ALCOHOL HEALTHWATCH

**Briefing Paper 2003**

# Reducing the Legal Blood Alcohol Concentration for Driving in New Zealand

**This Alcohol Healthwatch briefing paper contains information on:**

- Why New Zealand should lower the legal blood alcohol concentration for driving
- How alcohol affects driving skills
- The risks of crashing associated with blood alcohol concentration
- International results of decreasing legal blood alcohol concentration
- The expected lives that could be saved in New Zealand with a lower legal blood alcohol concentration

**This paper is one of a set of five that includes:**

- The Advertising of Alcohol – In Support of Increased Restrictions
- **Reducing the Legal Blood Alcohol Concentration for Driving**
- Alcohol Health and Safety Advisory Statements
- Alcohol Excise Tax – Changes to the New Zealand System
- The Sale of Liquor in New Zealand – Recommended Changes to the Act

**These documents can be viewed in PDF on www.ahw.co.nz**

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## *Executive Summary*

New Zealand has come a long way in addressing drink-driving since 1996. Major changes have occurred in public attitudes as a result of increased resourcing of Compulsory Breath Testing and other enforcement strategies, harsher penalties, investment in mass advertising, and an increase in community road safety programmes focusing on alcohol and host responsibility. However, although the drink-drive campaign has been highly successful, downward trends have stabilised in the recent years, and there is clearly considerable room for improvement. The most effective measure that will see a dramatic reduction in our road toll and that will help us meet the targets of the Road Safety 2010 Strategy of less than 300 deaths annually on the road by 2010 (National Road Safety Committee, 2000), is to lower the blood alcohol concentration to 50mg.

Since the present blood alcohol concentration of 80mg alcohol/100ml blood* was established in 1978, research has shown that important driving skills including vision, steering, and braking are adversely affected by even small amounts of alcohol.

As blood alcohol levels increase, so too does the risk of having a fatal crash. At 20-50mg/100ml, the ability to see or locate moving lights correctly is diminished, as is the ability to judge distances. The tendency to take risks is increased (Acquire, 2002). At 50-80mg/100ml, the ability to judge distances accurately is reduced, so is the ability of the eyes to adapt to light changing conditions. Between 80-120mg/100ml, euphoria sets in and with it an overestimation of one's abilities, which can lead to reckless driving. The driver will begin to suffer impairment of peripheral vision, impairment of perception of obstacles and of the ability to assess spatial dimensions such as distance and size of vehicle. At 120mg the driver is 10 times as likely to have an accident as someone who has not consumed alcohol (Acquire, 2002). At the present New Zealand legal blood alcohol limit drivers are at least five times more likely to have a crash than before drinking. The relative risk of having a crash is even higher for those aged 16-19 years old.

Lowering the legal blood alcohol concentration to 50mg will not only reduce drink-driving at the 50mg-80mg levels, it is also shown to reduce drink-driving at higher blood alcohol concentrations. Australian research has found that lowering the legal blood alcohol limit to 50mg has had a big impact on reducing the number of drivers with a high blood alcohol concentration. After the limit was lowered to 50mg in the Australian Capital Territories there was a 41 percent reduction in those caught with more than 150mg blood alcohol concentration (Brooks and Zaal, 1992). Other studies have shown that drivers with high blood alcohol concentrations are more likely to underestimate their blood alcohol concentrations than people with low blood alcohol concentrations. (Beirness et al, 1993, in Alcohol Advisory Council, 1995).

Most of the Western world now has a 50mg limit and international trends have shown that a 50mg limit dramatically reduces drink-driving, saves lives, and reduces injuries

* Note that the breath alcohol reading for a blood alcohol concentration of 50mg is 250mcg/litre

from alcohol-related road crashes. The greatest reduction was seen in Queensland with an 18 percent reduction in serious crashes. Some countries have also had reductions in the mean blood alcohol concentrations of impaired drivers and in the ratio of people driving at high to moderate blood alcohol concentration (Chamberlain and Solomon, 2002).

It is acknowledged that lowering the legal blood alcohol limit does not address the problem of recidivist drink-drivers, and alternative strategies are needed for this.

Based on overseas experience, by lowering the legal blood alcohol concentration from 80mg to 50mg we could expect between 16-72 lives saved, and 640-1280 injuries avoided each year. If an intensive advertising and enforcement campaign was combined with the reduction in the blood alcohol concentration it is possible that even more lives could be saved.

### *Alcohol Healthwatch's Policy*

Alcohol Healthwatch recommends that the legal blood alcohol concentration is lowered from 80mg alcohol/100ml blood to 50mg alcohol/100ml blood.

Alcohol Healthwatch has identified five priority areas for change in its Action on Liquor Legislation campaign. A decrease in the blood alcohol concentration will achieve most as part of a collective strategy to create a legislative environment that is more supportive of reducing alcohol-related harm.

## How Alcohol Affects Driving Skills

Since the present blood alcohol concentration of 80mg alcohol/100ml blood[†] was established in 1978 research has shown that important driving skills including vision, steering, and braking are adversely affected by even small amounts of alcohol (See Appendix 1. for *The History of Blood Alcohol Levels in New Zealand*).

Alcohol affects the brain's ability to function efficiently; it slows down the working of the nervous system, dulls brain function and slows reaction time (Institute of Alcohol Studies, 2002).

After drinking:

- The brain takes longer to receive messages from the eye;
- Processing of information becomes more difficult and instructions to the muscles are delayed;
- Reaction times are slowed down by 10 to 30 percent;
- The ability to do two or more tasks at the same time is reduced;
- Night vision and the ability to see distant objects can be reduced by 25 percent;
- Blurred and double vision can occur;
- The ability to concentrate is reduced (Institute of Alcohol Studies, 2002).

Therefore alcohol significantly alters the ability to perceive what is happening on the roads. When driving we have to do several things at once including keeping an eye on the road, keeping our vehicle in the proper lane, watching out for dangerous situations, and maintaining a constant speed. Alcohol affects our ability to coordinate all these actions. Alcohol can also create a feeling of overconfidence that could result in greater risk taking.

### Driving Abilities

Studies, both field and laboratory, have shown that important driving skills, including vision, steering, braking, vigilance, information processing, and divided attention tasks are adversely affected by small amounts of alcohol (Chamberlain and Solomon, 2002).

A study by Texas researchers (Hassle Nordic Network, 2002) found that decrements existed at low blood alcohol concentration levels in most variables measured, especially those that involved vehicle operation where quick decision making was combined with multiple vehicle control actions. They found that people with a blood alcohol concentration of 40mg/100ml (half of the current legal blood alcohol concentration in New Zealand) had a significant impairment in their driving abilities. At 40mg/100ml drivers also had trouble with skid control, crash simulation and manoeuvring tests

[†] Note that the breath alcohol reading for a blood alcohol concentration of 50mg is 250mcg/litre

through stationary cones. This study was undertaken during the day and, as most drink-driving takes place at night, impairment could be even greater due to reduced vision and increased driver fatigue. Dark adaptation and glare recovery time also begin to deteriorate at low blood alcohol levels.

Dutch researchers have found similar results (Ridderinkhof et al, 2002), although driving tests were not administered. People with a blood alcohol concentration of 40mg were less able than their sober counterparts to realise that they had made mistakes in tests of cognitive functioning. This suggests that drivers even within the legal limit are more likely to make mistakes on the road, including, according to the researchers, slow reactions to other driver's actions, responding to traffic lights from other lanes, and slower awareness of the car drifting into other lanes. Even at a blood alcohol concentration of 40mg negative effects were significant.

A review of 109 studies on the effects of low doses of alcohol concluded that there is "strong evidence that impairment of some driving related skills begins with any departure from a zero blood alcohol concentrations" (Chamberlain and Solomon, 2002, p2). They also found that the skills most sensitive to alcohol are those which are considered to be the most important for driving.

### *Vision*

It has been consistently shown that visual functions are adversely affected at blood alcohol concentrations as low as 30mg (Chamberlain and Solomon, 2002). At blood alcohol concentrations between 30mg and 50mg voluntary eye movement is impaired, as is the ability of the eye to track movement (Chamberlain and Solomon, 2002). This is crucial to driving as it is necessary to focus on objects and track them as they move.

Alcohol also affects night vision, and recovery for headlight glare is slower in drivers who have been drinking (Chamberlain and Solomon, 2002).

### *Vigilance and Drowsiness*

Alcohol increases drowsiness, and even small amounts can enhance the effects of drowsiness. A literature review of studies on the influence of alcohol on drowsiness found impairment of vigilance tasks at blood alcohol concentrations as low as 30mg (Chamberlain and Solomon, 2002).

### *Psychomotor Skills*

Even low doses of alcohol can affect the psychomotor skills related to driving, especially steering and braking (Chamberlain and Solomon, 2002).

A Canadian study (reviewed in Chamberlain and Solomon, 2002) on closed roads and airport runways found that people with a mean blood alcohol concentration of 60mg had steering abilities that were significantly impaired. Another study found that drivers with a mean blood alcohol concentration of 42mg showed significant declines in braking ability and hit substantially more road cones in manoeuvres at 50km per hour. A similar recent study (Chamberlain and Solomon, 2002) also found that braking ability was decreased by about 30 percent at low blood alcohol concentrations (30mg).

### *Information Processing*

Alcohol adversely affects the brain's ability to process information (Chamberlain and Solomon, 2002). Drivers who have been drinking take longer to respond to stimuli like road signs and traffic lights. Drinking drivers also tend to take in fewer sources of information than drivers who have not been drinking (Chamberlain and Solomon, 2002).

Alcohol also affects the ability of drivers to reason and make decisions, which means that drivers take longer to respond to road hazards (Chamberlain and Solomon, 2002).

## *Why the Blood Alcohol Concentration Should be Decreased*

Alcohol Healthwatch calls for the legal blood alcohol concentration in New Zealand to be lowered from 80mg[‡] to 50mg[§].

New Zealand has come a long way in addressing drink-driving since 1996. Major changes have occurred in public attitudes as a result of increased resourcing of Compulsory Breath Testing and other enforcement strategies, harsher penalties, investment in mass advertising, and an increase in community road safety programmes focusing on alcohol and host responsibility.

However, it is widely accepted by road safety and public health agencies that the positive downward trend we have experienced in drink-drive crashes during the last decade has finally plateaued. In order to continue the downward trend in drink-driving crashes and to avoid the plateau effect of drink-drive legislation, new drink-drive interventions are necessary. At present, the reduction of the legal blood alcohol from 80mg alcohol/100ml blood to 50mg alcohol/100ml blood is an effective and proven intervention to continue reducing drink-drive related harm in our country and bring us closer to the Vision Zero drink-drive targets of our international peers.

Almost every country (or state) that has lowered the blood alcohol limit to 50mg or lower has experienced traffic safety benefits in terms of reduced crashes, injuries, and fatalities (Chamberlain and Solomon, 2002). International studies also suggest that lower blood alcohol concentration levels may contribute to positive changes in public attitudes toward drinking and driving (Chamberlain and Solomon, 2002).

Studies have shown that drivers with high blood alcohol concentrations are more likely to underestimate their blood alcohol concentration than people with low blood alcohol concentrations (Beirness et al, 1993, in Alcohol Advisory Council, 1995). A lower blood alcohol concentration allows the driver the opportunity to make more rational decisions about whether to stop drinking and whether or not to drive.

[‡] Note that the breath alcohol reading for a blood alcohol of 80mg is 400mcg/litre
[§] Note that the breath alcohol reading for a blood alcohol of 50mg is 250mcg/litre

When a 50mg limit is introduced some drivers further restrict their drinking. It is not known why but reasons may include:

- Drivers at all levels of consumption reducing their alcohol intake. Drivers who intend drinking up to an 80mg limit may be more likely to continue past their intended drinking cut off than those who intend drinking up to a 50mg limit. This is possibly because the 50mg limit is perceived by many to be so low that drinking and driving are not mixed at all.
- It is known that the behavioural chain or sequence is more easily broken early on in the drinking session than in the later stages. By forcing people to consider the issue of drinking and driving at the start of their drinking session it is easier for them to 'break the habit'.

Lower blood alcohol concentrations encourage drivers to keep a better count of the drinks they consume in order to stay below the limit. An Australian survey of drinking behaviour suggested that the lower limit made people more aware of the need to control their drinking before driving (Alcohol Advisory Council, 1995).

## *Risk of Crashing Associated with Blood Alcohol Concentration*

The relationship between blood alcohol levels and risk of crashing is well established. As blood alcohol levels increase, so too does the risk of having a fatal crash. The relative risk of having a crash is even higher for those aged 16-19 years old (see page 12 *Youth Drinking* below for further information).

At 20-50mg/100ml, the ability to see or locate moving lights correctly is diminished, as is the ability to judge distances. The tendency to take risks is increased (Acquire, 2002). At a blood alcohol concentration of 50mg there is a 1.5 times greater risk of having a motor vehicle crash than there is at zero blood alcohol concentration.

At 50-80mg/100ml, the ability to judge distances is reduced, so is the ability of the eyes to adapt to changing light conditions. Sensitivity to red lights is also impaired. Reactions are slower and concentration span is shorter. By the time the legal limit is reached, drinkers are five times more likely to be involved in a crash than before starting drinking (Acquire, 2002). Canadian research found that drivers with blood alcohol concentration levels between 51mg and 80mg are over seven times more likely to be involved in a fatal crash than drivers with zero blood alcohol concentrations (Traffic Injury Research Foundation, 1996, in Chamberlain and Solomon, 2002).

Between 80-120mg/100ml, euphoria sets in and with it an overestimation of one's abilities. This can lead to reckless driving. The driver will begin to suffer impairment of peripheral vision, impairment of perception of obstacles and of the ability to assess spatial dimensions such as distance and size of vehicle. At 120mg the driver is ten times as likely to have an accident as someone who has not consumed alcohol (Acquire, 2002).

As *Table 1.* shows, as blood alcohol concentration increases above zero, the probability of dying after crashing is much greater. As intoxication increases, drivers are much more likely to die for several reasons, these include failure to wear seatbelts, bleeding more freely, and medical attention being more difficult to deliver.

If injury is sustained following a crash, alcohol has further harmful effects including affecting cardiovascular, respiratory and neurological functions (Alcohol Advisory Council, 1995). It has also been found that people who have significant levels of alcohol in their bodies when they receive injuries do not recover as fast as those who have not been drinking and received similar injuries (Gray, 1988, in Alcohol Advisory Council, 1995).

*Table 1. Death Risk and BAC*

| Blood Alcohol Concentration | Increased Chance of Death Compared to Sober Drivers |
|---|---|
| .03 (30mg*) | 1.2 |
| .07 (70mg) | 1.5 |
| .12 (120mg) | 2.4 |
| .17 (170mg) | 2.5 |
| .22 (220mg) | 3.7 |

(Table from Dennis, 2000) **Figures in brackets have been added to the table to provide equivalent mg alcohol/100ml blood.*

## *Guidelines for Staying Below 80mg*

The ratio of alcohol to blood varies considerably from person to person depending on many factors, including body size, gender, the amount of food in the digestive system, current state of fitness, the health of your liver, whether you consume alcohol regularly, your mood and the type of beverage you drink. Consequently it is extremely difficult to provide guidelines for how much a person can drink before they go above the legal limit for driving. The best advice is not to drink and drive.

Currently, according to the ALAC guidelines for drink-driving (Alcohol Advisory Council, Drink-drive guidelines), it is possible to drink quite a large amount of alcohol and still remain under the limit. For example, a male can, in the first hour, drink five and a half single nips of spirits and a single nip of spirits every hour after that. Similarly a female can consume 3 ¾ single nips of spirits in the first hour and one single nip every hour after that.

The amount of alcohol recommended is relatively high and will result in significant impairment of the skills that are critical for safe driving. Such recommendations can be misleading as some individuals can reach the legal limit by consuming less than the recommendations. They may also encourage some people to drink up to the recommended levels.

## *Guidelines for Staying Below 50mg*

With a 50mg blood alcohol concentration small amounts of alcohol can be consumed and a person can remain under the legal limit. Obviously with a blood alcohol concentration of 50mg/100ml the number of drinks that a person can consume is much less than at the present limit. There are currently no New Zealand guidelines on this, however as Australia has a blood alcohol concentration of 50mg, we can refer to the Australian recommendations.

The Australian limits (Queensland Government, 2000) for a blood alcohol concentration of 50mg are:

For males: two standard drinks in the first hour; and one standard drink per hour after that.

For females: one standard drink in the first hour, and one standard drink per hour after that.

A standard drink refers to a drink that contains 10g alcohol (Alcohol Advisory Council, What is a standard drink?), examples of this are:

- A 300ml glass of beer (4%)
- Wine in a 100ml glass (care needs to be taken as most glasses of wine are sold in a size much larger than a standard drink, also wines vary in alcohol content)
- A 30ml pub measure of spirits (with or without mixer).

## New Zealand Drink-Drive Statistics

Alcohol and speed are the two biggest contributing factors to the road toll. In 2002, 27 percent of all road casualties were from alcohol-related crashes (Land Transport Safety Authority, 2003). However, there have been great improvements. At its highest in 1988 drink-driving was a contributing factor in almost 44 percent of crash casualties (Land Transport Safety Authority, 2001).

In 2002 drinking and driving contributed to (Land Transport Safety Authority, 2003):

- 95 fatal crashes
- 384 serious injury crashes
- 109 deaths
- 525 serious injuries
- 1841 minor injuries

### The costs of drink-driving

The social cost of drinking related crashes was estimated at about $600 million for 2002 (Land Transport Safety Authority, 2003).

### Who gets killed?

Over 80 percent of drivers with excess alcohol levels in fatal or serious road crashes in New Zealand are male. The most at risk group of people are 18-30 year old males. Although males aged between 16 and 30 years old only make up 15 percent of all drivers, they represent 50 percent of all drink-drivers in crashes (Land Transport Safety Authority, 2001).

Although it is a common opinion that drink-drivers have less risk of being killed in a crash, this is not the case. In 2002, 63 drink-drivers were killed, as well as 32 of their own passengers and 14 other drivers' passengers and pedestrians (Land Transport Safety Authority, 2001).

### Age of drink-drivers in fatal crashes

The highest numbers of drink-drivers involved in fatal crashes between 1998-2000 were in the 20-24 and 24-29 year old age groups (Land Transport Safety Authority, 2001).

### When do crashes occur?

The most common times for fatal crashes that involved drink-driving as a contributing factor are late at night or in the early morning from Friday night through to Sunday morning.

### *Vehicle type*

From 1998 to 2000, 19 percent of car and van drivers, and 24 percent of motorcyclists involved in fatal crashes were affected by alcohol. Motorcyclists had a higher percentage due to the high number of males in this group. About 1 percent of truck drivers were affected by alcohol (Land Transport Safety Authority, 2001).

### *Seat-belts*

Drivers affected by alcohol are less likely to be wearing a seat-belt than their sober counterparts. For drivers above the alcohol limit who were killed in a drink-drive crash between 1997 and 1999, at least 48 percent were not wearing a seat-belt at the time of the crash. This is much higher when compared to the 17 percent of drivers whose blood alcohol concentration was below the legal blood alcohol concentration (Land Transport Safety Authority, 2000).

### *Alcohol and speed*

During 2000-2002, the combination of alcohol and speed contributed to 13.7 percent of fatal crashes. Alcohol alone contributed 12.7 percent (Land Transport Safety Authority, 2003).

## *Youth and Blood Alcohol Concentration*

Even when sober, young drivers are more likely to have a motor vehicle crash than older experienced drivers. Lower tolerance to alcohol further increases their accident risk.

Controlled studies indicate that at the present limit drivers under 20 have about eight times the risk of having a fatal crash compared with mature drivers. At a 50mg blood alcohol concentration they have about four times the risk (Mayhew et al, 1986).

Canadian research has shown that 16-19 year old drivers with blood alcohol concentrations between 80mg to 99mg have 40 times the risk of a fatal crash compared to youth who have not consumed alcohol (in Chamberlain and Solomon, 2002).

A recent American study found that, as blood alcohol concentration increased by 0.02 percent, the risk of a male driver aged between 16-20 receiving a fatal injury in a single vehicle crash almost doubled compared to the risk among the other driver groups (Zador et al, 2000, in Chamberlain and Solomon, 2002).

At present the blood alcohol concentration for those under 20 is 30mg alcohol/100ml blood. There is a relatively large gap between this limit and the current limit for drivers over 20. There may be some benefits in bringing these two limits closer together. For example it helps to prevent an expectation by drivers turning 20 that they can increase their drinking and driving levels.

Bringing the legal blood alcohol concentration down to 50mg for adults reinforces the message that it is not acceptable to drink and drive at any age.

## Overseas Blood Alcohol Concentrations

Most of the Western world now has a 50mg limit for driving. Those that have lowered the blood alcohol concentration limit have "experienced general reductions in drinking and driving, and its related deaths and injuries" (Chamberlain and Solomon, 2002, p8).

The legal limit is reported to be 50mg in many countries including Argentina, Australia, Austria, Belgium, Bulgaria, Croatia, Denmark, Finland, France, Germany, Greece, Iceland, Israel, Italy, Macedonia, the Netherlands, Norway, Portugal, Slovenia, and Spain.

In 1990 Sweden lowered its legal blood alcohol concentration to 20mg/100ml from 50mg/100ml; Russia and Poland also have 20mg limits.

Countries reported to have blood alcohol concentration levels of zero are the Czech Republic, Hungary, Japan, Malaysia, Romania, Saudi Arabia, and Turkey.

Among countries that do not have 50mg limits are New Zealand, Canada, USA and the UK. In March 2002, 32 USA states lowered their blood alcohol concentrations from 100mg to 80mg. Britain and Canada's blood alcohol concentration levels are the same as New Zealand (80mg).

Both the British and the American Medical Associations support the reduction of the legal drink-drive blood alcohol level to 50mg. The British Medical Association states that there is significant evidence that any detectable increase in blood alcohol levels increases the relative risk of accident involvement (British Medical Association, 1996).

## International Results of Decreasing Blood Alcohol Concentration

Almost every country that has lowered the blood alcohol concentration to 50mg or lower has experienced traffic safety benefits in terms of reduced crashes, injuries, and fatalities. Some countries have also had reductions in the mean blood alcohol concentrations of impaired drivers and in the ratio of high blood alcohol concentration to moderate blood alcohol concentration drivers (Chamberlain and Solomon, 2002).

### Australia

All Australian states and territories have a 50mg blood alcohol concentration for general drivers, and most also have a zero (20mg) level for young and novice drivers, heavy vehicle drivers and public passenger vehicle drivers.

NSW experienced an eight percent reduction in fatal accidents and a seven percent reduction in serious accidents associated with the reduction of the legal blood alcohol content from 80mg/100ml to 50mg/100ml. Single vehicle night-time collisions were also reduced by 11 percent (in Chamberlain and Solomon, 2003).

After Queensland reduced its blood alcohol concentration limit to 50mg at the end of 1982, there was an 18 percent reduction in fatal collisions and a 14 percent reduction in serious crashes. These results were not confounded by the effects of random breath testing as it was not introduced until eight years later (in Chamberlain and Solomon, 2003).

Australian research from alcohol tests of crash-involved drivers and from Police random breath testing found that the change to the 50mg limit had the greatest impact on reducing the number of drivers with a high blood alcohol concentration (Brooks and Zaal, 1993). After the legal limit in the Australian Capital Territories was lowered from 80mg to 50mg, there was a 41 percent reduction in the incidence of driving with a blood alcohol concentration greater than 15mg; while the proportion of drivers with a blood alcohol concentration of over 80mg involved in accidents fell by one third (Brooks and Zaal, 1993).

### *Austria*

In Austria the legal blood alcohol concentration was lowered to 50mg in early 1998. A recent study has shown that this resulted in an overall decrease of just over 9 percent in alcohol-related crashes relative to the total number of crashes (Chamberlain and Solomon, 2002). At the time the blood alcohol concentration was lowered there were intense media and enforcement campaigns, making it difficult to attribute all of this decrease to the decrease in blood alcohol limits. The study concluded that "lowering the legal blood alcohol concentration from 0.08% to 0.05% in combination with intensive police enforcement and reporting in the media leads to a positive short-term effect". This adds weight to the view that there are beneficial effects of a 50mg blood alcohol concentration, as part of a comprehensive approach to reducing drink-driving.

### *Germany*

Since Germany introduced a 50mg blood alcohol concentration drink-drive limit in 1998, the number of alcohol-related accidents in Cologne has more than halved, and the number of drivers caught with a level of more than 50mg blood alcohol concentration decreased by approximately 25 percent (Institute of Alcohol Studies, 2000, in Alcohol Healthwatch, 2000).

### *Belgium*

In Belgium, where the limit was reduced to 50mg in 1994, there was a 10 percent decrease in fatalities in 1995 and a further reduction of 11 percent in 1996 (Institute of Alcohol Studies, 1998).

### *The Netherlands*

The Netherlands introduced a 50mg blood alcohol concentration law in 1974. A long term study has suggested that it has "contributed to a broad and sustained decline in the number of drinking drivers"(Chamberlain and Solomon, 2002).

### *France*

Reducing the legal blood alcohol concentration to 50mg in France in 1995 is reported to have reduced fatalities by four percent (Institute of Alcohol Studies, 1998).

## *Expected Lives That Could be Saved in New Zealand with a 50mg Blood Alcohol Concentration*

New Zealand differs from countries that have reduced blood alcohol levels to 50mg or less in a number of ways. These include the related drinking and driving legislation, enforcement, legal traditions, geography, drinking behaviour and the drinking culture. Although New Zealand attitudes would not necessarily change in the same manner or to the same degree as those overseas countries that have lowered the blood alcohol concentration, decreases in blood alcohol limits generally appear to improve attitudes towards traffic safety and drinking behaviour.

It is also important to note that almost every country that has lowered the blood alcohol concentration to 50mg or lower has experienced traffic safety benefits in terms of reduced crashes, injuries, and fatalities. The greatest reduction was seen in Queensland, with an 18 percent reduction in fatal collisions and a 14 percent reduction in serious accidents (Chamberlain and Solomon, 2002). Therefore it can be expected that many gains will be experienced in New Zealand if the blood alcohol concentration is lowered to 50mg. The greatest gain will be the reduction of drink-drivers on our roads, leading to lives saved and a significant reduction in the number of serious injuries from alcohol-impaired driving.

Taking international reductions into account, New Zealand could expect to save between 16-72 lives, and 640-1280 injuries each year. If an intensive advertising and enforcement campaign was also to be combined with the reduction in the blood alcohol concentration, it is possible that even more lives could be saved and injuries prevented even further.

## *Alcohol Healthwatch's Position on Blood Alcohol Concentration*

**Policy Statement**

Alcohol Healthwatch recommends that the legal blood alcohol concentration is lowered from 80mg alcohol/100ml blood to 50mg alcohol/100ml blood.

## *Alternative Viewpoints on Lowering the Blood Alcohol Concentration*

***A 50mg legal limit would interfere with social drinking and would prevent people from enjoying a glass of wine with dinner.***

The rights of people to enjoy a full and injury free life must be given a higher regard than the rights of people to drink an amount that impairs driving and then drive on public roads. International evidence shows that a 50mg limit does reduce motor vehicle crashes and save lives, this is the most important factor in this debate.

A blood alcohol concentration of 50mg interferes little with social drinking; it only imposes on more excessive consumption by those intending to drive. Australian guidelines show it is possible to consume a small amount of alcohol prior to driving. Although this amount depends on the individual, most people would be able to enjoy at least a glass of wine with dinner before driving.

***Drivers between 50-80mg do not make up a high proportion of drink-drivers, a large proportion of drivers are caught drink-driving are caught with high blood alcohol levels.***

As the section *International Results of Decreasing Blood Alcohol Concentration* shows (page 13), almost every country that has lowered the blood alcohol concentration to 50mg or lower has experienced traffic safety benefits in terms of reduced crashes, injuries, and fatalities. Some countries have also had reductions in the mean blood alcohol concentrations of impaired drivers, and in the ratio of high blood alcohol concentration to moderate blood alcohol concentration drivers (Chamberlain and Solomon, 2002).

Australian research found that lowering the blood alcohol limit not only impacted on those driving between 50-80mg; but also reduced the number of drivers with high blood alcohol concentrations. After the legal limit was lowered from 80mg to 50mg there was a 40 percent reduction in the incidence of driving with a blood alcohol concentration greater than 150mg.

A lowered blood alcohol level is also expected to see similar results in New Zealand. When a 50mg limit is introduced some drivers further restrict their drinking. It is known that the behavioural chain or sequence is more easily broken early on in the drinking session than in the later stages. A lower blood alcohol concentration encourages drivers to keep a better count of the drinks they consume in order to stay below the limit. An Australian survey of drinking behaviour suggested that the lower limit made people more aware of the need to control their drinking before driving (Alcohol Advisory Council, 1995).

***A 50mg limit would cost too much to enforce.***

Although there will be a need for additional resources for enforcement immediately after implementation, the need for increased resources will diminish as drivers lower their blood alcohol limit to conform with the new law.

This criticism also fails to take into account the potential savings from a decrease in alcohol-related harm, injury and death. A review in Australia indicated that the lower

limit in New South Wales and Queensland resulted in financial savings of $76 million and $32 million respectively (Chamberlain and Solomon, 2002).

***A lower limit does not address the problem of recidivist drink-drivers; these are the ones who should be targeted***

This is a very common argument, often one employed by the alcohol industry who tend to reframe the issue in terms of the "problem drinkers". At present recidivist drink-drivers make up under half of the drink-drive statistics. It is acknowledged that a reduction in the blood alcohol concentration would not greatly influence the issue of recidivist drink-drivers, and separate specific strategies are required in order to target this group. However, as over half of the drink-drivers are not recidivist offenders, a blood alcohol limit of 50mg would go a long way towards achieving safer New Zealand roads. International research in the many countries that have lowered their blood alcohol concentrations proves that lowering the blood alcohol concentration for driving is successful in saving many lives and decreasing many injuries each year.

It is beyond the scope of this report to suggest methods to address the recidivist problem, however Alcohol Healthwatch strongly encourages the government to investigate methods such as ignition interlocks and harsher penalties to address the issue of recidivist drink-drivers.

***We have already seen dramatic reductions in the number of drink-drivers in the last ten years, lowering the blood alcohol limit will only criminalise cautious law-abiding motorists.***

Although it is true that there have been dramatic reductions in drink-driving, this is not a reason for complacency. Drink-driving is still causing too much harm in New Zealand, in 2001 drinking and driving contributed to 118 deaths, 502 serious injuries, and 1272 minor injuries (Land Transport Safety Authority, 2001). In addition, the downward trends are stabilising and there is clearly still considerable room for improvement. The most effective measure that will see a dramatic reduction in our road toll and that will help us meet the targets of the Road Safety 2010 Strategy of less than 300 deaths annually on the road by 2010 (National Road Safety Committee, 2000), is to lower the blood alcohol concentration to 50mg.

## References


Acquire. 2002. *Alcohol Concern's Quarterly Information and Research Bulletin*. Summer 2002

Accident Compensation Corporation. *Drink driving*. Retrieved 11/14/02 www.acc.co.nz/injury-prevention/safe-on-the-road/alcohol/index/html

Alcohol Advisory Council. *Drink-drive guidelines*. Retrieved 28/11/02 www.alcohol.org.nz/effects/other/drive.html

Alcohol Advisory Council. *What is a standard drink?* Retrieved 28/11/02 www.alcohol.org.nz/effects/standards/index.htm

Alcohol Advisory Council. 1995. *The role of alcohol in road crashes: A taskgroup report to the Officials Committee on Road Safety*

Alcohol Healthwatch. 2000. *Fact Sheet – 0.05 legal BAC: The next step forward.* www.ahw.co.nz_alcohol_health_promotion.html

British Medical Association. 1996. *Driving impairment through alcohol and other drugs.* Board of Science and Education

Brooks and Zaal D. 1993. *The impact of a reduced alcohol limit on driving*. Paper presented to the 12th international conference on alcohol, drugs and traffic safety, Cologne, Germany,

Chamberlain E, Solomon R. 2002. *The case for a 0.05% criminal law BAC limit for driving. Injury Prevention*; 8 (III): III1-III17

Dennis M. 2000. *An analysis of alcohol/drug instructional concepts*. The Chronicle of ADTSEA. Summer Issue

Hassela Nordic Network. 2002. Press release October 13 2002. *Even small amount of alcohol affects driving skills*

Institute of Alcohol Studies. 1998. *Drink drive consultation paper response: Lowering the BAC*. Retrieved 15/11/02 www.ias.org.uk/ddconsult.htm

Institute of Alcohol Studies, 2002. *Fact sheet – Drinking and driving*. www.ias.org.uk/factsheets/alcoholdd.pdf

Land Transport Safety Authority. *2000. Crash: Alcohol. Official road safety statistics prepared by Research and Statistics*

Land Transport Safety Authority. 2001. *Crash facts: Alcohol*. Retrieved 15/11/02. www.ltsa.govt.nz

Land Transport Safety Authority. 2003. *Drinking and Driving Statistics*. Retrieved 22/09/03. www.ltsa.govt.nz

Mayhew DR, Doneldson AC, Beirness DJ, Simpson HM. 1986. *Youth alcohol and relative risk of crash involvement. Accident Analysis and Prevention: 18*

National Road Safety Committee. 2000. *Road safety strategy 2010, A consultation document.* Land Transport Safety Authority, Wellington

Queensland Government, Queensland Transport. 2000. *Blood Alcohol Concentration*. Retrieved 22/01/03 www.roadsafety.net/ANTI-DRINK/antidrinkdrive.html

Ridderinkhof KR, de Vlugt Y, Bramlage A, Spaan M, Elton M, Snel J, Guido P. 2002. *Alcohol Consumption Impairs Detection of Performance Errors in Mediofrontal Cortex. Band Science:* 298: 2209-2211

## *Appendix 1. The History of Blood Alcohol Levels in New Zealand*

| Year | Blood Alcohol Concentration Legislation |
|---|---|
| Prior to 1969 | Until 1969 the law prohibited drink-driving, with drivers considered to be under the influence of alcohol when a medical doctor or law enforcement officer considered them to be "drunk". The definition of drunkenness was, to a large extent, a commonsense definition and in fact people driving at levels lower than that deemed "drunk" may have been driving at risky levels. (Alcohol Advisory Council, 1995). |
| 1969 | In 1969 a legal blood alcohol limit of 100mg alcohol/100 millilitres blood was established, so too were preliminary breath testing procedures where officers could test at the roadside to see if the driver was over the legal limit. |
| 1978 | In December 1978 the legal blood alcohol limit was reduced to 80mg/100ml. This limit was a "pragmatic one taking into account the public attitudes of the day" (Accident Compensation Corporation, Drink driving). |
| 1993 | The legal blood alcohol concentration for drivers under the age of 20 was lowered to 30mg/100ml in 1993. |
| 2003 | At present the blood alcohol level remains at 80mg/100ml for those over 20 years old, and 30mg/100ml for those under 20 years old |