

## Chapter 19

### Alcohol use in adolescence

#### David Fergusson

*Christchurch Health and Development Study, University of Otago, Christchurch*

#### Joseph Boden

*Christchurch Health and Development Study, University of Otago, Christchurch*

#### Summary

- There is consistent evidence to suggest that a substantial fraction of New Zealand young people engage in heavy drinking including hazardous drinking, alcohol abuse and alcohol dependence. Over a third of young people engage in binge drinking or hazardous drinking and by the age of 25 over 20% will have developed a significant alcohol related problem.
- The misuse of alcohol by young people has been associated with increased risks of a number of adverse outcomes including: motor vehicle collisions, injuries and deaths; crime; violence; sexual risk taking; mental health problems and victimisation.
- There is increasing international evidence on the types of policies that are effective in reducing the risks of alcohol related problems in young people. Effective policies include: increased alcohol taxation; regulating the availability of alcohol; regulation of drink driving; alcohol marketing restrictions; development of effective treatment services.
- Approaches having little or no effectiveness include: alcohol and drug education in schools; public service advertisements advocating responsible drinking and avoidance of drink driving; warning labels on alcohol containers.
- The recent Law Commission report provides a comprehensive and evidence-based framework for reforming the supply and regulation of alcohol in New Zealand.
- Key reforms that are likely to benefit young people include: increasing the cost of alcohol; raising the drinking age and the age at which alcohol may be purchased to 21 years; adopting a zero tolerance policy for drink driving by under 21 year olds; further restriction on the advertising of alcohol; greater regulation of hours of sale, number of outlets and supply of alcohol in licensed premises frequented by young people; greater investment in treatment for young people with significant alcohol related problems.
- Greater investment is required in evaluation research to ascertain the extent to which policy changes have beneficial effects in reducing the misuse of alcohol by young people.

## **1. Introduction**

The purpose of this chapter is to examine the use and misuse of alcohol by young people; to describe the harms associated with alcohol misuse and to outline policy options for both regulating the use of alcohol and reducing alcohol related harms.

## **2. What is the question?**

Alcohol is widely used and misused by young New Zealanders with estimates suggesting that over 1 in 3 young people aged 12-16 engage in binge drinking [1] with a similar fraction of young people aged 16-21 engaging in hazardous drinking [2]. There have been ongoing public concerns expressed about young people and alcohol in both the New Zealand media and in official reports. The growing statistical evidence and public concerns raise three important questions about alcohol and young people.

- The first question concerns the extent to which alcohol use has harmful consequences for young people.
- The second question concerns the best ways of regulating the purchase, supply and consumption of alcohol by young people to minimise alcohol related harms.
- The third question concerns the development of prevention, treatment and related services aimed at both reducing heavy drinking by young people and providing treatment for young people with alcohol related problems.

## **3. Why is alcohol use important in the transition to adolescence?**

There is growing and internationally consistent evidence to suggest that the heavy use of alcohol by young people makes substantial contributions to risks of a range of adverse conditions in adolescence. Amongst the adverse effects that have been documented are the following.

### **3.1 Increased risks of motor vehicle collisions, injuries and deaths**

The transition to adolescence includes two rites of passage that have consequences of increasing the risks of injury and mortality from motor vehicles. First, over the period of adolescence the majority of young people begin to use alcohol as part of social activities. For example, estimates from the Christchurch Health and Development study suggest that by the age of 15 over 70% of young people reported drinking within the last year with 30% reporting drinking at least once per month [3]. Second, the onset of drinking behaviours coincides with age at which a driving licence can be obtained with 15 being the age for acquiring a learner's licence. The combination of these two events places adolescents at risk of drink driving with the attendant harms of motor vehicle collisions, injury and death [4-7].

### **3.2 Increased risks of crime**

There is now substantial evidence to suggest that the disinhibiting effects of alcohol place teenagers at increased risks of a range of crimes including: violence; vandalism; sexual crimes; partner violence and property crimes [8-29]. This scientific evidence has been supplemented by growing amounts of video material of public areas that has documented the ways in which the misuse of alcohol fuels antisocial behaviours by young people [30].

### 3.3 Increased risks of sexual risk taking

The heavy use of alcohol is also associated with increased risks of sexual risk taking including multiple sexual partnerships and unprotected sex [31-33]. In turn this increased rate of sexual risk taking is associated with increases in sexually transmitted diseases, pregnancy and abortion [32-35].

### 3.4 Mental health problems and suicidal behaviours

There is increasing evidence to implicate the misuse of alcohol in the development of mental disorders such as depression [3, 36-44] and the development of suicidal behaviours in young people [13, 45-47].

### 3.5 Victimization

The social context within which alcohol is consumed means that not only are young drinkers at risk of behaving in at risk ways, they are also at increased risk of becoming the victims of drink driving and alcohol fuelled crimes [19, 29, 48-52].

In reviewing the risks associated with teenage drinking in New Zealand the recent Law Commission's report [53, 54] concludes:

*“One of the greatest challenges we face around alcohol is how to reconcile the new evidence of the risks alcohol presents to young people with our cultural norms. Drinking to intoxication is commonly seen in our society as a rite of passage and drinking to intoxication is not only socially accepted but expected. New research has shown that young people experience more harm per standard drink than older drinkers. The highest risk is for those under 15 years but there is still an elevated risk of harm per drink for young people up to the age of 25 years.”*(p. 83) [53]

In addition, the Law Commission notes:

*“It is hard to think of any other lawful product available in our society that contributes to so many social ills. While alcohol misuse is only one of several risk factors contributing to these harms, alcohol distinguishes itself because, like many other factors associated with crime, injury and social dysfunction, the harmful use of alcohol is a modifiable risk factor.”* (p. 7) [54]

## 4. What is the scale of the problem?

A number of New Zealand publications have sought to estimate the fraction of young people who are at risk because of the heavy consumption of alcohol [1, 2, 18, 53-59]. However, different studies have used some different approaches. In studies of younger teenagers, rates of binge drinking have been used to assess the size of alcohol related problems. For example the Youth 2007 survey reports 34% of young people age 12 to 17 engaged in binge drinking in the last month where binge drinking was defined as drinking more than 5 alcoholic drinks in four hours [1]. The New Zealand Mental Health Survey (Te Rau Hinengaro) reported a range of measures applied to 16 to 24 year olds [2, 55]. These measures include assessment of the number of young people engaging in hazardous drinking as well as those meeting formal diagnostic criteria for alcohol abuse and dependence. Te Rau Hinengaro found that 79% of young people aged 16-24 drank in the previous 12 months and 49% of those drinkers drank hazardously in that period. The same study showed that, regardless of drinking status, nearly 17% had ever met DSM IV criteria for alcohol abuse with 6.5% having met criteria for alcohol dependence. These

figures clearly suggest that over a third of young New Zealanders are at risk of alcohol related problems each year because of their binge drinking and/or hazardous drinking. The percentage who will have met formal diagnostic criteria for an alcohol related disorder by the time they are 25 years of age will be well over 20%.

All of these figures are indicative of a large and growing problem with the misuse of alcohol by young people [53, 54]. Given the consequences of the misuse of alcohol by young people for a wide range of outcomes, finding constructive ways of means of regulating the use of alcohol by young people and mitigating the adverse effects of alcohol misuse is a matter of high priority in the area of adolescent policy.

## **5. What does research tell us about causative factors?**

There has been extensive research into the factors associated with the use and misuse of alcohol by young people. These factors include the following.

### **5.1 Genetic factors**

There has been growing evidence from both twin studies and behavioural genetic research to suggest genetic factors may play an important role in determining individual susceptibility to alcohol abuse and dependence [60-65]. Estimates suggest that up to 60% of the variation in alcohol abuse and dependence may be accounted for by genetic factors [66]. It is likely that genetic factors interact with environmental influences so that those most at risk of alcohol related problems are both genetically susceptible to these problems and are exposed to social environments that encourage the misuse of alcohol [67].

### **5.2 Socio-demographic factors**

There is extensive evidence which suggests higher rates of alcohol misuse amongst certain groups within the population. Males are more likely to misuse alcohol than females although recent evidence suggests that the gender gap in this area is reducing amongst young people [68-72]. Young people from socially disadvantaged background characterised by low family income and socio-economic status are at greater risk [73, 74]. In New Zealand young Māori have rates of alcohol abuse and dependence that are higher than those of non Māori [53, 54, 75, 76].

### **5.3 Family factors**

A large amount of research suggests that the nature and quality of the family environment plays an important role in predisposing young people to the misuse of alcohol. Factors associated with alcohol misuse by young people include: parental alcohol problems; early age of first drink; family dysfunction, childhood maltreatment and related conditions [21, 77-85].

### **5.4 Peer influences**

Amongst adolescents peer affiliations play an important role in the development of substance use and abuse, with young people who affiliate with substance using friends and acquaintances being at increased risks of the use and misuse of alcohol [85-89].

### **5.5 Access to alcohol**

There is extensive evidence to suggest that factors that influence the availability and

accessibility of teenagers to alcohol play an important role in the development of alcohol use and misuse in this group. These factors include: (i) the price of alcohol; (ii) the legal drinking age; (iii) the availability of liquor outlets; (iv) licensing hours; (v) the enforcement of alcohol laws; and (vi) advertising. This research makes it abundantly clear that the ways in which the access of young people to alcohol is regulated, can play an important role in influencing rates of alcohol use and misuse in this population [9, 90, 91].

The major conclusions that emerge from research into the causative factors involved in the development of alcohol use and misuse are likely to involve a complex interplay of biological, social, familial, peer and other factors which combine to determine rates of alcohol use and misuse in the adolescent population. Consideration of these factors suggests that approaches which focus on regulating the access of young people to alcohol offer the greatest potential for minimising alcohol misuse in this population.

## **6. Prevention, treatment and management of alcohol use/misuse in adolescence**

There is a large and extensive literature on the effective policies for the regulation of alcohol and the prevention, treatment and management of alcohol related problems. This material has been ably summarised in the award-winning text *Alcohol – No Ordinary Commodity* [91]. Chapter 16 of that text provides an overview and summary of the effectiveness of 42 strategies and policies that have been used around the world for the regulation, prevention and treatment of alcohol misuse. Key conclusions of this review are summarised below.

### **6.1 Increased alcohol taxation**

There is consistent evidence from around the world that increasing the taxation of alcohol (and thence the price of alcohol) is one of the most effective methods for reducing alcohol consumption and related harms. This approach has been found to be more effective in reducing heavy drinking and is likely to be effective in reducing alcohol consumption amongst younger drinkers [92-95].

### **6.2 Regulating the availability of alcohol**

There is also strong evidence that regulating the availability of alcohol also has benefits in reducing alcohol consumption and harm. The evidence suggests that by restricting the hours of sale, the times of the day when alcohol is sold and the location of alcohol sale premises and similar factors it is possible to reduce levels of consumption and rates of alcohol related problems [96-99]. A form of alcohol regulation that is used widely is regulation of the legal age at which alcohol can be purchased. There is good evidence from US-based research that raising the minimum drinking age to 21 and adequately enforcing the law leads to reductions in alcohol related harms amongst young people [100-104].

### **6.3 The regulation of drink driving**

A further move that has been shown to be effective in reducing alcohol related harms is restrictions on drink driving including lowering the legal breath alcohol concentration and ensuring that drink driving laws are visibly enforced by the use of check points, random breath tests and strong penalties [105-108]. With respect to adolescents it has been proposed that zero tolerance policies regarding breath alcohol concentrations are

effective in reducing rates of drink driving amongst those below the legal drinking age [109-112].

#### *6.4 Alcohol marketing restrictions*

There is increasing evidence to suggest that restricting alcohol advertising and marketing may have modest effects on drinking in young people [113, 114]. Conversely, there is no evidence the voluntary self regulation codes by the alcohol industry have been successful in reducing rates of alcohol consumption amongst young people [113].

#### *6.5 Altering the drinking context*

A further strategy that has been found to have modest effects in reducing risks of alcohol consumption and harm is greater regulation and oversight of drinking establishments and alcohol supply outlets to ensure that regulations regarding alcohol consumption relating to age of supply and levels of intoxication are adequately enforced [115-117].

#### *6.6 Development of effective treatment services*

The preceding approaches have all relied on changing the policy environment in various ways to reduce levels of hazardous drinking and alcohol related harms. However, even with the most effective population level policies a number of young people will develop significant alcohol related problems and require treatment and support.

There has been a growing research literature on the development of interventions aimed at treating and assisting people with alcohol related problems. This research has identified a number of treatment approaches as being effective. These include: brief interventions aimed at reducing the risks faced by hazardous and high risk drinkers; cognitive behavioural, motivational enhancement and related therapies; and mutual aid treatments [118-120]. Parallel to the development of these interventions there has been a growing number of best practice guidelines for the development of treatment for adolescent populations with alcohol related problems [46, 121-123].

### **7. What does not work**

While there is growing evidence on effective strategies for reducing alcohol related harm, there is also a growing consensus about the approaches which are likely to be ineffective. These approaches include the following.

#### *7.1 Alcohol and drug education in schools*

Around the world there have been investments made in alcohol and drug education programmes that seek to teach young people about the risks of alcohol and drugs and reduce the risks of future use and abuse of substances. There is now generally consistent evidence to suggest that while alcohol and drug education increases young people's knowledge about these substances, it does not generally reduce the risks of future use and abuse of substances [124-127].

There have, however, been some exceptions to these findings. In particular, there has been promising evidence that the "Keepin' it REAL" programme may be effective in reducing drug and alcohol abuse in young people [128-133]. Keepin' it REAL is a multicultural, school-based substance use prevention program for students 12-14 years old. Keepin' it REAL uses a 10-lesson curriculum taught by trained classroom teachers in 45-minute

sessions over 10 weeks, with booster sessions delivered in the following school year. The curriculum is designed to help students assess the risks associated with substance abuse, enhance decision making and resistance strategies, improve anti-drug normative beliefs and attitudes, and reduce substance use.

### 7.2 Mass media campaigns

Parallel to alcohol and drug education, there have been large investments made in media campaigns aimed at encouraging responsible drinking and highlighting the hazards of behaviours such as drink driving. Despite the investment made into such campaigns the evidence for their effectiveness in reducing alcohol consumption or alcohol related harms is very limited. Many programmes have not shown the expected gains and changes in behaviours [134, 135]. In commenting on this area Babor et al [91] note:

*“Despite their good intentions, Public Service Advertisements are not an effective antidote to the high quality pro drinking messages that appear much more frequently as paid advertisements in the mass media.”* (p. 202)

These findings suggest that investments into media advertising to encourage responsible drinking or avoid hazardous drinking need to be approached with caution and require careful evaluation to establish their effectiveness and cost benefit ratio.

### 7.3 Warning labels

A third approach that has been used has been to require that alcohol beverage containers carry labels warning consumers of the risks of excessive alcohol use. Reviews of the evidence suggest that such labels have no measureable beneficial effects on levels of alcohol consumption or alcohol related harm [136-138].

A common theme that appears to unite interventions that do not work is that all involve methods of education and rational persuasion that seek to discourage the excessive use of alcohol. Regrettably the weight of the evidence suggests that reasonable and rational appeals are not effective in reducing rates of alcohol consumption or alcohol related harms.

## 8. Where are policy/intervention currently focused?

Recently there have been growing public concerns stated about the issue of problem drinking in New Zealand with many of these concerns focusing on the issue of hazardous drinking by young people. These concerns have been reinforced by highly publicised events in which young people have died as a result of the excessive use of alcohol both from alcohol poisoning and motor vehicle accidents. Parallel to these concerns there have been recent suggestions for a major review of the legislation and regulation of alcohol. The most ambitious attempt in this area has been the recent 2009 Law Commission report which provides a comprehensive overview of the regulation of alcohol within New Zealand and sets forth a series of proposals for the possible introduction of new legislation centred around demand reduction (e.g. increasing the price of alcohol); supply control (e.g. raising the drinking age) and problem limitation strategies (e.g. reducing the legal blood alcohol limit) [53, 54, 139].

The work of the Law Commission has been supplemented by a public advocacy campaign by Alcohol Action [140] who has proposed what has come to be known as the 5+ solution. This solution is: (1) raise alcohol prices; (2) raise the purchase age; (3) reduce

alcohol availability; (4) reduce marketing and advertising; (5) increase drink-driving countermeasures + (increased treatment opportunities for heavy drinkers).

Both the Law Commission report and the advocacy by Alcohol Action draw heavily from the evidence base reviewed in the previous section.

### **9. Implications for future policy**

It is clear that the misuse of alcohol by young New Zealanders poses a major social and health problem that requires urgent attention. The foundations for change and reform have been well developed in the Law Commission report and summarised in the advocacy of Alcohol Action's 5+ plan. Key areas of reform that are likely to have an impact on alcohol misuse in adolescence are:

- increasing the cost of alcohol;
- raising the drinking age and the age at which alcohol may be purchased to 21 years;
- adopting a zero-tolerance policy for drink driving by under 21 year olds;
- further restriction on the advertising of alcohol;
- greater regulation of hours of sale and supply of alcohol in licensed premises frequented by young people; and
- greater investment in treatment for young people with significant alcohol related problems.

It is also important that greater investment is made into research and evaluation to document the consequences of policy change. The reduction of the drinking age to 18 in 1999 provides a clear example of the need for evaluation to be built into policy change. Whilst the reduction of the drinking age to 18 was a major social policy change, no clear plan was developed to evaluate the consequences of this change. Whilst a number of evaluations have been conducted [e.g. 141-143] these have been limited because of problems of data quality and data availability. In turn, the lack of systematic evaluation of the evidence has complicated the process of policy debate and reform. It may be suggested that had a clear plan been developed for evaluating the consequences of 1999 reforms with this information being provided to Parliament, many of the debates and concerns that have been expressed about further changes to the law could have been addressed by evidence rather than opinion. For these reasons it is important that when major policy change is contemplated evaluation is built into the policy change process so that clear conclusions may be drawn about the effectiveness or otherwise of policy change. If applied consistently this strategy could result in an evolutionary process in which good policies are strengthened and reinforced by research evidence whilst poor policies are identified and discarded.

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### **Appendix 1: Summary of evidence on effective treatments**

The review in the main chapter provides an overview of the evidence regarding the effective interventions to address alcohol related problems in young people. This evidence is based on a large body of research conducted around the world. The major findings from this body of research have been summarised by Babor et al. in the award-winning text *Alcohol – No Ordinary Commodity* [91].

Table 19.1 is reproduced from that text and provides a summary of the evidence on the effectiveness of 42 interventions in terms of:

- (a) overall effectiveness
- (b) breadth of research support
- (c) cross-national testing.

**Overall effectiveness** is scored as:

- 0 Evidence indicates a lack of effectiveness
- + Evidence for limited effectiveness
- ++ Evidence for moderate effectiveness
- +++ Evidence for a high degree of effectiveness
- ? No controlled studies have been undertaken or there is insufficient evidence upon which to make a judgement

**Breadth of research support** is scored as:

- 0 No studies of effectiveness have been undertaken
- + One or two well-designed effectiveness studies completed
- ++ Several effectiveness studies have been completed, sometimes in different countries, but no integrative review was available
- +++ Enough studies of effectiveness have been completed to permit integrative literature reviews or meta-analyses

**Cross-national testing** is scored as:

- 0 The strategy has been studied in only one country
- + The strategy has been studied in at least two countries
- ++ The strategy has been studied in several countries
- +++ The strategy has been studied in many countries

In addition, the table provides narrative comments on specific interventions. Table 19.1 may be used to clarify and elaborate on the general recommendations made in the main chapter.

**Table 19.1. Summary of effective programmes for the prevention and treatment of alcohol problems (from Babor et al. [91], with permission)**

Strategy or intervention	Effectiveness	Breadth of research support	Cross-national testing	Comments
<b>Pricing and taxation</b>				
Alcohol taxes	+++	+++	+++	Generally evaluated in terms of how price changes affect population-level alcohol consumption, alcohol-related problems and beverage preferences.
Minimum price	?	+	0	Increased taxes reduce alcohol consumption and harm. Effectiveness depends on government oversight and control of the total alcohol supply. Logic based on price theory, but there is very little evidence of effectiveness. Competition regulations and trade policies may restrict implementation unless achieved via taxation policy.
Bans on price discounts and promotions	?	+	0	Only weak studies in general populations of the effect of restrictions on consumption or harm; effectiveness depends on availability of alternative forms of cheap alcohol.
Differential price by beverage	+	+	+	Higher prices for distilled spirits shifts consumption to lower-alcohol content beverages resulting in less overall consumption. Evidence for the impact of tax breaks on low-alcohol products is suggestive.
Special or additional taxation on alcopops and youth-oriented beverages	+	+	+	Evidence that higher prices reduce consumption of alcopops by young drinkers without complete substitution; no studies of impact on harms.
<b>Regulating physical availability</b>				
Ban on sales	+++	+++	++	Generally evaluated in terms of how changes in availability affect population-level alcohol consumption and alcohol-related problems.
Bans on drinking in public places	?	+	+	Can reduce consumption and harm substantially, but often with adverse side-effects from black market, which is expensive to suppress. Ineffective without enforcement.
Minimum legal purchase age	+++	+++	++	Affects young or marginalised high-risk drinkers; may displace harm without necessarily reducing it. Effective in reducing traffic fatalities and other harms with minimal enforcement but enforcement substantially increases effectiveness and cost.
Rationing	++	++	++	Effects greater on heavy drinkers.
Government monopoly of retail sales	++	+++	++	Effective way to limit alcohol consumption and harm. Public health and public order goals by government monopolies increase beneficial effects.
Hours and days of sale restrictions	++	++	+++	Effective where changes in trading hours meaningfully reduce alcohol availability or where problems such as late-night violence are specifically related to hours of sale.

**Table 19.1. Summary of effective programmes for the prevention and treatment of alcohol problems (continued)**

<i>Strategy or intervention</i>	<i>Effectiveness</i>	<i>Breadth of research support</i>	<i>Cross-national testing</i>	<i>Comments</i>
Restrictions on density of outlets	++	+++	++	Evidence for both consumption and problems. Changes to outlet numbers affect availability most in areas with low prior availability, but bunching of outlets into high-density entertainment districts may cause problems with public order and violence.
Different availability by alcohol strength	++	++	++	Mostly tested in terms of different strengths of beer and for broadened availability of wine.
<b>Modifying the drinking environment</b>				Generally evaluated in terms of how staff training, enforcement, and legal liability affect alcohol-related violence and other harms.
Staff training and house policies relating to responsible beverage service (RBS)	0/+	+++	++	Not all studies have found a significant effect of RBS training and house policies; needs to be backed by enforcement for sustained effects.
Staff and management training to better manage aggression	++	+	++	Evidence currently limited to one randomised controlled study and supportive results from multi-component programmes. Evidence is available from Australia, Canada, and Sweden.
Enhanced enforcement of on-premises laws and legal requirements	++	++	++	Sustained effects depend on making enhanced enforcement part of ongoing police practices.
Server liability	++	++	+	Effect stronger where efforts made to publicise liability. Research limited to USA and Canada.
Voluntary codes of bar practice	0	+	+	Ineffective when strictly voluntary but may contribute to effects as part of community action projects.
Late-night lockouts of licensed premises	?	+	0	Limited research, and no studies have identified effective approaches.
<b>Drink-driving countermeasures</b>				Most research has focused on intervention effects on traffic accidents and recidivism after criminal sanctions.
Sobriety check points	++	+++	+++	Effects of police campaigns typically short term. Effectiveness as a deterrent is proportional to frequency of implementation and high visibility.
Random breath testing	+++	++	++	Effectiveness depends on number of drivers directly affected and the extent of consistent and high profile enforcement.
Lowered BAC limits	+++	+++	+++	The lower the BAC legal limit, the more effective the policy. Very low BAC levels (zero tolerance) are effective for youth, and can be effective for adult drivers, but BAC limits <0.02 are difficult to enforce.

**Table 19.1. Summary of effective programmes for the prevention and treatment of alcohol problems (continued)**

Strategy or intervention	Effectiveness	Breadth of research support	Cross-national testing	Comments
Administrative licence suspension	++	++	++	When punishment is swift, effectiveness is increased. Effective in countries where it is applied consistently.
Low BAC for young drivers ('zero tolerance')	+++	++	++	Clear evidence of effectiveness for those below the legal drinking or alcohol purchase age.
Graduated licensing for novice drivers	++	++	++	Can be used to incorporate lower BAC limits and licensing restrictions within one strategy. Some studies note that 'zero tolerance' provisions are responsible for this effect.
Designated drivers and ride services	0	+	+	May be effective in getting impaired drinkers not to drive, but can also encourage passengers to drink more. Does not affect alcohol-related crashes.
Severity of punishment	0/+	++	++	Mixed evidence concerning mandatory or tougher sanctions for drink-driving convictions. Effects decay over time unless accompanied by renewed enforcement or media publicity.
<b>Restrictions on marketing</b>				
Legal restrictions on exposure	+ / ++	+++	++	Draws on two separate literatures: effects of advertising and promotion on youth drinking and attitudes, and effects of initiating or removing advertising bans and other interventions. Strong evidence of dose-response effect of exposure on young people's drinking, but evidence of small or insignificant effects on per-capita consumption from partial advertising bans; advertising bans or restrictions may shift marketing activities into less-regulated media (e.g. Internet).
Legal restrictions on content	?	0	0	Evidence that advertising content affects consumption but no evidence of the impact of content restrictions as embodied in industry self-regulation codes.
Alcohol industry's voluntary self-regulation codes	0	++	++	Industry voluntary self-regulation codes of practice are ineffective in limiting exposure of young persons to alcohol marketing, nor do they prevent objectionable content from being aired.
<b>Education and persuasion</b>				
Classroom education	0	+++	++	Impact generally evaluated in terms of knowledge and attitudes; effect on onset of drinking and drinking problems is equivocal or minimal. Target population is young drinkers unless otherwise noted.
College student normative education and multicomponent programmes	+	+	0	May increase knowledge and change attitudes but has no long-term effect on drinking. Individualised multi-component approaches that include feedback on norms, expectancies, motives, or decisional balance have short-term effects on consumption and problems. Programmes usually targeted heavy drinkers and thus may overlap with brief interventions targeted at high risk drinkers. Purely informational approaches may increase knowledge and change attitudes, but have no effect on drinking.

**Table 19.1. Summary of effective programmes for the prevention and treatment of alcohol problems (continued)**

Strategy or intervention	Effectiveness	Breadth of research support	Cross-national testing	Comments
Brief interventions with high-risk students	+	+	0	Brief motivational interventions can impact drinking behaviour.
Mass media campaigns, including drink-driving campaigns	0	+++	++	No evidence of impact of messages to the drinker about limiting drinking; some evidence of increased effectiveness of random breath testing when media publicise it.
Warning labels and signs	0	+	0	Raise public awareness, but do not change drinking behaviour.
Social marketing	0	++	0	Raises public awareness but alcohol-specific campaigns do not change behaviour.
<b>Treatment and early intervention</b>				Usually evaluated in terms of days or months of abstinence, reduced intensity and volume of drinking, and improvements in health and life functioning. Target population is harmful and dependent drinkers, unless otherwise noted.
Brief intervention with at-risk drinkers	+++	+++	+++	Can be effective but most primary care practitioners lack training and time to conduct screening and brief interventions.
Mutual help/self-help attendance	++	++	++	A feasible, cost-effective complement or alternative to formal treatment in many countries.
Mandatory treatment of drink-driving repeat offenders	+	++	0	Punitive and coercive approaches have time-limited effects, and sometimes distract attention from more effective interventions.
Medical and social detoxification	+++	++	++	Safe and effective for treating withdrawal symptoms. Reduces alcohol-related harms through prevention of mortality. Little effect on long-term alcohol consumption unless combined with other therapies.
Talk therapies	++	+++	++	A variety of theoretically based therapies to treat persons with alcohol dependence in outpatient and residential settings. Population reach is low because most countries have limited treatment facilities.
Pharmaceutical therapies	+	++	++	Consistent evidence for a modest improvement over talk therapies and clinical management only for naltrexone.

**Appendix 2: Cost benefits of effective treatments for alcohol misuse**

*Alcohol – No Ordinary Commodity* [91] summarises evidence on the cost effectiveness of various interventions using an analysis paper for the World Health Organization by Anderson [144] who conducted a detailed cost-benefit analysis of alcohol policies in three regions: the Americas (e.g. Brazil and Mexico), Eastern Europe (e.g. Russia and Ukraine), and the Western Pacific (e.g. China and Vietnam). On the basis of this analysis it was concluded:

- Two strategies (school-based education and mass-media awareness campaigns) were found not to be cost-effective because they do not affect alcohol consumption or health outcomes.
- Population-level alcohol policies (e.g. pricing and availability policies) are more cost-effective than individual-level policies, such as brief interventions for hazardous alcohol use.
- Tax increases represent a highly cost-effective response in regions with a high prevalence of heavy drinking, such as Latin America and Eastern Europe.
- In countries with high levels of unrecorded production and consumption, increasing the proportion of consumption that is taxed could be more effective than a simple increase in excise taxes.
- The impact of reducing access to retail outlets for specified periods of the week and implementing a comprehensive advertising ban have the potential to be cost-effective countermeasures, but only if they are fully enforced.

While the extent to which these conclusions apply to New Zealand is not completely clear, the findings above are likely to provide some general guidance about the relative cost-effectiveness of different approaches to reducing the risks posed by alcohol consumption.

