

**APPENDIX C2**  
**WHO IS THE PERSISTENT DRINKING DRIVER?**  
**PART II: CANADA AND ELSEWHERE**

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**Who, or What, Is a Persistent Drinking Driver?**

This paper and the companion one by Jim Hedlund attempt to define the problem of the "persistent drinking driver," determine its magnitude and characteristics, and track changes in it over time. Hedlund has reviewed the U.S. experience, although data cited in the latter part of his paper are drawn from studies conducted in many other countries. This paper endeavours not to repeat but rather to supplement what is provided in that other paper by adding further data from Canada and other jurisdictions. Moreover, this has left space at the outset to pursue in more detail what is a central issue to the deliberations -- problem definition: determining who or what is a "persistent drinking driver."

This is a critical first task, for in the absence of some degree of consistency in the use of this term, estimates of the magnitude of the problem and suggestions as to how to deal with it will have little meaning. This is particularly important when a new word or term is coined -- such is the case with the phrase "persistent drinking driver," which is by no means common in the road safety lexicon. Indeed, a cursory review of other papers prepared for this workshop will illustrate the diversity of interpretations given to "persistent drinking driver." Terms such as "multiple offender," "high-BAC driver," and "chronic repeat drinking driver" are used often but left undefined.

The assumption appears to be that "we all know who or what the persistent drinking driver is" -- this may indeed be founded in a common definition and for some purposes a general sense of the target population may be all that is needed. On the other hand, there may be substantial variability in interpretations. At the very least there is a need to achieve some agreement on what the term means to ensure that deliberations on how to deal with it are productive. While an operational definition may be difficult to provide, a somewhat less precise working definition may be feasible and in the next few paragraphs, this issue is explored more fully.

To explore this issue requires a brief historical excursion. The original title of the current workshop was "The Hard Core Drinking Driver," borrowing from that of a 1991 report of the same name by Simpson and Mayhew (1991). They had, in turn, borrowed the phrase from others (e.g., Andenaes 1988; L'Hoste and Papoz 1983) who had used it in a similar manner to describe *those individuals who repeatedly (often) drive after drinking, especially with high blood alcohol*

*concentrations (BACs) and who seem relatively resistant to changing this behaviour.*

The term "hard core" has, of course, the advantage of economy of language and strong connotative impact. Its disadvantages are twofold. First, it lacks operational specificity. Is the "hard core" synonymous with high BAC, or with repeat offender, or both, or something else? Second, some have objected to the term "hard core" on the grounds that it incorrectly implies such individuals are impervious to change, rather than being simply resistant. As evidence that this group can be affected, the critics cite the decline during the 1980s in the proportion of drivers with BACs in excess of .15 (the U.S. convention for reporting BACs is used throughout).<sup>1</sup>

To redress these concerns, the organizing committee for this workshop decided to abandon the term "hard core" and adopt the term "persistent drinking driver." It was felt that the latter phrase addresses the key issue more accurately because it emphasizes the problematic behaviour -- continuing to drink and drive -- and avoids the undesirable connotations elicited by the "hard core." We shall see if this is true.

In fact, the confusion has not been eradicated altogether by the use of the term "persistent." The denotative meaning of "persistent" would portray the behaviour of concern -- i.e., driving after drinking -- as "enduring or continuing without change." In the context of the overall drinking and driving problem, "persistent" may not, however, be an appropriate adjective, since the declines witnessed during the 1980s would suggest that the behaviour is not at all persistent. On the other hand, given that so many people still drink and drive in the face of so much publicity and so many diverse efforts that have been ongoing for so long, it could be argued that the behaviour is indeed persistent. This latter description

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<sup>1</sup> Actually, the "critics" usually phrase this in a more casual and troublesome manner, such as, "we did have an impact on this group." This conclusion is not warranted; while changes may have occurred during the 1980s (descriptive), it is perhaps inappropriate to ascribe such changes to drinking-driving programs or policies introduced during the 1980s (explanatory). This is an interesting side-bar because it speaks volumes about the cavalier attribution of cause in this area (see Simpson, 1993a and 1993b for a discussion).

is, I believe, closer to the meaning that the organizers hoped to capture by the term "persistent." And, it is perhaps even more appropriate at the level of individual behaviour -- the persistent drinking driver continues to do so in spite of opposition or warning. Moreover, such use of the term does not directly impute motive to the individual (stubborn, tenacious, ignorant, recalcitrant), nor does it imply that the behaviour cannot be changed, simply that it has not yet done so. This would seem to capture the problem the workshop is intended to address and what seduced the committee into choosing the term "persistent."

Despite the apparent descriptive advantages of the phrase "persistent drinking driver," however, this new term is not without ambiguity and can also be misleading, suffering from many of the same drawbacks as the phrase "hard core drinking driver." To illustrate, consider that population surveys in Canada (Simpson, et al. 1992) and in the U.S. (see the paper by Hedlund) suggest that drinking and driving is still a reasonably common practise; 25 percent of adults in Canada report that they drove at least once in the past year after consuming two or more drinks (that projects to three million Canadians as drinking drivers each year). Moreover, 54 percent of these individuals say they do so at least three times a month. It might be argued that this is reasonably persistent behaviour.

But many of these people -- the ones who persist in drinking and driving -- do so with low BACs. Indeed, roadside surveys show that about 90 percent of drinking drivers have BACs below .05 (e.g., Beirness et al. 1991). In other words, there are many people who, despite all the warnings, still drive after they have had some wine with dinner at a restaurant, or a few beers at the ballpark, or some drinks at a friend's house. They continue to do so and, therefore, by definition are persistent drinking drivers. Yet, it is also well established that these drivers are the least risky -- they are far less likely to be involved in a serious road crash. Although some safety professionals would still argue that this persistent behaviour is problematic, it does not appear to fit the profile of what this workshop has as its focus.

Indeed, the background material for the workshop states that, "while significant reductions in drinking and driving have occurred during the last decade... repeat offenders and drivers with high blood alcohol levels continue to pose a major threat to traffic safety." This phraseology implies that persistent drinking drivers are not really those who drive with low BACs, *even if they do so repeatedly*. Rather, they are repeat offenders (generally taken to mean persons convicted of a drinking driving offence more than once) and drivers with high BACs (sometimes meaning BACs in excess of .10 but more usually referring to BACs in excess of .15).

Does this definition -- repeat offenders and drivers with high BACs -- clarify who or what the target group is? Perhaps. But, while repeat offenders are, by definition, persistent, those with high BACs may or may not be. Indeed, it was for such reasons that Simpson and Mayhew (1991) referred to the target group of concern as those who *repeatedly* drive after drinking, *especially* with high BACs (as it turns out the two will be shown to be highly correlated). This working definition includes repeat offenders and in particular those with elevated BACs. As well, Simpson and Mayhew's use of the term "offender" was liberal, encompassing those who engaged in the target behaviour, not just those who were apprehended and convicted for doing so (the relevance of this is brought out later in this paper). Furthermore, their working definition generally *excluded* the group referred to earlier -- those who may persist in driving after drinking but only with low BACs.

How then is the phrase "persistent drinking driver" more acceptable than the phrase "hard core?" It would appear as though we have come full circle? If the term "persistent" excludes the more "social" group of drinking drivers, who still continue to drive after they have been drinking but with low BACs, yet it includes repeat offenders and people with high BACs, is it then more accurate than the phrase "hard core?" Moreover, persistent also implies resistant to change, a criticism previously directed at the term "hard core." The difference between "hard core" and "persistent" seem trivial at best. Both suffer from similar limitations, while generally describing the same target population.

Accordingly, this paper adopts a working definition of the persistent drinking driver that is virtually synonymous with that of the hard core as described by Simpson and Mayhew (1991) -- individuals who repeatedly drive after drinking (not operationalized, but certainly more than once a year and likely as often as two to three times a month), especially with high BACs (.15 or greater). This definition *excludes* people who rarely or infrequently drink and drive; it *also excludes* those who continue to drive after drinking but only at low BACs. Whether or not persistent drinking drivers are less likely to change their behaviour than other groups of drinking drivers (i.e., they are resistant, persistent drinking drivers) remains to be determined.

### Windows on the Problem

Anyone familiar with traditional secondary data sources in this field knows that determining the number of people who repeatedly drive after drinking with high BACs is not at all straightforward -- indeed, it is virtually impossible. The limitations of existing data systems make it difficult to provide precise estimates of the magnitude of the problem. However, reasonable estimates may be possible if one

assumption is made -- namely, that there is a strong positive relationship between BAC and "persistence." If this assumption is tenable, then it may be possible to use high levels of alcohol as a surrogate measure for defining the persistent drinking driver.

And, there is some evidence to support this approach. Simpson and Mayhew (1991) showed that with increases in BAC there was a consistent and substantial increase in the likelihood of a fatally injured driver having a prior DWI. Moreover, the BAC distribution among dead drivers with a prior DWI conviction is decidedly different from that among drivers with no previous conviction. To illustrate, while less than half of the dead drivers with no prior DWI were positive for alcohol, 85 percent of those with a prior DWI had been drinking at the time of their crash. And, 80 percent of these had BACs in excess of .15 -- i.e., most of the drivers with a *prior* DWI had been drinking at the time of their crash and most had very elevated BACs. Similarly, Gjerde and Morland (1990) showed that while 22 percent of arrested drivers with a BAC below .10 had a prior conviction, 61 percent of those with an arrest BAC in excess of .25 had a prior conviction.

The strong positive relationship between BAC and prior DWI involvement suggests that either index may be used as an admittedly imperfect but reasonably useful measure of the persistent hard core. Despite their limitations, high BACs and multiple DWI convictions provide reasonable windows on the target group and are used in this paper as a means to assess the magnitude and characteristics of the problem as well as changes over time.

It should also be noted that if such indicators are used, under some circumstances they lead to the erroneous conclusion that the group of concern is not large. For example, as indicated in Jim Hedlund's paper, FARS data suggest that the group of persistent drinking drivers is very small -- only 13 percent of dead drivers with a BAC of .10 and over have a previous DWI; only 17 percent with a BAC of .20 or above have a prior DWI. However, these seemingly low figures are largely a function of limitations in the driver record data contained in FARS. More complete tracking systems consistently show that at least 35-40 percent of fatally injured drinking drivers have a prior DWI.

### **Magnitude of the Problem**

This section examines data from several sources that provide various windows on the persistent drinking driver. It attempts not to duplicate but to supplement the information provided in the paper by Jim Hedlund. The conclusion is that the persistent drinking driver represents a significant problem. To illustrate, it is estimated that about 65 percent of fatally injured drinking drivers, or about 30-35 percent of

*all the drivers* killed each year, and about 15-20 percent of all drivers injured each year fall into the category of the hard core or persistent drinking driver. In the U.S., this translates into about 7,000 dead drivers and 250,000 injured drivers each year. This does not take into consideration the other people who die or are injured in the crashes involving those persistent drinking drivers as occupants of the same vehicle, another vehicle, or as a pedestrian.

At the same time, it is also true that the vast majority of collisions do not involve a death or an injury and that alcohol is far less frequently involved in such events. To illustrate, there were nearly four million collisions involving only property damage in the U.S. in 1992, compared to 34,928 fatal collisions -- i.e., fatal collisions comprise less than 1 percent of all crashes each year. Furthermore, the incidence of alcohol and of high BACs in these property-damage-only crashes is far less than it is in more serious collisions. For this reason, some have suggested that the problem of the persistent drinking driver is insignificant and that attention devoted to it inappropriately draws resources away from more important problems. Such an interpretation fails to recognize that the economic consequences of serious road crashes are far more profound than those involving property damage. For this reason as well as moral and humanitarian ones, society places far more value on deaths and injuries than on property damage. From a social, political and cost-benefit perspective, prevention of fatal or injury-producing crashes is more important than the prevention of property damage crashes. The value of life vastly outweighs that of property. It is therefore, inappropriate and untenable to argue that the problem of the persistent drinking driver is small and hardly worthy of concern. On the contrary it is a costly and visible problem that warrants action.

**Fatally injured drivers.** As in the U.S. the most reliable data in Canada on alcohol involvement in road crashes is derived from persons, primarily drivers, who are killed. The TIRF Fatality Database is the Canadian form of the U.S. FARS. It contains a wide range of information on drivers killed in Canada and is historically intact to 1973.

In 1992, 48 percent of the drivers killed in Canada had been drinking (BAC of .01 or greater). Among these drinking drivers, the vast majority -- 84 percent -- had BACs in excess of the statutory limit (.08). Moreover, 64 percent had high BACs -- in excess of .15; and 42 percent had BACs over .20. The mean BAC among fatally injured drivers was .17 over twice the legal limit. These figures are very comparable to those for the U.S. and many jurisdictions around the world (see Simpson and Mayhew 1991 for a discussion).

Briefly, among drivers killed in road crashes, high BACs predominate -- the so-called hard core represents a very

significant part of the alcohol-fatal crash problem. About 65 percent of drinking drivers and 30-35 percent of all drivers killed have BACs in excess of .15.

**Injured drivers.** Research on persons surviving road crashes has traditionally been hampered by legal and ethical constraints. However, the few studies that have been done which also report various BAC levels, provide results that are consistent with those based on persons who are killed. While the incidence of alcohol is less among the injured population (ranging from about 25 to 30 percent), there is a strong relationship between the severity of injury and the likelihood of detecting alcohol and, of more relevance, to the level of alcohol. For example, Stoduto et al. (1992) examined the presence of alcohol in persons treated in a trauma unit in a major metropolitan area, for injuries sustained in a road crash. As in the case of fatalities, Stoduto et al found that 62 percent of the injured drinking drivers had BACs in excess of .15. The problem of the high-BAC driver is not unique to fatal crashes. Indeed, the target population could account for some 15-20 percent of *all the drivers injured* in road crashes.

**Arrested drivers.** The BACs among arrested drivers are usually quite high and the average is reasonably comparable across jurisdictions, despite differences in such things as the level of enforcement. In Canada, the mean BAC among arrested drivers is .17 and some 67 percent have BACs in excess of .15. The mean BAC among arrested drivers for other selected jurisdictions is as follows:

British Columbia	.17
Minnesota	.18
Washington	.17
Suffolk County, N.Y.	.18
Nassau County, N.Y.	.14
Great Britain	.14
Finland	.18

As mentioned earlier, there is also a strong positive relationship between BAC and frequency of conviction. Very high BACs are common among multiple offenders. Many of the characteristics of drinking drivers (see section 5.0 below) are derived from studies of arrested drivers, since more indepth information, particularly socio-psychological information, can be obtained from them than from dead drivers. It is also clear from the literature that the probability of being arrested for drunk driving is quite low (from 1 in 500 to 1 in 2,000 trips). It follows that the group of arrested drivers on which our profiles are based may in fact be unique. It is possible that the drunk drivers with high-BACs, who are detected, arrested and convicted, differ in important ways from those who are not. If so, these differences could have important implications for the detection process and, if suitably enhanced, for the downstream processing of this

evasive, persistent drinking driver?

### Characteristics of the Problem

The paper by Jim Hedlund presents the results of a recent review of the characteristics of drinking drivers. While the review did not focus specifically on the persistent drinking driver, given the data sources used in the study (e.g., fatalities, arrested drivers, etc.), the findings seem very relevant. Jim Hedlund concludes that many or most of these individuals are likely members of our target group.

It is not necessary to repeat the characteristics outlined in that paper (see pages 3-4). Nor is there much that can be added to this extensive review. Suffice it to say that national household surveys, similar to the one described by Hedlund, have also been conducted in Canada. Indeed, the most recent one (Simpson et al. 1992) surveyed more than twice the number contained in the U.S. sample. A group of persistent drinking drivers also emerged in the Canadian survey. We estimate there are about 4.5 million drinking-driving trips made each month in Canada, but about 55 percent of these (2.5 million) are accounted for by about 11 percent of the drinking drivers. This small segment has been profiled by Hedlund and the Canadian data are quite comparable -- 75 percent are men; 20 percent are 20-24 years of age, 35 percent are 25-34 and 22 percent are 35-44; they are less likely to wear their seat belt; they drink more often and consume more when they drink; they drive more (this is an interesting finding -- their exposure is much greater than non-drinking drivers); and they have different reasons for drinking (more do so because their friends are drinking, puts them in a party mood, makes them happy, do so because they feel sad lonely or depressed).

### Changes over Time

It has been shown that the incidence of alcohol in fatal crashes declined during the 1980s (Beirness et al. 1994). This trend has slowed in recent years in the U.S. and there has actually been an upturn in Canada in 1991 and again in 1992. Moreover, the decline was not limited to any one BAC group. In fact, decreases were observed among the high BAC groups as well. However, the observed decreases were neither equivalent nor uniform across BAC groups. For example, there were decreases in the proportion of fatally injured drivers with very high BACs (.20 and above) during the early 1980s but an increase in the later half of the 1980s. Drivers with low BACs (<.10) showed the opposite trend. These changes defy simplistic explanations.

As apparently inexplicable as these changes may be at present, there remains a need to explore the issue fully since it has direct relevance to our understanding of just how

persistent the persistent drinking driver is and whether different subgroups are differentially resistant.

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## APPENDIX C3

### ENVIRONMENTAL STRATEGIES TO REDUCE CHRONIC DRIVING WHILE INTOXICATED

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#### Summary

Chronic drunk driving is often exhibited by persons who have not been arrested for driving while intoxicated (DWI). Analyses of ways to reduce this behavior must go beyond analyses of specific deterrence and reeducation and treatment of arrested offenders. This paper reviews environmental interventions to reduce persistent driving while intoxicated.

Several environmental interventions have been demonstrated to reduce driving while intoxicated and related fatal crashes:

- the minimum legal drinking age of 21
- increased taxes on alcohol
- server intervention and legislation requiring server intervention training is a condition of alcohol sales licensing
- active enforcement of server training laws targeting alcohol sales outlets
- dram shop legislation
- maintaining state monopoly control over sales of alcoholic beverages
- reducing alcohol outlet density on a geographical and per capita population basis
- lowering legal blood alcohol limits particularly to .00-.02 percent for drivers under 21. Preliminary studies also suggest lowering to .08 percent for adults and .04 percent for repeat offenders can produce some declines in alcohol related fatal crashes.

#### Problem Chronic Driving While Intoxicated

In 1992 in the United States 1.6 million individuals were arrested for driving after drinking. Although precise estimates are not available, at least 20-30 percent had been previously arrested on the same charge in the past 10 years. Among persons jailed for DWI, more than half had been previously incarcerated for DWI. (Cohen, 1992)

In 1992, 11,359 drivers in fatal crashes had blood alcohol levels above .10 percent the legal level of intoxication in most states. Of drivers in fatal crashes 2,252 (20 percent) had received a citation for driving while intoxicated in the previous 3 years. (U.S. Department of Transportation, 1993) Probably 30 percent or more of drivers in fatal alcohol related crashes have at some point in their lives been arrested for DWI.

Of course, not all persons who frequently drive above the legal limit have been previously arrested. A 1993 statewide