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Subject: The Case for a Provincial 0.00% BAC Limit for All Drivers Under the Age of 21

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Over the last two decades, a significant amount of research and legislative attention has been focused on the over-representation of young people in motor vehicle crashes, particularly those that are alcohol-related. Several provinces have introduced graduated licensing programs, and most include some sort of restriction on the permissible blood-alcohol concentration (BAC) for young and novice drivers. In addition, alcohol consumption and crash deaths and injuries among Canadians aged 15-19 fell between the 1970s and the early 1990s. While part of the decline in the crash data was attributable to decreases in the total youth population, per capita rates of crash deaths and injuries among youth also declined. Finally, the percentage of these deaths and injuries that were alcohol-related also fell.

Despite the progress that has been made, crashes remain, by far, the leading cause of death and injuries among Canadians aged 15 to 19. In fact, road crashes account for over one-third of all deaths and over one-fifth of all injuries among this age group. Young drivers have far higher per capita rates of crashes, deaths and injuries than older Canadian drivers. Moreover, a large percentage of these deaths and injuries are alcohol-related. For example, 40% of all Canadian teenage drivers killed and 23% of those seriously injured in road crashes had been

drinking.

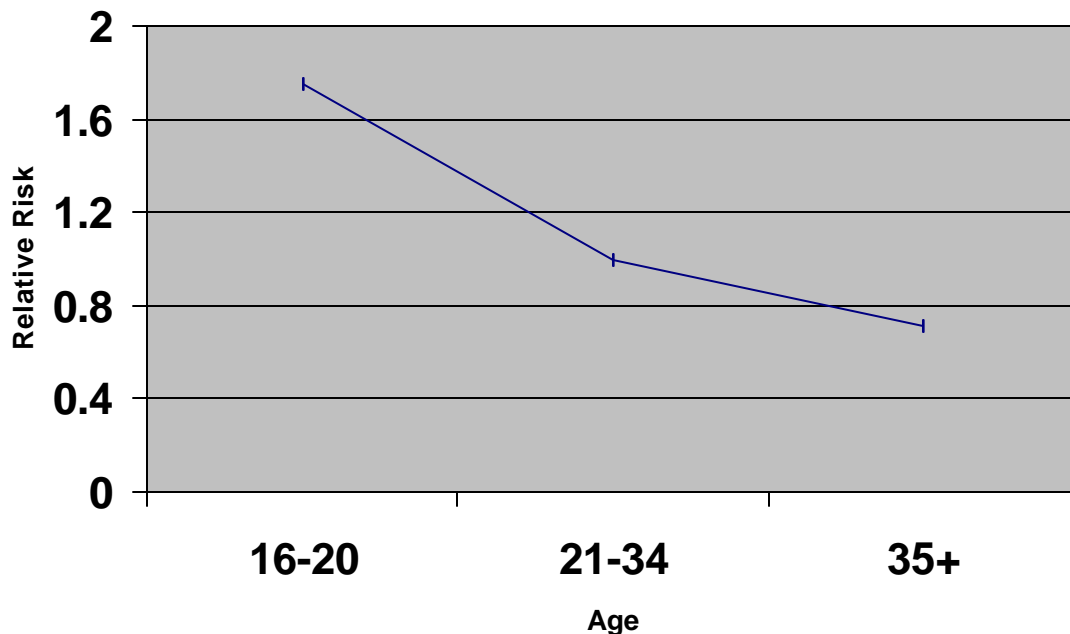
Additional factors reinforce the need for immediate action. First, since the early 1990s, the rates of decline in alcohol consumption, per capita crash deaths and injuries, and alcohol-related crashes among Canadian youth have either slowed or stopped and, in some cases, reversed. Second, the absolute number and relative size of Canada's youth population is expected to increase until 2011. It has been estimated that there will be 2.26 million 15 to 19-year-olds in Canada by this time, a number that is comparable to the size of the youth population in the late 1970s and early 1980s. Thus, unless significant progress is made, the number of Canadian youth who are killed or injured in alcohol-related crashes will likely rise sharply in the next decade.

Among the most promising legislative changes would be the introduction of a 0.00% BAC restriction for all drivers under the age of 21. Clearly, the provinces and territories have the constitutional authority to enact this provision as part of their general or graduated licensing schemes. In this memorandum, we will examine the growing body of Canadian and American research that supports the efficacy of such a zero BAC limit. It should be noted at the outset that the Canadian studies generally focus on individuals aged 15 to 19, while the American studies focus on those aged 16 to 20. Our brief review includes research on driving skills and attitudes, the relative risk of crashes, the impact of alcohol consumption on relative risk, the American experience with zero and low BAC limits on young drivers, and the success of Canada's graduated licensing programs.

Beginning drivers are already disadvantaged because of their age, and should not have their judgment further impaired by alcohol. Research has shown that perceptual, cognitive and

vehicle-handling skills are less-developed in beginning drivers than in more experienced drivers. In addition, beginning drivers have a decreased ability to detect and recognize imminent hazards in the driving environment. They are less aware of what constitutes a hazard, and their lack of experience in diverse driving situations makes them more liable to make inappropriate decisions in response to hazards. Finally, young people tend to be risk-takers and are compromised by peer pressure. Studies show that they are more likely to speed, follow too closely, allow less time to merge with traffic, cross traffic lanes and pass other vehicles. They also tend to over-estimate their driving abilities, and mistakenly believe that they have the required reflexes and vehicle-handling skills to deal with dangerous situations.

Relative Risk of Fatal Single-Vehicle Crash at 0.00% BAC



These differences in skills, attitudes and behaviour explain why even sober young drivers have a higher relative risk of crash than older, more experienced drivers. For example, one

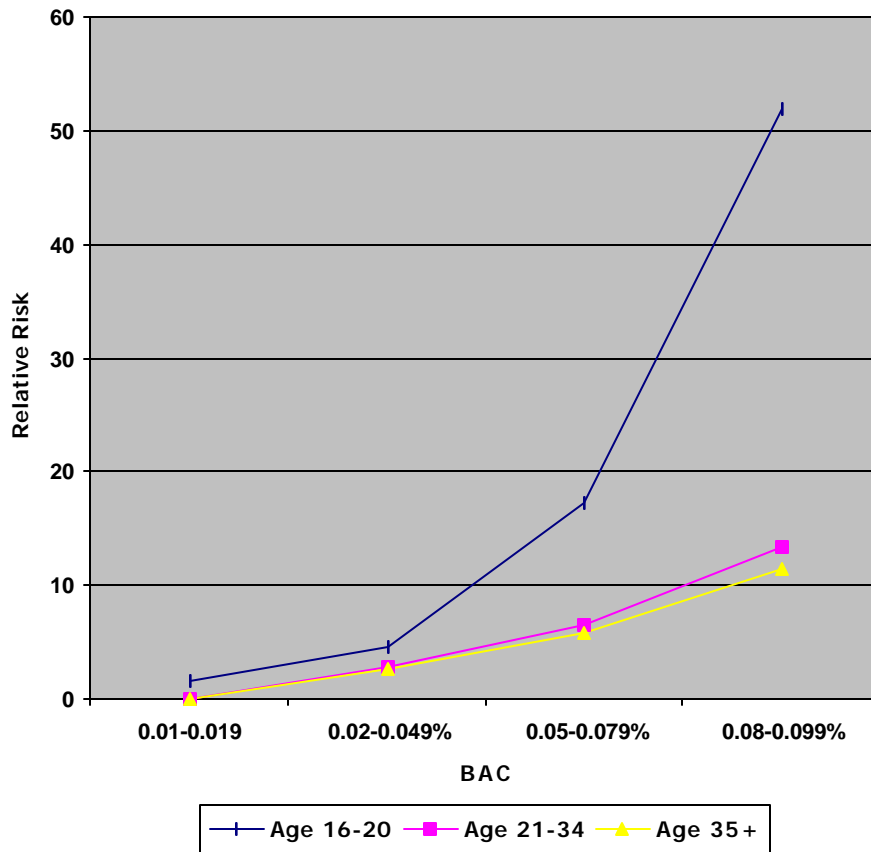
American study indicated that sober male drivers aged 16 to 20 are 5.8 times more likely to be killed in a single-vehicle crash than male drivers 25 and over. As the following graph, which is based on American data, illustrates, the relative risk of fatal single-vehicle crashes decreases sharply with age for sober males. This pattern has also been observed in Canadian studies. Thus, young drivers are at a significantly higher risk of crash, even in the absence of alcohol.

Alcohol consumption increases young people's relative risk of crash exponentially. In addition to their lack of driving experience, young drivers also tend to be inexperienced with alcohol. Mayhew *et al.* have suggested that this dual lack of experience leads to a far greater inability to drive after drinking. Young drivers have not acquired a tolerance for even low doses of alcohol, and cannot compensate adequately for the alcohol's effects on driving. In addition, studies have shown that inexperienced drivers must focus more attention on the task of driving, whereas more experienced drivers perform the task automatically or instinctively. Consequently, even a small amount of alcohol can substantially decrease an inexperienced driver's capacity to drive safely.

This is illustrated by young drivers' relative risk of alcohol-related crash involvement. Canadian data clearly establish that drivers between the ages of 16 and 19 have a higher relative risk of crash than older drivers at all BAC ranges. Moreover, the relative risk of crash increases far more rapidly for young drivers than for older drivers. Because there was insufficient Canadian data to produce a comprehensive graphic illustration, data from a recent American study were used to create the following graph. The graph illustrates that the relative risk of fatal injury in a single-vehicle crash more than doubles for every 0.02% increase in BAC for male drivers aged 16-20. While a rising BAC also increases the relative risk of crash for

older drivers, this occurs at a slower rate. Thus, 16 to 20-year-old drivers with BACs in the 0.08% to 0.099% range are six times more likely to die in a single-vehicle crash than older drivers with an identical BAC. Moreover, these young drivers are nearly 60 times more likely to die than if they were driving sober.

Relative Risk of Driver Fatalities in Single-Vehicle Crashes



A recent Canadian study examined the relative risk of involvement in all fatal crashes, not

just single-vehicle crashes. Even with a relatively low BAC (0.015% to 0.049%), drivers aged 16 to 19 showed a marked increase in relative risk of fatal crash compared to non-drinking drivers of the same age. When the BAC range was increased to 0.05% to 0.079%, drivers in this age group were nine times more likely to have a fatal crash than their sober counterparts. In contrast, drivers aged 20 and over with comparable BACs were only twice as likely to have a fatal crash as non-drinking drivers. Thus, a 0.00% BAC restriction would have significantly greater traffic safety effects for younger drivers than a moderate BAC limit.

Such 0.00% BAC restrictions have been shown to reduce impaired driving deaths among youth. A study of the American states that introduced zero or low BAC requirements on young drivers between 1983 and 1992 found a 16% decrease in single-vehicle nighttime fatal crashes among affected drivers, while such crashes in “control” states increased by 1%. The largest traffic safety improvements occurred in those states that lowered the BAC limit to 0.00%. These states experienced a 22% reduction in fatal single-vehicle nighttime crashes among youth. In comparison, states with a 0.04% or 0.06% BAC restriction had only a 7% reduction in such crashes. In the authors’ view, this was probably due to the fact that a 0.00% BAC restriction sends a clear message to young drivers that it is impermissible to drive after drinking. By comparison, states with BAC restrictions in the 0.04% to 0.06% range gave the impression that some drinking before driving was acceptable.

A more recent study from the National Highway Traffic Safety Administration also demonstrates the positive effects of a 0.00% BAC restriction. For example, Maine has had a 0.02% BAC restriction on young drivers since 1983. However, once a 0.00% BAC restriction for drivers under 21 was introduced in 1995, there was a 36% reduction in the number of

nighttime single-vehicle injury crashes among youth under 21. Similarly, Oregon, which previously had a 0.00% BAC restriction for drivers under 18, extended this restriction to all drivers under 21 in 1991. Since that time, Oregon has experienced a 40% reduction in nighttime single-vehicle crashes among affected drivers.

In addition, one study concluded that BAC restrictions on young drivers have even greater results if they are combined with extensive public education campaigns. For instance, while Maryland's 0.02% BAC restriction resulted in a 21% decrease in the number of young crash-involved drivers judged to have been drinking, the addition of public education campaign resulted in a further 30% decrease.

These American studies are corroborated by Canadian data from those jurisdictions that have introduced 0.00% BAC restrictions as part of their graduated licensing programs. For example, a survey of licensed grade 11 and 12 students in Ontario before and after the introduction of graduated licensing indicated a 25% reduction in the number of males who reported driving after drinking any alcohol. Moreover, a recent evaluation of Ontario's graduated licensing program attributed a 27% decrease in alcohol-related collisions to the 0.00% BAC restriction. Thus, there is very strong evidence that a 0.00% BAC restriction has the potential to significantly reduce the incidence of impaired driving among youth, as well as their involvement in alcohol-related crashes.

Clearly, there are several factors that contribute to the substantial risk of motor vehicle crashes among adolescents and young adults. Among these are lack of driving experience, vulnerability to peer pressure, overestimation of driving abilities, and a tendency to take risks. While graduated licensing programs in several provinces have addressed some of these factors,

they do not adequately address the involvement of alcohol in fatal crashes. Part of the problem appears to be that BAC restrictions are lifted after completion of the graduated licensing program, which usually occurs around the age of 18 or 19. This corresponds to the legal drinking age in most provinces and territories. Moreover, this is precisely the age at which young adults are most vulnerable to crashes. It is dangerous to expose youth to their first experiences of unsupervised driving at the same time as their first legal alcohol consumption. For example, a recent Canadian study found that 18 and 19-year-olds account for 70% of all fatally-injured teenage drivers, and nearly two-thirds of those seriously injured.

Young sober drivers and their teenage passengers are already at significantly elevated risk of crash-related death and injury. Permitting such drivers to consume even small quantities of alcohol exacerbates these risks. American and Canadian research clearly indicates that a 0.00% BAC restriction on all drivers under the age of 21 will dramatically reduce deaths and injuries among this high-risk population. Given this research, the introduction of such a 0.00% BAC restriction seems eminently justifiable. Indeed, in our view, failing to act now would be irresponsible, as it would condemn the next generation of Canadian youth to a rising toll of alcohol-related crash deaths and injuries.