Background
In the state of Victoria in Australia, the development of effective alcohol and driving legislation has produced significant reductions in alcohol related road trauma over the past three decades. The development of drug driving legislation in recent years has followed a similar progression from providing for impairment based enforcement to the recent introduction of random roadside screening of drivers for the presence of THC and methamphetamine. This paper both outlines the history of development of legislatively-based drug-driving countermeasures, and describes the operation of newly introduced roadside drug screening procedures.

Early alcohol legislation in Victoria was based on the philosophy of individual driver impairment. This road safety countermeasure applied the principle of “specific deterrence” and the objective was to identify high risk, highly impaired drivers. This legislation was difficult to enforce, as the court system at the time was often sympathetic to the plight of the drunk driver. A conviction relied on Police observations of impairment, which can be similar to extreme fatigue or physical injury or shock and these causes of impairment were often used by drivers as a successful defence.

The incidence of alcohol related deaths in road accidents during the 1960's and 1970's was particularly high on Friday and Saturday nights with more than 50% of drivers killed testing positive to alcohol.

However in 1976 the Victorian Government introduced “per se” Random Breath Test legislation, which was based on statistically determined average accident risk, rather than on individual driver impairment. This legislation introduced highly visible “booze buses” and applied the “general deterrence” principle. It has been successful in reducing alcohol related crashes particularly with recreational drinkers and those drivers who do not have a medical problem with alcohol. Currently, the Police undertake approximately 3.3 million alcohol breath tests per year. There are approximately 3 million licensed drivers within Victoria.

Under this per se legislation the driver was guilty if found to have a prescribed concentration of alcohol in the blood (as determined by breath analysis). The Prescribed concentration is currently 0.05 g/100ml of blood for most drivers and 0.00g/100ml of blood for specific groups such as taxi, probationary and heavy vehicle drivers.

In recent years the percentage of drivers killed who test positive to illegal alcohol readings has fallen to 22%.

The development of legislation to address the growing problem of drug affected driving is following the same path as alcohol legislation. Early drug legislation required Police to
establish that a driver was ‘under the influence of alcohol or any drug to such an extent as to be incapable of safely controlling a vehicle’.

Although the intent of early drug legislation laws were to deter people from driving with potentially impairing drugs in their system until 2000, Victorian Police did not have the power to require samples of body fluids from drivers, to allow drug analysis to be performed. Relatively few convictions were registered.

To tackle the problem of an increasing incidence of drugs being found in drivers fatalities, the Victorian Government held a Drug Driving Parliamentary Road Safety Committee Inquiry in 1996 on “The effects of drugs (other than alcohol) on road safety in Victoria”. The Committee made over 40 recommendations, including a new definition of "drugs" and a new offence of “Driving While Impaired" which would allow Impairment testing by Police and the taking of blood for analysis for confirmation of drug use.

The Road Safety (Amendment) Act 2000 gave effect to the recommendations of the Road Safety Committee and specified the procedure to identify impaired drivers and the power to take blood for suspected drug cases. The basic steps involved a Roadside Opinion by Police, a Standard Impairment Assessment (SIA) by a trained assessor, a blood sample for Confirmation, and expert evaluation of behavioural and toxicological evidence.

The impairment assessment was based on established psychomotor tests – the Walk and Turn, One Legged Stand and Horizontal Gaze Nystagmus, as used in the US Standard Field Sobriety Test. If the Impairment Assessor formed the opinion that the driver was impaired due to drug use, the driver could be required to provide a blood sample for analysis for the presence of drugs.

This legislation has been successful in providing and identifying drug affected drivers and gathering evidence of impairment and drug use in a structured manner, which has been effective in achieving prosecutions of drug-drivers. The results of all detections for the first three years of operation are presented in the next section.

Results of Victorian Impairment-based Drug Driving Legislation
The legislation was implemented at the beginning of December in 2000 and a total of 633 potentially impaired drivers have been detected under the procedure, up until the 31 December 2003. This is a detection rate of 1 potentially drug impaired driver per 1.8 days. The offences that these detected drivers were charged with are presented in Table 1.

Table 1. Distribution of Charges for 633 Detected Drivers.

<table>
<thead>
<tr>
<th>Drivers charged under Drug Impaired Driving offence</th>
<th>536</th>
<th>85%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Drivers charged with other offence (not Drug Impaired Driving)</td>
<td>35</td>
<td>5%</td>
</tr>
<tr>
<td>Not Charged</td>
<td>62</td>
<td>10%</td>
</tr>
<tr>
<td>Total Drivers</td>
<td>633</td>
<td></td>
</tr>
</tbody>
</table>
The convictions recorded for the offence of driving whilst impaired by a drug are presented in Table 2 below.

Table 2. Convictions for Drug Impaired Driving.

<table>
<thead>
<tr>
<th>Description</th>
<th>Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Convicted</td>
<td>285</td>
</tr>
<tr>
<td>Dismissed</td>
<td>3</td>
</tr>
<tr>
<td>Currently in the court system</td>
<td>140</td>
</tr>
<tr>
<td>Died</td>
<td>11</td>
</tr>
<tr>
<td>Not authorized for prosecution</td>
<td>62</td>
</tr>
<tr>
<td>Referred for Licence Review on Medical Grounds</td>
<td>35</td>
</tr>
<tr>
<td>Total Drivers</td>
<td>536</td>
</tr>
</tbody>
</table>

The Drug categories most commonly found in this group of Drivers who were detected under the December 2000 legislation and subsequently had blood taken and analysed were:

- **Alcohol**: 2%
- **Cannabis**: 36%
- **CNS depressant**: 69%
- **CNS stimulant**: 26%
- **Hallucinogen**: < 1%
- **Narcotic Analgesic**: 49%
- **Miscellaneous**: 8%
- **No Drugs Detected**: 3%

The low alcohol figure is a result of the procedures followed by Police, in which all drivers are first tested for blood alcohol level by a breath test, and any driver with a significant alcohol reading is charged with an alcohol related offence. For these drivers no further investigation is undertaken of any drugs that may also be present.

So by process definition, it is only the low alcohol or zero alcohol drivers who are detected under the Drug Impairment Legislation.

An important finding is that in 70% of drivers whose blood was taken and analysed, more than one drug was detected in the driver, so polydrug use is the dominant characteristic of these impaired drivers.

The average age of the above drivers was 29.5 years and they ranged from 16 years to 63 years. Males comprised 83% of the group and females 17%.

The majority (82%) of the detections were done in the metropolitan area and 18% were detected in rural areas. The majority (55%) of the detection methods were by mobile intercept and the 45% remainder were due to drivers being involved in non injury collisions.

An important factor in the decision making leading up to the implementation of this December 2000 Drug Impairment legislation was the issue of Police causing inconvenience to Drug free drivers. It is notable that in 97% of the cases where the Police
formed the opinion that a driver was impaired due to drug use, and so required that a blood sample be taken, drugs were detected.

**Road Safety (Drug Driving) Bill 2003 – Roadside Saliva Screening for Illicit Drugs.**

Despite the detections achieved by the December 2000 Drug Impaired Driving legislation, Drug Driving remained a key issue. In 2001, for the first time drug driving was a factor in more driver fatalities than drink driving.

In 2001, 29.2% of blood tests of killed drivers tested positive to drugs other than alcohol, and in comparison, 22.3% of drivers had a BAC of 0.05 or more. Figures in 2002 were 27% for drugs and 29% for alcohol. The majority of these drug positive drivers killed were using illicit drugs or abusing prescription drugs whilst driving.

The 2 major illicit drugs of concern, which were cannabis and the stimulant methylamphetamine, presented special challenges for the December 2000 Drug Impairment legislation. In 2001, 16.5% of driver fatalities had used THC or stimulant/amphetamine type drugs, whilst in 2002 this figure had risen to 20.4% of driver fatalities.

Studies of Australian Drivers killed in crashes\(^1\) showed that these illicit drugs produce a greatly increased risk of being responsible for a fatal crash.

Impairment based drug-driving laws only apply when a person demonstrates significant physical impairment. However, as with alcohol, drugs can affect a person’s capacity to drive a vehicle safely (eg by impairment of mental functions, increasing risk taking and reducing attention and concentration on the driving task) even though outward signs of impairment are not readily apparent. The Standard Impairment Assessment used by Victoria Police in the detection of drug impaired driving is designed to detect physical impairment equivalent to a BAC of 0.10 or more, and can generally be applied only after seriously impaired driving (including involvement in a crash) has been detected. The fact that no random testing exists for drugs means that there is less risk of detection than with drink driving. Previous research suggests that drug users who drive are aware that their likelihood of detection is lower than for drink-drivers, and are therefore not significantly deterred from driving after using illicit drugs\(^3\).

Random roadside screening has been demonstrated to be a highly effective means of deterring drivers from illegal behaviour.

In December 2003 the legislation was passed to provide for random roadside saliva based testing for the two illicit drugs, Delta 9 THC and methylamphetamine. This deterrent measure is intended to complement the existing drug-impaired driving enforcement procedures. Even though THC is the most widely detected impairing substance after alcohol in Victorian driver fatalities, and that stimulants, particularly methamphetamine, are the most widely detected impairing substances in Victorian heavy vehicle driver fatalities, other substances are also of significant concern to road safety. Many of these, however, are used legitimately and therapeutically by a substantial portion of the community, and hence are difficult to deal with in terms of a random roadside screening process. Other illicit drugs, notably heroin, cannot be distinguished from similar but widespread and legitimately used medications by the use of any roadside-screening device. Until technology advances further, the pre-existing offences of driving whilst impaired by a drug and driving under the influence of a drug, and the impairment assessment procedures
developed to gather evidence of these offences will be relied on to deal with the misuse by drivers of substances other than THC or methamphetamine.

Roadside drug screening procedures using a saliva test will be required to detect the presence of methamphetamine and delta-9-THC.

The screening devices will detect recent consumption of cannabis (several hours after use, which corresponds to the duration of cannabis high risk impairment effects). Drivers who have cannabis residues in their bodies as a result from use in previous days/weeks should not be detected.

To ensure the Reliability, Accuracy, Sensitivity and Specificity of saliva testing devices VicRoads has set Performance Guidelines\(^2\), which should ensure acceptable levels of false positives and false negatives, an appropriate detection threshold, and minimum delays to the bulk of drivers, who will test negative to the impairing drugs.

To ensure that the devices to be used meet the Performance Guidelines, an extensive Quality Control Program has been implemented. This program involves laboratory based testing using simulated oral fluid spiked with known concentrations of the 2 target drugs, and 2 types of human volunteer testing.

Selected laboratories are undertaking the assessment of the performance of the oral fluid screening devices. Concentrations above and below the manufacturers cut off were used to assess the accuracy, specificity and sensitivity of the devices, and compliance with the Performance Guidelines.

Human volunteer testing used controlled dose administration of the target drugs to healthy male and female volunteers have been and continue to be performed. These studies used a randomised, repeated measures, double blind, experimental design. Samples of saliva and blood were taken at set time intervals after either drug or placebo administration. For the amphetamines a single concentration of the drugs were given and for THC two doses were administered. The oral fluid screening devices were used at each saliva sampling interval and all saliva and blood concentrations were quantified using GCMS.

Each device is also being tested with several hundred volunteers. The selection process used is designed to maximize the probability that those individuals who did volunteer to test the devices were free of the target drugs, methamphetamine and THC. This will allow a comparative assessment of the acceptability of devices in large numbers of volunteers.

The legislation allows for testing of any driver at any time, solely on the grounds that they were driving a motor vehicle. It also allows Victoria Police operational guidelines to target drug screening at locations where high-risk drivers are likely to be present. Targeting operations to times and locations where there is a high risk of drug-impaired driving, or to drivers who have been involved in a casualty crash, will minimize the impact on the average drug free responsible driver.

Drivers failing a roadside saliva screening test will be asked to provide a 2nd sample, to be collected and screened in a drug testing vehicle (like existing mobile breath testing stations (Booze Buses). Where both tests indicate the presence of methamphetamine or THC, the oral fluid sample will be sent for evidentiary standard laboratory analysis. In cases where, due to “dry mouth”, drivers have difficulty in providing an oral fluid sample, the legislation empowers the Police to take a blood sample.
Regardless of which body fluid is provided for analysis, it is only the results of evidentiary standard (GC-MS or LC-MS) analysis undertaken in the laboratory, and not the roadside screening results, which will be the basis for any charges of driving with a prohibited substances present.

To ensure that a review of the new legislation is undertaken, the provisions in the December 2003 legislation provide that the new drug-driving offences will sunset on 1 July 2005. Prior to this date, a review of the operation of the proposed roadside drug screening process will be conducted. This review will consider the operation and effectiveness of the process, penalties, privacy issues, and other relevant matters, and will identify and recommend any legislative or operational changes that will maximise the road safety outcomes of the process.

Conclusions

In Victoria, reductions in crashes involving alcohol positive drivers were not achieved until per se random breath testing legislation was enacted and effectively enforced. This involved a change in deterrence philosophy from one based on ineffective “specific deterrence” to a successful “general deterrence” approach.

The introduction of improved “specific deterrence” drug legislation in December 2000, achieved an improvement in the number of successful enforcement detections and prosecutions for drug driving.

However, due to the continued increase in the incidence of illicit drugs in drivers killed in road crashes, in December 2003, “per se” general deterrence legislation was passed to target drug driving using oral fluid roadside screening for the 2 major illicit drugs of concern, THC and methamphetamine.

References

