

ALCOHOL AND ROAD FATALITIES

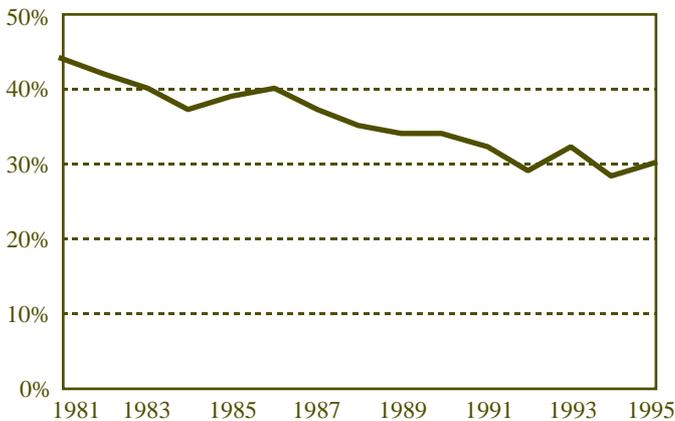


Figure 1: Percentage of fatally injured motorists with BAC of 0.05 gm/ml or greater, Australia 1981 to 1995

Despite intense effort to combat drink driving, alcohol intoxication continues to be the number one cause of Australian road deaths. If one takes “intoxicated” to mean a blood alcohol concentration (BAC) of 0.050 gm/ml or more, then intoxication amongst vehicle controllers or pedestrians is seen to be implicated in a minimum of 500 road deaths each year. This can be established from those fatal crashes for which information is recorded about the blood alcohol levels of those involved. Blood alcohol levels go unrecorded for many other fatal crashes due to a variety of over-riding circumstances or oversight. Taking these crashes into account, alcohol intoxication amongst vehicle controllers or pedestrians is estimated to be implicated in approximately 650 to 700 deaths each year.

This represents about one third of all road deaths.

This is somewhat surprising in view of all the effort that has gone into reducing alcohol’s road toll. Since its introduction into every State and Territory by 1989 random breath testing has been progressively intensified and refined to the extent that Australia now has more extensive mass breath testing of drivers than almost any other nation. A raft of complementary initiatives has put into

place lower and nationally consistent driver BAC limits, zero limits for special driver groups, a well thought out system of penalties and mass public education and media campaigns. Attitudinal shift has seen drink driving become largely unacceptable within the general Australian population.

This effort did achieve a substantial reduction in alcohol-related road deaths between the early 1980s and the early 1990s. However, as Figure 1 shows, further improvement has stalled since 1992. There is a growing realisation that

success in modifying general community behaviour and attitudes has not been matched for “hard core” groups of motorists. These groups are being intercepted more commonly in RBT operations and dominate the counts of those involved in fatal crashes. Particular emphasis now needs to be directed to these groups and the extremely serious problem of fatalities amongst intoxicated pedestrians.

What crashes involve alcohol?

Material from coroners’ investigations into road fatalities provides a detailed insight into alcohol’s role in road fatalities. It is summarised here for 1992, the most recent full year’s material currently available.

Table 1 Road fatalities by crash type and extent of alcohol involvement^(a), 1992

	Fatalities	% ^(b)
Crashes involving adult/youth pedestrians^(c)		
High alcohol crashes	79	36%
Moderate alcohol crashes	22	10%
Nil or low alcohol crashes	116	53%
Crashes of unknown status	62	
Total	279	
Crashes involving child pedestrians^(c)	48	
(All nil alcohol crashes)		
Other single vehicle crashes		
High alcohol crashes	167	29%
Moderate alcohol crashes	81	14%
Nil or low alcohol crashes	331	57%
Crashes of unknown status	159	
Total	738	
Multiple vehicle crashes		
High alcohol crashes	88	17%
Moderate alcohol crashes	51	10%
Nil or low alcohol crashes	367	73%
Crashes of unknown status	352	
Total	858	
All crashes		
High alcohol crashes	334	25%
Moderate alcohol crashes	154	11%
Nil or low alcohol crashes	862	64%
Crashes of unknown status	573	
Total	1923	

Refer to notes below table 2

Table 2 Road fatalities by type of road user, crash type and extent of alcohol involvement^(a), 1992

	Type of Road User Killed	Fatalities	% ^(b)
CRASHES INVOLVING ADULT/YOUTH PEDESTRIANS^(c)			
High alcohol crashes	Highly intoxicated pedestrians	76	35% ^(d)
	Pedestrians hit by highly intoxicated drivers/riders	3	1% ^(e)
Moderate alcohol crashes	Moderately intoxicated pedestrians	18	8%
	Pedestrians hit by moderately intoxicated drivers/riders	4	2%
Nil or low alcohol crashes	Sober pedestrians	116	53%
Crashes of unknown status	Pedestrians	62	
	Total persons killed	279	
CHILD PEDESTRIAN CRASHES^(c)			
(All nil alcohol crashes)	Total persons killed	48	
OTHER SINGLE VEHICLE CRASHES			
High alcohol crashes	Highly intoxicated drivers/riders	129	22%
	Passengers of highly intoxicated drivers/riders	38	7%
Moderate alcohol crashes	Moderately intoxicated drivers/riders	40	7%
	Passengers of moderately intoxicated drivers/riders	41	7%
Nil or low alcohol crashes	Occupants	331	57%
Crashes of unknown status	Occupants	159	
	Total persons killed	738	
MULTIPLE VEHICLE CRASHES			
High alcohol crashes	Highly intoxicated drivers/riders	54	11%
	Passengers of highly intoxicated drivers/riders	9	2%
	Occupants of other vehicle	25	5% ^(f)
Moderate alcohol crashes	Moderately intoxicated drivers/riders	23	5%
	Passengers of moderately intoxicated drivers/riders	14	3%
	Occupants of other vehicle	14	3%
Nil or low alcohol crashes	Occupants	367	73%
Crashes of unknown status	Occupants	352	
	Total persons killed	858	
ALL CRASHES			
High alcohol crashes	Highly intoxicated pedestrians	76	6% ^(d)
	Highly intoxicated drivers/riders	183	14%
	Passengers of highly intoxicated drivers/riders	47	3%
	Occupants of other vehicle / peds hit by highly intox drivers/riders	28	2% ^{(e)(f)}
Moderate alcohol crashes	Moderately intoxicated pedestrians	18	1%
	Moderately intoxicated drivers/riders	63	5%
	Passengers of moderately intoxicated drivers/riders	55	4%
	Occupants of other vehicle / peds hit by moderately intox drivers/riders	18	1%
Nil or low alcohol crashes	Sober pedestrians	164	12%
Crashes of unknown status	Occupants	698	52%
	Pedestrians	62	
	Occupants	511	
	Total persons killed	1923	

(a) Crashes categorised by extent of alcohol involvement as follows:

- High alcohol: a driver, rider or pedestrian had a BAC of 0.150 gm/ml or more.
- Moderate alcohol: a driver, rider or pedestrian had a BAC of 0.050 to 0.149 gm/ml.
- Nil or low alcohol: all drivers, riders and pedestrians had a BAC below 0.050 gm/ml.
- Crashes of unknown status: crashes not readily determinable as high, medium or nil/low alcohol because BAC is unknown for one or more participants.

(b) Percentage of total fatalities in crashes of known alcohol status

(c) Pedestrians aged 16 years or more are termed adult/youth pedestrians. Those below 16 years of age are termed child pedestrians.

(d) In 2 of these cases the driver/rider had also been highly intoxicated and in 7 cases the driver/rider had been moderately intoxicated.

(e) One of these pedestrians had been moderately intoxicated.

(f) Includes one fatality of a moderately intoxicated driver/rider. In all other cases the driver/rider of the other vehicle had been sober.

Table 1 itemises road fatalities in 1992 by type of crash and extent of alcohol involvement. The picture is worst in pedestrian crashes and other single vehicle crashes. Of the fatal crashes for which BACs were recorded, intoxication was implicated in:

- 47 per cent of deaths of adult and youth pedestrians,
- 43 per cent of deaths in single vehicle crashes not involving pedestrians, and
- 27 per cent of deaths in multiple vehicle crashes.

Table 1 distinguishes alcohol-related crashes into “moderate alcohol” or “high alcohol” on the basis of BAC below or above 0.150 gm/ml. High alcohol crashes accounted for a staggering 334 deaths (68%) of the 488 road deaths in 1992 known to be definitely alcohol related. Again, the picture is worst in pedestrian crashes. High alcohol crashes contributed:

- over three quarters of alcohol-related deaths of adult or youth pedestrians (79 deaths out of 101),
- over two thirds of alcohol-related deaths in single vehicle crashes not involving pedestrians (167 deaths out of 248), and
- 63 per cent of alcohol-related deaths in multiple vehicle crashes (88 deaths out of 139).

Who is killed?

Table 2 itemises the types of road users killed in alcohol-related crashes. Of the 488 road deaths in 1992 known to be definitely alcohol-related:

- 95 (19%) were intoxicated pedestrians,
- 247 (51%) were intoxicated drivers and riders, comprising
 - 192 drivers
 - 52 motor cycle riders
 - 3 bicycle riders,

- 102 (21%) were passengers of intoxicated drivers and riders, comprising
 - 97 passengers of drivers
 - 5 pillion passengers on motor cycles,
- 44 (9%) were the occupants of other vehicles or sober pedestrians involved in collisions with intoxicated drivers or riders.

An additional 97 passengers of intoxicated drivers and riders were hospitalised from these fatal crashes, as were 61 occupants of other vehicles.

In fatal pedestrian crashes, it was sometimes the case that the pedestrian and motorist had both been intoxicated. Amongst motorists involved in the deaths of 76 highly intoxicated pedestrians in 1992, two had been highly intoxicated themselves and 7 had been moderately intoxicated.

High BACs are commonplace

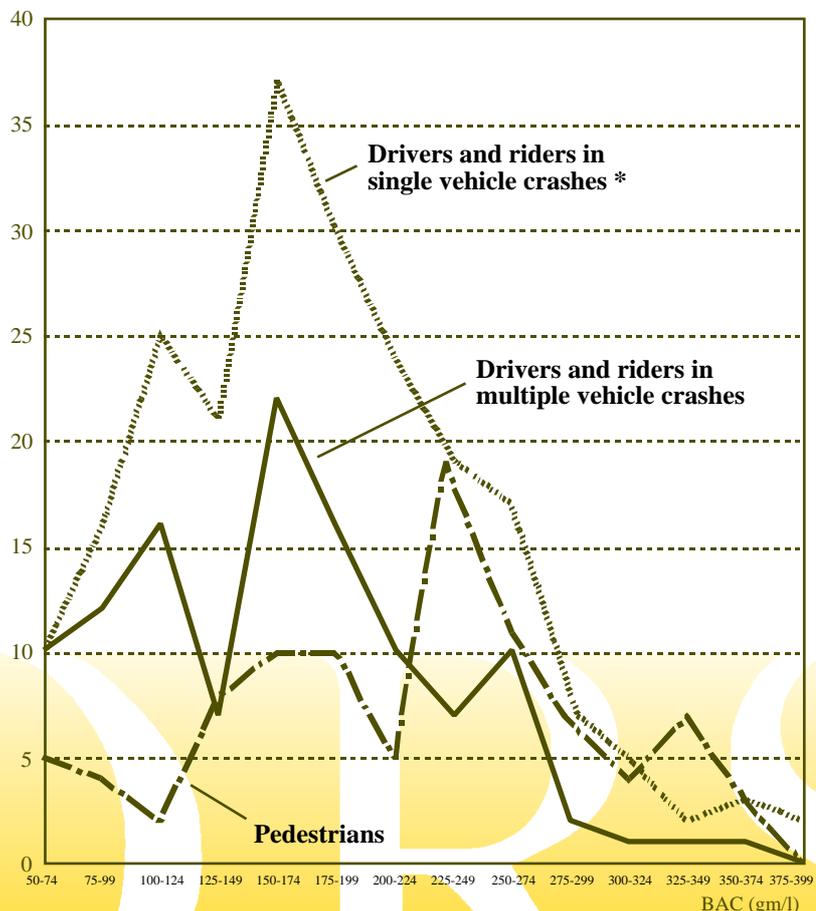
Figure 2 shows that extremely high BACs are quite commonplace in fatal crashes, particularly amongst pedestrians.

Of those adult and youth pedestrians killed in 1992 for whom BAC was recorded:

- 44 per cent (95 out of 217) were intoxicated,
- 76 of the 95 intoxicated pedestrians had a BAC of 0.150 or greater, and
- the average BAC of those intoxicated was 0.217.

Clearly, intoxication amongst adult and youth pedestrians stands out as an area of the highest priority for Australian road safety authorities. This will be examined in more detail in a later monograph of this series, and the remainder of this discussion deals with the characteristics of intoxicated drivers and riders involved in fatal non-pedestrian crashes.

Figure 2: BACs of intoxicated participants in fatal road crashes in 1992



* Excludes pedestrian crashes

Figure 2 also shows that very high BACs are quite typical amongst drivers and riders involved in fatal single vehicle non-pedestrian crashes. In 1992:

- of those involved for whom BAC was recorded, 43 per cent (218 out of 512) were intoxicated,
- 67 per cent of those intoxicated had a BAC of 0.150 or greater, and
- the average BAC of those intoxicated was 0.181.

Intoxication is less prevalent amongst drivers and riders involved in fatal multiple vehicle crashes. Only 11 per cent were intoxicated in 1992. However, Figure 2 shows again very high BACs amongst those who were intoxicated. In 1992:

- 61 per cent of those intoxicated had a BAC of 0.150 or greater, and
- the average BAC of those intoxicated was 0.164.

Table 3 Sobriety of male motor cycle riders and male drivers involved in fatal non-pedestrian crashes, 1992

		Operator BAC (gm/ml)			
		Below 0.05	0.050 to 0.149	0.150 or more	Total with known BAC
Single vehicle crashes					
Motor cycle riders	%	42	17	42	100
Drivers	%	53	16	32	100
Multiple vehicle crashes					
Motor cycle riders	%	81	5	14	100
Drivers	%	88	5	7	100

Table 4 Sobriety of drivers and riders involved in fatal non-pedestrian crashes by State/Territory, 1992

		Operator BAC (gm/ml)		
		Below 0.05	0.050 or more	Total with known BAC
New South Wales	%	82	18	100
Victoria	%	84	16	100
Queensland	%	76	24	100
South Australia	%	66	34	100
Western Australia	%	71	29	100
Tasmania	%	82	18	100
Northern Territory	%	57	43	100
Australian Capital Territory	%	73	27	100
Australia	%	78	22	100

Table 5 Sobriety of drivers and riders involved in fatal non-pedestrian crashes by place of residence, 1992

Driver's or rider's place of residence		Operator BAC (gm/ml)			
		Below 0.05	0.050 to 0.149	0.150 or more	Total with known BAC
Metropolitan area	%	83	7	10	100
Country towns	%	76	8	16	100
Rural localities	%	66	10	24	100
All drivers and riders	%	78	8	14	100

(a) Place of residence is defined as follows:

- Metropolitan area: has a population of 100,000 or more persons
- Country town: has a population of 1,000 to 100,000 persons
- Rural locality: has a population of less than 1,000 persons

How do motor cycle riders compare with drivers?

194 motor cycle riders and 1,864 drivers were involved in fatal non-pedestrian crashes in 1992. Table 3 compares the extent of intoxication amongst the males of each group.

Extreme BACs tend to be more prevalent amongst male motor cycle riders than amongst male drivers. In 1992, highly intoxicated motorists accounted for:

- 42 per cent of male motor cycle riders and 32 per cent of male drivers involved in fatal single vehicle crashes, and
- 14 per cent of male motor cycle riders and 7 per cent of male drivers involved in fatal multiple vehicle crashes.

The average BAC of those intoxicated was:

- 0.183 for male motor cycle riders, and
- 0.175 for male drivers.

Who are intoxicated?

State/Territory of crash

Table 4 compares sobriety between States and Territories for drivers and riders involved in fatal non-pedestrian crashes in 1992. Although precise comparisons are obscured by substantial jurisdictional differences in the extent to which BACs are recorded, Northern Territory drivers and riders are a stand out worst. Furthermore, it is routinely the case that 70 per cent to 80 per cent of the intoxicated Northern Territory drivers and riders involved in fatal crashes have a BAC of 0.150 or greater.

Driver's or rider's place of residence

Table 5 compares the sobriety of 1,063 metropolitan drivers/riders involved in fatal non-pedestrian crashes in 1992 with that of 762 counterparts from country towns and 187 counterparts from rural localities. It shows that high intoxication was most common amongst drivers and riders resident in rural localities followed by those resident in country towns.

Amongst drivers and riders for whom blood alcohol concentration was known:

- 24 per cent of those resident in rural localities were highly intoxicated, compared with
- 16 per cent of those resident in country towns, and
- 10 per cent of those resident in metropolitan areas.

Demographic profile

Tables 6 and 7 compare the sobriety of 1,419 male drivers and 424 female drivers involved in fatal non-pedestrian crashes in 1992. Riders of motor cycles and bicycles (predominantly males) are excluded from the comparison.

Male drivers were much more commonly intoxicated. Of drivers in 1992 for whom blood alcohol concentration was known:

- 47 per cent of male drivers in single vehicle crashes were intoxicated compared with 17 per cent of female drivers, and
- 12 per cent of male drivers in multiple vehicle crashes were intoxicated compared with 5 per cent of female drivers.

Although intoxicated female drivers are relatively uncommon, those who are intoxicated tend to have high BACs like their male counterparts. In 1992, the BAC of intoxicated female drivers averaged:

- 0.179 amongst those involved in fatal single vehicle crashes compared with 0.182 amongst males, and

- 0.130 amongst those involved in fatal multiple vehicle crashes compared with 0.161 amongst males.

Table 8 compares the age profiles of sober and intoxicated drivers/riders involved in fatal non-pedestrian crashes.

In fatal single vehicle crashes, moderately intoxicated drivers and riders are more commonly young (below 25) or in early middle age (25 to 39) than are sober drivers and riders. In contrast, highly intoxicated drivers and riders are more commonly middle aged (25 to 59 years) than are sober drivers and riders and are less commonly young or old.

Intoxicated drivers and riders involved in multiple vehicle crashes tend to have very little over-representation of the young. Instead, intoxicated drivers and riders are much more commonly aged 25 to 39 years than are sober drivers and riders and much less commonly aged 40 or older.

Table 9 highlights a tendency for extreme BACs amongst 25 to 39 year old drivers and riders involved in fatal single vehicle crashes. Amongst those in 1992 for whom blood alcohol concentration was known:

- 38 per cent of 25 to 39 year olds were highly intoxicated, as were
- 32 per cent of those aged 40 to 59.

Labour force activity

Table 10 compares the labour force activity of sober and intoxicated drivers/riders involved in fatal non-pedestrian crashes. Intoxicated drivers and riders are:

- more likely to be tradespersons, labourers or unemployed, and
- less likely to be skilled machine operators, retired or keeping house.

Because of their greater numbers, this picture is largely determined by the labour force activity of male drivers. However, a similar pattern can be seen amongst females except for a tendency for professionals and para-professionals to be also over-represented amongst intoxicated females.

Table 11 highlights the tendency for extreme BACs amongst tradespersons, labourers and the unemployed involved in these crashes. Amongst those drivers and riders in 1992 for whom blood alcohol concentration was known:

- 36 per cent of the unemployed were highly intoxicated, as were
- 28 per cent of tradespersons and labourers, and
- 26 per cent of the "other employed" category.

Where is special attention needed?

From the foregoing, a number of groups stand out as being of particular risk:

- intoxicated pedestrians,
- young male motorists, particularly those in country regions,
- blue collar or unemployed male motorists,

continued next page

Table 6 Gender of sober and intoxicated drivers involved in fatal non-pedestrian crashes, 1992

	Operator BAC (gm/ml)		
	Below 0.05 %	0.050 to 0.149 %	0.150 or more %
Single vehicle crashes			
Males	71	89	93
Females	29	11	7
All drivers	100	100	100
Multiple vehicle crashes			
Males	75	82	91
Females	25	18	9
All drivers	100	100	100

Table 7 Sobriety of drivers involved in fatal non-pedestrian crashes by gender, 1992

		Operator BAC (gm/ml)			Total with known BAC
		Below 0.05	0.050 to 0.149	0.150 or more	
Single vehicle crashes					
Males	%	53	15	32	100
Females	%	83	7	10	100
All drivers	%	59	14	27	100
Multiple vehicle crashes					
Males	%	88	5	7	100
Females	%	95	3	2	100
All drivers	%	90	4	6	100

Table 8 Age of sober and intoxicated drivers/riders involved in fatal non-pedestrian crashes, 1992

Age (years)	Operator BAC (gm/ml)		
	Below 0.05 %	0.050 to 0.149 %	0.150 or more %
Single vehicle crashes			
Below 25	42	51	34
25 - 39	30	36	48
40 - 59	14	10	16
60 or more	14	3	2
All persons	100	100	100
Multiple vehicle crashes			
Below 25	28	30	31
25 - 39	31	51	54
40 - 59	27	16	13
60 or more	14	2	1
All persons	100	100	100

- middle-aged male motorists with extreme BACs, potentially alcohol dependent and with associated social problems, and
- motorists in regions with a pattern of excess drinking such as the Northern Territory.

Particular emphasis now needs to be directed to these groups. This need has been recognised in the 1996 National Road Safety Action Plan¹. A key element of the Plan was put into place in November this year with the convening of a national expert forum to plan measures targeted at high risk offenders.

In the meantime, enforcement and public awareness of drink driving are being upgraded nationwide. Possible measures being canvassed to combat recidivist offenders include alcohol dependency testing at licence renewal, rehabilitation programs and ignition interlock devices. Co-operation of the hospitality sector is being sought in developing industry-based measures to combat drink driving. These include marketing strategies that favour low alcohol beverages, which should be particularly beneficial in regions with a pattern of excess drinking such as the Northern

Table 9 Sobriety of drivers and riders involved in fatal non pedestrian crashes by age, 1992

Age (years)	Operator BAC (gm/ml)			Total with known BAC	
	Below 0.05 %	0.050 to 0.149 %	0.150 or more %		
Single vehicle crashes					
Below 25	%	59	17	22	100
25 - 39	%	48	14	38	100
40 - 59	%	58	10	32	100
60 or more	%	89	4	7	100
All persons	%	57	14	29	100
Multiple vehicle crashes					
Below 25	%	88	4	8	100
25 - 39	%	82	7	11	100
40 - 59	%	94	3	3	100
60 or more	%	98	1	1	100
All persons	%	89	4	7	100

Territory. Programs are also being developed for training alcohol servers in hotels and clubs in responsible serving practices and “server intervention” for customers who appear at risk of drinking and driving.

1. National Road Safety Action Plan 1996, published by Federal Office of Road Safety on behalf of the National Road Safety Implementation Task Force representing road safety stakeholders in government, police and other organisations.

Table 10 Labour force profile of sober and intoxicated drivers and riders involved in fatal non-pedestrian crashes, 1992

Labour force activity	Operator BAC (gm/ml)		
	Below 0.05 %	0.050 to 0.149 %	0.150 or more %
Unemployed	5	21	20
Tradesperson or labourer	19	30	42
Skilled machine operator or driver	22	11	9
Professional, manager, para-professional	11	9	10
Clerical, sales, service	11	7	2
Other employed	4	10	9
Student	8	7	2
Retired	14	4	5
Keeping house	4	1	1
All drivers and riders	100	100	100

Table 11 Sobriety of drivers and riders involved in fatal non-pedestrian crashes by labour force activity, 1992

Labour force activity	Operator BAC (gm/ml)			Total with known BAC	
	Below 0.05 %	0.050 to 0.149 %	0.150 or more %		
Unemployed	%	48	16	36	100
Tradesperson or labourer	%	64	8	28	100
Skilled machine operator or driver	%	89	4	7	100
Professional, manager, para-professional	%	81	5	14	100
Clerical, sales, service	%	92	5	3	100
Other employed	%	62	12	26	100
Student	%	90	6	4	100
Retired	%	92	2	6	100
Keeping house	%	94	3	3	100
All drivers and riders	%	78	6	15	100