

# 8 Drugs and health

## Mortality and morbidity

### Attributable cause

Most ill-health, disease and death results from a cluster of causes, so it is difficult to identify the burden of any one single risk factor (such as tobacco smoking or obesity), particularly in an individual person. However, epidemiological techniques enable the estimation of the population burden of a specific risk factor within a particular disease or condition. One such technique applied in the area of drug use is the aetiological (causal) fraction, which is based on the analyses of the rates of disease or death related to various levels of drug use (exposure), and produces a 'fraction' indicating the degree to which drug use is considered a contributory cause of the condition in question. Aetiological fractions can be determined directly or indirectly. For some conditions, the aetiological fraction is 1, that is, the cause of death (or disease) is aetiological defined. An example is death due to opiate poisoning, for which the aetiological fraction due to illicit drug use is 1.00. Compare this with stomach cancer: the aetiological fraction for this condition due to cigarette smoking is 0.14 for males and 0.11 for females.

Detailed estimates of the population attributable burden of drug use in Australia were published by Holman & Armstrong in 1990, and the methodology was updated by English & Holman in 1995. These aetiological fractions can be applied to more recent morbidity and mortality data to provide up-to-date estimates of the impact of drug use on the health of Australians. The data presented in this section are derived in this way.

### Deaths attributed to drug use

Almost 23,000 Australian deaths in 1997 were attributable to drug use (Table 8.1), comprising 18,224 deaths that were tobacco-related, 3,668 deaths that were alcohol-related and 832 deaths related to illicit drug use. Across all age groups except 15–34 years, the majority of deaths were attributable to tobacco, whereas for this age group only 9% were due to tobacco, with 50% due to alcohol misuse and 42% due to illicit drug use.

The main causes of death for which alcohol is implicated were alcoholism (27% of alcohol-related deaths) and road injuries (12%). Within tobacco-related deaths, the main causes were cancers (38%), respiratory disease (23%) and ischaemic heart disease (21%). The main causes of death for which illicit drug use was a factor were opiate dependence (66%), followed by suicide (16%).

**Table 8.1: Deaths attributable to drug use, by drug involved and cause of death, Australia, 1997**

Drug and cause of death	Age group				Total
	0–14	15–34	35–64	65+	
<b>Tobacco</b>					
Cancer	—	18	2,020	4,821	6,860
Ischaemic heart disease	—	29	1,534	2,343	3,907
Chronic obstructive pulmonary disease	—	2	431	3,697	4,130
Other	118	61	591	2,558	3,328
<i>Total tobacco</i>	<i>118</i>	<i>110</i>	<i>4,577</i>	<i>13,419</i>	<i>18,224</i>
<b>Alcohol</b>					
Cancer	—	7	146	139	292
Alcoholism and alcoholic liver cirrhosis	—	40	652	312	1,004
Road injuries	29	295	95	30	450
Other	9	289	539	1,085	1,922
<i>Total alcohol</i>	<i>38</i>	<i>631</i>	<i>1,432</i>	<i>1,567</i>	<i>3,668</i>
<b>Illicits</b>					
<b>Drug dependence</b>					
Cannabis	—	1	—	—	1
Opiates	—	367	182	1	550
Cocaine	—	—	—	—	—
Amphetamine	—	1	—	—	1
Hallucinogens	—	—	—	—	—
<b>Drug abuse</b>					
Cannabis	—	1	—	—	1
Opiates	—	—	1	—	1
Cocaine	—	—	—	—	—
Amphetamine	—	—	—	—	—
Hallucinogens	—	—	—	—	—
<b>Poisoning</b>					
Opiates	—	45	38	2	85
Psychostimulants	—	3	—	—	3
Hallucinogens	—	1	—	—	1
Suicide	—	105	25	—	130
Ante-partum haemorrhage	—	—	—	—	—
Low birthweight	3	—	—	—	3
Hepatitis B	—	1	8	3	12
Hepatitis non-A, non-B	—	—	13	21	34
AIDS	—	2	3	—	5
Infective endocarditis	—	—	—	—	1
Drug psychoses	—	—	—	—	—
Maternal drug dependence	—	—	—	—	—
Newborn toxicity	4	—	—	—	4
<i>Total illicit drugs</i>	<i>7</i>	<i>528</i>	<i>269</i>	<i>27</i>	<i>832</i>
<b>Total drugs</b>	<b>164</b>	<b>1,269</b>	<b>6,278</b>	<b>15,013</b>	<b>22,724</b>

Source: Australian Institute of Health and Welfare, unpublished data.

### Hospital episodes attributed to drug use

In 1996–97, almost 257,000 hospital episodes were attributable to drug use (Table 8.2). Of these, 58% were due to tobacco smoking, 37% for alcohol-related illnesses, and 4% due to illicit drug use. Like mortality, the greatest morbidity burden was caused by tobacco in all age groups except the 15–34 years group, where 62% of the hospital episodes were attributable to alcohol use.

**Table 8.2: Hospital episodes attributable to drug use, by drug involved and principal diagnosis, Australia, 1996–97**

Drug and principal diagnosis	Age group				Total
	0–14	15–34	35–64	65+	
<b>Tobacco</b>					
Cancer	—	1,187	9,685	14,800	25,673
Ischaemic heart disease	—	393	26,931	10,532	37,856
Chronic obstructive pulmonary disease	—	376	6,252	21,067	27,694
Other	4,719	8,745	22,011	23,136	58,611
<i>Total tobacco</i>	<i>4,719</i>	<i>10,702</i>	<i>64,879</i>	<i>69,535</i>	<i>149,834</i>
<b>Alcohol</b>					
Cancer	—	41	952	527	1,520
Alcoholism and alcoholic liver cirrhosis	250	5,452	14,704	2,850	23,256
Road injuries	815	5,609	1,734	341	8,499
Other	322	17,335	19,077	25,908	62,642
<i>Total alcohol</i>	<i>1,386</i>	<i>28,437</i>	<i>36,468</i>	<i>29,626</i>	<i>95,917</i>
<b>Illicits</b>					
<b>Drug dependence</b>					
Cannabis	—	316	29	—	345
Opiates	—	1,887	936	12	2,835
Cocaine	—	23	6	—	29
Amphetamine	—	127	17	1	145
Hallucinogens	—	7	—	—	7
<b>Drug abuse</b>					
Cannabis	—	121	17	1	139
Opiates	—	175	58	—	233
Cocaine	—	8	—	—	8
Amphetamine	—	85	11	—	96
Hallucinogens	—	33	5	—	38
<b>Poisoning</b>					
Opiates	—	825	254	7	1,086
Psychostimulants	—	266	57	—	323
Hallucinogens	—	140	34	2	176
Other psychotropic drug	—	86	104	31	221
Anabolic steroid	—	—	—	—	—
Ante-partum haemorrhage	—	294	18	—	312
Low birthweight	386	59	4	—	448
Hepatitis B	—	68	68	7	143
Hepatitis non-A, non-B	—	243	515	39	797
AIDS	—	7	3	2	11
Infective endocarditis	—	20	7	—	27
Drug psychoses	—	1,845	577	388	2,810
Maternal drug dependence	—	405	33	—	438
Newborn toxicity	573	—	—	—	573
<i>Total illicit drugs</i>	<i>959</i>	<i>7,038</i>	<i>2,752</i>	<i>491</i>	<i>11,240</i>
<b>Total drugs</b>	<b>7,064</b>	<b>46,177</b>	<b>104,099</b>	<b>99,651</b>	<b>256,991</b>

Source: Australian Institute of Health and Welfare, unpublished data.

The main alcohol-related illness group requiring hospitalisation was alcoholism and alcoholic liver cirrhosis (24%). Of tobacco-related illnesses, hospitalisation occurred mainly for ischaemic heart disease (25%), respiratory disease (18%) and cancer (17%). The most common reason for hospital care attributable to illicit drug use was opiate dependence and drug psychoses (both 25%).

## Trends in attributable mortality

Total drug-related deaths have declined modestly over recent years (Table 8.3), at an average rate of 3% per year from 1990 to 1997. An exception to this overall trend is an 8% per year increase in the death rate for illicit drug-caused deaths, going from 54 deaths per million population in 1990 to 92 deaths per million in 1997. Substantial declines are noted for deaths from ischaemic heart disease related to tobacco use (average 5% per year), and for alcohol-related road injuries (reducing at 6% per year).

**Table 8.3: Deaths attributable to drug use, by drug involved and cause of death, Australia, 1990 to 1997**

Drug and cause of death	Calendar year							
	1990	1991	1992	1993	1994	1995	1996	1997
	(deaths per million population)							
Tobacco								
Cancer	816	819	811	792	803	785	777	723
Ischaemic heart disease	596	554	549	505	486	462	442	405
Chronic obstructive pulmonary	544	518	571	509	517	478	506	433
Other	444	409	407	367	370	344	333	341
<i>Total tobacco</i>	<i>2,399</i>	<i>2,300</i>	<i>2,338</i>	<i>2,172</i>	<i>2,177</i>	<i>2,067</i>	<i>2,058</i>	<i>1,903</i>
Alcohol								
Cancer	31	31	31	31	30	30	30	30
Alcoholism & alcoholic liver cirrhosis	116	109	112	98	107	108	103	102
Road injuries	75	67	60	58	56	58	55	50
Other	238	225	216	197	206	196	196	187
<i>Total alcohol</i>	<i>460</i>	<i>431</i>	<i>419</i>	<i>384</i>	<i>399</i>	<i>391</i>	<i>385</i>	<i>369</i>
Illicit drugs								
Directly attributable to opiates	38	29	39	43	49	67	63	70
Directly attributable to other specific illicit drugs	1	—	—	1	—	1	1	1
Attributable to unclassifiable injecting	2	3	3	6	5	6	5	5
Other related causes	13	14	13	12	13	14	14	16
<i>Total illicit drugs</i>	<i>54</i>	<i>46</i>	<i>56</i>	<i>62</i>	<i>66</i>	<i>87</i>	<i>83</i>	<i>92</i>
<b>Total drugs</b>	<b>2,913</b>	<b>2,778</b>	<b>2,813</b>	<b>2,619</b>	<b>2,643</b>	<b>2,546</b>	<b>2,525</b>	<b>2,364</b>

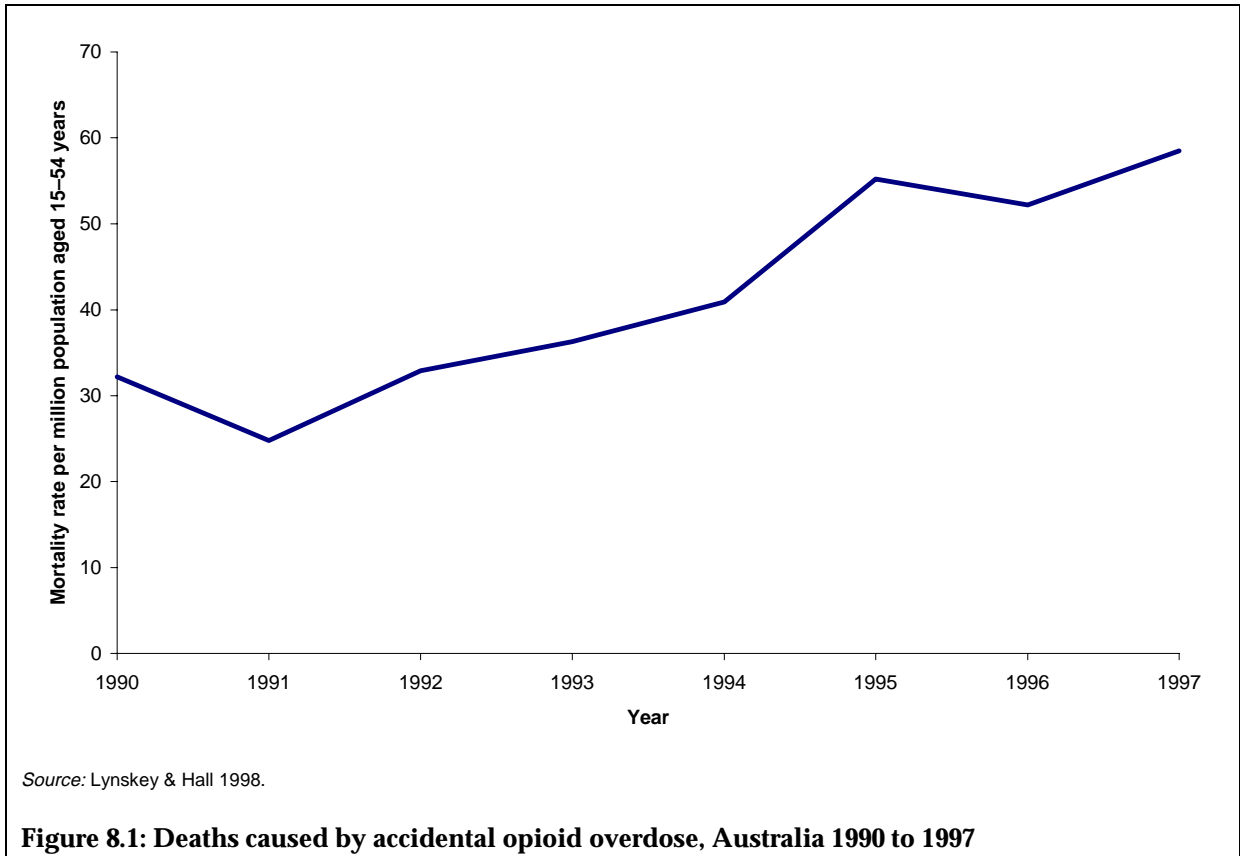
Note: Data age and sex adjusted to the 1991 total Australian population.

Source: Australian Institute of Health and Welfare, unpublished data.

## Deaths caused by opioid overdose

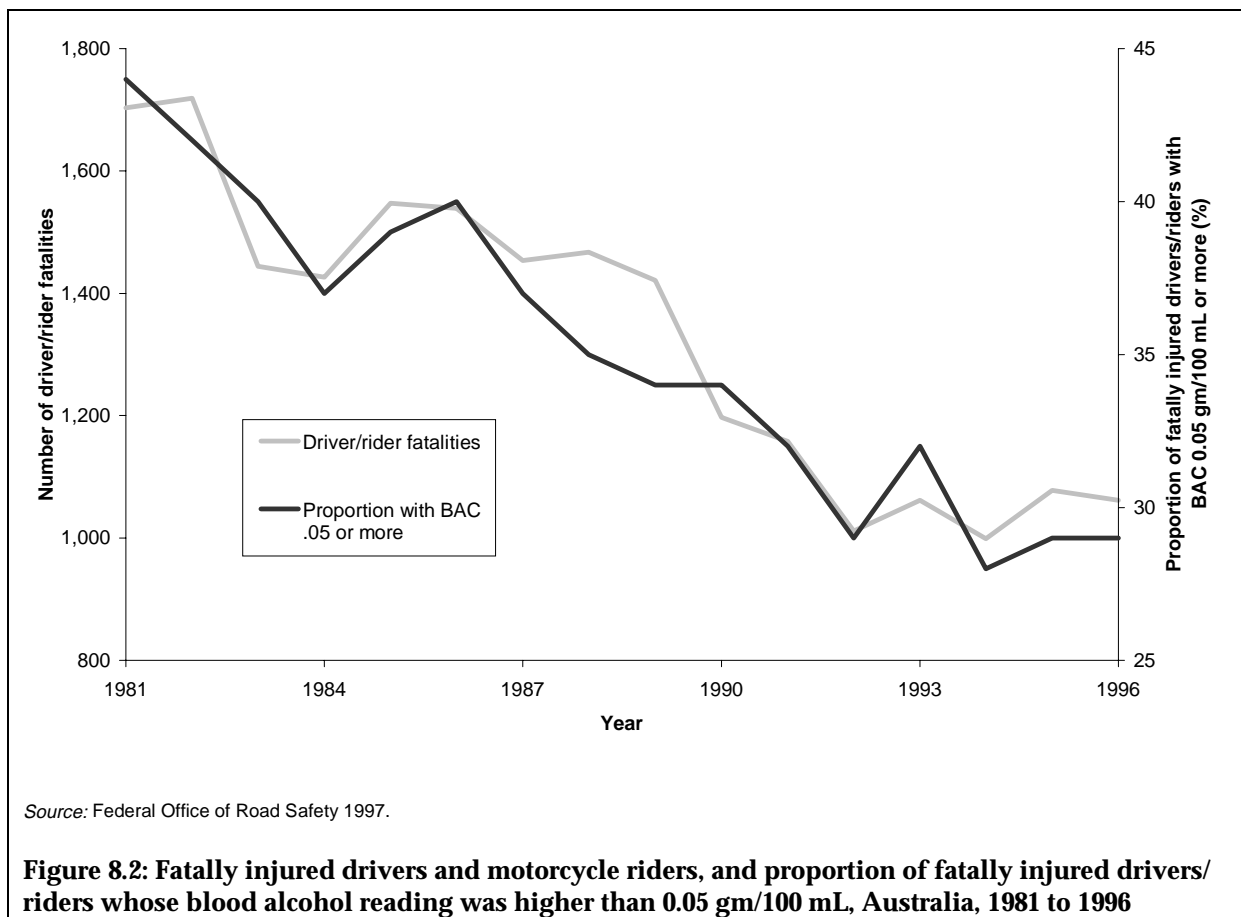
As noted above, some causes of death can be directly attributed to drug use and have an aetiological fraction of 1.0. One such cause is opioid overdose (the opioid class of substances includes heroin, morphine, codeine and synthetics such as pethidine and methadone).

The death rate from accidental opioid overdose among 15–54-year-olds has increased considerably over the past two decades, with recent figures showing a 71% increase from 1990 to 1995 and then a small reduction in 1996 to 52.2 deaths per million population. This reduction has been reversed in 1997 with the death rate rising to 58.5 deaths per million population aged 15–54 years (Figure 8.1).



### Fatal road accidents related to alcohol use

In 1996 there were 1,062 fatal road accidents involving drivers and motorcycle riders. Of those that were tested for blood alcohol concentration (BAC)—around 90%—29% had a blood alcohol reading of 0.05 gm/100 mL or higher (Figure 8.2). That is, around one in three fatally injured drivers or riders (around 310 in 1996) had a high blood alcohol reading.



The number of fatally injured drivers and riders has decreased 38% from 1981, when there were 1,703 fatalities for this road user group. There was a comparable reduction in the proportion of fatally injured drivers/riders with high BAC between 1981 and 1996 (34%), suggesting that this was a factor in the reduced road toll. Other contributing factors are likely to be reduced speed and better road conditions compared with the early 1980s.

## Injecting drug use and communicable diseases

### Injecting drug use and HIV/AIDS

Approximately 8% of new AIDS diagnoses in Australia in 1997 were for persons who had a history of injecting drug use (Table 8.4). Half of these also reported homosexual contact. The proportion of AIDS cases among injecting drug users has fluctuated between 5% and 10% over the period 1990 to 1997.

In 1997, persons with a history of injecting drug use comprised 12% of all deaths following AIDS (again, around half of these also had homosexual contact). This proportion has been increasing over the period 1990–1997, up from 5% in 1990 (Table 8.5).

**Table 8.4: AIDS cases, by exposure category, Australia, 1990 to 1997**

Exposure category	Year of AIDS diagnosis							
	1990	1991	1992	1993	1994	1995	1996	1997
	(number)							
Male homosexual contact	573	649	625	655	762	630	522	294
Male homosexual and injecting drug use	18	30	37	56	45	40	38	17
Injecting drug use <sup>(a)</sup>	15	30	16	25	28	28	26	18
Heterosexual contact	19	38	50	51	53	48	54	67
Haemophilia/coagulation disorder	10	10	13	11	10	15	7	6
Receipt of blood components/tissue	14	14	14	8	8	5	7	1
Health care setting	—	—	1	1	1	1	—	—
Other/undetermined	20	28	28	26	37	38	35	29
<b>Total</b>	<b>671</b>	<b>802</b>	<b>786</b>	<b>838</b>	<b>948</b>	<b>808</b>	<b>690</b>	<b>432</b>
	(per cent)							
Male homosexual contact	85	81	80	78	80	78	76	68
Male homosexual and injecting drug use	3	4	5	7	5	5	6	4
Injecting drug use <sup>(a)</sup>	2	4	2	3	3	3	4	4
Heterosexual contact	3	5	6	6	6	6	8	16
Haemophilia/coagulation disorder	1	1	2	1	1	2	1	1
Receipt of blood components/tissue	2	2	2	1	1	1	1	—
Health care setting	—	—	—	—	—	—	—	—
Other/undetermined	3	3	4	3	4	5	5	7
<b>Total</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>

(a) Excludes males who also reported a history of homosexual contact.

Source: National Centre in HIV Epidemiology and Clinical Research 1998.

**Table 8.5: Deaths following AIDS, by exposure category, Australia, 1990 to 1997**

Exposure category	Year of death following AIDS							
	1990	1991	1992	1993	1994	1995	1996	1997
	(number)							
Male homosexual contact	449	500	497	568	571	529	435	234
Male homosexual and injecting drug use	15	21	18	36	42	35	32	23
Injecting drug use <sup>(a)</sup>	12	11	17	21	14	25	19	14
Heterosexual contact	4	14	27	32	46	44	40	19
Haemophilia/coagulation disorder	10	9	5	5	15	10	12	6
Receipt of blood components/tissue	10	12	10	9	9	8	3	1
Health care setting	—	—	—	—	1	2	—	—
Other/undetermined	14	16	22	17	29	26	21	12
<b>Total</b>	<b>514</b>	<b>586</b>	<b>598</b>	<b>691</b>	<b>732</b>	<b>681</b>	<b>563</b>	<b>310</b>
	(per cent)							
Male homosexual contact	87	85	83	82	78	78	77	75
Male homosexual and injecting drug use	3	4	3	5	6	5	6	7
Injecting drug use <sup>(a)</sup>	2	2	3	3	2	4	3	5
Heterosexual contact	1	2	5	5	6	6	7	6
Haemophilia/coagulation disorder	2	2	1	1	2	1	2	2
Receipt of blood components/tissue	2	2	2	1	1	1	1	—
Health care setting	—	—	—	—	—	—	—	—
Other/undetermined	3	3	4	2	4	4	4	4
<b>Total</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>

(a) Excludes males who also reported a history of homosexual contact.

Source: National Centre in HIV Epidemiology and Clinical Research 1998.

## Injecting drug use and Hepatitis C

Hepatitis C (HCV) appears to be highly prevalent (50% in 1997) among injecting drug users, based on those users that attend needle and syringe exchange centres (NCHECR 1998). This rate is slightly lower than the 60% observed in the previous two years.

HCV prevalence was strongly related to duration of injecting, with rates of less than 20% in people who had injected for less than three years.

## Perceptions of the affects of drugs on health

The 1998 NDSHS asked respondents to identify the drug they thought directly or indirectly caused the most deaths in Australia. Tobacco was correctly identified by the largest portion of males (42%) and females (35%), and this pattern held for all age groups (Table 8.6). The second most cited drug for both males and females was alcohol, followed by narcotics (not otherwise defined to respondents). Around 22% of respondents thought narcotics were responsible for the most deaths, quite at odds with the estimated 3% of total drug-related deaths due to illicit drug use.

**Table 8.6: Drugs thought to cause the most deaths, by age and sex, Australia, 1998**

Substance	Age group						Total
	14–19	20–29	30–39	40–49	50–59	60+	
(per cent)							
<b>Males</b>							
Narcotics	21	18	15	17	20	27	20
Alcohol	29	28	29	29	26	24	27
Prescribed drugs	—	1	2	1	1	2	1
Amphetamines	10	3	3	2	3	3	4
Tobacco	31	47	48	47	41	35	42
Cocaine	6	3	3	3	8	7	5
Marijuana/cannabis	3	1	1	1	2	3	1
<b>Females</b>							
Narcotics	27	24	25	19	24	25	24
Alcohol	23	27	27	30	30	25	27
Prescribed drugs	1	2	3	2	5	3	3
Amphetamines	9	7	4	3	1	4	4
Tobacco	32	35	37	40	33	31	35
Cocaine	5	5	3	3	4	8	5
Marijuana/cannabis	3	1	1	3	3	4	2

Source: National Drug Strategy Household Survey 1998.