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HOW MUCH IS TOO MUCH? – LOWERING THE LEGAL DRINK-DRIVE LIMIT

Richard Allsop
Centre for Transport Studies
University College London

Abstract

The current legal limit on drivers' blood alcohol content was set at 80mg/100ml nearly 40 years ago and there are now only 3 other Member States of the European Union, all of them small countries, with limits higher than 50mg/100ml. Deaths from drink driving in Great Britain stopped falling 10 years ago, and show signs of rising. The reasons for the setting of the current limit in 1967 and changes since then are discussed, and a fresh look is taken at the likely annual reduction in deaths on the road in Great Britain if the limit here were lowered to 50mg/100ml. Lowering the limit is seen not as a measure to be taken in isolation, but as part of a substantial initiative to resume and sustain a clear downward trend in death and injury resulting from the avoidable excess risk of driving after drinking.

Background

The purpose of the legal limit on drivers' blood alcohol content (BAC) is to reduce death and injury on the roads. After 40 years or more of continual public information, we all know by now that the best advice is never to drive after drinking. And if the world were ideal in terms of road safety almost every driver's BAC would be near zero, and absolutely every driver's would be below 20mg/100ml.

But there is more to life than road safety, and legislation is about what it is reasonable to require of people for the common good. So up to now, against a background of advice not to drive at all after drinking, legal sanctions in Britain concerning doing so have been confined to driving with BACs higher than 80mg/100ml, or with breath alcohol content higher than the empirically equivalent 35microgrammes/100ml. In this paper, all alcohol levels mentioned are BACs and are given in the more familiar units of mg/100ml without repeating the units.

The limit of 80 was set in 1967 and although it and its enforcement remained controversial for several years, both were generally accepted within a decade, and over the last 20 years the question whether the limit should be lower has been raised with increasing vigour.

How the limit came to be set at 80

When considering the case for change, it is often helpful to recall the reasons for the *status quo*. It was realised early in the history of motoring that too much alcohol made one unfit to drive and this was recognised in law by the offence of driving while under the influence of drink. All of that happened long before 1967, but in the mid 1960s it was still a matter of active debate whether moderate drinking increased or decreased the risk of accident and hence of death or injury on the road. Loss of capability in skills analogous to driving was demonstrated in the laboratory, and reduced skill and judgement in vehicle handling were demonstrated under experimental conditions, but evidence of these kinds was insufficient to convince enough parliamentarians or opinion formers that moderate drinking increased accident occurrence. Invention of the breathalyser had opened the way to enforcement of a legal limit on BAC, but opponents of legislation could cite the lack of evidence of increased accident risk (except from

limited studies that were too easy to discount), and were rarely without anecdotal accounts of improved driving after a few drinks.

All this was changed by the findings of the Grand Rapids study (Borkenstein *et al* 1964). Reinforced by some reanalysis by the author (Allsop 1966), this quantified the relationship between BAC and risk of accident involvement in a way that provided effectively irrefutable evidence for greatly increased risk at higher alcohol levels. This brought a legal limit on to the practical political agenda and the question became: at what level of BAC? The chosen value of 80 was probably determined mainly by a combination of the facts that:

- it was the level above which the Grand Rapids evidence indicated that average risk of accident involvement was at least doubled (and at which, for forecasting the effects on casualty numbers, the risk of injury or death was also, cautiously as it was supposed at the time and was later shown to be, assumed to be doubled);
- it was in the range of levels being considered or implemented in other countries;
- it was plausible that public and parliamentary acceptance could be gained – partly on the basis of advice that most people could have three small drinks without exceeding it; and
- it was the level at which the Grand Rapids evidence, in the form in which it was published, enabled increased risk to be established with the conventional statistical 95 per cent level of confidence against a background of neutrality as to whether the risk was increased or decreased.

How things have changed

The world has changed a lot since 1967, but just a few salient changes make it clearly doubtful whether the limit of 80 set in 1967 is still the most appropriate one:

- A further large-scale study in the USA in the late 1990s (Compton *et* al 2002), analogous to the Grand Rapids study in data collection but helped by advances in statistical technique since the 1960s, found a somewhat more rapid rise in risk of accident involvement with increasing BAC up to a doubling at about 70 and a much more rapid rise at higher BACs
- Estimates have been made (Maycock 1997) of the relationship in Great Britain between BAC and risk of accident involvement, and these not for drivers' involvement in any kind of accident including the many in which no-one is hurt, as were the Grand Rapids estimates and their successors, but for their involvement in an injury accident and for their being killed in an accident. For example, the former risk is estimated to be multiplied by 2.9 at a BAC of 50 and 5.6 at a BAC of 80 compared with the corresponding risk at a BAC of zero, and the latter to be multiplied by 5.0 and 12.4 respectively. Thus for drivers' involvement in injury accidents and being killed in an accident the risk multiples at a BAC of 80 are respectively nearly 3 and more than 6 times the doubling that informed the setting of the limit at 80 in 1967. Even at the lower BAC of 50 the risk multiples are 1.5 and 2.5 times that doubling.
- There is widespread understanding that the risk of accident involvement is indeed increased by even moderate drinking and consequent acceptance of a legal limit on BAC and its enforcement.
- Acceptance that risk increases with increasing BAC changes the background against which the statistical level of confidence is assessed in analysing the Grand Rapids and similar data. The consequence of this for the Grand Rapids data, in the form in which it was published, is that increased risk is established with the statistical 95 per cent level of confidence at BACs from 60 upwards, instead of from 80 upwards as was the case against the background of neutrality that prevailed in 1967.
- The annual number of deaths in drink-driving accidents fell by 66 per cent between 1980 and the mid-1990s (compared with a fall of 40 per cent in total deaths on the roads), but has not fallen further, and shows signs of rising.

- The Government was minded in 1998 to lower the limit to 50 and consulted (DETR 1998) on this and other measures to reduce drink-driving. The response was on balance supportive of the lowering (DETR 1999) but the Government's road safety strategy to 2010 (DETR 2000) stated an intention to deal with the matter in the context of European harmonisation that was then being reviewed.
- The European Commission adopted a Recommendation in January 2001 that Member States should set BAC limits at or below 50, and the only Member States other than the United Kingdom that have not yet complied with this Recommendation are Cyprus, Ireland and Luxembourg, but the Government did not include provision for lowering the limit in the Road Safety Bill that was lost with the calling of the 2005 general election.

What might be gained by lowering the limit

For reasons of enforceability (including the possibility of having low levels of alcohol in the blood unwittingly from sources other than alcoholic drinks), the lowest practicable legal limit is probably 20, which applies in Sweden, but in the circumstances just outlined, the most realistic possibility for lowering in Great Britain in the foreseeable future is to 50.

In Annex 2 of its 1998 consultation document, the DETR discussed the effect on casualties of lowering the limit to 50 and made a cautious estimate that about 50 deaths and 250 serious injuries per year would be saved out of the then typical annual numbers of 550 and 3000 respectively in drink-driving accidents. This estimate was based largely on data that had recently been reviewed by Maycock (1997), principally his estimate that with a BAC of B , a driver's risk of death is $\exp(0.032B)$ times the risk without alcohol, and the following distribution of non-zero BACs in car drivers killed in Great Britain in the 5 years 1990-94, from Coroners' and Procurators Fiscal's data:

BAC	1-40	41-80	81-120	121-160	161-200	201-240	241-320	321-400	>400	>1
Number	765	115	117	151	175	132	119	31	11	1616
Per cent	47.3	7.1	7.2	9.3	10.8	8.2	7.4	1.9	0.7	100.0

More recent data have not been published in the same form, but summary percentage tables for individual years (*e g* Department for Transport 2004 page 33 Table 2i) and Maycock's comparison with 1980-84 are consistent with this distribution being broadly stable over time.

In revisiting the same data (in the absence of more up-to-date corresponding data) to take a fresh look at the numbers of deaths that might be saved each year, it will be assumed that the percentage distribution of deaths in accidents in which a driver had a non-zero BAC with respect to the BAC of the drinking driver is the same as the above distribution of car drivers killed. Then in a typical recent year with an estimated 550 deaths in accidents involving a driver over the legal limit, these 550 deaths correspond to the sum of the percentages in columns 4-10 of the above table, *i e* 45.6 per cent of those in accidents in which a driver had a non-zero BAC. The 47.3 and 7.1 per cent for the BAC ranges 1-40 and 41-80 represent a further 571 and 86 deaths respectively. It is also relevant that the distribution of deaths with respect to BAC is roughly uniform over the range 41-120, and this enables the numbers of deaths per year to be estimated for accidents involving drivers with BACs in the following four ranges:

BAC	1-50	51-80	81-110	>110
Deaths per year	593	64	65	485

The possible effect of lowering the limit from 80 to 50 can be discussed for each of these ranges of BAC in turn.

Those driving with BACs >110 **a**re those who already drive with BACs well over the limit of 80 – about 1 in 200 of those driving even on weekend evenings and nights in the last national roadside surveys reported in 1990 (Maycock 1997).

These account for nearly 500 of the 550 drink-drive deaths each year – and since they seem to be beyond the influence of the limit of 80, they probably won't be affected much if at all by lowering it to 50. It is right to address this major part of the drink-driving problem through enforcement and penalties – in particular as was achieved in the final days of the 2001-05 parliament by enabling the police to enforce more effectively through evidential breathtesting at the roadside. Some of these lives may be saved by reduced drinking among those well over the limit who are so as a result of a one-off binge in which they have allowed themselves too much leeway, and would allow themselves a bit less leeway under a lower limit – but there seems no way of estimating how many, and they might be very few, so it seems best to regard them as a bonus.

This does not mean, however, that lowering the limit is irrelevant to the problem of driving well over the existing limit. Taken with enhanced enforcement and an accompanying fresh programme of public information to help people to understand and comply with the lower limit, it could reasonably be expected to have enough effect on the culture of drinking and driving to achieve an appreciable long term reduction in the proportion of each age-cohort who ever turn into people who persistently drive well over the limit.

Those driving with BACs between 80 and 110 – about 1 in 150 of those driving on weekend evenings and nights – are currently exceeding the 80 limit by up to 30. If they were each to reduce their drinking just enough to exceed a 50 limit by the same margin as they now exceed 80, then Maycock's estimate of the effect of BAC on risk implies that 62% of the associated deaths, that is 40 deaths, would be saved.

Those driving with BACs between 50 and 80 – about 1 in 75 of those driving on weekend evenings and nights – are complying with the current limit but exceeding the lower limit. If they were each to reduce their drinking just enough to comply with the new limit, that is to bring their BAC down to 50, then Maycock's estimate of the effect of BAC on risk implies that 36% of the associated deaths, that is 23 deaths, would be saved.

Those driving with BACs greater than zero but not greater than 50 – probably about 1 in 8 of those driving on weekend evenings and nights – are already complying with the lower limit, and would not need to reduce their drinking. But this does not mean that none of them would do so. Some of those currently near to 50 would realise this and drink less to be on the safe side, and others would do the same because they do not realise how much below 50 they already are. There seems no way of estimating how many would do so, but since the associated number of deaths is nearly 600 per year, it would only take a small percentage reduction to take the number saved per year well into double figures.

To sum up, as was recognised in the Government's 1998, the most clearly identifiable likely reduction in deaths as a result of lowering the limit will come from changes in behaviour by those to whom the level of the limit is most relevant, those already driving at around the limit. The foregoing combination of assumptions about changes by those with BACs within 30 of the existing limit indicates a reduction of, in round figures, about 65 deaths per year.

While the assumption about those with BACs currently between 50 and 80 is a cautious one, the assumption about those with BACs currently between 80 and 110 may well be rather optimistic – but against this should be set the very real prospect of reduction in deaths associated with those whose BACs are already below 50, which has not been counted in the estimate of about 65 deaths per year.

Lowering the limit in the wider context of combating drink driving

Lowering the limit will require consideration of the penalty for driving or attempting to drive with a BAC between 50 and 80. Whilst some would wish the same penalty to apply at 50 as now applies at 80, others may regard this as too severe. If this were seen as an obstacle to lowering the limit it could be overcome without any relaxation of the penalties applying above 80 by making the normal minimum penalty for driving or attempting to drive with a BAC between 50 and 80 six penalty points to remain on the licence for 10 years and a maximum fine at the level below that which applies above 80. This would mean that a second similar offence within 10 years would lead to disqualification.

No single measure can address adequately the persistent problem of drink driving. To resume and then sustain a clear downward trend in the death and injury resulting from the avoidable excess risk associated with driving after drinking requires not only the education of each new cohort of drivers and reinforcement of the message to drivers of all ages, but also a fresh initiative to achieve a step change in awareness and behaviour among those who, after nearly 40 years of the present law, persist in disregarding it.

Lowering the limit, accompanied by a raising of the profile of targeted enforcement, made more efficient by evidential roadside breath testing, and the substantial public information campaign that would need to accompany these two changes, could together form just such a fresh initiative.

Acknowledgement

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