of local and state agencies. For example, California has 600 agencies ranging from municipal forces of less than 10 officers to the Los Angeles Police Department with 8000 sworn officers.
31 Ibid, p.42.
32 Page, T E, op. cit., p.131.
34 VicRoads, op. cit., p.42.
35 Ibid.
36 Ibid., p.43.
38 IbidRoads, op. cit., p. 44.
39 Ibid., p.45.

Inquiry Into The Effects Of Drugs (Other Than Alcohol) On Road Safety In Victoria
34 Ibid., pp.45-46.
35 Ibid., p.46.
36 Federal Office of Road Safety, Submission, p.9.
37 Ibid.
38 Insurance Corporation of British Columbia, Correspondence, 26 June 1996.
39 Victoria, Department of Health and Community Services, Submission, 15 September 1995, p.18.
41 Ibid., p.18.
45 Victoria Police, Submission, 6 September 1995.
46 Victoria Police, Minutes of Evidence, 19 September 1995, pp.18-32.
47 Victoria Police, Submission, 24 May 1996.
48 Ibid., Appendix A, p.17.
49 Ibid., Appendix B, p.18.
51 Ibid.
52 Ibid., p.2.
53 Royal Automotive Club of Victoria, Correspondence, 14 June 1996, p.1.
54 Ibid., p.3.
55 Ibid., p.2.
56 VicRoads, Correspondence, 14 June 1996, p.2.
57 National Institute of Forensic Science, op cit, p.16.
8. Countermeasures To Driver Impairment

8.1 Introduction

The Committee proposes countermeasures to driver impairment to make Victorian roads safer. Many of these countermeasures arise from the Committee's inspections throughout Australia and overseas, its research program and the submissions it has received.

It has built on the Impaired Driving Detection Procedure proposed in Chapter Seven to develop a series of countermeasures designed to integrate into an overall strategy.

Each component of the strategy developed by the Committee relies on others to be fully effective. The Committee emphasises that the issue of drug-impaired driving is complex and its countermeasures cannot be considered individually. Each has an effect on another and, in some cases, the absence of one may negate the effect of others.

The four elements of the strategy are:

![Diagram of the four elements: Prevention, Research, Detection, Action.]

Each element is now considered and recommendations proposed so that a total strategy can be established in Victoria answering the seventh term of reference to the Committee.
The Committee is required to:

7. Report on ways to reduce crash risk associated with driving which is impaired by the consumption of drugs (other than alcohol) in Victoria, including the roles of research, information campaigns, public education and legislation.

8.2 Prevention

Legislation

Chapter Six recommends that the strategy concentrate on driver impairment rather than a schedule of proscribed substances and that legislation be amended accordingly.

The Committee found that each Australian State has a different legislative approach to drug-impaired driving.

All jurisdictions have an offence of 'driving under the influence' (DUI) but key elements such as definition of a drug, police powers, measurement of impairment and means for detecting drugs differ from State to State. The deficiencies in Victorian legislation are identified in Chapter Six of this Report.

New legislation is needed to demonstrate clearly the expectations of the community and to authorise Victoria Police to obtain blood and/or urine samples from drivers who fail a series of standard impairment tests.

The Committee's recommendations address concerns that current Victorian legislation does not define how police can detect impaired drivers, determine the cause of impairment, prosecute a driver or refer them to the appropriate health service.

The Committee addresses specifically issues facing the national road transport industry. Road transport legislation is being standardised nationally and this Report, if adopted, would place Victoria in the lead in legislating to preclude persons from driving commercial vehicles when they have taken any known driver impairing drugs or medication in excess of prescribed dosage.
Publicity Programs

Effective countermeasures to social problems throughout Australia have employed integrated publicity campaigns targeting 'at risk' groups. Driver impairment is such a problem.

The Committee found that a submission from the Victorian Branch of the Pharmaceutical Society of Australia best described five groups in the community which need targeted public education programs on drugs and their effects on driver performance:

People likely to experiment with drugs, illicit and prescribed.

The general population, who may be unaware of possible impairment of their driving skills by prescribed and over-the-counter medication. (This group would include persons suffering from medical conditions such as hypertension, depression, anxiety and sleep disturbances).

High risk groups. This group would include persons suffering from diabetes, epilepsy or psychiatric conditions who may have slightly higher risks of traffic accidents as compared with unaffected persons.

Older persons, who may not be aware of the decrease in their driving performance due to reduced psychomotor skills, eyesight, decision-reaction time or the effect of legally prescribed medication.

Persons whose employment is driving.¹

Until recently there has been no compelling evidence that drug-impaired driving is a road safety problem in Victoria.

A number of organisations have taken tentative steps in public education. The most notable are:

- Australian Drug Foundation and its pilot campaign on amphetamine use by truck drivers. IS 8.1
- Transport Accident Commission (TAC) and its campaign on medications. IS 8.2
- Pharmaceutical Society publications. IS 8.3
- VicRoads' elderly driver campaign. IS 8.4
- Victoria Police, which has included 'Drug Misuse' in its police training course. IS 8.5
- Tranquilliser Recovery and New Existence (TRANX) program. IS 8.6
The Committee has found limited information exists on the effects of drugs on driving. This does not imply that a problem does not exist but it has been difficult to determine the magnitude of the problem prior to developing an overall strategy on how to address it. Furthermore, work already completed has not been monitored for its effectiveness as is done with the ‘Quit’ program conducted by the Victorian Health Promotion Foundation in relation to tobacco and road safety campaigns produced by the Transport Accident Commission.

Insufficient statistical data is kept in Victoria on driving while impaired. The lack of core information available to this Inquiry on the scope, age segmentation and economic effect of driver impairment was disturbing and all agencies within the road safety, health care and treatment field must work together to develop a common database.

The work of Professor Olaf Drummer, Assistant Director of the Victorian Institute of Forensic Pathology, Dr Judith Perl of the Clinical Forensic Medicine Unit of the New South Wales Police Service and Professor Graham Starmer of the University of Sydney, their associates and others has begun to raise public awareness.

The objective should be to develop more effective publicity and education programs which can be validated through an effective review process.

The Australian Drug Foundation campaign on amphetamine abuse by truck drivers was supported by an independent evaluation which demonstrated that its message was reaching the target audience.

Ms Rosemary McClean, Senior Policy and Planning Officer of the Australian Drug Foundation, said there had been only limited community education to increase awareness of prescription and illegal drugs or about their effects on driving ability. The only promotion she could find in the Foundation's archives was a poster entitled 'Stash Your Keys', relating to driving and cannabis use. It would have had only limited circulation to community health centres and alcohol and drug agencies.
The Committee's view is that publicity programs must extend from an anti-drug message to students below driving age at secondary schools to advice targeted to older citizens. A process needs to be developed to integrate all information and education needs into one strategy. Like the 'Get Real' education program for school children, the strategy must link in with driver training guides and tests for driver licences.

The Committee noted that the issue of educating our young people against the effects of drugs was a high priority to government. The Minister for Education announced in October 1996 a $13.9 million drug education program for schools. Each school in Victoria will develop an 'Individual School Drug Education Strategy' (ISDES) under guidelines to:

- address both legal and illicit drugs.
- develop a preventative basis in upper primary school and ensure education regarding illicit drug use is provided through the secondary years.
- establish guiding principles for curriculum and drug related student welfare practices and programs.
- develop parent and community interaction and involvement.
- address staff and professional development needs and outcomes.

Drivers receive only limited information on drugs as causes of driver impairment before they obtain their licences, apart from the successful Traffic Accident Commission's 'Drink Drive, Bloody Idiot' campaign.

The Victorian Traffic Handbook, used by learner drivers, contains only a short reference to drugs and driving and does not mention illegal drugs other than cannabis. It further implies that all drugs are sedating. The effects of amphetamines on risk taking and aggressive behaviour are not mentioned. The Committee found that drivers need education programs at learner and probationary stages.

Both VicRoads and the Royal Automobile Club of Victoria (RACV) supported the view that information on drugs and driving should form part of a publicity campaign for novice drivers with relevant questions being included in the learner and probationary licence knowledge tests.
Drivers also need to be encouraged to seek information from a variety of sources such as doctors, pharmacists, VicRoads or motoring bodies such as the RACV on the effects of medication they may be taking.

The Transport Accident Commission undertook a publicity campaign in 1995, after the Inquiry had commenced, to raise awareness of the possible effects of some medications on driving ability. It targeted older drivers using the press, advertising leaflets distributed by pharmacists and a trial use of symbols to supplement normal instructions on medication packaging. 18 8.8

Some doubt was expressed to the Committee as to the accuracy of the TAC campaign and the clarity of its message in press advertising but the Committee was also concerned that information in the campaign may have misled readers by including some medications that may not affect driving abilities.

The advertisement has now been withdrawn. Any future advertising programs relating to drugs and driving need to be verified by a wider evaluation group including pharmaceutical, road safety and communication specialists.

The success of Victoria’s drink-drive and speeding campaigns has been due to the strong deterrent effect of legislation, effective publicity using the core messages of ‘Speed Kills’ and ‘Drink Drive, Bloody Idiot’ and co-ordinated enforcement. This approach should be the basis of future public information campaigns against drug-impaired driving.

While the possible combinations of drugs, alcohol and their effects on road users is vast a new strategy using a common message to prevent and deter people from driving while impaired is required.

The Health Care System

A major element of any countermeasures must be the definition of the responsibilities of both patients and health care professionals.

Persons seeking prescribed medications will visit medical practitioners and this is where the education of patients on the effects of medication on their driving can commence.
Information can be conveyed verbally or through leaflets, brochures, information sheets, warning messages or symbols on medication labels. Information leaflets may be provided by manufacturers or by a Government program.

Any information campaign should reassure those in the community who regularly take medication in prescribed doses without driver impairment that it does not suggest that anyone should cease to take medication or decrease dosages without advice from his or her general practitioner or specialist.

There are two components to the information process:

- **information and labelling** - written instructions provided by manufacturers and pharmacists for people purchasing medications.

- **advice** - instructions and information, generally verbal, by doctors or dentists to patients and by pharmacists to customers.

**Information and Labelling**

Information is provided to the consumer in various ways:

- on the bottle or container of the medicine.
- on the package.
- on a leaflet inserted in the package.
- on labels attached to the container and/or package.
- on a separate leaflet or brochure.
- as an information sheet produced as part of a chemist's dispensing process.

The Committee pursued a number of concerns it had with the provision of road safety information to people who consume medications. It examined Consumer Product Information (CPI) documents, an initiative of the Australian pharmaceutical industry, which have been included with all new prescription medicines since 1 January 1993. Over 500 CPI documents have been developed by manufacturers to date and the program will cover all prescription medicines by 2002.6
The Australian Pharmaceutical Manufacturers' Association submission said that the Association works closely with consumers, health care professionals, the Therapeutic Goods Administration, the Australian Pharmaceutical Advisory Council, the Pharmaceutical Health and Rational Medicines Committee and other interested parties. The Association stated that these consultations include experts in plain English who ensure that high standard CPIs are produced and used in a way that 'will strongly contribute to positive health care outcomes'. The Committee found that considerable work still needs to be undertaken to ensure clarity of communication.

Consumer Product Information documents examined by the Committee were extensive and often complex. Descriptions of a drug and its effects were often in very small print, taking three to four pages with little or no room left for a clear description as to the effect of the drug on driving skills.

The Committee questioned the Australian Pharmaceutical Manufacturers Association about the vagueness of the Consumer Product Information documents. In response to a question on whether doctors are briefed on the sedating effects of a new medication when taken with alcohol Ms Deborah Monk, Manager, Scientific and Technical Affairs of the Association replied:

That is usually included as a part of the Product Information if it is a side effect of that medication. If it is known in the development of that medication, a statement to that effect will be included in what we call the approved Product Information - the information directed at the doctor about new medicine.

The Committee does not consider these documents to be an effective method for providing information and it found that their use may be more for protecting the pharmaceutical industry against every legal eventuality that may arise, leaving many people with a difficulty in understanding what should be simple messages. An overall evaluation and report on the documents by the Commonwealth Department of Health and Family Services is expected in late 1996.
In addition to CPI documents medications require sedation warning labels under a Schedule of Drugs and Poisons published by the Australian Health Ministers' Advisory Council. In January 1995 the Schedule listed 105 prescription and non-prescription drugs requiring a sedation warning.

Products such as travel sickness tablets, which are not sold on prescription but can have a sedative effect, are covered by the Schedule which requires a warning to be affixed by the manufacturer or distributor.

Since 1994 all pharmacists practising in Victoria have been required to attach to medications one of two 'Cautionary and Advisory Sedation Warning Statements' to relevant products. The labels are:

**Label 1**  
This medication may cause drowsiness and increase the effects of alcohol. If affected do not drive a motor vehicle or operate machinery.

**Label 12**  
This medicine may affect mental alertness and/or co-ordination. If affected do not drive a motor vehicle or operate machinery.

The standard for counselling patients and labelling medications is listed in the Australian Pharmaceutical Formulary (APF).

In July 1995 a sample of 335 pharmacists was surveyed about their knowledge of the effects of drugs and driving. Drugs requiring Label 1 were identified by 96 per cent whereas those requiring Label 12 were identified by only 29 per cent of pharmacists indicating that further education of pharmacists was required, particularly by manufacturers and distributors of those drugs not recognised.

The Committee was told that pharmacists accept that it is their responsibility to ensure that customers understand the effects of medication as 90 per cent of pharmacists surveyed replied that the warning should be given in both written and verbal form. More than 80 per cent said they used coloured labels plus verbal counselling to pass on additional information such as the risk of drowsiness to their patients and 17 per cent said they supplemented this information with written information leaflets.
One method of addressing deficiencies in information at the pharmacy level would be to have all drugs of impairment identified on their packaging at the point of manufacture or, if imported into Australia, at their source of distribution. The Royal Australasian College of Surgeons made such a recommendation. This would require the relevant agencies of the Federal Government to be advised by pharmaceutical manufacturers and importers of the drugs and the dosage at which driver impairment may occur.

Under this procedure each Australian State or Territory would be immediately advised of drugs and impairment levels identified by the manufacturer and distributor so that police and emergency service workers can maintain a current body of information. The Committee considers this to be a fundamental part of any accreditation process for new medications in Australia.

Doctors and pharmacists need clear direction on what medical advice should be given to patients on how to avoid driver impairment. Information should also be developed to encourage patients to seek advice on the effects of the medication they are taking. Patients need to be encouraged to accept that they have a responsibility to establish the effects of their medication on driving performance. This development of collective responsibility would require the provision of clear and concise information to all levels of the community.

Throughout the Inquiry the Committee considered whether existing road safety warning labels on medications are satisfactory and whether they could be replaced or supplemented with symbols. Labels 1 and 12 are a significant first step in educating consumers but the information they attempt to convey on a small label is excessive.

The red triangle or cautionary symbol used currently on Labels 1 and 12 in Victoria may be useful but the consumer is still so overburdened with technical information relating to dosages and other information that the road safety message may be lost. As a result medication for even a minor ailment may impair driver performance and lead to injury or loss of life.
The Committee finds that three levels of warning symbols are required. They should indicate:

**Level One.** this medication may affect driving ability.

**Level Two.** do not drive if taking this medication.

**Level Three.** do not consume alcohol and drive if taking this medication.

**Level One**

The first warning level is the symbol of a red triangle. The Committee found that the effectiveness of the current warning symbol could be further simplified if the red triangle was accompanied by a simple statement:

![Red Triangle Symbol]

**This medication may affect driving**

The Committee recommends establishment of two further safety warnings using the following symbols.
Level Two

Do not drive if taking this medication

A motor vehicle in a red circle with a red diagonal slash.

Level Three

Do not consume alcohol if you take this medication and drive

A beer or wine glass in a red circle with a red diagonal slash.

Each of these warning symbols must be clearly visible to the user at all times. No other message or promotion should interfere with or be placed on or over the warning symbol by the pharmacist.
Ms D Monk of the Australian Pharmaceutical Manufacturers' Association said in evidence to the Committee:

The symbols are not in my area of expertise. The Communications Research Institute of Australia has developed guidelines...

and:

... it has not recommended the use of those symbols because research has shown that they are not universally understood by people of different backgrounds and cultures ...\(^{16}\)

The Committee's experience suggests that the Association's concerns are misplaced. Symbols are widely used and recognised in all parts of the world and are widely used in Australia.

The Committee found the two symbols to be a simple method of highlighting the road safety message without any need for interpretation or comment. It recommends that the symbols be affixed by manufacturers to any medication known to cause driving impairment.

**Medication Advice**

Medical practitioners and medical students,\(^{15} 8.10\) pharmacists,\(^{15} 8.11\) pharmacy students\(^{15} 8.12\) and health and welfare workers\(^{15} 8.13\) have been the targets of education programs which have highlighted their responsibilities to their patients and the community. These education programs need to be continually developed for the medical profession to reflect the constant entry of new medications onto the market and how they may impair driver performance.

The responsibility of the medical profession to advise patients of the effects of medications they have prescribed is well accepted and is the most effective means of informing consumers.

The RACV recommends a Code of Practice to ensure that manufacturers, general practitioners and pharmacists provide the correct information to consumers and this could be part of an information and education program.\(^{17}\)
The community must accept that information on the effects of medications is a joint responsibility. In addition to the responsibilities of the manufacturers, the medical profession and pharmacists, consumers themselves must be encouraged to take responsibility for seeking information.

**Enforcing the Law**

The effectiveness of enforcement varies significantly across Australia. The Committee has concluded that New South Wales and Western Australia are currently the most effective but neither State considers it is operating satisfactorily. While there are some legislative difficulties which hamper current enforcement efforts the main deficiency recognised in all jurisdictions is a lack of police skills in identifying, recording and presenting testimony in court of drug-related driver impairment.

The Committee found that the model for managing driver impairment which it advances in Chapter Seven provides the basis for effective enforcement in Victoria.

An estimate of each State government's collective performance to enforce legislation relating to drug impaired driving is shown on the following page in Table 8.1.\textsuperscript{15,14}

Western Australia had by far the most charges, averaging almost 6.5 charges per 100,000 vehicles per year. New South Wales averaged 6.1 while Victoria barely appeared on the graph. Only two charges were made in Victoria in 1994/95.\textsuperscript{18}

The higher rate of apprehension and prosecution of possible drug-impaired drivers per registered motor vehicle in New South Wales and Western Australia shown in the table is a measure of the effectiveness of legislation and enforcement in those two States. No information was available from Queensland. However, in the absence of data on the number of motor vehicle crashes caused by drugs an estimate of the effectiveness of the legislation and its enforcement system cannot be made.\textsuperscript{19}
The objective must be to detect impaired drivers on Victorian roads. The countermeasures proposed by the Committee are intended to enable the detection and removal of drug-impaired drivers from Victorian roads.

Road Transport Industry

The Committee is concerned at widespread use of stimulants to combat fatigue by long-distance commercial drivers. This concern was accentuated by two bus accidents in New South Wales in 1989 in which 20 people were killed at Grafton and 35 at Kempsey. In both crashes the use of stimulant drugs was identified as a factor.21

The transport industry has made efforts to avoid these appalling incidents and loss of faith in the industry by the community.
Since October 1993 the Road Transport Forum (RTF) and 243 road transport operators have been pursuing an industry accreditation process, 'Team 200', which is designed to improve standards of safety, professionalism and efficiency within the industry.\(^{22}\) It includes operators from single vehicle businesses to fleets of 800 vehicles involving over 5000 drivers in all.

Work has been conducted in Queensland on a fatigue management program and 'Team 200' has a pilot project under way with the industry. Victoria, New South Wales and South Australia are involved in this pilot program.\(^{18}\)\(^{8}\)\(^{15}\)

Aspects covered in a 'Team 200' accreditation program include:

- driver health.
- driver training.
- vehicle maintenance.
- management systems.

Since the early 1990s there have been moves for a national approach to heavy vehicle issues by State and Territory governments in Australia overseen from 1992 by the National Road Transport Commission.

An element of the joint government and industry co-operative approach to heavy transport issues is world-leading research into operator fatigue by the National Occupational Health and Safety Authority (Worksafe Australia). The research is financially supported by the Federal Office of Road Safety and is providing valuable information from which better operator practices and improved road safety should result.

The Committee became aware of a new national strategy to cover driver fatigue agreed to in draft form by all States.\(^{23}\) The strategy would require truck drivers to take a minimum rest break of 10 hours over a 24-hour period including a continuous rest period of six hours. A further two hours would be provided for non-driving work leaving a maximum driving period of 12 hours. Recording of driver hours would be undertaken through a log book or electronic monitoring device in vehicles. A national fatigue management scheme is proposed from 1998.
A major aspect of the fatigue management scheme is that companies need not participate in a log book regime provided they conduct regular health checks, train their managers to recognise driver fatigue and comply with other aspects of the scheme.

The Committee welcomes this new approach but is of the view that further action is required. Heavy vehicle drivers and managers are equally responsible for providing a safe work place and for developing responsible travel schedules so that drugs are not taken to reduce driver fatigue.

These new self-regulation systems need to be reinforced to put beyond doubt that the continued use of driver-impairing substances is inappropriate and is eradicated by effective on-road detection and testing methods.

The Committee considers that drivers of heavy trucks, buses and taxis have a particular responsibility for public safety and must not drive when impaired by drugs. This additional responsibility already applies to alcohol. In Victoria drivers of trucks over 15 tonnes gross mass, buses carrying 12 or more passengers and taxis are required to have a zero blood alcohol concentration. Learner and probationary drivers and some drink-driving offenders are required to be alcohol-free when in charge of a motor vehicle.

To encourage zero consumption the Committee found that current provisions under the Road Traffic Act 1986 need to be extended to all commercial vehicle classes and require drivers to be totally free of any impairing drug or substance. The Committee recognises that in seeking to implement this concept, particular attention would be required to identify the dosage levels of many routinely prescribed medications taken for general health and the point at which their abuse may lead to driver impairment. A revision of the medical review process for commercial vehicle drivers may be required.

Compliance with the desired zero impairing drugs proposal may need to be encouraged by development in Australia of random urine drug testing programs both at the place of employment and at the roadside. The justification for such a significant step requires specific investigation and should form part of the current development of road industry accreditation processes.
The experience in the United States of America with alcohol and drug testing of employees in safety-sensitive positions in the commercial transportation industry is that the threat of substantial penalties has been successful in reducing the incidence of drug use. Penalties on employers have often been as high as $US 40,000.24

Individual truck drivers often blamed their employers or customers for setting unrealistic delivery schedules. The drivers claimed that they needed to combat fatigue caused by excessive driving hours by taking stimulant drugs. Some even claimed that by taking stimulants they were, in fact, acting responsibly to combat fatigue.25

The National Road Transport Commission is developing a Compliance and Enforcement Proposal for the National Road Transport Law which includes consideration of the concept of a chain of responsibility for some offences. In the case of driving hours offences the proposal states that:

Primary responsibility rests with the driver, but again an operator who fixes unrealistic schedules should be subject to sanction. Greater supervisory responsibility should be placed on operators.26

The Committee considers that both individual drivers and trucking companies have a joint responsibility to ensure that drivers of commercial vehicles remain drug free.

The Committee proposes the principle apply that when a fine is imposed on a driver found to be impaired while in charge of a commercial vehicle the same fine shall be imposed on the employer. The practical implementation of such a principle will require detailed consideration by the appropriate legal authorities.

RECOMMENDATIONS

10. That an integrated campaign of information and education be provided to each sector of the driving community from the adolescent pre-driver through to the older motorist highlighting the risks of driver impairment due to drugs.
11. That publicity emphasise that combinations of drugs, or drugs mixed with alcohol, increase the risks of injury or death in a crash.

12. That emphasis on the effects of drugs on driver performance and road safety be incorporated in driver training curriculums and materials and licence testing procedures.

13. That pharmaceutical manufacturers be required to advise the Federal Government of the drugs and the dosages that may impair driver performance so that Australian police forces can be advised of the potential levels of impairment and to enable the medical profession and patients to make a decision on other medicinal alternatives.

14. That a Code of Practice and associated publicity campaign be developed for pharmaceutical manufacturers, doctors and pharmacists to advise patients on the possible effects on driver performance of drugs they are producing, prescribing and dispensing.

15. That a climate be created which encourages patients to accept personal responsibility for seeking information from their doctors or pharmacists about the driver-impairing effects of prescribed medication.

16. That the symbols of a motor vehicle and a wine glass in red circles with red diagonal slashes be affixed to all medications that may impair driving particularly if consumed with alcohol.

17. That manufacturers affix the warning labels to their products prior to distribution to pharmacists.

18. That warning symbols remain clearly visible and not be covered or removed by pharmacists.

19. That training courses and information on the effects of drugs on driver performance and road safety continue to be developed and provided to qualified and student medical, nursing and pharmacy professionals.
20. That a person who drives a commercial vehicle under the provisions of the *Road Traffic Act 1986* be free of any drug or substance of impairment beyond a prescribed dosage.

21. That the principle apply that when a fine is imposed on a driver found to be impaired while in charge of a commercial vehicle the same fine shall be imposed upon the employer.

22. That fatigue management programs in the road transport industry be supported to eradicate the abuse of stimulant drugs taken to combat driver fatigue.

23. That proposed driver impairment assessment legislation and police training be supported by publicity which stresses impaired drivers will be detected, tested and where appropriate, penalised.
8.3 Detection

In Chapter Seven of this Report the Committee proposes an Impaired Driving Detection Procedure. This procedure requires amendment of State legislation to authorise Victoria Police to require drivers to undertake behavioural tests, to obtain body fluid samples when justified, to penalise drivers for failure to cooperate and to suspend drivers' licences until they are fit to drive. Legislation should allow police to use the Impaired Driving Detection Procedure to undertake:

(a) a Roadside Impairment Assessment test.

(b) a Standard Impairment Assessment test by a second, more experienced police officer, a video record of the test procedures and if they intend to proceed to prosecution the taking of blood and/or urine for chemical analysis.

(c) tests of body fluid samples to determine what substances may have been consumed.

If a driver is found to be impaired he or she must not drive.

To be successful and to ensure that the process of police detection and enforcement is accurate and fair the Committee found that the following issues need to be addressed.

Assessing Impairment

The Committee found the key issue in its proposed Impaired Driving Detection Procedure would be the ability of police to determine at the roadside whether a driver is impaired and to commence a structured assessment of the degree of impairment.

To achieve this throughout the State standard procedures and steps would need to be followed. The process of assessing impairment must be simple and effective. The training and accreditation of several thousand members of the Victoria Police would be necessary.
In Chapter Seven the Committee recommends that a specialist working group be established to devise the scientific tests and recording process that would constitute the Impaired Driving Detection Procedure. The group should be widely based drawing on all available expertise to ensure that all views are taken into account in the development of tests and their application.

It should include such organisations as the Royal Australasian College of Surgeons, the Department of Human Services, the Department of Justice and VicRoads. A public advocate would also be essential.

The lead agency of the specialist working group should be the Victoria Police.

Once tests have been established the educational needs of police should be addressed. The specialist working group should develop educational models and evidential training methods to support the new procedure. It would be essential that Police throughout the State be trained prior to the implementation of the proposed Impaired Driving Detection Procedure.

Education and Training

Education of enforcement officers is essential if the intent and expectations of any driver impairment legislation are to be met. Enforcement rests with the Victoria Police and the legal system. Magistrates, prosecutors and the legal profession need to understand the processes to be followed in cases of driver impairment.

The Impaired Driving Detection Procedure proposed by the Committee would need to include training and accreditation processes built into it to ensure that procedures are not slackened or modified by individual police officers.

A smaller number of police officers would need to be specifically trained to conduct standard impairment assessment tests. Victoria Police indicated that the number of personnel required to man 24-hour police stations could be based on expanding the roles of the current number of experienced officers who operate the evidentiary testing machines for alcohol. Training for 800 to 1000 officers would be required. 27
The Committee recognises that initial training costs could be significant. However the costs of training are minor when balanced against the human and social costs of road crashes and trauma.

**Body Fluid Samples**

Samples must be taken by a person qualified to take blood. It would be inappropriate for police conducting a standard impairment assessment test to take fluid samples.

Victoria Police need legislative authority to require a driver to take an impairment test and provide a blood and/or urine sample. The legislation should ensure that drivers who have been hospitalised or have sought medical attention before the arrival of police be required to provide body fluid samples.

An additional objective requiring all drivers injured in a crash to be tested for drugs is to continually develop Victoria's knowledge of drugs and medications other than alcohol that cause driver impairment. This information will be essential in the future development of policies and strategies to combat the effects of drugs and driving on Victorian roads.

It is essential that there be established performance targets and improved delivery times for the laboratory analysis of body samples. Samples must be processed and the results returned promptly to the prosecuting police officer.

The Committee heard evidence during the Inquiry of delays of six months or more in the production of analyses of samples and this is unacceptable. Computerised testing of blood samples similar to the process being developed by Dr Stuart McLean at the University of Tasmania should be encouraged, supported and pursued.

**Central Database**

In Chapter Five the Committee calls for the establishment of a central database to record all drugs and substances found in the bodies of deceased or injured persons.
The database would serve two functions. The first is the establishment of empirical data on drug and substance abuse with profiles of offenders to expand the knowledge available so that better policy and strategies to address the issue can be made.

The second function is the development of research material based on actual observations by police in the field. Each part of the police roadside and standard impairment assessment tests needs to be recorded and placed onto the database. This process will allow the tests to be continually monitored for effectiveness and to determine over time what modifications or additional tests may be required. This information would also document what drugs were found, a record of the outcome of each test and what cases, if any, were taken to the courts.

Provision for such a database should be included within the design of the two impairment tests and the analysis of blood and urine samples at emergency medical centres and hospitals. A copy of each record would be sent to the agency establishing and maintaining the database. This information would then be available in a common form to other relevant agencies.

The Committee is firmly of the view that the identity of each person would not be required or be relevant in this database prior to conviction. That information must be held in confidence by Victoria Police to maintain the privacy of the individual.

The Committee found that maintenance of data by one agency would be the most cost-effective solution for the Government and that the appropriate agency would be VicRoads.

**Retaining Public Scrutiny**

The issue before the Committee is the removal of impaired drivers from Victorian roads in a process that is fair. The processes followed must be scientifically based and incorporate techniques designed by the specialist working group.
The Committee is of the view that this could be achieved through sound design of the roadside and standard impairment tests, reviewed and agreed by all key participants, the compulsory taking of blood and urine samples and the video recording of the standard impairment assessment test to establish evidence likely to succeed in court.

The Police Ombudsman provides a public safeguard against improper actions by Police and the inclusion of a public advocate on the various working parties would give due regard to the rights of the individual.

RECOMMENDATIONS

24. That a specialist working party headed by Victoria Police develop the education, training, accreditation, operating procedures and data recording methods required under the Impaired Driving Detection Procedure.

25. That a public advocate be a member of the specialist working party.

26. That police be trained to conduct roadside driver impairment tests and presentation of evidence in court.

27. That police officers trained in the application of the Standard Impairment Assessment test be located at every 24 hour police station.

28. That overseas experience with the Drug Recognition Expert procedures be monitored to determine whether elements need to be included in Victorian procedures.

29. That all drivers suspected of being impaired be recorded by video camera when undergoing the Standard Impairment Assessment test.
30. That a central database be maintained by VicRoads to record the results of all police observations, driver impairment tests conducted in the field and at a police station, chemical testing of blood and urine and any subsequent action taken for instances of suspected driver impairment not due to alcohol.

31. That the identity of a person suspected of driver impairment be held in confidence by the Victoria Police and not be included in a central database unless convicted.

32. That standard analytical methods, quality control procedures and performance targets be set for the screening of urine and blood samples for drugs at police and forensic laboratories.

33. That computerised techniques for the testing of blood samples presently being developed be supported to ensure prompt delivery of test results.

34. That police be authorised to require driver impairment tests and body fluid samples from any driver involved in a crash where the police have reasonable cause to suspect drug-related impairment.

35. That blood and urine samples must be taken by a suitably qualified person.
8.4 Action

Action is required to ensure that persons have their licence to drive suspended or cancelled if they are found to be driving while impaired by drugs. The legislation and procedures used for drivers convicted of blood alcohol offences could be an appropriate model to follow.

The Committee recommends that a Task Force headed by VicRoads advise Government on the necessary amendments to the Road Traffic Act 1986 for the penalties and treatment procedures that relate to the loss and recovery of a licence to drive.

Issues to be considered by the Task Force include determining the evidence to demonstrate at what stage the impairment is considered to be removed or reduced to an acceptable medicinal level. The completion of a re-education course, evidence of treatment and the endorsement of an independent person such as the driver’s medical practitioner as to his or her capacity to resume driving may be a requirement.

RECOMMENDATION

36. That the Task Force headed by VicRoads establish procedures for the recovery of a licence suspended or cancelled due to driver impairment.
8.5 Research

The Committee emphasises the need for on-going research. This is an essential prerequisite for determining the success of road safety countermeasures.

The international forum on drugs and road safety and the exchange of information through working groups formed by the International Council on Alcohol, Drugs and Traffic Safety (ICADTS) maintains contact with the experiences of other countries. IS 8.16

The growing use of meta-analysis to interpret a wide number of studies and tests will provide a more complete picture of the behavioural effects of drugs on road safety. The work on this technique by Professor Gunter Berghaus and his associates at the University of Cologne, Germany, is an important new development which could ultimately enable policy development based on informed conclusions from various disparate scientific experiments.29

Research now being conducted in Australia will expand the body of knowledge on the effects of drugs on the human body and particularly their effects on driving performance. Research is being undertaken by:

- Professor Drummer and associates at the Victorian Institute of Forensic Pathology.
- Professor Starmer and colleagues at the University of Sydney.
- Dr Perl at the Clinical Forensic Medicine Unit of New South Wales Police.
- Dr David Joyce of the University of Western Australia.
- The South Australian Department of Transport.

Worksafe Australia and Murdoch University are examining driver fatigue and Monash University’s Accident Research Centre is conducting a detailed investigation of single vehicle crashes. IS 8.17

The Committee considers the work of the Victorian Institute of Forensic Pathology should continue using, wherever possible, data from other States to increase the sample size more rapidly. This view is supported by VicRoads.30
The Committee found that individual agencies could not provide adequate information on levels of drug use and the Transport Accident Commission (TAC) stands as one example. The Committee has recommended one common database for all data to be recorded on the type, cause and incidence of drug-related road crashes so that, in future, primary data could be consolidated for research and investigation. This database could be extended to cover information collected from assessment tests and observations of drivers, injured drivers treated at hospitals and blood sample analyses to identify the importance and characteristics of drug-related injury crashes.

Dr Kenneth Terhune’s opinion was that drugs may play as large a role in the causes of injury crashes as they do in fatal crashes. While there is some limited data from South Australia and from Liverpool Hospital in Sydney there is no Victorian data. The sample size of 3500 injured drivers envisaged by VicRoads is significantly higher than Drummer's study of 777 Victorian driver fatalities.

A better knowledge of the characteristics of over-involved groups or over-represented drugs would allow the on-going development of appropriate countermeasures. Research needs to be conducted into the extent to which driver impairment is attributed to:

- drug addicts and abusers.
- occasional recreational drug users.
- users of stimulants to combat fatigue.
- users of prescription drugs who possibly are affected by inappropriate doses or by drug interaction with alcohol.
- various non-drug causes of driver impairment.

This should include investigation of lifestyle patterns and driver attitudes on drugs and driving. The purpose of this research would be to guide impairment testing methods and development of countermeasures.

The opportunity exists for Victoria Police to trial different driver behaviour tests and instrumented evaluation equipment such as the Simulated Evaluation of Drug Impairment (SEDI) machine with people who have used drugs far in excess of what could ethically be given under experimental conditions.
The Committee encountered difficulty with much of the laboratory and experimental work throughout the world because studies had used different methods of observation and measurement. The development of new meta-analysis techniques to derive information from many unconnected tests may overcome some of these difficulties.

The work of Dr Judith Perl of the Clinical Forensic Medicine Unit of New South Wales Police and Dr David Joyce of the University of Western Australia linking specific behavioural signs from New South Wales and Western Australian driver impairment tests with the results of laboratory analyses is important as it relates to real life situations.36

While research provides useful insights the Committee has observed that much of it appears to be being driven by the initiative and dedication of individual researchers who make use of data collected for other purposes.

The Committee is of the view that co-ordination needs to be considered at a national level. National guidelines for the collection, recording and interpretation of research material is required to provide a much larger and more comprehensive accumulation of data.

A first step in this direction was a Strategic Road Safety Research and Development Program for Australia published in 1994 as part of the National Road Safety Strategy.37 This program listed research projects then under way. However there is still a need for the development of a nationally co-ordinated approach to drugs and road safety including the setting of priorities and resource levels.

The Committee's recommendation of a common database in Victoria is a step towards that national approach to provide information on actual road safety performance for research and policy purposes.

National strategies need to be developed to:

- guide future research efforts.
- assess needs and priorities for possible changes in the way data is collected.
- establish the appropriate recording and storage of scientific data.
RECOMMENDATIONS

37. That research be undertaken on groups of impaired drivers, their attitudes and lifestyle patterns to guide the development of countermeasures.

38. That a national research strategy on drugs and road safety be encouraged to guide the conduct of future investigations, assessment and data recording methods.

39. That specific attention be given to research into the effects of combinations of drugs, including alcohol, on driver performance and their involvement in road crashes.
8.6 Implementation and Review

The Committee was impressed by the work of the New South Wales Roads and Traffic Authority's Drug-Driving Task Force and its development of a comprehensive, prioritised strategy.\(^{38}\)

A similar task force approach is needed in Victoria. This view is shared by the Royal Automobile Club of Victoria.\(^{39}\) The Task Force needs to include the key participants in road safety and driver impairment due to drugs other than alcohol and should include:

- Department of Human Services.
- Department of Justice.
- Transport Accident Commission.
- Royal Automobile Club of Victoria.
- Pharmaceutical Society of Australia.
- Royal Australasian College of Surgeons.
- A representative of the road transport industry (e.g., Road Transport Forum).
- Victoria Police.
- A public advocate.

VicRoads should be the lead agency in the co-ordination of the Task Force.

The Task Force would be a strategy and policy group using its existing resources to establish collectively the priorities and activities of the group, overseeing the work of specialist working groups, monitoring implementation and providing policy advice.

One of the specialist working groups would need to establish the procedures and associated training for driver impairment tests described in Chapter Seven. Other specialist working groups would be necessary for tasks such as developing new legislation, education and publicity programs, treatment processes, databases and research. Appropriate linkages to interstate agencies and experts would need to be established. Where possible a national approach should be developed.
Each of the specialist working groups would be required to return with its recommendations to the Task Force for approval prior to implementation.

In the light of results of the studies on drug responsibility in fatal and injury crashes the Task Force may consider other possible countermeasures such as:

- A zero blood-alcohol concentration for anyone driving while using prescription drugs such as some benzodiazepines which are clearly defined and labelled as driver-impairing.

- A zero blood level concentration for any illegal recreational or occupational drug or substance.

- A zero blood level reading for any drug, such as amphetamine, which can have a medical use but is being abused.  

Finally, as with other recent Road Safety Committee Inquiries, the Committee considers that it should review progress on its recommendations. The Committee proposes that this review be conducted during the term of the 54th Parliament.

**RECOMMENDATIONS**

40. That the Government establish a Task Force led by VicRoads of road safety, health, justice, police, pharmaceutical, motoring and transport organisations and a public advocate to establish priorities, co-ordinate activities, oversee the work of specialist working groups and monitor implementation of a plan to address the effects of drugs other than alcohol on road safety in Victoria.

41. That the Committee review the issue during the term of the 54th Parliament.
Footnotes

1 Pharmaceutical Society of Australia (Victorian Branch), Submission, 7 August 1995, p.2.
5 Royal Automobile Club of Victoria Ltd, Submission, May 1995, p.iii.
7 Ibid.
8 Ibid.
9 Monk D, Minutes of Evidence, Sydney, 6 December 1995, p.270.
10 Bell, K, Acting Director, Policy and Co-ordination, Commonwealth Department of Human Services and Health, Minutes of Evidence, 4 December 1995, p.177.
11 Pharmaceutical Society of Australia, op. cit., p.3.
12 Gregan, J, Secretary, Drugs and Poisons Scheduling Committee, Australian Health Ministers' Advisory Council, Minutes of Evidence, Canberra, 4 December 1995, p.178.
14 Pharmaceutical Society of Australia, Submission, op. cit., p. 4.
15 Royal Australasian College of Surgeons, Victorian Road Trauma Committee, Submission, September 1995, p.2.
16 Monk, D, op. cit., p. 272.
17 Royal Automobile Club of Victoria Ltd, op. cit., p.11.
18 Follett, A, Development of a Drug Sobriety Testing Protocol, B.Sc (Honours) thesis, Department of Pharmacology, Monash University, Victoria, 1995, Table 2.
19 VicRoads, op. cit., p. 57.
20 Follett, A, op. cit.
21 State of New South Wales, Glebe Coroners Court Reports on Grafton and Kempsey bus crashes, 7 February 1990 and 1 June 1990.
23 National Road Transport Commission, Correspondence, 7 October 1996.
25 Wilke, K, The day to day realities of long distance driving and the influences which encourage illicit drug taking, Inquiry into the Effects of Drugs (other than Alcohol) on Road Safety in Victoria, Parliamentary Road Safety Committee, First Report, May 1995, pp.151-156.
Countermeasures to Driver Impairment

VicRoads, op. cit., p.61.


VicRoads, op. cit., p.61.

Ibid.


Royal Automobile Club of Victoria Ltd, op. cit., p.iii.

VicRoads, op. cit., p.52.
9. Conclusion

The presence of potentially impairing drugs in dead drivers is unacceptably high. The Victorian Institute of Forensic Pathology found that a quarter of fatally injured drivers had drugs present in their bodies. Drivers who consume drugs and drugs plus alcohol have a higher risk of being in a fatal crash than drivers who are drug free.

The cost of the road toll to Victoria in 1993 of drugs alone or when mixed with alcohol was estimated by VicRoads to be $143 million or one-eighth of the cost of the State's road toll.

Drugs affect the driving performance of each person in a different way. Science is yet to establish categorical levels for drugs and substances other than alcohol in the body which determine when drivers become an unacceptable risk on the road.

The Committee found that the lack of scientifically agreed testing procedures had made it difficult to compare the findings of the limited number of studies carried out. The need for internationally agreed testing procedures that measure the effects of drugs on driver performance is imperative. The International Council on Alcohol, Drugs and Traffic Safety (ICADTS) provides a useful forum to initiate the development of these guidelines.

The basis for the Committee's recommendations is the notion of impairment.

The Committee has rejected the restrictive and proscriptive guidelines of the concept of 'driving under the influence of drugs' in the current Road Safety Act in favour of 'driving whilst impaired'. The Committee recommends that the Act be changed.
The Committee's proposal is based on observation of the behaviour of drivers rather than on the issue of consumption of a particular drug. Impairment is defined as a reduced ability to perform adequately the various elements of the driving task. It can be caused by health or physical conditions, psychological conditions, fatigue, distraction or inappropriate consumption of alcohol, drugs or other substances.

The Committee proposes that drivers observed to be impaired would be removed from the road even if they had consumed relatively small, even therapeutic doses of a drug. Where police had reasonable cause to suspect, after two impairment assessment tests, that impairment was drug-related they would take blood and/or urine samples to confirm their observations. The Committee recommends that the taking of samples be authorised.

The Committee found that standardised impairment testing is not widely used in Australia and there is no formal procedure in Victoria.

The United States is the major user of an impairment testing program. The first program was developed in the 1970s by the Los Angeles Police Department as a standardised, systematic method of observing and examining drivers suspected of being impaired by alcohol and or drugs. Police are trained as drug recognition experts to recognise behaviours and physiological conditions associated with seven categories of drugs.

The program has been widely evaluated for its accuracy and is now used in many American states. The Committee found that such an intensive level of police training would not be justified for Victoria. It also found that the judicial environment in the United States differs so much from that of Victoria that their legislative and testing requirements were not readily transferable.

A modified version of the American program is the basis of the proposed Impaired Driving Detection Procedure.

The Procedure commences with a preliminary breath test. Should the breath test show the suspected impairment is not due to alcohol the police may require the driver to undertake an initial roadside Impairment Assessment Test.
From their observations police may decide to proceed to a more detailed test. This would consist of a Standard Impairment Assessment conducted indoors which may include a further breath and behavioural tests, a video record of interview and if the matter is to proceed to prosecution the taking of body fluid samples.

The Committee recommends that the Procedure be developed by a specialist working party.

The Committee has also recommended:

- Legislation to allow the taking of blood and urine samples.
- The video recording of the standard impairment assessment test to protect the rights of drivers and ensure that police follow adopted procedures.
- The Impairment Assessment Procedures be supported by an integrated series of countermeasures designed to create an overall strategy of prevention, detection, action and research.

The issue should be reviewed during the life of the next Parliament.
Appendix One: Submissions

Government Agencies in Australia

Department of Health and Community Services, Victoria
Minister for Roads and Ports, Victoria
Transport Accident Commission, Victoria
VicRoads
Victoria Police Forensic Science Centre
Victoria Police
Austroads
Commonwealth Department of Human Services and Health, Illicit Drugs Section
Drug and Alcohol Services Council, South Australia
Federal Office of Road Safety
Minister for Defence, Commonwealth Government, Canberra
Minister for Emergency Services, South Australia
Minister for Health, New South Wales
Minister for Health, Queensland
Minister for Health, Western Australia
Minister for Police; Emergency Services, Western Australia
Minister for Police and Emergency Services, Tasmania
Minister for Transport, Tasmania
Minister for Transport, Western Australia
Minister for Transport and Works, Northern Territory
Minister for Urban Services, Australian Capital Territory
Motor Accidents Authority of New South Wales
National Institute of Forensic Science, Australia
Queensland Police Service
Non-Government Organisations

Australian Association of Occupational Therapists
Australasian College for Emergency Medicine
Australian Drug Foundation
Australian Institute of Criminology
Australian Medical Association Ltd
Australian Medical Association (Victorian Branch) Ltd
Australian Pharmaceutical Manufacturers Association Inc.
Australian Road Research Board Ltd
Behaviour Data Systems Australia
Citizens' Commission on Human Rights
Geelong Community Health Services Inc.
Macedon Ranges and District Road Safety Council Inc.
Pharmaceutical Society of Australia (Victorian Branch) Ltd
Road Transport Forum
Royal Automobile Club of Victoria (RACV) Ltd
Royal Australasian College of Surgeons, Victorian Road Trauma Committee
Springvale Legal Service Inc.
Transport Workers Union of Australia (Victorian Branch)
Victorian College of Pharmacy
Victorian Council for Civil Liberties
Victorian Health Promotion Foundation
Western Region Alcohol and Drug Centre Inc.

Individual Submissions

Dr R. Bouvier, Kew, Victoria
Dr M. Henderson, Sydney, New South Wales
Professor R. Homel, Queensland
Mr R. Jamison-Jones, Buninyong, Victoria
Dr A. Kenos, Niddrie, Victoria
Mrs S. Kerr, Aspendale, Victoria
Mr D. Lansdown, Mentone, Victoria
Dr E. Ogden, Templestowe Heights, Victoria

The Committee also received two confidential submissions.
Overseas Submissions

Professor F.J. Alvarez, Universidad de Valladolid, Spain
Bundesanstalt für Straßenwesen, (BAST) Federal Republic of Germany
Enviromental Science and Research, New Zealand
European Transport Safety Council
Professor Dr G. Berghaus, Germany
International Association of Chiefs of Police, United States
Land Transport Safety Authority of New Zealand
Dr G.W. Mercer, British Columbia, Canada
National Institute of Forensic Toxicology, Norway
Royal Ministry of Transport and Communications, Norway
Dr C.A. Soderstrom, University of Maryland, USA
SWOV Institute for Road Safety Research, The Netherlands
Dr E.R. Volkerts, Netherlands Institute for Drugs and Doping Research
Appendix Two: Public Hearings

Government agencies are listed under their title at the time evidence was received by the Committee. Due to changes in government these titles may have changed.

Evidence taken under Oath or Affirmation

Melbourne 17 May 1995

Minister for Roads and Ports

Melbourne 19 September 1995

Prof. O. Drummer  } Victorian Institute of Forensic Pathology
Prof. D. Ranson  }

Asst Comm. G. Sinclair  } Victoria Police
Chief Insp. M. Lane  }

Mrs K. McIntyre  } Royal Automobile Club of Victoria Ltd
Mr D. Cummings  }

Mr W. Noonan  } Transport Workers Union of Australia
Mr S. Moore  (Victorian Branch)

Mr A. Lloyd  Pharmaceutical Society of Australia
(Victorian Branch)

Melbourne 20 September 1995

Mr P. Lovel  }
Mr M. Lescai  } Victorian Road Transport Association
Mr P. Knowles  }

Dr E. Ogden  Forensic Consultant

Mr W. Stronach  } Australian Drug Foundation
Ms R. McClean  }

Dr R. Bouvier  General Practitioner

Mr J. MacKenzie  } Transport Accident Commission
Mr I. Forsyth  }

Inquiry Into The Effects Of Drugs (Other Than Alcohol) On Road Safety In Victoria
Appendix Two

Mr C. Jordan
Mr D. Anderson } VicRoads
Dr P. Swann

Melbourne 16 October 1995

Dr J. Paterson
Mr C. Brook } Department of Health and Community Services
Dr M. Dobbin
Mr M. Blackburn

Unsworn Evidence

Canberra 4 December 1995

Mr P. Makeham
Mr C. Brooks } Federal Office of Road Safety
Ms M. Smythe
Mr J. Greentree

Dr L. Gowing
Ms K. Bell
Mr J. Gregan } Commonwealth Department of Human
Services and Health
Ms G. Daly
Dr N. Mitchell
Dr P. Gray

Mr A. Higginson
Ms R. Waller } Road Transport Forum
Mr M. Apps

Sydney 5 December 1995

Mr R. Taylor } Roads and Traffic Authority of New South
Dr D. Saffron } Wales
Mr D. Span

Dr G. Chesher University of Sydney, Department of
Pharmacology

Dr J. Perl
Insp. N. Shepherd } New South Wales Police
Sgt N. Burnes

Ms M. Booth } National Roads and Motorists Association
Mr T. Higgins

Inquiry Into The Effects Of Drugs (Other Than Alcohol) On Road Safety In Victoria
Dr A. Feyer
Dr A. Williamson

Sydney 6 December 1995
Ms D. Monk
Dr M. Henderson

Brisbane 7 December 1995
Mr K. Evans
Mr G. Mahon
Supt M. Hannigan

Adelaide 14 February 1996
Mr A. Bishop
Ms C. Hunter
Supt G. Barrett
Snr Sgt R. Laslett
Snr Sgt R. Greig
Snr Const. J. Anderson
Dr R. Ali
Dr J. McLean

Perth 15 February 1996
A/g Cdr A. Watson
A/g Supt K. Groves
Sgt K. Schorer
Sgt J. McGillvray
Snr Const. H. Crosby
Dr A. Ryan

Inquiry Into The Effects Of Drugs (Other Than Alcohol) On Road Safety In Victoria
Appendix Two

Perth 16 February 1996
Dr D. Joyce University of Western Australia

Hobart 13 June 1996
Ms F. Robinson Department of Community and Health Services
Dr S. McLean University of Tasmania
Dr R. Parsons University of Tasmania

Hobart 14 June 1996
Insp. B. Stephens } Tasmania Police
A/g Insp. D. Sinclair 
Mr S. Dolliver } Tasmanian Government Analytical and
Mr F. Halley } Forensic Laboratory

Melbourne 17 June 1996
Asst Comm. G.I. Sinclair } Victoria Police
Chief Insp. M.C. Lane 

Overseas Discussions

The Committee met and held discussions with the following persons during its overseas inspection tour in July 1995:

Maastricht 3 July 1995
Dr J. de Gier } Institute for Human Psychopharmacology
Dr H. Robbe } University of Limburg
Dr A. Vermeen 
Prof. J. Alvarez } University of Valladolid, Spain

The Hague 4 July 1995
Dr P. Zweipfenning Netherlands Ministry of Justice
Mr J. Van der Watering Ministry of Transport & Water Management
Mr T. van Noord Office of the Public Prosecutor

Mr J. Juszczyk Charge d’Affaires, Australian Embassy
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<tr>
<th>Event Date</th>
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<tr>
<td>6 July 1995</td>
<td>London</td>
<td>Mr I. Mills MP, Hon. G. Dunwoody MP, Mr B. Sheerman MP, Mr A. Pearson, Mr K. Crompton, Mr R. Zacharin, Mr I. Marland</td>
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<td>Agent General for Victoria</td>
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<td>Senior Trade &amp; Investment Counsellor</td>
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<td>7 July 1995</td>
<td>Godalming</td>
<td>Prof. I. Hindmarch, Mr N. Stanley, Dr C. Dal Pozzo, Dr J. Kerr, Miss D. Fairweather, Miss A. Nixon</td>
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<td>Human Psychopharmacology Research Unit</td>
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<td>University of Surrey</td>
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<td>10 July 1995</td>
<td>London</td>
<td>Mrs P. Moores, Mr T. Gee, Supt D. Rowe, Dr R. Tunbridge, Mr P. Openshaw, Dr D. Miller, Ms P. Alsop, Ms F. Wheeler</td>
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<td>13 July 1995</td>
<td>Washington</td>
<td>Ms J. Coleman, Ms S. Richardson, Mr S. Gaj, Mr J. McCauley, Mr B. Sweedler, Mr S. Blackistone, Sgt J. Hock, Lt B. Bernard</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Office of Highway Safety</td>
</tr>
<tr>
<td></td>
<td></td>
<td>National Highway Traffic Safety Administration</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Federal Highway Administration</td>
</tr>
<tr>
<td></td>
<td></td>
<td>National Transportation Safety Board</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Maryland State Police</td>
</tr>
</tbody>
</table>
Appendix Two

Washington 14 July 1995
Dr A. Smiley  } Human Factors North, Toronto
Dr D. Beirness  } Traffic Injury Research Foundation of Canada
Mr W. Henderson  } Australian Embassy
Mr R. Tyson  }
Ms A. Armstrong  } Congressional Liaison

New York 17 July 1995
Mr W. Rourke  } Governor's Traffic Safety Committee
Ms K. Georges  } Albany Police Department
Insp. W. Georges  } New York State Police
Sgt D. Paquette  } New York Police Department
Sgt T. Spadaro  }

Sacramento 19 July 1995
Capt. J. Ortiz  } Californian Highway Patrol
Lt M. Santiago  }
Mr R. Peck  }
Mr L. Marowitz  } Department of Motor Vehicles
Mr C. Helander  }

Sacramento 20 July 1995
Mr W. Phillips  }
Mr W. Kaiser  } Department of Justice
Mr E. Machado  }
Mr R. Gieser  }
Mr W. Wilkerson  }
Ms M. Fong  } Department of Alcohol and Drug Programs
Dr A. Mecca  }

Sacramento 21 July 1995
Ms S. Foreman  } California Legislature
Ms E. Samoville  }
Mr A. Trotter  }
Mr C. Murphy  } Office of Traffic Safety
Ms M. Sabin  }

Inquiry Into The Effects Of Drugs (Other Than Alcohol) On Road Safety In Victoria
Los Angeles 24 July 1995

Sgt T. Page  
Mr D. Jeffries  
Mr B. Sanchez  
} DRE Unit, Los Angeles Police Department  
} Deputy City Attorney  
} Los Angeles Municipal Courts

Los Angeles 25 July 1995

Deputy Chief J. White  
Cdr A. Lopez  
Lt C. Kunz  
Sgt T. Page  
} Los Angeles Police Department  
} Los Angeles Police Academy

Officer C. Metcalf  
Dr M. Burns  
Dr D. Fiorentino  
} Los Angeles Police Academy  
} Southern California Research Institute
Appendix Three: Information for Overseas Readers

To assist overseas readers the Committee has prepared the following information describing Victoria, its parliamentary system and road safety record.

Geography

Although comprising only 3% of the land area of Australia which is about the same land mass as the United States of America, the State of Victoria has approximately one quarter of the population. Key statistics are:

Area: 227,000 square kilometres (88,000 square miles)
Population: 4.5 million
Registered motor vehicles: 2.9 million
Total road length: 160,000 kilometres (100,000 miles)

The capital, Melbourne, has a population of over 3 million.

Further detail is provided in the maps on pages 219 and 220.

Government in Australia

There are three tiers of government in Australia. These operate at federal, state and local levels respectively. Each has different priorities and responsibilities. The Head of State is Her Majesty The Queen.

- Federal Government:

The Government of the Commonwealth of Australia is responsible for the conduct of national affairs. These include defence, foreign policy, income taxation, social services such as pensions and family support, immigration, trade and commerce, customs and excise, radio and television control, airports and air safety, employment and unemployment strategies, currency, national public works, and post and telecommunications.
The Federal Parliament consists of the House of Representatives and the Senate and is located in Canberra, the National Capital. The political party holding the majority in the House of Representatives forms the government and the leader of that party is the Prime Minister. All ministers are members of either House of Parliament. The Queen is represented by the Governor-General.

- **State Government:**

Each State, with the exception of Queensland, the Northern Territory and the Australian Capital Territory, has a bicameral or two chamber legislature. Queensland and the two territories each has a single Lower House Parliament. The Lower House is the seat of Government. The political party holding the majority in the Lower House forms the government and the leader of that party is the Premier (and in the Territories, the Chief Minister). All ministers are members of Parliament. The Queen is represented by a Governor in each State.

The State Government's responsibilities include state financial management, health, education, agricultural development, state-based conservation and environmental management, motor registration, fire brigades, ambulance services, law and order, the statewide distribution of water, gas and electricity, public transport, urban and regional development, road systems and road safety.

- **Local Government:**

In each State and the Northern Territory, a system of intra-regional governments administer matters peculiar to each region. Although the terminology varies, in Victoria such regions are known as cities or shires.

Generally, local government bodies provide such services and amenities as garbage collection and disposal, building regulations, provision and maintenance of public parks and gardens, libraries, infant welfare centres, construction and maintenance of local roads and streets, public swimming pools and cultural centres.
The Judicial System

The Australian legal system has developed from the English legal tradition. Victoria has three separate levels of judicial Courts with appeal provisions to the High Court of Australia. A separate tribunal system exists in the States to consider specific matters.

High Court Of Australia
The High Court of Australia hears all constitutional matters and appeals from the Court of Appeal in each State.

Supreme Court Of Victoria
The Supreme Court has unlimited civil and criminal jurisdiction. It is the only court that may hear treason, murder and certain murder related charges.

Nine Supreme Court judges make up the Court of Appeal. They hear appeals from the Magistrates’ Court, County Court and the Supreme Court on a matter of law.

County Court Of Victoria
The County Court is the intermediate court. It has unlimited civil personal injury jurisdiction and up to $200,000 for all other civil matters. The County Court may hear all criminal matters except murder, attempted murder and treason. It may also hear appeals from the Magistrates’ Court against sentencing orders.

Magistrates’ Court Of Victoria
The Magistrates’ Court of Victoria can hear civil cases up to A$25,000 except in personal injury cases where the limit is A$5,000. It also hears and determines all summary criminal matters.

The Court also has jurisdiction to hear committal and miscellaneous applications for cases that may proceed to trial in the Supreme or County Court.
Other Courts and Tribunals

Coronial Services
Assists in every coroner's investigation and inquest.

Children's Court
Operates in two divisions. The family division deals with protection applications for children under 17 years of age who may be in need of care. The criminal division hears cases where children aged between 10 and 17 years are charged with an offence with the exception of homicide.

Victims of Crime Assistance Tribunal
Compensates people injured by crime up to A$60,000 and the related victims such as dependants, close family members and people in an intimate relationship of a person killed as a result of a crime up to A$100,000. A payment for the loss of income may be included in both payments to a maximum of A$20,000.

Administrative Appeals Tribunal
An independent judicial body with powers to hear appeals against decisions of government and other regulating bodies.

Small Claims Tribunal
Hears and determines claims from consumers against traders. May award an order of up to A$5,000 or work to that value.

Other Tribunals include the Domestic Building Tribunal, Residential Tenancies Tribunal and the Dispute Settlement Centre of Victoria.
VICTORIAN PARLIAMENTARY COMMITTEE SYSTEM

Victoria has a long tradition of appointing Parliamentary committees to inquire into various issues. In the last century, select committees were appointed each Parliamentary session to consider a wide range of issues.

In 1895 the concept of on-going committees was introduced with the appointment of a Public Accounts Committee. A Statute Law Revision Committee emerged in 1916 and from the early 1950s there has been steady activity by the committees already mentioned and also by later additions. These included a Subordinate Legislation Committee and also those appointed over the years to consider specific subjects such as land drainage, conservation of energy resources, chiropractors and osteopaths, the meat industry, company take-overs and road safety.

The Victorian Parliament's involvement with road safety inquiries commenced in 1967 with the establishment of the first Joint Select Road Safety Committee. This Committee operated until 1982.

In 1982 the parliamentary committee system was extensively restructured and all existing committees except one, were dissolved. One of the new committees created was the Social Development Committee which conducted road safety inquiries, as well as social issue inquiries such as the inquiries into options for dying with dignity, community violence, alternative medicine and IVF legislation.

In 1992 the parliamentary committee system was re-structured and the Road Safety Committee was re-established.

Number of Inquiries

Thirty-three inquiries have been undertaken and thirty-eight reports have been produced and tabled by the Road Safety and Social Development Committees since 1967.
Each has dealt with specific issues, the notable exception being the all-embracing Social Development Committee 'Road Safety in Victoria' Inquiry initiated in July 1982, reporting to Parliament in 1983 and 1984.

**Significant Achievements**

The most notable and world first achievement for the original Road Safety Committee was the inquiry and report which lead to Victoria being the first Government to introduce mandatory seat belt wearing. Other achievements which followed included .05 BAC legislation and random breath testing.

Notable achievements from road safety inquiries conducted by the Social Development Committee include mandatory helmet wearing for cyclists, improvements in vehicle occupant protection and the revision of speed limits in Victoria.

The current Road Safety Committee has been in existence for four years and its first reports are due for re-evaluation. The purpose of this exercise is to ascertain if the recommendations of the Committee are both relevant and are being adopted by Government to help guide it in its future endeavours.

When the first Committee was established road safety research and policy was far less developed than it is now. There were major gains to be made in road safety and so there were many important topics for the Committee to examine. From the time it commenced operation the Committee received significant support from the Government who saw road trauma as a major community problem requiring legislative and attitudinal changes. Ministerial support in this area has continued ever since.
Reports Tabled

Reports tabled by the first *Road Safety Committee* from 1967 to 1982:

<table>
<thead>
<tr>
<th>Title</th>
<th>Date Tabled</th>
</tr>
</thead>
<tbody>
<tr>
<td>Roadworthiness of motor vehicles.</td>
<td>15.10.68</td>
</tr>
<tr>
<td>Points demerit system.</td>
<td>2.4.69</td>
</tr>
<tr>
<td>Investigation into the desirability of the compulsory fitting and the compulsory wearing of seat belts.</td>
<td>9.9.69</td>
</tr>
<tr>
<td>An aspect of the alcohol and drug factor - The desirability of introducing blood alcohol tests at hospitals for certain driver victims of motor vehicle accidents.</td>
<td>19.3.70</td>
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<tr>
<td>An aspect of the alcohol and drug factor - The desirability of compulsory breath analysis tests for motor car drivers suspected of having a blood alcohol content in excess of 0.05 per cent.</td>
<td>29.9.70</td>
</tr>
<tr>
<td>Alcohol and road accidents.</td>
<td>25.11.70</td>
</tr>
<tr>
<td>Permits for learner drivers.</td>
<td>7.4.71</td>
</tr>
<tr>
<td>The Visual Average Speed Computer and Recorder (VASCAR).</td>
<td>27.4.72</td>
</tr>
<tr>
<td>Absolute speed limits, <em>prima facie</em> speed limits and speed zones.</td>
<td>1.12.71</td>
</tr>
<tr>
<td>Age for driver licensing.</td>
<td>24.10.72</td>
</tr>
<tr>
<td>Pedestrians and street lighting.</td>
<td>20.3.73</td>
</tr>
<tr>
<td>An aspect of statistical data for road safety purposes.</td>
<td>4.12.73</td>
</tr>
<tr>
<td>Aspects of roadworthiness, speedometers, alcohol and road accidents and intersectional management.</td>
<td>11.12.74</td>
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<tr>
<td>Alcohol and road safety (research projects involving drinking drivers).</td>
<td>7.5.75</td>
</tr>
</tbody>
</table>
Fatalities and injuries involving children under 8 who are unrestrained in motor cars. 11.11.75

Identification of motor vehicle drivers with blood alcohol levels in excess of .05 per cent. 2.6.76

The involvement of motorcyclists in road accidents. 7.12.76

Education, training and assessment of motorcycle learner riders. 18.10.77

Impounding of registration plates, penalties for unlicensed driving and some aspects of alcohol and road safety. 10.10.78

Mopeds. 13.11.79

Safety aspects of the hire and drive omnibus. 4.12.80

Restraint of children under 8 in the rear seats of motor cars. 29.4.81

Alcohol prohibition for first year drivers. 7.5.81

Road safety inquiries conducted by the Social Development Committee from 1982 to 1992 are as follows:

<table>
<thead>
<tr>
<th>Title</th>
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</tr>
</thead>
<tbody>
<tr>
<td>Freeway Speed Limits.</td>
<td>29.3.83</td>
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<tr>
<td>Road Safety in Victoria (Interim Report).</td>
<td>29.11.83</td>
</tr>
<tr>
<td>Road Safety in Victoria (First Report).</td>
<td>3.5.84</td>
</tr>
<tr>
<td>Road Safety in Victoria (Final Report).</td>
<td>26.10.84</td>
</tr>
<tr>
<td>Child Pedestrian &amp; Bicycle Safety (First Report).</td>
<td>3.12.86</td>
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</tbody>
</table>
Management of Drink-Drivers Apprehended with High Blood Alcohol Levels (First Report). 'Alcohol Abuse and Road Safety'. 6.5.88

Management of Drink-Drivers Apprehended with High Blood Alcohol Levels. (Second and Final Report). 'Drink- Driver Education and Treatment'. 25.10.88

Vehicle Occupant Protection. 8.3.90

Speed Limits in Victoria. 13.11.91

Motorcycle Safety in Victoria (First Report). 'Motorcycle Visibility'. 25.3.92

Road safety inquiries conducted by the current Road Safety Committee from 1992 to date are as follows:

<table>
<thead>
<tr>
<th>Title</th>
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</tr>
</thead>
<tbody>
<tr>
<td>Motorcycle Safety in Victoria.</td>
<td>19.5.93</td>
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<tr>
<td>Demerit Points Scheme.</td>
<td>9.11.94</td>
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<tr>
<td>Revision of Speed Limits in Victoria.</td>
<td>11.4.95</td>
</tr>
<tr>
<td>Effects of Drugs (Other Than Alcohol) on Road Safety in Victoria. First Report Incorporating Collected Papers.</td>
<td>May 1995</td>
</tr>
</tbody>
</table>

**Victoria's Road Safety Record**

This inquiry is being conducted against a background of ongoing road safety initiatives which are producing substantial benefits.

There have been major reductions in road trauma over the past 20 years, with particularly significant falls in the last 5 years. Australia had 3800 road fatalities in 1970, averaged around 2800 through the 1980s, and since 1989 the number of fatalities has fallen by 30% to 1941 in 1994. The latter figure is the lowest national level for 39 years. Similar though not identical reductions are being achieved for serious injuries.
In Victoria the decline in road fatality figures has been even more significant with the numbers dropping from 1061 in 1970, to 378 in 1994. Since 1989 road fatalities have fallen by 45%.

Research indicates that the main influences on the reductions achieved in Victoria have been:

- The enforcement of drink-driving legislation through random breath testing, substantial penalties and intensive mass media publicity support;
- The reduction in speeding due to speed camera operations with financial and demerit point penalties and targeted mass media publicity support;
- The progressive improvements in roads and traffic management through accident blackspot treatments;
- The mandatory wearing of bicycle helmets; and
- The effects of the economic downturn reducing the amount of vehicle travel. (It is estimated that 25% to 30% of the reduction in fatalities and injuries is as a result of the economic downturn.)

To gain a comparison against figures from other States and internationally, the following ratios are used:

(1) Fatalities per 100,000 population; and

(2) Fatalities per 10,000 vehicles registered.

The following tables are a comparison of road fatality rates by State for 1995.
Road Fatality Comparisons For 1995

<table>
<thead>
<tr>
<th>State/Territory</th>
<th>Fatalities per 100,000 Population</th>
<th>Fatalities per 10,000 Vehicles Registered</th>
</tr>
</thead>
<tbody>
<tr>
<td>Victoria</td>
<td>9.28</td>
<td>1.46</td>
</tr>
<tr>
<td>New South Wales</td>
<td>10.14</td>
<td>1.87</td>
</tr>
<tr>
<td>Queensland</td>
<td>13.91</td>
<td>2.24</td>
</tr>
<tr>
<td>South Australia</td>
<td>12.28</td>
<td>1.94</td>
</tr>
<tr>
<td>Western Australia</td>
<td>12.07</td>
<td>1.77</td>
</tr>
<tr>
<td>Tasmania</td>
<td>12.05</td>
<td>1.78</td>
</tr>
<tr>
<td>Northern Territory</td>
<td>35.08</td>
<td>6.33</td>
</tr>
<tr>
<td>Australian Capital Territory</td>
<td>4.93</td>
<td>0.82</td>
</tr>
<tr>
<td>Australia</td>
<td>11.17</td>
<td>1.84</td>
</tr>
</tbody>
</table>

Source: Federal Office of Road Safety and Transport Accident Commission.

Internationally, Australia and in particular Victoria, is at the forefront in road fatality reduction:

International Road Fatality Comparisons

<table>
<thead>
<tr>
<th>Country</th>
<th>Fatalities per 100,000 Population</th>
<th>Fatalities per 10,000 Vehicles Registered</th>
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</thead>
<tbody>
<tr>
<td>Australia (1995)</td>
<td>11.17</td>
<td>1.84</td>
</tr>
<tr>
<td>Canada (1993)</td>
<td>12.3</td>
<td>2.0</td>
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<tr>
<td>West Germany (1990)</td>
<td>12.3</td>
<td>2.2</td>
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<tr>
<td>Japan (1992)</td>
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<td>1.4</td>
</tr>
<tr>
<td>Sweden (1993)</td>
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<td>1.6</td>
</tr>
<tr>
<td>United Kingdom (1992)</td>
<td>7.6</td>
<td>1.8</td>
</tr>
<tr>
<td>USA (1993)</td>
<td>15.6</td>
<td>2.0</td>
</tr>
<tr>
<td>Victoria (1995)</td>
<td>9.28</td>
<td>1.46</td>
</tr>
</tbody>
</table>

Source: Federal Office of Road Safety.
Victorian Road Fatality Trends

<table>
<thead>
<tr>
<th>Year</th>
<th>Road Fatalities</th>
<th>Fatalities per 100,000 Population</th>
<th>Fatalities per 10,000 Vehicles Registered</th>
</tr>
</thead>
<tbody>
<tr>
<td>1980</td>
<td>654</td>
<td>16.8</td>
<td>3.4</td>
</tr>
<tr>
<td>1985</td>
<td>683</td>
<td>16.6</td>
<td>2.8</td>
</tr>
<tr>
<td>1990</td>
<td>548</td>
<td>12.5</td>
<td>2.1</td>
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<tr>
<td>1991</td>
<td>503</td>
<td>11.4</td>
<td>1.8</td>
</tr>
<tr>
<td>1992</td>
<td>396</td>
<td>8.8</td>
<td>1.3</td>
</tr>
<tr>
<td>1993</td>
<td>436</td>
<td>9.46</td>
<td>1.67</td>
</tr>
<tr>
<td>1994</td>
<td>378</td>
<td>8.40</td>
<td>1.34</td>
</tr>
<tr>
<td>1995</td>
<td>418</td>
<td>9.28</td>
<td>1.46</td>
</tr>
</tbody>
</table>

Source: Federal Office of Road Safety, VicRoads and Transport Accident Commission.

The downward trend for Victoria has not continued in 1995 from the exceptional figures obtained in 1994. These ratios show that while Victoria has achieved remarkable results there can be no complacency or relaxation in road safety initiatives and programs.
Appendix Four: Description of Organisations

To assist interstate, overseas and non-technical readers the following is a brief explanation of some organisations which are mentioned in this report and/or involved in road safety.

Victorian Organisations:

Monash University Accident Research Centre — is a leading provider of road safety research.

Royal Automobile Club of Victoria — is the Victorian motorists association and the provider of emergency roadside service to members. It also offers other services to members and is involved in road safety research and policy.

Transport Accident Commission — is a State government agency and the sole provider of compulsory third party insurance in Victoria. It operates a 'no-fault' injury accident compensation system for people injured in motor vehicle accidents and also provides funding for mass media road safety campaigns, road safety related roadworks (blackspot programs) and road safety education programs.

VicRoads — is the state road authority responsible to the Minister for Roads and Ports for the management and construction of the road system in Victoria as well as the vehicle registration, driver licensing and accident recording processes. It also has lead agency role in road safety research and policy.

Victoria Police — is the state law enforcement agency in Victoria. (There are no municipal police forces) The Police have a major role in the development of road safety policies and traffic laws and their enforcement.

Victorian Road Transport Association — is an association of road trucking companies.
National Organisations:

**Austroads** — (formerly the National Association of State Road Authorities) - is the national association of State and Federal road transport and traffic authorities in Australia and is responsible for the development and promotion of national practices for the effective management and safe use of the nation's roads.

**Federal Office of Road Safety** — is a Federal Government agency providing policy advice and research on road safety in Australia.

**National Road Transport Commission** — was established by intergovernment agreement and commenced operation in 1992 to develop a national package of transport laws in consultation with Federal and State governments, industry and other interest groups.

**Transport Workers Union** — is an industrial relations organisation whose membership includes truck and bus company employees and owner-drivers.