

# Deaths related to fentanyl misuse

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Deaths related to fentanyl misuse showed the following characteristics:

- most involved males
- three-quarters were unintentional
- the frequency per year is increasing \*
- the most common method of administration involves extraction and injection from fentanyl patches
- an average of 16 deaths per year between 2008 and 2011 (closed with coroner)

Concerns surrounding the misuse of products containing fentanyl has been documented in recent years by various organisations world-wide.<sup>†</sup>

Between 1st July 2000<sup>‡</sup> and 24<sup>th</sup> July 2012, there were 77 deaths reported to an Australian coroner (as identified on the NCIS database) associated with fentanyl misuse where the coronial investigation was completed.

Additional NCIS searches indicate that there are at least an additional 32 deaths during this time period which could be associated with fentanyl misuse which are still under investigation with the coroner.

Major findings in relation to deaths associated with ***fentanyl misuse*** are:

- The majority were determined to be unintentional (72.7%), whilst one-fifth were due to an act of intentional self-harm (20.8%).
- The highest proportion involved deceased aged between 30-39 years (39.0%; Table 2).
- Nearly three-quarters involved males (74.0%), and the majority of deaths overall occurred in a home environment (90.9%; Table 6).
- The frequency of deaths has increased from 2010 onwards (Table 4).\*
- The most common method of administration involved extraction and injection of contents from fentanyl patches (approximately half of all cases; Table 5).

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\* When interpreting the frequency increase in recent years, factors such as the degree of use / availability / prescription of fentanyl in the community should be taken into account

<sup>†</sup> Refer to section entitled "Additional information"

<sup>‡</sup> 1<sup>st</sup> January 2001 for Queensland data

**Table 1: National deaths associated with fentanyl misuse (July 2000 – July 2012), by Intent (n=77)**

<b>Intent</b>	<b>Total</b>	<b>Percentage (%)</b>
Unintentional	56	72.7
Intentional Self-Harm	16	20.8
Undetermined / Unlikely to be known / Other	5	6.5
<b>TOTAL</b>	<b>77</b>	<b>100</b>

**Table 2: National deaths associated with fentanyl misuse (July 2000 – July 2012), by Age Group of deceased**

<b>Age Group (years)</b>	<b>Total</b>	<b>Percentage (%)</b>
0-9	0	0
10-19	0	0
20-29	15	19.5
30-39	30	39.0
40-49	24	31.2
50-59	4	5.2
60-69	4	5.2
70+	0	0
Unknown	0	0
<b>TOTAL</b>	<b>77</b>	<b>100</b>

**Table 3: National deaths associated with fentanyl misuse (July 2000 – July 2012), by Gender of deceased**

<b>Gender</b>	<b>Total</b>	<b>Percentage (%)</b>
Male	57	74.0
Female	20	26.0

**Table 4: National deaths associated with fentanyl misuse (July 2000 – July 2012), by Year of Notification**

Year of notification	Closed case
2000 <sup>*</sup> -2007	8
2008	10
2009	9
2010 <sup>†</sup>	22
2011 <sup>†</sup>	26
2012 <sup>†</sup>	2
<b>TOTAL</b>	<b>77</b>

**Table 5: National deaths associated with fentanyl misuse (July 2000 – July 2012), by method of administration**

Method of administration	Total
Fentanyl patch (contents extracted and injected)	39
Fentanyl patch (applied to the skin – multiple patches applied at once – range: 2-17 patches)	13
Unspecified source, but injected	12
Vial/syringe of fentanyl (injected)	9
Other <sup>‡</sup>	4
<b>TOTAL</b>	<b>77</b>

**Table 6: National deaths associated with fentanyl misuse (July 2000 – July 2012), by Incident Location**

Location of Fatal Incident	Total
A home	70
Medical service area <sup>§</sup>	4
Other place of occurrence <sup>**</sup>	3
<b>TOTAL</b>	<b>77</b>

<sup>\*</sup> From July 2000 onwards (for all states except Queensland)

<sup>†</sup> Likely to be an underestimate due to a notable proportion of deaths reported in these years still under coronial investigation. For example, in 2011, there are an additional 17 open cases which may be associated with fentanyl misuse, in 2012 there are 9 such open cases.

<sup>‡</sup> 'Other' includes ingestion of fentanyl patch, and combined application of a fentanyl patch to skin with injection

<sup>§</sup> 'Medical Service Area' includes: Hospital, Ambulance Depot

<sup>\*\*</sup> 'Other place of occurrence' includes: Motel/Hotel and Parking Area

## Coronial recommendations about deaths involving fentanyl misuse

*The deceased was found in a toilet cubicle after experiencing an overdose from fentanyl, remifentanyl and midazolam. The fentanyl was sourced from a syringe that the deceased had obtained in their role in the medical profession.*

Recommendation: “Hospitals and other similar institutions adopt protocols that will ensure the proper disposal of unused drugs, used syringes and like paraphernalia.”

## Additional information

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## Method

Data is available on the NCIS database from 1st July 2000 (Queensland data available from 1st January 2001). Data for the purposes of this report was extracted during July 2012, and only closed cases on the NCIS database were included.

Searches for incidents involving fentanyl misuse on the NCIS database involved keyword searches of the causes of death assigned by coroners, coronial documentation (findings, autopsy reports, toxicology reports and police investigations) and the coroners screen search using the following terms: "fentanyl", "morphine patch" and various world-wide brand names for fentanyl ("Durogesic", "Duragesic", "Actiq", "Denpax", "Fenpatch", "Marcain", "Naropin" and "Sublimaze") and remifentanyl ("Ultiva") products. Searches were also conducted upon cases classified within the NCIS database under various categories of "Pharmaceutical Substances for Human Use" (PSHU).

Cases were manually reviewed for the confirmation of fentanyl toxicity or mixed drug toxicity involving fentanyl. Cases were excluded from the resultant dataset under the following circumstances: (i) when it could not be determined whether fentanyl misuse occurred or not; (ii) when a singular patch (or unspecified number of patches) was applied to the skin; or (iii) fentanyl was administered via intrathecal infusion pump or by patient controlled analgesia within the hospital setting.

## Limitations

### Toxicological techniques

Rates and frequencies of these deaths may be influenced by whether a toxicological screen for fentanyl is included in a standard screen, and whether toxicological techniques are sensitive enough to detect the low levels of fentanyl that may be present in cases of fentanyl toxicity.

### Availability of case documentation

In some cases, reports associated with a death may not be available on the NCIS to confirm the details surrounding the fatality, and the level of detail contained in these reports can vary.

### Open cases

The proportion of open cases on the NCIS may impact the data set, especially for cases identified in in more recent years. The percentage of closed cases for each calendar year at the time of data extraction is as follows:

Year	% closed
2001	96.6
2002	96.7
2003	96.5
2004	95.3
2005	97.9
2006	95.4
2007	93.0
2008	91.6
2009	86.7
2010	76.6
2011	48.0
2012	7.2

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### **The NCIS**

The National Coronial Information System (NCIS) is managed by the Victorian Department of Justice on behalf of the NCIS Board of Management.

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- Australian Department of Health and Ageing
- Australian Institute of Criminology
- Safe Work Australia
- Australian Competition and Consumer Commission
- Australian Department of Infrastructure and Transport

Data is provided by each of the Coronial Offices around Australia, the Australian Bureau of Statistics (ABS) and Safe Work Australia.