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Reducing alcohol-related deaths on Canada's roads.

Presentation to the Standing Committee on Justice and Human Rights

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The Centre for Addiction and Mental Health (CAMH), in addition to being a hospital, is an organization with a provincial mandate to conduct research, engage in public education and participate in the development of healthy public policy in the area of addictions and mental health. Our organization has many years of health promotion, treatment and research experience in issues related to the use of recreational and illicit drugs like alcohol, cannabis, cocaine and opiates. We have access to the most current evidence about, for example, alcohol and other drug effects on health, the epidemiology of substance use in Canada, and the effects of measures designed to reduce health and social problems created by substance use.

Drunk driving is one of the largest causes of alcohol-related death in Canada and other developed countries, and in Canada is the largest criminal cause of death. Thus, it is very appropriate and commendable for Parliament to be considering ways to reduce those deaths. Juergen Rehm and colleagues, in their report on the costs of alcohol, tobacco and other drugs, estimated the number of Canadians killed in alcohol-related collisions in 2002 to be 909[1], a number which for several reasons is acknowledged to be an underestimate. Of these, an estimated 28 were children 14 and under. An additional 374 of those killed in alcohol-related collisions in 2002 were teenagers and young adults. To put this number in context, 30 members of Canada's Armed Forces were killed in Afghanistan in 2007.

There is now substantial evidence from Canada and other countries that legal initiatives to control and prevent impaired driving can be very successful. For example, our recent evaluation of the introduction, by Parliament, of Canada's original per se law in 1969 that made it a criminal offense to drive with a Blood Alcohol Content (BAC) over 80 mg% has shown that, in Ontario, this law has been associated with an ongoing reduction of 18% in the rate of drinking drivers killed in collisions[2]. However, even though Canada's current legal limit of 80 mg% has had a very important and positive effect on drinking driving fatalities[3], scientific evidence now indicates that hundreds more fatalities might be prevented each year by additional government action. Two areas where there is now very clear scientific evidence to support such action in Canada are 1) lowering the legal limit for driving to 50 mg% from 80 mg%, and 2) introducing Random Breath Testing. A third area where the evidence strongly indicates that improvement can be made is in our use of ignition interlock devices with convicted offenders. Finally, it is also important to recognize the very important role that alcohol regulation plays in preventing drinking-driving fatalities.

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[1] Rehm, J., Baliunas, D., Brochu, S., Fischer, B., Gnam, W., Patra, J., Popova, S., Sarnocinska,-Hart, A. and Taylor, B. 2006. The Costs of Substance Abuse in Canada 2002. Ottawa: Canadian Centre on Substance Abuse.

[2] Asbridge, M., Mann, R.E., Stoduto, G. and Flam-Zalcman, R. 2004. The criminalization of impaired driving in Canada: Assessing the deterrent impact of Canada's first per se law. Journal of Studies on Alcohol, 65, 450-459.

[3] Mann, R.E., Stoduto, G., Macdonald, S., Shaikh, A., Bondy, S. and Jonah, B. 2001. The effects of introducing or lowering legal per se blood alcohol limits for driving: An international review. Accident Analysis and Prevention, 33, 61-75; Shults, R.A., Elder, R.W., Sleet, D.A., Nichols, J.L., Alao, M.O., Carande-Kulis, V.G., Zaza, S., Sosin, D.M., Thompson, R.S. and the Task Force on Community Preventive Services. 2001. Reviews of the evidence regarding interventions to reduce alcohol-impaired driving. American Journal of Preventive Medicine, 21, 66-90.

Lowering the legal limit to 50 mg%.

Norway introduced the first per se law in 1936, making it an offence to drive with a BAC over the legal limit of 50 mg%. Canada's current legal limit is 80 mg%, modeled on the limit introduced by Great Britain in 1967. There are three key lines of evidence that provide strong support for a legal limit of 50mg%: 1) driving skills are significantly impaired at that level, 2) collision risk is significantly increased at that level, and 3) lowering the legal limit to that level would prevent many deaths and injuries on our roads each year[4].

There has been substantial research assessing the effects of varying amounts of alcohol on driving ability and associated skills. As we have become increasingly able to measure these effects in the laboratory, it has become clear that the effects of alcohol on performance can begin with the first drink and are measurable at BACs of 20 mg % and lower. Thus there is no question that at 50 mg% driving skills are significantly impaired.

Recent epidemiological investigations of the risk of collision involvement at various BACs provide clear indications of the impact of BACs of 50mg% and above on collision risk. For example, Zador[5] in 1991 reported the risk of being in a single vehicle collision for male and female drivers at various BAC levels. He found that drivers of both genders and at all age groups with BAC levels of 50-90 mg % were significantly more likely to be involved in a collision; the lowest relative risk (RR) of collision in this BAC range (compared to BACs in the 0-20 mg% range) was 8.6 for male drivers over 25 and older, with the RRs for other age/gender groups being substantially higher.

The third line of evidence is evaluations of the impact observed when a legal limit is introduced at, or lowered to, a particular level. This research was largely unavailable when legal limits in most jurisdictions, including Canada, were originally set, and thus provides an important new line of evidence for law-makers and others to consider. There are now a large number of evaluations of the impact of the introduction of per se laws or of lowering the limit identified in those laws. A consistent conclusion of recent reviews of this literature is that, in most or all jurisdictions in which BAC limits have been lowered, substantial reductions in various measures of the drinking driving problem

[4] Mann, R.E. 2002. Choosing a rational threshold for the definition of drunk driving: What research recommends. Addiction, 97, 1237-1238; Mann, R.E., Stoduto, G., Macdonald, S., Shaikh, A., Bondy, S. and Jonah, B. 2001. The effects of introducing or lowering legal per se blood alcohol limits for driving: An international review. Accident Analysis and Prevention, 33, 61-75; Chamberlain, E. and Solomon, R. 2002. The Case for a 0.05% criminal law blood-alcohol concentration Limit for driving. Injury Prevention, 8(Supplement 3), 1-17; Shults, R.A. et al, Elder, R.W., Sleet, D.A., Nichols, J.L., Alao, M.O., Carande-Kulis, V.G., Zaza, S., Sosin, D.M., Thompson, R.S. and the Task Force on Community Preventive Services. 2001. Reviews of the evidence regarding interventions to reduce alcohol-impaired driving. American Journal of Preventive Medicine, 21, 66-90; Fell, J.C. and Voas, R.B. 2006. The effectiveness of reducing illegal blood alcohol concentration (BAC) limits for driving: Evidence for lowering the limit to .05 BAC, Journal of Safety Research, 37, 233-243. Babor, T., et al. 2003. No Ordinary Commodity: Alcohol and Public Policy, Oxford: Oxford University Press.

[5] Zador, P.L. 1991. Alcohol-related relative risk of fatal driving injuries in relation to driver age and sex. Journal of Studies on Alcohol, 52, 301-310.

(drunk drivers on the road, alcohol-related collisions, injuries and fatalities, total fatalities) have been observed.

These observations provide clear and strong scientific support for a legal limit of 50 mg%. Above this level it is clear that safe driving skills are impaired and collision risks are substantially increased. Reduction of the limit to this level can prevent many needless injuries and deaths. The potential impact on fatalities on our roads may be substantial. In 1998 my colleagues and I reported that if we saw the same effects in Canada that have been reported in scientifically rigorous studies from Australia and Europe, lowering the legal limit in Canada to 50 mg% could prevent between 185 and 555 deaths per year on our highways[6]. Rigorous scientific research that has appeared since that time from has served to support and strengthen that conclusion. It is also important to note that every evidence-based health and safety organization that has considered this issue has recommended that the legal limit be 50 mg%[7].

Random Breath Testing.

Random breath testing (RBT) originated in Australia and Europe in the 1970's, as a potential means to deal with the drunk driving problem. All states in Australia have now implemented RBT. The key to RBT is allowing the police to request a breath sample without probable cause. This permits the processing of large numbers of drivers at the roadside, as a way to increase general deterrence. This causes an increase in the average driver's perception of being caught if he drives while impaired, which is the mechanism for the effects of RBT on collision rates[8].

Evaluations and reviews of RBT have supported its effectiveness in reducing alcohol-related collisions and fatalities. Reviews of random screening measures, including RBT, found reductions in alcohol-related fatalities across studies ranging from 8% to 71%, and an average reduction of 30.6% in accidents with injuries associated with introducing RBT[9]. Because of these positive results, random breath testing has been supported by

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[6] Mann, R.E., Macdonald, S., Stoduto, G., Shaikh, A. and Bondy, S. 1998. Assessing the Potential Impact of Lowering the Legal Blood Alcohol Limit to 50 mg% in Canada. Transport Canada Publication No. TR 13321 E. Transport Canada, Ottawa.

[7] *In Canada*: Centre for Addiction and Mental Health, Canadian Public Health Association, Ontario Public Health Association, Toronto Public Health, Council on Drug Abuse, Addictions Foundation of Manitoba, Ontario Medical Association, Canadian Medical Association, MADD Canada
International: World, American and British Medical Associations, World Health Organization, Association for the Advancement of Automotive Medicine, International Transportation Safety Association; European Commission, European Transport Safety Council; Royal Society for Prevention of Accidents, Australian Transport Safety Bureau, American College of Emergency Physicians.

[8] Homel, R. 1990. Random Breath Testing and random stopping programs in Australia. In Wilson, R.J. and Mann, R.E. (Eds.), Drinking and Driving: Advances in Research and Prevention. New York: Guilford Press; Homel, R. 1993. Random breath testing in Australia: Getting it to work according to specifications. Addiction, 88, 27-33.

[9] Peek-Asa, C. 1999. The effect of random alcohol screening in reducing motor vehicle crash injuries. American Journal of Preventive Medicine, 16, 57-67. Blais, E. and Dupont, B. 2005. Assessing the capability of intensive police programmes to prevent severe road traffic accidents. British Journal of Criminology, 45, 914-937.

many health organizations, and in the recent WHO-sponsored study of measures to prevent alcohol-related harms was also one of the measures given its strongest support[10].

Ignition Interlocks.

There are existing technologies currently available that appear able to reduce impaired driving, and there is promise of important developments in the future. One technology now in use is the Ignition Interlock device, which when installed on a vehicle prevents its operation by a driver with a BAC above a predetermined level. All provinces now permit the installation of these devices on the vehicles of convicted drinking drivers at some point during their period of license suspension. The available evidence provides a very clear indication that impaired driving and recidivism are significantly reduced while these devices are installed on an offender's vehicle[11].

However, a substantial concern with existing interlock programs is the low level of utilization of interlock devices among offenders who are eligible to use them. Typical utilization rates are 10% or less; that is, among offenders who would be eligible to have an interlock device installed on their vehicles so that they could then drive legally, less than 10%, on average, appear to do so. A major concern here is that large numbers are choosing to drive without a license. Thus, while existing laws and regulations permit the use of interlock devices, their potential beneficial impact on traffic safety has not yet been realized, and increasing that beneficial impact may require reconsideration of those laws and policies that affect their use.

Alcohol policies.

I have noted above specific areas in which legal initiatives could result in reduced drunk driving and subsequent reductions in deaths and injuries on our roads. There is one additional area that warrants comment, and that is government policies and regulations that affect the sale and distribution of alcohol in Canada. Research demonstrates the very important role that government policies on alcohol have on rates of drunk driving and associated fatalities. It is clear that legal and economic availability of alcohol, as influenced by government taxation policies for example, is the strongest determinant of alcohol consumption levels in the population, and in turn that these consumption levels are the strongest determinants of alcohol-related damage such as drunk driving fatality rates[12]. For example, in our recent analysis of drunk driving deaths in Ontario, we found

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[10] Babor, T., et al. 2003. No Ordinary Commodity: Alcohol and Public Policy, Oxford: Oxford University Press.

[11] Bjerre, B. and Thorsson, U. 2008. Is an alcohol ignition interlock program a useful tool for changing the alcohol and driving habits of drink-drivers? Accident Analysis and Prevention, 40, 267-273; Voas, R.B., Marques, P.R., Tippetts, A.S., and Beirness, D.J., 1999. The Alberta Interlock Program: The evaluation of a province-wide program on DUI recidivism. Addiction, 94, 1849–1859.

[12] Mann, R.E. and Anglin, L. Alcohol availability, per capita consumption, and the alcohol-crash problem. In R.J. Wilson and R.E. Mann (eds.), Drinking and Driving: Advances in Research and Prevention, (pp. 205-225), Guilford Press, New York, 1990. Babor, T., et al. 2003. No Ordinary Commodity: Alcohol and Public Policy, Oxford: Oxford University Press.

that an increase of 1 litre in per capita, or average, consumption of alcohol would result in an increase of between 8 and 14% in drunk driver deaths, and other investigators have obtained similar results from Canada and elsewhere[13]. In this regard, it is important to note that in the past several years, alcohol availability has increased in Canadian society, including increases in alcohol promotion and alcohol accessibility, with a corresponding increase in alcohol sales and high-risk drinking[14]. Thus Parliament's concern with impaired driving is very timely.

Concluding comments.

The Government of Canada has the opportunity to take important action to reduce drunk driving fatalities in this country through legal initiatives. However, if legal changes are made, it is also important that government remain committed to supporting these changes. Research shows that laws can be unsuccessful in achieving reductions in collisions and fatalities if they are not enforced, or if resources are not available to support their implementation and enforcement.[15] Thus, if the Government of Canada chooses to effect legal changes that have the promise of reducing drinking driving fatalities, it is also important that these changes receive the resources needed for appropriate implementation. As well, it is also essential that any legal changes receive a rigorous and long-term evaluation. It is important to determine whether these changes have been successful in preventing driving while impaired by alcohol. Evaluation should be conducted throughout the process of implementation of legal changes, and over an extended period following implementation, in order to assess their effectiveness.

In summary, the available scientific evidence indicates important reductions in drinking driving and associated fatalities can be achieved through reduction of the legal limit to 50 mg%, introducing Random Breath Testing, or through more effective use of ignition interlock devices, and the Centre for Addiction and Mental Health supports the Government of Canada in its efforts to prevent deaths and injuries resulting from alcohol-impaired driving. If legal changes are made, it is also essential that resources to support their implementation and to rigorously evaluate their impact be provided.

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[13] Asbridge, M., Mann, R.E., Stoduto, G. and Flam-Zalcman, R. 2004. The criminalization of impaired driving in Canada: Assessing the deterrent impact of Canada's first per se law. Journal of Studies on Alcohol, 65, 450-459; Skog, O.J. 2003. Alcohol consumption and fatal accidents in Canada, 1950-98. Addiction, 98 883-893; Babor, T., et al. 2003. No Ordinary Commodity: Alcohol and Public Policy, Oxford: Oxford University Press.

[14] Statistics Canada. 2005. The Control and Sale of Alcoholic Beverages in Canada, 2004, Vol. Catalogue no.63-202-XIE, Ottawa: Minster of Industry.

[15] Mann, R.E., Macdonald, S., Stoduto, G., Shaikh, A. and Bondy, S. 1998. Assessing the Potential Impact of Lowering the Legal Blood Alcohol Limit to 50 mg% in Canada. Transport Canada Publication No. TR 13321 E. Transport Canada, Ottawa.