



Overview of Trends in Opioid Related Mortality Western Australia: 1995 - 2007 & Australia: 1988 - 2005

Introduction

This publication contains time series data where the underlying cause of death was related to the use of heroin and other types of opioids.

The first section examines trends in accidental heroin related deaths (HRDs), as well as deaths due to other opioids, that occurred in Western Australia (WA) between 1995 and 2007. This period consists of confirmed accidental HRDs from 1995 to 2004 from completed investigations by a Coroner and preliminary data from 2005 to 2007 from police who have investigated any suspected HRDs.

The second section is concerned with national trends in accidental opioid deaths in Australia from 1988 to 2005, which is also broken down by jurisdiction. In this section HRDs are not separately counted, as opioid deaths refer to both illicit and licit opioids such as heroin, morphine, methadone, oxycodone, dextromoramide, codeine, propoxyphene, pethidine or buprenorphine, involving persons aged between 15 to 54.

Western Australia: 1995 - 2007

Confirmed HRDs

Data for the period 1995 to 2004 shows the number of quarterly confirmed HRDs steadily increased, from 12 in the March quarter 1995 to a peak of 27 in the June quarter 2000 and then declined to nil cases in the September quarter 2003.

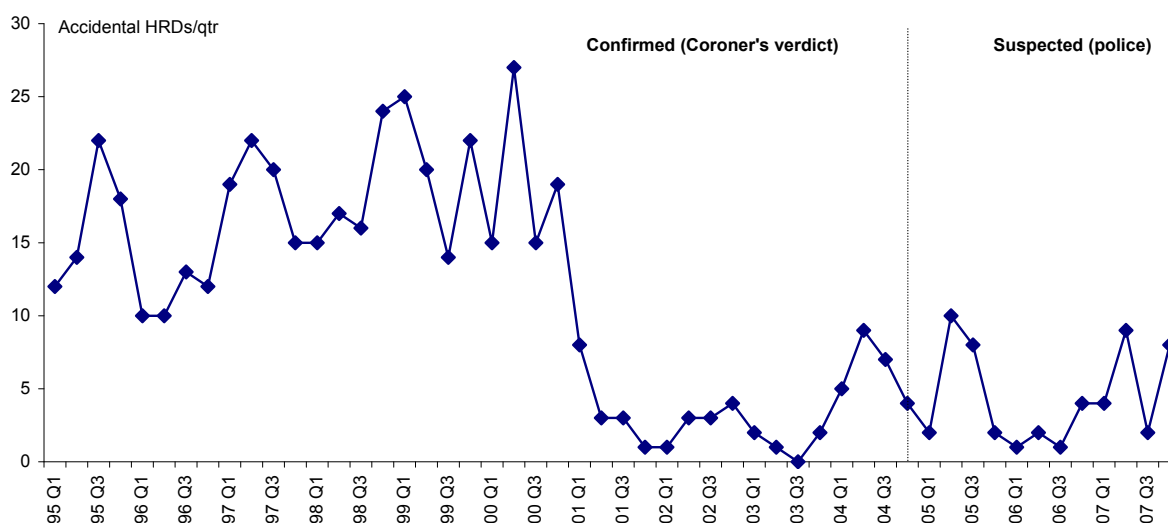
It can be seen that since late 2003 there was a modest increase in confirmed HRDs up to the end of 2004, with 4 cases in the December quarter 2004 (See Figure 1.)

Suspected HRDs

Data covering the period from 2005 to 2007, indicates there were two modest peaks in suspected HRDs in WA - 10 cases in the June quarter 2005 and 9 cases in the June quarter 2007.

Written by Greg Swensen (February 2008)

Figure 1
Quarterly accidental heroin related deaths, WA, 1995 - 2007



Source: Coroner's Database and Western Australia Police.

Other opioid deaths

Confirmed deaths due to opioids other than heroin as the underlying cause of death is available for the period 1995 to 2004. Data from 2005 to 2007 is from preliminary investigations by the police.

From 1995 to 2000 there were relatively few deaths involving either licit opioids (ie where the person was under medical care for health problems) or illicit opioids (ie not obtained under prescription and where there was evidence of self administration), as the majority of deaths were heroin related.

Although there was a marked decline in HRDs after 2000 in WA, there was no accompanying decrease in deaths due to other opioids. The number of deaths involving other opioids exceeded the number of accidental HRDs between 2001 and 2003 (see Table 1).

In 2004, the last year for which there is confirmed data, there was the same number of accidental HRDs as deaths due to all other types of opioids combined, with 25 cases recorded for both groups (Table 1).

Australia: 1988 - 2005

Data on accidental opioid overdose deaths in each Australian jurisdiction from 1988 have been derived from the most recent edition of a report by the National Drug and Alcohol Research Centre (NDARC) concerning opioid related deaths.

In 2005 there was a total of 374 opioid related deaths in Australia involving persons aged 15 to 54 years, of which:

- 133 (35.6%) were in New South Wales (NSW);
- 104 (27.8%) were in Victoria (Vic);
- 42 (11.2%) were in Queensland (Qld);
- 37 (9.9%) were in South Australia (SA);
- 36 (9.6%) were in Western Australia (WA); and
- 14 (3.7%) were in Tasmania (Tas).

A breakdown of the 8 (2.1%) remaining accidental opioid deaths by jurisdiction for the Northern Territory (NT) and the Australian Capital Territory (ACT) is not available. See Table A-1.

In 2005 the rate of accidental opioid overdose deaths in Australia was 32.5 per million persons aged 15 to 54 years, a decrease of just over two thirds from the national peak rate of 101.9 in 1999 (Table A-2).

In 2005 rates above the national average (32.5) were recorded for Tas (53.7), SA (43.7), Vic (36.5) and NSW (35.0). Rates below the national average were recorded for WA (31.0) and Qld (18.7).

From 1988 to 2000 mortality rates followed a similar pattern across the four age groups. However, for the period 2001 to 2005 mortality in the two younger age groups (15 to 24 and 25 to 34 years) was stable or declining, whereas mortality rates in the older age groups (35 to 44 and 45 to 54 years) was stable or increasing. See Figure 2 (page 3).

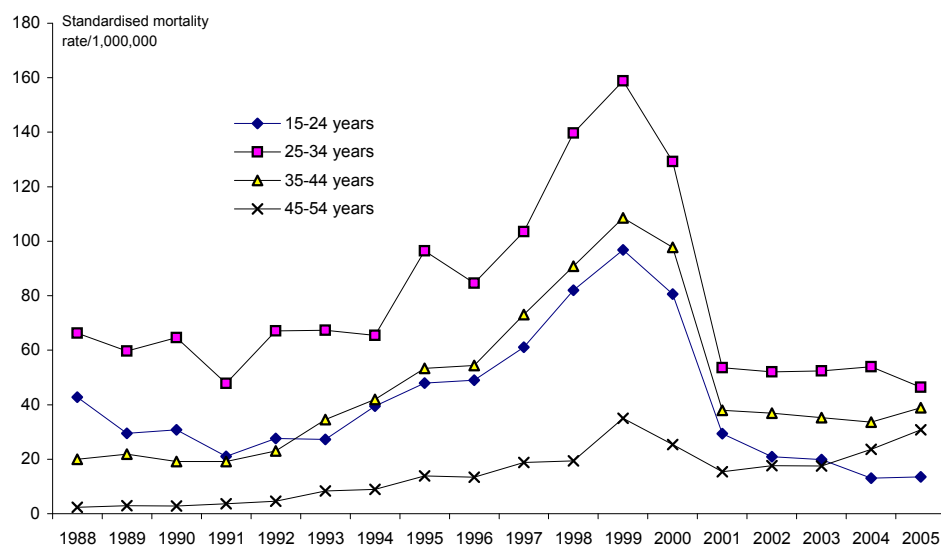
There has been some change in the mortality rate of opioid deaths between a number of jurisdictions, as indicated in Figures A-1 and Figure A-2, such as the ACT, where the rate increased after 2000 whereas it declined in both NSW and Victoria.

Table 1
Confirmed & suspected opioid drug related deaths, WA, 1995 - 2007

	Accidental heroin related deaths		Illicit opioids (excl. accid HRDs)	Licit opioids	Total confirmed
	Suspected	Confirmed	Confirmed	Confirmed	
1995	na	66	6	10	82
1996	na	45	7	12	64
1997	83	76	11	8	95
1998	78	72	27	11	110
1999	89	81	18	5	104
2000	82	76	14	10	100
2001	36	15	13	34	62
2002	11	12	6	12	30
2003	8	5	5	9	19
2004	27	25	8	17	50
2005	22	na	na	na	na
2006	8	na	na	na	na
2007	23	na	na	na	na

Note: na = not available.

Figure 2
Mortality rate by age group of accidental opioid deaths (rate per million)
Australia, 1988 - 2005



To view or download detailed data tables and figures and a description of the methodology associated with this report go to the Drug and Alcohol Office website here.

This publication is available online at
<http://www.dao.health.wa.gov.au>

Appendices: Data Tables & Figures

Table A-1

**Number of accidental opioid overdose deaths of persons aged 15-54 years by jurisdiction
1988 - 2005**

	NSW	VIC	QLD	SA	WA	TAS	NT	ACT	Unknown	Aust
1988	204	99	16	12	18	-	-	2	-	351
1989	158	99	19	8	18	1	2	2	-	307
1990	196	79	8	19	14	5	-	-	-	321
1991	146	64	9	13	13	3	-	2	-	250
1992	182	79	18	30	22	-	1	4	-	336
1993	188	86	23	41	24	5	2	5	-	374
1994	209	97	37	32	38	4	5	3	-	425
1995	273	140	42	38	70	6	-	13	-	582
1996	260	145	32	32	64	5	2	17	-	557
1997	333	203	36	52	76	2	2	9	-	713
1998	452	243	64	53	78	10	13	14	-	927
1999	481	376	79	64	92	5	8	11	-	1,116
2000	349	323	124	50	72	8	2	10	-	938
2001	177	73	58	18	35	8	5	12	-	386
2002	158	93	40	21	28	9	6	8	1	364
2003	143	129	32	14	16	4	2	17	-	357
2004	144	126	34	25	19	6	1	2	-	357
2005	133	104	42	37	36	14	na	na	-	374

Source: Degenhardt L & Roxburgh A. *Accidental drug-induced deaths due to opioids in Australia, 2005*. Sydney, National Drug and Alcohol Research Centre, 2007.

Figure A-1

**Mortality rate opioid deaths - New South Wales, Victoria & ACT
persons aged 15-54 (rate per million), 1988 - 2005**

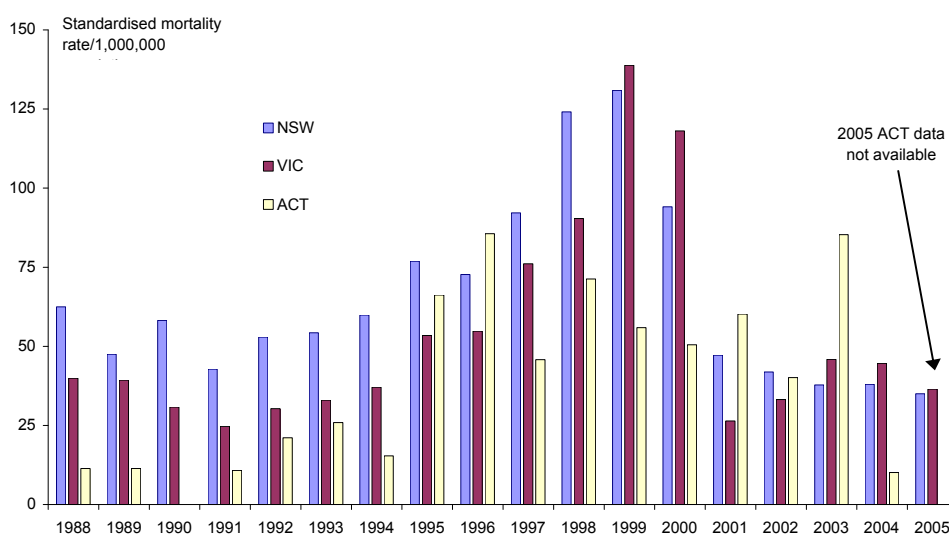


Table A-2

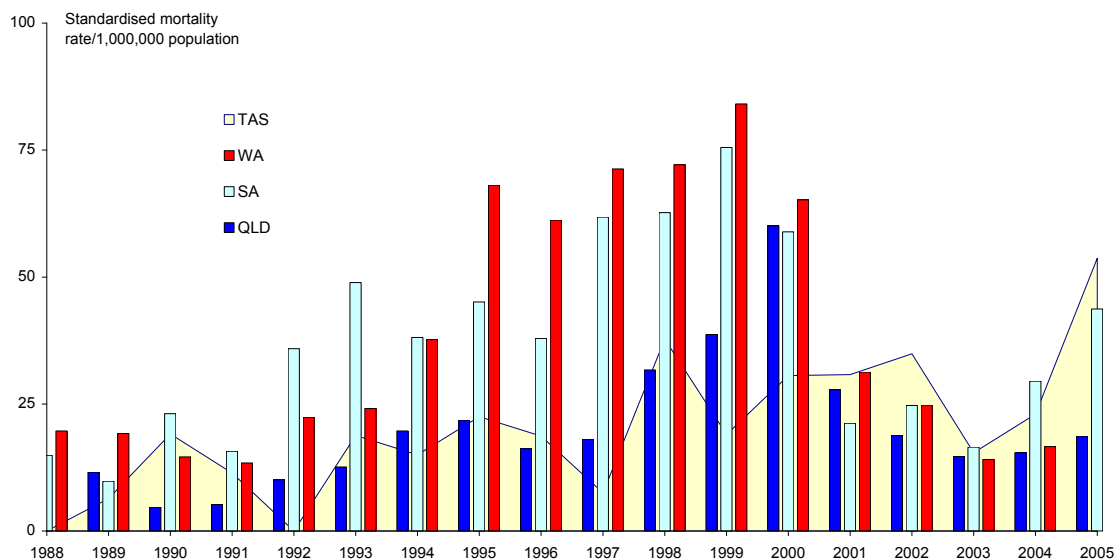
Rate per million population of accidental opioid overdose deaths of persons aged 15-54 years by jurisdiction, 1988 - 2005

	NSW	VIC	QLD	SA	WA	TAS	NT	ACT	Aust
1988	62.5	39.9	10.1	14.9	19.7	0.0	0.0	11.4	36.6
1989	47.5	39.3	11.6	9.8	19.2	6.4	19.2	11.4	31.4
1990	58.2	30.8	4.7	23.1	14.6	19.1	0.0	0.0	32.3
1991	42.8	24.7	5.2	15.7	13.4	11.4	0.0	10.8	24.8
1992	52.9	30.3	10.1	35.9	22.4	0.0	9.2	21.1	32.9
1993	54.3	33.0	12.6	48.9	24.1	18.8	18.3	25.9	36.3
1994	59.9	37.1	19.7	38.1	37.7	15.0	45.5	15.4	40.9
1995	76.9	53.4	21.8	45.1	68.1	22.5	0.0	66.2	55.3
1996	72.7	54.8	16.2	37.9	61.2	18.7	17.7	85.6	52.2
1997	92.2	76.1	18.1	61.8	71.3	7.5	16.5	45.8	66.3
1998	124.1	90.4	31.7	62.7	72.1	37.8	106.1	71.3	85.4
1999	130.9	138.8	38.7	75.5	84.1	19.0	64.4	55.9	101.9
2000	94.1	118.1	60.1	58.9	65.2	30.6	15.9	50.5	84.9
2001	47.2	26.4	27.8	21.2	31.3	30.8	39.6	60.2	34.6
2002	41.9	33.2	18.8	24.7	24.8	34.9	47.8	40.1	32.3
2003	37.8	45.9	14.7	16.5	14.1	15.4	15.9	85.3	31.5
2004	38.0	44.6	15.4	29.5	16.6	23.0	8.0	10.1	31.3
2005	35.0	36.5	18.7	43.7	31.0	53.7	na	na	32.5

Source: Degenhardt L & Roxburgh A. *Accidental drug-induced deaths due to opioids in Australia, 2005*. Sydney, National Drug and Alcohol Research Centre, 2007.

Figure A-2

Mortality rate opioid deaths - South Australia, Queensland, Western Australia & Tasmania persons aged 15-54 (rate per million), 1988 - 2005



Methodology

A 'suspected' HRD is a case based on information available to the WA police at the initial stage of investigation. A case is subject to confirmation following consideration by formal coronial inquiry or an inquest.

A HRD investigation involves a number of stages: (1) preliminary investigations by police, (2) analysis of toxicological and other forensic data, (3) a formal coronial inquiry or inquest, (4) the release by a Coroner of the final cause of death and (5) assignment of a cause of death code by the Australian Bureau of Statistics (ABS).

Due to late registrations from remote regions the number of 'suspected' HRDs recorded by the police for a particular period may change. Also, some cases initially believed to be a HRD may be removed from the list of suspected overdoses following receipt of more comprehensive information by the police.

A 'confirmed' HRD is a case where after an inquiry (or inquest) the Coroner has determined that death was caused accidentally by heroin alone, or by heroin in combination with other drugs. In this publication this excludes HRDs that were caused intentionally (ie suicide or homicide).

The ABS has responsibility for compiling comprehensive statistical summaries for all causes of death for each Australian jurisdiction. This process uses an internationally standardised system of cause of death codes developed under the auspices of the World Health Organisation.

The present set of codes is the *Tenth Revision of the International Classification of Diseases*, referred to as ICD-10. ICD-10 has been used to classify the underlying cause of death from 1999. (ICD-9 was used to code all causes of death in Australia from 1978 to 1998.)

The ICD-10 system uses different codes to identify deaths caused by specific pharmacological groups of drugs, including opioid type (F11.-), stimulant type (F15.-), cocaine type (F14.-) and hallucinogens (F16.-) etc. A fourth character sub division is used to determine the level of drug use, harmfulness, dependence and other related disorders.

The definition of an 'accidental death due to opioids' according to the ICD-10 system has been slightly modified to include those deaths where multiple drugs were the underlying cause and opioids were one of the drugs contributing to this coding. This revision was undertaken for the 2002 analysis and has resulted in adjustments to totals from 1988 up to the present.

The national opioid data refers to accidental deaths in which opioids were determined to be the underlying cause of death. These data refer to deaths among those aged 15 to 54 years attributed to the following ICD-10 codes:

- X42 and X44 - accidental deaths due to poisoning by opioids; and
- F11 and F19 - accidental deaths due to opioid use (usually opioid dependence).

The term 'opioid' as used by the ABS refers to both natural derivatives of the opium poppy such as heroin and related synthetic derivatives from other sources such as, methadone, dextromoramide and pethidine.

Because heroin (diacetylmorphine) is not readily identified by a specific ICD code, additional detail has been obtained in WA through an examination of case records of all coronial cases where heroin or its metabolites (eg monoacetylmorphine or morphine) were identified through toxicological analysis.

This means there are likely to be differences between counts based on ICD cause of death codes which identify **opioid** deaths and data obtained from the detailed examination of WA coronial records which can specifically identify **heroin** related deaths.

There are also other important differences in interpretation of the cause of a HRD by the coding process used by the ABS. For instance, a Coroner distinguishes whether a HRD was accidentally caused, caused intentionally (ie suicide) or undetermined whether accidentally or intentionally caused. Additional demographic and toxicological data in relation to all confirmed HRDs is captured in the Coronial Database, which has been maintained since 1995, to identify other factors that can be associated with HRDs.

Information about the data concepts adopted by the ABS, in accordance with established principles determined by the International Classification of Diseases (ICD) system can be found in the ABS report, *Drug-induced deaths - a guide to ABS causes of death data*, published in 2002 (Cat. 4809.0).

A description of the methodological procedures in relation to national data can be found in the following reports published by the National Drug & Alcohol Research Centre - Degenhardt, L & Roxburgh A. *Accidental drug induced deaths due to opioids in Australia, 2005*.

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