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DWI

Repeat Offenders

A Review and Synthesis of the Literature

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Ce document est aussi offert en français sous le titre :
Récidivistes d'un délit de CFA – Examen et synthèse de la documentation

Cat. No. H39-416/1997E
ISBN 0-662-25955-6

DWI Repeat Offenders:

A Review and Synthesis of the Literature

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Executive Summary

Background and Purpose

During the 1980s, substantial and unprecedented reductions in the magnitude of the alcohol–crash problem were realized in Canada as well as in many other nations around the world. Since then, international attention has focused on that group of drinking drivers believed to be primarily responsible for the problem that remains driving while impaired (DWI) repeat offenders.

This report provides a comprehensive review of the literature on this high-risk group of drinking drivers as a means to

- identify and summarize the characteristics of DWI repeat offenders,
- review existing countermeasure initiatives for dealing with DWI repeat offenders and
- develop recommendations for dealing effectively with this high-risk group.

Definition

Although a variety of labels and descriptors have been applied to this group, this report uses the following working definition of DWI repeat offenders:

- they drive repeatedly after drinking, often with high blood alcohol concentrations (BACs),
- their drinking–driving behaviour is persistent and chronic,
- they appear to be resistant to persuasive and emotional appeals and are not deterred by the threat of criminal sanctions,
- they tend to drink frequently and often to excess and
- they may have been previously convicted of a DWI offence.

Magnitude of the Problem

Determining the number of people who fit the definition of the DWI repeat offender is by no means straightforward. To provide a reasonable estimate of the magnitude of the problem, it is necessary to examine a number of data sources. These sources provide windows to disturbing examples:

- Among people convicted of DWI offences, up to three-quarters are repeat offenders.
- Among fatally injured drinking drivers, 62% had a BAC in excess of 150 mg; 68% of injured drinking drivers had a BAC of this magnitude.
- Among drinking drivers responsible for fatal crashes, one-third have been previously convicted of a DWI offence.

- Among self-reported drinking drivers, 62% indicated that they drove after drinking on at least two occasions in the previous month and 16% said they had done so five or more times.
- Ninety per cent of drinking–driving trips are by people who report driving after drinking at least twice per month.

It can be concluded that although DWI repeat offenders represent a relatively small proportion of the driving population, they account for a substantial proportion of drinking–driving problems. Efforts to reduce the frequency of driving after drinking among this high-risk group or to reduce their BACs could have a tremendous impact on the overall magnitude of the alcohol–crash problem.

Characteristics of DWI Repeat Offenders

A considerable body of literature indicates that DWI offenders are a demographically diverse group. They span all age, education, income and marital status groups; however, men outnumber women drinking drivers by a wide margin.

Research has also identified numerous psychosocial and behavioural characteristics that distinguish DWI offenders from the general driving population. In general, DWI offenders often exhibit a variety of antisocial and deviant tendencies such as aggression, hostility and thrill-seeking. They are more likely than non-drinking drivers to have a criminal history, to use drugs and to have poor driving records. Perhaps the most distinguishing characteristic concerns their patterns of alcohol consumption. DWI offenders drink more frequently, consume greater quantities of alcohol per occasion, experience more alcohol-related problems and are more likely to meet the criteria for a diagnosis of alcohol dependence. These characteristics are more pronounced among DWI repeat offenders.

It should be recognized that not all drinking drivers exhibit these characteristics or exhibit them to the same degree. Several studies have demonstrated that DWI offenders can be classified into distinct and clinically relevant subgroups. The typologies range from relatively well-adjusted people who are difficult to distinguish from general-population drivers to “deviant” people who display characteristics that render them at high risk of driving-related problems.

Research on driver typologies demonstrates that not all DWI offenders are similar. They are a diverse group having different backgrounds, problems and reasons for engaging in DWI behaviour. This diversity suggests that countermeasures designed to treat all DWI offenders in a similar fashion will be less effective than measures directed toward specific subgroups. Therefore, interventions should be designed to match the characteristics and needs of specific high-risk groups.

What Can Be Done?

A wide variety of approaches have been used to deal with drinking drivers in general and the problem of the DWI repeat offender in particular. For this report, the various interventions have been divided into three groups according to the stage of drinking and driving at which they are intended to exert their primary influence – i.e., before drinking–driving (prevention), during drinking–driving (identification and apprehension) and after drinking–driving (dealing with offenders through sanctions and programs).

Prevention

Prevention refers to measures that reduce the likelihood that an individual will drive after consuming alcohol. For the most part, prevention initiatives are directed toward the "social drinker" who might on occasion drive after consuming too much alcohol. Several measures that could be directed toward the DWI repeat offender are examined:

- **Targeted advertising.** The principles and techniques used in the marketing of any consumer product – e.g., market segmentation analysis, consumer opinion surveys, focus groups and message pre-testing – can be used to develop prevention messages in media ads for the DWI repeat offender. Such efforts are currently under way.
- **Server intervention programs.** Server intervention refers to any action taken by an employee of a licensed drinking establishment either to limit the amount of alcohol served to an individual (and thus to prevent intoxication) or to prevent an intoxicated individual from operating a vehicle. Evaluations of server intervention training programs have shown encouraging results. This approach may well be an appropriate and effective means of dealing with the DWI repeat offender.
- **Designated driver programs.** Designated driver programs are intended to ensure that one member of a group agrees not to drink and to accept responsibility for driving other members of the group home. Although this approach appears to be popular among some groups (e.g., young people) there is no evidence that the target group employs this strategy.
- **Alcohol control policies.** Policies to restrict the availability of alcohol – e.g., higher minimum drinking age, price increases, reduced hours of sale – have been identified as a way to reduce the overall alcohol–crash problem. Control policies that would have a specific impact on the drinking–driving behaviour of DWI repeat offenders have yet to be identified.

Identification and apprehension

Interventions targeted toward drinking–driving behaviour while it is occurring generally involve the identification and apprehension of offenders by the police. Several methods have been identified to improve the efficiency and effectiveness with which DWI repeat offenders can be detected and apprehended.

- **Police spot checks.** High visibility police spot checks for impaired drivers have become a regular occurrence in Canada, particularly during the year-end holiday season. However, the efficiency and effectiveness of spot checks as a way to apprehend the DWI repeat offender are questionable. Although such programs stop many drivers, they find very few impaired drivers who could be considered part of the DWI repeat offender target group. In addition, studies have shown that about half of all drivers with high BACs escape detection in police spot checks.
- **Saturation patrols.** As an alternative to spot checks, it has been suggested that roving patrols of police officers within a limited geographic area may be a more efficient and effective means of apprehending DWI repeat offenders. These saturation patrols combine the desirable features of spot checks and routine police patrols to enhance the apprehension of DWI repeat offenders. Initial evaluations of this technique have been encouraging.

- **Operation Lookout.** This program encourages citizens to report suspected impaired drivers to the police and provides them with an easy means for doing so. It is suspected that many of the drivers reported to the police as part of this program would be those with high BACs and who would most likely fit the definition of the DWI repeat offender. The effectiveness of this program is not yet known.
- **Random breath-testing.** Random breath-testing gives police the power to demand a breath sample from any driver at any time, even without suspicion of alcohol use. Random breath-testing in Australia, when combined with intense publicity and enforcement, has resulted in a significant reduction in alcohol-related crashes. In Canada, random breath-testing would pose a threat to the constitutionally guaranteed freedom from unauthorized search and seizure. Hence, it is unlikely that random breath-testing will make a debut in Canada in the near future.
- **Passive alcohol sensors.** A passive alcohol sensor is a small device that can detect the presence of alcohol in the vicinity of a driver's face without the driver having to provide an actual breath sample. The presence of alcohol provides the police officer with a "reasonable suspicion" of alcohol use that could be sufficient for proceeding with an actual breath test. As such, passive sensors may provide a legally acceptable alternative to random breath-testing as a means of enhancing efforts to apprehend DWI repeat offenders.

Dealing with offenders

A variety of countermeasures are available for dealing with DWI repeat offenders once they have been identified through either the criminal justice system or the driver licensing system. The purpose of interventions at this stage is to reduce the likelihood of offenders engaging in the behaviour on subsequent occasions. These measures have been grouped into three broad categories: driver-based sanctions, vehicle-based sanctions, and assessment and rehabilitation programs.

- **Driver-based sanctions.** Sanctions directed toward the driver are intended to punish offenders for their crime, deter subsequent offences and prevent or limit the opportunity to commit the offence again. Four such measures are reviewed: licence suspension, incarceration, home confinement and intensive supervision or probation.

  Licence suspension. Removing the driving privileges of individuals convicted of DWI is a simple, straightforward and seemingly appropriate sanction. In general, licence suspensions have been shown to be one of the most effective penalties for DWI offences. Although a valuable sanctioning option, it is unknown how effective licence suspension are with DWI repeat offenders, nor has the optimal length of suspension been determined.

  Incarceration. In Canada, second and subsequent DWI convictions carry a mandatory period of incarceration. Unfortunately, although short periods of incarceration appear to have a beneficial effect on first-time offenders, longer jail terms have either no effect or a negative effect on repeat offenders.

Electronically monitored home confinement. As an alternative to incarceration, some jurisdictions are using home confinement and electronic monitoring to control the activities of criminal offenders. Evaluation has demonstrated that DWI offenders fare better than other types of offenders in home confinement programs, as demonstrated by fewer contacts with the criminal justice system within a year of release from the program.

Intensive supervision probation. Intensive supervision probation can also be viewed as an alternative to incarceration. In this type of program, surveillance is more intensive, contacts are more frequent, and there is greater availability of treatment services than in regular probation. The primary advantage of intensive supervision for DWI offenders is the emphasis on access to treatment services.

Vehicle-based sanctions. In many cases, the application of sanctions to drivers is insufficient to prevent offenders from repeating the offence. Vehicle-based sanctions are intended to limit the opportunity for the offender to engage in drinking–driving behaviour by restricting access to the vehicle.

Vehicle impoundment, immobilization, confiscation. The primary purpose of these actions is to deny access to a vehicle or to render it inoperative. Such measures have primarily been implemented to reinforce licence suspensions. The initial evaluations of these types of measures have shown encouraging results.

Actions against the vehicle registration. These measures – cancellation of the registration, and special plates or sticker programs – restrict or prevent *legitimate* use of the vehicle. Marking suspended drivers' vehicles with special licence plates is the only such program to show a positive impact on offenders.

Autotimers. The autotimer is a motion detector and recording device installed in a vehicle to provide an objective record of all vehicle use. It is intended to enforce licensing restrictions. The record of vehicle use is reviewed by a program officer, and violations of the licensing restrictions are brought to the attention of authorities for further actions. The effect of the system has yet to be evaluated.

Alcohol ignition interlocks. An alcohol ignition interlock is a small breath-testing device installed in a vehicle and linked to the vehicle's ignition. To start the vehicle, the driver must provide a breath sample that registers a BAC less than a pre-set maximum value (e.g., 20 mg%). BACs in excess of the threshold prevent the vehicle from starting. The system is intended to prevent the operation of the vehicle by a person who has been drinking. As such, it provides a safeguard to ensure that DWI offenders do not engage in drinking–driving behaviour once they become relicensed. Several evaluation studies report positive results from ignition interlock programs.

- **Assessment and rehabilitation.** The rationale for the assessment and rehabilitation of DWI offenders is based on the hypothesis that problems of impaired driving are best resolved by addressing the underlying problems that give rise to the behaviour – most notably problem drinking. Contemporary approaches to assessment and rehabilitation go beyond the treatment of alcohol abuse as the only rehabilitation option for offenders. Many programs also direct attention to depression, hostility, marital problems and coping skills.

  Assessment. DWI offenders are a diverse group of people who engage in drinking–driving behaviour for a variety of reasons. Multidimensional assessment techniques have been developed that incorporate a variety of social and personal characteristics – e.g., risk-taking, depression, hostility, attitudes – that are not only related to subsequent risk of reconviction but appear to have clinical relevance as well. Understanding the predominant characteristics and problems contributing to the DWI behaviour of an individual is the key to developing an effective treatment strategy.

  Rehabilitation. There exist a wide variety of approaches to the rehabilitation of DWI offenders, ranging from brief educational encounters to intensive treatment for alcohol dependence. The effectiveness of these programs varies. None has proven effective for all types of offenders, but many programs have shown positive results with particular groups. In general, DWI rehabilitation programs have shown an average 8% to 9% improvement in DWI recidivism and alcohol-related crashes over no rehabilitation. This estimate of the magnitude of the effect of rehabilitation programs for DWI offenders represents an average across all types of offenders and programs. Programs that combine approaches (e.g., education with monitoring) are more effective than single approaches for both repeat and first-time offenders. Offenders considered to be at moderate risk of recidivism appear to respond better to programs than do more severe or "high-problem" offenders. This suggests the need for a system to match offenders to the intervention programs from which they are most likely to derive the greatest benefit.

Program and Policy Implications

It is apparent from the literature review that DWI repeat offenders comprise a substantial portion of the drinking–driving problem. Moreover, current sanctions and programs appear to have limited impact on this high-risk group of offenders. There is a need for new, innovative programs and policies to deal effectively with DWI repeat offenders. A series of recommendations for dealing with the problem are outlined in four areas: prevention, identification and apprehension, sanctions, and programs.

Prevention

- Encourage the development, refinement and adoption of server training programs.
- Encourage designated driver and alternative transportation programs for DWI repeat offenders.
- Develop and distribute anti-drinking–driving messages aimed at the DWI repeat offender.

Identification and apprehension

- Implement the use of passive alcohol sensors for screening drivers.
- Implement police saturation patrols for impaired drivers.

Sanctions

- Implement an alcohol ignition interlock program for high-risk offenders.
- Implement a program of vehicle-based sanctions for people who violate licence suspensions.
- Implement a system of graduated relicensing that incorporates flexible licence suspensions and a systematic reintroduction to full driving privileges.
- Use home arrest and electronic monitoring in cases where incarceration is deemed warranted and appropriate.
- Implement tiered or graded BAC limits that would tie sanctions to the severity of the offence.

Programs

- Develop and implement a procedure to assess every person arrested or convicted of an impaired driving offence.
- Require DWI offenders to complete a recommended rehabilitation program as a condition of license reinstatement.
- Implement a case management system to monitor offenders and to facilitate their access to programs and services.
- Develop and implement a system of screening and referral for drivers treated in hospital emergency departments for injuries sustained in motor vehicle crashes.
- Require all drivers who have accumulated two or more short-term (i.e., 12-hour to 24-hour) licence suspensions to undergo assessment.
- Require all drivers who come to the attention of licensing authorities for repeat violations or crash involvements to undergo assessment.

A Countermeasures Strategy

The recommendations listed above are not intended as independent countermeasures. Rather, many of the options are intimately associated with other programs; their effectiveness depends on coordination among them. Hence, for jurisdictions considering changes in the system for dealing with the DWI repeat offender, one final recommendation is offered:

- Develop a comprehensive DWI countermeasures strategy to guide the implementation of a series of coordinated and interrelated programs to deal effectively with DWI repeat offenders.

1. Introduction

1.1 Overview

Over the past several years, the problem of the DWI[1], repeat offender has received world-wide attention. Several recent studies have clearly demonstrated that a substantial portion of the drinking-driving problem involves individuals who repeatedly drive after drinking, especially with high blood alcohol concentrations (BACs). Recognition of the magnitude of the repeat offender problem has become widespread; the problem is acknowledged by policy-makers and researchers alike. Many scientific reports and journal articles re-affirm the significance of the problem (e.g., Holubowycz et al., 1994; Ross, 1992a; Wilson, 1993; Sweedler, 1994). In addition, the significance of the repeat offender is illustrated by a number of recent conferences and symposia held to discuss the problem and to consider viable alternatives for dealing with this high-risk group.

This international interest in the DWI repeat offender has stimulated new research to examine the dimensions of the problem; the development, implementation and evaluation of new countermeasure programs; and evaluations of the effectiveness of existing programs. This report examines the problem of the DWI repeat offender and the programs and policies that offer promise for dealing efficiently and effectively with it.

1.2 Background

Unprecedented attention, concern and resources have been directed toward the problem of the drinking driver over the past decade and a half. Foremost among the countermeasure efforts of the 1980s were attempts to educate the public about the dangers and illegality of driving after consuming too much alcohol. These educational efforts were bolstered by new laws and enhanced enforcement efforts to detect and apprehend drinking drivers before they crashed.

Commensurate with the implementation of these measures have been demonstrable decreases in the magnitude of the problem. The general public has become less accepting of driving after drinking, the prevalence of driving after drinking has lessened, and the incidence of alcohol-related crashes has decreased (Beirness, Simpson et al., 1994). But the downward trend in the problem, so evident during the 1980s, appears to have ended. Recent data indicate that, since 1990, the involvement of alcohol among fatally injured drivers in Canada has first increased and then decreased, with no apparent consistent trend.

Although there are differences of opinion about the causes of the significant decrease during the 1980s as well as what has caused this trend to end (e.g., Simpson 1993), there is nonetheless a growing consensus that the apparent success of countermeasure efforts during the 1980s may reflect the "easy gains" – i.e., these efforts reached the individuals who were likely to be deterred by the threat of punishment or who were most likely to be compelled to change their behaviour as a result of educational or emotional appeals. These individuals tended to be law-abiding "social drinkers" who, on occasion, may have driven after drinking (e.g., Moskowitz, 1990; Simpson and Mayhew, 1991). If this hypothesis is correct, a major part of the drinking-driving problem today may be accounted for by a group of drivers who are not easily affected by persuasive and deterrent measures and who have continued to drive after drinking, often with high BACs.

A considerable body of evidence has accumulated in the past five years to support the hypothesis that a significant portion of the drinking-driving problem is now accounted for by a very resistant group of drinking drivers. The people in this high-risk group have been referred to variously as repeat offenders, hard-core drinking drivers, persistent drinking drivers, high-BAC drivers and alcohol-abusing drivers. Regardless of the label, the international literature ascribes certain common features to these high-risk drinking drivers (Simpson and Mayhew, 1991; Sweedler, 1994; Wilson, 1993). They repeatedly drive after drinking.

- They often drive with very high BACs (i.e., in excess of 150 mg%).
- Many have been previously convicted of an impaired driving offence.
- Many display signs of serious problems with alcohol abuse.

These high-risk drivers who repeatedly drive after consuming alcohol appear resistant to the arsenal of prevention and enforcement measures commonly used during the 1980s. Traditional penalties applied to convicted DWI offenders also appear to have little deterrent effect. Fines, licence suspensions and even periods of incarceration often fail to prevent repeated occurrences of the same behaviour. New and innovative measures are needed to deal more effectively with this high-risk subgroup of offenders.

1.3 Rationale and Purpose

Despite the significant reduction that occurred during the 1980s, a drinking-driving problem of substantial magnitude remains. Moreover, the downward trend observed during the 1980s has been halted; in recent years, the magnitude of the problem has actually increased, offsetting some of the gains achieved in the prior decade.

A successful strategy to deal with the drinking-driving problem may depend on refining our understanding of the problem to enable us to identify the relevant target groups and to develop appropriate countermeasures.

DWI is an abbreviation for driving while intoxicated or driving while impaired. Throughout this report, DWI refers to driving-while-impaired behaviour, including driving with a BAC in excess of 80 mg%. In the context of charges, DWI also includes refusing to provide a breath sample.

Accordingly, it is both timely and appropriate to re-examine the nature of the problem and to determine the countermeasures that appear promising for dealing with it. Considerable attention is now being focused on individuals who repeatedly drive after drinking and often with high BACs. Accordingly, this report provides a comprehensive review of the literature on this high-risk group of DWI repeat offenders. Its purpose is threefold:

- to identify and summarize the characteristics of repeat offenders,
- to review existing countermeasure initiatives for dealing with repeat offenders and
- to develop recommendations for dealing effectively with this high-risk group.

1.4 Organization and Scope of the Report

The remainder of this report is divided into seven major sections:

- Section 2, ***Defining the Problem and Its Magnitude,*** provides a rationale for interest and concern about the problem of the DWI repeat offender. After defining the DWI repeat offender, it provides information on the extent of the drinking-driving problem attributable to this high-risk group.
- Section 3, ***Characteristics of DWI Repeat Offenders,*** outlines the attributes and characteristics of these high-risk drinking drivers. It describes the diverse nature of this group and identifies several subgroups within the larger population.
- Section 4, ***Approach and Perspectives,*** provides a model for examining impaired driving and outlines several different perspectives on the problem in general and repeat offenders in particular.
- Section 5, ***Intervention at Stage One: Prevention,*** describes countermeasure options intended to prevent impaired driving before it occurs.
- Section 6, ***Intervention at Stage Two: Identification and Apprehension,*** describes tactics directed toward impaired drivers while they are engaged in the behaviour.
- Section 7, ***Intervention at Stage Three: Dealing with Offenders,*** describes sanctions and programs for DWI repeat offenders after the drinking-driving behaviour.
- Section 8, ***Program and Policy Implications,*** provides a series of program and policy recommendations for dealing effectively with the problem of the DWI repeat offender in Canada.

An overview of federal, provincial and territorial laws dealing with drinking and driving is provided in the appendix.

2. Defining the Problem and its Magnitude

When the drinking-driving problem emerged as a public policy issue in the early 1980s, a common theme was that every drinking driver was a potential killer on the road. Although this theme still permeates many contemporary countermeasure activities, attention now focuses less on people who drink and drive infrequently, especially if they consume only small amounts of alcohol, and more on people who repeatedly drive after drinking, especially those who do so with high BACs. This section documents the reasons for this shift in emphasis. It begins by defining the population of interest – i.e., DWI repeat offenders – and proceeds to a description of the magnitude of the problem attributable to this high-risk group.

2.1 Who or What Is a DWI Repeat Offender?

A central issue in determining the magnitude of the problem, describing its characteristics and identifying countermeasure options is defining the population of interest namely: Who or what is a DWI repeat offender? At one level, most people have some idea who DWI repeat offenders are. They are the people who frequently drive after consuming large quantities of alcohol. They may have been arrested for DWI on two or more occasions. They may appear on the news after killing an innocent road user in an alcohol-related crash. But as strong as these impressions may be, they are largely subjective and thus are of little operational utility in identifying such individuals and the types of measures necessary to deal with them effectively.

An examination of the literature on drinking-driving reveals that a variety of definitions, or labels, have been used to describe DWI repeat offenders – e.g., hard core drinking drivers, persistent drinking drivers, repeat offenders and high BAC drivers. The number and variety of labels suggest that there may be inconsistency and a lack of precision in determining exactly who comprises this high-risk group. Hence, there is a need to define the target group in order that its members can be identified reliably and that effective measures to deal with it can be developed. This section examines a variety of definitions – or labels – used to describe the group of interest. The issues and implications of each is outlined in an attempt to clarify exactly who is part of this high-risk population.

2.1.1 Repeat offenders

At first thought, this label appears to include everyone who has been arrested for DWI on two or more occasions, which would make it a very select group. The chance of an impaired driver being detected and arrested by the police is extremely low. Many years ago, it was estimated that only about one of every 2,000 impaired driving trips resulted in an arrest (Borkenstein et al., 1964). Contemporary Canadian data indicate that about one in every 445 impaired driving trips leads to an arrest.[2]ºó46ºómost impaired driving goes undetected, and the chance of being arrested is relatively small. Accordingly, people who do get arrested represent a minority of all impaired drivers; those who are arrested more than once are truly a select group.

2 The National Survey on Drinking and Driving 1988 (Simpson et al., 1992) estimated that there were 4.5 million impaired driving trips in the month prior to the survey. In the same year, the Canadian Centre for Justice Statistics (1989) reported that an average of 10,100 persons each month were charged with an impaired driving offence. Simple division indicates that one person is charged for every 445 impaired driving trips.

It is reasonable to assume that a person who has been convicted or arrested for impaired driving has likely committed the offence on numerous other occasions. Therefore, even people convicted for the first time of a DWI offence are very likely repeat offenders.

Defining DWI repeat offenders as people who have been convicted of a DWI offence on two or more occasions provides a convenient and reliable means of identifying a high-risk subset of drinking drivers. On the other hand, by excluding people who engage in impaired driving on repeated occasions but are not caught, this definition may prove too restrictive.

2.1.2 Hard-core drinking drivers

The term "hard core" has been used by several researchers (Andenaes, 1988; L'Hoste and Papoz, 1985; Simpson and Mayhew, 1991) to describe individuals who repeatedly drive after drinking, especially with high BACs, and who seem relatively resistant to changing this behaviour. Although "hard core" captures the essence of the target group, it lacks operational specificity. Determining exactly who belongs among the hard core can be a matter of interpretation, with no clearly defined criteria.

2.1.3 Persistent drinking drivers

The term "persistent drinking drivers" was introduced as an alternative to the label "hard core" for a workshop convened by the U.S. Transportation Research Board in 1994 (Sweedler, 1995). The word "persistent" was intended to portray the nature of the behaviour of concern – i.e., driving after drinking – as "enduring or continuing without change". In many respects, the term appears appropriate in that the behaviour continues despite opposition, warning and the threat of criminal sanctions.

Despite a descriptive advantage, this new term is not without ambiguity. To illustrate, consider that population surveys in Canada (Simpson, et al., 1992) and the United States (Boyle, 1995) suggest that drinking and driving behaviour is still a reasonably common practice; 25% of adults in Canada report that they drove at least once in the preceding year after consuming two or more drinks, and 54% 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% of drinking drivers have BACs below 50 mg% (e.g., Mayhew et al., 1996). In other words, there are many people who, despite all the warnings, drive after they have had some wine with dinner at a restaurant, or a beer at the ballpark, or a drink with friends. They continue to do so and by definition are therefore persistent drinking drivers. Yet it is also well established that these drivers are the least risky; they are far less likely than high BAC drivers to be involved in a serious road crash. Although some people might argue that this persistent drinking-driving behaviour is problematic, for the most part it does not appear consistent with the focus on the high-risk population of interest.

2.1.4 High BAC drivers

Drivers who have high BACs (usually defined as BACs in excess of 150 mg% or 200 mg%) have been identified as part of the group of interest for several reasons. First, the relative risk of crash

involvement has been shown to be extremely elevated at BACs of this magnitude (Borkenstein et al., 1964; Donelson and Beirness, 1985; Farris et al., 1977; Mayhew et al., 1996; McLean et al., 1980; Perrine et al., 1971). Second, such high BACs are attained only after heavy consumption and are most common among people who regularly consume large quantities of alcohol.

Using high BAC as an objective criterion for identifying the target group also avoids the problems associated with determining repeated arrests or convictions. The magnitude of the BAC alone is sufficient to warrant remedial intervention regardless of whether the individual has prior convictions or admits to previous impaired driving behaviour. Hence, first-time offenders with high BACs would be identified as part of the high-risk group of interest on the basis of the severity of the offence and the extent of their consumption.

A limitation of the use of a single measurement of BAC as the means for defining a high-risk offender is that it provides only a one-occasion snapshot of the person's pattern of alcohol consumption. Because BAC is typically measured at a single point in time, it reveals nothing of the dynamic nature of the person's alcohol consumption. Further assessment is necessary to separate people who repeatedly attain high BACs from those for whom such behaviour is atypical. In addition, the false negative cases – i.e., members of the high-risk group who happen to have a low BAC when arrested – present a significant challenge to the use of BAC alone as a means for identifying the target group.

2.1.5 A working definition

Although the labels and descriptors applied to this group vary, it is evident that all are endeavouring to converge on a particular subgroup of DWI offenders. It is imperative that a definition of the DWI repeat offender be established as a means of identifying who is part of the group. Therefore, the following working definition of the DWI repeat offender is used in this report:

- they drive repeatedly after drinking, often with high BACs,
- their drinking-driving behaviour is persistent and chronic,
- they appear to be resistant to persuasive and emotional appeals and are not deterred by the threat of criminal sanctions,
- they tend to drink frequently and often to excess and
- they may have been previously convicted of a DWI offence.

This working definition is broad, but it comprehensively describes the core features of a subgroup of DWI offenders whose pattern of driving after drinking is chronic and severe and renders them at high risk of crash involvement. This subgroup of DWI offenders forms the population of interest in this report.

2.2 Windows on the Problem

Having defined the population of interest, the next task is to identify people who belong to this group. Determining the number of people who fit the definition of the DWI repeat offender is a challenge. First, the very nature of the definition makes it difficult to determine precisely who does and who does not belong to the target population. Second, the limitations of existing data systems make it virtually impossible to provide precise estimates of the magnitude of the problem.

Nonetheless, a reasonable estimate of the magnitude of the problem can be determined by examining a number of different but overlapping subgroups that provide converging perspectives on the problem. These subgroups can also be used to identify the prominent characteristics of the population of interest (see section 3). The subgroups include arrested or convicted DWI offenders, crash-involved drinking drivers, impaired drivers identified in roadside surveys and self-reported DWI offenders from population surveys. Within these subgroups, two primary criteria identify members of the population of interest: evidence of repeated DWI behaviour, either through official arrest or conviction records or through self-report, and a high BAC at the time of arrest or collision.

The first criterion is obvious. Repeated DWI behaviour, whether from official records or self-reported in surveys, is the primary attribute of the population of interest. The second criterion – i.e., high BAC – is less obvious. To use this criterion it is necessary to assume that there is a strong, positive relationship between high BAC and persistent, chronic DWI behaviour. If this assumption is tenable, then high BAC can legitimately be used as a surrogate for identifying the population of interest. The scientific literature provides evidence to support this assumption.

Simpson and Mayhew (1991) demonstrated that among fatally injured drivers, increases in BAC were consistently associated with increases in the likelihood of having a prior DWI conviction. Moreover, the BAC distribution among dead drivers with a prior DWI conviction was found to be decidedly different from that among dead drivers without a prior conviction. Among dead drivers with no prior DWI conviction, less than half were positive for alcohol; among those who had a prior conviction, 85% had been drinking at the time of the crash. Moreover, 80% of these had a BAC in excess of 150 mg%.

A similar relationship has been found among convicted DWI offenders. Several studies have demonstrated that recidivist offenders have higher BACs than first-time offenders (e.g., Bailey and Winkel, 1981; Mercer 1983; Yoder and Moore, 1973). In addition, Gjerde and Morland (1990) showed that whereas 26% of arrested drivers with a BAC below 100 mg% were reconvicted of DWI within five years, 56% of those with an arrest BAC in excess of 250 mg% were reconvicted. These data indicate that higher BACs are typical of people with repeat convictions.

The strong positive relationship between BAC and prior DWI involvement suggests that high BAC may be used as an admittedly imperfect but nonetheless useful criterion for identifying the population of interest. Despite their limitations, high BACs and DWI repeat convictions provide reasonable criteria for identifying members of the target group and are used in this report to assess the magnitude and characteristics of the problem of the DWI repeat offender. The subsequent section uses these criteria to examine the magnitude of the problem through the windows provided by various subgroups.

2.3 Magnitude of the Problem in Canada

A number of sources of information about DWI repeat offenders provide a window through which to glimpse the magnitude and characteristics of the problem. Even so, determining with precision the number of people who fit the definition of the DWI repeat offender is not at all straightforward. Indeed, given the limitations of existing data systems and the difficulties inherent in specifying exactly who is part of the population of interest, it may well be impossible to determine the magnitude of the problem precisely.

Nevertheless, employing the operational criteria outlined in the previous section – i.e., evidence of repeated DWI behaviour or a high BAC while driving – it is possible to provide at least a reasonable estimate. Accordingly, this section examines a variety of data sources that provide insights into the extent of the problem of DWI repeat offenders. These sources include convicted DWI offenders, crash-involved drinking drivers, self-reported drinking drivers and drinking drivers identified in roadside surveys.

2.3.1 Convicted DWI offenders

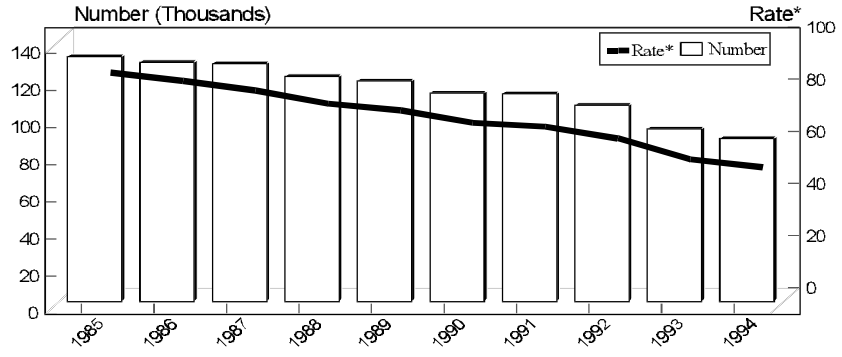
The number and rate (per 10,000 licensed drivers) of people charged with an impaired driving offence in Canada from 1985 through 1994 are shown in figure 2-1. Over the 10-year period in the figure, the number of impaired driving charges has decreased by 33% – from 131,726 in 1985 to 87,837 in 1994 (Canadian Centre for Justice Statistics, 1995). The number of charges per 10,000 licensed drivers has shown a comparable decline. As encouraging as these data appear, a problem of substantial magnitude remains. Every day, approximately 240 people in Canada are arrested for impaired driving. Because the likelihood of arrest is relatively low, people who are apprehended for impaired driving represent just a small sample of all DWI offenders. Those who are arrested on two or more occasions are a highly select group.

Nonetheless, people who have been apprehended and convicted for an impaired driving offence provide a convenient and appropriate window through which to view the prevalence of DWI repeat offenders. Determining the number of people arrested or convicted of DWI repeat offences would appear to be a relatively straightforward exercise. Unfortunately, most jurisdictions in Canada do not routinely report the number of people convicted of a second or subsequent DWI offence, nor is such information contained in the data on DWI charges available from the Canadian Centre for Justice Statistics.

From the limited data that are available, it is apparent that the proportion of DWI repeat convictions varies considerably. For example, Alberta reports that 29% of drivers convicted of an impaired driving offence had a previous conviction on their record (Alberta Solicitor General, 1992). In comparison, Ontario reports that, in 1993, 63% of drivers suspended for an impaired driving conviction had been convicted of a previous DWI offence within the last five years (Beirness, Simpson et al., 1995). This latter figure is considerably higher than the 50% reported in 1987, suggesting that the problem is not only large, but is getting worse.

Figure 2-1

Number and Rate of People Charged with a DWI Offence: Canada, 1985-94



Source: Canadian Centre for Justice Statistics
* Rate = Offences per 10,000 licensed drivers

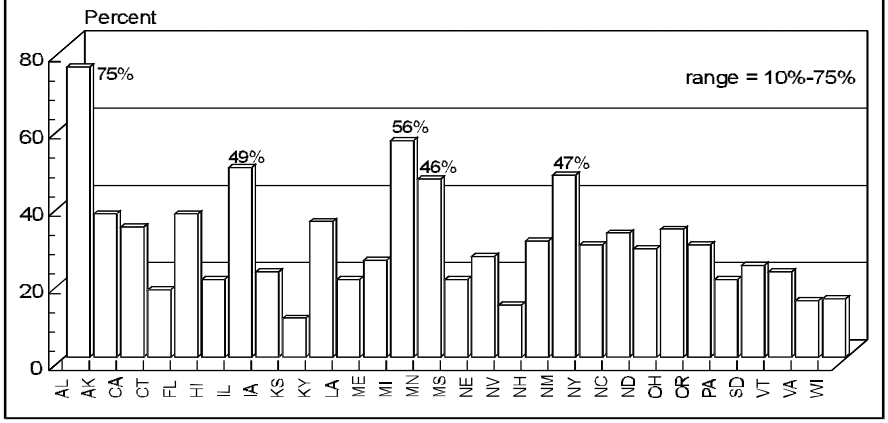
Data from other countries also show considerable variability in the proportion of DWI offenders who have had a previous DWI conviction. For example, figure 2-2 shows the percentage of DWI repeat convictions in 29 of the United States;[3] 46 75% of convicted DWI offenders were repeat offenders. A simple average across jurisdictions suggests the overall DWI reconviction rate is about 30% to 35%; however, this average is probably an underestimate of the magnitude of the problem. Based on jurisdictions with accurate and reliable record-keeping systems as well as a window of at least five years for determining prior convictions, it is estimated that the actual reconviction rate is closer to 50% to 60%.

The variability in the reconviction rate among jurisdictions is considerable and deserves some explanation. A number of factors may contribute; for example, many jurisdictions do not systematically record convictions that occurred in another jurisdiction. Determining repeat offences also relies heavily on the record-keeping system used; the better the record system, the higher the reconviction rate. In addition, the longer the period of time used to determine repeat offences, the higher the proportion of repeat offenders – i.e., examining the past 10 years of drivers' records will generally reveal more previous offences than will an examination of the past 3 years. Enforcement practices and court procedures can also have an influence on reconviction rates. If the police tend to pursue charges only when the driver's BAC is considerably above the statutory limit, there will likely be a greater proportion of drivers with previous convictions among those charged. Also, plea bargains to lesser offences are less likely when the offender has a prior conviction. All these factors undoubtedly contribute to the variability in reconviction rates.

3 Data were obtained from two sources: (1) a survey of states conducted by NHTSA (Hedlund, 1995) and (2) an independent survey of states conducted by TIRF (unpublished).

Figure 2-2

Percentage of Convicted DWI Offenders with a Previous DWI Conviction



On a positive note, it may be that jurisdictions with lower reconviction rates have more effective penalties and rehabilitation programs for convicted DWI offenders. These programs, if applied to first-time offenders, may reduce the likelihood of the offender repeating the offence. Unfortunately, a systematic evaluation of this hypothesis has not been conducted.

The bottom line is that when only those jurisdictions with accurate and reliable record systems are considered, approximately 50% to 60% of people convicted of a DWI offence have been through the judicial system on similar charges on at least one previous occasion. This high percentage indicates that the current system of sanctions and programs is not particularly effective in deterring repeated DWI behaviour or in changing patterns of behaviour to reduce the likelihood of repeated DWI behaviour in the future.

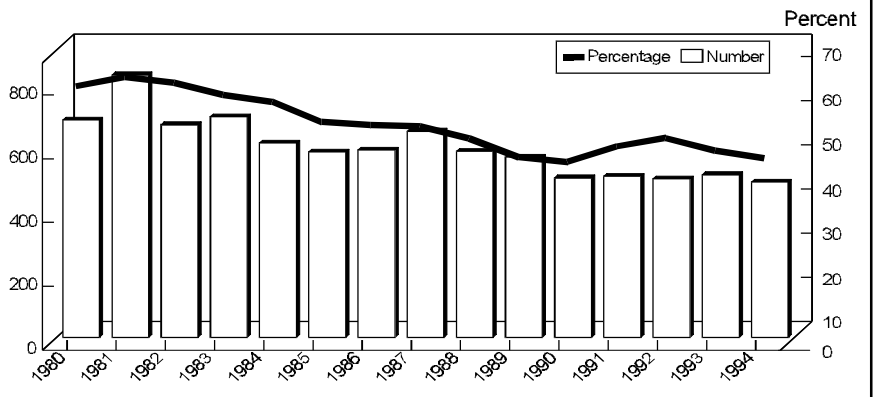
2.3.2 Crash-involved drinking drivers

During the 1980s, significant reductions were evident in the magnitude of the alcohol–fatal crash problem in Canada (Beirness, Simpson et al., 1994). Figure 2-3 displays the number and percentage of fatally injured drinking drivers in each year from 1980 to 1994 totalling seven provinces. For example, the proportion of fatally injured drivers who tested positive for alcohol decreased from a high of 62% in 1981 to 43% in 1990. However, it is readily apparent that the significant downward trend came to an abrupt halt in 1990. Since then, the percentage of fatally injured drivers who had been drinking has increased slightly – 48% in 1992, and 44% in 1994. The actual number of drinking driver fatalities has remained relatively stable since 1990.

As substantial as these reductions have been, the alcohol–fatal crash problem remains at significant levels. For example, in the province of Ontario, it is estimated that a drinking driver was involved in 43% of all motor vehicle fatalities in 1993, accounting for 565 deaths (Beirness, Simpson et al., 1995). A further 20,000 people sustained injury in alcohol-related crashes. In total, the social cost of alcohol-related crashes in Ontario is estimated to be in excess of $3.5 billion each year.[4]

Figure 2-3

Number and Percentage of Fatally Injured Drinking Drivers: Total for seven Provinces, 1980-94



Source: TIRF Fatality Database

Applying these figures to all of Canada, it is estimated that 1,680 people die and 74,000 people are injured in alcohol-related crashes each year. Depending on the economic model used, the cost of alcohol-related crashes to society is estimated at between $1.5 and $10 billion annually (Single et al., 1996; Vodden et al., 1994).

The contribution of DWI repeat offenders to fatal and injury crashes can be determined in two ways. First, special studies have been conducted to examine the prior records of drinking drivers involved in such crashes. Second, high BAC can be used as a surrogate for defining the problem. Both approaches are used in this section to estimate the contribution of DWI repeat offenders to alcohol-related fatal and injury crashes.

- **Fatalities.** In Canada, approximately 80% of fatally injured drivers are tested for the presence and amount of alcohol (Mayhew et al., 1995).[5] This high rate of testing provides a valid and reliable index of the magnitude of the alcohol–crash problem. In addition, these data can be used to help determine the contribution of high-BAC drivers to the problem.

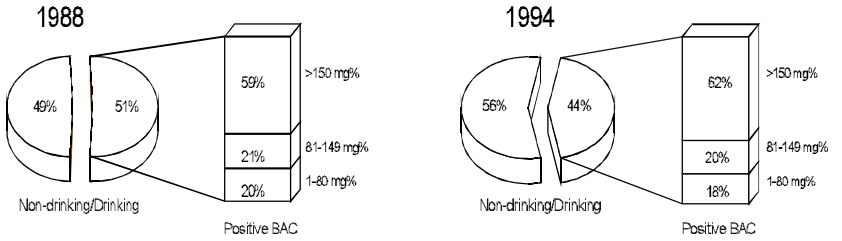
4 The total number of injuries and the social cost of motor vehicle crashes involving alcohol were estimated using the methods outlined by Vodden et al. (1994). This procedure includes information from a variety of sources and includes motor vehicle accident reports, hospital and health care data, time and materials expended by police, fire departments, ambulance and rescue personnel, and the value society places on such losses.

5 Data on persons fatally injured in motor vehicle crashes in Canada are available in the Fatality Database. These data are compiled and maintained by the Traffic Injury Research Foundation under sponsorship from Canadian Council of Motor Transport Administrators and Transport Canada (see Mayhew et al., 1995).

To illustrate, figure 2-4 provides information on alcohol detected in fatally injured drivers in Canada in 1988 and 1994. The proportion who tested positive for alcohol is shown in the pie chart for each year; the distribution of BACs among the positive cases is shown in the bar to the right of the pie. In 1988, 51% of fatally injured drivers in Canada had been drinking; in 1994, this figure decreased to 44%. In both years, among those who had been drinking, high BACs were by far the most common. In 1988, 59% of fatally injured drinking drivers had a BAC in excess of 150 mg% (almost twice the statutory limit); in 1994, 62% of fatally injured drinking drivers had BACs in excess of 150 mg%. These data illustrate that although some improvement has occurred in the overall magnitude of the alcohol–fatal crash problem, the problem primarily involves drivers with elevated BACs.

Figure 2-4

BACs Among Fatally Injured Drivers in Canada



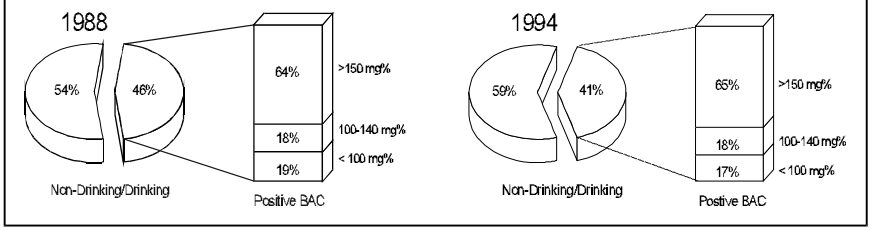
The overwhelming majority of fatally injured drinking drivers have BACs in excess of the statutory limit – over 80% have BACs in excess of the legal limit. Most have a BAC over 150 mg%. Among fatally injured drivers, high BACs predominate, and the situation appears to have escalated over the past six years.

Similar data from other countries indicate that the problem of the high-BAC driver is not unique to Canada. To illustrate, figure 2-5 shows comparable data from the United States.[6] The proportion of drivers who tested positive and negative for alcohol in each of two years – 1988 and 1994 – is represented by the pies on the left of each segment of the figure. The distribution of BACs among fatally injured drinking drivers is shown by the bars to the right of each pie. As in Canada, the incidence of alcohol use among fatally injured drivers has decreased over the past five years in the United States. Despite this overall change, there has been no change in the incidence of fatally injured drivers with BACs in excess of 150 mg%. In both 1988 and 1994, 64% of fatally injured drinking drivers had BACs of 150 mg% or more.

6 Data on motor vehicle fatalities in the United States are from the Fatal Accident Reporting System (FARS) and are available from the National Highway Traffic Safety Administration (NHTSA). Consistent with the approach used by NHTSA, only states with an alcohol testing rate of 80% or greater are included.

Figure 2-5

BACs Among Fatally Injured Drivers in the United States



In South Australia, Holubowycz et al. (1994) recently reported that 65% of fatally injured drinking drivers and motorcyclists had BACs in excess of 150 mg%, a figure critically identical to that in Canada and the United States. In Great Britain, 44% of fatally injured drinking drivers had BACs over 150 mg% (Everest and Lynam, 1993).

Apparently, the problem of the high BAC driver is not restricted to Canada. In Canada, the United States and other countries, drivers with high BACs comprise a substantial proportion of the people who die in alcohol-related traffic crashes.

Another way to determine the extent to which DWI repeat offenders contribute to alcohol-related fatal crashes is to examine the driving records of those involved. Such data are not available as part of fatal crash records in Canada, but in the United States, information on prior DWI convictions is recorded in the Fatal Accident Reporting System (FARS). These data show that only about 6% of all fatally injured drivers had a DWI conviction during the three years preceding the crash. However, there is a clear relationship between driver BAC and the likelihood of having a previous DWI conviction – the proportion of drivers with DWI convictions increases with BAC. Previous DWI convictions are almost non-existent among fatally injured drivers who had not been drinking – only 1.8% of non-drinking drivers had previous DWI convictions. By contrast, 13% of fatally injured drivers with BACs of 150 to 190 mg% and nearly 20% of those with BACs of 200 mg% or above had a previous DWI conviction.

It is important to note that the FARS data provide a very conservative estimate of the extent to which high-BAC drivers have a history of alcohol-related driving offences. FARS contains information only on DWI convictions during the three years preceding the fatal crash. In addition, as was indicated previously (section 2.3.1), states differ considerably in their recording of prior DWI convictions. Studies that have examined this issue in jurisdictions having more complete driver record data show the extent to which FARS underestimates the problem: 35% to 40% of fatally injured drinking drivers have a prior DWI (Simpson, 1995; Wilson, 1993).

In a study of drivers involved in fatal crashes in British Columbia, Donelson et al. (1989) found that 34% of drivers responsible for alcohol-related fatal crashes had been previously convicted of an impaired driving offence. A more recent study in Minnesota also reported that 35% of alcohol-related fatal crashes involved a driver having a previous DWI offence (Simon, 1992). In a study in New Zealand, Bailey (1993) found that one-quarter of the drinking drivers fatally injured in at-fault road crashes had a previous conviction for drinking and driving. Not surprisingly, among drivers with a

BAC of over 200 mg%, 45% had a previous conviction for drinking and driving; by contrast, only 10% of non-drinking drivers had a previous DWI conviction.

In conclusion, it is apparent that drinking drivers who have previous DWI convictions on their records comprise a substantial proportion (about one-third) of the people involved in alcohol-related fatal crashes. Efforts to reduce the likelihood that a convicted DWI offender will offend again and possibly become involved in a fatal crash should have a significant impact on the overall magnitude of the alcohol–fatal crash problem.

- **Injuries.** Research on people surviving road crashes has traditionally been hampered by legal and ethical constraints. The few studies that have reported the BACs of drivers injured in crashes provide results consistent with those of studies of drivers who die in crashes. For example, in a study of 488 drivers reporting to hospital in New Brunswick for treatment of injuries sustained in a motor vehicle crash, 28% were found to have been drinking (Warren et al., 1982). Among these injured drinking drivers, 75% had a BAC over the statutory BAC limit; 36% had a BAC in excess of 150 mg%. Interestingly, there was a strong relationship between the severity of the injury sustained and the BAC of the driver.

In a more recent study of people treated in a trauma unit in Metropolitan Toronto for injuries sustained in motor vehicle crashes, Vingilis et al. (1994) reported that 32% of drivers tested positive for alcohol. Among the drivers who agreed to be interviewed, 86% had a BAC in excess of the statutory limit, and 68% were over 150 mg% at the time of the crash. Among the injured drivers who had been drinking, 58% reported driving after drinking and 50% reported driving while impaired within the year following the crash. Apparently, even the experience of being injured in an alcohol-related crash is often insufficient to prevent a return to drinking-driving behaviour.

In summary, these data illustrate that the problem of the DWI offender is not unique to fatal crashes. Indeed, the target population could account for 15% to 20% of all drivers injured in road crashes (Simpson, 1995).

2.3.3 Self-reported repeat offenders

Population surveys on drinking-driving behaviour can help determine the magnitude of the DWI repeat offender problem. In particular, survey questions concerning the frequency of driving after drinking provide information on a slightly different aspect of the problem than crashes and charges. Because of the sensitive nature of the questions, such surveys probably underestimate the extent of driving after drinking behaviour; the estimates of the prevalence of repeated DWI behaviour derived from these data should be interpreted accordingly.

In 1983, Transport Canada conducted a national household survey on drinking and driving (Wilson, 1984). Among respondents who both drove a motor vehicle and consumed alcoholic beverages, 52% indicated they had driven within two hours of consuming alcohol within the preceding 30 days; 14% said they had driven when they thought they were legally impaired.

Of respondents who reported driving after drinking, 68% said they had done so on two or more occasions within the previous month; 26% reported driving after drinking five or more times. Half of the people who drove when they thought they were legally impaired reported doing so more than once.

In 1985, Health and Welfare Canada conducted a telephone survey of over 11,000 Canadian residents age 15 and over (Health and Welfare Canada, 1988). Included in the survey were questions about driving, drinking and driving after drinking behaviour. In total, 16% of respondents reported driving within two hours of consuming alcohol in the month prior to the survey. When those who do not drive and those who do not drink alcohol are excluded, the percentage of respondents who reported driving after drinking leaps to 25%. Among these self-reported drinking drivers, 62% indicated that they had done so on at least two occasions in the previous month; 16% said they had done so five or more times.

Using these data on the reported frequency of drinking-driving, it can be estimated that 10.3 million drinking-driving trips occurred in Canada during the 30 days prior to the survey. Almost 90% of the drinking-driving trips were accounted for by people who reported driving after drinking on more than one occasion.

The National Survey on Drinking and Driving, conducted by Health and Welfare Canada in 1988, had remarkably similar findings. The survey asked 10,000 residents of Canada whether, in the previous year, they had driven a motor vehicle within an hour of consuming two or more drinks (Simpson et al., 1992). Seventeen per cent of respondents indicated that they had done so. Restricting the analysis to respondents who reported both consuming alcohol and operating a vehicle reveals that 25% of respondents occasionally drove after drinking. Among respondents who reported driving after drinking in the preceding month, 51% had done so on two or more occasions; 17% did so at least once a week.

On the basis of the reported frequency of driving after drinking, it can be estimated that approximately 4.5 million drinking-driving trips occurred in the month prior to the survey. Although the overall frequency of this behaviour is considerable, it is again of interest to note that 82% of all drinking-driving trips were accounted for by people who reported doing so on more than one occasion.

This survey also asked respondents if they had been charged with a drinking-driving offence in the preceding three years. Ninety-seven people said that they had been charged; 80% reported having been convicted. Among those who had been charged, 10% reported having been charged on more than one occasion – six had been charged twice; four had been charged three or more times.

It is apparent from these survey data that driving after drinking is not an uncommon behaviour. Although data from the various surveys are not entirely comparable, it appears that about one-quarter of Canadians who operate a vehicle and consume alcohol engage in drinking-driving behaviour. Many do it frequently. Between one-half and two-thirds of self-reported drinking drivers say that they engage in the behaviour more than once a month; many do it at least once a week.

The survey data also indicate that, although the overall frequency of drinking-driving behaviour is considerable, a substantial proportion of it is accounted for by a relatively small group of individuals who repeatedly drive after drinking. It is estimated that between 80% and 90% of all drinking-driving trips are accounted for by frequent drinking drivers.

Admittedly, the BACs of drinking drivers cannot be determined from household survey data. Not all the driving after drinking reported in these surveys would necessarily be considered to be impaired driving or to result in a substantially increased risk of crash involvement. Some people might argue

that this question overestimates the magnitude of the drinking-driving problem; others would argue that even one or two drinks can impair a person's ability to operate a vehicle safely. Regardless of the perspective from which one views the problem, frequent driving after drinking can be considered a potentially dangerous and high-risk behaviour.

2.3.4 Drinking drivers on the road

Roadside breath-testing surveys of night-time drivers have been conducted periodically in Canada since 1974 (Beirness, Mayhew et al., 1995; Mayhew et al., 1996). A key feature of these surveys is the data on drivers' BAC. Using high BACs (i.e., over 150 mg%) to help define the population of interest, it is possible to estimate the extent to which high BACs contribute to the overall prevalence of drinking-driving behaviour.

The results of roadside surveys in Canada demonstrate a significant decrease in the overall prevalence of drinking and driving since 1981. In 1981, 19.2% of drivers surveyed had a positive BAC (i.e., over 20 mg%); in 1986–88, 16.2% of drivers had been drinking; in 1993, 11.7% of drivers tested positive for alcohol.

Drivers with BACs in excess of 150 mg% are found infrequently in roadside surveys. For example, in 1974, only 1.1% of night-time drivers had BACs over 150 mg%; in 1993, only 0.9% had BACs in this range. As a proportion of all drinking drivers, this group accounted for about 6.7% in 1974 and 7.6% in 1993.

Roadside survey data from the United States show results comparable to those in Canada. The U.S. national roadside survey conducted in 1973 found that 1.4% of all drivers had BACs in excess of 150 mg% (Wolfe, 1974). In 1986, a follow-up to this national survey found 1.0% of drivers with BACs in this range (Lund and Wolfe, 1991). Surveys conducted in Minnesota in 1990 (Foss et al., 1991) and in Ohio in 1990–92 (Meyers et al., 1993) found 1.5% and 1.0% respectively of drivers with BACs over 150 mg%.

Roadside survey data clearly show that drivers with high BACs are found infrequently in the driving population at risk. However, considering the data presented previously on people killed or injured, this very small group of high-BAC drivers in the population at risk accounts for a very large proportion of the deaths and injuries in crashes involving alcohol. From a countermeasure perspective, although the overall prevalence of driving after drinking has decreased during the past decade, the proportion of drivers with high BACs has remained about the same.

2.4 Summary and Conclusions

A number of definitions or labels have been used to describe the DWI repeat offender. Each provides insight into the population of interest and, despite the variability in the descriptors, each refers to a particularly deviant group of DWI offenders who repeatedly drive after drinking and often with high BACs.

Two criteria appear particularly useful for identifying members of this target group: evidence of repeated DWI behaviour, and a high BAC (i.e., over 150 mg%). When these criteria are applied to various subgroups – convicted DWI offenders, crash-involved drinking drivers, impaired drivers identified at roadside and self-reported drinking drivers – it is possible to estimate the magnitude of the DWI repeat offender problem.

The data presented in this section indicate that DWI repeat offenders represent a relatively small proportion of the driving population. Importantly, however, this small group accounts for a substantial proportion of drinking-driving problems: drivers with BACs in excess of 150 mg% account for 62% of all drinking driver fatalities; up to three-quarters of convicted DWI offenders have a prior offence on their records; and those who report frequent drinking-driving behaviour account for 80% to 90% of all drinking-driving trips.

People who repeatedly drive after drinking, particularly with high BACs, are at extremely high risk of arrest or serious crash involvement. Efforts to reduce the frequency of drinking-driving behaviour or to lower the BAC at which driving occurs among this target population could have a tremendous impact on the overall magnitude of the alcohol–crash problem.

3. Characteristics of DWI Repeat Offenders

Having defined the DWI repeat offender in the previous section and examined the magnitude of the problem within various subgroups, we now turn to the characteristics of this population. Identifying the characteristics of DWI repeat offenders is important for several reasons. It assists in our understanding of the target population, it helps identify and distinguish this high-risk group from others, and it aids in the development of programs and policies to deal effectively with this group.

Accordingly, this section examines a variety of characteristics of the target population – demographics, person-centred characteristics, and drinking patterns and problems. As in the previous section, the four subgroups that provide windows on the problem – arrested or convicted DWI offenders, crash-involved drinking drivers, self-reported drinking drivers and drinking drivers identified at roadside – are used to examine the characteristics of DWI repeat offenders. This section also includes a review of studies that have attempted to identify distinct subgroups of DWI offenders on the basis of their social, personal and demographic characteristics.

3.1 Demographic Characteristics

3.1.1 Gender

By far the majority of DWI repeat offenders are male. The Canadian Centre for Justice Statistics (1995)[7]ºó46ºóy 10% of the people charged with an impaired driving offence in 1994 were female. While this represents a slight increase over the past several years, the problem remains largely confined to male drivers.

Other studies are consistent with this observation. For example, among clients reporting to the Impaired Drivers' Program in Manitoba, less than 9% were female (Ambtman, 1990). In Alberta, 11% of DWI offenders attending the first-offender impaired driving course were female (Huebert, 1990). Perrine et al. (1989) report that depending on the region and specific DWI population studied, the proportion of females among offenders ranges from 5 to 20%.

Higher proportions of males are typically found among offenders with one or more prior DWI convictions. For example, Tashima and Peck (1986) have shown that females account for about 17% of first-time offenders and 10% of second-time offenders in California. In Alberta, where 11% of DWI first-time offenders are female, only 5% of those attending the second-offender program are women (Huebert, 1990).

7 Data on the age of persons charged with impaired driving reported by CCJS are from the Uniform Crime Reporting Survey, which involves 111 police departments in six provinces. Although these data represent 33% of all reported impaired driving charges in Canada, they are not necessarily representative of Canada.

Fatally injured drinking drivers also tend to be male. Overall, men account for 77% of all driver fatalities. Among fatally injured drivers who have been drinking, 87% are men; among driver fatalities with BACs over 150 mg%, 89% are men (Mayhew et al., 1995). In the United States, data from FARS indicate virtually identical proportions of males among all driver fatalities, drinking driver fatalities and driver fatalities with high BACs.

Population surveys indicate that men comprise the majority of self-reported drinking drivers as well as the majority of drivers who frequently drive after drinking. Canada's Health Promotion Survey found that men comprised 77% of self-reported drinking drivers and 82% of those who reported driving after drinking more than once in the month prior to the survey (Health and Welfare Canada, 1988). The 1988 National Survey on Drinking and Driving found very similar results – 77% of drinking drivers were male, and 82% of people who reported driving after drinking on two or more occasions in the preceding month were male (Simpson et al., 1992). A similar survey conducted in the United States found that 70% of people who had driven within two hours of driving were male (Boyle, 1995).

An examination of the proportion of men and women who report driving after drinking reveals that men are about 2.5 times more likely than women to be drinking drivers. Among men who both operate a vehicle and have occasion to drink alcoholic beverages, 34% report driving within an hour of having two or more drinks; only 13% of women do so. Men are also about twice as likely as women to be frequent drinking drivers: 13% of male drinking drivers reported driving after drinking four or more times in the preceding month, but less than 7% of females did so.

Roadside surveys of nighttime drivers also find a preponderance of men among drinking drivers. The most recent roadside surveys in Canada (conducted in Saskatchewan and Nova Scotia in 1993) found that among male drivers (who comprised 65% of all drivers surveyed), 13% had been drinking; among women drivers, only 9% had a positive BAC. Among drivers with a BAC in excess of 150 mg%, 87% were men (Mayhew et al., 1996). Interestingly, in the 1981 roadside surveys, men comprised 99.6% of all drivers with BACs over 150 mg%. This finding suggests an increased involvement of women among the high-risk target group.

- **Summary.** It is clear from these data that by far the majority of the target population are men. Not only are men more likely than women to drive after drinking, they are more likely to do so frequently and at high BACs.

This overwhelming predominance of men among DWI repeat offenders should not be used as a prescription to ignore females. In fact, some of the data give evidence of an increasing proportion of women among the target group. In addition, some authors have indicated that because females are less likely to be apprehended for DWI, those who are arrested tend to represent the more severe cases (Shore et al., 1988). This conclusion suggests that although the greatest portion of the target group is comprised of men, women may represent a distinct subset of the DWI population who should be dealt with separately.

3.1.2 Age

In Canada, drivers aged 30 to 34 comprise the largest single age group charged with impaired driving. Drivers of this age accounted for 18% of all impaired driving charges in 1994 (Canadian Centre for Justice Statistics, 1995). Drivers aged 25 to 29 and 35 to 39 each accounted for 16% of impaired driving charges.

Combining age categories and comparing charge data with driver licensing data causes some interesting patterns to emerge.[8]ó46ºó293Ohough it is often believed that younger people are more often involved in impaired driving, the data do not support this contention. Drivers aged 16 to 19 represent about 5% of all drivers, but account for only 4% of impaired driving charges. Similarly, drivers aged 55 and over comprise 22% of the licensed driver population but only 8% of impaired drivers. In other words, both older and younger drivers are under-represented among people charged with an impaired driving offence. On the other hand, drivers aged 25 to 34 are over-represented – they comprise about 25% of licensed drivers and account for 34% of charges.

Several older studies found that the mean age of convicted DWI offenders is usually between 30 and 35 years (e.g., Birrell, 1970; Hyman, 1968; Yoder, 1975). This mean does not appear to have changed. In a study conducted in British Columbia, the average age of male offenders was 33 years; the average for females was 35 (Mercer, 1983). A recent study of 1,900 convicted DWI offenders participating in the New York State Drinking Driver Program reports a mean age of 36 years (Nochajski et al., 1994).

Of the offenders attending the Impaired Driving Program (IDP) in Manitoba, over 35% were between 25 and 34 years of age (Ambtman, 1990). In comparison, this age group accounts for only about 25% of licensed drivers in Manitoba. Drivers aged 20 to 24 years were also over-represented among IDP clients. While comprising only about 10% of the licensed driver population, drivers aged 20 to 24 accounted for about 20% of IDP participants.

In Alberta, drivers between 20 and 29 years of age comprised 45% of participants in the first-offender program and 47% of participants in the second-offender program (Huebert, 1990). The next largest group was comprised of drivers aged 30 to 39 years. They represented 28% and 29% of people attending the first-offender and second-offender programs, respectively.

The results from Alberta appear to suggest a somewhat younger group of convicted impaired drivers than in other jurisdictions. To some extent, this variation may be accounted for by the different categories used to report the ages of participants. Re-grouping of the ages may reveal results comparable to results reported elsewhere. As well, the sample is not necessarily representative of all convicted DWI offenders. It consists only of those who participated in the programs during a one-year period, and although attendance at these programs is mandatory for licence reinstatement, many offenders never apply for reinstatement. If older offenders are over-represented among this latter group, those attending the mandatory rehabilitation programs will tend to be younger.

- **Crash-involved drivers.** In Canada, drivers between 16 and 25 years of age account for the largest proportion of all fatally injured drivers (27%) and fatally injured drinking drivers (30%) (Mayhew et al., 1995). Among fatally injured drivers with BACs of 80 mg% and below, 33% are aged 16 to

8 Data from the Uniform Crime Reporting Survey and driver licensing data from Ontario were used for this comparison.

25; among those with BACs in excess of 150 mg%, 24% are in this age group. In contrast, drivers between 26 and 35 years comprise about 23% of all fatally injured drivers and 21% of those with low BACs (i.e., < 80 mg%), but 32% of fatally injured drivers with high BACs (i.e., > 150 mg%).

These data indicate that drivers between 26 and 35 form the largest age group of fatally injured drivers with high BACs. Examining the data in a slightly different way leads to a similar conclusion. For example, among fatally injured 16- to 25-year-old drivers, 48% tested positive for alcohol; of those with a positive BAC, 53% had a BAC in excess of 150 mg%. Among fatally injured drivers aged 26 to 34, 54% had been drinking; of these cases, 66% were over 150 mg%. In the 36- to 45-year-old group, 49% had been drinking; 75% of these cases had a BAC in excess of 150 mg%. From this perspective, the target population consists largely of drivers aged 26 to 35 as well as those aged 36 to 45 years.

A similar pattern is evident in the United States (Simpson and Mayhew, 1991). The youngest age group of drivers (i.e., 16 to 24 years) accounts for the largest proportion of all driver fatalities (31%). However, the involvement of this group decreases with increasing BAC – these drivers account for 44% of fatally injured drivers with BACs below 100 mg%, but only 25% of those with BAC over 200 mg%. On the other hand, drivers aged 25 to 34 years account for an increasing proportion of fatalities with increasing BAC. Less than 30% of drivers with BACs below 100 mg% are aged 25 to 34, but 40% of those with BACs in excess of 200 mg% are in this age group.

- **Self-reported drinking drivers.** In the 1985 Health Promotion Survey (Health and Welfare Canada, 1988), people aged 25 to 34 comprised the largest proportion (31%) of those who reported driving after drinking in the previous month. This age group also comprised 30% of respondents who reported five or more drinking-driving incidents in the preceding month. Drivers aged 35 to 44 years accounted for 26% of drinking drivers and 32% of frequent drinking drivers (i.e., 5 or more times per month).

The 1988 National Survey on Drinking and Driving shows comparable results. Overall, 35% of self-reported drinking drivers were between 25 and 34 years of age; 21% were between 35 and 44 (Simpson et al., 1992). Among people who reported driving after drinking four or more times in the previous month, 25% were aged 25 to 34, and 26% were aged 35 to 44.

In the United States, the 1993 National Survey of Drinking and Driving (Boyle, 1995) found that people under age 30 represented 30% of drinking drivers; people 31 to 45 accounted for 44%; and those aged 46 to 64 represented 26%. In an examination of 56 drivers from this survey who reported driving after drinking at least eight times in the previous month, Hedlund (1995) found that 16% were under 30, 38% were 31 to 45, and 33% were 46 to 64.

Although the age groups and definitions of frequent driving after drinking differ among the various surveys, it has generally been found that people in the intermediate age groups (i.e., 25 to 44 years) account for the largest number of frequent drinking drivers.

- **Roadside surveys.** The roadside surveys conducted in Canada in 1993 found that drivers aged 25 to 39 accounted for the largest proportion of drivers in all BAC categories, including those with a BAC over 150 mg% (36%). Drivers aged 40 to 59 years comprised 28% of high BACs drivers; drivers aged 20 to 24 accounted for 22% (Mayhew et al., 1996).

In a 1990 Minnesota survey (Foss et al., 1991), 55% of drivers with BACs of 150 mg% or higher were between 21 and 34 years of age, 12% were under 21, and 33% were 35 or over.

The U.S. National Roadside Survey of 1986 (Lund and Wolfe, 1991), found that 35% of drivers with BACs over 100 mg% were between 25 and 34 years of age, 25% were aged 34 to 44, and 15% were 21 to 24.

- **Summary.** The target group of DWI repeat offenders spans a wide range of ages. Although the largest portion of the group is between 25 and 44 years of age, a substantial portion are in the next older and next younger age groups. However, few repeat offenders are found among people over 55 years of age, regardless of the window through which the problem is viewed – convicted offenders, fatally injured drivers, self-reported drinking drivers or drivers interviewed at roadside.

3.1.3 Other demographics

This section examines the marital status, education and income characteristics of DWI repeat offenders. Information on these factors is not available for all subgroups that provide a window on the problem; for example, the educational status of crash-involved drinking drivers is not typically recorded. Therefore, much of the information on these other demographic characteristics is obtained from special studies on specific populations.

The relevant literature often contains proportions of DWI offenders displaying a certain characteristic. In the absence of other information, these percentages would have little meaning and could be misleading. In the following review, therefore, a reference value has been included where possible to illustrate the degree to which DWI offenders are over- or under-represented in a given category. In addition, it should be noted that examining one factor at a time ignores potentially significant relationships among factors. For example, young people are more likely to be single whereas separated or divorced people are most likely to be of intermediate age. Unless such relationships are accounted for in the analysis, interpreting the results can be problematic. Unfortunately, such analyses are rarely presented.

- **Marital status.** Studies of DWI offenders indicate an over-representation of people who are single, separated and divorced. In Canada, just over one-quarter (26%) of people aged 15 and over are single, 61% are married, and 6.5% are either separated or divorced (Statistics Canada, 1992). Among a sample of DWI offenders studied by Wilson (1991), 36% were single, only 46% were married, and 17% were separated or divorced. Among offenders in the Impaired Driving Program in Manitoba, 42% were single, 43% were married, and 13% were separated or divorced. Similar findings are reported in studies from the United States (e.g., Snow, 1988; Wieczorek et al., 1992). Repeat offenders are slightly more likely to be separated or divorced (Nochajski et al., 1994).

Among self-reported drinking-drivers who participated in the 1988 National Survey on Drinking and Driving, 37% reported their marital status as single, 56% were married, and 5.9% were separated or divorced. The distribution of marital status among those respondents who reported driving after drinking four or more times in the previous month was similar to that for convicted DWI offenders – 39% were single, 49% were married, and 12% were either separated or divorced.

It is apparent that single, separated and divorced people are over-represented among the target population. In fact, separated and divorced people are twice as likely as others to be DWI repeat offenders; single people are 1.6 times as likely to be in the target population. Nonetheless, although married people are under-represented, they still comprise the largest proportion of the target population. In conclusion, therefore, people from all marital status groups are involved in the target behaviour.

- **Education.** Studies of DWI offenders indicate that at least one-third of convicted offenders have at least some post secondary education (e.g., Nochajski et al., 1992; Wilson, 1991). The 1991 census data indicate that about 43% of Canadians aged 15 and over have attained this level of education (Statistics Canada, 1993). In Manitoba, Ambtman (1990) reports that less than 20% of participants in the Impaired Driving Program have attended some type of postsecondary educational institution, compared to 38% of the adult population.

Studies of DWI offenders also report that a slightly higher proportion of offenders than would be expected in the population have attended high school and a lower-than-expected proportion of offenders have never attended high school.

The educational levels among self-reported drinking drivers in the 1988 National Survey on Drinking and Driving are similar to the educational levels of the general population. Among people who reported driving after drinking four or more times in the month before the survey, there was a smaller proportion than expected in the lowest educational group (i.e., less than high school) and a higher proportion than expected who had attended high school.

In summary, the target population spans all educational levels. Most have at least attended high school, and one-third have some postsecondary education.

- **Income.** Information on the income of DWI offenders is reported infrequently. When it is reported, a variety of income categories are used, making comparisons difficult. In addition, studies completed several years apart can lead to inappropriate comparisons given inflation and the fact that incomes change over time.

In general, the income distribution of DWI offenders suggests that lower-middle class incomes are common (Adebayo, 1991; Ambtman, 1990; Gruenewald et al., 1990; Kennedy et al., 1993; Nochajski et al., 1994). Some studies report an over-representation of low incomes (i.e., less than $10,000 per year) among convicted offenders (e.g., Adebayo, 1991; Ambtman, 1990). In a study of first and repeat offenders, Nochajski et al. (1994) report significantly lower incomes among repeat offenders.

The 1988 National Survey on Drinking and Driving uses self-reported drinking-driving behaviour to compare the incomes of drinking drivers and non-drinking drivers. The survey shows that drinking drivers are under-represented among people with incomes below $20,000 and over-represented among people with incomes in excess of $60,000. This trend is more pronounced among people who report driving after drinking four or more times per month than among drinking drivers in general.

The results presented here indicate a discrepancy between the income levels of convicted DWI offenders and those of self-reported drinking drivers – i.e., convicted DWI offenders seem to be from lower income groups than self-reported drinking drivers. It might well be the case that lower income drinking drivers are more likely to be apprehended or convicted than those with higher incomes. Wealthier drinking drivers may drive newer model vehicles or be better able to maintain them and may therefore be less likely to have obvious safety-related problems such as burned-out headlights or taillights. Such vehicle-related problems can increase the likelihood of being stopped by the police. It may also be that higher income drinking drivers who are apprehended are better able to afford lawyers to contest the charges before the courts and thus have a better chance of being acquitted or having the charges reduced. It is also possible that higher income people may drive with lower BACs and thus have a lower risk of apprehension.

In any event, it is apparent that DWI repeat offenders come from all income levels. Few offenders are from the lowest income groups, most have moderate family incomes, and about one-quarter have incomes in excess of $60,000. In general, repeat offenders have lower incomes than first-time offenders.

3.2 Psychosocial and Behavioural Characteristics

A number of studies have attempted to identify the social, psychological, behavioural and attitudinal characteristics that distinguish DWI offenders from other drivers (Donovan et al., 1983; Jonah and Wilson, 1986; MacDonald, 1989; Selzer et al., 1963; Cosper and Mozersky, 1968; Yoder and Moore, 1973; Meck and Baither, 1980; Fine and Scoles, 1974; MacDonald and Pederson, 1990; Perrine, 1975; Steer and Fine, 1978). Some of the factors examined include hostility, aggression, sensation seeking, depression, attitudinal intolerance of drinking-driving, attitudinal intolerance of deviant behaviour, attitude toward driving, and health-compromising behaviours. In general, a common theme that emerges from these studies is that DWI offenders tend to exhibit a greater degree of deviance on most factors than do other groups of drivers.

To illustrate, Wilson (1992) examined the characteristics of a group of 238 DWI offenders and a random sample of 374 licensed drivers to serve as a comparison group. (Two other groups of high-risk drivers were also included in the study, but those results are not relevant here.) On personality measures, DWI offenders were distinguished by greater assaultiveness, sensation seeking (the tendency to seek novel and exciting experiences) and impulse expression. They were more likely to smoke and to smoke more heavily. They were also more likely to use drugs, to experience more personal problems and to report less compatibility with their parents. DWI offenders were also more tolerant of DWI behaviour.

An earlier and similar study by Donovan et al. (1985) reported that DWI offenders scored significantly higher than controls on scales of driving aggression, competitive speed, driving for tension reduction and depression. Wilson (1992) failed to replicate these findings and suggested that lower age and the inclusion only of males in Donovan's study may have accounted for the discrepancy.

Nonetheless, the results of these two studies were generally consistent with each other and with other studies in demonstrating that DWI offenders are more deviant on a variety of psychosocial factors. They express a desire to engage in exciting and high-risk activities and may do so impulsively. They engage in behaviours that compromise their health. They may be aggressive and hostile, particularly when driving. The profile that begins to emerge is that of an unsocialized, aggressive, impulsive individual who exhibits signs of emotional liability, low personal efficacy, a lack of control over significant life events and a relative deficiency of skills to deal with stress and conflict.

Many of the characteristics that distinguish DWI offenders from the general population are even more prominent among DWI offenders who have been convicted on more than one occasion. For example, in a study comparing DWI first and repeat offenders, McMillen et al. (1992) found repeat offenders to have higher levels of hostility, sensation seeking, psychopathic deviance, mania and depression than first-time offenders. Repeat offenders also exhibited greater difficulties in emotional adjustment and lower assertiveness. Although some of the differences between first and repeat offenders were not large, the data indicate more pronounced antisocial and deviant characteristics among repeat offenders.

Given that antisocial behaviours such as aggression, hostility and recklessness characterize many DWI offenders, it is perhaps not surprising that previous criminal arrests are not uncommon among this population (Waller, 1967; Yoder and Moore, 1973; Zelhart et al., 1975). In a study of 1,406 randomly selected DWI offenders in Massachusetts, Argeriou et al. (1985) found that more than half had a history of criminal activity other than, or in addition to, DWI and traffic offences. Among DWI repeat offenders, 68% had prior criminal arrests. Similarly, McMillen et al. (1992) found the frequency of non-traffic arrests to be three times higher among DWI repeat offenders than among first-time offenders.

Several studies, particularly those looking at younger people, indicate that drinking-driving behaviour is often associated with the use of illicit drugs (Barnes and Welte, 1988; Donovan, 1993; Elliott, 1987; Hingson et al., 1982; Johnson and White, 1989; Swisher, 1988; Wilson, 1992). In a study of 2,535 DWI offenders (60% of whom were first-time offenders) participating in Manitoba's Impaired Driving Program, Ambtman (1990) found that about 7% reported using drugs in addition to alcohol. Cannabis was the drug most frequently reported (92.5%), followed by prescription medications (15.5%). Only 5.5% of reported drug users in this population reported using other drugs such as cocaine or hallucinogens.

An analysis of data from the 1988 National Survey on Drinking and Driving reveals that self-reported drinking drivers are about three times more likely than non-drinking drivers to report using cannabis (15% versus 5%, respectively). Just under 4% of drinking drivers reported the use of LSD, heroin or cocaine compared to less than 1% of non-drinking drivers. Frequent drinking drivers (i.e., four or more times per month) were no more likely than less frequent drinking drivers to use any type of illegal drug.

Population surveys have also identified a number of psychosocial and behavioural characteristics that distinguish self-reported drinking drivers from other drivers. For example, drinking-driving behaviour has been found to be associated with more frequent risky driving behaviours (Wilson and Jonah, 1985), less involvement with prosocial groups and activities (Williams et al., 1986), poor grades at school (Williams et al., 1986; Barnes and Welte, 1988; Farrow, 1985), greater risk-taking and sensation seeking (Arnett, 1990; Hilakivi et al., 1989; Johnson and White, 1989), less social conformity, and more aggression (Stacy et al., 1991). Much of this research, however, has been conducted on adolescents and young adults and may not necessarily apply to older DWI offender populations. Nevertheless, there is a striking similarity in the types of factors that emerge from this research and from research conducted on older groups of DWI offenders.

In conclusion, impaired driving is not a distinct or isolated behaviour. Rather, it emerges among a constellation of other antisocial and deviant tendencies – such as aggression, hostility and thrill-seeking – that influence many other aspects of the individual's life. This finding suggests that efforts to prevent DWI behaviour among this population must deal with more global aspects of the person's lifestyle, not just the drinking-driving behaviour.

3.3 Drinking Patterns and Problems

The literature on impaired driving is replete with references to the high incidence of drinking problems. Unfortunately, the definitions of "alcohol problems" and the criteria for determining whether a person exhibits these problems vary tremendously. In some studies, being convicted of an impaired driving offence is sufficient for determining the existence of an alcohol problem. In more rigorous studies, standardized assessment tools are used to determine a clinical diagnosis of dependence or abuse. Rehabilitation programs often use descriptive labels to indicate the extent or level of the alcohol problem – e.g., "presumptive problem", "harmfully involved" or "alcohol abuser". While the various definitions and criteria may serve their purpose, they make it extremely difficult to compare the results of different studies. Despite this limitation, the literature leaves little doubt that problems associated with alcohol use are extremely common among the target population. This section outlines some of the findings, organized according to the four previously identified subgroups of drinking drivers: convicted offenders, crash-involved drinking drivers, self-reported drinking drivers and drinking drivers identified at the roadside.

3.3.1 Convicted DWI offenders

BAC at the time of arrest can provide valuable insights into the drinking patterns of offenders. Although BAC represents only a single indicator of alcohol consumption on the occasion of arrest and may not represent the highest level achieved, it is indicative of the extent of consumption. Studies of arrested or convicted DWI offenders have typically found extremely high BACs at the time of arrest, usually well in excess of the statutory limit. For example, a study in British Columbia found that the average BAC among DWI offenders was 170 mg% – more than twice the legal limit of 80 mg% (Mercer, 1983). One-third of offenders had a BAC in excess of 180 mg%. In a study of over 20,000 drivers arrested for DWI in Canada in 1982, Donelson et al. (1985) found an average BAC of 170 mg%. Interestingly, 36% had a BAC between 150% and 200 mg% and 31% had a BAC in excess of 200 mg%. Among participants in Manitoba's Impaired Driving Program, 40% of self-reported arrest BACs were in excess of 160 mg% (Ambtman, 1990). Similar results have been reported in the United

States (e.g., Perrine et al., 1989; Nochajski et al., 1995; Simon, 1992), Finland (Lindbohm et al., 1980) and Great Britain (Everest, 1989).

Several studies have demonstrated that people convicted of more than one DWI offence tend to have higher BACs than first-time offenders (e.g., Bailey and Winkel, 1981; McMillen et al., 1992; Yoder and Moore, 1973). Conversely, a more recent study in New York state found that the arrest BACs of the first-time and DWI repeat offenders did not differ significantly (164 and 166 mg%, respectively) (Nochajski et al., 1994). This finding contradicts the bulk of evidence to date and needs to be explored further.

Arrest BAC has also been shown to be useful in predicting subsequent offences. For example, a two-year longitudinal study of approximately 400 DWI offenders in Norway (Gjerde and Morland, 1988, 1990) found that the re-arrest rate increased with increasing BAC at the time of initial arrest. Among people with a BAC in excess of 150 mg%, approximately 50% were re-arrested for DWI within the two-year follow-up period. The pattern was particularly pronounced among drivers under 24 years of age – 74% of DWI offenders in this age group with BAC over 250 mg% were reconvicted, compared to only about half of older drivers with BACs of this magnitude. Offenders who had been previously arrested for DWI had a significantly higher re-arrest rate than those without a previous arrest.

While the BACs of convicted DWI offenders are an important indicator of heavy alcohol consumption on at least the occasion of arrest, they reveal little about either the usual pattern of consumption or problems associated with alcohol. However, studies of offenders indicate that a substantial proportion of DWI offenders exhibit heavy patterns of consumption over sustained periods of time and often display signs and symptoms of alcohol abuse or dependence. For example, Fine et al. (1975) found that 48% of first-time DWI offenders reported drinking on two to six days per week and consuming a minimum of two pints of liquor per occasion; 6% drank the equivalent of three pints of liquor or more daily. Problems associated with heavy alcohol consumption (e.g., frequent drunkenness, blackouts and alcohol-related arrests) were also common among offenders.

DWI offenders participating in Manitoba's Impaired Driving Program undergo a standardized assessment of alcohol and drug use. On the basis of the assessment, counsellors classify clients into one of four global clinical assessment categories: non-apparent chemical usage, presumptive usage (may be at risk of dependency or subsequent DWI offence), active problem (treatment indicated) or problem under control. Among a group of 2,535 clients assessed during a one-year period (1987-88), 36% were considered to exhibit presumptive usage, 11% had an active problem, and 12% displayed evidence of a previous problem that was currently under control (Ambtman, 1990).

In a review of studies on alcoholics and convicted DWI offenders, Vingilis (1983) estimates that 30% to 50% of offenders can be considered alcoholics; however, the proportion of offenders who show signs of problem drinking varies as a function of the population studied, the definition of "drinking problems" and the assessment procedures used. Nevertheless, the literature is consistent in demonstrating a high incidence of problems associated with alcohol abuse among convicted DWI offenders.

Many studies also show that the incidence of problem drinking increases with the number of prior DWI convictions. For example, Perrine (1990) found a higher proportion of heavy drinkers (i.e., five or more drinks per occasion) among DWI repeat offenders (60%) than among either first-time offenders (40%) or non-offenders (10%). The pattern of drinking also differs. When asked about drinking during the previous week, DWI repeat offenders were about four times more likely than non-offenders to report consuming five or more drinks on both the previous Monday and the previous Saturday. In addition, repeat offenders were 16 times more likely than first-time offenders to indicate that they might have a drinking problem.

In a comprehensive study of DWI offenders, Nochajski et al. (1994) compared a large sample of first-time (n = 1,581) and repeat (n = 319) DWI offenders participating in the New York Drinking Driver Program. Study participants were assessed on a variety of measures, including a clinical assessment for a lifetime alcohol diagnosis. Among first-time offenders, 28% met the criteria for a clinical (DSM-III, Diagnostic and Statistical Manual of Mental Disorders) diagnosis of alcohol dependence; 39% were diagnosed as having an alcohol abuse disorder. Alcohol problems were even more prevalent among repeat offenders: 45% were diagnosed as alcohol dependent, and 35% were diagnosed with a substance abuse disorder. Repeat offenders were also more likely than first-time offenders to report prior treatment for alcohol or drug problems (33% vs. 14%, respectively) and to have a greater incidence of a family history of alcohol or drug problems (54% vs. 46%). Repeat offenders also scored higher on the Michigan Alcoholism Screening Test (MAST) (6.5 vs. 4.5), spent more money each week on alcohol ($27 vs. $19), consumed more drinks per occasion (6 vs. 5) and consumed a higher maximum number of drinks per occasion (16 vs. 13). These data leave little doubt that DWI offenders in general, and repeat offenders in particular, experience a high incidence of heavy drinking and problems associated with excessive alcohol consumption.

3.3.2 Crash-involved drinking drivers

As indicated in section 2, 62% of fatally injured drinking drivers have a BAC in excess of 150 mg%. Such a high BAC is evidence of heavy consumption on at least one occasion and could be indicative of a more chronic pattern of excessive consumption.

There is also evidence that approximately one-third of fatally injured drinking drivers have been previously convicted of a DWI offence (Donelson et al., 1989; Simon, 1992). In addition, Simpson and Mayhew (1991) used FARS data to show a clear, positive relationship between BAC and the likelihood of having a previous DWI conviction. Drivers with high BACs had a previous conviction rate that was eight times higher than the conviction rate of fatally injured non-drinking drivers.

Autopsy findings and relatives' reports also indicate a high incidence of heavy drinking and alcohol problems among fatally injured drivers. For example, Perrine et al. (1971) found a higher incidence of liver damage among fatally injured drivers with BACs over 200 mg% (53%) than among those with BACs below 200 mg% (31%). Similarly, in Finland, Penttila et al. (1987) report that fatty degeneration of the liver was common among fatally injured drivers with BACs in excess of 150 mg%.

3.3.3 Self-reported drinking drivers

Data from the 1988 National Survey on Drinking and Driving reveal that self-reported drinking drivers consume alcohol more frequently and in greater quantities than non-drinking drivers (Simpson et al., 1992). In the week preceding the survey, drinking drivers reported consuming an average of 8.9 drinks, compared to 3.8 for non-drinking drivers.

Further analysis of these data reveals even greater differences in the alcohol consumption patterns of frequent drinking drivers (i.e., those who reported driving after drinking four or more times in the month before the survey). One-quarter of frequent drinking drivers reported drinking every day; only 4% of non-drinking drivers reported drinking this frequently. In the week before the survey, frequent drinking drivers consumed an average of 20 drinks – five times more than non-drinking drivers and more than twice as much as less frequent drinking drivers.

Similar results were reported by Wilson (1984) in a national household survey of 2,000 drivers. Multivariate analysis of the data from this study found alcohol consumption to be the single most powerful predictor of impaired driving. This finding confirmed a Swedish study reported by Norstrom (1981).

Studies that have compared self-reported impaired drivers with convicted DWI offenders and other high-risk drivers have found the convicted offender group to have the most deviant patterns of drinking and the greatest incidence of alcohol-related problems (Donovan et al., 1985; Wilson, 1991; Wilson and Jonah, 1985).

3.3.4 Drinking drivers on the road

Roadside surveys of night-time drivers have shown that drivers with BACs in excess of the statutory limit are more likely to report heavier consumption of alcohol (Mayhew et al., 1996). The most recent Canadian roadside surveys found that 42% of drivers with a BAC between 80% and 150 mg% reported having seven or more drinks in the previous week. Just over half of these drinking drivers reported consuming more than 14 drinks over the same period of time. Only 10% of non-drinking drivers reported drinking seven or more drinks in the preceding week.

3.3.5 Summary

Drinking drivers often exhibit deviant patterns of alcohol use. They drink on more frequent occasions and consume greater quantities of alcohol on each occasion than do non-drinking drivers. In many cases, such patterns of alcohol consumption have been sustained over long periods of time. Not surprisingly, many people who come to the attention of the authorities as the result of DWI behaviour report one or more symptoms of alcohol abuse. Approximately one-quarter of first-time offenders and almost half of repeat offenders meet the criteria for a diagnosis of alcohol dependence.

3.4 Driving-Related Problems

Driving after drinking may not be the only traffic safety problem posed by DWI repeat offenders. Some drinking drivers may have a history of other traffic violations that are not necessarily related to alcohol consumption. Drinking drivers who also demonstrate unsafe driving practices pose an extremely high risk.

Jonah and Wilson (1986) compared the driving histories of groups of convicted DWI offenders, self-reported impaired drivers and non-drinking drivers. Convicted DWI offenders were found to have been involved in more prior traffic crashes and to have received a greater number of traffic tickets than either self-reported impaired drivers or non-drinking drivers. Moskowitz et al. (1979) also report DWI offenders to have worse driving records – including both alcohol-related and non-alcohol-related traffic offences – than drivers in the general population.

Conversely, studies of fatally injured drivers do not necessarily show that those who had been drinking have worse driving records than those who had not been drinking. Using FARS data, Simpson and Mayhew (1991) found that fatally injured drinking drivers were somewhat more likely than non-drinking drivers to have previous speeding violations on their records. Interestingly, the highest speeding conviction rates were found among fatally injured drinking drivers with BACs *below* 150 mg%. The highest conviction rate for other violations was found among drinking drivers in the lowest BAC group (i.e., less than 100 mg%). Fatally injured drinking drivers were only slightly more likely than non-drinking drivers to have been involved in a previous collision. These data should be viewed with some caution, as FARS data include only those convictions and crashes that occurred in the previous three years.

Of some interest is the finding that fatally injured drinking drivers were less likely than fatally injured non-drinking drivers to have had a valid licence at the time of the crash. Among fatally injured drivers with a BAC in excess of 200 mg%, 21% were operating the vehicle without a valid licence, compared to only 7% of non-drinking drivers. It was noted that many of these suspensions may have been the result of alcohol-related offences (Simpson and Mayhew, 1991).

In a comparison of the driving records of convicted DWI offenders and fatally injured drinking drivers, Fridlund and Hagen (1977) found the convicted DWI group to have significantly more prior reckless driving convictions, more prior moving violations and more prior DWI convictions.

DWI repeat offenders appear to experience greater driving problems than first-time offenders. In a comparison of first-time and repeat offenders, McMillen et al. (1992) found repeat offenders to have a greater number of traffic violations and crashes on their driving records than first-time offenders. Repeat offenders also reported more crashes after drinking, more crashes at night and more serious crash involvement than first offenders. Because the first-time and repeat offender groups did not differ in age, the observed differences in crashes and violations were not necessarily the result of repeat offenders having had a driver's licence for a longer period of time. However, it is not known whether first and repeat offenders differ in exposure to driving risk – i.e., the quantity and quality of their driving – which might explain the differences in driving records between the groups.

Population surveys also show worse driving records among self-reported drinking drivers. In a survey of 2,000 drivers in Canada, Wilson (1984) found that self-reported impaired drivers had the highest incidence of moving violations and crashes in the preceding year. Although 9% of the non-drinking driver group had one or more traffic violations, 15% of self-reported drinking drivers and 23% of self-reported impaired drivers had previous violations. In terms of crash involvement, only 4% of non-drinking drivers had been involved in a traffic crash in the preceding year, compared to 5% of drinking drivers and 12% of impaired drivers.

An analysis of data from the 1988 National Survey on Drinking and Driving (Simpson et al., 1992) also reveals more driving-related incidents among frequent drinking drivers. Only 21% of non-drinking drivers reported having been involved in a traffic crash in the preceding three years, compared to 35% of people who reported driving after drinking four or more times in the month before the survey. In addition, frequent drinking drivers were almost twice as likely as non-drinking drivers to have received a traffic ticket in the preceding three years (24% vs. 45%, respectively).

In summary, DWI repeat offenders have worse driving records than other groups of drivers. It could be argued that bad drivers appear over-represented among convicted DWI offenders simply because they are more likely to be stopped by the police. For example, a drinking driver who exceeds the speed limit is more likely to be stopped by the police than a drinking driver who stays within the posted speed limit; having attracted the attention of the police, the drinking driver who was travelling in excess of the limit stands a considerably greater chance of being arrested for DWI than does the more cautious driver who also happened to have been drinking. Hence, the relationship between poor driving records and DWI convictions might be at least partly an artifact of enforcement practices. However, self-report surveys discount the validity of this argument. Data from self-reported drinking drivers who have never been arrested for DWI also show a strong relationship between poor driving records and drinking-driving behaviour. The bottom line is that drinking-driving does not appear to be an isolated high-risk driving behaviour. Those who drive after drinking are also likely to engage in other high-risk and illegal driving behaviours that compromise safety on the road.

3.5 Comparison with Other High-Risk Groups

The relatively high incidence of traffic tickets and crashes among the target population suggests that there may be similarities between “bad” drivers and DWI repeat offenders. This section examines the research evidence pertaining to this hypothesis.

A number of studies have compared DWI offenders with other high-risk drivers. Donovan et al. (1985) were among the first to compare three groups of drivers in the state of Washington: convicted DWI offenders, drivers with repeated crash involvements or (non-alcohol-related) traffic violations and the general driving population.

The groups were compared on a variety of demographic, social, personal and behavioural dimensions, including drinking patterns. Important differences emerged. In general, the DWI and high-violation-or-repeated-crash groups were found to be more deviant in terms of driving attitudes, personality measures and drinking patterns than the general population group. The DWI group and high-violation-or-repeated-crash group were very similar to each other on several important measures,

including personality, hostility and driving attitudes. In light of the degree of similarity between these two groups, the authors concluded that they may represent subgroups of a larger population of high-risk drivers who share a constellation of traits that escalate driving risk, whether or not alcohol is involved.

Donovan et al.'s (1985) study was recently replicated by Wilson (1992). Wilson's study matched the age and sex distributions in the three groups of drivers as a means of controlling for the potentially confounding effects of these variables. This approach produced results somewhat different from those reported by Donovan et al. Wilson found the DWI offender group to be more deviant than the high-violation-or-repeated-crash group in terms of sensation seeking and aggression. No differences were evident among the three groups on measures of driving attitude.

Accordingly, although there were similarities between the DWI and high-violation-or-repeated-crash groups, Wilson questions Donovan's conclusion that these two groups are subsets of a larger population of high-risk drivers. Wilson points out that DWI offenders exhibited greater deviance on the personality and behavioural measures, indicating they should not necessarily be considered a group of high-risk drivers who happen to drink.

The results of multivariate analyses of the data are most interesting. Using discriminate analysis, Wilson found it difficult to predict group membership accurately. High-violation-or-repeated-crash drivers were almost as likely to be misclassified as DWI offenders (21%) as they were to be correctly classified as high-violation-or-repeated-crash drivers (24%). About 13% of DWI offenders were misclassified as high-violation-or-repeated-crash drivers. Of considerable interest is the finding that up to 50% of DWI offenders and high-violation-or-repeated-crash drivers were indistinguishable from the sample of general population drivers.

The inability to distinguish groups reliably suggests that there exists considerable heterogeneity within groups – i.e., not all drivers within a group exhibit the same pattern of attitudinal, behavioural and personality characteristics. In fact, the extent of the variability is such that a large proportion of DWI offenders and other high-risk drivers resemble drivers from the general population. This observation suggests that a single profile cannot be used to describe subgroups of drivers. Indeed, within groups of DWI offenders and high-risk drivers there may exist distinct subgroups based on attitudinal, behavioural and personality characteristics. This possibility is explored further in section 3.6.

Another line of research is relevant to the present discussion. Donovan and colleagues (1990) followed a group of high-violation-or-repeated-crash drivers over a three-year period to determine the incidence of subsequent DWI offences. All participants were attending a two-hour traffic safety education program when recruited into the study. Over the three-year follow-up period, 11% of participants were arrested for a DWI offence. This was more than five times higher than the rate of initial DWI arrests among the general population of drivers. In general, it was found that the percentage of drivers arrested for DWI increased with the number of traffic violations on their records. Drivers having four or more moving violations in a year were 10 times more likely to be arrested for DWI than were drivers having no violations. The feature that best discriminated between drivers who were and who were not subsequently arrested for DWI was their alcohol consumption pattern at the time they were recruited into the study. Compared to participants who were not subsequently arrested, DWI arrestees drank more often, drank heavily more often and consumed a greater number of drinks per month.

A similar study by Buntain-Ricklefs et al. (1995) examined two samples of “bad” drivers: one of people who had been subsequently arrested for DWI, the other of people who had not. Participants were assessed on a variety of psychosocial and behavioural factors in an attempt to identify risk factors that could be used to predict subsequent DWI arrests. Variables found to increase the probability of subsequent DWI arrest included a higher number of traffic violations, previous trauma (motor vehicle related or otherwise), a heavier pattern of alcohol consumption, expectations of positive consequences of drinking and a family history of alcohol problems.

The results of these latter two studies indicate that drivers with poor driving histories – i.e., high numbers of traffic citations and crash involvements – are at significantly higher risk of subsequent arrest for DWI than are drivers in the general population. Several factors – including alcohol use, physical trauma and family history of alcohol problems – are also predictive of subsequent DWI arrest and could be used to assist in the early identification of drivers at high risk of being arrested for a DWI offence.

3.6 Typologies of DWI Offenders

From the preceding discussion of the characteristics of DWI repeat offenders, it is possible to develop a profile of the most prominent features of this group of drivers. This profile characterizes DWI repeat offenders as male, high-school graduates between the ages of 25 and 45. They display high levels of aggression, hostility and sensation seeking and are frequent and heavy users of alcohol. They may also have a record of driving infractions and crash involvements, and may have been previously arrested for impaired driving.

But this profile is misleading. It suggests a homogeneity among the members of the target group that simply does not exist. In fact, DWI repeat offenders are very heterogeneous. While certain characteristics stand out and can be used to distinguish DWI offenders from other drivers – e.g., aggressiveness and heavy drinking – it would be incorrect to describe all DWI offenders as having these characteristics. Creating a single profile belies the variability within the target group.

Within the population of DWI repeat offenders, various characteristics may be more or less prominent, creating definable subgroups or typologies. Drivers become DWI repeat offenders for a variety of reasons; the reasons for their persistence in drinking and driving are equally varied. To understand the problem of the DWI repeat offender, it is imperative that we recognize that despite prominent characteristics that distinguish them from other drivers, DWI repeat offenders as individuals are very dissimilar. Research must go beyond simply identifying factors and characteristics associated with repeated DWI behaviour and look at separating offenders into subgroups that have relevance for prevention.

In this context, several studies have used multivariate analytic techniques to identify subgroups of DWI offenders based on common characteristics that appear to render them at risk. In one of the earliest studies of this kind, Steer et al. (1979) derived seven subtypes of DWI offenders based on measures of alcohol use, neuroticism and BAC at time of arrest. The largest category (37% of the sample) were characterized by less deviant drinking patterns and below average neuroticism scores. The smallest group (7%) had high levels of neuroticism and above average scores on all alcohol use indicators.

Sutker et al. (1980) used the Minnesota Multiphasic Personality Inventory (MMPI) to identify four distinct profiles of convicted DWI offenders. Two MMPI profiles were associated with high levels of alcohol consumption. These profiles indicated high levels of depression and social deviance.

Donovan and Marlatt (1982) identified five clinically relevant subgroups in 161 DWI offenders based on personality and driving-attitudinal measures. Two of the subgroups (representing 45% of the sample) were described as being relatively well adjusted. This “well-adjusted” group had the greatest overall degree of effective and behavioural adjustment, were the least depressed, had the highest level of emotional adjustment along with relatively low levels of risk-enhancing aggression, and had the lowest levels of sensation-seeking and hostility. Two subgroups were viewed as particularly high risk (34% of the sample): the “depressed” group and the “hostile” group. The “depressed” group was characterized by high levels of depression and resentment and low levels of assertiveness, emotional adjustment and perceived control. The “hostile” group exhibited higher levels of driving-related aggression, sensation seeking, irritability and hostility.

The five subtypes were compared on demographic, drinking and driving variables. Only one of five measures of recent drinking behaviours yielded significant differences: People in the “well-adjusted” group consumed significantly fewer drinks per occasion than did people in the other groups. Members of the “well-adjusted” group also had fewer convictions and accidents plus convictions than the other groups, as well as a lower score on a summary index of driving risk, than did members of the “depressed” and “hostile” groups. The “hostile” group had significantly more accidents than did the others. In this context, Donovan et al. (1986) stated, “Although problem drinkers are over-represented in accident involvement, not all drinkers are equally dangerous when driving” (p. 247).

Arstein-Kerslake and Peck (1986) examined the characteristics of 2,889 offenders in California. These offenders were classified into unique groups based on psychometric variables including behavioural attributes (e.g., aggressiveness, extroversion, anxiety), physical conditions (e.g., physical health, alcohol consumption or alcohol problems) and situational characteristics (e.g., social interactions, marital situation or employment status). The cluster analysis resulted in nine groups. Similarities were noted between an “alcoholic” group and the “depressed” subtype identified by Donovan and Marlatt (1982). Three of the other groups had characteristics in common with Donovan and Marlatt’s “hostile” subtype.

Wells-Parker et al. (1986) classified 353 DWI offenders on the basis of traffic and criminal offence records. The researchers identified five subtypes: a “low-offender” group, a “mixed offence” group, a “public drunkenness” group, a “licence and equipment violation” group and a “traffic” group (high number of moving violations). The “low-offence” group was the largest (57% of the sample) and the least deviant in terms of drinking problems. The “public drunkenness” group and the “licence” group were the smallest and most deviant (10% of the sample). People in these groups were older, had more

alcohol-related offences, had more assault and miscellaneous offences and had heavier patterns of drinking than did people in the other groups. The “public drunkenness” group also had the highest number of accidents.

Wilson (1991) also classified a combined DWI and high-risk sample into subtypes defined in terms of three factors: thrill-seeking, hostility and personal adjustment. The analyses revealed four subtypes labelled “well-adjusted”, “deviant”, “irresponsible” and “hostile/responsible”. As in the Donovan and Marlatt (1982) study, the “well-adjusted” group accounted for a large proportion of the sample (46%). The “deviant” group accounted for only 12.5% of the sample and exhibited high levels of sensation seeking, impulsiveness and hostility; a high incidence of drug use and personality problems; a low value on responsibility; low seatbelt use; tolerance of DWI; and the highest depression score. The “deviant” group also scored highest on all measures of drinking quantity and frequency and had the greatest tendency toward problem drinking. This group, along with the “irresponsible” group, preferred a higher speed while driving on expressways, drove as a means of tension reduction and showed less inclination to drive cautiously when upset (driving inhibitions). Although the four groups differed on personality, lifestyle and alcohol-related measures, there were no differences in terms of property damage, injuries or total collisions; however, the “deviant” group had more convictions for speeding and other moving violations, more licence suspensions, a higher total mean of violations and a higher number of demerit points.

Clearly, different subtypes of DWI offenders exist. Some typologies appear to fit closely with the definition of the DWI repeat offender; however, it should be recognized that different approaches to the development of typologies give rise to different subgroups of offenders. Although there appears to be some degree of overlap among the subgroups of DWI offenders identified using different approaches, there is no consensus that these are the most important, or even the only subgroups within this population. Studies that examine the similarities and differences among the various subtypes of DWI offenders are needed to determine the most prominent subgroups. In addition, research is needed to determine the set of characteristics or variables that provide the best differentiation among the subtypes of offenders. This information would enable the development of a valid and reliable assessment instrument that could be readily and easily applied to all offender populations.

The value of identifying subgroups of offenders lies in the implications for rehabilitation. However, the clinical utility of these subgroups has yet to be demonstrated. Further work in this area is essential to determine clinically relevant subgroups for which specific rehabilitation programs are most effective.

3.7 Conclusion

DWI offenders are a demographically diverse group. They span all age, education, income and marital status groups. However, male drinking drivers outnumber female drinking drivers by a wide margin.

Research has identified numerous psychosocial and behavioural characteristics that distinguish DWI offenders from the general driving population. In general, DWI offenders often exhibit a variety of antisocial and deviant tendencies such as aggression, hostility and thrill-seeking. They are more likely than non-drinking drivers to have a criminal history, to use drugs and to have poor driving records. Perhaps the most distinguishing characteristics concern their patterns of alcohol consumption. DWI

offenders drink more frequently, consume greater quantities of alcohol per occasion, experience more alcohol-related problems and are more likely to meet the criteria for a diagnosis of alcohol dependence. These characteristics are more pronounced among DWI repeat offenders.

It should be recognized that these characteristics represent averages for groups of drinking drivers. Not all drinking drivers exhibit these characteristics or exhibit them to the same degree. In fact, several studies have demonstrated that DWI offenders can be classified into distinct and clinically relevant typologies. These typologies range from relatively well-adjusted groups of people who are difficult to distinguish from general population drivers to “deviant” groups of people who display characteristics that render them at high risk of driving-related problems.

The value of research on driver typologies is twofold. First, it demonstrates that not all DWI offenders are similar. They are a diverse group of people with different backgrounds, problems and reasons for engaging in DWI behaviour. Second, countermeasures that treat all DWI offenders as a homogeneous group will be less effective than those directed toward specific subgroups. Interventions should be designed to match the characteristics and needs of specific high-risk groups.

4. Approach and Perspectives

Previous sections have established that the DWI repeat offender accounts for a substantial portion of the impaired driving problem. In addition, it has been established that DWI repeat offenders are a heterogeneous group spanning a broad cross-section of the population. The obvious question, then, is, "What can we do about them?" The remainder of this report tries to answer that question.

Before a discussion of countermeasure options for dealing with the DWI repeat offender, it is important to have a clear understanding of the nature of the problem, how it occurs and where opportunities for intervention exist. In addition, because impaired driving is a problem that crosses many disciplinary boundaries, it is equally important to recognize the different perspectives that can be brought to bear. Accordingly, this section describes a model of impaired driving that identifies the stages of the behaviour and the opportunities for intervention. It then outlines the different perspectives and their approaches for dealing with the problem.

4.1 A Model of Impaired Driving

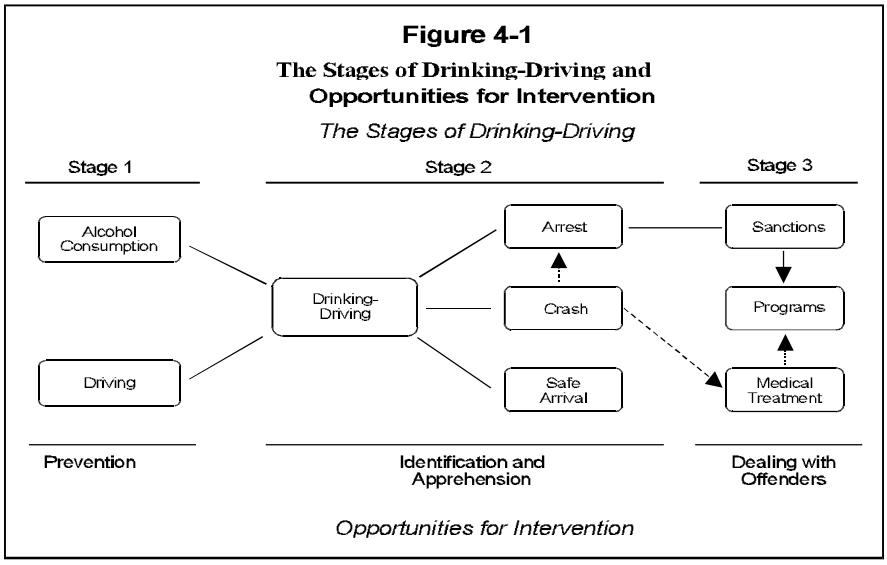
The overall approach – intended to facilitate a discussion of impaired driving and the opportunities for intervention – is outlined in the model presented in figure 4-1. In this model, impaired driving is divided into three stages corresponding to the sequence of events that lead up to and follow an impaired driving incident. It is no coincidence that these three stages of impaired driving also correspond to the three areas for intervention opportunities.

4.1.1 Stage one

The first stage begins before either alcohol consumption or the operation of a motor vehicle. The individual has several options that would enable him or her to avoid driving after drinking. These options include not driving, not drinking, consuming less alcohol and taking a safe ride home.

Figure 4-1

The Stages of Drinking-Driving and Opportunities for Intervention



Repeat offenders have been in this situation on numerous occasions. Most are aware of the possible consequences of driving after drinking, but experience has taught them that the chances of being arrested or involved in a crash are extremely low. On other occasions they have driven after drinking – at times with extremely high BACs – and have arrived home safely.

Intervention attempts at this stage have included persuasive approaches, which appeal to potential drinking drivers' sense of better judgement and encourage them to choose an alternative that does not involve driving after drinking, and deterrent approaches, which try to accomplish the same objective through fear of negative consequences. Few if any of the interventions based on these approaches have been demonstrably successful with DWI repeat offenders.

4.1.2 Stage two

Stage two is the active – and dangerous – drinking and driving stage. It begins when the drinker takes control of a vehicle and ends when the trip terminates. There are essentially three ways this stage can end: safe arrival at the destination, arrest or crash involvement. Fortunately, most impaired driving trips end without incident. Only about one of every 445 trips results in the impaired driver being arrested; about one of every 30,000 trips results in a fatal crash.

By definition, DWI repeat offenders engage in this behaviour often. They either do not believe themselves to be impaired or believe that they can successfully avoid arrest or crash involvement. In fact, many impaired drivers who are stopped and questioned by the police are not arrested. Studies have shown that half of all impaired drivers escape detection in police spot checks (Jones and Lund, 1986; Ferguson et al., 1995). From the perspective of drivers, the odds are in their favour.

4.1.3 Stage three

This third stage of impaired driving begins after the trip concludes as the result of collision, arrest or both. If injured in a crash, the driver may be treated at hospital. Depending on the severity of the injuries, convalescence may require extensive medical intervention. It should be noted that the likelihood of arrest in the event of driver injury is small.

Arrested offenders may face immediate sanctions – e.g., administrative licence suspension. Further sanctions are imposed on offenders who are ultimately convicted. These sanctions are intended not only as punishment for the behaviour but also as a means of preventing subsequent occurrences of the behaviour either through incapacitation or deterrence.

In some jurisdictions, convicted offenders may be required to attend a specific educational or rehabilitative program. These programs are intended to change the offenders' attitudes, knowledge and behaviour concerning impaired driving and thus to reduce the likelihood of the behaviour recurring. The type and intensity of such programs vary considerably.

People who fit the definition of the DWI repeat offender may or may not have experienced this third stage of impaired driving, because the absolute probability of being arrested or becoming involved in a crash is very low. Some DWI offenders manage to avoid such consequences for many years. Nevertheless, a large number of DWI offenders are arrested, and many others become involved in

crashes. In most cases, these occurences are the only methods society has of identifying the target population. Once repeat offenders are identified, this final stage of impaired driving offers many opportunities for intervention.

4.2 Opportunities for Intervention

The three stages of impaired driving correspond to the three points where interventions can occur to prevent the behaviour. In the case of repeat offenders, interventions are intended to prevent subsequent occurrences of the behaviour. The following sections outline the types of prevention and intervention that correspond to each of the stages of impaired driving.

4.2.1 Prevention

At the prevention stage (stage one), a wide array of interventions can be implemented to prevent the occurrence of impaired driving. Prevention measures include public education and awareness, server intervention and designated driver programs. Prevention also includes general deterrent initiatives – i.e., programs and polices intended to dissuade people from driving after drinking through fear of negative consequences such as arrest, sanctions and crash involvement.

Over the years, prevention measures have been a major weapon in the arsenal of countermeasure activities designed to prevent impaired driving. The substantial reductions in impaired driving during the 1980s are often attributed, at least in part, to the success of prevention measures. At the same time, such measures are often said to have had little impact on high-risk DWI repeat offenders. Nonetheless, opportunities do exist at this stage for successful intervention with the target group; these options are explored in section 5 of this report.

4.2.2 Identification and apprehension

Identification and apprehension measures correspond to the active stage of impaired driving (stage two). The objective of these measures is to remove offenders from the road before they cause harm to themselves or others. For the most part, these measures involve police enforcement of impaired driving laws through random police spot checks, new equipment and techniques for detecting and apprehending offenders, and improved training for law enforcement personnel. More recently, citizen groups have promoted the Operation Lookout approach, through which ordinary citizens report suspected impaired drivers to the police.

In addition to improving the efficiency and effectiveness of enforcement, many of these initiatives can have prevention value as well. For example, enhanced enforcement (i.e., high-intensity spot checks) combined with publicity can increase the perceived probability of arrest, which may dissuade some people from driving after drinking (e.g., Mercer, 1990).

4.2.3 Dealing with offenders

Although prevention, identification and apprehension measures are applicable to all drinking drivers, measures at stage three are aimed primarily at those who have been identified as DWI offenders. There may be some general deterrent value in these measures, but their principal intent is to prevent repeat occurrences of the behaviour by DWI offenders who have been identified through either arrest or crash involvement.

In this report, measures for dealing with offenders have been divided into two groups: sanctions and programs. Although at times the distinction may appear arbitrary, the intent is to separate measures that are primarily punitive (i.e., sanctions) from those that are primarily rehabilitative in nature (i.e., programs).

Few people would disagree with the concept of punishing offenders for their crime. Data from the National Survey on Drinking and Driving indicate that most Canadians believe the current penalties for an impaired driving offence are sufficient and appropriate (Simpson et al., 1992). The punitive effect of sanctions is intended as a specific deterrent to reduce the likelihood of subsequent impaired driving behaviour. Indeed, the penalties for repeat convictions are considerably more severe[9]%ó46ºótory incarceration) than those for a first offence; the threat of these penalties is intended to serve as a powerful deterrent.

Some sanctions are designed to remove the opportunity for the offender to repeat the behaviour (i.e., incapacitation). For example, imposing a licence suspension not only punishes the offender but also provides a legal and administrative barrier to prevent, or at least discourage, further impaired driving behaviour.

Rehabilitative programs are designed to change the life factors and conditions that underlie impaired driving behaviour. Rehabilitative programs for DWI offenders range from brief educational sessions to intensive inpatient treatment for alcohol dependence. Educational programs provide knowledge and skills that can assist offenders in making appropriate decisions to reduce the likelihood of subsequent driving while impaired. Alcohol treatment programs are intended to eliminate (or at least reduce) a person's problems with alcohol abuse such that impaired driving is not an inevitable consequence of one's lifestyle.

Many DWI offenders have experienced sanctions and programs as a consequence of having been convicted of impaired driving on one or more occasions. For some, the experiences of arrest, courts and sanctions are sufficient to prevent the behaviour from occurring again. For others, these experiences appear to be mere inconveniences, as the individuals return to drinking-driving behaviour within a relatively short period. In the last 20 years, interventions at this stage have placed greater emphasis on sanctions than programs. However, the tide is turning. with new programs being implemented in more jurisdictions. One of the challenges that remains for intervention and rehabilitation is determining which programs are best suited to and most effective for which types of offenders. In sum, many opportunities to deal effectively with offenders exist at this stage.

9 A summary of Criminal Code sanctions for drinking-driving offences is provided in Appendix A.

4.3 Perspectives on the Problem

The drinking and driving problem is multifaceted. It intersects many fields of study and areas of interest, including health, safety, law enforcement, criminology and social work. Each area has a slightly different perspective on the problem in general and repeat offenders in particular. Each perspective also has a somewhat different view on how to deal most effectively with the problem. This section examines the varied perspectives that different fields of study bring to the problem of DWI repeat offenders and the types of interventions considered appropriate. The areas identified are neither exhaustive nor mutually exclusive: Other perspectives exist, and there is considerable overlap among some of those included. The intention is merely to outline the range and variety of perspectives that different disciplines can bring to the issue.

4.3.1 Criminal justice

Historically, society's primary response to the impaired driving problem has been through the criminal justice system – implementing increasingly severe penalties for offenders as well as more, and more effective, means of enforcement. In Canada, the first law against driving while intoxicated was passed in 1921. Since then, numerous amendments to the Criminal Code, the most recent being in 1985, have underscored society's resolve to deal with impaired driving harshly as a criminal behaviour.

To help create the appropriate context for the criminal justice response to impaired driving, it is important to recognize that the overall purpose of criminal law is to contribute to the maintenance of a safe society through the establishment of a system of prohibitions, sanctions and procedures to deal fairly and appropriately with behaviour that transgresses norms and causes or threatens serious harm to individuals or society in general (Government of Canada, 1982). Impaired driving clearly fits the definition of behaviour that causes or at least threatens harm. As such, it is within the mandate of criminal law to deal with it as it would any other type of criminal conduct – by applying sanctions to punish offenders for their crime, and by preventing and discouraging similar behaviour in the future through deterrence, incapacitation and rehabilitation.

In many respects, it often appears that the criminal justice system has done a much better job of apprehending and punishing offenders than it has of preventing them from repeating the crime. With recidivism rates as high as 75%, there is definitely room for improvement.

To a large extent, the criminal justice approach to impaired driving has relied heavily on deterrence theory (Ross, 1982; Vingilis, 1990). Classical deterrence theory is based on the assumption that when threatened with swift, certain and severe punishment, most people will avoid engaging in the censured behaviour. Although it is a seemingly logical approach, there is little evidence that it has had anything but a short-term impact on the overall magnitude of the problem (Ross, 1982). The reasons for the limited effectiveness of the approach appear to be related to the swiftness and certainty with which sanctions are applied.

Because of the volume of criminal cases before the court and the need to apply the principles of fundamental justice, the criminal justice system has great difficulty applying sanctions swiftly. There is often a considerable period – up to a year or more – between arrest and conviction. The effect of this delay is to reduce the celerity of sanctions, thereby reducing their deterrent value. A recent study found that a longer period of time between arrest and conviction is associated with increased recidivism among multiple offenders (Mann et al., 1991).

Recent developments appear to be reducing the certainty of convictions. Developments in case law combined with a tendency to plea bargain in some cases have had a tremendous impact on the conviction rate in some jurisdictions. In addition, because of the time required for a police officer to process an impaired driver (often in excess of two hours) and the uncertainty about the chances of conviction, there is a tendency for police to issue a short-term (i.e., 6-hour to 24-hour) licence suspension in many less severe cases – i.e., those with low BACs and no crash involvement (Moyer, 1992).

Even if there is a conviction, there is no certainty that sanctions will be imposed or implemented. Ross and Foley (1987) examined the enforcement of mandatory jail terms for DWI repeat offenders in New Mexico and Indiana. They found that only 45% of the sentences in New Mexico and 70% of the sentences in Indiana complied with the mandate. In a study of mandatory incarceration for impaired drivers in a county in Ohio, Ross and Voas (1989) found that judges were often unwilling to impose the sanctions; when sanctions were imposed, there was often no space available in the local jail. In either case, offenders successfully avoided incarceration.

While there are many concerns about the swiftness and certainty of the criminal justice system, there are fewer concerns about the level of punishment. The minimum mandatory sanctions for a DWI conviction in Canada are generally considered sufficiently severe and appropriate for the offence (Simpson et al., 1982), although community and victim groups continue to call for more severe sanctions. Interestingly, the research evidence suggests that increasing the severity of punishment may actually have an adverse effect on traffic safety (Homel, 1988; Mann et al., 1991): The harsher the penalty, the more likely the offender is to repeat the behaviour. In a review of the literature on punishments for drinking drivers, Ross (1993a) concludes that increasing the certainty and swiftness of punishment may be more effective than severe punishment in deterring drinking-driving behaviour.

There is no reason to believe that the deterrence approach is equally effective for all individuals. In fact, deterrence-based approaches have been shown to be less effective when the behaviour is of an impulsive or compulsive nature than when the behaviour is more instrumental in nature (Vingilis, 1990). This finding suggests that the general deterrent approach is most likely to have an impact on the typical social drinker who may on occasion drive after drinking; deterrence measures may not be particularly effective for DWI repeat offenders, whose drinking-driving behaviour is chronic, compulsive and done without care or forethought about its adverse consequences. Nonetheless, more specific deterrent measures may hold promise for this high-risk group.

4.3.2 Criminology

Because the dominant approach to the impaired driving problem has been through the criminal justice system, it is reasonable to look to the field of criminology for insights into drinking-driving behaviour. Two prominent concepts are examined below: social control theory and interactionist theory.

- **Social control theory.** Social control theory expands on classical deterrence theory in that it treats legal sanctions as just one element of social control. Informal factors such as the individual's support network and the development of a criminal identity can also work to either reinforce or discourage deviant behaviour. Other informal mechanisms of social control are the level of ease in committing the crime and the number of opportunities available to do so. These mechanisms are particularly relevant to DWI offenders given the availability of alcohol and motorized vehicles in our society and the frequency of use of both (Vingilis, 1990).

Rather than looking at why people choose to commit criminal acts, the social control perspective focuses on the reasons why people choose to adhere to the social order (Linden, 1992). According to social control theory, the weaker an individual's ties to conventional society, the more likely the person will be to commit deviant acts. If such a person lacks a strong belief in the legitimacy of the law, then he or she has little to lose as a consequence of violations of it. Deterrence is therefore seen as part of a broad social framework made up of forces that work together to induce conformity. This perspective views impaired driving as a behaviour engaged in by individuals who have poor ties to conventional society.

Social control theory highlights several aspects of drinking-driving behaviour that contribute to its persistence among certain groups: the ease with which the crime can be committed, poor ties to conventional society and the apparently high level of support for the behaviour.

Countermeasures based on this theory would involve repairing broken ties to conventional society or creating ties that did not previously exist, reducing the opportunities for the crime, reducing the ease with which the crime can be committed and reducing social support for the behaviour. For example, school-based primary prevention programs would be appropriate from this perspective. The intent would be to influence the attitudes and values of young people, strengthening their commitment to traditional social institutions (e.g., family, school and church) and thereby increasing their belief in the legitimacy of drinking-driving laws. Countermeasures aimed toward reducing the opportunity for, and ease of commission of, drinking and driving behaviours (e.g., reduced availability of alcohol or less reliance on personal vehicles for transportation) would also be appropriate from this perspective.

Reducing the support given to the offender by family and peers for engaging in the behaviour provides yet another opportunity for intervention. While general societal attitudes toward driving after drinking have become increasingly more negative, support for the behaviour remains among some groups. Effecting change among these groups remains a challenge for the future.

- **Interactionist theory.** The interactionist approach suggests that individuals pass through various stages in their deviant careers. During the initial stage of primary deviance, the deviant activity has little effect on the individual's lifestyle. Preconditions for this stage of deviance include a willingness to try the deviant activity and a weak commitment to both conventional and deviant norms. The individual is essentially able to drift between the world of deviance and the conventional world with little effect on the daily routine.

Secondary deviance occurs when the individual perceives his or her life to have been substantially affected by the deviant behaviour. At this point, the person's interactions with agents of social control play a pivotal role, as these interactions will either push the person toward or away from further deviant activity.

Further deviant behaviour can lead to the development of a criminal identity. Individuals are placed in the category of "criminal" by others in the community and eventually they see themselves in this role. The development of a criminal identity can contribute to further criminal activity, especially if the person is pushed toward others who have a criminal identity and away from those who are not identified as criminals. The application of criminal sanctions may solidify the criminal identity and stigmatize the individual. People labelled "deviant" identify more and more with others so labelled and, over time, become committed to a deviant lifestyle.

The majority of drinking drivers fall into the category of primary deviants. They may occasionally drive after drinking, but this behaviour does not affect their everyday lives. They are unlikely to see their behaviour as criminal. For a smaller proportion of drinking drivers, coming into contact with agents of social control – e.g., police – will have the potential either to discourage that behaviour in the future or to push them toward the continuation of the behaviour.

DWI repeat offenders are at risk of progressing to the stage of secondary deviance. Severe sanctions, in particular incarceration, imposed on this group may help develop the "criminal" identity and label the person as deviant. Perhaps believing that there is little opportunity or hope for change in their lives, these people may become firmly entrenched in their established patterns of behaviour.

Because the drinking-driving behavior is often committed by individuals who do not already have a criminal identity, it would, according to the interactionist perspective, be beneficial to avoid pushing DWI offenders away from their conventional lifestyles. The interactionist theory supports the contention that intermediate sanctions – such as house arrest using electronic home monitoring devices – should be used as an alternative to imprisonment when possible. Such sanctions avoid stigmatizing the offender in the community.

4.3.3 Addictions

While the criminal justice perspective views impaired driving as criminal behaviour, the addictions perspective see it as one possible manifestation of a substance abuse disorder. People dependent on alcohol may engage in impaired driving repeatedly as a consequence of the underlying disorder. As long as the person continues to consume alcohol in an excessive or compulsive manner, she or he will undoubtedly continue to engage in impaired driving. The concern of addictions professionals is to establish whether there is an alcohol or drug dependency and, if there is, to engage the person in a

program of rehabilitation. From the addictions perspective, the key to preventing subsequent impaired driving is to resolve the underlying substance abuse disorder.

A variety of medical, behavioural and social learning models have been proposed to account for addictive behaviours, but a discussion of these many theoretical and clinical approaches is beyond the scope of this report. For present purposes, it is sufficient to recognize that the models differ considerably in their views of the origins and etiologies of dependence. The models also differ in terms of recommended treatment strategies. An issue central to all, however, is dependence on and excessive use of alcohol.

From an addictions perspective, treating DWI repeat offenders as criminals is not the most effective means of dealing with the problem. Rather, by failing to address the underlying disorder, it could very well prove counterproductive. A more effective approach is to deal with the underlying dependence or abuse that is giving rise to repeated impaired driving behaviour. Eliminating the individual's alcohol problem resolves the impaired driving problem.

The Criminal Code of Canada acknowledges that a dependence on alcohol may be at the root of the problem in some people. Accordingly, an individual accused of impaired driving can be granted a discharge under section 255(5) to seek curative treatment for alcoholism.[10]ºó46ºóto what extent this section is used or the nature of the criteria that must be met to have this section invoked.

Section 3 of this report noted that there is a strikingly high incidence of alcohol problems among DWI repeat offenders. "Alcohol problem" is a euphemism for a wide range of alcohol consumption patterns and their consequences that vary from excessive use on isolated occasions to physical dependence. The Diagnostic and Statistical Manual of Mental Disorders – DSM IV – (American Psychiatric Association, 1994) defines and sets criteria for substance-related disorders. The manual distinguishes between substance dependence and substance abuse. Dependence is a "cluster of cognitive, behavioural and physiological symptoms indicating that the individual continues use of the substance despite significant substance-related problems" (p. 176). The pattern of repeated use usually results in tolerance, withdrawal and compulsive substance-taking behaviour.

Substance abuse is also "a maladaptive pattern of substance use manifested by recurrent and significant adverse consequences related to the repeated use of substances" (p. 182). Substance abuse differs from dependence in that abuse does not involve tolerance, withdrawal or compulsive use and focuses only on the harmful consequences of repeated use. The consequences may include a failure to fulfil major role obligations, use in high-risk situations (e.g., driving), recurrent substance-related legal problems and continued substance use despite persistent or recurrent interpersonal problems caused or exacerbated by alcohol.

The incidence of alcohol problems among DWI offenders is reportedly high, but it would be incorrect to state that all DWI offenders are alcohol dependent. A recent study of 1,581 DWI offenders in New York state found that among first-time offenders, 28% qualified for a DSM-III diagnosis of dependence; 39% were diagnosed as substance abusers. Among repeat offenders, 45% were dependent and 35% met the criteria for alcohol abuse (Nochajski et al., 1994).

10 This section has not been proclaimed in Quebec, Ontario, British Columbia or Newfoundland.

Obviously, it would be inappropriate to assume that all DWI offenders require treatment for a substance-related disorder. Determining which offenders require treatment would require the screening and assessment of all people arrested for, or convicted of, an impaired driving offence. If treatment is warranted, then the clinical approach should be matched to the characteristics and circumstances of the individual as well as the extent to which alcohol is causing problems in the person's life (e.g., Donovan et al., 1994; Wells-Parker et al., 1990). A variety of approaches is needed to deal with the heterogeneity of the population and the diversity of the problem. The successful matching of the client with the treatment approach would enhance intervention efficacy.

4.3.4 Traffic safety

Within the field of traffic safety, the primary concern is the safe and efficient movement of people and goods. Significant effort goes toward identifying factors and conditions that interfere with safety or that contribute to crashes and identifying drivers who present a high risk to themselves or other road users. Factors and conditions that affect safety are dealt with through promotion, regulation, enforcement and engineering. Problem drivers are dealt with through sanctions, demerit points, licence suspensions and driver improvement programs.

Only within the last 20 years have traffic safety officials begun to recognize the extent and seriousness of the problems caused by drinking drivers. In addition to increased primary prevention and enforcement efforts, the traffic safety community has been considerably more rigorous in their approach to keeping convicted DWI offenders from driving. A variety of driver-based and vehicle-based sanctions intended to limit or prevent driving have been attempted, including licence suspension, restricted licences, vehicle impoundment, autotimers and alcohol ignition interlocks.

The traffic safety perspective relies heavily on the driver and vehicle licensing systems to deal with problem drivers, including DWI repeat offenders. Each province and territory has the authority to implement policies and procedures to enhance the safety of the roadways. To reduce the incidence of impaired driving, many provinces have implemented a variety of measures, including periodic spot check enforcement programs, short-term (i.e., 6-hour to 24-hour) licence suspensions for low BAC drivers, minimum periods of licence suspension upon conviction, and educational or rehabilitative programs for offenders. The types of programs and policies vary considerably among jurisdictions.

Driver licensing systems can require offenders to complete mandatory programs and can enforce compliance by withholding reinstatement until such requirements have been met. In recent years, the traffic safety community has begun to recognize that the DWI repeat offender presents a special problem that cannot be dealt with entirely through the driver licensing and control system. This community has therefore sought the cooperation and assistance of the health care system, social services and the justice system to deal effectively with these individuals.

The traffic safety community has also experienced renewed interest in injury control. From this perspective, significant reductions in crash-related injuries and deaths could be achieved through measures that limit the adverse consequences of crashes. Such measures include seatbelts, air bags and improvements in the crash-worthiness of vehicles. This approach recognizes the difficulty of changing human behaviour and therefore stresses the importance of engineering measures that reduce the severity of the consequences of crashes.

4.3.5 Mental health

Many years ago, several articles appeared in the literature suggesting that traffic crash involvement and risky driving behaviours were manifestations of an underlying psychiatric disturbance (e.g., DeSilva, 1938; DeSilva et al., 1939; Selzer, 1961, 1969, 1980; Selzer et al., 1968). These behaviours were essentially believed to be symptoms of latent hostility and aggression. Depression and suicidal ideation were also suggested as underlying causes of such behaviour, particularly among people who drove while intoxicated. Alcohol addiction was seen as a symptom of another underlying psychological problem. As might be expected, the recommended treatment was intensive psychotherapy.

Contemporary interest in the mental health perspective on impaired driving centres on dual diagnosis disorders. Dual diagnosis disorders occur when a substance abuse disorder co-exists with another psychiatric disorder. Diagnosis can be difficult, because symptoms of a substance abuse disorder may be similar to those of other psychiatric disorders. Another complication of accurate diagnosis is determining whether the psychiatric disorder is an independent disorder or whether it is substance-induced.

The largest study to date on the prevalence of psychiatric disorders in individuals with alcohol dependency or abuse is the Epidemiologic Catchment Area (ECA) study carried out by the National Institute of Mental Health (Regier et al., 1984). The ECA study involved personal interviews with over 20,000 people from five U.S. cities. Samples were taken from the community, institutional settings, nursing homes, prisons and community treatment centres. Using lifetime prevalence rates, the study found that 37% of the respondents who were diagnosed as having an alcohol disorder had a co-existing mental disorder. A smaller study of hospitalized alcoholics found that 56% of the 241 alcoholic patients had at least one additional psychiatric syndrome (Penick et al., 1988). Using the data from the ECA study, Helzer and Pryzbeck (1988) reported that for all psychiatric diagnoses they examined, the prevalence was higher in alcoholics than in non-alcoholics.

It is important that treatment providers recognize that when a substance abuse disorder co-exists with a psychiatric disorder, there is a need to determine which disorder is primary and to establish a treatment approach that reflects the diagnosis. However, there are several areas where conflicts can arise when the addiction treatment approach is integrated with a mental health approach (Evans and Sullivan, 1990). For example, some psychiatric patients are required to take medication, which may be seen by Alcoholics Anonymous as a violation of that program. As another example, the approach of some mental health professionals is to encourage their patients to recognize their strengths, whereas 12-step programs for substance abusers emphasize the need to see oneself as powerless over alcohol. Also, the use of confrontation when dealing with substance abusers who are in denial may be harmful to some psychiatric patients (e.g., paranoid or schizophrenic patients), but can be effective for patients having antisocial personality disorders (Evans and Sullivan, 1990).

For the DWI repeat offender, the mental health approach would recommend that closer attention be paid to the possibility of dual diagnosis disorders. Comprehensive assessments of clients having either alcohol abuse problems or psychiatric disorders would assist in the recognition and subsequent treatment of co-existing psychiatric problems. There is a need for the medical profession to become more aware of alcohol abuse problems among psychiatric patients and of psychiatric disorders among patients with alcohol abuse issues (Helzer and Pryzbeck, 1988). Many DWI repeat offenders are

directed to treatment for an alcohol abuse disorder. Given the prevalence of psychiatric disorders among alcohol-dependent clients, treatment providers need to be cognizant of the possibility of a dual diagnosis disorder and develop a treatment strategy accordingly.

4.3.6 Public health

The public health perspective emphasizes the promotion and protection of health within a broad environmental framework. Its goals include not only the prevention of mortality and morbidity but also the reduction of adverse consequences of conditions that threaten health.

The public health perspective perceives the drinking-driving issue as the combination of two larger public health issues: alcohol problems and traffic crashes. In general, the public health approach supports the adoption of programs and policies that encourage healthy and safe lifestyle choices. For the drinking-driving issue, these can range from policies to control or restrict the consumption of alcohol in society to broad-based educational programs to encourage safe and sober driving practices. The public health perspective also encompasses measures to reduce the harm caused by impaired driving.

The focus of the public health approach is not on the moral aspects of drinking and driving but rather on the causes of the behaviour (Ross, 1992a). As a result, policies to reduce drinking and driving are less concerned with punishing drinking drivers and more concerned with reducing the incentives to engage in the antecedent behaviours – i.e., alcohol consumption and the operation of motor vehicles. Some of the measures advocated by the public health perspective are outlined below.

- **Alcohol availability**. Reducing overall alcohol consumption is part of a public health approach partly because alcohol consumption in itself is a public health issue and partly because it is assumed that reducing overall alcohol consumption will reduce the harm caused by drinking and driving. Most alcohol control measures are based on availability theory, which states that the greater the availability of alcohol in a population, the more alcohol will be consumed and the more alcohol-related problems will exist (Single, 1988; Mann and Anglin, 1990). Availability of alcohol can be influenced through changes in alcohol prices, alcohol taxes, drinking age laws, hours of sale, number of outlets, marketing of alcohol and state control of alcohol.

According to availability theory, increasing the price of alcohol should result in a decrease in consumption and alcohol-related problems. This hypothesis has been supported by research findings (Cook, 1982; Cook and Tauchen, 1982; Hoadley et al., 1984). Based on their research, Cook and Tauchen estimated that doubling the tax on alcoholic beverages would reduce the cirrhosis mortality rate by 20%. Similar reductions could be expected in the alcohol–fatal crash rate.

The relationships among the number and location of outlets, the hours of sale and alcohol consumption are complex. While some studies have shown that restricting availability through these measures reduces consumption, other studies have led to suggestions that restricted availability results in increased driving – e.g., border crossing – and may actually increase traffic crashes (Ross, 1992a).

Marketing and advertising policies can also be used to restrict the availability of alcohol. The research in this area has produced inconsistent and inconclusive findings. Some studies have found a strong relationship between advertising and increased consumption (Atkin et al., 1983), while others have

found no significant relationship (Smart, 1988). Privatization of the sale of alcohol has been found to lead to increased convenience, and hence increased consumption (Wagenaar and Holder, 1991; Hoadley et al, 1984).

- **Use of private motor vehicles.** Contemporary North American society relies heavily on the use of the private motor vehicle for personal transportation. Ross (1992a) has suggested that reducing our reliance on this form of transportation would undoubtedly reduce the overall crash rate and would also produce significant reductions in the alcohol–crash rate. Public health goals in this area could be met by advocating and promoting the use of public transportation. Public transportation, taxis and even designated driver programs are methods of ensuring that people who continue to consume alcohol to excess do not drive while intoxicated and arrive home safely.

- **Primary prevention programs.** One type of alcohol control program that is not based on availability theory is primary prevention. Although primary prevention programs have been used in schools to reduce or prevent alcohol consumption among youth, a recent review found that these programs have demonstrated minimal effectiveness (Gorman, 1995). The most popular of these programs involve resistance skills training, which aims to teach students the skills necessary to resist peer pressure and media influences. In cases where program evaluations reported positive effects, these effects were seen only among population subgroups. Gorman (1992) suggests that the complexity of the youth–alcohol problem requires that programs be targeted to address the specific characteristics of the population being addressed rather than using a universal approach.

Another approach to prevention involves having groups of young people tour a trauma unit at a hospital (Dearing et al., 1991). Such programs have been operating in Canada for several years under a variety of names (e.g., the PARTY program in Toronto, and IMPACT in London). Although the specific elements of these programs vary, all retain the key feature of having young people see first-hand the consequences of alcohol-related crashes in a hospital trauma unit.

- **Harm reduction measures.** The public health perspective also encompasses measures to reduce the harm caused by impaired driving. These measures include the control of injuries through the use of seatbelts, regulations requiring vehicle manufacturers to install air bags, the creation of "forgiving" highway environments, and improvements in the response time and availability of emergency medical services.

The rationale for this type of countermeasure is that no policy will eliminate impaired driving completely, but improving vehicle and road safety can reduce the risk to all drivers while also reducing the number of fatalities and injuries associated with alcohol-involved traffic crashes.

- **Implications for the DWI repeat offender.** Most of the measures proposed by the public health perspective would fall under the category of primary prevention. They are broad-based policies and programs that would affect everyone, not just impaired drivers and not necessarily repeat offenders. None of the measures is specifically aimed at DWI repeat offenders. Although it is likely that some of the measures proposed would have a beneficial impact on the problem of the DWI repeat offender, the extent of the impact is unknown.

There is some evidence that restrictions on alcohol availability affect the consumption levels not only of light and moderate drinkers, but of heavy drinkers as well. For example, Room (1984) reports that studies conducted before and after alcohol strikes show a reduction in alcohol-related problems associated with "poor habitual heavy drinkers". These studies used such measures of alcohol-related problems as the rate of violent crimes, public drunkenness, admission to detoxification centres and

cirrhosis deaths. In addition, Cook and Tauchen (1982) examined the effect of changes in state liquor taxes on cirrhosis mortality and concluded that "increases in the liquor tax have the effect of reducing ethanol consumption rates by chronic heavy drinkers" (p. 338).

What these studies do not indicate is whether changes in availability have any impact on the people who are most likely to become involved in an alcohol-related crash. Little research looks at the relationship between alcohol control policies and traffic crashes. In a review of the existing research, Hauge (1988) concluded that the results of the studies did not support the hypothesis that increased consumption of alcohol in a population leads to an increase in the number of serious traffic crashes. On the other hand, Mann and Anglin (1990) argue that methodologically stronger studies report a positive relationship between per capita consumption and the alcohol–crash problem. In any event, it is apparent that the nature of the relationship between overall alcohol consumption in the population and the alcohol–crash rate is neither direct nor straightforward. Nor is it known how much of a decrease in consumption is necessary to produce a reduction in alcohol-related crashes. Many factors can influence both alcohol consumption and crash involvement. Indeed, there are numerous qualitative and quantitative facets of drinking – such as style of drinking, frequency and amount – that might be more predictive of alcohol-related crashes than aggregate consumption figures (Simpson et al., 1985).

4.3.7 Problem behaviour theory

Problem behaviour theory provides a psychosocial perspective on behaviour that violates society's standards of acceptable conduct (Jessor and Jessor, 1977). This theory views such behaviour as functional, purposeful and instrumental in the attainment of goals. The theory provides an explanation of problem behaviours that rests on the psychological, social and behavioural dimensions of the individual as well as on relevant aspects of the larger social environment and attributes of the situation in which the behaviour occurs.

Using a number of psychosocial variables, individuals may be identified as being more or less prone to engaging in problem behaviours. Personality variables include personal values, beliefs and perceptions of self and others. People prone to problem behaviour place lower value on academic achievement, place higher value on independence, have lower self-esteem, express less religiosity and experience greater alienation (Jessor, 1987). Environmental variables include the level and type of influence of friends and family and the degree to which they accept or approve of problem behaviours. Environmental variables associated with proneness to problem behaviour include lower parental support and controls, lower friends' controls, greater influence by friends than parents, lower parental disapproval of problem behaviour and higher friend approval of problem behaviour (Jessor, 1987). Together, these person and environment variables interact to produce a level of proneness to engage in problem behaviours.

Although originally proposed as a model of adolescent problem behaviour (Jessor and Jessor, 1977), problem behaviour theory has recently been shown to explain the behaviour of older people, as well (Wilson and Jonah, 1988). The theory has also been extended to explain risky driving behaviour (Jessor, 1987; Wilson and Jonah, 1988; Beirness and Simpson, 1988; Swisher, 1988) and impaired driving (Beirness, 1996a; Donovan, 1993; Elliott, 1987; Klepp and Perry, 1990). Within the context of problem behaviour theory, impaired driving behaviour is one element in a more general syndrome of problem behaviour. Individuals who engage in impaired driving are also likely to engage in a variety of

other problem and high-risk behaviours such as drug use, criminal behaviour and drunkenness. Similarly, people who engage in other problem behaviours are also likely to engage in impaired driving.

In the context of the DWI repeat offender, the value of problem behaviour theory is twofold: it helps identify people who have a high likelihood of engaging in the behaviour (even before they do so), and it illustrates the close correspondence between impaired driving and other problem behaviours. First, the theory's assessment techniques can be used to identify potential DWI offenders either at the time of licensing or when people first come into contact with driver licensing authorities as a result of driving infractions. Early intervention measures can then be taken to prevent impaired driving. Second, because impaired driving often appears as part of a syndrome of problem behaviours that may include drug use, criminal activity, risky driving behaviour or other health-compromising behaviours, interventions to prevent impaired driving might be more appropriately directed toward general lifestyle patterns. In the absence of significant change in overall patterns of behaviour, impaired driving is likely to continue.

From the perspective of problem behaviour theory, educational programs or legal sanctions alone will not meet the needs of individuals prone to engaging in problem behaviour. Impaired driving may serve functions that cannot be easily displaced by knowledge or sanctions. For people prone to problem behaviour, impaired or risky driving may be a way of expressing independence, impressing friends or creating an exciting experience.

Another implication of problem behaviour theory is that countermeasures need to be matched to the needs of the offenders. It has been suggested that the subgroup of high-risk drivers whose characteristics are consistent with problem behaviour theory requires a comprehensive approach in which issues such as impulsive behavioural styles, depression, emotional distress, coping strategies and drinking behaviour are addressed (Donovan et al., 1988). From this perspective, dealing with impaired driving involves first identifying and then correcting the factors and conditions that give rise to and maintain the behaviour.

4.4 Summary

The practice of drinking and driving is a complex behaviour that has at its roots two common and socially accepted activities – alcohol consumption and the operation of motor vehicles. The active and dangerous stage of impaired driving occurs when these two behaviours are combined close in time. The final stage of impaired driving occurs after offenders come to the attention of the courts, the driver licensing system or the health system as a consequence of their behaviour.

At each stage of impaired driving there are numerous prevention and intervention opportunities to reduce the likelihood of the behaviour. For the DWI repeat offender, who has engaged in this behaviour numerous times, these opportunities represent a chance to prevent the behaviour from recurring.

Because of its complexity, impaired driving crosses many areas of interest and fields of study – e.g., health psychology, social work, criminology, public health and traffic safety. Each area has a somewhat different perspective on the problem of impaired driving and DWI repeat offenders. A review of these perspectives reveals insights into various aspects of the problem and a wide range of potential measures for dealing with it effectively. Some perspectives focus on primary prevention measures; others concentrate on dealing with the problems that give rise to the behaviour after the individual has come to the attention of the courts or motor vehicle department.

Subsequent sections of the report outline a variety of countermeasure program and policy options for dealing with the DWI repeat offender. These options are grouped according to the stage of impaired driving at which they would be expected to have the greatest impact on repeat offenders. Accordingly, the section on prevention measures corresponds to stage one of the impaired driving model illustrated in figure 4-1, identification and apprehension measures correspond to stage two, and measures for dealing with offenders correspond to stage three.

5. Intervention at Stage One: Prevention

Prevention refers to measures that reduce the likelihood that an individual will drive after drinking. Such measures have been a key feature of countermeasure activities in the past. They include informing the public about the dangers of driving after drinking, raising awareness, providing information about the laws regarding drinking and driving and suggesting strategies to avoid driving after drinking. However, prevention goes beyond mass media advertisements to include alcohol control policies, server intervention programs and transportation alternatives.

For the most part, prevention initiatives have largely been directed toward the average social drinker who might, on occasion, drive after consuming too much alcohol. But prevention need not be restricted to this group. Such measures can also be directed toward the chronic offender. This section examines how some of these approaches might be used with the DWI repeat offender.

5.1 Targeted Advertising and Awareness

Mass media educational and awareness campaigns have been the primary means of informing the public about the dangers of driving after drinking. Such measures were a major component in the overall response to the alcohol–crash problem and have been, in part, responsible for the tremendous improvements in drinking-driving attitudes and behaviour (Boughton and South, 1985; Elliott, 1993; Farmer, 1975). Other evaluation studies have shown that public awareness campaigns, when used in combination with intensive enforcement activities, have an overall positive effect on the prevalence of drinking-driving behaviour (Mercer, 1990; Parker, 1996; Williams et al., 1995). However, it has been suggested that DWI repeat offenders have generally not been affected by these campaigns – at least not to the same extent as the rest of the population (Jacobs 1989).

DWI repeat offenders may not be greatly influenced by media campaigns, because drinking-driving messages have not been specifically targeted to address them. Historically, most public information and education campaigns have been directed toward the general population to raise awareness of the problem, to change the social acceptability of driving after consuming alcohol and to reduce the prevalence of the behaviour. This situation still exists today. For example, in a survey and review of anti-drinking-driving communications currently in use in Canada, the United States, Australia and Europe, it was found that 77% of all campaigns were aimed at the general public, with 59% directed toward youth (Millward Brown, 1994).[11] Numerous campaigns indicated that men were the primary audience. Only three listed repeat offenders as a target. Therefore, it is not surprising that DWI repeat offenders may not be especially receptive to media campaigns intended for a more general audience. Although there may exist opportunities to influence DWI repeat offenders, they have yet to be fully exploited.

11 Some campaigns with several components had more than one target audience; hence, the percentages exceed 100%.

In this context, two projects are worthy of note: one in Ontario, the other at the Harvard Injury Control Center in Boston. The Ontario project, sponsored by the drinking-driving Countermeasures Office of the Ministry of the Attorney General, involved an extensive review of the literature on anti-drinking-driving communications, a survey of current campaigns around the world and focus groups with convicted DWI repeat offenders (Millward Brown, 1994). This background research was used in the development of a high-impact television advertisement aimed specifically at the repeat offender. The ad was broadcast throughout Ontario during 1995.

The Ontario project's background research on anti-drinking-driving communications revealed that people responsible for such media campaigns make the same mistakes repeatedly. For example, anti-drinking-driving messages often appear to be formulated and produced in an unsystematic fashion based on the hunches of program planners and creative copywriters. This approach fails to appreciate the fact that not all people (particularly the DWI repeat offender) view drinking and driving in the same way. It is imperative that program designers become familiar with the target group's perspective and vocabulary and incorporate these aspects into their ads. In summary, campaign designers need to do their homework. They need to learn from past mistakes and begin to use the same principles and techniques in developing anti-drinking-driving ads as are used in the marketing of any other consumer product – market segmentation analysis, consumer opinion surveys, focus groups and message pre-testing.

Anti-drinking-driving communications for the DWI repeat offender are also being pursued in a project at the Harvard Injury Control Center (Isaac, 1995). One of the initial stages of this project was to identify the target group of high-risk drinking drivers. By matching information on fatally injured drivers with that from a marketing database, the researchers identified two major high-risk groups – a blue-collar group and a white-collar group. The information on these groups includes such things as the type of music they listen to, their recreational pursuits, the television programs they watch and what they like to read. This information, combined with data from studies on convicted DWI offenders, will be used to develop targeted communications that are more likely to have an impact on this high-risk group.

One of the themes being pursued in the Harvard project is the potential to engage others to intervene with the drinking driver. The most common intervenors are the drivers' friends and female companions. These people are often present and are most likely to be in a position to intervene.

The key to this strategy is to encourage effective intervention without increasing the risk of abusive verbal or physical retaliation. Ads with the tag line, "Next time your friend insists on driving drunk, do whatever it takes to stop him", have been developed and are being evaluated.

In conclusion, mass media communications have the potential to have an impact on DWI repeat offenders, but these messages must be specifically designed to reach this high-risk group.

5.2 Server Intervention Programs

An alternative to public education and awareness is to focus prevention measures on the environment in which the consumption of alcohol can lead to impaired driving. In this context, licensed drinking establishments predominate. In an analysis of roadside survey data in Ontario, Single and McKenzie (1992) found that close to half of all drivers with BACs in excess of 80 mg% were either coming from or had done most of their drinking at a licensed establishment. In a similar analysis of roadside survey data from Saskatchewan and Nova Scotia collected in 1993, Mayhew et al. (1996) determined that approximately 30% of drivers on the road with BACs in excess of 150 mg% had recently left a licensed establishment (Mayhew et al., 1996). In light of these figures, prevention measures aimed at licensed establishments could have a substantial impact on the number of impaired drivers on the road.

One way to deal with this problem at the source is to improve the responsibility with which alcohol is served in restaurants, bars, taverns and pubs by increasing the knowledge and skills of the people who serve alcohol in these establishments. This approach, known as server intervention, refers to any action taken by an employee of a licensed drinking establishment either to limit the amount of alcohol served to an individual (and thus to prevent intoxication) or to prevent an intoxicated individual from operating a motor vehicle. The primary objective of such programs is to reduce the likelihood that alcohol consumers will cause harm to themselves or others (Mosher, 1983).

The key to server intervention programs is training the staff and management of licensed establishments in the art of intervention. Training programs such as TIPS (Training for Intervention Procedures by Servers of Alcohol) in the United States, Smart Serve in Ontario and It's Good Business in Saskatchewan have been developed for this purpose. These programs provide information about the dangers of over-service, teach servers how to recognize the subtle signs of intoxication and offer strategies for slowing down consumption and handling intoxicated patrons.

Evaluations of server intervention programs have shown positive results as determined by increases in what servers know, think and do about the service of alcohol (Glicksman et al., 1993; Howard-Pitney et al., 1991; Russ and Geller, 1986). Trained servers have been found to intervene with intoxicated patrons more often than untrained servers (Geller et al., 1987; McKnight, 1991). Research has also shown lower BACs in patrons served by trained servers than in patrons served by untrained servers (Geller et al., 1987; McKnight, 1991). More importantly, Holder and Wagenaar (1994) found significant reductions in single-vehicle nighttime crashes (a surrogate measure of alcohol-involved crashes) after the introduction of state-wide mandatory training for servers of alcohol in Oregon.

Despite the positive findings of these studies, room remains for improvement. On average, only 20% of staged visits by a visibly intoxicated patron to licensed premises participating in a server intervention program resulted in intervention (McKnight, 1991); only 7% resulted in a refusal of service. Servers can be reluctant to intervene because they wish to avoid a confrontation with a patron, a loss of gratuity or a possible reprimand from management.

A limitation of server training programs is the extremely poor ability of people to estimate accurately the extent of alcohol impairment with reference to legal BAC limits (Langenbucher and Nathan, 1983; Pagano and Taylor, 1980). As a result, servers typically intervene only in the most extreme cases where gross signs of intoxication are evident, while ignoring less obvious cases of people who have consumed sufficient alcohol to impair their driving ability or to achieve a BAC in excess of the statutory limit.

To overcome this limitation, server training programs could include instruction in the use of portable breath-testing devices. This training would allow servers to offer patrons the option of having their BAC checked before leaving. BAC testing would be conducted under the supervision of a trained individual capable of interpreting the reading, answering questions and providing guidelines.

There have been attempts to expand the focus of the server intervention concept to include social gatherings at private homes. Home hosting programs have been promoted by community groups as a means of making private hosts aware of their responsibility to ensure that intoxicated guests do not get behind the wheel when they leave.

In conclusion, server intervention has the potential to be an effective program in preventing DWI repeat offenders from driving while intoxicated. It is likely that the target group comprises a substantial proportion of patrons for whom intervention on the part of the server is warranted. It may be appropriate to review the server intervention training curriculum and, if necessary, include specific information about the characteristics of this high-risk target group and dealing with them effectively.

5.3 Designated Driver and Alternative Transportation Programs

A designated driver program is intended to ensure that one member of a group agrees not to drink and accepts responsibility for driving everyone home safely at the end of the evening. Designated driver programs can operate informally within a group of friends or more formally with the cooperation and assistance of licensed drinking establishments. In the latter programs, the licensed establishment may actively promote and support the concept by providing buttons or pins to identify the designated driver as well as free non-alcoholic drinks. These strategies enhance the social acceptability of being the designated driver and provide an incentive (i.e., free non-alcoholic drinks).

Designated driver programs provide and facilitate a positive behavioural option for drivers, leaving others free to enjoy themselves without the worry or risk of riding with a drinking driver. Such programs are particularly appropriate and beneficial in rural areas, where there is often a lack of alternative transportation.

The designated driver concept has received widespread media attention and has strong appeal. The Harvard Alcohol Project, initiated by the Harvard School of Public Health in 1987, worked with major television networks to produce and broadcast public service announcements promoting the designated driver concept and to incorporate the concept into the storylines of prime time programs (Winsten, 1992).

The focus on designated drivers is not without its critics. Dejong and Wallack (1992) raise valid concerns about the media attention that has been given to the concept. From a public health perspective, having a designated driver might encourage passengers to drink excessively. It is also suggested that the emphasis on designated drivers has deflected attention away from the public health issues of under-age drinking and the alcohol abuse which account for the majority of deaths and injuries associated with alcohol use.

Nevertheless, Winsten (1992) defends the designated driver concept, saying that many young people (and older people, too) did not exercise restraint before the program and that the excessive consumption argument can be raised about any driver-based countermeasure. Although there is a need to reduce abusive alcohol consumption, the most immediate concern is to ensure that these people arrive home safely. Designated driver programs are a potentially effective means of accomplishing this objective.

The success of designated driver programs depends on two key elements: getting people to use them, and ensuring that the driver abstains from alcohol consumption. In this context, a recent study of drinking drivers and their passengers indicates that 61% of impaired drivers (i.e., a BAC 80mg%) were alone in the vehicle (Foss and Beirness, 1996). This finding suggests that the drinking drivers had no opportunity to use a designated driver. Among those impaired drivers who had an adult passenger, 53% of passengers also had a BAC in excess of 80mg%. In other cases, the passengers had a BAC below that of the driver. Not surprisingly, drinkers do not necessarily make good decisions about who is the most appropriate driver. Other research has shown that the designated driver role is a difficult and unpopular one (Glascoff and Knight, 1994; Stewart, 1995), but that prompts and incentives significantly improve use (Apsler et al., 1987; Brigham et al., 1995).

A variation of the designated driver concept is the use of alternative means of transportation. In cases where no one is willing to serve as the designated driver, a group may decide to use another means of transportation – e.g., bus, taxi or subway. The success of this approach depends on the group reaching a consensus and deciding on the mode of transportation *before* starting to drink.

Safe-ride-home services have also sprung up in various locations to provide transportation home for drinkers and their vehicles. Operation Nez Rouge (Red Nose), which has been operating successfully in Quebec for several years, is an example of such a service (De Koninck, 1990). Volunteers work in pairs; one gives the drinker a ride home, while the other follows in the drinker's vehicle. Operation Nez Rouge (Red Nose) is available only during the year-end holiday season.

Designated driver and alternative transportation programs have the potential to be implemented effectively with DWI repeat offenders. The key to this approach is selling the concept to the target group. By using strategic marketing techniques, it may well be possible to encourage the use of such programs among this high-risk group.

5.4 Alcohol Control Policies

The public health perspective on the alcohol–crash problem advocates the use of policies to control and restrict the availability of alcohol (Ross, 1992a). Evaluation studies have demonstrated that alcohol control policies can indeed have a significant impact. For example, the establishment of a 21-year drinking age in the United States was associated with a demonstrable decrease of 8% to 18% in alcohol-involved traffic deaths among people in the affected age groups (General Accounting Office, 1987).

The minimum drinking age law is a unique case insofar as it is an alcohol control policy that was introduced primarily as a highway safety measure. Other alcohol policies are developed within a more general public health context with traffic safety being only one consideration. Ross (1992a) argues that alcohol policies that reduce consumption by all consumers will have an important impact on the impaired driving problem. A thorough review of the vast literature in this area is beyond the scope of this report.

Nonetheless, it is apparent that most of the proposed policies – e.g., higher minimum drinking age, price increases and reduced hours of sale – would not necessarily have a specific impact on DWI repeat offenders. Such policies would affect all drinkers, not just those who could be considered DWI repeat offenders. While there may be innovative and creative ways to use alcohol control policies to specifically target the alcohol consumption of this high-risk group, such measures have yet to be identified.

5.5 Summary

Although prevention measures appear to have played a large role in the success of countermeasure efforts during the 1980s, there is little indication that such measures have had any substantial impact on the DWI repeat offender. Nonetheless, these approaches should not be abandoned. By targeting messages and modifying existing prevention measures to reflect the characteristics and concerns pertaining to DWI repeat offenders, it may be possible to have an impact on this high-risk group.

6. Intervention at Stage Two: Identification and Apprehension

Stage two intervention measures consist of activities aimed at drinking-driving behaviour while it is occurring and before it results in harm. For the most part, interventions at this stage involve the identification and apprehension of offenders by police. This section examines countermeasure alternatives to enhance the identification and apprehension of DWI repeat offenders.

The two principal methods by which drinking drivers are detected and removed from the roadways are routine police surveillance and specialized, high-visibility spot checks (e.g., R.I.D.E. and CounterAttack). Of concern is the extent to which such systems can be improved to enhance the detection of the DWI repeat offender. Four approaches are discussed in this section: police spot checks, saturation patrols, Operation Lookout and enhanced detection methods.

6.1 Police Spot Checks

High-visibility spot checks have become a regular occurrence on the roads in Canada, particularly during the year-end holiday season. The purposes of these spot checks are to increase the perceived probability of arrest and to remove drinking drivers from the road. The effectiveness of random police spot checks in reducing drinking-driving behaviour and alcohol-related crashes has been demonstrated in several studies (Levy et al., 1989; Mercer, 1985; Mercer et al., 1996; Parker, 1996; Ross, 1992; Stuster and Blowers, 1995; Williams et al., 1995). The most effective programs appear to involve intensive enforcement combined with an extensive media campaign.

Nonetheless, the efficiency of police spot checks is questionable. Such programs require a tremendous commitment of personnel and resources. Typically, such spot checks report stopping several thousand vehicles to check drivers for alcohol use but result in the arrest of only a handful of drivers. In the context of DWI repeat offenders, spot checks are even less efficient. Roadside surveys indicate that less than 1% of drivers on the road at night have BACs in excess of 150 mg%. Thus, if 100 drivers were stopped, only one would be expected to have a BAC over 150 mg%.

Dunbar (1990) has suggested that one way to enhance the efficiency of detecting the problem drinker is to conduct spot checks during the morning hours. This approach was used in the Tayside Safe Driving Project in Great Britain. Although few in number, the highest proportion of problem drinkers was found between 6 a.m. and noon. People in this group generally had low BACs, but subsequent assessment – including tests of liver function – determined problem drinker status.

Other support for early morning spot checks comes from an examination of the results of random breath-testing conducted in Finland since 1977 (Dunbar, Penttila and Pikkarainen, 1987). One of the findings was that the highest incidence of drinking drivers occurred between 7 a.m. and 10 a.m., particularly on Saturday mornings, when the rate was twice as high as that of late Friday or Saturday night.

Drinking drivers detected during morning hours have either been consuming alcohol early in the morning or are still eliminating the alcohol consumed the previous night. Both situations can be taken as presumptive evidence of an alcohol problem that warrants further assessment.

Unfortunately, early morning spot checks suffer from the same inefficiencies as spot checks conducted during nighttime hours. Many drivers are stopped, but few are arrested. Although drinking drivers who are identified in early morning spot checks (even those with low BACs) may have a high probability of being problem drinkers, there is no evidence to suggest that these drivers are necessarily part of the high-risk target group of people who drive repeatedly after consuming large amounts of alcohol. It may well be that the only time they drive with a positive BAC is in the morning after a heavy drinking episode when they believe themselves to be sober.

In general, the effectiveness of police spot checks is questionable as a means of detecting high-BAC drivers. In addition, *its deterrent effect on these individuals may be minimal.* A recent evaluation of a well-publicized program of enforcement in Binghamton, New York, supports this contention. Although the program did produce a decline in the number of drinking drivers detected at sobriety checkpoints, it did not produce a consistent decline in the frequency of drinking drivers with high BACs. The researchers suggest that this finding reflects how difficult it is to influence the behaviour of heavy drinkers (Wells et al., 1992).

The difficulty of detecting impaired drivers may reduce the deterrent value of spot checks for DWI repeat offenders. Roadside surveys conducted downstream from police spot checks have found that about half of all legally intoxicated drivers escape detection by the police (Jones and Lund, 1986; Ferguson et al., 1995). These people have either developed tolerance to the obvious signs and symptoms of intoxication or have otherwise learned to avoid raising the suspicions of the police.

Routine enforcement may well be more efficient than random spot checks as a means of detecting DWI repeat offenders. Donelson et al. (1985) have shown that about three-quarters of DWI offenders in Canada are apprehended as a result of routine police patrols. In fact, this same study found that the mean BAC of drivers apprehended by routine patrols (178 mg%) was significantly higher than that of drivers arrested in spot checks (153 mg%).

The efficiency of routine patrols over spot checks is most likely the result of patrol officers having the opportunity to observe driving behaviour and stopping only those drivers who exhibit evidence of impaired or unsafe driving behaviours. Little time is wasted dealing with a large number of drivers who have not been drinking.

6.2 Saturation Patrols

One way to enhance the efficiency with which offenders are detected is to conduct “saturation patrols”. Unlike spot checks, where a number of police officers remain static in one location for a period of time, saturation patrols have the same number of officers patrol a limited area – typically one with a high incidence of drinking drivers or alcohol-related crashes – with the specific intent of finding impaired drivers. Officers are able to identify potential impaired drivers by observing driving

performance; they stop only those drivers who are likely to have been drinking. Saturating a specific area with police officers also makes it difficult for impaired drivers to avoid the police.

State-wide saturation patrols have been used in New York to deter drinking and driving. These blanket patrols have been called Project ZERO (Zone Enforcement Reduction Operation). Blanket enforcement occurs between 9 p.m. and 5 a.m. on a Saturday. A formal evaluation of this program has not been conducted.

In Superior, Wisconsin, a program called PACE (Preventing Accidents through Concentrated Enforcement) was implemented from May through October of 1980. Three overtime PACE patrols were assigned to screen traffic offenders for intoxicated drivers within a 15-square-block area. These patrols were in addition to the three regular traffic patrols. Evaluation of the PACE program (Sykes, 1984) found a statistically significant decrease in accident rates during the period of the saturated enforcement campaign.

In summary, as a means of apprehending the DWI repeat offender, saturation patrols combine the desirable features of routine patrols and spot check programs. They are an efficient use of resources and appear to be effective.

6.3 Operation Lookout

Operation Lookout is a community involvement program. It encourages citizens to report impaired drivers to the police and provides them with an easy method for doing so. The objectives of the program are to make drinking drivers aware that not only the police but all members of the public are watching for them, and to assist police in identifying impaired drivers on the road. Strategically placed posters ask the public to call police immediately when they observe an impaired driver. By providing details about the location, driver, vehicle, licence plate and direction of travel, citizens make it possible for the police to follow up to apprehend the suspect. If an arrest is not made, the police can follow up with the registered owner of the vehicle by paying him or her a visit or sending a letter outlining the details of the reported incident.

Operation Lookout is a relatively new program; it is currently active in several communities. Against Drunk Driving (ADD), a community group in Brampton, Ontario, has been awarded the trademark for the words “Operation Lookout” to ensure that the program is freely available to police services and community groups and delivered uniformly by legitimate and credible agencies.

The types of driving behaviours observed by the general public that might be deemed to be the result of driver impairment would most likely be weaving or erratic driving. Such driving behaviours are commonly associated with gross impairment. Drivers who exhibit these behaviours probably have extremely high BACs and thus fit the definition of the DWI repeat offender. Hence, Operation Lookout may prove to be a valuable program for the identification of the target group. However, the effectiveness of such programs in deterring DWI repeat offenders from driving after drinking is unknown.

6.4 Enhanced Detection Methods

Of considerable concern is the fact that a high proportion of drivers with BACs over the statutory limit are able to avoid detection even when stopped and questioned by the police as part of a spot check program. Escaping detection not only allows impaired people to continue driving; it reinforces their belief that they were not impaired, thereby increasing the probability that they will drive while impaired on subsequent occasions.

This section examines two methods of enhancing the ability of the police to detect and apprehend impaired drivers: random breath-testing and passive alcohol sensors.

6.4.1 Random breath-testing

Random breath-testing requires giving the police the power to demand a breath sample from any driver at any time. In Canada, police have the authority to stop vehicles randomly to check for alcohol use by the driver, but they must have "reasonable suspicion" that the driver has consumed alcohol before a demand for a breath test using an approved screening device can be made. Under random breath-testing, the officer would not be required to justify the demand for a breath test. Drivers could be asked to provide a breath sample at any time.

Random breath-testing is widely practised in Australia. When combined with intensive publicity and enforcement, random breath-testing has resulted in substantial decreases – 19.5% overall, and up to 30% during holiday periods – in the number of alcohol-related fatal crashes (Homel, 1994).

The apparent success of random breath-testing in Australia makes it an attractive option for implementation in Canada. Random breath-testing increases both the perceived and the actual probability of being arrested for impaired driving. Random testing also facilitates the detection of impaired drivers who have developed tolerance to the obvious signs of intoxication. Such individuals would no longer be able to escape detection.

In assessing the success of random breath-testing in Australia, it should be recognized that random breath-testing is typically conducted as part of an intensive publicity and large-scale enforcement campaign. In fact, it is estimated that one of every three drivers is stopped by the police and asked to provide a breath sample. In Canada, this level of enforcement would involve testing over six million drivers every year.

The major impediment to the introduction of random breath-testing in Canada is the significant challenge it would pose to our constitutionally guaranteed rights and freedom from unauthorized search and seizure by the police. In the absence of a major philosophical shift, it is unlikely that random breath-testing will make a debut in Canada in the near future.

6.4.2 Passive alcohol sensors

Passive alcohol sensors may provide a viable and legally palatable alternative to random breath-testing as a way to improve the efficiency of detecting impaired drivers.

One of the most common cues of alcohol consumption used by police officers to help identify drinking drivers is the smell of alcohol.[12] But not everyone has the same ability to detect the aroma of alcohol. Moreover, alcoholic beverages differ in the type and intensity of their aroma. Passive alcohol sensors are merely a tool to assist police officers in detecting alcohol on a driver's breath. These devices collect a sample of the ambient air near the driver's face (particularly expired breath) and provide an indication of the concentration of alcohol detected. A positive reading indicates that alcohol is present and is generally a sign that the driver has been drinking.

Passive alcohol sensors differ from approved screening devices in that the driver does not have to blow directly into the instrument. The instrument only has to be placed within a few inches of a driver's face to collect expired air. Although not as accurate as a direct sample provided by the driver, the passive sensor can quickly and easily provide a police officer with a "reasonable suspicion" that alcohol has been consumed, allowing a demand to be made for an actual breath test using an approved screening device. In addition, passive sensors would virtually eliminate the possibility of an impaired driver escaping detection.

Several jurisdictions in the United States and Canada have used passive sensors. Alberta conducted a pilot test with passive sensors several years ago. The results were mixed. Although some officers found the sensors useful in helping them form the basis for more extensive testing, others thought that they offered no decided advantage above and beyond their own skills in detecting alcohol use. Consequently, the use of passive sensors was not continued.

In the United States, several jurisdictions are using passive alcohol sensors to assist in enforcement activities. Passive sensors are not used alone but rather supplement field sobriety tests and screening devices to determine a reasonable basis for further testing and possible arrest. Although U.S. law differs considerably from Canadian, it is interesting to note that the U.S. courts have ruled that passive sensors are merely "an extension of the officer's nose" and should not be considered to violate one's rights any more than the use of a dog trained to detect illegal drugs. It is not clear whether the use of passive sensors would violate the Canadian Charter of Rights and Freedoms.

Field tests with passive sensors have shown them to be extremely effective in detecting drivers with both low and high BACs (Foss et al., 1993; Jones and Lund, 1986; Voas, 1983). Errors in detecting drinking drivers are generally small, especially in comparison to the proportion of impaired drivers who escape detection in sobriety spot checks.

12 Actually, ethyl alcohol (the active ingredient in beverage alcohol) has no aroma. It is the other components of alcoholic beverages that give them a distinctive smell.

6.5 Conclusion

The police in Canada spend a great deal of time identifying and apprehending impaired drivers. Approximately 90,000 people are charged with impaired driving each year. But as substantial as this figure appears, it represents less than half of one per cent of all impaired driving trips in Canada. In light of research demonstrating that a substantial proportion of high-BAC drivers are able to escape detection by the police, improvements are necessary to ensure that an even greater proportion of DWI offenders are identified and apprehended.

Several options exist for improving the efficiency and effectiveness of procedures used to identify and apprehend the DWI repeat offender. While some of these measures involve a major restructuring of current laws and procedures (e.g., random breath-testing), others would require relatively minor modifications (e.g., passive alcohol sensors).

7. Intervention at Stage Three: Dealing with Offenders

This section reviews the literature on measures for dealing with DWI repeat offenders once they have been identified through either the criminal justice system or the driver licensing system. These two systems have the authority to impose sanctions and require offenders to attend programs. The overall objective of interventions at this stage is to reduce the likelihood of offenders engaging in drinking-driving behaviour on subsequent occasions. This section examines policies and programs for dealing with DWI repeat offenders in three categories: driver-based sanctions, vehicle-based sanctions and assessment and rehabilitation programs.

7.1 Driver-Based Sanctions

The primary purpose of sanctions is to punish offenders for their crime. They are also intended to deter subsequent offences. Some sanctions are also designed to incapacitate offenders such that they are unable to commit further offences. This section examines four sanctions directed toward drivers: licence suspensions, incarceration, home confinement and intensive supervision or probation.

7.1.1 Licence suspension

The removal of driving privileges for a DWI offence is relatively simple and straightforward and intrinsically “fits the crime”. Licence suspension punishes offenders and incapacitates them to offer the public some degree of protection against further DWI behaviour.

In this context, licence suspension has been shown to be an effective DWI countermeasure (Blomberg et al., 1987; McKnight and Edwards, 1987; McKnight and Voas, 1991; Ross and Gonzales, 1988; Williams et al., 1991; Voas and Tippetts, 1993). In general, offenders who serve a period of licence suspension have lower recidivism rates than those who serve no suspension or have restricted driving privileges.

It is not known what length of suspension is most effective. In Canada, most jurisdictions impose a 12-month suspension for a first impaired driving offence. Subsequent convictions have longer suspensions. It is suspected that the longer the suspension, the more likely the offender is to drive while under suspension and to drive after drinking. It has been determined that up to 75% of convicted DWI offenders continue to drive at least occasionally during periods of suspension (Hagen et al., 1980; Nichols and Ross, 1990). Finding the optimal period of licence suspension, however, might reduce the prevalence of driving while suspended and enhance its effectiveness.

Another problem associated with licence suspension is the delay between arrest and conviction. During this time, the offender is free to drive. This delay is believed to reduce the deterrent value of the suspension. To compensate for this delay, many jurisdictions in the United States, plus several in Canada, have introduced 90-day administrative licence suspensions that take effect almost immediately after a driver registers a BAC over the statutory limit or fails to provide a breath sample. This

administrative procedure increases the swiftness and certainty of the sanction, thereby increasing its deterrent value. The primary mode of action of this measure would seem to be through incapacitation – i.e., offenders would have their driving privileges removed almost immediately.

Evaluations of this procedure have shown positive results. In a study of the impact of 30-day administrative suspensions in three states, Stewart et al. (1989) found reduced DWI recidivism in two states and reduced non-DWI recidivism in the third. These effects were evident well past the end of the suspension period. Ross (1991) reported overall reductions in nighttime crashes of 5% to 9% associated with the introduction of administrative licence suspension in New Mexico, 4% in Minnesota, and 3% to 14% in Delaware. Taken together, these studies demonstrate a specific and general deterrent effect of administrative licence suspensions.

Although licence suspensions are a valuable sanctioning option, it is not known to what extent suspensions have a specific effect on the DWI repeat offender.

7.1.2 Incarceration

Jail is the most restrictive sentencing option and is usually reserved for the most serious crimes. In recognition of the seriousness with which society views impaired driving, Canadian law specifies that people convicted of a second impaired driving offence must serve a mandatory minimum of 14 days in jail; subsequent offences carry a minimum period of three months in jail. In PEI, provincial court judges routinely send all DWI offenders – including first-time offenders – to jail for at least three days.

Evaluations of the effectiveness of sentencing DWI offenders to prison provide scant evidence that imposing such severe sentences is an effective countermeasure for preventing recidivism among drinking drivers. The bulk of the evidence indicates that increasing the severity of punishment (with the exception of license suspensions) does not serve as a deterrent to future drinking and driving behaviour. Studies have found that longer jail terms produce either no significant difference (Joksch, 1988; Martin et al., 1993; Ross and Klette, 1995) or higher numbers of future accidents and convictions (Friedman et al., 1995; Homel, 1988; Mann et al., 1991). While increasing the certainty and swiftness of deterrence measures is an effective tool for preventing drinking and driving, increasing the severity of punishment does not appear to have a beneficial effect (Ross, 1993a).

Nonetheless, there is some evidence pointing to the effectiveness of shorter jail terms for first-time DWI offenders. Compton (1986) examined the impact of introducing a mandatory two-day jail sentence for first-time DWI offenders in Tennessee and found a 40% reduction in recidivism after the law was introduced. A similar study (Falkowski, 1984) evaluated the introduction of a two-day jail sentence for first-time DWI offenders in Minnesota. Although sentencing was not mandatory, approximately 82% of first offenders received a jail sentence. Results of the study showed a 20% reduction in night-time injury accidents. Grube and Karney (1983) studied the effects of a mandatory two-day jail sentence in Washington state. The sentencing was ostensibly mandatory, but, in effect, the decision was left to the judge's discretion. A public information campaign accompanied the policy. In evaluating the policy's effectiveness, Grube and Karney reported no significant reduction in alcohol-related fatalities. However, public attitude surveys indicated that most respondents believed the policy was a deterrent to drinking and driving.

For DWI repeat offenders, who represent the group most likely to be jailed, long periods of incarceration do not serve as a deterrent to drinking and driving. After reviewing the literature in this area, Nichols and Ross (1990) concluded that "the evidence for an individual reformative effect of jail is weak, particularly for multiple offenders" (1990: p. 53). Still, regardless of the deterrent effects of incarceration, there are cases where stricter measures are necessary because of the public demand for justice, the need to punish repeat offenders or the need to ensure public safety.

7.1.3 Electronically monitored home confinement

As an alternative to incarceration, some jurisdictions are experimenting with home confinement and electronic monitoring. An offender assigned to home confinement is under court order to be at home during specified hours. Offenders may leave the house for pre-approved activities such as to go to work, to attend a treatment program or to perform community service. Home confinement is intended to be punitive, and offenders are often monitored using electronic monitoring devices (Renzema, 1992).

Electronic monitoring comes in two basic types: radio frequency and programmed contact (Baumer and Mendelsohn, 1992). Both types are controlled by a central computer. Radio frequency monitoring uses a transmitter electronically connected to the telephone system and worn by the offender. Periodic contact is made via the computer and telephone system to ensure that the offender is complying with the pre-arranged schedule. With programmed contact monitoring, random telephone calls are made to the offender, who must then identify himself to the computer.

Home confinement and electronic monitoring are used primarily for offenders who do not pose a major risk to society. For this reason, DWI offenders comprise a significant portion of offenders assigned to home confinement. Schmidt (1989) reports that in 1988, 25.6% of offenders being electronically monitored in the United States were charged with major traffic offences. Of these, 71% were charged with DWI.

DWI offenders appear to fare better in home confinement than do other types of offenders. Baumer and Mendelsohn (1992) reported that felony DWI offenders were significantly less likely to have any negative contacts with the criminal justice system within a year of release from the program. These researchers speculate that DWI offenders are less committed to a criminal lifestyle, are eager to avoid prison terms and are fairly low-rate offenders.

Althought intermediate sanctions such as home confinement are not necessarily the most appropriate form of sanction for DWI repeat offenders, there are several advantages to using such sanctions as an alternative to incarceration. Monitored home confinement programs allow the offender to continue working while helping to ensure that the offender will not be on the road at times when the risk of drinking and driving is high (Morris and Tonry, 1990).

There are also indications that electronic monitoring programs may increase the stability of offenders' home life while they are being monitored and may encourage some offenders to seek employment (Baumer and Mendelsohn, 1992). To date, technical and operational problems with the equipment, partly as a result of a lack of expertise of people administering the program, have been identified as significant limitations of the system.

Los Angeles County California provides an example of an electronic monitoring program, which was introduced in 1992 for DWI repeat offenders and other non-violent offenders. Upon conviction, eligible offenders were sentenced to home confinement enforced by electronic monitoring devices in lieu of incarceration. The nature of the restrictions varied but often allowed the offender to go to work or attend school. Offenders were contacted at random three or four times each day to confirm their presence at home. In an evaluation of the home confinement and electronic monitoring program, Jones et al. (1996) reported an alcohol-related recidivism rate of 8% among the 639 offenders who participated in the program, compared to 11.5% among the comparison group. In addition, it was estimated that placing offenders on the electronic monitoring program instead of sending them to jail resulted in savings of nearly $1 million.

7.1.4 Intensive supervision probation

Probation with a provision for intensive supervision differs from regular probation in that surveillance is more intensive, there is a higher availability of treatment services and caseloads are smaller (Lurigio and Petersilia, 1992). The intent is to reduce overcrowding in prisons by releasing less dangerous offenders and keeping them under tight enough control to protect public safety. Variation occurs between types of programs, with some programs excluding drug and alcohol abusers and others targeting them.

An advantage of intensive supervision probation for drug or alcohol users is that there is greater opportunity to make use of treatment programs and job placement services than there would be if offenders were incarcerated. Morris and Tonry (1990) emphasize that strict enforcement of the rules and punishment for lack of compliance are essential to the effectiveness of these programs. Lurigio and Petersilia (1992) argue that the difficulty with using intensive supervision probation for drug and alcohol abusers is that violations of the conditions of probation will probably be high if drug and alcohol testing are used. These violations would require more incarceration, which is what the program was designed to prevent. On the other hand, if testing is not done regularly, then the program is not doing its job of protecting public safety.

The state of Maryland operates an intensive probation supervision program for DWI offenders in conjunction with a special DWI incarceration facility. Offenders are required to report weekly to a monitor from the Probation Department to demonstrate that they have attended the recommended treatment program. Program monitors also test for alcohol and drug use and provide counselling where necessary.

An evaluation of the program revealed very favourable results (Voas and Tippetts, 1990). The recidivism rate among offenders assigned to both the DWI facility and the monitoring program was only about one-quarter of that among offenders who did not participate in either program. The monitor program alone was as effective as both the facility and monitor programs combined. Although the impact of the monitor program was greater among first-time offenders, the evidence revealed a strong positive effect on recidivism among repeat offenders.

Another example of intensive monitoring and supervision is the Milwaukee County Pretrial Intoxicated Driver Intervention Program, which was implemented for DWI repeat offenders in November 1992. This program is unique in that it targets offenders *before* conviction. The intent of the program is to get

chronic offenders into treatment as soon as possible after arrest, with ongoing monitoring and supervision in the pre-trial period. Offenders who participate in the program are offered the possibility (but no guarantee) of reduced jail time if convicted. The program provides assessment and referral to an appropriate treatment service. Offenders contact the monitor twice each week. The average time in the program is four to five months.

A recent evaluation indicates that the Milwaukee program reduced recidivism by about 50% (Jones et al., 1996). Among a group of 506 DWI repeat offenders who participated in the program, about 8.5% were re-arrested for an alcohol-related offence within the subsequent two years. Among the comparison group, the recidivism rate was 16%.

7.1.5 Summary

Driver-based sanctions will undoubtedly continue to play a prominent role in efforts to control DWI repeat offenders. In general, licence suspensions are both appropriate and effective. The incarceration of DWI repeat offenders may be deemed appropriate, but its effectiveness in preventing recidivism has not been demonstrated. Other less restrictive options such as electronic home monitoring appear to hold promise.

In general, research has shown that more severe sanctions are associated with higher rates of recidivism (Homel, 1988). This finding does not suggest that sanctions should not be imposed. Rather, it indicates that there is a need for research to determine the optimal level of sanctions that will have the greatest impact, particularly with DWI repeat offenders.

7.2 Vehicle-Based Sanctions

Traditional sanctions for DWI offences have attempted to modify the behaviour of offenders through the application of sanctions and the threat of more severe punishments for repeating the offence. However, persuasive and punitive techniques have not been completely successful with all offenders, particularly the DWI repeat offender. In the absence of a change in the motivations and circumstances that lead individuals to commit the offence, or a delay in such a change occurring, the most hopeful strategy may be incapacitation, rendering it difficult or impossible for the person to repeat the offence. This section examines one form of incapacitation – i.e., measures taken against the vehicles of offenders.

Vehicle-based actions can take several forms. These include confiscation and forfeiture of the vehicle, vehicle impoundment, vehicle immobilization, cancellation of the vehicle registration, special licence plates or stickers, autotimers and alcohol ignition interlocks. All of these measures attempt to impose limitations on the use of the vehicle to prevent, or at least render more difficult, the commission of a repeat offence.

Vehicle-based measures are becoming an increasingly popular means of dealing with offenders. To a large extent, the popularity of vehicle-based actions has been spurred by recent research evidence indicating that suspension or revocation of the offender's driver's licence is often insufficient to prevent her or him from operating a vehicle. Studies of suspended drivers indicate that many continue

to drive during their period of suspension. For example, a survey of suspended drivers in Ontario found that 34% admitted driving while under suspension; 11% had contact with the police while driving during their suspension (Matsui et al., 1991). Other studies indicate that up to 75% of convicted DWI offenders continue to drive at least occasionally during periods of suspension or revocation (Hagen et al., 1980; Nichols and Ross, 1990). Also, the longer the period of suspension, the more likely the offender is to drive, and to drive after drinking.

The fact that licence suspension, the most common sanction for a DWI conviction, is widely flaunted by convicted DWI offenders poses a particularly disturbing problem. Typically, the sanction for a conviction for driving while under suspension is an extension of the suspension – a rather hollow gesture. Therefore, recent efforts to control the continued operation of a vehicle by drivers who have their licences suspended or revoked have focused on measures to restrict offenders' opportunities to operate a vehicle. This section examines the purpose and rationale of such measures, provides examples and outlines the evidence of their effectiveness.

7.2.1 Vehicle impoundment, immobilization and confiscation

The primary purpose of vehicle seizure, impoundment and immobilization is to deny access to the vehicle or render it inoperative such that it cannot be driven by the offender or anyone else. Many jurisdictions in North America have legislation allowing for the seizure, confiscation and impoundment of vehicles of apprehended or convicted DWI offenders or those who drive while under suspension. Few jurisdictions, however, operate active seizure and impoundment programs. This section examines the experience of jurisdictions that do have active impoundment, immobilization and confiscation programs.

- **Vehicle impoundment.** Jurisdictions differ considerably in the application of an impoundment program. Some jurisdictions consider vehicle impoundment as an option only after repeated DWI convictions. Others target drivers who violate licence suspension as candidates for impoundment. Still others allow impoundment for some combination of DWI and driving while suspended.

California and New Mexico operate vehicle impoundment programs for DWI offences. California law provides for a 30-day vehicle impoundment for a first DWI offence and a 90-day impoundment for a second or subsequent offence. In New Mexico, a judge can order the offender's vehicle impounded for 30 days for a second DWI offence and 60 days for a third offence. In a review of these programs, Voas (1992) reported that the use of the impoundment law in New Mexico was inconsistent and often capriciously applied. In California, the penalty was rarely applied; in a review of over 200 eligible cases, not a single instance of impoundment was found.

Three states (Delaware, New York and Wisconsin) and two provinces (Alberta and Manitoba) have vehicle impoundment programs for people who drive while under suspension. Delaware provides for the impoundment of a vehicle for 90 days (one year for subsequent offences) for driving while suspended if the initial suspension was for a DWI offence. In Wisconsin, the court can impound the vehicle of a person found guilty of driving while suspended, with the manner and duration of impoundment to be determined by the court. New York allows an arresting police officer to impound the vehicle of anyone driving under suspension who is also found to be impaired.

Both Manitoba and Alberta operate active programs to impound the vehicle of anyone found to be driving while his or her licence is under suspension. Although these programs are not specifically aimed at convicted DWI offenders, most suspended drivers (i.e., as high as 75% to 80%) are DWI offenders. The Manitoba vehicle seizure and impoundment program has been in operation since November 1989. Under this program, a police officer can seize and impound for a period of 30 days the vehicle of anyone found driving while under suspension or while prohibited from driving. The period of impoundment is increased to 60 days for each subsequent occurrence within two years. The owner of the vehicle is liable for all charges related to the towing, care and storage of the vehicle, plus a $50 administration fee. If the driver of the vehicle is not the registered owner, the owner can apply to have the vehicle released before the expiration of the period of impoundment provided the owner pays all costs and had no knowledge of the driver not having a valid licence. Vehicles left unclaimed 30 days after the expiration of the period of impoundment can be disposed of.

An average of about 160 vehicles a month are seized under this program (Manitoba Seizure and Impoundment Registry, 1996). Approximately 17% of seized vehicles are released to the owner before the expiration of the period of impoundment, and 23% are left unclaimed. In about 20% of cases, the vehicle seized is that of a person who has previously had a vehicle seized. About half the time the vehicle seized from a repeat offender belongs to another person.

In conclusion, vehicle impoundment is a potentially powerful means of preventing repeat instances of impaired driving among DWI offenders. Experiences in Alberta and Manitoba have demonstrated that administratively operated programs directed toward people who drive while under suspension are logistically and economically practical. Although a study is currently under way to evaluate the program in Manitoba, there is not yet any evidence of the effectiveness of vehicle impoundment in preventing recidivism.

- **Vehicle immobilization**. One of the most commonly cited reasons for not implementing an active vehicle seizure and impoundment program is the lack of adequate storage facilities for the exceptionally large number of vehicles that are eligible for impoundment. Moreover, if the offender fails to claim the vehicle, its value is often insufficient to cover the charges associated with towing and storage, leaving the government liable for the difference. To overcome the problems associated with the storage of impounded vehicles, some jurisdictions opt for immobilizing the vehicle on the offender's own property by placing a device on the vehicle (e.g., a wheel-locking boot or steering wheel locking club) to prevent its operation. This strategy not only relieves the problems associated with maintaining large storage facilities, it also reduces the cost to the offender and eliminates the problem of disposing of unclaimed vehicles. Moreover, an immobilized vehicle on or near the offender's property serves as a constant reminder of the offence.

Ohio has had an immobilization law for several years, but its application has not been widespread. In 1993 a special project was launched in Franklin County to support and evaluate the program. At the same time, the existing legislation was amended to allow the sanction to be applied both to people who were driving while suspended for a DWI offence and to second- and third-time DWI offenders. The period of immobilization was extended from 30 to 60 days for a second driving-while-suspended offence and from 90 to 150 days for a third DWI offence. As well, the new law included a provision for the vehicle to be impounded during the time between arrest and conviction. Upon conviction, the

vehicle is immobilized on the offender's property through the use of a club device placed on the steering wheel.

Voas et al. (1996) evaluated the impact of this impoundment and immobilization program and found that it reduced recidivism for DWI by about 50%. A most notable finding was that the effect of the program was evident not only during the time of the immobilization (an effect that was expected, given that the immobilization reduced but did not eliminate the driving options for the offender) but after it as well. Significantly lower recidivism rates were found up to 23 months after the expiration of the period of immobilization.

These results are extremely encouraging and suggest that such programs should be used more widely.

- **Vehicle confiscation or forfeiture.** A number of states have legislation that allows the state to confiscate the vehicle of DWI repeat offenders. In some cases, the confiscation law also applies to people who repeatedly drive while under suspension. In a review of six states with confiscation laws, Voas (1991) reported that the logistical procedures involved in confiscating and disposing of a vehicle were often difficult. Hence, the actual number of confiscations resulting from DWI convictions was typically very small.

Vehicle confiscation or forfeiture appears to be a last resort to prevent repeated instances of DWI or driving while under suspension. It is difficult to implement and rarely done. An evaluation of its effectiveness has not been conducted.

7.2.2 Actions against the vehicle registration

In many respects, actions against the vehicle registration are intended to perform functions similar to vehicle impoundment or immobilization – i.e., to prevent repeat instances of DWI or driving while suspended. While impoundment and immobilization physically prevent use of the vehicle, actions against the vehicle registration merely prevent or restrict *legitimate* use of the vehicle.

Actions against the vehicle registration can take several forms – e.g., cancellation of the registration, removal of the licence plates, the issuance of special licence plates or the application of a special sticker to the vehicle plates. Action taken against the registration of a vehicle serves not only to reinforce the suspension of the driver's licence but is a potentially powerful means of reducing driving by suspended drivers.

- **Cancellation of registration.** Several states have legislation that allows for the cancellation of the vehicle registration at the time of a DWI conviction or for driving while suspended as the result of a DWI conviction. In some states, the action against the vehicle registration can be the result of a first DWI conviction (e.g., Ohio and New Hampshire). In others, such action is only possible after the second (e.g., Wyoming) or third DWI conviction (e.g., Iowa). At the time of conviction, the vehicle registration is cancelled, which means the vehicle cannot be driven legitimately by anyone.

The state of Minnesota allows a police officer to seize and impound the registration plates on a vehicle belonging to a person charged with a third DWI offence within 5 years or a fourth DWI offence within 15 years. An order to impound the vehicle plates includes all vehicles owned or leased by the offender, including jointly owned vehicles. An owner who is not an offender can apply to have new plates

issued. Unfortunately, an evaluation of the effectiveness of registration cancellation and plate impoundment has not been conducted.

- **Special plates.** Three states – Iowa, Minnesota and Ohio – have provisions for issuing special plates for vehicles of DWI offenders. These plates are distinguished from regular plates through special numbers or colours. The purpose of special plates is to permit others (particularly family members) to operate the vehicle but to discourage its use by the suspended driver. The special plates allow police officers to identify the vehicle as one that is registered to a suspended driver. Iowa is the only state that specifically states that the acceptance of special plates constitutes implied consent for the police to stop the vehicle at any time to check the driver's licence and registration.

Special plates that are easily recognizable to the police can serve as a powerful deterrent to driving while suspended. Although other drivers in the family may be subject to some embarrassment and inconvenience, the program at least allows them the opportunity to drive. This is a particularly important consideration for rural residents and others who do not have ready access to public transportation. Unfortunately, there has not been an evaluation of the effectiveness of special plate programs.

- **Sticker programs.** In an attempt to deal with driving while under suspension, both Washington and Oregon implemented trial programs that involve placing a special striped "zebra" sticker over the annual registration sticker on the plate of a vehicle being driven by a person whose driver's licence was under suspension. The sticker was placed on the vehicle plate by the arresting officer at the time the driver was stopped. The driver was issued a temporary vehicle registration for 60 days, but unless the driver took action to prove that he or she did have a valid licence or that the vehicle was registered in someone else's name, the vehicle registration was cancelled.

In both states, the presence of a zebra sticker constituted probable cause for the police to stop the vehicle to check the driver's licence and to check for evidence of alcohol use. This special marking of the vehicle plate increased the probability of being stopped by the police and provided a powerful deterrent to repeated instances of driving while under suspension.

The sticker programs appeared to operate well. The process was administrative and hence relatively easy to invoke. As a consequence, a large number of vehicles had stickers applied. Moreover, Voas (1992) indicated that in a survey of police officers in Oregon, most indicated that they always stopped vehicles with a zebra sticker. The volume of stickers issued and the willingness of the police to stop vehicles with stickers provided a powerful deterrent and contributed to the impact of this program in reducing driving by suspended drivers.

The zebra sticker programs in Washington and Oregon have been subject to relatively thorough evaluation studies to determine their effectiveness (Voas and Tippetts, 1994). In Washington, where approximately 7,000 vehicles were stickered under the program, there was no evidence of an impact of the law on either violations or crashes among drivers eligible to receive a sticker. In Oregon, however, there was evidence of a positive effect of the zebra sticker program (Voas and Tippetts, 1994). Following implementation of the law, there was an immediate increase in the number of driving-while-suspended charges, suggesting that the police were eager to enforce the new law. Drivers who were under suspension, and thus liable to have their vehicles stickered if caught driving, had fewer

violations and were involved in fewer crashes after the law was implemented compared to suspended drivers before the sticker law.

Despite these positive findings, the sticker laws in both Washington and Oregon have been allowed to expire.

7.2.3 Autotimers and alcohol ignition interlocks

Despite the seriousness with which society views DWI offences, there has been a tremendous reluctance to impound, immobilize or confiscate the vehicles of DWI offenders. Some jurisdictions are even hesitant to impose so-called "hard" licence suspensions – i.e., prohibiting driving under all circumstances – for DWI offences out of concern that prohibiting all driving may result in a loss of employment or place undue hardship on family members. Although some jurisdictions have attempted to provide for the transportation needs of family members through the use of special plates, others have provisions for the issuance of "hardship", "limited" or "vocational" licences that restrict driving to specific purposes or certain times of day. A major limitation of restricted drivers' licences is the difficulty in enforcing the stated conditions of use. Unless the police have some reason to stop the vehicle, there is little opportunity for them to monitor compliance with the restrictions. This section examines two devices intended to help enforce the conditions of a restricted licence and prevent unauthorized driving – autotimers and alcohol ignition interlocks.

- **Autotimers.** The Autotimer was developed as a means to enforce licensing restrictions. It is a device that records all operation of the vehicle and provides an objective record of the time and duration of all vehicle use (Voas, 1993a). The device consists of a motion detector and recorder housed in a box fitted into the trunk of the offender's vehicle. Battery-powered, the Autotimer is independent of the vehicle's engine or electrical system. Every time the vehicle is started and stopped, the Autotimer records the date and time. This information can be used to determine vehicle use patterns. Once every 30 days the offender takes the vehicle to a service centre to have the data downloaded and the battery replaced. The data provide a record of all vehicle use. Any use that occurs outside the specified hours is flagged and brought to the attention of the driver by the program monitor. If necessary, such violations are also brought to the attention of the licensing authorities for further action.

The Autotimer provides an unobtrusive means of verifying offenders' compliance with licence restrictions and enforcing those restrictions. It improves accountability and provides the court or licensing authorities with a degree of confidence that the restrictions imposed will be adhered to. Violations of the restrictions are documented and can be dealt with appropriately.

In a pilot study to determine the feasibility of using the Autotimer, Voas (1993a) reported that the system worked better than expected. After an initial period of adjustment to the system, offenders developed a regular driving pattern that fit within the restrictions applied. Once this pattern was established, monitoring compliance was relatively easy. No outcome evaluation has been conducted.

- **Alcohol ignition interlocks.** One of the most promising strategies to prevent a subsequent occurrence of DWI behaviour among convicted offenders is the alcohol ignition interlock. This device is essentially a small breath-testing unit installed in the vehicle and linked to the vehicle's ignition system. To start the vehicle, the driver must provide a breath sample that registers a BAC

less than a pre-set value (e.g., 20 mg%). BACs in excess of the threshold value prevent the ignition from starting.

Recent developments in interlock technology and the development of specifications for interlock devices (e.g., Electronics Test Centre, 1992; NHTSA, 1992a) have resulted in a reliable and practical device that is available for widespread use. Numerous technological innovations have been implemented to address the concerns of earlier interlock devices, thereby creating a system that can effectively prevent an impaired individual from operating a vehicle in which it is installed.

At present, 39 states have legislation providing for the installation of alcohol ignition interlock devices in the vehicles of convicted DWI offenders. At least two other states operate interlock programs without statutory reference. The province of Alberta is the only jurisdiction in Canada with an active interlock program.

Interlocks are not intended to replace existing sanctions but, rather, to provide an additional option for preventing repeat offences. After a period of suspension, an ignition interlock allows a convicted DWI offender the opportunity to re-enter the driving population legally, with insurance, while offering some assurance to society that the offender will drive only when sober. Thus, the installation of an alcohol ignition interlock can be viewed as part of the transition between full licence suspension and full driving privileges.

Interlocks are not intended to be a form of treatment for alcohol abuse, but they can be viewed as an adjunct to treatment because they provide a constant reminder of the problems associated with alcohol abuse, a reinforcer for not drinking and a fail-safe mechanism to prevent tragedy in the event of a relapse.

Ignition interlock programs have been subject to several evaluation studies. One of the first of such studies was conducted in California. As part of the pilot interlock program in that state, 775 DWI offenders in four counties were ordered to install interlocks as a condition of probation. Comparisons were made between the reconviction rates of 584 DWI offenders who actually had interlocks installed and a matched comparison group of 506 DWI offenders who were not required to have the device installed (EMT Group, 1990). The results showed a generally positive effect of having an interlock device installed. Overall, 3.9% of the interlock group were reconvicted of DWI compared to 5.5% of the control group.

Researchers at the University of Colorado conducted a study on a sample of offenders in Ohio in an effort to evaluate the effectiveness of the interlock program in preventing recidivism. The study sample was drawn from all first-time offenders with a BAC of 200 mg% or over, repeat offenders and all who refused the breath test. Offenders not offered the interlock were assigned to the control group (Morse and Elliott, 1992).

After 6 months, 1.1% of the interlock group had been re-arrested for DWI, whereas 3.3% of the control group had been charged again. At 12 months, the re-arrest rates were 2.6% and 7.4% for the interlock and control groups, respectively. After 24 months, 8 (3.4%) of the interlock group had been re-arrested for DWI compared to 24 (9.8%) of those in the control group. There were no further increases in the re-arrest rate in either group 6 months later.

The experience with interlocks in real-world use seems to indicate that the few problems noted were the result of operator failure rather than mechanical failure. Although it is possible to circumvent or bypass the device, it is becoming increasingly difficult to do so, and the rate of circumvention is well below that reported for more traditional sanctions, such as licence suspension. The development of specifications for alcohol interlock devices (e.g., Electronics Test Centre, 1992; NHTSA 1993) and technological innovations to help prevent circumvention and to improve alcohol detection will undoubtedly improve the acceptability and effectiveness of these devices.

Alcohol ignition interlocks are a feasible and demonstrably effective means of preventing recidivism among DWI offenders. They provide a bridge between full licence suspension and full unrestricted driving privileges to ensure that the offender does not drive while under the influence of alcohol. In recognition of the fact that treatment for alcohol abuse can be a lengthy process with a high likelihood of setbacks or relapses, interlocks provide society with a safety net to ensure that such relapses do not result in an impaired driving incident. In this sense, alcohol ignition interlocks can serve as a very useful adjunct to treatment.

There is an accumulating body of evidence that alcohol ignition interlocks have a beneficial impact on recidivism rates at least as long as the device is installed in the vehicle. Two studies (Jones, 1993; Popkin et al., 1993) indicate that once the device is removed, recidivism returns to the level of people who did not have an interlock. The fact that re-arrest rates increase after the interlock has been removed is perhaps not unexpected, nor should it be used to discredit or discount the beneficial effects of interlock programs. Many of the offenders assigned to interlock programs have serious problems of alcohol abuse. As mentioned previously, interlocks are not intended as a treatment for alcohol abuse, rather, the purpose of an interlock is to prevent an individual with a high BAC from driving the vehicle in which the device is installed. The evidence clearly shows that interlocks accomplish this objective extremely well. The increase in recidivism after removal of the interlock indicates the need to incorporate interlocks into a more comprehensive rehabilitation and treatment program that deals effectively with problems of alcohol abuse.

One approach designed to facilitate the long-term success of ignition interlock programs is the incorporation of case managers or service coordinators. A test of this approach is currently being conducted in Alberta (Beirness, 1996b; Marques and Voas, 1995). The principal objective of the case manager is to facilitate clients' utilization of appropriate health and social services. In this sense, the case manager helps span the cultural and resource gaps that typically divide the criminal justice, highway safety, and health and social service systems and acts as a liaison between the offender and the health and social service networks. In so doing, the case manager plays the role of advocate, counsellor, linkage resource and behavioural coach to help the offender accomplish the goals of an individualized plan to prevent a return to drinking and driving.

The case manager meets regularly with clients who are on the interlock program, typically during the monthly visits to the interlock service centre for routine maintenance of the device. The primary purpose of these meetings is for the case manager to become familiar with the client's needs and to identify programs and services that will appropriately address these needs. The case manager's task is to facilitate the client's contact with and entry into the appropriate remedial or rehabilitative programs.

The case manager also monitors the progress of the offender in the interlock program. The record from the interlock data logger is used to help identify patterns of behaviour and changes in behaviour that could be signs of continuing or perhaps additional problems. For example, an interlock record that shows positive BACs in the mornings would indicate early morning drinking or a residual BAC from the pervious night's drinking. An interlock record that shows a lack of vehicle use on weekend nights might suggest that the person is leaving the car at home when she or he goes out drinking or is simply staying at home to drink. Such situations are indicative of potential problems that need to be explored and dealt with by the case manager during the monthly meetings with the client.

Case managers can be readily and easily incorporated into most ignition interlock programs. They can provide the needed link between the offender and rehabilitation or social services to reduce the likelihood of repeated DWI behaviour when the interlock is removed.

7.3 Assessment and Rehabilitation

Assessment and rehabilitation have once again become popular approaches for dealing with DWI offenders. In recent years, many jurisdictions have implemented assessment and rehabilitation programs specifically for DWI offenders, but it is not the first time that this approach has headed the list of countermeasure activities. During the 1970s, the U.S. government funded 35 Alcohol Safety Action Projects (ASAPs) to develop drinking-driving programs. These projects included a component involving assessment and education or rehabilitation for people convicted of a DWI offence. The model classified offenders into one of three groups according to the severity of their involvement with alcohol: alcoholics, problem drinkers or social drinkers. Offenders were then directed to treatment for alcohol dependence, education or intervention, respectively.

Evaluations of the ASAPs provided disappointing results (Nichols and Reis, 1975; Nichols et al., 1978); however, numerous problems with the evaluation processes placed serious limitations on the interpretation of the data and rendered an assessment of the ASAP programs inconclusive. Nevertheless, the approach did not produce the expected reductions in recidivism and was largely abandoned.

Renewed interest in assessment and rehabilitation programs for DWI offenders is not merely a revisiting of the ASAPs. Valuable lessons were learned from the ASAP experience. In retrospect, the ASAP model was perhaps naive and too simplistic. The new approach recognizes the complexity of the behaviour and the diversity of the people involved.

The rationale for assessment and rehabilitation programs for DWI offenders remains the same. It is based on the hypothesis that problems of impaired driving can best be resolved by addressing the underlying problems that give rise to the behaviour, most notably problem drinking. The approach recognizes that alcohol can become a powerful, dominating influence in the lives of people who abuse it. So overwhelming is its influence that no threat of punishment, however severe, is likely to prevent the person from later drinking and driving. Restricting or removing drinkers' access to a vehicle – through impoundment, forfeiture or ignition interlocks – undoubtedly helps to keep them from driving, at least for a while, but these measures are usually time-limited; sooner or later, chronic abusive drinkers will again have access to a vehicle and they will drive while under the influence. The solution,

then, appears straightforward – treat the alcohol abuse problem that gives rise to impaired driving behaviour.

Contemporary approaches go beyond treatment of alcohol abuse as the only rehabilitative option for DWI offenders. Offenders may experience a variety of other problems that also need to be dealt with. Accordingly, many programs today also direct attention to the personal and social problems that can cause or contribute to excessive alcohol consumption, such as depression, hostility, marital or employment difficulties and inadequate coping skills. The range of rehabilitative options available is considerably more extensive than ever before.

In addition, researchers and clinicians now recognize that considerable heterogeneity exists among DWI offenders not only in terms of alcohol abuse but also with respect to a variety of other social, psychological and behavioural characteristics. Moreover, this heterogeneity is clinically relevant: Offenders who display different characteristics will display different outcomes in response to specific interventions. Hence, the most efficient and effective strategy would be to assess all DWI offenders and use the results of the assessment to match offenders to the most effective intervention (Wells-Parker et al., 1990).

7.3.1 Assessment

This section examines contemporary approaches to the assessment and rehabilitation of DWI offenders. Although assessment and rehabilitation are intimately related, they are dealt with separately here for purposes of clarity.

It has long been recognized that not all DWI offenders are the same. Nevertheless, certain characteristics or patterns of behaviour appeared to be common among groups of offenders. It seems reasonable, then, to classify offenders according to the severity, and possibly the type, of their problem to improve the overall efficiency and effectiveness of offender programs.

The earliest classification scheme involved separating offenders according to the number of previous DWI convictions. Repeat offenders were considered more likely to be harmfully involved with alcohol and at greater risk of recidivism than first-time offenders. Repeat offenders were therefore more likely to be directed to an alcohol treatment program. First-time offenders were considered to be low risk; if an intervention was recommended, it was more likely to involve an alcohol or traffic safety education program. This approach, which is still employed in many jurisdictions, assumes that repeat offenders have more serious alcohol problems than first-time offenders. While this assumption may hold a general degree of validity, it fails to recognize that serious alcohol problems are often evident even among first-time offenders and that alcohol or traffic safety educational programs are likely to be of little benefit – and may even be detrimental – to these individuals.

Another early attempt to match offenders to rehabilitation programs was the relatively simple classification scheme used as part of the Alcohol Safety Action Projects in the United States. As mentioned earlier, DWI offenders were classified as alcoholics, problem drinkers or social drinkers on the basis of an assessment of their level of involvement with alcohol. A variation of this approach is still used in many assessment programs.

Not surprisingly, this simple, unidimensional approach to the screening of DWI offenders is not without problems. First, the identification of dependent problem drinkers is only an initial step in assigning offenders to the most appropriate treatment program. Within the alcohol treatment field, subtypes of alcohol abuse have been identified that seem to require different treatment strategies (Skinner, 1982). Indeed, over the past several years, the concept of matching alcohol-dependent individuals to the most appropriate treatment programs – i.e., treatment matching – has been the subject of considerable research (e.g., Donovan et al., 1994). Once offenders with alcohol abuse dependency problems are identified, a more extensive assessment must be conducted to determine the most appropriate and effective treatment program for each offender.

Second, distinguishing between high-risk and low-risk offenders solely on the basis of the extent of alcohol problems ignores many of the other social and personal factors that are associated with the risk of subsequent impaired driving behaviour and alcohol-related crash involvement. Several researchers have developed multidimensional DWI offender typologies that incorporate a variety of social and personal characteristics – e.g., risk-taking, depression, hostility, aggression, attitudes, demographics – that are not only related to subsequent risk of re-conviction but appear to have clinical relevance as well (Arstein-Kerslake and Peck, 1986; Donovan and Marlatt, 1982; Donovan et al., 1983; Donovan et al, 1988; Sutker et al., 1980; Wells-Parker et al., 1986; Wilson, 1992). Identifying typologies requires a more extensive initial assessment of offenders.

The assessment of all DWI offenders to determine if the person is alcohol dependent, is a vital component of the rehabilitation process and is critical to treatment matching. Treatment for DWI offenders cannot be based on substance abuse alone. There is a need to be more comprehensive and to take into consideration such factors as personality and risk-taking behaviours. An effective treatment paradigm must address the critical lifestyle and personality factors that combine to create, shape and perpetuate the DWI behaviour. Therefore, to determine the most efficient and effective course of rehabilitative action, it is essential to obtain a thorough understanding of the nature and extent of the offender's involvement with alcohol as well as the nature and extent of contributing problems. A thorough assessment must include an evaluation of the social, environmental, attitudinal, interpersonal and psychological factors that may contribute to the offender's DWI behaviour (Timken et al., 1995). By combining these factors into typologies, it will become possible to generate hypotheses about which types of treatment may be most beneficial for certain subtypes of DWI offenders.

A variety of assessment instruments have been developed specifically for use with DWI offenders. These range from brief screening questionnaires to identify potential alcohol dependence to lengthier and more comprehensive instruments to provide a thorough evaluation of many aspects of the offender's lifestyle. A review of the numerous instruments available for the assessment and

classification of DWI offenders is beyond the scope of this report. However, previous reviews have concluded that no one instrument is necessarily superior to others and that jurisdictions must select an instrument appropriate to their own needs (e.g., Beirness et al., 1992; Mayhew et al., 1992; Popkin, Kannenberg, Lacey & Waller, 1988).

Assessment techniques continue to be expanded and refined. As work in this area progresses, valid and reliable instruments specifically developed for DWI offenders will enhance the ability to match offenders with appropriate and effective interventions.

7.3.2 Rehabilitation

Numerous remedial approaches exist for DWI offenders. These approaches vary in orientation, guiding philosophy, duration, intensity, content, goals and objectives. No one approach has emerged as the most effective for all offenders. Indeed, as outlined in the previous section, different types of programs may be more effective for different subgroups of offenders. Hence, it is necessary to have a variety of programs available for the referral of different types of offenders.

Unfortunately, within any given jurisdiction, the variety of remedial programs currently available to DWI offenders is often limited. In most cases, DWI remedial programs can be divided into two groups: programs that are primarily educational in nature, and programs that treat alcohol abuse. This section examines the nature and effectiveness of each type of program.

- **Educational programs.** Educational programs have become an increasingly popular alternative for dealing with convicted DWI offenders. Underlying the educational approach directed to drinking drivers is the assumption that convicted offenders do not possess the knowledge or skills necessary to avoid subsequent offences. Providing offenders with knowledge about alcohol, its effects on behaviour, the relationship between amount consumed and BACs, and the laws concerning alcohol and driving is presumed to give these drivers the knowledge they need and thus to reduce the incidence of repeat offences.

Although intuitively compelling, a major obstacle to this approach lies in the ability to link knowledge about alcohol to drinking-driving behaviour, either conceptually or empirically. In addition, it has been shown that DWI offenders already possess relatively high levels of knowledge about alcohol and DWI behaviour (Sheppard and Stoveken, 1993). It seems unlikely that marginal increases in knowledge would have a major influence on drinking and driving behaviour.

The first large-scale educational program for drinking drivers was developed in Phoenix in the early 1970s (Stewart and Malfetti, 1970). This program consisted of four 2½-hour sessions in which participants were provided with information about alcohol and its effects on driving. Because initial results were positive, this program has provided a model for hundreds of similar educational programs throughout North America, including many in Canada.

Many jurisdictions offer some type of educational program for DWI offenders. In some jurisdictions, these programs are mandatory for all offenders; in others, offenders are directed to programs by judicial order. Where attendance is mandated by judicial order, only selected offenders – often those with the most obvious problems – are required to attend. Ironically, these are the offenders least likely to benefit from an educational program. Mandatory attendance for all offenders – e.g., as a condition of licence reinstatement – avoids the problem of requiring attendance by only the most serious offenders. However, this approach includes not only people who might derive some benefit but also those who would be more appropriately directed to some other type of program. The most efficient and effective approach would be to require attendance at educational programs only for those deemed most likely to benefit.

The ultimate objective of educational programs is to reduce the incidence of recidivism among offenders. A more immediate goal is to increase participants' level of knowledge about alcohol and its influence on driving. Studies of educational programs have examined their efficacy in terms of several

different criteria or outcome measures including knowledge, attitudes, lifestyle and subsequent accidents, traffic violations and drinking-driving convictions. Most often, studies rely on indices of knowledge and attitude change as outcome measures. While such measures may be valid indicators of immediate program goals, they are indirect indicators of overall program effectiveness in terms of drinking-driving behaviour. Direct measures of traffic safety variables need to be considered in conjunction with other measures to provide a comprehensive assessment of program effectiveness.

In a review of published studies between 1970 and 1982, Mann et al. (1983) found the evidence on the effectiveness of educational programs for drinking drivers to be equivocal. In a later review of studies evaluating educational programs for drinking drivers, Foon (1988) concluded that although some programs have had modest success among lighter drinkers, the overall effectiveness of such programs is questionable. Some programs reported beneficial changes in knowledge and attitudes toward drinking-driving, but little change was evident in terms of personal drinking patterns. In terms of reconviction for a drinking-driving offence and other traffic safety measures, some less rigorously controlled studies have demonstrated beneficial impacts of educational programs over short periods of time, but experimental studies have not consistently demonstrated strong positive results.

In a unique long-term follow-up study, Mann et al. (1993) examined mortality among a group of second-time DWI offenders 7 to 13 years after they had been assigned either to a brief educational program or to a control condition. The comparison demonstrated that people who had attended the educational program had a significantly lower overall mortality rate and lower mortality from accidental and violent causes than did people in the no-treatment control condition. However, there was no difference between the treatment and control groups in terms of deaths due to cirrhosis and alcohol dependence syndrome.

The researchers concluded that educational programs are more beneficial for episodic or early-stage problem drinkers in reducing mortality risk from accidents and violence but may be of limited value in reducing mortality risk from cirrhosis or alcohol dependence syndrome among people who have a well-established pattern of chronic heavy alcohol consumption. Intensive treatment for dependence would be a more appropriate alternative for these offenders.

The effectiveness of educational programs for convicted impaired drivers is undoubtedly diminished by the heterogeneous mix of the participant population. Foon (1988) suggests that many course participants may not be suitable intellectually, cognitively or socially for the nature of the program and will therefore fail to derive significant benefit from it. A more efficient and cost-effective approach might be to devise a means of selecting participants for educational programs by matching individual characteristics with the demands and objectives of a particular program – i.e., matching offenders to programs.

- **Treatment programs.** Treatment programs exemplify the health–legal approach to dealing with the problem of the DWI repeat offender. The general rationale for having offenders attend an alcohol treatment program is that an impaired driving conviction may be but one manifestation of an underlying problem; often, that problem involves alcohol abuse. The problem might very well pervade all aspects of the individual's life, but it has only come to public attention as a result of a DWI conviction. From a public health perspective, arrests for impaired driving could serve as a mechanism for the early identification of problem drinkers. Offenders could then be directed into

the health care system for treatment. Conceptually, reducing the extent of problem drinking or the alcohol problem through treatment should decrease the incidence of recidivism by reducing the likelihood of excessive drinking.

The effectiveness of alcohol treatment programs for DWI offenders is constrained to the same extent and by the same factors as other treatment programs for problem drinking. In general, treatment programs for alcohol abuse have limited success.

There are some positive effects of treatment. A recent review of the literature (Eliany and Rush, 1992) indicates that 50% to 65% of individuals receiving treatment show some evidence of improvement at follow-up. About half of those who have improved are abstinent or have substantially reduced their consumption. Nevertheless, a large proportion of those who enter treatment suffer a relapse at some point and return to their previous patterns of consumption. Although such relapses may have little bearing on the long-term success rate of a treatment program, they may contribute substantially to DWI recidivism, thereby reducing the apparent effectiveness of treatment for offenders. Nonetheless, the individual and societal benefits of treatment programs are likely to be significant.

Approaches to the treatment of alcohol abuse are numerous and vary greatly both conceptually and in practice. No one approach seems to have emerged as the most efficient or effective for all types of problem drinkers. Treatment programs for drinking drivers are generally modelled after programs developed for problem drinkers in the general population. They include individual and group counselling, inpatient treatment, Alcoholics Anonymous, disulfiram therapy, behaviour modification and social–cognitive approaches. The length of treatment can range from a few sessions to several months to a year or more.

To illustrate the variety and breadth of treatment programs for DWI offenders, three such programs are outlined below.

- **The Weekend Intervention Program.** The Weekend Intervention Program (WIP) is an intensive short-term program for DWI offenders that originated at Wright State University in 1978 (Siegal, 1990). It has served as a model for many other DWI intervention programs throughout North America, including the IMPACT program in Alberta and the Auto Control Plus program in New Brunswick. The program employs small-group counselling sessions to encourage clients to explore the extent of their involvement with alcohol (and other drugs). WIP provides individualized assessments and treatment program recommendations for each participant with a degree of specificity that would not be possible in a traditional DWI assessment process. In addition, it provides a therapeutic experience that gently confronts participants with the consequences of their alcohol and drug use behaviour in a supportive environment. The weekend experience also helps sensitize clients to the accessibility of healthier lifestyles and the role of alcohol and drug abuse treatment in accomplishing such changes.

The goals of WIP are threefold: (1) to provide a comprehensive assessment of the client's involvement with alcohol and other drugs, (2) to confront denial and encourage self-evaluation and (3) to prepare participants for further treatment and increase their willingness to accept it.

Although there are therapeutic aspects to WIP, it is more appropriately described as a pre-treatment or treatment readiness program. In this respect, WIP acknowledges that treatment for alcohol abuse or

dependence cannot be achieved over a three-day period. WIP helps clients recognize the extent of their alcohol or drug abuse and the consequences of alcohol and drug abuse on other areas of their lives. It is also intended to expose clients to a therapeutic environment and to help prepare clients for further treatment outside of WIP. Specific follow-up recommendations are provided to clients for whom it is deemed necessary.

Evaluation has indicated that WIP has a beneficial impact in reducing recidivism and facilitating participation in treatment. The results of a one- to two-year follow-up study of 3,556 WIP participants revealed a lower DWI re-arrest rate among WIP participants (21.8%) than either offenders sentenced to jail (26.8%) or offenders given a suspended sentence and fine (30.8%) (Siegal, 1985). The average time to re-arrest was also longer among WIP participants. Among first-time DWI offenders who attended WIP, the recidivism rate (9.2%) was lower than among all other first-time DWI offenders who served time in jail or were given a suspended sentence and fine (12.7%).

The study also found that the more severe the alcohol problem, the greater the likelihood of being re-arrested for DWI. Clients deemed to be in need of follow-up treatment had higher recidivism rates than those seen as not needing further treatment. In addition, among those recommended for subsequent treatment, 30% voluntarily complied with the WIP recommendation. All participants who attended treatment completed the full course of the treatment program.

- **Assessment and treatment in Germany.** In Germany, DWI offenders who have a BAC of 160 mg% or higher or who have been convicted of two or more DWI offences within 10 years must submit to medical and psychological assessment before relicensing to determine their fitness to drive. The results of the assessment are used to determine whether the individual is (1) fit to drive without further remedial measures being taken, (2) unfit to drive or (3) unfit to drive but eligible for relicensing after participation in a DWI offenders course.

Nickel (1990a:b) indicates that there are several remedial programs available for repeat offenders. The most common model – the so-called LEER model – is based on a group-dynamic approach. The program begins with a two-week series of pre-course activities in which participants are asked to monitor drinking patterns and complete a series of homework assignments. The main course activities involve six weekly small-group (i.e., 8 to 10 participants) sessions in which the participants discuss drinking patterns, identify drinking and driving habits and learn self-observation and self-control as ways to effect behavioural change. During the subsequent 18 months, participants receive information letters and are asked to complete further homework assignments. This continued contact reinforces the lessons and provides support and encouragement to continue the process of behavioural change. The group reconvenes after 24 months to discuss any difficulties and problems and to check on progress.

Participants pay a course fee of approximately $400 and sign a contract that specifies that they will attend all sessions, be punctual, abstain from alcohol on the day of a session and complete all homework assignments. After the six small-group sessions, participants receive a certificate that can be used to reinstate the driver’s licence.

To determine the effectiveness of the program, the reconviction rates at 36 months and 60 months were compared between a group of 1,544 male program participants and a group of 1,344 convicted DWI offenders who were judged fit to drive without attending the program. These two groups were by no

means equivalent at the outset. The control group, because they were assessed as being fit to drive without attending the program, would be expected to have a lower risk of recidivism than program participants. Nevertheless, program participants had a lower reconviction rate than control group drivers. At 36 months, 13.4% of program participants had been reconvicted compared to 18.8% of controls. At 60 months, the recidivism rate among program participants was 21% compared to 26.9% among controls. These results indicate a consistent and long-term beneficial effect of the program.

The results are even more dramatic among certain subgroups of program participants. For example, a higher incidence of recidivism was found among younger participants, those with marital problems, those who drove without a licence, and those with three or more non-alcohol-related traffic offences. Because of the higher recidivism rate, the program has changed such that individuals with these risk factors are no longer eligible. This change restricts participation to a homogeneous group of DWI offenders who are most likely to derive benefit from the program activities.

- **The Manitoba Impaired Drivers Program.** Manitoba is the only province that requires all DWI offenders to undergo assessment by a recognized agency. This assessment forms the basis for referral to a remedial program. Upon completion of the recommended program, offenders must file a satisfactory report on their alcohol and drug use before licence reinstatement.

Assessments are conducted by the Addictions Foundation of Manitoba. The process takes at least an hour, but can vary depending on the individual and the extent of the problem. Assessment techniques include standardized instruments such as the Substance Abuse Life Circumstances Evaluation (SALCE) and the Mortimer-Filkins Questionnaire (M-F), which are supplemented by clinical interviews. The cost to the offender is $270.

The primary objective of the assessment is to determine the nature and extent of the offender's involvement with alcohol and other drugs. The assessment results are used as the basis of referral to a remedial program. Offenders having no identified problems do not receive a referral to a rehabilitation program. Offenders having a potential problem are directed to either an educational workshop or a high-risk program. Offenders having an active problem are referred to either residential or non-residential treatment.

The Manitoba Impaired Drivers Program is a comprehensive system of assessment, intervention and follow-up that is integrated with the driver licensing system to help ensure that (1) individuals receive the treatment most appropriate to their level of involvement with alcohol and drugs and that (2) people with active alcohol problems do not automatically become reinstated as drivers.

In a follow-up study of 710 program participants conducted six months after assessment, Ambtman (1990) found at least some indication of fewer alcohol problems among offenders after program participation. More clients reported not having had a drink (23%) in the six months after assessment than in the six months before assessment. However, self-reported drinking and driving behaviour in the previous month actually increased from 2.4% before assessment to 10.5% afterward. People with a permanent licence at the time of follow-up were more likely than those with a temporary licence or no licence to report driving after drinking. An examination of the differential impact of the various remedial programs revealed few differences among groups, with the exception that offenders referred to the treatment program showed the greatest change in alcohol consumption. The very short period of

the follow-up and the lack of a comparison group make it difficult to draw firm conclusions from these findings.

A more comprehensive evaluation of the program is currently under way.

- **A Coping Skills Development Program.** As stated earlier, assessment should not be restricted to an examination of problems associated with alcohol consumption. Rather, a comprehensive assessment should incorporate aspects of personality, attitude and social adjustment to create a better understanding of the factors that contribute to DWI behaviour. Such an assessment presumes the availability of remedial programs that deal with these contributing factors.

Donovan et al. (1990) describe an example of a program to develop prevention skills among alcohol-involved drivers. The program assumes that many DWI offenders have difficulties with both drinking behaviour and other areas of emotional and interpersonal functioning. In the absence of more appropriate and effective strategies, alcohol consumption and driving after drinking may serve as ways of reducing stress, frustration and tension and increasing the individual's sense of personal control and efficacy. The program curriculum uses a skills-training approach to teach effective decision-making and alternative adaptive responses to situations that are likely to lead to excessive drinking and high-risk driving. Areas covered include behavioural self-management skills, drinking self-management skills, alcohol-related coping skills, identifying high-risk drinking and driving situations, and developing a "personal road map" for the future. Groups of eight offenders meet weekly for four sessions of two hours each.

An outcome evaluation compared the subsequent records of a group of first-time offenders who attended the prevention skills program with a similar group of offenders who attended only an interview and another group that served as a no-treatment control. The evaluation found 32.7% and 21.5% fewer alcohol-related convictions in the prevention skills group than in the interview and control groups, respectively. The results were even more impressive among prevention skill program participants who were younger, better educated and more socially stable, who drank less often and who had fewer episodes of heavy drinking.

Although based on relatively small numbers of participants, the results of the prevention skills development program are promising and support the expansion of the coping skills model for DWI offender remedial programs. The results also indicate the potential clinical relevance of differential assessment and the value of matching offenders to different types of rehabilitation.

- **Other rehabilitation evaluation studies.** Several studies provide further information on the relative effectiveness of various types of remedial programs for impaired drivers.

In 1976, a project was undertaken in California to determine the relative efficacy of licence suspensions when compared to an educational program. Repeat offenders could avoid the mandatory 12-month licence suspension by enrolling in and completing an alcohol education and treatment program. The impact of this program has been evaluated at various intervals since its inception. The initial evaluation of the pilot program found mandatory licence suspensions to have a greater beneficial effect on traffic safety measures than participation in a one-year drunk-driving remedial program (Hagen et al., 1979). The less-than-encouraging results from the alcohol rehabilitation program were attributed to the fact that participants in the program were able to maintain their licence and continue

driving throughout the 12-month period studied. The positive impact of licence suspension was attributed to reduced or more cautious driving by offenders during the period of suspension.

The short follow-up period of the initial evaluation was insufficient to address questions about the long-term effects of the licence suspensions compared to alcohol treatment programs. Because most people in the licence suspension group were eligible for reinstatement after 12 months and because the alcohol treatment group had also completed the remedial program by this time, it is possible that the initial superiority of licence suspensions would dissipate once this group had their driving privileges reinstated. The effect of remedial approaches might be evident only over the longer term, after the completion of the program.

Sadler and Perrine (1984; Perrine and Sadler, 1987) investigated this hypothesis by examining traffic accidents, convictions and driving records of participants at the end of four years. Alcohol treatment participants had approximately 70% more non-alcohol-related accidents and convictions than offenders who received a licence suspension. There was no difference between groups in terms of alcohol-related crashes. However, alcohol remedial program participants were found to have approximately 9% fewer alcohol-related convictions than licence suspension subjects. Although there are encouraging aspects to these findings, the overall results are difficult to interpret, particularly in light of the pre-existing differences between the groups, which placed remedial program participants at higher risk of recidivism before program entry.

The pattern of results from the California project suggests that licence action has a greater impact on traffic safety measures than alcohol rehabilitation programs in both the short and long term. Participation in an alcohol remedial program in lieu of licence action was not as effective as licence suspension. The beneficial effect of licence suspensions is evidenced by the reduction of non-alcohol-related crashes and convictions; this effect seems to be the result of reduced quantity, and perhaps improved quality, of driving exposure even beyond the initial period of disqualification. The

lack of a substantial impact on alcohol-related convictions and accidents indicates that neither licence action nor alcohol remedial programs had any specific effect on drinking-driving behaviour. In fact, over 40% of subjects in both groups were subsequently convicted of an alcohol-related traffic offence within the four-year follow-up period (Peck, Sadler and Perrine, 1985).

Wells-Parker et al. (1988) evaluated the relative effectiveness of probation, short-term intervention and the administration of a self-report questionnaire on repeat impaired driving convictions in a large sample of offenders in Mississippi. Participants were first classified into high-risk and low-risk groups according to 10 criteria, including an alcohol assessment, BAC at time of arrest and number of prior convictions. Offenders were then randomly assigned to one of four groups: one-year monthly probation, short-term intervention, a combination of probation and short-term intervention or a control condition. For low-risk offenders, the short-term intervention consisted of a traditional educational program; for high-risk offenders intervention took the form of structured group therapy. As well, within each group, a subsample of offenders completed the Life Activities Inventory (LAI) at intake, at six months and at one year after entry. The LAI is a lifestyle outcome measure with a predominant focus on problems in marriage, family life, occupation and financial adjustment as a consequence of extant life routines. The instrument reportedly provides an opportunity for introspective searching and self-reflection and has been shown to function as a positive intervention factor among convicted drinking drivers (Neff and Landrum, 1983).

Six to nine years after program entry, 45.6% of participants had committed a subsequent drinking-driving offence. Among high-risk offenders, 51.4% had committed an offence; 37.3% of low-risk offenders had another conviction. Probation and LAI completion were found to have a small, long-term effect in reducing recidivism. Low-risk offenders who completed the LAI were two-and-a-half times less likely to be convicted of a subsequent offence than high-risk offenders. The effect of LAI completion was most positive among people with at least some high school education and was actually counterproductive among people with less than eight years of education.

A subsequent evaluation of the effectiveness of the LAI failed to find substantive evidence to support its use as part of offender remedial programs (Snow et al., 1993). Nonetheless, the results were consistent with previous research in demonstrating that the LAI is effective among offenders having higher levels of education but not among those having little education. The researchers suggest that the LAI be administered once with no follow-up or discussion, and only to those offenders who have more than a high school education.

Temer et al. (1987) reported on the impact of a seemingly minor change in a one-year outpatient program for people convicted of repeat drinking-driving offences. The program consisted of 58.5 hours of group therapy, 8 hours of individual counselling and attendance at 20 Alcoholics Anonymous (AA) meetings. Before March 1982, disulfiram was required of all participants; after this date, participants had the option of taking disulfiram or attending 24 additional AA meetings. Among those given a choice of treatment, there was a 36% improvement in recidivism compared to previous participants who were not given a choice. It appears that treatment success is greater when offenders are allowed some choice in the selection of treatment modality.

- **Summary.** A wide variety of DWI rehabilitative programs exist, ranging from brief educational encounters to intensive treatment for alcohol dependency. The effectiveness of these programs varies. None has proven effective for all types of offenders, but some programs appear to have better success with particular groups. Nevertheless, many programs have been shown to have positive results. In fact, a recent meta-analysis of the impact of DWI remedial programs found an average 8% to 9% improvement in DWI recidivism and alcohol-related crashes over no remedial program (Wells-Parker et al., 1995). This estimate of the magnitude of the effect of remedial programs for DWI offenders represents an average across all types of offenders and programs. Programs having combined approaches (e.g., education with monitoring) were more effective than single approaches for both repeat and first-time offenders. Offenders considered to be at moderate risk of recidivism responded better to treatment than did more severe or "high-problem" offenders.

Although the magnitude of the effect of remedial programs may not be large or match expectations, the effects are nonetheless substantial and important. In the field of traffic safety, even small improvements in drinking-driving behaviour can yield significant benefits when translated into reduced crashes, deaths and injuries. Moreover, the demonstration of small, positive effects indicates that these programs warrant further study and continued effort.

7.3.3 Integrating assessment and rehabilitation

Studies of the effectiveness of DWI intervention programs have typically concluded that the small or non-existent effects of such programs are, to some extent, the result of the heterogeneity of the offender population (Foon, 1988; Mann et al., 1983). Not all offenders benefit from the same types of interventions. Rather, certain types of offenders derive greater benefits than others from specific types of interventions. This disparity suggests the need for a system to match offenders to the intervention programs from which they are most likely to benefit.

The concept of matching clients to treatments has long been recognized in the alcohol treatment field (Miller and Hester, 1986). Nirenburg and Maisto (1990) indicate that clinicians have used an informal system of matching clients to specific types of rehabilitation programs for many years. A major multisite test of the treatment-matching hypothesis is currently in progress (Donovan et al., 1994).

Within the drinking-driving field, the U.S. Alcohol Safety Action Projects of the 1970s represent an initial attempt to distinguish between low-risk and high-risk DWI offenders by using alcohol abuse levels to assign offenders to different treatments. More recent research indicates that predicting future traffic safety risk requires more than knowledge about an offender's level of involvement with alcohol – information on a variety of other personality, attitudinal, demographic and behavioural factors is also required to help determine the most appropriate intervention (Timken et al., 1995).

Several studies have identified distinct and clinically relevant typologies of DWI offenders (see section 3.6). Although alcohol abuse is a feature of many of the subgroups identified, depression, hostility and high-risk lifestyles are predominant in others. The implications for determining the most effective intervention strategy varies as a function of the characteristics of the subgroups.

To date, there have been few empirical validations of the treatment-matching hypothesis in the DWI field (Landrum et al., 1987; Struckman-Johnson and Ellingstad, 1978; Reis, 1982; Wells-Parker et al., 1979). In general, the few studies that do exist indicate that the effectiveness of various intervention strategies varies according to offender characteristics, but the studies provide little guidance on which types of interventions are most beneficial for specific types of offenders. Many treatment strategies and their specific impact on various types of offenders have yet to be examined. Considerable research – including randomized trials – remains to be conducted in this area.

8. Program and Policy Implications

Previous sections of this report have indicated that DWI repeat offenders – defined as people who drive after drinking frequently and often at high BACs – represent a serious public health and safety problem. They account for a substantial portion of the alcohol–crash problem. Because traditional countermeasure approaches often appear to have little impact on this high-risk group, innovative programs and policies are needed to deal effectively with these offenders.

It has also been noted DWI repeat offenders are by no means a homogeneous group. Although united by one common characteristic – i.e., persistent impaired driving – they exhibit a wide range of demographic and personal characteristics. The variety of characteristics within this population implies that it is neither appropriate nor effective to deal with all DWI offenders in the same manner. There needs to be considerable flexibility to address the heterogeneity of the target population with a variety of programs.

This section examines some of the program and policy options for dealing efficiently and effectively with DWI repeat offenders. It is intended to provide guidance for developing a comprehensive strategy. In this context, it must be recognized that an effective countermeasure strategy must embrace a variety of integrated measures and programs. No one measure by itself, nor any set of measures acting independently, will be sufficient to address the problem. Accordingly, this section describes program and policy options in four groups: prevention, identification and apprehension, sanctions, and rehabilitation. The description of options is followed by a discussion of how these measures could be integrated to form a comprehensive countermeasure strategy.

8.1 Prevention

The public health perspective advocates primary prevention as a key component of impaired driving countermeasures. The purpose is to prevent impaired driving before it occurs. However, many public health policies and programs would have little direct impact on the problem of DWI repeat offenders – e.g., raising the drinking age or reducing hours of sale. Although such approaches may have merit, they remain controversial. Nevertheless, the potential of primary prevention measures to affect the DWI repeat offender should not be overlooked.

This section recommends three approaches that are worthy of further consideration:

- Encourage the development, refinement and adoption of server training programs.
- Encourage designated driver and alternative transportation programs for DWI repeat offenders.
- Develop and distribute anti-drinking-driving messages aimed at the DWI repeat offender.

A brief explanation of each of these recommendations follows.

Recommendation 1.1: Encourage the development, refinement and adoption of server training programs.

In the past several years, the courts have held bars and taverns liable for damages caused by patrons who had been served to a point of intoxication. Many of these cases involved an impaired driver responsible for a collision that resulted in serious injury or death. As a result, licensed establishments have become increasingly accepting of the server training concept. Server training can reduce the likelihood of a patron causing serious harm and reduce the liability of the licensed establishment.

To a large extent, DWI repeat offenders represent the type of patrons most likely to require intervention from establishment staff to ensure that they do not get behind the wheel of a vehicle when they leave. However, because these people may be considered "good customers", staff or management may be reluctant to restrict service or to suggest that these patrons not drive, as it may encourage them to drink at another location where they are not "harassed".

One solution is mandatory server training. A strategy that would go a long way toward keeping high-BAC drivers off the road would be to ensure that all managers and servers of alcohol in licensed establishments received the same training, met the same standards and rigorously applied the appropriate techniques. The training programs could be enhanced to include information about the specific problem of the DWI repeat offender and how to deal effectively with this type of person.

To overcome the poor ability of most people to judge the extent of impairment in others, particularly with reference to legal BAC limits, training programs might include instruction in the use of portable breath-testing devices. This training would allow servers (or managers) to offer patrons the option of having their BAC checked before leaving the establishment. The concept of tavern breath-testing is not new. However, public access to breath-testing devices fell into disfavour as a consequence of poor field reports of their use in the 1970s (e.g., Calvert-Boyanowski and Boyanowski, 1977). Twenty years later, although public breath-testing units are still available in some locations, they have never been widely accepted. Incorporating breath-testing into a server training program might alleviate many of the previous concerns about the concept while providing patrons with the opportunity to assess their BAC objectively and reliably within the context of a program that also provides confidential information and advice from trained personnel.

Such breath-testing would need to be done under the supervision of an individual who is capable of interpreting the reading and answering questions about it. Many people do not understand how alcohol consumption and BAC are related and have never had the opportunity to have their BAC measured. In fact, most people are very poor estimators of their own BAC (Beirness, 1987). Although some people grossly overestimate their BAC, heavier drinkers who are most likely to drive after drinking tend to underestimate their BAC – i.e., they believe their BAC is lower than its actual value. Often, they do not consider themselves to be impaired and believe they are capable of driving. Having the opportunity to measure their own BAC under supervision provides them with a tremendous educational opportunity, while offering the server the opportunity to advise patrons about transportation alternatives.

As an adjunct to server training, an education program for bar and tavern patrons could be implemented (e.g., Worden et al., 1989). The purpose of such a program would be to train drinkers to self-regulate their alcohol consumption such that they do not exceed a particular BAC – e.g., 50 mg%. Drink calculators or wallet cards could be distributed to patrons of licensed establishments. Servers knowledgeable in the use of such BAC calculators could demonstrate and encourage their use. Portable breath-testing instruments could also be made available for patrons to check their BAC before departure. Community and corporate sponsors could participate in the sponsorship and promotion of the program.

Recommendation 1.2: Encourage designated driver and alternative transportation programs for DWI repeat offenders.

The characteristics of the DWI repeat offender group suggest that while at least a portion of this population enjoy drinking (and enjoy drinking heavily and often) with like-minded peers at a bar, they are not likely to get together and select one person as a designated driver; rather, they are most likely to arrive and leave separately.

To overcome this obstacle, the Harvard School of Public Health project is focusing on intervention by companions of the heavy drinker – often a wife or girlfriend, but also peers. The intervention is to encourage companions to recognize when the person has had too much to drink to drive safely and to either suggest alternative transportation or provide it themselves. The other side of this approach is to increase the heavy drinkers' acceptance of the intervention.

Although this high-risk group may appear to be a tough market to penetrate with a message that is inconsistent with their established patterns of behaviour, the beer industry has proven that it can be done successfully. For example, some of the characteristics of the high-risk target group are similar to the characteristics of people portrayed in the Miller Lite beer commercials – heavy drinkers and strong, masculine figures in blue collar work situations or with a male peer support group of people who work together, play together and drink together. If Miller can convince this group to drink what was once perceived to be a "sissy" drink – i.e., light beer – surely we can sell them on the concept of accepting a safe ride home.

Recommendation 1.3: Develop and distribute anti-drinking-driving messages aimed at the DWI repeat offender.

Mass media anti-drinking-driving communications have been a part of drinking-driving countermeasures for many years. The purposes of these communications have been to inform the public of the dangers of driving after drinking, to change the social acceptability of driving after drinking, and to create a social climate that is accepting of the types of strong measures necessary to deal with the problem.

Such programs have typically been directed toward the general public or special groups such as youth. Few, if any, communications have specifically targeted the DWI repeat offender. While general public information and education programs may have some impact on social drinkers, they are probably of little value in affecting the behaviour of people who fall into the category of the DWI repeat offender (Jacobs, 1989). If anti-drinking-driving communications are to be effective in changing the attitudes

and behaviour of this high-risk group, "substantial changes need to be made not only in the content of the messages but also in the methods for delivering them (where, when and how)" (Simpson and Mayhew, 1991, p. 66).

The project under way at the Harvard School of Public Health is an example of how information about DWI repeat offenders can be combined with marketing strategies to identify the most effective ways and means to reach this high-risk group with an appropriate message (Isaac, 1995). The message being promoted as part of this project concerns intervention by companions to prevent the high-risk impaired individual from driving. Although the approach has yet to be evaluated, it holds promise and is worthy of further consideration.

8.2 Identification and Apprehension

In recognition of the seriousness of the impaired driving problem in Canada, the courts have permitted the police to stop drivers without cause for the purpose of determining whether or not the driver has been drinking. This authorization has allowed the police to conduct special enforcement campaigns – usually random spot checks – to check for impaired drivers. These high-profile enforcement efforts increase the perceived probability of being arrested for impaired driving. Such campaigns, when combined with publicity, have been shown to have a significant impact on the prevalence of drinking and driving (e.g., Mercer, 1985; Parker, 1996).

The effectiveness of these campaigns in detecting the DWI repeat offender is questionable. Given the tremendous commitment of resources necessary to conduct such campaigns and the small proportion of high-BAC drivers on the road, it simply is not efficient to use this technique to identify DWI repeat offenders. Furthermore, it has been demonstrated that about half of all legally intoxicated drivers manage to escape detection in spot checks. Every time high-BAC drivers escape detection, the likelihood that they will drive after drinking again increases.

This section identifies two approaches that could be implemented to enhance the efficiency and effectiveness of police efforts to apprehend DWI repeat offenders and remove them from the road before they cause harm:

- Implement the use of passive alcohol sensors for screening drivers.
- Implement police saturation patrols for impaired drivers.

Each of these recommendations is discussed in further detail below.

Recommendation 2.1: Implement the use of passive alcohol sensors for screening drivers.

The fact that about half of all impaired drivers are able to avoid detection in police spot check programs is most disturbing. Not only do these people continue to drive on that occasion, their escape from detection increases the likelihood that they will drive impaired on subsequent occasions.

Having every driver submit to a breath test regardless of whether the police officer has a "reasonable suspicion" of alcohol use – i.e., random breath-testing – is not a viable option in the present legal

context in Canada. The use of passive alcohol sensors to detect the presence of alcohol in the ambient air around the driver may be a practical and viable alternative. An indication of the presence of alcohol could be viewed as constituting a "reasonable suspicion" of alcohol use and would allow the police officer to proceed with further testing.

The use of this technology provides a means of screening large numbers of drivers efficiently and effectively (Foss et al., 1993; Jones and Lund, 1986; Voas 1983).

Recommendation 2.2: Implement police saturation patrols for impaired drivers.

Routine patrols are more efficient and effective than random spot checks in identifying impaired drivers. Because patrol officers are able to observe driving behaviour, they can be selective and stop only those drivers who have a high likelihood of being impaired. Time is not wasted talking to a large number of drivers who have not been drinking, as in spot checks.

Saturation patrols maximize the efficiency and effectiveness of routine patrols as a means of identifying impaired drivers by having a number of patrol units concentrate their impaired driving enforcement efforts in a specific geographic area. A number of officers, who might otherwise be assigned to a spot check, patrol a limited geographic area looking specifically for impaired drivers. Saturation patrols might also be viewed as a roving, mobile spot check. These roving patrols are difficult to avoid, and the drivers arrested are most likely to be those at highest risk of crash involvement.

Saturation patrols combine the desirable features of spot checks and routine patrols to create an efficient means of identifying the highest risk group of impaired drivers – DWI repeat offenders. Such patrols have received positive reports from New York state. Initial indications suggest that the approach is a promising means of enhancing the efficiency and effectiveness of enforcement efforts.

8.3 Sanctions

This section outlines options for the sentencing of DWI repeat offenders. Sanctions are one component in dealing with offenders. Rehabilitation options are outlined in a subsequent section.

As mentioned earlier, few people would disagree with the concept of punishing offenders for their crime, but how to punish and for how long remain contentious issues. Victim groups and community-based organizations continue to call upon legislators to take a tougher stand on impaired driving and to impose even more severe penalties on people who continue to violate impaired driving laws. But while it is difficult to ignore the pleas of those who have witnessed first-hand the tragedy of impaired driving, research indicates that more severe sanctions may actually be counterproductive (Homel, 1988; Mann et al., 1991).

Finding the optimal sanction, or set of sanctions, to deal with the DWI repeat offender is indeed a challenge. The available research provides little guidance in determining what level of severity is most appropriate. Furthermore, in light of the variability in the characteristics of this high-risk target group, different types and levels of sanctions may be more appropriate for specific subgroups in this population. Hence, flexibility in sentencing options may be a key factor in developing effective sanctions. This principle is reflected in the following recommendations:

- Implement an alcohol ignition interlock program for high-risk offenders.
- Implement a program of vehicle-based sanctions for people who violate licence suspensions.
- Implement a system of graduated re-licensing that incorporates flexible licence suspensions and a systematic reintroduction to full driving privileges.
- Use home arrest and electronic monitoring in cases where incarceration is deemed warranted and appropriate.
- Implement tiered or graded BAC limits that would tie sanctions to the severity of the offence.

Each of these recommendations is outlined below.

Recommendation 3.1: Implement an alcohol ignition interlock program for high-risk offenders.

Ignition interlock devices can be a valuable adjunct to the rehabilitation of convicted impaired drivers. After a period of licence suspension, the installation of an ignition interlock allows the offender to re-enter the driving population legally, while offering some assurance of public safety because the offender can drive only when he or she has not been drinking. In this way, interlocks can be viewed as part of the transition between full licence suspension and a return to full driving privileges. They provide a constant reminder of the problems associated with alcohol abuse, a reinforcer for not drinking and a fail-safe mechanism to prevent tragedy in the event of a relapse while the offender is engaged in a treatment program.

There is an ever-increasing body of evidence indicating that alcohol ignition interlocks have a beneficial impact on recidivism rates (Collier and Comeau, 1993; EMT Group, 1990; Morse and Elliott, 1990, 1992; Popkin et al., 1993). These studies show significantly lower reconviction rates among offenders who participate in the interlock program compared to offenders who do not participate in the program. The difference in recidivism has been reported to be as high as 65%. The most effective programs are those having a system of routine monitoring. Regular contact with program authorities appears to be a key feature.

Recent studies in North Carolina (Popkin et al., 1993), Oregon (Jones, 1993) and Ohio (Elliott et al., 1993) indicate that after the interlock is removed from the offender's vehicle, the re-arrest rate is no different from that among offenders who did not have an interlock installed. The fact that re-arrest rates increase after the interlock has been removed is perhaps not unexpected, nor should it be used to discredit or discount the beneficial effects of interlock programs. Many of the offenders assigned to interlock programs have serious problems of alcohol abuse. Interlocks are not a treatment for alcohol abuse. Rather, the purpose of an interlock is to prevent an individual with a high BAC from driving. The evidence clearly indicates that they accomplish this objective fairly well.

It is not intended that ignition interlocks be introduced as an independent program. They are a temporary measure and need to be incorporated into a more comprehensive set of sanctions and programs for their maximum benefit to be realized. In this context, interlocks could play a key role in a system of graduated re-licensing.

Recommendation 3.2: Implement a program of vehicle-based sanctions for people who violate licence suspensions.

A recent study in Ontario found that 34% of drivers knowingly violated their suspension (Matsui et al., 1991). In the United States, studies indicate that up to 75% of suspended drivers continue to drive (Nichols and Ross, 1990). In most jurisdictions, the typical sanction for driving while under suspension is an extension of the period of suspension – a hollow gesture, at best.

Manitoba was the first province in Canada to introduce a vehicle seizure and impoundment program for people found to be driving while under suspension. Alberta has introduced a similar program, and several other provinces have expressed interest in it. Alternatives to impoundment include immobilization and special licence plates or sticker programs. The purpose of all of these programs is to restrict the suspended driver's access to a vehicle and thus to reduce the likelihood of impaired driving.

These programs are relatively new and have not been subject to rigorous evaluations. Nonethelss, as programs that are appropriate for dealing with a specific problem, they appear to hold considerable promise as an effective measure.

Recommendation 3.3: Implement a system of graduated relicensing that incorporates flexible licence suspensions and a systematic reintroduction to full driving privileges.

Suspending the driving privileges of convicted DWI offenders has proven to be one of the most appropriate and effective sanctions available (Blomberg et al., 1987; McKnight and Edwards, 1987; McKnight and Voas, 1991; Ross and Gonzales, 1988; Williams et al., 1991; Voas and Tippetts, 1993).

In Canada, most jurisdictions impose a 12-month suspension for a first impaired driving offence; two years is common for a second offence; and three to five years is the norm for subsequent convictions. These suspensions can present a significant penalty to many offenders. As a consequence, many people charged with impaired driving elect to contest the charges to either delay or avoid the suspension. Deterrence theory predicts that this delay or absence of suspension reduces the effectiveness of the sanctions.

Under the present system, all offenders must serve the same length of suspension regardless of the seriousness of their behaviour or the extent of harm that resulted from their actions. In addition, once the suspension is complete, many jurisdictions simply reinstate the driver's licence. Where there are conditions attached to relicensing, offenders typically delay fulfilling these conditions until near the end of their suspension.

A system of graduated relicensing would involve flexible terms of suspension, opportunities to reduce the period of suspension and a step-by-step reintroduction to driving privileges that would help ensure that when offenders do drive, they do so legally, with insurance, under supervision and only while sober. All offenders would serve a mandatory minimum period of suspension. Participating in remedial programs, installing an alcohol ignition interlock device or using an autotimer could reduce the period of suspension. On reinstatement, all drivers would be subject to a zero-BAC restriction and time-of-day or day-of-week restrictions. Such restrictions allow offenders to drive to enable them to maintain employment and fulfil major role obligations. The actual terms of reinstatement could be geared to the offender and his or her particular situation. Violations of the conditions, including driving after drinking, would be grounds for an immediate return to full suspension.

Graduated relicensing is not intended as a stand-alone program. Rather, it would be an integral component of a more comprehensive system of sanctions and programs. A primary feature of the system would be its ability to offer incentives for participating in remedial programs and re-entering the driver licensing system legally, under supervision and with insurance.

Recommendation 3.4: Use home arrest and electronic monitoring in cases where incarceration is deemed warranted and appropriate.

In Canada, a second impaired driving offence carries a mandatory 14 days in jail; subsequent offences have a minimum three-month period of incarceration. Interactionist theory (see section 4.3.2) suggests that sending impaired drivers to jail creates and solidifies the criminal identity and stigmatizes the individual to the point where changing behaviour is considerably more difficult.

Home arrest and electronic monitoring are viable alternatives to incarceration for DWI repeat offenders. Such programs maintain the punitive aspect of confinement while allowing the offender the opportunity to fulfil major role obligations. The extent of monitoring can be gradually reduced as the offender complies with restrictions. The success of this type of program with DWI offenders has been demonstrated (Baumer and Mendelsohn, 1992).

Recommendation 3.5: Implement tiered or graded BAC limits that would tie sanctions to the severity of the offence.

At present, Canadian law specifies a BAC limit of 80 mg%. Upon conviction, all impaired drivers face the same sanctions. Drivers with a BAC just over the limit are treated in the same manner as drivers with BACs in excess of 200 mg% even though the risk posed to society is many times greater with the high-BAC driver.

An alternative approach involves a system of relative BAC limits that links the level and type of sanctions to the severity of the offence as determined by the driver's BAC. Higher BACs at the time of arrest would result in more severe sanctions than lower BACs. Higher BACs could also be used to facilitate automatic entry into certain remedial programs.

8.4 Assessment and Remedial Programs

The overall objective of assessment and remedial programs is to identify and deal with the personal factors that give rise to continued DWI behaviour in order to prevent its subsequent occurrence. Numerous examples exist of good assessment and remedial programs. *However, this section does not recommend a specific procedure or program;* rather, it recommends an *approach* – the specifics of how that approach is accomplished should remain with those responsible for its implementation. Such decisions can and should use whatever information is available from experiences in other jurisdictions to develop the most effective system for changing the behaviour of DWI repeat offenders.

This section identifies six approaches that could be adopted to help ensure that DWI offenders do not repeat the behaviour:

- Develop and implement a procedure to assess every person arrested or convicted of an impaired driving offence.
- Require DWI offenders to complete a recommended remedial program as a condition of license reinstatement.
- Implement a case management system to monitor offenders and to facilitate their access to programs and services.
- Develop and implement a system of screening and referral for drivers treated in hospital emergency departments for injuries sustained in motor vehicle crashes.
- Require all drivers who have accumulated two or more short-term (i.e., 12-hour to 24 hour) licence suspensions to undergo assessment.
- Require all drivers who come to the attention of licensing authorities for repeat violations or crash involvements to undergo assessment.

Each of these recommendations is outlined below.

Recommendation 4.1: Develop and implement a procedure to assess every person arrested or convicted of an impaired driving offence.

As outlined in section 2, the DWI repeat offender is not just someone who has been convicted for DWI on more than one occasion. People who meet the definition of the DWI repeat offender can also be found among first-time offenders. Hence, it is imperative that all DWI offenders be assessed as a matter of routine.

The need for assessment stems from the fact that DWI repeat offenders are a diverse group. They exhibit a wide variety of characteristics and may engage in DWI behaviour for a number of different reasons. No one remedial program will prove effective for all offenders. Indeed, not all offenders require remedial programs. Accordingly, it is necessary to determine the characteristics of offenders to identify which offenders would benefit from some form of intervention and to facilitate assignment to the most appropriate remedial program.

In this context, there is a growing body of evidence indicating that there may be several clinically relevant subtypes of DWI offenders (Donovan and Marlatt, 1982; Wells-Parker et al., 1986; Wilson, 1991). These subtypes, based on personal, behavioural, environmental and social factors, may prove useful in developing assessment techniques and in matching offenders to appropriate remedial strategies.

A word of caution is warranted. Studies that have determined subtypes of DWI offenders derive these subtypes using different techniques, variables and samples. Although there is a certain degree of similarity among some of the subtypes in the various studies, there is not yet any consensus on which subtypes represent reliable and clinically valid groups that would form the basis for treatment recommendations. Further research in this area is necessary to determine the clinical validity of these subtypes.

In any event, assessment should serve as the basis for any subsequent treatment recommendations. The evaluation of treatment programs for DWI offenders has repeatedly demonstrated the need for matching between offenders and programs to maximize the efficiency and effectiveness of programs. Assessment of offenders is an essential first step in treatment matching.

Treatment matching is currently receiving a great deal of attention in the addictions field (e.g., Donovan et al., 1994). Even among people diagnosed with substance abuse disorders, the effectiveness of the intervention is believed to be related to client characteristics. Some types of clients may experience greater success with certain types of interventions. Accordingly, DWI offenders deemed to be in need of an intervention for a substance abuse disorder should be directed to a trained clinician for further assessment.

An assessment program needs to be as comprehensive as possible, using clinically sensitive techniques. The assessment needs to go beyond alcohol use and substance abuse problems to examine personality traits, personal circumstances and attitudes. These characteristics provide valuable information about risk-enhancing attitudes, they are useful in the identification of typologies of offenders, and they make it possible to identify the most appropriate and effective remedial strategy. It should be noted, however, that an assessment instrument of this type does not currently exist and would have to be developed.

Recommendation 4.2: Require DWI offenders to complete a recommended rehabilitation program as a condition of license reinstatement.

On the basis of the assessment, a recommendation would be made for the most appropriate remedial program or programs for each offender. Completion of the recommended programs, along with certification that the identified problem is under control, would be required before licence reinstatement. The purpose of a remedial program is to resolve the problems underlying repeated DWI behaviour and thus to reduce the likelihood of its recurrence.

A variety of remedial options must be available. In some cases, little or no intervention is necessary. Other cases may require treatment for an alcohol abuse disorder, marital or family counselling, anger management training, an educational program, treatment for depression, employment counselling or life skills training. It is not necessary to develop a new set of programs for DWI offenders. Rather, many appropriate programs and services already exist within the community and should be exploited wherever possible. If necessary, it would undoubtedly be more efficient to expand existing services than to develop new ones.

In cases where the assessment indicates a problem of alcohol dependency, it is recommended that people be referred to a substance abuse professional for further assessment and matched with the most appropriate treatment. The diagnosis and treatment of substance abuse disorders is complex and is best left to clinicians trained in this area.

Recommendation 4.3: Implement a case management system to monitor offenders and to facilitate their access to programs and services.

In many jurisdictions, once offenders have completed the requirements for licence reinstatement, their driving privileges are reinstated and there is no further contact with the assessment, referral or remedial programs (if these indeed exist). However, research has shown that regular contact with offenders can have a beneficial effect on DWI recidivism (Voas and Tippetts, 1990).

Recently, case management has been proposed as a model for monitoring offenders while assisting them in the process or change. (Marques and Voas, 1995). The case management approach to managing client services has evolved from social casework and has proven to serve a useful and supportive function by placing a sensitive, knowledgeable and capable person between the client and the public health and social services network (Ashery, 1992). The application of the case management model to problem drinkers was described several years ago (Ogborne and Rush, 1983) and its utility for DWI offenders is currently being evaluated in a project in Alberta (Beirness, 1996; Marques et al., 1995).

One of the problems that has been identified with mandatory assessment and remedial programs is that offenders typically do not gain access to these programs until near the end of their period of suspension. The implication is that a year or more passes without any remedial intervention. This time could be put to involvement in a remedial program; instead, the time is wasted, and any problems that are present might well become worse.

A solution would be to initiate the case management process as soon as possible after conviction. Ideally, the offender’s first visit with the case manager would occur on the same day, within hours of being convicted. This solution not only gets the offender involved sooner, it catches offenders at a time when they might be particularly receptive to the idea of changing their behaviour.

In the present context, the case management approach is seen as a means to coordinate the various aspects of an assessment and remedial program. The case manager would play the role of advocate, counsellor, resource, facilitator and behavioural coach to help the offender accomplish the goals of an individualized plan to prevent a return to DWI behaviour. The approach specifically acknowledges that treatment for many of the problems exhibited by DWI repeat offenders – particularly alcohol abuse – is often a long-term process. Relapses and temporary setbacks may occur. By monitoring offenders over a period of time both during and following licence reinstatement, the case manager may help to reduce the frequency of relapses and lessen the consequences of those that do occur.

Recommendation 4.4: Develop and implement a system of screening and referral for drivers treated in hospital emergency departments for injuries sustained in motor vehicle crashes.

Often, drivers who sustain injuries in motor vehicle crashes are not charged with a DWI offence, despite the fact that research shows that as many as one-third of all drivers treated in hospital emergency rooms have been drinking (Vingilis, Stoduto and Macartney-Filgate, 1993; Vingilis et al., 1993; Warren et al., 1982). Follow-up with a group of alcohol-positive motor vehicle crash victims found that 58% reported driving after drinking again within a year of hospital discharge (Larkin et al., 1993). In addition, Buntain-Ricklefs et al. (1995) indicate that previous trauma is a predictor for subsequent DWI arrest.

Hospital emergency departments see a large number of drinking drivers who have been involved in crashes. Quite often these people are not arrested or convicted of impaired driving; hence, they never enter assessment and rehabilitation programs for DWI offenders. Serious crash involvement could be viewed as grounds for engaging drivers in the regular assessment program. Attending physicians could refer these patients for assessment while in hospital and make recommendations for appropriate treatment (e.g., Colquitt et al., 1987). Alternatively, hospital admission as the result of an alcohol-related crash could be made a condition reportable by the physician to driver licensing authorities who could then mandate assessment as a condition of licence reinstatement. This process would undoubtedly identify a number of DWI repeat offenders, who could then be directed into remedial programs.

Recommendation 4.5: Require all drivers who have accumulated two or more short-term (i.e., 12-hour to 24-hour) licence suspensions to undergo assessment.

In light of evidence of the increasing use of short-term administrative licence suspensions as an alternative to criminal charges for drinking drivers, it is likely that a number of DWI repeat offenders are escaping sanctions and remedial programming. In addition, two or more short-term administrative suspensions provide evidence of repeated drinking-driving behaviour. In either case, requiring these people to undergo assessment and, where necessary, participation in a remedial program is another way to prevent subsequent DWI behaviour through early identification.

Newfoundland is currently the only province in Canada to use 24-hour administrative suspensions as a basis for further licensing action. Drivers who accumulate three or more 24-hour suspensions in a two-year period are subject to a two-month suspension, and offenders must attend a brief educational program.

Recommendation 4.6: Require all drivers who come to the attention of licensing authorities for repeat violations or crash involvements to undergo assessment.

Problem behaviour theory indicates that people who engage in driving after drinking are also likely to engage in a variety of other problem behaviours, including risky driving. Similarly, people who exhibit risky driving are also likely to engage in DWI behaviour. There is evidence to support this hypothesis. For example, research has demonstrated similarities among high-violation-or-repeated-crash drivers and DWI offenders (Donovan et al., 1985; Wilson, 1991). Other studies have indicated that "bad" drivers who have not yet been convicted of a DWI offence are considerably more likely to be subsequently charged with DWI than are drivers in the general population (Buntain-Ricklefs et al., 1995).

To identify potential DWI offenders, it is recommended that all drivers who come to the attention of licensing authorities for repeated "bad" driving behaviour (e.g., repeat crash involvement or violations) be assessed in the same manner as DWI offenders. In many jurisdictions, this assessment could be viewed as an extension of existing driver improvement programs that seek to modify the driving behaviour of people who have demonstrated repeated unsafe or risky driving. The assessment of "bad" drivers would take advantage of the assessment and remedial programs developed for DWI offenders to prevent DWI behaviour through early identification.

8.5 A Countermeasures Strategy

The recommendations presented in previous sections are not intended as independent countermeasures. Rather, many of the options are intimately associated with other programs, and their effectiveness depends on coordination among them. Simply implementing a program in the absence of an overall strategy of DWI countermeasures would be of limited value. Hence, the most effective approach involves developing a DWI countermeasures strategy and implementing a series of interrelated and interdependent programs that would best meet the goals and objectives of the strategy. Thus, we make one final recommendation:

Recommendation 5.1: Develop a comprehensive DWI countermeasures strategy to guide the implementation of a series of coordinated and interrelated programs to deal effectively with DWI repeat offenders.

This recommendation does not imply that all jurisdictions need necessarily act on each of the recommendations in previous sections. Rather, it is intended to encourage jurisdictions to examine their entire system of programs and measures for dealing with DWI offenders and to implement programs and policies that complement each other. For example, the implementation of an assessment and remedial program would likely prove to be most effective if related programs were implemented to complement and support its operation. This system could involve case management to coordinate and

facilitate access to programs and to monitor offenders, graduated relicensing to introduce offenders back into the licensing system step-by-step, and alcohol ignition interlocks as a component of relicensing to ensure that driving occurs only when sober.

By itself, each program may have beneficial effects. Collectively, complementary programs can create an integrated, coordinated system of programs to maximize their overall efficacy in reducing recidivism and preventing alcohol-related crashes.

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Appendix: Laws Dealing with DWI Offenders in Canada

This appendix provides an overview of the legislation governing impaired driving offences in Canada. It includes a summary of the Criminal Code as well as provincial statutes, territorial statutes and the civil liability of servers of alcoholic beverages.

Criminal Code

In Canada, impaired driving is a criminal offence. Legislation governing impaired driving offences is contained in the Criminal Code of Canada. The terms "impaired driving" and "DWI" refer to any one of a number of offences—impaired operation of a motor vehicle, driving with a BAC over 80 mg of alcohol in 100 mL of blood, failing or refusing to provide a blood or breath sample, impaired operation causing bodily harm, and impaired operation causing death.

The Criminal Code specifies naltieals co(impairffence (table A-1). For example, the penalty for a first summary conviction of impaired driving is a minimum three-month prohibition from driving and a $300 fine. The maximum penalties, especially for a conviction by indictment,[13] can be considerably higher. The Criminal Code also provides for more severe penalties for people convicted of a second or

Table A-1
Criminal Code Penalties for Impaired Driving Offences

Offence			Penalties		
			Prohibition from Driving	Fine	Jail
Impaired driving (or over 80 mg% or Refusal to provide sample)	**1st Offence**	Summary	3 to 36 months	$300 to $2,000	0 to 6 months
		indictment	3 to 36 months	$300 + (no limit)	0 to 5 years
	2nd Offence	Summary	6 to 36 months	$300 to $2,000	14 days to 6 months
		indictment	6 to 36 months	$300 + (no limit)	14 days to 5 years
	3rd + Offence	Summary	12 to 36 months	$300 to $2,000	90 days to 6 months
		indictment	12 to 36 months	$300 + (no limit)	90 days to 5 years
Impaired driving causing bodily harm		indictment	up to 10 years	no limit	up to 10 years
Impaired driving causing death		indictment	up to 10 years	no limit	up to 14 years

13 Impaired driving, a BAC over 80 mg% and refusal to provide a sample are hybrid or dual procedure offences – i.e., they can be prosecuted as either summary conviction or indictable offences. The differences between the two types of offences lie primarily in the court procedures and penalties. Indictable offences are generally considered more serious. Most impaired driving offences are treated as summary conviction offences.

subsequent impaired driving offence. For the purpose of sentencing for repeat offences, a previous conviction for impaired operation, over 80 mg% and refusal to provide a blood or breath sample are considered as equivalent. However, for the more severe penalties to be applied, the prosecutor has to be aware of an offender's previous conviction and must be able to prove it. Unfortunately, for a variety of reasons, the prosecutor may be unaware of the previous conviction or may be unable to prove it (Solomon et al., 1986). As a result, a number of repeat offenders are sentenced as first offenders by the courts.

In addition to the penalities listed in table A-1, judges have considerable discretion in setting terms of probation (e.g., an offender may be required to seek treatment for alcohol abuse, perform community service, provide restitution to victims or attend a specific program). Because of the latitude in the conditions of probation and their variability across the country, the combinations of potential sanctions is virtually endless. Nevertheless, probation orders are an important aspect of sentencing, for in some jurisdictions, a judicial order is the most common means by which offenders gain access to programs.

Provincial and Territorial Statutes

The provinces and territories have authority over driver licensing and can pass laws to keep the roads safe. Many jurisdictions have used their authority to supplement the drinking and driving provisions of the federal Criminal Code (table A-2[14]).

Table A-2
Dealing with Impaired Drivers: Provincial Summary

Provincial /Territory	ASD Use	Roadside Suspension	BAC (mg%)	Young Driver BAC	Pre-Construction	Licence Suspension (months)				Prior Offences (Years)##
						1st Off.	2nd Off.	3rd Off.	4+ Off.	
NF	Y	24 hrs	50			12	24	36		5
PE	Y	24 hrs	50	10	24 hr susp	12	24	36		5
NS	Y			Zero**	3 mnth susp	12	24	60		5
NB	Y	24 hrs	50	Zero		6	12	12		3
PQ	Y			*under review*	*under review*	12	24	36		5
ON	Y	12 hrs	50	Zero**	*Fall 1996*	12	24	36		5
MB	Y	6/12 hrs	50	*under review*	3 mnth susp	6/12	60	60		5
SK	Y	24 hrs	40	*pending*	24hr/3 mnth	6-12	12-36	36-60	60	5
AB	Y	24 hrs	50	*under review*	****	12	36	60		10
BC	Y	24 hrs	50	*pending*	*Spring 97*	12	12	12		10
YT	Y	24 hrs	80	*under review*		3	12	36		5
NT	Y	4-24 hrs	ns***			3	6	12	36	5

\# if different for 3rd conviction

\## period of time driver's record is searched for previous offences

* possible suspension if involved in fatal crash

** all novice drivers

*** no BAC specified

**** impaired causing death or bodily harm suspended until case heard by court.

14 This table is a revised version of the table that appeared in a report published by Health Canada: "Dealing with DWI Offenders in Canada. An Inventory of Procedures and Programs" prepared by D. Beirness, D Mayhew and H. Simpson (1994).

Most jurisdictions across Canada have given police the authority to suspend or prohibit immediately, for up to 24 hours, any driver who has a BAC above a specified minimal value. The BAC level at which such suspensions or prohibitions take effect is typically 50 mg% – well below the 80 mg% level specified in the Criminal Code. This administrative action provides an immediate penalty for driving after drinking while removing these drinking drivers from the road before they become involved in a crash. Most jurisdictions, however, do not routinely record such suspensions on driver records. Newfoundland charges a licence reinstatement fee after such a suspension and uses repeated roadside suspensions as a means to require offenders to attend a DWI program. In Saskatchewan, individuals obtaining a second 24-hour suspension are required to complete a DWI course within 90 days. A third incident results in a 90-day administrative suspension.

Several provinces have introduced lower BAC limits for young or novice drivers. For example, Ontario and Nova Scotia have a zero BAC limit for novice drivers as part of their graduated driver licensing systems. Prince Edward Island has a 10 mg% limit for drivers under 19 years of age. In both provinces, violations are punishable by a three-month licence suspension. Prince Edward Island also imposes a $500 fine.

Manitoba was the first province to introduce a three-month administrative licence suspension for drivers who fail or refuse a breath test. The suspension takes effect seven days after the offence is committed and is independent of a Criminal Code conviction. The purpose of the administrative suspension is to help ensure that drivers who have violated the conditions of holding a licence do not drive during the interval between the offence and disposition of the case by the court.

Other provinces also have provisions for administrative suspensions that take effect before a Criminal Code conviction. For example, in Alberta, the Driver Control Board can suspend the licence of any driver charged with impaired driving causing death or bodily harm until the case is dealt with by the courts. Some jurisdictions also use the 12- or 24-hour roadside suspension for drivers charged under the Criminal Code.

Most provinces and territories also impose licence suspensions upon conviction for a Criminal Code impaired-driving offence. These suspensions are typically longer than the prohibition from driving imposed by the court but run concurrently with the court-ordered prohibition. The data in table A-2 illustrate the variability in the length of provincial licence suspensions, which range from three months for a first conviction to five years for a second conviction.

Provincial and territorial licence suspensions run concurrently with the court-ordered prohibition from driving; however, a court-ordered prohibition from driving takes precedence over a provincial suspension. For example, if the court imposed a prohibition from driving that is longer than the provincial suspension, the offender might technically be eligible to get his or her driver’s licence reinstated but would still be prohibited from operating a vehicle.

Provincial and territorial licensing officials do not have the same degree of difficulty as the courts in proving the prior record of repeat offenders. The length of the provincial or territorial suspension is determined by the number of prior impaired driving convictions found in a search of the driver’s

record. The period covered by the search varies from 2 to 10 years. Hence, although an individual may be sentenced as a first offender by the courts, provincial licensing officials will determine the appropriate length of suspension based on the individual's driving record.

Civil Liability

Canadian law governing the liability of servers of alcoholic beverages appears in two forms – a statutory provision of liability and common law. A statutory provision of liability – sometimes referred to as a dram shop law – exists in Manitoba, Nova Scotia, Ontario and the Northwest Territories (Solomon and Uspricht, 1990). These statutes explicitly state that the providers of alcohol can be held liable for damages caused by their intoxicated patrons. For example, in Ontario, the Liquor Licence Act stipulates,

Where a person or his servant or agent sells liquor to or for a person whose condition is such that the consumption of liquor would apparently intoxicate him or increase his intoxication so that he would be in danger of causing injury to his person or injury or damage to the person or property of others ... while so intoxicated ... causes injury or damage to the person or property of another person, such other person is entitled to recover an amount to compensate him for his injury or damage from the person who or whose servant or agent sold the liquor. (Revised Statutes of Ontario 1980, c. 244. S 53)

Such statutes clearly state that the sellers of alcoholic beverages have a responsibility (or duty) to exercise "reasonable care" in protecting others from injuries caused by patrons who become intoxicated (Dooley and Mosher, 1978). Generally, one person is not legally responsible for the conduct of another; everyone is responsible for her or his own behaviour. However, recent court rulings demonstrate a changing attitude toward people who create an obvious risk of damage or injury by providing alcohol to others (Solomon et al., 1986).

Liability for the service of alcoholic beverages also lies in common law – legal precedents established on the basis of custom and the accumulation of case law. In recent years, an increasing number of bar and tavern owners have been successfully sued for damages resulting from motor vehicle crashes caused by their intoxicated patrons. Current jurisprudence also suggests that such liability may not be limited to commercial servers but applies in cases where the alcohol is supplied free of charge – e.g., private functions.

The resurgence of interest in dram shop liability within the context of the impaired driving problem appears to stem from a desire to compensate victims of motor vehicle crashes caused by intoxicated people. In addition, such laws reinforce the principle that servers of alcoholic beverages have a responsibility to help keep intoxicated people from driving by adopting responsible serving practices.

It should, however, be noted that dram shop liability does not necessarily remove all responsibility from the drinker for his or her actions. Rather, it merely extends the responsibility to include those who serve or otherwise furnish the alcohol and thus provides a deeper pocket from which to recover damages.