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Reducing cannabis-impaired driving: is there sufficient evidence for drug testing of drivers?

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There is increasing evidence that cannabis users who drive while intoxicated put themselves and others at increased risk of motor vehicle crashes. Cannabis produces dose-related cognitive and behavioural impairments in laboratory and simulator studies [1-3], cannabis users in surveys are more likely to report being involved in accidents than drivers who do not use the drug (e.g. [4,5]) and cannabis is the illicit drug most often detected in drivers who have been killed in motor vehicle crashes (see [6] for a review).

Older studies that measured inactive metabolites of cannabis did not show whether drivers were impaired at the time of the accident [6,7]. More recent studies have provided better evidence that cannabis-affected drivers are at a higher risk of being involved in crashes. Gerberich et al. [8] found that current cannabis users had a higher rate of hospitalisation for accidental injury in a cohort of 64,657 patients from a health maintenance organisation (HMO) (RR = 1.96). Mura et al. [9] found a similar relationship in a case-control study of THC in the serum of 900 persons hospitalised for injuries in motor vehicle accidents and 900 controls of the same age and sex admitted to the same French hospitals for reasons other than trauma (OR = 2.5). Drummer et al. [10] found an increased culpability in cannabis users (OR = 2.5) in 1420 Australian drivers killed in accidents and a dose response relationship between blood THC level and culpability.

Cannabis use appears to increase the risk of motor vehicle crashes by 2 to 3 times [1], a much lower risk than alcohol (from 6 to 15 times). Given the lower risk and lower prevalence of cannabis than alcohol use, the proportion of accidents attributable to

cannabis is much lower than that for alcohol (an estimated 2.5% of fatal accidents in France compared to 29% for alcohol [11]).

Is there sufficient evidence to discourage cannabis users from driving by conducting roadside drug testing? Any such policy requires specification of a level of THC in blood that provides *per se* evidence of impaired driving. Grotenhermen and colleagues in this issue [12] have derived a provisional definition of a *per se* level using epidemiological evidence and a meta-analysis of laboratory and simulator studies. They have sensibly erred in the direction of setting a high level that may require downward adjustment in the light of further research.

Australian state governments have not waited for the development of a *per se* level. Victoria introduced random roadside saliva testing for cannabis and other drugs in an analogous way to breath testing in December 2004 and other states and territories are following suit [13]. If Australian legislators had restricted themselves to saliva testing when drivers had had an accident or displayed evidence of impairment, the law would have been uncontroversial but ineffective because similar testing regimes have limited impacts on drink driving [14]. Instead, Australian legislators have assumed that this policy will produce the substantial reductions in road crashes that random breath testing did when combined with widespread publicity and highly visible and sustained enforcement [15,16].

Given the limited scientific evidence for a *per se* level of THC the Australian drug testing regimes lack evidential support. The illegality of cannabis has prompted a 'zero tolerance' approach in Australia with any detectable amount of the drug tested constituting an offence [13]. On this policy, the definition of a *per se* level is irrelevant because road safety benefits are secondary to enforcement of drug laws.

The introduction of random saliva testing in Australia was not preceded by an extensive public debate about its civil liberties implications or likely deterrent effects. The civil liberties issues need more attention. Should the authorities have the power to force citizens to incriminate themselves when they have not committed a driving offence or been involved in an accident? And what real protections are there in this

era of widespread DNA testing and offender profiling to prevent police retaining saliva samples of convicted drug drivers for criminal investigations?

Proponents of these laws argue that random drug testing will save lives, but so far no scientifically persuasive evidence has been produced that these laws have done so. The success of Australian road side drug testing accordingly needs to be thoroughly evaluated to see if it reduces drug driving at an acceptable social and economic cost. If evidence of an impact on drug driving is forthcoming, citizens should have the right to debate whether these public health benefits offset the threats to democratic freedoms. Public debate is essential if random alcohol testing is not to serve as a Trojan horse for the introduction of wider and scientifically questionable laws without adequate public scrutiny.

References

- [1] Ramaekers J. G., Berghaus G., van Laar M., Drummer O. H. Dose related risk of motor vehicle crashes after cannabis use. *Drug Alcohol Depend* 2004; **73**: 109-19.
- [2] Robbe H. W. J. *Influence of marijuana on driving*. Maastricht: Institute for Human Psychopharmacology, University of Limberg, 1994.
- [3] Smiley A. Marijuana: on road and driving simulator studies. In: Kalant H., Corrigall W., Hall W. D., Smart R., editors. *The health effects of cannabis*. Toronto: Centre for Addiction and Mental Health, 1999.
- [4] Asbridge M., Poulin C., Donato A. Motor vehicle collision risk and driving under the influence of cannabis: evidence from adolescents in Atlantic Canada. *Accid Anal Prev* 2005; **37**: 1025-34.
- [5] Blows S., Ivers R. Q., Connor J., Ameratunga S., Woodward M., Norton R. Marijuana use and car crash injury. *Addiction* 2005; **100**: 605-11.
- [6] Kelly E., Darke S., Ross J. A review of drug use and driving: epidemiology, impairment, risk factors and risk perceptions. *Drug Alcohol Rev* 2004; **23**: 319-44.
- [7] Bates M. N., Blakely T. A. Role of cannabis in motor vehicle crashes. *Epidemiol Rev* 1999; **21**: 222-32.
- [8] Gerberich S. G., Sidney S., Braun B. L., Tekawa I. S., Tolan K. K., Quesenberry C. P. Marijuana use and injury events resulting in hospitalization. *Ann Epidemiol* 2003; **13**: 230-7.

- [9] Mura P., Kintz P., Ludes B., Gaulier J. M., Marquet P., Martin-Dupont S., *et al.* Comparison of the prevalence of alcohol, cannabis and other drugs between 900 injured drivers and 900 control subjects: results of a French collaborative study. *Forensic Sci Int* 2003; **133**: 79-85.
- [10] Drummer O. H., Gerostamoulos J., Batziris H., Chu M., Caplehorn J., Robertson M. D., *et al.* The involvement of drugs in drivers of motor vehicles killed in Australian road traffic crashes. *Accid Anal Prev* 2004; **36**: 239-48.
- [11] Laumon B., Gadegbeku B., Martin J. L., Biecheler M. B. Cannabis intoxication and fatal road crashes in France: population based case-control study. *BMJ* 2005; **331**: 1371.
- [12] Grotenhermen F., Leson G., Berghaus G., Drummer O. H., Kruger H., Longo M., *et al.* Developing limits for driving under cannabis. *Addiction* 2007 *in press*.
- [13] Butler M. Australia's approach to drugs and driving. *Of Substance: The National Magazine on Alcohol, Tobacco, and Other Drugs* 2007; **5** (3); 24-6. Available from:
http://www.ofsubstance.org.au/archive/pdf/ofsubstance_2007_7.pdf#article7
[Accessed 5 September].
- [14] Homel R. *Policing and punishing the drinking driver: a study of general and specific deterrence*. New York: Springer-Verlag, 1988.
- [15] Babor T., Caetano R., Casswell S., Edwards G., Giesbrecht N., Graham K., *et al.* *Alcohol: no ordinary commodity: research and public policy*. Oxford: Oxford University Press, 2003.
- [16] Henstridge J., Homel R., Mackay P. The long-term effects of random breath testing in four Australian states: a time series analysis. Canberra: Federal Office of Road Safety 1997. Available from:
http://www.atsb.gov.au/publications/1997/Alc_Random.aspx.