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CANADIAN COUNCIL OF MOTOR TRANSPORT ADMINISTRATORS
CONSEIL CANADIEN DES ADMINISTRATEURS EN TRANSPORT MOTORISÉ

STRATEGY TO DEAL WITH THE HIGH RISK DRIVER

Prepared for:

CCMTA's Standing Committee on Road Safety Research and Policies

June 20, 2001

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EXECUTIVE SUMMARY

As part of Vision 2001, the Standing Committee on Road Safety Research and Policies created a task force on high risk drivers (HRD). A key item of the task force mandate is to develop an overall strategy to deal with the HRD – it is the purpose of this document.

High risk drivers persistently engage in a range of behaviors such as impaired driving, non use of seat belts, speeding and running red lights that increase their probability of being involved in collisions resulting in fatalities and/or serious injuries. Using a HRD operational definition of either being a hard core drinking driver (BAC ^{3} .16, refusal or repeat offender) or involved in 3 distinct events (violations or crashes) in a two-year period, the HRDs represent 3% to 4% of Canadian drivers and they will be involved in approximately 12% of fatal crashes and 8% of injury crashes that occur in the next two years. Given the current level of enforcement, most high risk behaviors remain undetected and thus, the magnitude of the problem is significantly larger than what can actually be generated by driver records.

By definition, the HRD is reluctant to change his behavior and accordingly, carefulness is advisable in setting goals. The proposed objective is:

- ***to reduce by 20% the number of fatalities and serious injuries associated with the high risk driver by 2010***

  In order to achieve the objective, the strategy identifies several effective directions in terms of research, technology, promotion, legislation and enforcement. Therefore, it is recommended that:

1. **The CCMTA endorses the overall Strategy to deal with the high risk driver and sets a 10-year timeframe for its implementation (as part of the Road Safety Vision 2010);**

In order to be effective, the HRD strategy requires that jurisdictions implement all core elements. Furthermore, it is suggested that special attention must be given to the following:

- Based on the operational definition, each jurisdiction will assess the size of its HRD population and its crash involvement by the end of 2002, and again in 2005 and 2010; this will have to be done accordingly to the methodology developed by the Research Task Force;
- Each jurisdiction will review its legislation according to the core elements identified for young drivers, hard core drinking drivers, and drivers with 3 previous distinct events;

- The level of detection of HRDs must be significantly increased through earlier intervention and supported by automated enforcement or other conventional means;
- The HRD task force produces an annual monitoring report on progress made toward the implementation of the strategy.

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1. BACKGROUND

1.1 Mandate and purpose

As part of Vision 2001, the Standing Committee on Road Safety Research and Policies created a task force on a strategy for dealing with high risk drivers (HRD). The mandate of the HRD task force is to:

- Undertake a state-of-the-art review of enforcement, education and legislative strategies to deal with the high risk driver;
- Establish a profile of the high risk driver based on an operational definition;
- Develop an overall strategy to deal with the high risk driver;
- Develop a marketing package to brief judiciary and senior police.

This document summarizes the work done so far by offering an overall strategy to deal with the HRD. The strategy is based on several previous contributions, including a survey of jurisdictions' current practices regarding the HRD (Vézina, 2000), a comprehensive review of the relevant documentation (Vézina, 2001) and a study on a profile of the HRD (TIRF, 1997).

1.2 Main high risk behaviors

By definition, a high risk driving behavior is any behavior linked with a significantly higher likelihood of being involved in a crash, the "significantly" being above what is usually tolerated in a given society. High risk driving behaviors are numerous and often interrelated. However, it appears that four driving behaviors are universally depicted as major risks - namely driving after drinking, speeding, non-use of seat belts and running red lights or stop signs.

Driving after drinking

Alcohol is associated with 40% of fatalities and 20% of serious injuries occurring on the road. Around 25% of drivers have admitted to driving after drinking, at least occasionally (TIRF, 1997). On any given night, it is estimated that one driver out of ten had been drinking and between 2% and 3% are over the legal limit. More recent research has drawn the attention of governmental bodies to higher BAC; roughly 2/3 of drivers who have been drinking involved in a fatal or serious crash have a BAC of 160 mg% or more ([3].16).

Non use of seat belts

Approximately 90% of the driving population wears a seat belt. However, this 10% of non use is associated with an astonishing 40% of fatalities (Gutoskie, 1999). Although non-use of seat belts does not increase the crash risk per se, there is abundant evidence that this behavior is related to other risky behaviors. Combined with seat belt effectiveness in preventing fatalities in the occurrence of a crash, this former fact explains the substantial overrepresentation of seat belt non users among fatally injured drivers.

Speeding

Based on police accident reports, excessive speed contributes to more than 25% of fatal crashes and close to 20% of crashes with serious injuries. A recent Australian study (Kloeden & al., 1997) estimates that each 5 kph increase – above the speed limit – doubles the risk of being involved in a fatal crash. Despite the fact that the vast majority of drivers exceed the speed limits, excessive speeding (> 20 kph above the limit) is concentrated among around 15% of the driving population.

Running red lights or stop signs

According to a recent survey of jurisdictions, around 7% of fatalities and 8% of serious injuries take place at controlled intersections. Although it varies a lot by intersections, the prevalence of running red lights or stop signs is estimated to be around 1% which – given the large volume in traffic – represents a substantial problem. Also, red light and stop violations represent approximately 18% of all traffic violations reported by police.

Overlap between high risk driving behaviors

There is an increasing body of literature showing that there is considerable overlap between high risk driving behaviors. The "driving after drinking – seat belt non use" link is well established. For instance, roadside surveys have shown that seat belt non users were twice as likely to have been legally impaired. Indeed, the profile of fatally injured drivers who did not use their seat belt is – to a large extent – similar to those who died after drinking: weekend, nighttime, male, etc. Other overlaps have been observed between speeding and running red lights, running red lights and seat belt non use, etc. The exact magnitude of high risk behaviors overlapping is not known. It cannot be assumed that they are committed by the very same individuals, but overlapping appears clearly prevalent.

1.3 High risk groups

In its earlier work, the task force developed the following working definition of the HRD: *High risk drivers persistently engage in a range of behaviors such as impaired driving, non use of seat belts, speeding and running red lights that increase their probability of being involved in collisions resulting in fatalities and/or serious injuries*». But who are those drivers?

The profile established by TIRF (1997) has revealed some prominent characteristics: young, male, employed, low to moderate income, other safety-compromising behaviors, thrill seeking, aggressive and record of previous traffic violations and crashes. However, knowing the characteristics of the HRD is of limited value unless it allows grasping the issue. To that extent, it appears three high risk groups – for whom specific countermeasures can be developed – can be readily identified:

- Young drivers (< 25 year-olds)
- Hard core drinking drivers
- Drivers with previous violations and crashes

The 16-24 year-old group represents one in eight drivers but is involved in one in every four casualty crashes. Their crash involvement risk is consistent with their traffic violation record: a similar proportion of 25% of the total.

The hard core drinking driver group is formed of high BAC (³.16) or repeat offenders who represent roughly 2/3 of fatal or serious crash-involved drivers who have been drinking. Given the relatively low probability of detection, a first high BAC conviction is rarely a first offence and thus, high BACs can be associated with repeat offenders. The main characteristic of the hard core drinking driver is a common diagnosis of alcohol abuse or dependence.

Previous violations and/or crashes can be used to identify the HRD. As the number of previous events (violation or collision) increases, the likelihood of future involvement in a fatal crash also increases. Within a two-year period, one event is associated with a 1.5 risk factor, two events with a 2.5 risk factor while three events represents a 4.5 risk factor of being involved in a fatal crash. In the last case (3 events), risk is similar to the one for driving with a .10 BAC (Vézina, 2001).

1.4 Operational definition of the high risk driver

Based on the state-of-the-art review of high risk behaviors and groups, the proposed definition[1] of the HRD is:

- A driver who has been involved in three or more distinct events (a traffic violation[2], a Criminal Code offence or a collision)[3] within a two-year period

OR

- A driver convicted of a first offence[4] with a BAC ³ .16, of refusal to provide a breath sample or of a repeat offence (including driving while prohibited or disqualified).

It is estimated that between 3% to 4% of Canadian drivers currently fit this definition and they will be involved in approximately 12% of fatal crashes and 8% of injury crashes that occur in the next two years. These numbers might look small compared to the prevalence of high risk behaviors and their relative contribution to fatalities, but such small numbers simply reflect the low probability of detection. Thus, the actual number of high risk drivers is clearly underestimated by the use of a strict operational definition.

2. OBJECTIVE

By definition, the HRD is reluctant to change his/her behavior and accordingly, carefulness is advisable in setting goals. The proposed objective is:

- ***to reduce by 20% the number of fatalities and serious injuries associated with the high risk driver by 2010***

A minimum estimate of the contribution of the HRD to unsafety is 12% of fatalities and 8% of serious injuries. Even if they do not match the operational definition, it is reasonable to assume that other HRDs (not caught yet) will also modify their behavior when new countermeasures take place. This somewhat presumed general deterrence effect is supported by the impact observed in the past when demerit point systems were introduced or substantially modified. Thus, it is estimated that the strategy will target at least 20% of

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[1] The definition of the HRD does not exclude the use of specific thresholds for new drivers in a graduated licensing system.
[2] Including on-the-road administrative licence suspensions (ALS)
[3] All reported collisions.
[4] The operational definition does not exclude that other types of single event (e.g. street racing, road rage, dangerous driving, etc.) might be serious enough to warrant immediate intervention.

fatalities and serious injuries. The global impact of the strategy should then be in the magnitude of 4% or more of all fatalities and serious injuries.

3. STRATEGY

The overall strategy aims at developing a set of countermeasures which could serve as a general model on how to deal with the high risk driver. The strategy is based on the APPLE model: Analysis, Product, Promotion, Legislation and Enforcement.

3.1 Analysis

The main high-risk behaviors have been described in the background section. However, it is important to pinpoint the three main high risk or target groups:

- Young drivers (< 25 year-olds)
- Hard core drinking drivers (BAC ³ .16 or repeat offenders)
- Drivers with 3 previous distinct events within a two-year period

Moreover, it should be stressed that, by definition, high risk drivers are reluctant to change which prompts the necessity of stringent countermeasures; the potential of promotional/educational measures appears very limited among a group who have a record of persistently disobeying the law and disregarding safety.

Core elements:

- Based on the operational definition, each jurisdiction must assess the size of its HRD population and its crash involvement by the end of 2002, and again in 2005 and 2010; the Research Task Force should develop a common methodology for this purpose.
- The Task Force must produce an annual monitoring report on progress made toward the implementation of the strategy.

Other elements:

- Share violation and collision records among Canadian jurisdictions.

3.2 Product

In the present case, the targeted product is behavior. Behavior change can be obtained through promotional, legislative and enforcement means. However, current technology offers the possibility of systematically controlling some high risk behaviors. For instance,

alcohol ignition interlock devices should be used as extensively as possible. In the near future, speed limiters and/or speed navigators will impose a serious constraint on speeding.

Core elements:

- Develop driver improvement program (see also section 3.4)

Other elements:

- Transport Canada should assess the relevancy of introducing interlock devices as mandatory equipment on vehicles, including seat belt interlocks (all vehicles) and speed limiters (trucks, motorcycles);
- Monitor and/or support research in the development of safe intelligent vehicle systems (speed navigators, erratic driving detectors, etc.).

3.3 Promotion

Despite the very limited potential of promotional measures per se on a reluctant group like the HRD, promotion can have a significant impact in synergy with the other components (legislation, enforcement) of the strategy.

Core elements:

- Maximize the dissemination of information regarding legislative amendments dealing with high risk drivers;
- Systematically publicize enforcement operations in order to increase the perceived risk of apprehension.

Other elements:

Use specific messages, networks and distribution channels for each HRD subgroup: young drivers, hard core drinking drivers, and drivers with 3 previous distinct events (message content, direct mailing to previous violators, etc.).

3.4 Legislation

In the absence of technological solutions, behavioral modification among the HRD will come through deterrence. The three basic principles of deterrence are: certainty, severity and swiftness. When dealing with the HRD, it is more essential to minimize delays and loop-holes. Also, sanctions must increase in severity and be severe enough to deter the HRD but not too severe in order to avoid plaguing the judicial system with challenges and to encourage the development of a criminal sub-culture (when a driver does not perceive a way to eventually reintegrate the system).

3.4.1 Young drivers

Almost all high risk drivers have acquired their unsafe habits as young drivers. Thus, the implementation and/or reinforcement of a graduated licensing system offers a unique opportunity to intervene early in the process of a HRD career. In fact, a graduated licensing system should be considered as a prerequisite or the first component of a driver improvement program.

Core elements:

- Implement or reinforce a graduated licensing system (GLS) including zero BAC and lower demerit point restrictions;
- Introduce or reinforce "exit test" based on the detection of risky behaviors and at-risk situations;
- Ensure a gradual progression of the length of suspensions (3 months, 6 months, 12 months) for each subsequent violation of the restrictions;
- Do not allow work, restricted or other temporary licence issued to suspended drivers under the graduated licensing system;

Other elements:

- Encourage group awareness sessions for drivers facing a first suspension under the GLS and interviews for a second suspension;
- Consider requiring a 3-month studying/practice period before re-taking a knowledge or road test after initial failure.

3.4.2 Hard core drinking drivers

The hard core drinking driver can be differentiated from other high risk drivers by a common diagnosis of alcohol abuse or dependency. An effective strategy must be aimed at detecting the hard core drinking driver and addressing the nature of his alcohol problem.

Core elements:

- Increase the level of detection through greater police training and enforcement;
- After a minimum suspension period, implement alcohol ignition interlock program;
- Mandate assessment for all high BACs (^{3}.16) and repeat offenders and require a satisfactory evaluation before re-issuing a regular licence;
- Track every alcohol interventions (short term suspensions …).

Other elements:

- Consider legislation allowing random breath testing in the set-up of publicly announced roadblock operations;
- Recommend a probationary licence (zero BAC) for a minimum of 2 years when re-issuing a licence to a hard core drinking driver;
- Identify means to simplify the judicial process.

3.4.3 Drivers with 3 previous distinct events

Given the current probability of detection and thresholds, current demerit point systems appear largely permissive in face of the risk associated with 3 previous distinct events (traffic violations, criminal offences or crashes) in a two-year period. Thus, there is clearly a need to revise current demerit point systems.

Core elements:

- Replace or modify current demerit point systems by introducing driver improvement programs which consider both violations and crashes;
- Revise the thresholds to the second event for the warning letter and to third event for a more rigorous intervention

Other elements:

- Monitor driver records according to the date the offence was committed (or the crash occurred);
- Consider a medium-term suspension (e.g. 45 days and doubling for each subsequent suspension) as the more rigorous intervention to apply for a third event;
- Recommend a probationary licence (zero BAC + 1 event maximum) for a minimum of two years when re-issuing a licence to a suspended driver;
- Encourage group awareness sessions for drivers facing a first suspension and interviews for a second suspension.

3.4.4 Other legislative elements

While elements identified above are aimed at specific groups, some elements may target all high risk drivers:

Core elements:

- Introduce vehicle impoundment for driving while prohibited or disqualified.

Other elements:

- Public or private insurance sector encourage premiums based on the actual risk of crashing;

3.5 Enforcement

Knowing the profile of the HRD is of limited value in terms of enforcement since it is based on observed behaviors (of cars). However, the circumstances in which those high risk behaviors take place provide valuable information to enforcement agencies. Aside from already well known patterns (impaired driving occurs mostly at night), some other facts might be less well known among police officers (fatalities among non-users of seat belts in general and its proportion at night).

Among deterrence principles, certainty relies almost exclusively on enforcement. Whatever severe and swift a piece of legislation might be, its effect is very dependent on its implementation. It seems quite clear that high risk drivers know that current levels of detection are very low. There are only two ways to increase the perceived risk of apprehension – publicize enforcement and increase actual enforcement levels – and both are needed.

Core elements:

- Each jurisdiction must develop a marketing package for briefing judiciary and senior police;
- Increase the awareness of enforcement (e.g. STEP programs);
- Significantly increase the level of detection through automated enforcement or other conventional means.

Other elements:

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4. RECOMMENDATIONS

High risk drivers persistently engage in a range of behaviors such as impaired driving, non use of seat belts, speeding and running red lights that increase their probability of being involved in collisions resulting in fatalities and/or serious injuries. Using a HRD operational definition of either being a hard core drinking driver (BAC ^{3} .16, refusal or repeat offender) or involved in 3 distinct events (violations or crashes) in a two-year period, the HRDs represent 3% to 4% of Canadian drivers and they will be involved in approximately 12% of fatal crashes and 8% of injury crashes that occur in the next two years. Given the current level of enforcement, most high risk behaviors remain undetected

and thus, the magnitude of the problem is significantly larger than what can actually be generated by driver records.

The current state of knowledge permits the identification of several effective countermeasures which have been presented throughout the strategy. Therefore, it is recommended that:

1. **The CCMTA endorses the overall Strategy to deal with the high risk driver and sets a 10-year timeframe for its implementation (as part of the Road Safety Vision 2010);**

In order to be effective, the HRD strategy requires the implementation of all core elements. Furthermore, it is suggested that special attention must be given to the following:

- Based on the operational definition, each jurisdiction will assess the size of its HRD population and its crash involvement by the end of 2002, and again in 2005 and 2010; this will be done accordingly to the methodology to be developed by the Research Task Force;
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- The HRD task force produces an annual monitoring report on progress made toward the implementation of the strategy.

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