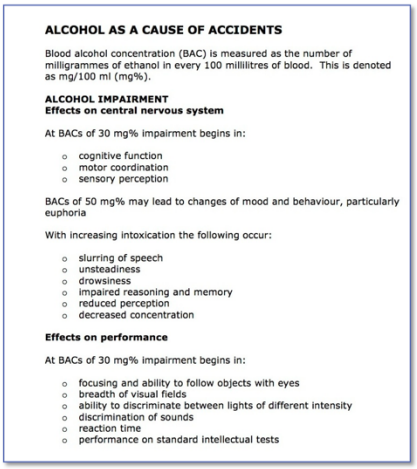
IAS Institute of Alcohol Studies

Accidents and injuries

Alcohol-related health harm is not just limited to chronic disease or physical illness. The presence of alcohol in the body has also been shown to increase the severity of injuries from accidents.[1]

Alcohol has a range of psycho-motor and cognitive effects that increase accident risk on reaction times, cognitive processing, coordination, vigilance, vision and hearing, even at low blood alcohol levels. For these reasons alcohol consumption is normally closely regulated in relation to the operation of transport systems and other safety sensitive environments and activities. The British Medical Association (BMA) Guide to Alcohol & Accidents comprises a list of the symptoms of alcohol consumption at various levels (see figure 1).

Figure 1: Alcohol as a cause of accidents



ALCOHOL AS A CAUSE OF ACCIDENTS

Blood alcohol concentration (BAC) is measured as the number of milligrammes of ethanol in every 100 millilitres of blood. This is denoted as mg/100 ml (mg%).

ALCOHOL IMPAIRMENT
Effects on central nervous system

At BACs of 30 mg% impairment begins in:

- cognitive function
- motor coordination
- sensory perception

BACs of 50 mg% may lead to changes of mood and behaviour, particularly euphoria

With increasing intoxication the following occur:

- slurring of speech
- unsteadiness
- drowsiness
- impaired reasoning and memory
- reduced perception
- decreased concentration

Effects on performance

At BACs of 30 mg% impairment begins in:

- focusing and ability to follow objects with eyes
- breadth of visual fields
- ability to discriminate between lights of different intensity
- discrimination of sounds
- reaction time
- performance on standard intellectual tests

Source: British Medical Association Guide to Alcohol & Accidents, published jointly by the British Medical Association (BMA) and the Institute of Alcohol Studies (IAS) (June 1989)

Adverse effects on vision have been found at blood alcohol concentrations of 30mg ethanol per 100ml blood, and the psychomotor skills required for driving have been found to show impairment from 40mg/100ml (in the UK the legal blood alcohol limit for drivers is 80mg/100ml). Raised risk of accident can also remain for some time after drinking, as skills and faculties do not necessarily return to normal immediately even once all alcohol has left the body. Drink-driving vehicles in general is a dangerous activity, as the number of alcohol-related serious injuries and deaths on Great Britain's roads demonstrates. Since 2010, 4 – 5% of all reported road traffic accidents involved at least one driver over the drink drive limit have accounted for around. Between 13% – 16% of all deaths on GB roads over the same period did so too.[2]

Impairment of faculties can also have a dangerous effect on the control of aircraft. In a study of airline pilots who had to perform routine tasks in a simulator under three alcohol test conditions, it was found that:

- before the ingestion of any alcohol, 10% of them could not perform all the operations correctly;
- after reaching a blood alcohol concentration of 100mg/dl, 89% could not perform all the operations correctly;
- and 14 hours later, after all the alcohol had left their systems, 68% still could not perform all the operations correctly.[3]

A 2009 parliamentary paper recognised alcohol as a contributory factor in accidents on the road, at home and in the workplace, as well as being strongly linked with acts of violence and social disorder. A national survey of most of the UK's Emergency Departments found that 70% of night time attendances and 40% of daytime attendances were caused by alcohol.[4]

Alcohol is the biggest single cause of accidents in the home. Every year, there are around 4,000 fatal domestic accidents, 2.6 million accidents that require treatment in A&E departments and many more accidents not accounted for in the hospital admissions statistics. Alcohol-related accidents can often have fatal outcomes. In 2008, the London Fire Brigade estimated that almost a third of accidental fire deaths in the capital were alcohol-related.[5] At a conservative estimate, it is believed that a total of 400 people die in alcohol-related home accidents every year.[6]

Alcohol's ability to increase the risk of danger extends beyond the home. According to Alcoholics Anonymous, a quarter of accidents at work are drink-related.[7]

Alcohol consumption – and in particular, binge-drinking – increases the risk of being a victim of violence, usually through decreased physical capacity, compromised decision-making and isolation in unsuitable settings. In England and Wales, it is estimated that alcohol is associated with 15 – 25% of all suicides and 65% of all suicide attempts. In Scotland, 53% of people committing suicide who had contact with mental health services in the 12 months prior to death had a history of alcohol misuse.[8] It also increases the likelihood of perpetrating violence through reduced inhibition and increased aggression. 1.2 million violent incidents (around half of all violent crimes) and 360,000 incidents of domestic violence (around a third) are linked to alcohol misuse, and an estimated 19,000 alcohol-related sexual assaults occur each year in England and Wales.[9]

A significant proportion of avoidable deaths and hospital admissions each year are particularly attributable to the alcohol consumption of young people.[10] A government white paper on public health published in 2010 emphasised the danger of alcohol misuse to young people's lives, stating that accidents due to alcohol (including drink-driving accidents) are the leading cause of death among 16–24-year-olds.[11]

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[1] Fuller MG, 'Alcohol use and injury severity in trauma patients', Journal of Addictive Diseases (1995), 14, pp. 47–54
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[3] Modell and Mountz, 'The problem of alcohol use by pilots', New England Journal of Medicine (1990)
[4] House of Commons Health Committee (2009), 'Alcohol: First Report' <http://www.publications.parliament.uk/pa/cm200910/cmselect/cmhealth/151/15102.htm#_blank>
[5] London Fire Brigade (2008), 'Almost a third of accidental fire deaths in London are alcohol-related'; 'The fire dangers of

alcohol,' <http://www.london-fire.gov.uk/FeatureFireRiskAndAlcohol.asp>
[6] Consumer & Competition Policy Directorate (2002), 'Research on the proportion of home accidents involving product fault or contributory behaviour', p. 28
[7] Alcoholics Anonymous Great Britain, 'Interesting Statistics' <http://www.alcoholics-anonymous.org.uk/professionals/?PageID=83#_blank>
[8] Shepherd J, Bellis M, Hughes K, Stewart L, et al (2005)., 'Alcohol and Violence; Briefing Statement', The UK Faculty of Public Health (FPH), p. 2 <http://www.fph.org.uk/policy_reports#_blank>
[9] FPH, p. 2; Prime Minister's Strategy Unit, (March 2004), 'Alcohol Harm Reduction Strategy for England', p. 13
[10] Jones L, Bellis M, Dedman D, et al (June 2008)., 'Alcohol-attributable Fractions for England: Alcohol-attributable Mortality and Hospital Admissions', Centre for Public Health Faculty of Health and Applied Social Sciences Liverpool John Moores University, page viii
[11] The Secretary of State for Health (November 2010), 'Healthy Lives, Healthy People: Our strategy for public health in England', p. 19 <http://tinyurl.com/nh5tcmc>