

TRAFFIC LAW ENFORCEMENT:

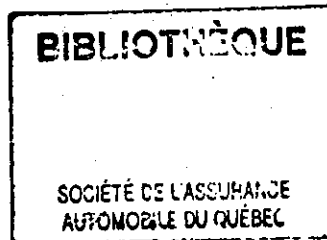
A REVIEW OF THE LITERATURE

by

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It has also been argued that licence suspensions can place an excessive burden on drink driving offenders. However, Wells-Parker and Crosby (1988) found little evidence that excessive economic hardship is caused by such sanctions. Ross (1991) reported that suspended drivers did not, as a rule, find themselves rejected by family and friends, and were able to continue driving for work related purposes under special licence provisions allowed by the court. In addition, relatively few suspended drivers (11%) claimed that the licence suspension had resulted in loss of employment.

Waller (1985) has argued that licence suspensions should be waived in favour of more constructive alternatives such as rehabilitation. However, Mann et al. (1991) have argued that whilst, under appropriate conditions, education and rehabilitation countermeasures may have road safety benefits (Mann et al., 1988; Wells-Parker et al., 1988), reduction or elimination of licence suspension as an incentive to enter such programs cannot be supported on road safety grounds due to the compelling evidence regarding the deterrence potential of licensing sanctions.

Roadside licence suspensions

The use of roadside licence suspensions, which allow police to immediately suspend the driving privileges of an alcohol impaired driver, has also been shown to have a number of benefits (Simpson, 1992). Firstly, the most important feature of this legislation is swiftness of punishment and by satisfying the principles of immediacy and certainty of punishment it has a strong deterrent potential. Secondly, it is extremely efficient, because it allows legal sanctions to be administered by the police thus reducing the reliance on the criminal justice system for their application.

Vingilis et al. (1993) reported on the use of a 12-hour licence law introduced in the Canadian province of Ontario. This new law provided police with the authority to immediately suspend a driver's licence for 12 hours if the driver registered a 'warn' (0.05 to 0.08 g/100ml) on an approved screening device or a reading above 0.05 g/100ml on an evidentiary breath testing device. They stated that the primary purpose of the 12-hour licence suspension was to introduce some form of immediate punishment for drink driving behaviour without the time-consuming tasks associated with arrest procedures, nor the high costs associated with adjudication.

Few evaluations of the impact of roadside suspensions have been conducted. One carefully designed study, undertaken by Vingilis et al. (1988), was able to detect a small short-term reduction in alcohol related fatalities associated with the introduction of such a law. However, low levels of enforcement and associated publicity may have reduced the deterrent impact. They concluded that roadside suspensions can significantly increase the immediacy and certainty of punishment and therefore have a high deterrence potential. However, they cautioned, that this may only be possible only when roadside suspensions are accompanied by high levels of enforcement and publicity.

3.5.2. Blood Alcohol Concentration

The adoption of per se laws has resulted in considerable debate regarding the level of alcohol intoxication at which a person's ability to drive should be considered impaired. Blood alcohol concentration (BAC) is usually measured in terms of grams of alcohol per 100 millilitres of blood. The maximum allowable BAC varies with jurisdiction and in Western countries the legal limit ranges from 0.02 g/100ml to 0.10 g/100ml. The variation in the quantitative definition of alcohol impairment adopted by different countries raises the question as to the appropriate BAC level which should be used to determine legally impaired driving.

A number of studies (Borkenstein et al., 1964; Mayhew, 1983; Got, 1988) have been undertaken to establish the relationship between blood alcohol level and the risk of being involved in an accident. The results of these studies indicated that accident risk was exponentially related to blood alcohol concentration with the accident risk at a BAC level of 0.05 g/100ml found to be two times greater than that at a zero BAC level and the accident risk at 0.10 g/100ml almost eight times greater than that at a zero BAC level.

Much of the debate, regarding the appropriate BAC level to be used, centres around these derived relative risk curves. Legislators use this information, in conjunction with accident statistics, to determine a socially responsible and acceptable level of alcohol impaired risk. There is however, increasing pressure in many countries to lower existing BAC limits. A comprehensive review undertaken by Moskowitz and Robinson (1988), of over 200 hundred studies on the effect of alcohol on performance, concluding that even very low BAC levels (less than 0.02 g/100ml) can reduce driver performance.

The strongest evidence for adopting a lower BAC limit comes from studies which have examined the effect of legislative changes which have lowered existing BAC limits. Homel (1994) undertook an examination of the impact of lowering the BAC limit in New South Wales, Australia, from 0.08 to 0.05. He found a significant 12% reduction in fatalities on Saturday nights and reductions, although not significant, ranging from 6.0% to 1.4% on other nights of the week.

Smith (1987), in an evaluation of the reduction to a 0.05 BAC limit in two Australian States (New South Wales and Queensland) found an overall reduction in fatalities in the order of 5%. The lower BAC limits also realised significant financial saving in both States as a result of reduced accident costs. In New South Wales the savings were \$76 million (\$59 million U.S.), with \$32 million (\$25 million U.S.) saved in Queensland (Federal Office of Road Safety, 1990).

There is also an increasing amount of evidence which suggests that the most important effect of a lower BAC limit may be a reduction in the incidence of drink driving at higher BAC levels. Smith (1988) found a 12 % reduction in the number of accidents involving drivers with BAC's above 0.15 and an 8% reduction in the 0.08 to 0.15 BAC range. Brooks and Zaal (1992) undertook a review of the effect of the reduction to a 0.05 BAC limit (from 0.08) in the Australian Capital Territory. They found a 41% reduction in the incidence of drink driving at BAC levels above 0.15 as well as a reduction of approximately 90% in drink driving at BAC levels between 0.05 and 0.08.

The decision of whether or not to adopt lower BAC levels is partly determined in many countries by the current political and social climate. Legislators are often hesitant to introduce laws that may have a dramatic impact upon lifestyle especially in those countries where alcohol consumption is considered to be a normal and accepted social activity. However, if the aim of drink driving legislation is to deter potential defenders, then the rationale for setting the legal BAC limit should conceptually be that which maximises deterrence (Snortum, 1988) and not that which allows, for social and political reasons, a certain level of acceptable risk taking behaviour.

Laurell (1991), in an examination of the experience with BAC legislation in Sweden (which now has a 0.02 g/100ml legal limit), stated that any legal BAC limit can be defended with scientific support, and that the choice of a legal BAC limit is almost entirely a political issue. He concluded questioning the practice of Governments which allow high legal alcohol limits and posed the important question of what amount of freedom is society willing to sacrifice for an unknown, or at least uncertain, number of saved lives.

- Borkenstein, R.F., Crowther, R.F., Shumate, R.D., Ziel, W.B., & Zylman, R. (1964). The role of the drinking driver in traffic accidents. Department of Police Administration, Indiana University.
- Bourne, M. & Cooke, R. (1991) Traffic Camera Office TCO : exceeding the limits. Paper prepared for the Asia Pacific Police Technology Conference APTEC, 1991. Melbourne, Victoria, Traffic Camera Office TCO, 1991, 27 p.
- Bower, G.H (1990) Incentive programs for promoting safer driving. In: Enforcement and rewarding : strategies and effects : proceedings of the International Road Safety Symposium in Copenhagen, Denmark, September 19-21, 1990, p. 8-16
- Bowie, N., & Walz, M., (1991) Data analysis of the speed-related crash issue, Unpublished paper presented to the 13th International Technical Conference on Experimental Safety Vehicles, Paris, France, November 4-7.
- Brindle, R.E., (1992) 'Local street speed management in Australia - Is it "traffic calming"'. Accident Analysis and Prevention, 24(1), p29-38.
- Brooks, C. & Zaal, D. (1992) Effects of a reduced alcohol limit for driving. In: Alcohol, drugs and traffic safety : proceedings of the 12th International Conference on Alcohol, Drugs and Traffic Safety T92, held under the auspices of the International Committee on Alcohol, Drugs and Traffic Safety ICADTS, Cologne, Germany, 28 September - 2 October 1992 : band I, p. 1277-1288
- Broughton, J. (1991) Restraint use by car occupants, Great Britain 1982-91. In: Proceedings of the Conference Strategic Highway Research Program and Traffic Safety on Two Continents, Gothenburg, Sweden, September 18-20, 1991, Volume 4, p. 121-129
- Bureau of Transport and Communications Economics -BTCE, (1993) Benefit Cost Analysis of The Federal Government Black Spot Program. Australian Department of Transport and Communications, Canberra.
- Cairney, P.T. & Croft, P.G. (1985) A pilot study of drivers' judgements about speed limits, safe speeds and average speeds. Vermont South, Victoria, Australian Road Research Board ARRB, 1985, 20 p., ARRB Internal Report ; AIR 394-9
- Cairney, P.T. (1988) The effect of aerial enforcement on traffic speeds. In: Proceedings of the 14th Conference of the Australian Road Research Board, Canberra, August 28 - September 2, 1988, Volume 14, Part 4, Accidents and Safety, p. 126-132
- Cairney, P. & Townsend, M. (1991) Alternatives to enforcement for speed management. Vermont South, Vic. Australian Road Research Board ARRB, [1990], 6 p.
- Cameron & Strang, (1982). Effect of intensified random breath testing in Melbourne during 1978 and 1979. Australian Road Research Board Proceedings, 11, 1-12.
- Cameron, M.H., Cavallo, A. & Gilbert, A. (1992) Crash-based evaluation of the speed camera program in Victoria 1990-1991. Phase 1: general effects. Phase 2: effects of program mechanisms. Clayton, Vic., Monash University, Accident Research Centre ARC, 1992, XII + 63 + 42 p., ARC Report ; No. 42
- Cameron, M.H., Cavallo, A. & Sullivan, G. (1992). Evaluation of the random breath testing initiative in Victoria 1989-1991; Multivariate time series approach, Monash University Accident Research Centre.
- Cameron, M.H. (1993). Speed Research and Current Issues in Scandinavia. In The Speed Review: Appendix of speed workshop papers B.N. Fildes & S.J. Lee (Eds.) Monash University Accident Research Centre. (CR 127A [FORS]; CR 3/93A [RSB]).
- Camkin, H.L., Aust, M.I.E. & Webster, K.A. (1988) Cost-effectiveness and priority ranking of road safety measures. Rosebery, NSW, Traffic Authority of New South Wales, 1988, III + 15 p., Research Note ; RN 1/88
- Camkin, H. (1993) Speed mangement : a tale of two strategies. Paper presented at the conference 'Safely on the road', Canberra, ACT, Australia, 19-20 October 1993. Canberra, ACT, National Road Trauma Advisory Council, 1993, 21 p.
- Campbell, B.J. & Campbell, F.A. (1986) Seat belt law experience in four foreign countries compared to the United States. Falls Church, AAA Foundation for Traffic Research, 1986, V + 70 p.
- Campbell, B.J. (1987) The relationship of seat belt law enforcement to level of belt use. Chapel Hill, N.C., University of North Carolina, Highway Safety Research Center, 1987, 10 p. + app, Report HSRC-TR 72
- Campbell, B.J. (1988) The association between enforcement and seat belt use. Journal of Safety Research, 19 (4), p. 159-163
- Campbell, B.J. (1992) The case for laws requiring use of safety belts. In: Proceedings of the international part of the International symposium road traffic accidents, Riyadh, Saudi Arabia, February 9-12, 1992, p. 79-84
- Carseldine, D (1985). Surveys of knowledge, attitudes, beliefs and reported behaviours of driving-on the topic of drink driving and random breath testing. Research Note RN 12/85. Sydney: Traffic Authority of New South Wales.
- Carseldine, D. (1988) Evaluation of the trial of mobile random breath testing : the first three months. Rosebery, NSW, Traffic Authority New South Wales, 1988, II + 10 p., Research Note RN 2/88

- Siegel, H.A. (1990) Interventions : a new way to confront the drunk driver. In: Effective strategies to combat drinking and driving : an edited collection of papers presented at the International Congress on Drinking and Driving, Edmonton, Alberta, Canada, March 28-30, 1990, p. 153-154
- Simpson, H.M. (1990) Licence suspension/revocation programs : restricting driving privileges for drunk drivers. In: Effective strategies to combat drinking and driving : an edited collection of papers presented at the International Congress on Drinking and Driving, Edmonton, Alberta, Canada, March 28-30, 1990, p. 82-91
- Simpson, H.M. (1993) Synopsis of discussion on research and information needs. Alcohol, Drugs and Driving, 9 (1), p. 1-6
- Singleton, A.E. (1990) Ignition interlock devices : using technology to control the convicted drunk drivers. In: Effective strategies to combat drinking and driving : an edited collection of papers presented at the International Congress on Drinking and Driving, Edmonton, Alberta, Canada, March 28-30, 1990, p. 56-66
- Slavender, G.H. (1988). Cost effectiveness of intersection treatments. Traffic Engineering and Control. 29 (6). 111-119.
- Sleet, D.A., Hollenbach, K., & Hovell, M. (1986). Applying behavioural principles to motor vehicle occupant protection. Education and treatment of children, 9 (4), p. 320-333.
- Smith, D. (1987). Effect on traffic safety in Australia of increasing the availability of alcoholic beverages and lowering the legal blood alcohol level for drivers. Paper presented to the Drink Driving Educators' Conference, Maroochydore, Queensland.
- Smith, D. (1988). Effect on traffic safety of introducing a 0.05% blood alcohol level in Queensland, Australia. Medicine, Science and the Law, 28 (2): p.165-170.
- Smith, D.I., Maisey, G.E. & McLaughlin, K.L. (1990) Evaluation of the first year of random breathtesting in Western Australia. In: Proceedings of the 15th Australian Road Research Board ARRB Conference, 26-31 August, 1990, Darwin, Volume 15, Part 7 : Safety and environment, p. 93-106
- Smith, J.E. (1985) California update : the battle against drinking drivers. The Police Chief, (July), p. 64-66
- Smith, M.A. (1992) Speeding in Tasmania and other shared traffic problems around the world : can countries learn from each other ? Traffic Safety, 92 (4), p. 10-12
- Snortum, J.R. (1984). Controlling the alcohol impaired driver in Scandinavia and the United States: Simple deterrence and beyond. Journal of Criminal Justice, 12, 131-148.
- Snortum, J.R. (1988). Deterrence of alcohol impaired driving: An effect in search of a cause. In M.D. Laurence, J.R. Snortum, & F.E. Zimring (Eds.), The social control of drinking and driving (p. 189-226). Chicago: University of Chicago Press.
- Social Development Committee (1991) Report upon the inquiry into speed limits in Victoria. Parliament of Victoria, Government Printer, Melbourne.
- Solomon, D. (1964). Accidents on main rural highways related to speed, driver and vehicle, US Department of Commerce, Bureau of Public Roads, Washington, DC.
- Solomon, K.T. (1988) Traffic law enforcement. In: Proceedings of the 14th Conference of the Australian Road Research Board, Canberra, August 28 - September 2, 1988, Volume 14, Part 4, Accidents and Safety, p. 14-25
- South Australian Department of Transport, Road Safety Division RSD (1989) Report on the first six months of the red light camera program : report prepared by the Road Safety Division for the Red Light Camera Working Group. Adelaide, SA, South Australian Department of Transport, Road Safety Division RSD, 1989, 10 p., RSD ; 1/90
- South Australian Department of Transport, Office of Road Safety (1990) Report on the red light camera program : operation from July 1988 to December 1989 : report prepared by the Office of Road Safety for the Red Light Camera Working Group. Adelaide, SA, South Australian Department of Transport, Office of Road Safety RSD, (1990), 10 + 18 p.
- South, D. & Stuart, G. (1983). The effect of random breath testing on the perceived risk of detection for drink driving. Paper presented at the Autumn School of Studies on Alcohol and Drugs, St Vincent's Hospital, Melbourne, Australia.
- South, D. (1988) Changes in alcohol involvement in accidents in the ten years 1977-1986, and the factors that may have been responsible. Hawthorn, Vic., Road Traffic Authority RTA, Road Safety Division, 1988, 23 p., Report ; GR/88/4
- South, D., Harrison, W.A., Portans et al. (1988) Evaluation of the red light camera program and the owner onus legislation. Hawthorn, VIC, Victoria Transport, Road Traffic Authority, 1988, 1 + 34 p., SR/88/1
- Southgate, P. & Mirrlees-Black, C. (1991) Traffic policing in changing times. London, Home Office Research and Planning Unit, 1991, 139 p., Home Office Research Study ; No. 124
- Span, D.B.E. (1989) Enforcement of drink-driving legislation : perceptions of and attitudes towards random breath testing : selected results from a survey of the topic of drink-driving and random breath testing, March 1987. Rosebery, NSW, Roads and Traffic Authority of New South Wales, Road Safety Bureau, 1989, III + 25 p., Research Note ; RN 1/89