

Towards alcohol free roads in Europe

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Unfortunately, there is very little to indicate that we are getting any closer to this very desirable goal, but more about this below.

The level of road safety varies greatly between nations. This table is one way of presenting it.

How many motor vehicles are needed to kill one person/yr?

Sweden	7450	France	4350
Norway	7350	Spain	3950
UK	7100	Belgium	3850
Holland	7100	Cyprus	3700
Finland	7000	Czech Rep	3100
Germany	6950	Slovenia	2750
Italy	6200	Greece	2750
Luxemburg	4900	Estonia	2350
Austria	4450	Latvia	1100

These great differences between European nations reflect cultural differences as well as differences in legislation and attitudes. In some African nations the number of vehicles is down below 100! These figures also prove that it is possible to achieve great improvements. It is interesting to compare the most with the least safe nations but also to compare the very safest ones in order to find critical factors. Thus, a study which compares the Netherlands, Sweden and the UK (Koornstra et al.,2002) among other things looks at the fact that these three nations have almost equal levels of road safety but differ greatly e.g. when it comes to the legislation re alcohol in traffic. Below, Sweden will often be used as an example not only because it represents one of the nations with the highest levels of road safety – the country where the Vision Zero was born and where car manufacturers have always emphasized safety - but also because Sweden represents what happens when a nation faces a weakening or even loss of alcohol policies.

Comparable statistics

In the mid-nineties, the EU Commission asked the member states about the proportion of alcohol related fatal accidents in the respective countries. The resulting ranking list saw a somewhat surprising winner with only 1%. Two other countries followed closely with 4% etc. If this list reflected the reality, it would mean that the problem of drunk driving would need little concern in many European countries and it would mean that we could devote our resources to other problem areas in traffic, which are in much greater need of countermeasures like speeding and safety belt use or rather the lack of it.

Unfortunately, almost all of these figures have little correspondence with the reality on the roads. It is very improbable that any country on this planet can claim a real involvement of alcohol in fatal traffic accidents of less than 10% or perhaps even 20%.

Let us look at a few examples – Sweden, which for ages has been looked upon as being very successful in preventing drunk driving, reports that 28% of fatally injured car drivers were positive for alcohol in 2002. Germany reported 17% alcohol involvement to the EU in 1997, however, fatally injured drivers in single vehicle fatal accidents are not tested for alcohol or drugs and since we know that the involvement of alcohol is higher in single vehicle accidents than in any other type of accident, we can draw the conclusion that a realistic figure regarding the involvement of alcohol in fatal accidents should be considerably higher than 17%. Sweden reported 3.3% to the EU. This was the figure in the official Swedish statistics. This anomaly depends on the fact that the official statistics are based on police suspicion of drunken driving. The higher figure is derived from actual analyses of blood samples taken during the autopsies. Since almost every fatality in road traffic is autopsied, there is a good basis for a more realistic estimation of the role of alcohol at least concerning active road users who are killed. The proportion of fatally injured drivers who are tested varies considerably among European countries - from no systematic testing to compulsory testing.

This lack of reliable and comparable statistics to describe the situation on the European roads, when it comes to the role of alcohol in accidents, is potentially very dangerous. It is easy to imagine what happens when the road safety people approach the politicians and decision makers in a country which boasts an involvement of alcohol in the fatal accidents of 1% or 4% and ask for resources to fight the problem of drunken driving.

The response will probably or even with certainty be: “our country does not have a real problem in that area – there are other areas which are in greater need of resources”. Thus, the poor description of the situation on the roads will lead to wrong prioritization and consequently to unnecessary death and suffering.

As for the suffering, we have even less knowledge about how many that are killed and injured by drunk drivers. Almost all that we know concerns active road users who are killed themselves.

Recommendation: a pan-European monitoring system following the development of the drinking and driving situation needs to be established before 2010

A major problem

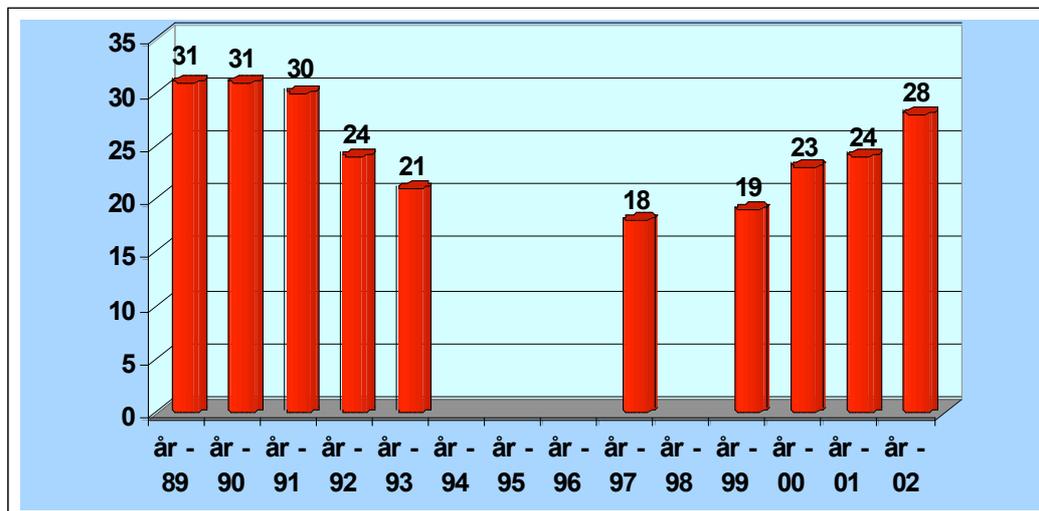
Despite all of these shortcomings, most of us who are active in the field of road safety agree that alcohol is one of our worst problems on the roads. The European Commission has estimated that at least one quarter of the deaths in road accidents can be attributed to alcohol. The estimated cost of this is 10 billion euros per year (Official Journal, 2001). The WHO estimates that alcohol plays an even greater role.

In some countries the development of road fatalities shows an increasing trend after almost 10 years of decline. Unfortunately, the same is true of the development of alcohol related fatalities in traffic. Sweden is a good example of the latter trend. In 1989-92 the proportion of alcohol related fatalities among car drivers was 30-31%. This was followed by a number of years characterized by a sharp decline in the proportion of alcohol related fatalities. The lowest level was recorded in 1997, when only 18% of the car drivers who were killed were positive for alcohol. This decline could be attributed to a number of coinciding factors: the legal blood alcohol concentration (BAC) limit was lowered from 0.5 promille (0.05% or 50mg%) to 0.2 promille in 1990; stiffer penalties for drunken driving were introduced; a

massive increase of police enforcement – going from app. 600 000 random breath tests per year to 1.8 million in 1994; resources for attitudinal campaigns were more than doubled. Evaluations of the lowering of the legal limit demonstrated that fatal accidents were reduced by app 8%. Ref

Since 1997, however, the development is reversed. There has been a steady increase of the proportion of fatally injured drivers who were positive for alcohol and in 2002 the level was 28%, as mentioned above and seen in the graph, below.

Proportion of killed drivers, positive for alcohol, 1989 - 2002



The tremendous increase also has a number of contributing factors: probably the primary factor is the sharply rising alcohol consumption – from 8 litres of pure alcohol/capita in 1996 to 10 litres in 2002 (Leifman & Gustafsson, 2003). The rise in alcohol consumption has been especially pronounced among young people; reductions in breath testing by one third; a fifty percent reduction of the resources for attitudinal campaigns; less stiffness of penalties.

We also need to realize that the poor quality of the statistics means that we underestimate the role of alcohol in that we have rather little knowledge about the number of people who are killed or injured by drunk drivers.

Sweden joined the European Union in 1996. This meant, among other things, that Sweden had to accept a gradual loss of the traditional restrictive alcohol policy. The alcohol retail monopoly was partly broken; the ban on alcohol advertising now only applies to hard liquor; the import restrictions have been lifted and the only limitation now is that you can only import alcohol for your own personal use. In practice, this means that there are no quantitative limits.

In conjunction with recent lowerings of alcohol taxes in Germany, Denmark and Finland plus the inclusion of the Baltic states who have even lower taxation on alcohol, the pressure is now tremendously high on the Swedish Government to lower alcohol taxation.

Even such a small change as the introduction of wine in “bag-in-box”, which is now the most popular packaging of wine, has had an enormous impact on the drinking habits. Most of the increase in alcohol consumption stems from more frequent drinking – not so much from greater quantities on each drinking occasion. This results in many more conflicts between transportation needs and alcohol consumption.

Tools which are used to various degrees to reach our goal

Legislation, enforcement, information/education, public transportation, rehabilitation, increased drinking age, alcohol ignition interlock systems, etc. - to what degree do we have these tools at our disposal – well, this depends on your position in the system. In most cases societal bodies have only one or two of these in their own toolbox and thus have to rely upon others to look in their boxes and use relevant tools.

Alcohol policy

Research has demonstrated that there is a close correlation between the level of total alcohol consumption in a society and the level of violent crime (Skog & Bjork 1988; Lenke 1990). In the area of drunk driving, only few studies have elucidated the correlation between total consumption and drunk driving (Kendell 1984; Smart & Mann 1987). Norström found that for each percent of increase of total consumption of alcohol, the level of drunk driving increased by 0.6 % (Norström 1999).

Enforcement

Without police enforcement, the legislation will have little impact on the road safety situation. One very important aspect of the drunk driving legislation is the legal possibilities for the police to test the road users for presence of alcohol. This also varies considerably. Experience has demonstrated that random breath testing, where the police are authorized to stop any driver at any time and at any place for the administration of a screening test, has led to improvements of road safety. Homel (1990) has illustrated that the use of random breath testing leads to drastic reduction of driving under the influence if the controls are accompanied by intensive publicity campaigns and are carried out often and in good visibility. This reduction is due to the fact that the subjective risk of detection is dramatically increased. When random breath testing was introduced in Australia, fatal crashes decreased by 22% (Homel, 1988). Shults et al. (2001) found that 23 studies of random breath testing yielded an average decline of 22% in fatal crashes. It has also been demonstrated that random breath testing is at least twice as effective as selective checkpoints (Henstridge et al., 1997). It is estimated that unrestricted breath testing may reduce drunk driving fatalities by between one third and one half. In the light of this, it is remarkable that a number of the EU member states still do not allow random breath testing. Furthermore, this type of police activity is probably unique in that it is generally viewed by the road users as positive enforcement. For the police it also entails a bonus in that other types of criminal activity is often detected when vehicles are stopped at random. The level of random breath testing also varies considerably. In Finland, every third driver is tested each year; in Sweden about one in five; France has a similar level

Information/education

This is an area which is constantly being discussed. It is often claimed that campaigns do not change behaviour. However, it has been demonstrated that, especially if campaigns are combined with other important activities like changes in legislation or extraordinary police enforcement activities, positive effects can be reached.

It is necessary to introduce the concept of separation between alcohol and driving in each new generation of drivers. This is not enough to keep them from driving drunk, since we often find that they have the best intentions – having decided to use public transportation but then things go wrong and they miss the bus and someone decides to drive. Then it is important that someone stops him from actually doing it and if no one stops him, at least no-one rides with him.

Examples of what may happen when we neglect to address this problem can be found in Sweden where there was a lack of resources for information directed towards young people for a number of years. This has led to a shift in the attitudes towards drinking and driving and the proportion of young people who have been driving under the influence or been riding with a drunk driver has increased to very worrying levels.

Legislation

There is ample scientific evidence that crash risk increases as the blood alcohol concentration increases and that the increase starts already at the 0.1 promille level (Preusser et al. This evidence is used differently in different countries. In USA, a majority of the states now have lowered their legal limit to 0.8 promille, but some 20 states still have a limit of 1.0 promille. In Europe, the vast majority of the countries have adopted a 0.5 promille level. There are a few exceptions, however – Ireland, Italy, Luxemburg and UK still accept 0.8 promille. Sweden has a 0.2 promille law. Two countries, Austria and Spain have lower levels applying to beginners and to drivers of heavy vehicles. Lower legal limits for young drivers may reduce fatal crashes among young drivers by as much as 24%.

It is unfortunate that these differences between European countries still exist. A uniform legal maximum BAC limit would send a non-ambiguous, clear and consistent message to the European road users.

There is also evidence that lowering of the legal blood alcohol concentration limit generally produces positive results across all BAC concentrations and reduces alcohol related road accidents (Jonah et al., 2000). Sweden lowered the legal limit from 0.05% to 0.02% in 1990. This led to a reduction of fatal alcohol related accidents of 8% (Norström, 1997). Four Australian states went from 0.08% to 0.05% in the time span from 1976 to 1992 and experienced between 8 and 18 % reductions of fatal alcohol related accidents (Henstridge et al., 1997). The lowering of the legal limit in France resulted in a 4% improvement and in Belgium an initial improvement of 10% in the first year after the introduction of the new law and a further improvement of 11% the following year. In Austria the limit was lowered from 0.08% to 0.05%, generally and to 0.01% for novice drivers. This was accompanied by a reduction in accidents for novice drivers by 32% and for the general driving population, by 9% (Bartl and Esberger, 2000).

A national study of US states found a net decrease of 24% in the number of young drivers with positive BACs as a result of zero tolerance laws (Voas et al. 1999). Shults et al. (2001) found similar results in a review of both US and Australian studies. It is estimated that if all states in the USA introduced a limit of 0.08%, 400 – 500 fatal accidents could be avoided (Hingson et al., 2000).

Going in the other direction, i.e. raising the legal limit also has consequences. When former East Germany was reunited with former West Germany, the legal limit in East Germany went from zero to 0.8 promille. This change could be seen in a marked increase of alcohol related crashes in East Germany (Schöch, 1998). Similarly, when Portugal raised the legal limit after a short period of 0.02%, back to 0.05%, alcohol related fatalities increased by 10 %. In this case it may be argued that the experience with a lower level was very short, only a few months and therefore it is difficult to draw safe conclusions. However, it can probably be safely concluded that a lowering of the limit, especially in the countries which have the highest legal limits in Europe, would have accident reducing effects, (Desapriya, 2000).

In some countries lower legal BAC limits apply to commercial drivers and drivers of heavy vehicles etc.. In the USA, a 0.04% limit was introduced in 1986. It also encompasses more severe penalties. A second drunk driving offence by a driver of a vehicle transporting dangerous goods means loss of the commercial licence for life. Austria and Spain also have lower limits for drivers of heavy vehicles.

Sometimes it is feared that a lowering of the limit will lead to an increased workload on the police but experience in Norway and Sweden indicates that the police found fewer drunk drivers after the reform, despite having made a greater number of screening breath tests.

Legislation also encompasses sanctions for breaking the law. The severity of the penalties which apply to drunken driving and to having caused injury or death in alcohol related accidents vary enormously between countries. It requires a lengthy report to give a description of even the variations within the EU. Here, only a few examples will be mentioned. In many EU member states, having driven with 0.5- 0.8 promille typically means only an administrative penalty involving fines, which often are tied to BAC level. In some countries the fines are also related to income level. Only when 0.8 has been exceeded does licence suspension or revocation become involved. Other countries introduce licence suspension for a length of time which varies with the blood alcohol concentration but occurs also at the lowest blood alcohol concentrations. The length of the suspension may vary from a few days to lifetime.

Imprisonment for offenders not involved in traffic accidents occurs at higher levels of BAC – in some cases above 1.0 promille and in others above 2.0 promille. Penalties are usually increased if the offence or crime is repeated. Community service seems to have become more and more popular as an alternative sanction.

Some member states also require participation in short driver improvement courses, paid for by the participants. Such remedial programmes may reduce alcohol related accidents by 8-9%.

License suspension and revocation

Most nations have license suspension and revocation in their legislations as a measure to reduce drunken driving recidivism. There are great variations in the applications of such laws as far as when suspension and revocation should be used and for how long etc. In some legislations it is part of the penal system in others it is part of the administrative system. A review of 46, mostly North American studies on license suspension concludes that alcohol related accidents may be reduced by 5% and fatal accidents by 26% (Zobeck and Williams, 1994). Wells-Parker et al. (1995) found in a meta-analysis of 215 programs, that license suspension plus education, psychotherapy, counselling or follow-up contact probation produced an additional reduction in drinking-driving recidivism and alcohol-involved accidents when compared with groups that received license restrictions only.

Relevant literature maintains that educational measures and license suspension should be used concomitantly. It is also claimed that suspensions which last for shorter periods than 3 months are non-effective and that the most effective length of suspension is 12 to 18 months. (Austrian Road Safety Board, 2003).

Siskind (1996) has said that, at least during the suspension period, drivers show improved driving behaviour, either by restricting driving in general or if they are driving despite the suspension, by showing more caution. This effect is stronger the longer the suspension. License restriction is therefore justified as a method of punishment, control and rehabilitation of drinking drivers.

Relicensing

Some countries stipulate that the drunk driver, if he was above a certain BAC or reoffended, must participate in a rehabilitation programme or prove that drug or alcohol dependency is not at hand. This can be done in medical checks over a period of time involving the application of biological markers. Too rigorous programs may lead to increased levels of unlicensed driving, however. This again is probably closely related to the levels of police enforcement.

Sweden has a program which requires that drivers who have been caught with a BAC exceeding 0.1% must prove that they are not dependent upon alcohol or other drugs in order to have their driving licenses reinstated. This program works well, but, some 30-40% of these drivers choose not to enter the program and never apply for a driver's license again. It is doubtful whether they refrain from driving.

Rehabilitation

The proportion of drinking drivers who have a drinking problem is not very well researched and it probably varies somewhat from country to country. In Sweden, an extensive study over 10 years has demonstrated that a majority of arrested drinking drivers showed signs of harmful drinking habits or problem drinking (Bergman et al., 2004) Typically, drunk driving is a crime with a high degree of reoffending. Some 30% reoffend within three years. It is therefore important to ensure that drunk drivers are screened for drinking problems and if found to have such, to provide adequate sanctions which include participation in rehabilitation programs. If this is not provided, we will see a lot of recidivism. (See Relicensing above). Particularly for young drivers and first time offenders it has been found that recidivism rates can be halved by participation in training programs (Limbeck, 2001)

Tools which could be used

Alcohol Ignition Interlock Devices (AIID)

There is little doubt that the introduction of AIID in all cars would almost eliminate the problem of drunk driving from our roads. Unfortunately, this is something which will probably take a number of years before being implemented. Only one European country has had AIID programs running for any lengthy period and no one has introduced legislation requiring AIID for any type of transportation. It is most likely that the introduction of such legislation will be done stepwise. The first types of transportation which will see mandatory AIID are probably transportation of hazardous goods and buses. In Sweden some 3000 units are in use in buses, trucks, taxis and driving school cars. The experience is very favourable. Employers as well as employees say that they now they do not want to be without AIID. The experience from the use in the conditional license suspension program has demonstrated lower accident rates in the AIID group as compared to those who have their licenses suspended. Liver enzyme tests show that the AIID group has healthier levels at the end of the two-year AIID-period than the license suspension group. Unexpectedly, it was also found that the AIID group had fewer sick-leave periods than the license suspension group.

It should be emphasized that the long-term effects, i.e. after the interlock period, have not yet been evaluated. The North American experience is that AIID program is very effective for as long as the devices are legally required but that the reoffence levels rise quickly after the removal of the AIID. The Swedish approach with strict requirements on the participants with tri-monthly medical screening and biological markers seems promising in that it forces the participants to refrain from drinking for the duration of the AIID program which is 24 months.

Designated driver programs

This kind of measure involves encouragement of one person in a group of drinkers to refrain from drinking alcoholic beverages and to act as the sober driver. There is little evidence that formal designated programs have yielded significant positive effects (Caudill and Harding, 1997). But informal application of the principle of designated driver i.e. applying the principle in drinking situations, e.g. in other social settings than bars, pubs, restaurants etc, can be effective. This is the general experience in Sweden.

Electronic driving license (EDL)

License sanction like suspension and revocation are not as efficient as they could be. Although there is an unfortunate lack of tangible data regarding the frequency with which people drive despite suspension or revocation, experience tells us e. g. that between 30 and 40% of such drivers never reapply for a driver's license in Sweden. These drivers are not reached by measures which target their drinking habits and possible dependency problems.

In order to address this problem, systems have been developed in which the car checks that the driver has a valid license (Goldberg, 2000). The EDL is a "smart card" which is used at the key to doors and ignition and it is read by an on-board computer which compares the information on the card with information stored in the computer. If the license number on the card corresponds to what is listed in the computer, the car will start. If the license is revoked

or suspended, this information is beamed to all computers and this license will not be validated by the on-board computer.

A system like this would give us the driver's license as a very powerful tool which would effectively prevent unlicensed driving and motivate suspended drivers to participate in rehabilitations programs in order to be relicensed.

Graduated licensing

Once more we need to look at the experience gained on the North American continent for guidance. There is ample evidence that a stepwise acquisition of all driving privileges over a period of 1 – 2 years reduces the involvement of young drivers in road accidents. Probably the most important ingredient is the “curfew” legislation which means that during the first two years, the license is not valid night time. Since night time is also the prime time for drunk driving, this limitation of the driving privileges is specifically effective in the area of alcohol and driving (Preusser et al., 1984)

Raising the drinking age

Evidence from the USA (Voas et al., 1999) shows us that the raising of the legal drinking age, which has taken place over the years in the USA and Canada, has yielded very favourable results. All of the North American states and provinces have raised the legal drinking age to 21 years of age. On the basis of an extensive literature review, Törnros (1994) notes that increasing the legal drinking age to 21 has clear effects. A drinking age of 21 means that in most states, driving age is separated from drinking age by five years, also meaning that the young drivers are not inexperienced in both driving and drinking at the same time. This unfavourable combination is, however, at hand in many European countries, where often the driving age and the drinking age coincide. Although proven to be an effective harm reducing measure, it is a politically difficult one since it is probably rather unpopular among their young voters.

Vehicle sanctions

There is a great tendency for drunken drivers to reoffend. They often ignore driving license suspension and continue driving confident that the risk of detection is very low. One way of controlling this problem is to impound or forfeit the vehicle or confiscate the license plates or to mark the license plates in a conspicuous manner. Sweedler and Stewart (2000) claim high efficiency for all forms of vehicle sanctions even after the expiry of the measure. The experience stems mainly from North American legislation. Vehicle impoundment or forfeiture is an option in a number of legislations but seems to be used very sparsely in Europe, whereas it is applied widely in the US, where it has been found to reduce recidivism of multiple offenders by up to one third.

Finally

If we are successful in applying our tools and reduce the problem of alcohol on our roads, we are also giving public health a helping hand. Measures taken in the road traffic system will also create benefits for the whole public health sector. The world's leading researchers in the

field of alcohol and public health list the ten options which stand out as “best practices” to avoid the harmful societal consequences of alcohol consumption,(Babor et al. 2003): *minimum legal alcohol purchasing age; government monopoly of retail sales, restrictions on hours or days of sale; outlet density restrictions; alcohol taxes; sobriety checkpoints; lowered BAC limits; administrative licence suspension or revocation; graduated licensing for novice drivers; brief interventions for hazardous drinkers.* It is worth noting that five of the ten “best practices” are directly related to road traffic.

I am afraid that before we will be able to make any significant progress in reducing the terrible toll that alcohol takes on our roads, it is necessary for us to be able to demonstrate to our politicians and to our decision makers how serious the problem is. Most of them do not like the idea of being compared with other countries and to be found to score among the worst on a ranking list. It is a very powerful tool for convincing them that they need to change legislation and to provide resources for the battle against drunk driving. Therefore we must create an accident reporting system which reveals the true role of alcohol and of other drugs on our European roads.

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