

Technical Report No. 153

**DRUG USE AND DRIVING:
Epidemiology, impairment, risk factors and risk perceptions**

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EXECUTIVE SUMMARY

Vehicle accidents are a major cause of morbidity, both in Australia and internationally. Factors that have been associated with vehicle accidents include alcohol and, to a lesser extent, drugs. While the majority of research on impaired driving has focused on the impact of driving under the influence of alcohol, there has recently been an increased interest in the behaviour of drug-impaired driving. While drug-impaired driving is likely to have a significant impact on the safety of road users in general, it also presents a substantial safety risk to drug users.

Four main areas were covered in this review: the prevalence of impaired driving, driving impairment associated with drugs and/or alcohol, risk factors associated with impaired driving and risk perceptions related to impaired driving. In respect to the first area, it was found that the prevalence of driving under the influence of alcohol and driving under the influence of drugs was low in the general population of drivers, and that drug-impaired driving was reported less frequently than alcohol-impaired driving. However, a number of 'at-risk' populations were more likely to drive while impaired, including drug users, university students, young adults and dance party attendants. There was some evidence that drug-impaired driving increased over the previous decade, with an increasing number of accident-involved drivers positive for drugs. Alternatively, the prevalence of alcohol-impaired drivers decreased over this time period.

Generally, studies examining accident-involved drivers and drivers suspected of impaired driving indicate that drugs frequently detected in drivers are those most frequently used in the respective population. For example, studies in Australia frequently find drivers positive for cannabis, the most commonly used illicit drug within this population. Such studies have also found a high incidence of multiple drugs, which is not surprising considering the prevalence of polydrug use amongst drug users. One particularly concerning issue was the frequency of respondents reporting having ridden with a drug and/or alcohol impaired driver.

As stated, there was an increasing number of drug-positive drivers found in studies of accident-involved drivers in Australia. While this suggests that drugs may have a negative impact on driving performance, prevalence statistics alone cannot determine their impact. Therefore studies exploring the impairment caused by various drugs were examined. Results of these studies provided considerable evidence of the

impairing effects of alcohol and the increased risk of accident due to alcohol. While results of laboratory, simulator, closed-course and on-road driving studies indicate that cannabis and benzodiazepines significantly impair functions necessary for driving, results from field studies of accident-involved drivers are contentious. There is some evidence that high doses of cannabis and benzodiazepines may increase accident risk, however the effects of benzodiazepines have been found to differ according to the type of benzodiazepine used. There are a lack of studies on the relationship between driving impairment and both stimulants and opioids. Results from laboratory studies have failed to find conclusive evidence of impairment at low doses of these drugs, however higher doses may produce a risk to traffic safety. Increased impairment was found in all types of studies when alcohol was combined with other drugs, or multiple drugs were used.

From the results of studies examining the relationship between drugs and driving impairment, it is apparent that the substances that produce the greatest risk to traffic safety are alcohol, benzodiazepines and cannabis. This is of concern, due to the prevalence of these drugs in the population. While there is little evidence of substantial risk due to stimulants and opioids at present, further research may provide an alternative interpretation. It is likely that all drugs at high doses, drugs in combination with alcohol and multiple drugs produce a significant accident risk.

The third area examined was the factors associated with impaired driving. There is evidence of an overrepresentation of young males amongst impaired drivers, a group associated with risky driving and risky drug and/or alcohol use. However, there were some differences according to drug type. For example, benzodiazepines were commonly detected in older, female drivers. There appears to be a link between substance use problems and impaired driving, although this area requires further exploration in relation to drug-impaired driving. Various psychological and social factors have been associated with impaired driving, such as antisocial personality disorder, high levels of sensation-seeking, low levels of education and low socio-economic status. However, it is apparent that such characteristics actually predict substance use problems, and are only indirectly related to impaired driving.

The final area explored was the association between impaired driving and risk perceptions. It is apparent that one's perceptions differ according to personal experience with impaired driving. For example, those who have driven while impaired by drugs and/or alcohol generally have more permissive attitudes regarding

impaired driving. The risk perceptions of drug users appear quite liberal in regards to impaired driving, with a perception that drugs do not significantly impair their driving performance due to their tolerance to the drugs and their ability to compensate for the effects of the drug. However, there was a concern amongst drug users in regards to the effects of drug withdrawal on driving performance and the possibility of 'nodding off' after using opioids.

There is also evidence that risk perceptions influence impaired driving behaviour. For example, drivers who perceived a likelihood of being arrested for driving under the influence of alcohol or being involved in an accident after drinking alcohol were found to be less likely to perform this behaviour. The relationship between drug-impaired driving and risk perceptions is less clear, presumably due to the lack of research in this area. It is likely that the perception of the improbability of getting caught for driving under the influence of drugs contributes to the performance of this behaviour, however this proposition requires exploration.

While alcohol-impaired driving remains a significant issue, there is also evidence that drug-impaired driving presents a risk to traffic safety, and is in need of greater research. Drug-impaired driving, while not prevalent in the general population of drivers, is common in populations associated with substance use. Consequently, this is where further research should be focused.

Based on the results of epidemiological and pharmacological studies, the drugs that present the greatest risk to traffic safety in Australia, other than alcohol, are cannabis and benzodiazepines. It is likely, however, that any drug consumed in high doses, and the use of multiple drugs are also significant risk factors. There is a need for further research into the area of drugs and driving impairment, due to the number of equivocal results. Particularly necessary are large-scale case-controlled studies of accident-involved drivers in order to gain a clearer understanding of drugs and accident risk.

Individuals who drive while impaired by drugs and/or alcohol are likely to be young males with poor psychological functioning, disadvantaged social backgrounds and substance use problems. Due to evidence that risk perceptions influence impaired driving behaviour it may also be beneficial to focus interventions within these populations, in the attempt to reduce the harm caused by impaired driving.