



# NIMHANS Public-Health Alerts

## Drinking & Driving



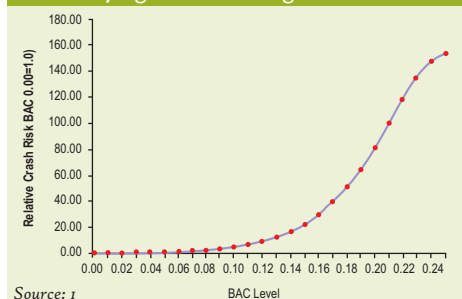
With nearly 150,000 deaths and 4.5 million hospitalizations every year due to road crashes, India is facing a major epidemic of road deaths. The country is losing precious human resources as majority of the killed and injured are men and in the age group of 15 to 45 years. The health, psychosocial and economic consequences are huge, though unmeasured. Experience of many high-income countries reveals that majority of the road deaths and injuries are predictable and preventable.

Drinking and driving is a recognized risk factor for road crashes in recent years. Impairment by alcohol influences the risk of a road traffic crash as well as the severity and outcome of injuries associated with it. Apart from its direct association with road crashes, alcohol is also responsible for other intentional and unintentional injuries like falls, burns, poisoning, suicides and others. Alcohol is also found responsible for many social and other problems.

### Drinking and driving performance

The consumption of alcohol, even in relatively small amounts, increases the risk of being involved in a crash for all categories of road users. Not only the person under the influence of alcohol is likely to injure himself, but can injure and kill others as well. Consumption of alcohol leads to poor judgment, slow reaction, delayed reflexes, poor visual attention, improper coordination, difficulties in identifying dangers on roads, and thus affects driving performance. In addition, it has several immediate physiological effects on routine body functions (like respiration and circulation) which can interfere and adversely influence driving behaviour. Most importantly, it brings in a pseudo euphoric effect making the person to be less inhibitive, consequently resulting in higher speeds and non-adherence to safe behaviour on roads. All these changes, in one way or other, increase the probability of the driver getting involved in a crash. Further, alcohol presence presents difficulties in assessment and management of the injured person in emergency room setting.

Estimated relative fatality risk for drinking drivers by age & sex in single vehicle crashes



Source: 1

BAC Level

- **Woman convicted for drunken driving**  
5th August 2008, Times of India, Times Nation, Page 11
- **Laid low by a drink; 2,906 fined in 3 hrs**  
7th April 2008, Times of India, Front Page
- **Drunken driving may prove fatal**  
16th July 2008, Times of India, Times City, Page 4
- **Two hours, 192 drunken driving cases**  
10th March 2008, Times of India, Times City, Page 2
- **Drunken driving claims two students**  
25th Feb 2008, Times of India, Times Nation, Page 12
- **Drunk drivers cause over 60% of accidents**  
23rd Feb 2008, Times of India, Times City, Page 2
- **Want safe roads? Then close bars early: panel**  
25th February 2008, Times of India, Times City, Page 5
- **BMW again: Drunken youth injures 4 in Delhi**  
31st March 2008, Times of India, Times Nation, Page 11



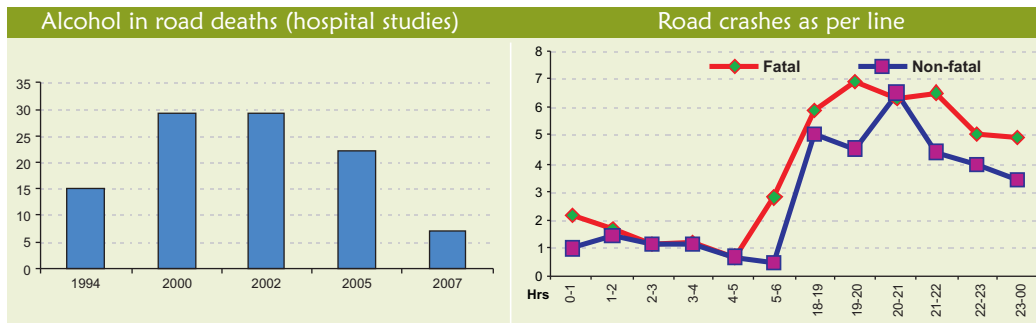
Studies have shown that injuries, like brain injuries, are comparatively higher among those under alcohol influence. The severity and impact of injuries are higher, deaths are more, and disabilities are greater along with more number of admissions.

	Alcohol +	Alcohol -
Severe brain injury with GCS <8	16.0	11.0
Admission	56.0	50.0
Death	6.5	2.3
Severe disability at 4 months post discharge		

Source: 2

## Drinking and driving in Bengaluru and India

National and state level data on drinking and driving are not available due to poor documentation of alcohol information in police and hospital reports. Police data does not provide correct information on alcohol as it is poorly documented for number of reasons, including the medico legal nature of road crashes and injuries. However, limited hospital and population based studies indicate significant presence of alcohol among those involved in road crashes. Studies from NIMHANS have identified strong presence of alcohol consumption in road deaths and injuries.



Data indicate that nearly 30 to 40% of crashes occur during night time, and one third of these are linked to alcohol. In a needs assessment study of reducing drinking and driving programme in Bengaluru, it was observed that alcohol

was identified in 11% of random police checks and 38% of hospital RTI registrations (3). Data from Bengaluru Injury Surveillance Programme (BISP) showed that documentation of alcohol in road crashes and other injuries by reporting agencies is extremely poor (4). All hospital studies from Bengaluru have shown that 15 – 30 % of night time injured patients were under alcohol influence at crash time (which still excludes those drivers killing or injuring others on road and not available for investigations), while official reports report the same to be around 5 %. (data of 2007 compared to previous years). Reasons for under reporting of alcohol in road crashes are due to non reporting, non acceptance of physician observation as evidence in courts, lack of breathalyzer in ER rooms, absence of blood alcohol estimation in hospitals and no clear administrative guidelines.

## Measuring alcohol in drivers

Even though road crashes occur due to multiplicity of factors, delineating the influence and association of alcohol as a contributory factor is crucial for prevention. The adverse impact of alcohol in road crashes can be better understood by measuring the presence and amount of alcohol in the blood of the person involved in the crash. The amount of alcohol in the involved road user is important and can be measured by blood or breath examination. In India, for a long time, police are used to conducting checks on smell of alcohol, while in the hospitals the smell of alcohol and a few clinical tests are routinely done. The police have recently been using breathalyzers to document the amount of alcohol amongst drivers tested on roads, which are also accepted by courts of law.

### Random versus selective breath testing

The US Task Force on Community Preventive Services (2001) revealed that sobriety checkpoints are effective in reducing crashes involving drinking and driving, and have significant economic benefits. Crashes decreased on an average by 18% for RBT checkpoints and 20% for SBT checkpoints. Fatal crashes decreased by 22% and 23% for RBT and SBT checkpoints, following implementation of the programme.

Source: 5

## The Indian law

**Central Motor Vehicles Act, 1988 Sec 185:** Driving by a drunken person or by a person under the influence of drugs. Whoever, while driving, or attempting to drive, a motor vehicle,-

- has, in his blood, alcohol exceeding 30 mg. per 100 ml. of blood detected in a test by a breathalyser, or
- is under this influence of a drug to such an extent as to be incapable of exercising proper control over the vehicle, shall be punishable for the first offence with imprisonment for a term which may extend to six months, or with fine which may extend to two thousand rupees, or with both; and for a second or subsequent offence, if committed within three years of the commission of the previous similar offence, with imprisonment for a term which may extend to two years, or with fine which may extend to three thousand rupees, or with both.



### Random breath testing (RBT) Australia

A programme undertaken in Adelaide, South Australia, between 1979 to 1992, demonstrates the importance and value of data. RBT was introduced in 1981 and the following years showed a substantial drop in the number of drivers with their BACs exceeding the legal limit of 0.08, from 12% to 4%. The surveys showed that drivers resorted to avoiding main roads and used back streets to circumnavigate testing stations as confirmed by observational studies. The investigation of locations suggested moving away from major arterial roads to side streets and back streets, thus, changing the strategy of enforcement programmes.

Source: 5

Data from the United States show that US states adopting the minimum legal drinking age of 21 years experienced a 10-15% decline in drink-driving fatalities, compared with states that did not adopt such laws. Further, NHTSA estimates that about 1,000 deaths per year are reduced through the introduction of minimum drinking legal age of 21 years in the US.

Source: 5

### Recommendations of 2008 National Consultation on reducing drinking & driving in India

- Capacity strengthening of policy makers
- Strengthening data collection systems
- Up scaling enforcement activities
- Revision of existing laws
- Guidelines for drivers and service industry
- Uniform guidelines on age, timing and location
- Screening for alcohol in emergency rooms of hospitals
- Mandatory testing in all fatal crashes
- Co-ordinated activities
- Formulating policies and programmes

**Explanation:** For the purposes of this section, the drug or drugs specified by the Central Government in this behalf, by notification in the Official Gazette, shall be deemed to render a person incapable of exercising proper control over a motor vehicle.

In Bengaluru city, the fine for first conviction for drinking and driving is Rs.2000 and Rs 3000 for repeat offences.

## Implementation of drink driving laws

Since 2002, the Bengaluru city police have been implementing drink drive laws on a systematic basis. Under the collaborative programme between Bengaluru city police, NIMHANS, erstwhile Bangalore Agenda Task Force and GRSP, the programme has moved from strength to strength in the last five years. The programme consisting of needs assessment, communication campaigns, stepped-up enforcement and periodical monitoring has been a step in the right direction.



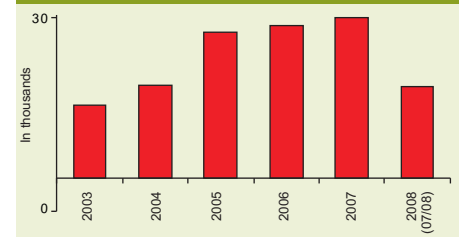
It is important to target implementation and enforcement of drink drive laws at

- ❖ males in 18 - 45 years,
- ❖ teenage drivers,
- ❖ two wheeler - car - heavy vehicle drivers,
- ❖ those driving during 8 p.m. - 12 midnight, and in
- ❖ peripheral, outer city areas and on highways.

In addition, the enforcement has to be

- ❖ people friendly,
- ❖ non harassing
- ❖ uniform across geographical areas,
- ❖ visible in nature ,
- ❖ random so that anyone could be randomly checked and convicted, if found to be under alcohol influence.
- ❖ sustained continuously.
- ❖ and scientific in implementation.

Increasing enforcement for drinking and driving

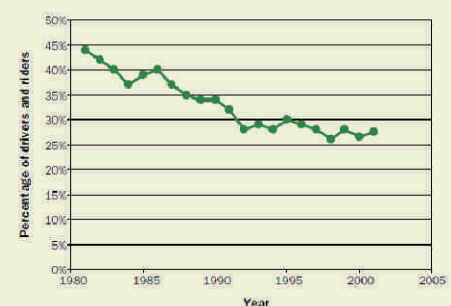


The Bengaluru programme on reducing drinking and driving, since 2002, has resulted in increasing awareness and stepped up enforcement. However, Periodical training of police personnel, calibration of equipment, availability of materials like cones/barricades, reflective material for police personnel, systematic documentation of the profile and patterns and information to road users are very much essential for success of the programme. As those found under alcohol influence are not permitted to drive, alternate arrangements should be planned for shifting vehicle, as well as people.

## Combining interventions

To effectively reduce the burden of drinking and driving, many other activities need to be undertaken. These include limiting availability, restriction on timings, defining the location of alcohol selling outlets, preventing minors from using alcohol, restricting young or inexperienced drivers from using alcohol, bringing strict standards with regard to blood alcohol levels, promoting designated driver programmes, screening for alcohol in all fatal crashes and several others within the alcohol domain. Combining other interventions like helmet usage, speed management, safer road designs, improving traffic management and others will provide an opportunity to address the problem in a holistic approach.

Changing Trends of Fatal Deaths among drivers & motorcycle riders with BAC of 0.05 gm / 100 ml or more, Australia, 1981-2001



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## Measuring progress

The success of implementing drinking and driving laws primarily depends on -- political acceptance, strong legislation, penalties for offences, implementing checks, public awareness and sensitization programmes and implementation of good practices. The public must be informed as to why drinking and driving is unsafe and antisocial, while laws must be strong enough to punish the offenders.

It is important to measure progress and monitor changing trends in all programmes, especially “Do not drink and drive” programmes. Information collected by police or in the hospitals should be strengthened and scientifically analyzed along with information to public about the changing scenario. Such periodical feedbacks will be very much helpful in acceptance of the programme by the public. It will also help whether desired changes are occurring in the society as measured by realistic reduction in deaths and injuries.

Measuring this reduction requires setting up information and surveillance systems to systematically document information in hospital and police records along with conducting periodical roadside surveys by trained teams. Putting such a system in place requires overcoming existing medico legal barriers in health, police and legal systems. The BISP program observed that information on alcohol is not systematically documented due to medico legal barriers.



With increase in availability of alcohol, rising income levels of people, rapid motorization, and changing values of people, alcohol use and driving will be a major problem in the years to come. Implementing the reduction of drinking and driving programme requires a programmatic and intersectoral approach. It requires the joint participation of police, health professionals and legal personnel to formulate effective laws and implement them in totality.

An effective drinking and driving law will make it illegal to drive with blood/breath alcohol concentration levels beyond permissible limits, encourage testing for alcohol and to take legal action, requires drivers to give breath test as and when asked for and establishes appropriate penalties for offences. Effective implementation along with public education will provide an opportunity for people to accept the law and drive without drinking.

Systematic monitoring and evaluation of the programme will set directions for required changes over a period of time. If, this is not systematically developed in India and its cities, coming years will witness a huge increase in road deaths, injuries and disabilities due to alcohol.

### Suggested reading

1. Crompton RP et al. Crash risk of alcohol-impaired driving. In : Mayhew DR, Dussault C eds. Proceedings of the 16th International Conference on Alcohol, Drugs and Traffic Safety, Montreal, 4-9 August 2002. Montreal, Societe de l'assurance automobile du Quebec, 2002: 39-44.
2. Gururaj G. The effect of alcohol on incidence, pattern, severity and outcome from traumatic brain injury. *J Ind Med Assoc* 2004; 102: 157-60.
3. Gururaj G and Benegal V. Final report of the project: Drinking and driving under the Influence of Alcohol, (unpublished report). National Institute of Mental Health and Neuro Sciences, Bangalore, 2003.
4. Bengaluru Injury Surveillance collaborators group. Bengaluru Injury / Road Traffic Injury Surveillance Programme: A feasibility study. National Institute of Mental Health and Neuro Sciences, Bangalore. Publication No.68, 2008.
5. Drinking and Driving: A road safety manual for decision makers and practitioners, Geneva, Global Road Safety Partnership, 2007.

Reducing deaths, hospitalizations, disabilities and economic costs of road crashes requires an intersectoral and integrated approach. Many high income countries around the world have shown a significant decline in deaths and injuries due to implementation of programmes through combined measures of engineering, enforcement, education and emergency care. The success of these programmes are due to development of evidence based / data driven programmes from many partners, better coordinations mechanisms, integrated approaches and development of lead organization(s) focusing on safety. Research / data / evidence formed the formation for many of these activities. Managing road safety was based on development of system wide approaches and rational decision making. Road crashes occur due to multiple causes and prevention and control involves many partners ranging from health, police, transport, judiciary, urban and rural development, excise and many others and many difficulties are seen in coordination and implementation of programmes. To overcome these factors, establishment of a lead agency to coordinate all activities were set up with required administrative powers, support, budget and the teeth to implement programmes. Lessons need to be learnt and mere concern and anguish on deaths and injuries is just not enough. There is a need for clearly defined road safety policy, programme and a defined plan of action for the coming years to save lives and limbs.

### Blood alcohol concentration (BAC) limits for drivers in select countries

Country	BAC (g/100ml)
Australia	0.05
Brazil	0.08
France	0.05
Germany	0.05
Italy	0.05
New Zealand	0.08
Sweden	0.02
Switzerland	0.08
United Kingdom	0.08
United States of America	0.10 or 0.08
India	0.03

### Public Tips

- Do not drink and drive.
- If you are in a group, designate a person to drive back and he should not consume alcohol.
- If you have consumed alcohol, call a taxi or take an auto.
- If police stop you, cooperate with them for a breath test.
- If you are above legal limits, pay the prescribed penalty.
- In addition, wear your helmets or seatbelts and control speed on roads.