

This entry is our account of a review or synthesis of research findings selected by Drug and Alcohol Findings as particularly relevant to improving outcomes from drug or alcohol interventions in the UK. Entries are drafted after consulting related research, study authors and other experts and are © Drug and Alcohol Findings. Permission is given to distribute this entry or incorporate passages in other documents as long as the source is acknowledged including the web address <http://findings.org.uk>. However, the original review was not published by Findings; click on the [Title](#) to obtain copies. Links to source documents are in [blue](#). Hover mouse over [orange](#) text for explanatory notes. The abstract is intended to summarise the findings and views expressed in the review. Below are some comments from Drug and Alcohol Findings.

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► [Identifying cost-effective interventions to reduce the burden of harm associated with alcohol misuse in Australia.](#)

Doran C., Vos T., Cobiac L. et al.
University of Queensland, 2008.

Comprehensive calculations from Australia offer clues to what would make the biggest dent in alcohol-related harm across the UK at the lowest cost; top of the list are alcohol tax rises, advertising bans, licensing controls, and random breath testing.

Abstract Four in five Australians drink alcohol during any given year, one in ten daily, and alcohol misuse is one of the leading causes of preventable death, illness and injury. In 2004–05, the total [tangible cost](#) attributed to alcohol consumption was estimated at [\\$10.83 billion](#). This study aimed to provide a comprehensive analysis of the cost-effectiveness of interventions to reduce harm associated with alcohol misuse in Australia. Where possible, it contextualised results from a recent [World Health Organisation study](#) to the Australian setting using Australian data on costs, effectiveness of interventions, and health outcomes.

Intervention cost-effectiveness was evaluated over the lifetime of the Australian population eligible for each intervention in the baseline year of 2003. Costs and savings were also adjusted to 2003 rates. The *cost* side of the equation was the estimated cost to the health sector, including national and local government and costs borne by consumers and their families such as travel and time; costs saved by the intervention were taken in to account in calculating net cost. *Effectiveness* was measured in terms of how many disability adjusted life years (DALYs) an intervention saves. This measure combines the reduction in years lost due to premature death with the reduction in disability while someone remains alive. Years lost or gained due both to diseases (such as cirrhosis) and injuries (resulting for example from road traffic accidents or violence) were considered.

The interventions to be evaluated using this cost-effectiveness yardstick were selected with the help of a panel of alcohol experts from an initial comprehensive review, based on which were most effective, feasible and of highest priority. Selected interventions included:

- **Volumetric taxation** means setting the tax on commercially supplied alcoholic drinks solely on the basis of their alcohol content. Per unit of alcohol, tax would be identical across all types of beverages. Modelling suggested that setting this rate at **\$25.25 per litre** of alcohol would result in a 1.4% reduction in consumption. This was assumed to wane only slowly due to price inflation.
- **Advertising controls** in the form of restrictions on all types of alcohol promotion and advertising, particularly if they reach young people. Evidence suggested this would result in a 5% to 8% reduction in consumption in the first year. This effect was assumed to weaken by 50% per year.
- **Drink-drive mass media campaigns** allied with enforcement action have been found to typically reduce alcohol-related crashes by 10%. This effect was assumed to weaken by 50% per year.
- Research shows that **brief interventions** by GPs cuts alcohol consumption among targeted patients by on average **44g** per week over and above any reductions seen in control groups. The modelled procedure consisted of screening for risky drinking using the **AUDIT** questionnaire, followed if indicated by brief counselling, written materials and follow-up consultations. Additionally the effect was modelled of telemarketing and support to improve implementation rates by GPs.
- **Residential detoxification** for alcohol dependent individuals. The impact over and above natural remission was calculated from studies as on average **13.31g** per day extra reduction in alcohol consumption, and in the first year and a further 17% of patients in remission from alcohol dependence, with 50% relapse thereafter. Additionally the impact was modelled of 12 weeks of aftercare consisting of primary care counselling and pharmacotherapy with naltrexone, estimated to reduce drinking by **3.4 standard drinks** a day.
- **Licensing controls** in the form of reduced trading hours on Sundays were estimated to reduce drinking by from 1.5% to 3%, an effect diminishing by 50% in the following years.
- Raising the **minimum legal drinking age** from 18 to 21 years typically results in a 12% cut in alcohol-related single vehicle night-time crashes, which was assumed to persist.
- Australian data suggested that highly visible and well publicised **random roadside breath testing** extensive enough to test every driver once a year permanently reduces road traffic accidents by 15%.

The impact of introducing these interventions was compared against the harm arising under recent and current practice in Australia (based most consistently on random breath testing) and against an estimate of what the level of harm would have been without any of the selected interventions, including random breath testing. The study also estimated how much more harm would be averted as investment in an intervention increased. In turn such an analysis lends itself to identifying an optimal order for introducing interventions to create the most cost-efficient package. If introducing or expanding an intervention averted loss of disability adjusted life years at a cost of no more than **\$50,000** per year, it was considered cost-effective.

Mathematical modelling indicated that across the Australian population, health gains in terms of disability adjusted life years ranged from 150 for increasing the minimum legal drinking age, to 11,000 for volumetric taxation. Except for raising the drinking age

(which would benefit only those aged between 18 and 20 years), interventions which target risky drinkers (brief interventions with or without GP support) or alcohol dependents (residential treatment with or without naltrexone-based aftercare) would avert fewer years of disability or death than population-wide interventions (taxation, advertising or licensing controls, random breath testing, and drink-driving campaigns).

Considering both how much they would cost net of any cost savings, and how much they would reduce the national burden of disease and premature death, two interventions stood out as being both most effective, and most cost-effective: changing to *volumetric taxation*, and *advertising bans*. Compared to current Australian practice, both would on balance reduce health service costs, yet prevent more premature death and disease. Both too have a high probability of meeting the cost-effectiveness threshold of **\$50,000** per year of life saved adjusted for disability.

Top of the list was *volumetric taxation*, estimated to cost just \$0.58 million but to save \$57 million in health costs due to reduced drinking, leading to a net cost saving of **\$56 million**. Despite costing less than current practice, it would avert the loss of an extra 11,000 years of life adjusted for disability. It is also easy to implement though may face public and political opposition. *Advertising bans* too are feasible and opposition here would be likely to be limited to drink and advertising industry interests. Increasing the *minimum legal drinking age* to 21 would also save money yet avert more premature death and disease than current practice, but spread across the entire population, potential health gains would be small because limited to people aged 18–20. This measure is feasible but may face opposition not just from industry interests but also from some (especially in the affected age band) voters.

All the other interventions would cost more than current Australian practice. Nevertheless, all but one would still have a high or very high probability of **cost-effectively** averting premature death and disease; for example, *brief interventions* would avert a year of premature death or disease at a cost of just **\$6800**. The exception was *residential detoxification* (with or without naltrexone-based aftercare). Though this would avert more premature death and disease than some other interventions, the costs would be by far the greatest, meaning that each year saved would cost at least **\$84,000** and perhaps as much as **\$270,000**.

Given these estimates, the optimally cost-effective way to improve on current practice would clearly be first to change to *volumetric taxation*, then to *ban advertising*, and then (but with little to choose between them) to increase the *legal drinking age* to 21, extend primary care-based *brief interventions*, tighten *licensing controls*, conduct *anti-drink driving media campaigns*, and extend *random breath testing*. Clearly last on the list would be to introduce *residential detoxification*. Extending this with *naltrexone-based aftercare* and extending brief interventions through *telemarketing and support* were omitted altogether because they were less cost-effective than the unextended interventions. Combined as a package, these alcohol interventions could avert 26,000 years of premature death and disease at a total intervention cost of **\$210 million**. These costs would be partly offset by an estimated reduction of **\$130 million** in the costs of treating alcohol-related diseases and injuries.

For the analysts their key findings were that all the prevention interventions would

reduce harm more cost-effectively than treating alcohol dependence. Compared to current practice, the optimal package could lead to a substantial improvement in population health at a cost well under the threshold figure of **\$50,000** per disability adjusted life year. Although random breath testing is cost-effective and is already being implemented in Australia, the **\$71 million** it costs would, if invested in more cost-effective interventions, achieve over ten times the health gain. Additional positive effects were not included in the analysis, such as productivity gains generated by decreases in alcohol-related disease and injury, reduced road traffic accidents, violence and crime. Though the strength of the evidence underpinning the interventions was at best modest, the analysis clearly indicated that reallocating resources along the lines suggested would substantially reduce the current burden of harm alcohol imposes on Australia.

FINDINGS

The relevance of these Australian findings to the UK lies in the similarity of drinking prevalence and patterns and of the overall societies, including health and health services and the acceptability, feasibility and likely impact of the various interventions. The major difference is the reliance in Australia on random testing of motorists. Also it is unclear why the treatment intervention was confined to residential detoxification, an expensive treatment which was unlikely to prove cost-effective relative to the other policy options. Nevertheless the conclusions broadly replicate those of other analyses for similar countries including the UK; examples below.

The [World Health Organisation study](#) on which the featured analysis was based also concluded that in countries such as the UK, with a high prevalence of hazardous drinking, raising alcohol tax rates has the greatest yet least resource-intensive impact on public health, even after allowing for increased illicit production or smuggling. Also as in the Australian study, next most cost-effective were licensing controls which reduced hours of sale and advertising bans. Primary care brief interventions targeted at risky drinkers, though considered cost-effective, were estimated to be far less so than these population-wide preventive interventions. These conclusions were [updated five years later](#) in 2009 but not for UK-type European nations. Nevertheless the conclusion remained that tax increases (of 20% or 50%) were the most cost-effective harm-reduction policy in countries with (like the UK) a high prevalence of heavy drinking, and that population-wide measures including licensing controls, advertising bans and drink-driving countermeasures were also relatively cost-effective. Updated calculations can be seen at the World Health Organisation's [web site](#).

Another influential [international analysis](#) reached broadly similar conclusions, arguing that due largely to their low cost, feasibility, sustainability and wide reach, tax increases, and licensing controls which restrict the physical availability of alcohol, are likely to have the greatest impact on public health. Similar arguments favoured drinking-driving countermeasures. In contrast (and as in the featured report) measures targeted at hazardous or dependent drinkers (though beneficial for the patients) had at best a moderate impact on harm across the society. School-based education and public service messages about drinking were considered the least effective harm-reduction options.

Similar conclusions were also reached for England in an [analysis](#) commissioned by the Department of Health which considered alcohol-related harm in terms of health, crime and employment. It concluded that policies which affect the price of alcohol including discount bans, taxation and setting a minimum price per unit – similar to the volumetric taxation favoured in the featured report – could save hundreds of millions of £s every year in NHS, crime and employment costs.

Such conclusions are based on what, after synthesising results from relevant studies, [analysts called](#) "overwhelming" evidence of the effects of alcohol prices on drinking across all types of beverages and across the population of drinkers from light drinkers to heavy drinkers. A [commentary](#) on this analysis also reminded us that price or tax rises have been directly linked to falls in drink-related adverse consequences such as deaths

from various causes, violence, traffic and other accidents, and poor health.

Given this consensus, [the major questions](#) are not over the validity of the findings, but over whether governments mindful of the opinions of the drinking public and the importance of drink-related industries will do what research suggests is needed to significantly reduce alcohol-related harm by reducing overall consumption, with alcohol tax increases as the leading tool. This is especially the case in Britain, which [compared to other European nations](#) already has among the highest alcohol taxes, and where drink prices are relatively high compared to other commodities. Based on World Health Organisation and other findings, the call has [been powerfully made](#) for an international agreement to control alcohol-related harm along the lines of the [Framework Convention on Tobacco Control](#). One reason why public and politicians remain unconvinced is that, because the studies are concerned primarily with harm, they fail to account for the *benefits* drinkers feel they get (the reason why they are prepared to pay) from alcohol. Sometimes studies do account for the (relative to overall harms) minor strictly medical benefits of low-level regular consumption, but these are not why most drinkers drink. An industry-funded [review](#) found research indicating that moderate drinkers "experience a sense of psychological, physical, and social well-being; elevated mood; reduced stress (under some circumstances); reduced psychopathology, particularly depression; enhanced sociability and social participation; and higher incomes and less work absence or disability," benefits which have "barely begun to be incorporated into epidemiologic research and analyses."

Among the nations of the UK, Scotland seems closest to breaching the political barriers to introducing more effective alcohol harm-reduction policies. Its [2009 alcohol strategy](#) committed the government to pursue the introduction of a minimum price per unit of alcohol and included plans to ban the sale of alcohol as a loss-leader. Minimum pricing is not yet definitively ruled out in England and is [strongly supported](#) by the government's principal medical adviser. However, the prospects for major alcohol tax rises or minimum per-unit pricing seem slim outside Scotland.

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[Independent review of the effects of alcohol pricing and promotion](#) STUDY 2008

[Reducing alcohol harm: health services in England for alcohol misuse](#) ABSTRACT 2008

[Drug and alcohol services in Scotland](#) ABSTRACT 2009

[Alcohol misuse: tackling the UK epidemic](#) REVIEW ABSTRACT 2008

[Family doctors' alcohol advice plus follow up cuts long-term medical and social costs](#) NUGGET 2003

[Primary care intervention to reduce alcohol misuse: ranking its health impact and cost effectiveness](#) ABSTRACT 2008

[Internationally proven community alcohol crime and harm reduction programmes feasible in Britain](#) NUGGET 2008

['Real-world' studies show that medications do suppress heavy drinking](#) NUGGET 2005

[The costs and consequences of three policy options for reducing heroin dependency](#) ABSTRACT 2007

[The primary prevention of hepatitis C among injecting drug users](#) REVIEW ABSTRACT 2009