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Police documentation of drug use in injured drivers: Implications for monitoring and preventing drug-impaired driving

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ABSTRACT

Introduction: Most countries have laws against driving while impaired by drugs. However, in many countries, including Canada and the United States, police must have individualized suspicion that the driver has recently used an impairing substance before they can gather the evidence required for laying a criminal charge. This report studies police documentation of drug involvement among drivers who had a motor-vehicle crash after using an impairing substance.

Methods: We obtained blood samples and police reports on injured drivers treated in participating British Columbia trauma centres following a crash. Blood was analyzed for alcohol, cannabinoids, other recreational drugs, and impairing medications. Corresponding police reports were examined to determine whether police recorded that the driver's ability was impaired by alcohol, drug or medication, or that one of these substances was a possible contributory factor in the crash.

Results: We obtained blood samples and corresponding police reports on 1816 injured drivers. Mean driver age was 44 years, 63.2% were male, and 25.8% were admitted to hospital. Alcohol was detected in 272 drivers (15.0%), THC (tetrahydrocannabinol - the principal psychoactive ingredient in cannabis) in 136 (7.5%), other recreational drugs in 166 (9.1%), and potentially impairing medications in 363 (20.0%). Police reported that the driver's ability was impaired by alcohol or that alcohol was a possible contributory factor in 64.1% of the crashes involving alcohol-positive drivers. Drug impairment or drugs as a possible contributory factor was reported in 5.9% of the crashes involving THC-positive drivers, and in 16.9% of the crashes involving drivers who tested positive for other recreational drugs. Medication impairment was reported in only 2.2% of the crashes involving medication-positive drivers.

Conclusion: Police seldom document drug involvement in drivers who were in a crash after using cannabis, other recreational drugs or potentially impairing medications. This finding raises serious concerns about the ability of the police to effectively enforce current drug-impaired driving laws and public health officials' continued reliance on police crash reports to monitor the prevalence of drug-impaired driving.

1. Introduction

Many drugs and medications impair driving ability and contribute to traffic crashes (Leufkens et al., 2007; Ramaekers et al., 2006; Wingen et al., 2006; Ramaekers et al., 2004; Ramaekers, 2003). Coroners' data (Beasley and Beirness, 2011; Brady and Li, 2013), hospital studies (Lowenstein and Koziol-McLain, 2001; Walsh et al., 2005; Brubacher et al., 2016), and roadside surveys (Beirness and Beasley, 2010; Beirness et al., 2015; Compton and Berning, 2015) show that impairing

drugs or medications are detected approximately as often as alcohol among North American drivers. Similar to American probable cause, Canadian police must reasonably suspect that a driver has recently used an impairing substance in order to demand that he or she submit to alcohol or drug screening (Solomon and Chamberlain, 2014). In both countries, police who have the required individualized suspicion of recent drug use may require the driver to submit to a Standardized Field Sobriety Test (SFST) (Solomon and Chamberlain, 2014). Drivers who "fail" the SFST may be brought to a police station and examined by a

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Drug Recognition Expert (DRE), who performs a standardized examination looking for evidence of drug use and impairment. The DRE system is resource intensive, extremely technical and time consuming, and may only be conducted by a certified DRE. The certification program is lengthy and costly. Given their limited numbers, a DRE may not be readily available, especially in remote communities (Asbridge, 2006). Consequently, the great majority of drug-impaired drivers go undetected by the police and unsanctioned by the criminal justice system.

Cannabis has been legal for medical use in Canada since 2001, and twenty-five American states, starting with California in 1996, have either legalized or decriminalized medical cannabis. Alaska, Washington, Oregon, and Colorado have gone further and legalized cannabis for recreational use. Worldwide, several countries have decriminalized recreational cannabis use, but only Uruguay, Spain, Jamaica, and Columbia have legalized it.

In April 2017, the Canadian government introduced *Bill C-45*, the *Cannabis Act*, which would legalize the production, possession, distribution, and sale of cannabis and cannabis products for recreational use (Anon., 2017). At the same time, the government introduced *Bill C-46*, which would simplify, rationalize and strengthen all of the federal *Criminal Code* traffic offences. Among other things, the *Bill* would authorize the police to conduct mandatory roadside alcohol screening (MAS) of drivers without individualized suspicion, commonly referred to as “random breath testing” (RBT). Moreover, *Bill C-46* would create new drug-impaired driving offences by prohibiting driving with a stipulated amount of specified drugs in one’s blood. The federal government has proposed three *per se* limits for THC. First, having 2 but less than 5 ng/mL of THC in whole blood would be a summary conviction offence punishable by a maximum fine of \$1,000. Second, having 5 or more ng/mL of THC would be a hybrid offence (i.e. an offence that could be tried on summary conviction or by indictment). Third, having 2.5 or more ng/mL of THC and a blood-alcohol concentration equal $\geq 0.05\%$ would also be a hybrid offence. The latter two *per se* offences would be subject to the same penalties as the alcohol-impaired driving offences.

Police powers to collect evidence of drug-impaired driving would also be expanded. First, the police would be authorized to demand a roadside oral fluid sample from drivers whom they reasonably suspect have any drugs in their body. Second, the police will be able to demand a blood sample from drivers whom they have reasonable grounds to believe have committed a drug-impaired driving offence within the last three hours. While *Bill C-46* would strengthen drug-impaired driving enforcement, police would still require individualized suspicion of recent drug use to demand that a driver submit to roadside oral fluid testing (Bill C-46, 2017).

2. Objective

To compare police reports of drug involvement in crashes with corresponding toxicology test results in a cohort of injured drivers treated in hospital after a crash. In particular we will answer the following questions:

- 1) How often do police document alcohol, drug and/or medication involvement in drivers who test positive for these substances?
- 2) What factors make it more likely that police will identify or suspect substance involvement in these drivers?
- 3) How often do police document alcohol, drug or medication involvement in drivers who test negative for these substances?

3. Methods

This study was approved by the University of British Columbia research ethics board (REB) and used data from an ongoing study of the association between traffic crashes and cannabis and other drugs.

Because we used excess blood that remained after clinical use, and had implemented procedures to protect personal information, the REB did not require us to obtain consent from each driver. This minimized selection bias.

3.1. Sampling

Detailed sampling methods are reported elsewhere (Brubacher et al., 2016). In brief, we prospectively sampled injured drivers from seven participating British Columbia (BC) trauma centres between January 2010 and September 2015. All injured automobile drivers who had blood samples obtained as part of clinical care were eligible for inclusion. The decision to obtain blood was made by treating physicians based on their assessment of the driver’s clinical condition, and not on any suspicion of drug use. Research assistants identified injured drivers through regular reviews of emergency department (ED) visit logs and then obtained excess blood that remained after clinical use. This blood was frozen for later toxicology analysis. Drivers with minor injuries who did not require bloodwork were excluded. Drivers were also excluded if blood samples were obtained more than six hours after the crash, no excess blood remained after clinical use, or there were no police reports for the crash. Motorcyclists and commercial vehicle drivers were excluded because these categories of drivers were not included in the parent study.

Health records of injured drivers were reviewed and basic demographic and medical information was recorded. We recorded all medications given as part of the driver’s clinical care prior to phlebotomy. Any ‘post-crash’ medications were accounted for when reporting the medications detected in a driver’s blood samples.

3.2. Police crash reports

We obtained police crash records *via* probabilistic linkage based on driver’s name, age, gender, and date of crash. Police reports include crash details and list factors that police believed contributed to the crash, including human condition factors which are attributed to individual drivers and not to the crash in general. Police can list up to four contributory factors for each person involved in the crash. We considered police to have suspected drug involvement if the police report indicated “ability impaired by drugs” or “drugs suspected” as possible contributory factors. Similarly, we considered police to have suspected alcohol involvement if the report indicated “ability impaired by alcohol” or “alcohol suspected”, and medication involvement if the report indicated “ability impaired by medications” (“medications suspected” is not an option in BC police reports). The reports also allow police to cite other “human condition” factors (inattention, internal/external distraction, extreme fatigue, fell asleep, illness, and sudden loss of consciousness).

3.3. Toxicology analysis

Broad spectrum toxicology testing on whole blood samples was conducted at the BC Provincial Toxicology Centre (Brubacher et al., 2016). Toxicology testing detected alcohol, cannabinoids, other recreational drugs (cocaine, amphetamines including designer drugs, and opiates), as well as psychotropic pharmaceuticals (including anti-histamines, benzodiazepines, other hypnotics, and sedating antidepressants). We categorized THC and alcohol according to concentration range. Other recreational drugs (e.g. amphetamines, cocaine) were recorded as not detectable, detectable, or above the Norwegian legal limit for driving. Norway was the first country to set evidence-based *per se* limits for driving after using drugs. The detection limit at the BC Provincial Toxicology Centre was 0.2 ng/mL for THC and 1 ng/mL for other drugs. The Norwegian *per se* limits for recreational drugs are 41 ng/mL for amphetamine, 45 ng/mL for methamphetamine, 48 ng/mL for MDMA, and 24 ng/mL for cocaine (Vindenes

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