# Victorian overdose deaths

## Quarterly update to June 2022

10 February 2023

Coroners Court
of Victoria

# Purpose

This report presents Victorian overdose death statistics for the eight consecutive quarters from July-August 2020 (Q3 2020) to April-June 2022 (Q2 2022). It was collated under the Coroners Court of Victoria's initiative to make mortality data accessible to the community and to organisations engaged in reducing preventable deaths.

This report presents quarters by calendar year and is intended to complement the Court's annual overdose death report, by making overdose data updates available on a more regular and timely basis to assist organisations working in the alcohol and other drugs sector.

Data for this report was collated from the Overdose Deaths Register maintained by the Court. The design and operation of the Register, together with relevant definitions and inclusion criteria and cautions to consider when interpreting the data, are described in **Attachment A**. The following are particularly important to note:

- Deaths are only included in the Overdose Deaths Register after the forensic medical cause of death has been established. In some cases, this can take a few days to weeks, but in other cases (particularly where multiple potential causes of death are considered) the forensic pathologist may require some months. Approximately 90% of forensic medical causes of death in fatal overdoses are confirmed within three months of death report; this rises to around 98% after six months. This is why the Court releases overdose deaths data with a delay, ensuring the data is as accurate as possible at the time of publication.

- The contents of the Overdose Deaths Register are continually reviewed and deaths re-coded as coroners' investigations progress and more is known about the circumstances in which they occurred. Therefore, the data reported here differ to what has been reported previously.

## Considerations when interpreting the data

There can be substantial variation over time in the number of Victorian overdose deaths occurring among specific groups of people: for example, people in a particular age group, or residing in a particular location, or using a particular drug, or so on. Caution should be exercised in interpreting this variation. In some instances, an observed increase or decrease may reflect a shift in underlying trends and patterns in drug use and related harms; but in other instances it might result from random factors.

Particular care is required when considering any apparent increase or decrease that involves low frequencies (for example 20 or fewer deaths per year), because the influence of random factors is far greater at lower frequencies and can create the illusion of a trend where there is none.
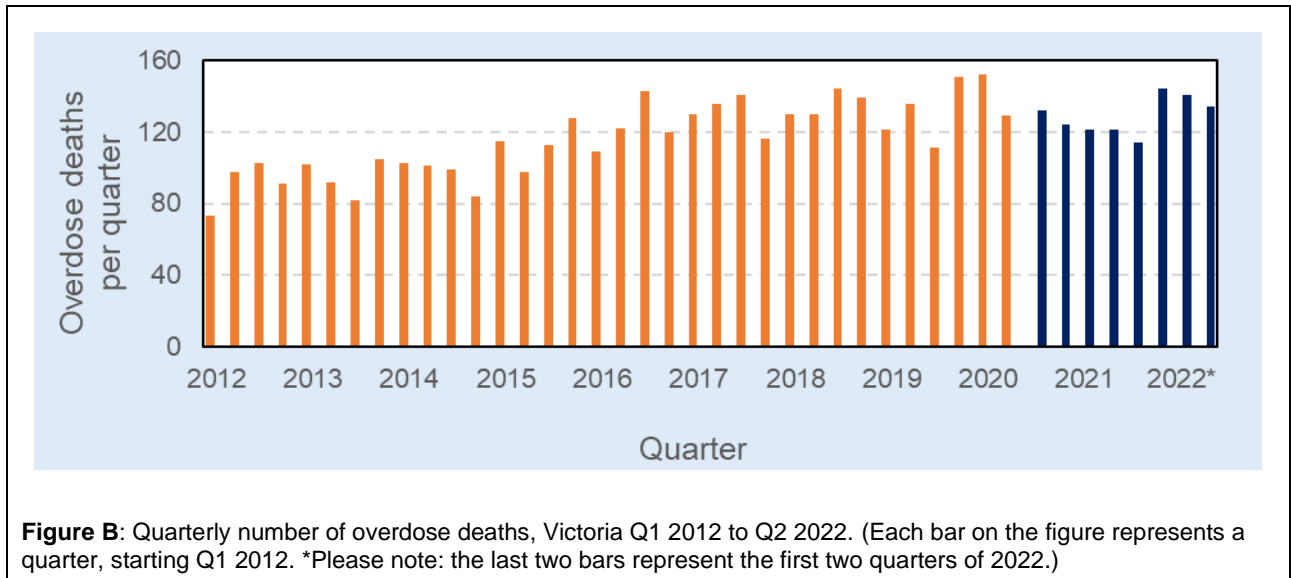
# 1. Overdose deaths, Q3 2020 to Q2 2022

There were 1031 overdose deaths in Victoria between 1 July 2020 and 30 June 2022, or an average of just under 129 overdose deaths per quarter. Figure A shows the number of overdose deaths each quarter across the period.



**Figure A**: Quarterly number of overdose deaths, Victoria Q3 2020 to Q2 2022.

To put the data from Figure A into context, Figure B shows the quarterly number of Victorian overdose deaths extending back to Q1 2012 (the most recent eight quarters are in blue, earlier quarters are in orange). Figure B shows that the quarterly frequencies (and variation from quarter to quarter in frequencies) during the most recent eight quarters are consistent with what has been observed since 2016.



**Figure B**: Quarterly number of overdose deaths, Victoria Q1 2012 to Q2 2022. (Each bar on the figure represents a quarter, starting Q1 2012. *Please note: the last two bars represent the first two quarters of 2022.)

## 1.1. Frequency by sex and age group

Table 1 shows the quarterly frequency of Victorian overdose deaths by sex and age group of the deceased person. Males accounted for two-thirds of overdose deaths across the period (700 of 1031 deaths, 67.9%), which is consistent with previous data reported by the Court from analysis of overdose deaths during the period 2012-2021.[1] For both males and females, the age groups with the highest numbers of deaths were 35-44 years (24.6% of deaths overall) and 45-54 years (27.8% of deaths), which again is consistent with the Court's data for 2012-2021.

**Table 1**: Quarterly number of overdose deaths by deceased sex and age group, Victoria Q3 2020 to Q2 2022.

| Sex and age group | Q3 2020 | Q4 2020 | Q1 2021 | Q2 2021 | Q3 2021 | Q4 2021 | Q1 2022 | Q2 2022 |
|---|---|---|---|---|---|---|---|---|
| **Male** | | | | | | | | |
| 17 years and below | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 18 to 24 years | 8 | 3 | 5 | 4 | 3 | 5 | 4 | 8 |
| 25 to 34 years | 14 | 12 | 14 | 22 | 19 | 21 | 18 | 15 |
| 35 to 44 years | 18 | 17 | 21 | 22 | 23 | 27 | 23 | 21 |
| 45 to 54 years | 24 | 28 | 23 | 23 | 22 | 28 | 24 | 24 |
| 55 to 64 years | 13 | 15 | 12 | 10 | 11 | 14 | 16 | 15 |
| 65 years and above | 9 | 8 | 4 | 5 | 8 | 7 | 9 | 1 |
| **Total** | **86** | **83** | **79** | **86** | **86** | **102** | **94** | **84** |
| **Female** | | | | | | | | |
| 17 years and below | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 18 to 24 years | 4 | 1 | 2 | 0 | 2 | 3 | 4 | 0 |
| 25 to 34 years | 11 | 11 | 8 | 6 | 6 | 3 | 6 | 6 |
| 35 to 44 years | 13 | 10 | 12 | 9 | 5 | 10 | 10 | 13 |
| 45 to 54 years | 11 | 13 | 11 | 11 | 6 | 14 | 13 | 12 |
| 55 to 64 years | 6 | 3 | 8 | 3 | 4 | 7 | 8 | 9 |
| 65 years and above | 1 | 3 | 1 | 6 | 5 | 5 | 6 | 10 |
| **Total** | **46** | **41** | **42** | **35** | **28** | **42** | **47** | **50** |
| **All people** | | | | | | | | |
| 17 years and below | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 18 to 24 years | 12 | 4 | 7 | 4 | 5 | 8 | 8 | 8 |
| 25 to 34 years | 25 | 23 | 22 | 28 | 25 | 24 | 24 | 21 |
| 35 to 44 years | 31 | 27 | 33 | 31 | 28 | 37 | 33 | 34 |
| 45 to 54 years | 35 | 41 | 34 | 34 | 28 | 42 | 37 | 36 |
| 55 to 64 years | 19 | 18 | 20 | 13 | 15 | 21 | 24 | 24 |
| 65 years and above | 10 | 11 | 5 | 11 | 13 | 12 | 15 | 11 |
| **Total** | **132** | **124** | **121** | **121** | **114** | **144** | **141** | **134** |

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1    All references from here to the Court's previous reported data for the period 2012-2021 pertain to Coroners Court of Victoria, *Victorian overdose deaths 2012-2021*, 30 August 2022, <https://www.coronerscourt.vic.gov.au/sites/default/files/2022-08/CCOV%20-%20Overdose%20deaths%20in%20Victoria%202012-2021%20-%2030Aug2022.pdf>, accessed 30 January 2023.

## 1.2. Frequency by location

Table 2 shows the quarterly frequency of Victorian overdose deaths by the location where the fatal incident (the drug consumption incident leading to death) occurred. Nearly 80% of overdose deaths across the period occurred in Metropolitan Melbourne, with the remainder in Regional Victoria. This is consistent with the longer term data for 2012-2021, which shows a majority of fatal overdoses occurred in Metropolitan Melbourne.

**Table 2**: Quarterly number of overdose deaths by fatal incident location, Victoria Q3 2020 to Q2 2022.

| Location of fatal incident | Q3 2020 | Q4 2020 | Q1 2021 | Q2 2021 | Q3 2021 | Q4 2021 | Q1 2022 | Q2 2022 |
|---|---|---|---|---|---|---|---|---|
| **Frequency** | | | | | | | | |
| Metropolitan Melbourne | 101 | 96 | 101 | 99 | 86 | 113 | 109 | 106 |
| Regional Victoria | 31 | 28 | 20 | 22 | 28 | 31 | 32 | 28 |
| **Total** | **132** | **124** | **121** | **121** | **114** | **144** | **141** | **134** |
| **Proportion** | | | | | | | | |
| Metropolitan Melbourne | 76.5 | 77.4 | 83.5 | 81.8 | 75.4 | 78.5 | 77.3 | 79.1 |
| Regional Victoria | 23.5 | 22.6 | 16.5 | 18.2 | 24.6 | 21.5 | 22.7 | 20.9 |
| **Total** | **100.0** | **100.0** | **100.0** | **100.0** | **100.0** | **100.0** | **100.0** | **100.0** |

## 1.3. Frequency by deceased intent

Table 3 shows the quarterly frequency of Victorian overdose deaths according to the deceased's intent at the time of the fatal incident. Intent is coded with reference to coroners' findings in completed investigations; for cases still under investigation, the Court's coders review all available material and evaluate deceased intent on the balance of probabilities.[2]

**Table 3**: Quarterly number of overdose deaths by deceased intent, Victoria Q3 2020 to Q2 2022.

| Deceased intent | Q3 2020 | Q4 2020 | Q1 2021 | Q2 2021 | Q3 2021 | Q4 2021 | Q1 2022 | Q2 2022 |
|---|---|---|---|---|---|---|---|---|
| **Frequency** | | | | | | | | |
| Unintentional | 102 | 88 | 85 | 91 | 85 | 107 | 113 | 102 |
| Intentional self-harm | 22 | 27 | 27 | 27 | 23 | 29 | 23 | 25 |
| Unable to be determined | 8 | 9 | 9 | 3 | 6 | 8 | 5 | 7 |
| **Total** | **132** | **124** | **121** | **121** | **114** | **144** | **141** | **134** |
| **Proportion** | | | | | | | | |
| Unintentional | 77.3 | 71.0 | 70.2 | 75.2 | 74.6 | 74.3 | 80.1 | 76.1 |
| Intentional self-harm | 16.7 | 21.8 | 22.3 | 22.3 | 20.2 | 20.1 | 16.3 | 18.7 |
| Unable to be determined | 6.1 | 7.3 | 7.4 | 2.5 | 5.3 | 5.6 | 3.5 | 5.2 |
| **Total** | **100.0** | **100.0** | **100.0** | **100.0** | **100.0** | **100.0** | **100.0** | **100.0** |

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2    The principles and practice of the Court's intent coding are explained in detail here: State of Victoria, *Response to Notice to Give NTG-VIC-002*, Exhibit B-01.003, Royal Commission into Defence and Veteran Suicide, 28 July 2022, <https://defenceveteransuicide.royalcommission.gov.au/system/files/ exhibit/Exhibit%20B-01.003%20-%20VGS.0001.0001.0001%20-%20State%20of%20Victoria.%20 Response%20to%20Notice%20to%20Give%2C%20NTG-VIC-002.pdf>, accessed 30 January 2023.

Overall, 75% of fatal overdoses during the period were unintentional, 20% were intentional (suicides), and in 5% of cases the coders could not establish the deceased's intent on the balance of probabilities from the available material.

# 2. Contributing drugs

This section provides an overview of main drug types, drug groups and individual drugs that contributed to the 1031 overdose deaths.

## 2.1. Single drug and multiple drug toxicity

Table 4 shows the quarterly number and proportion of overdose deaths in Victoria for the eight quarters from Q3 2020 to Q2 2022, which were due to the acute toxic effects of a single drug versus multiple drugs.

Table 4: Quarterly number of single drug and multiple drug toxicity overdose deaths, Victoria Q3 2020 to Q2 2022.

| Number of contributing drugs | Q3 2020 | Q4 2020 | Q1 2021 | Q2 2021 | Q3 2021 | Q4 2021 | Q1 2022 | Q2 2022 |
|---|---|---|---|---|---|---|---|---|
| **Frequency** | | | | | | | | |
| Single | 34 | 41 | 31 | 37 | 30 | 34 | 33 | 27 |
| Multiple | 98 | 83 | 90 | 84 | 84 | 110 | 108 | 107 |
| **Total** | **132** | **124** | **121** | **121** | **114** | **144** | **141** | **134** |
| **Proportion** | | | | | | | | |
| Single | 25.8 | 33.1 | 25.6 | 30.6 | 26.3 | 23.6 | 23.4 | 20.1 |
| Multiple | 74.2 | 66.9 | 74.4 | 69.4 | 73.7 | 76.4 | 76.6 | 79.9 |
| **Total** | **100.0** | **100.0** | **100.0** | **100.0** | **100.0** | **100.0** | **100.0** | **100.0** |

On average, 75% of Victorian overdose deaths during the period involved multiple drugs. This is consistent with the Court's previous analysis of 2012-2021 overdose statistics whereby on average 73% of overdoses in the ten-year period involved multiple drugs. This underscores the continued importance of highlighting drug combinations when delivering harm reduction education and other overdose prevention initiatives.

## 2.2. Contributing drug types

Contributing drugs across all Victorian overdose deaths were classified into three main types for further analysis, being pharmaceutical drugs, illegal drugs and alcohol. Definitions of these drug types are found in **Attachment A**, together with a discussion of classification challenges.

Table 5 shows the quarterly number and proportion of Victorian overdose deaths involving pharmaceutical drugs, illegal drugs and alcohol across the period. Most overdose deaths were from combined (multiple) drug toxicity, which is why the annual frequencies for each drug type in Table 5 sum to greater than the overall annual frequency (if a death involved two different drug types, the death would be counted separately under each drug type).

Overall, pharmaceutical drugs were the most frequent contributors to Victorian overdose deaths across the period, playing a role in three-quarters of all deaths. Illegal drugs contributed in just over half of overdose deaths, and alcohol in approximately 30%.

A potentially notable finding was that in the most recent two quarters (Q1 2022 and Q2 2022) the contribution of illegal drugs appears to be elevated compared to previous quarters. A further analysis of illegal drug involvement in Victorian overdoses, looking at a longer period from Q1 2012 through to Q2 2022 is included in Chapter 3 of this report.

**Table 5**: Quarterly number of overdose deaths by contributing drug types, Victoria Q3 2020 to Q2 2022.

| Contributing drug type | Q3 2020 | Q4 2020 | Q1 2021 | Q2 2021 | Q3 2021 | Q4 2021 | Q1 2022 | Q2 2022 |
|---|---|---|---|---|---|---|---|---|
| **Frequency** | | | | | | | | |
| Pharmaceutical | 96 | 86 | 92 | 87 | 88 | 110 | 100 | 104 |
| Illegal | 72 | 55 | 60 | 64 | 63 | 73 | 82 | 81 |
| Alcohol | 36 | 42 | 31 | 40 | 31 | 45 | 39 | 30 |
| **Total** | **132** | **124** | **121** | **121** | **114** | **144** | **141** | **134** |
| **Proportion** | | | | | | | | |
| Pharmaceutical | 72.7 | 69.4 | 76.0 | 71.9 | 77.2 | 76.4 | 70.9 | 77.6 |
| Illegal | 54.5 | 44.4 | 49.6 | 52.9 | 55.3 | 50.7 | 58.2 | 60.4 |
| Alcohol | 27.3 | 33.9 | 25.6 | 33.1 | 27.2 | 31.3 | 27.7 | 22.4 |
| **Total** | **100.0** | **100.0** | **100.0** | **100.0** | **100.0** | **100.0** | **100.0** | **100.0** |

## 2.3. Contributing drug groups

Pharmaceutical drugs were further disaggregated into drug groups for more detailed analysis, using a slightly modified version of the US Drug Abuse Warning Network (DAWN) Drug Vocabulary level two groupings.[3]

Table 6 shows the quarterly frequency and proportion of Victorian overdose deaths across the period involving each of the major contributing pharmaceutical drug groups, with illegal drugs and alcohol included for context. Again (as with Table 5), most overdose deaths were from combined drug toxicity, which is why the annual frequencies for each drug group in Table 6 sum to greater than the overall annual frequency.

**Table 6:** Quarterly number of overdose deaths by contributing drug types, Victoria Q3 2020 to Q2 2022.

| Contributing drug group | Q3 2020 | Q4 2020 | Q1 2021 | Q2 2021 | Q3 2021 | Q4 2021 | Q1 2022 | Q2 2022 |
|---|---|---|---|---|---|---|---|---|
| **Frequency** | | | | | | | | |
| Illegal drugs | 72 | 55 | 60 | 64 | 63 | 73 | 82 | 81 |
| Benzodiazepines | 67 | 56 | 67 | 62 | 58 | 79 | 67 | 69 |
| Pharmaceutical opioids | 48 | 47 | 48 | 34 | 45 | 55 | 41 | 42 |
| Antidepressants | 41 | 46 | 41 | 37 | 32 | 49 | 46 | 40 |
| Alcohol | 36 | 42 | 31 | 40 | 31 | 45 | 39 | 30 |
| Antipsychotics | 29 | 27 | 27 | 21 | 22 | 29 | 31 | 25 |
| Anticonvulsants | 25 | 19 | 22 | 12 | 24 | 27 | 24 | 22 |
| Non-benzo anxiolytics | 15 | 7 | 15 | 9 | 9 | 13 | 15 | 11 |
| **Total** | **132** | **124** | **121** | **121** | **114** | **144** | **141** | **134** |

(**Table 6** continued over page)

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3    The main modifications were that the DAWN 'anxiolytics' group was divided into benzodiazepine and non-benzodiazepine anxiolytics, and the DAWN 'analgesics' group was divided into pharmaceutical opioids and non-opioid analgesics.

Table 6 continued from previous page

| Contributing drug group | Q3 2020 | Q4 2020 | Q1 2021 | Q2 2021 | Q3 2021 | Q4 2021 | Q1 2022 | Q2 2022 |
|---|---|---|---|---|---|---|---|---|
| **Proportion** | | | | | | | | |
| Illegal drugs | 54.5 | 44.4 | 49.6 | 52.9 | 55.3 | 50.7 | 58.2 | 60.4 |
| Benzodiazepines | 50.8 | 45.2 | 55.4 | 51.2 | 50.9 | 54.9 | 47.5 | 51.5 |
| Pharmaceutical opioids | 36.4 | 37.9 | 39.7 | 28.1 | 39.5 | 38.2 | 29.1 | 31.3 |
| Antidepressants | 31.1 | 37.1 | 33.9 | 30.6 | 28.1 | 34.0 | 32.6 | 29.9 |
| Alcohol | 27.3 | 33.9 | 25.6 | 33.1 | 27.2 | 31.3 | 27.7 | 22.4 |
| Antipsychotics | 22.0 | 21.8 | 22.3 | 17.4 | 19.3 | 20.1 | 22.0 | 18.7 |
| Anticonvulsants | 18.9 | 15.3 | 18.2 | 9.9 | 21.1 | 18.8 | 17.0 | 16.4 |
| Non-benzo anxiolytics | 11.4 | 5.6 | 12.4 | 7.4 | 7.9 | 9.0 | 10.6 | 8.2 |
| **Total** | **100.0** | **100.0** | **100.0** | **100.0** | **100.0** | **100.0** | **100.0** | **100.0** |

## 2.5. Individual contributing drugs

Table 7 shows the quarterly number of overdose deaths involving the most frequent contributing individual drugs. The individual drugs are tabulated by the major drug groups to which they belong as described in Table 6.

**Table 7:** Quarterly number of overdose deaths involving specific drugs, Victoria Q3 2020 to Q2 2022.

| Contributing drug | Q3 2020 | Q4 2020 | Q1 2021 | Q2 2021 | Q3 2021 | Q4 2021 | Q1 2022 | Q2 2022 |
|---|---|---|---|---|---|---|---|---|
| **Illegal drugs** | | | | | | | | |
| Heroin | 46 | 31 | 37 | 39 | 45 | 52 | 68 | 64 |
| Methamphetamine | 27 | 22 | 33 | 37 | 33 | 34 | 34 | 37 |
| Novel psychoactives | 15 | 9 | 7 | 7 | 10 | 11 | 12 | 14 |
| Cocaine | 5 | 7 | 6 | 4 | 7 | 6 | 7 | 6 |
| **Total** | **72** | **55** | **60** | **64** | **63** | **73** | **82** | **81** |
| **Benzodiazepines** | | | | | | | | |
| Diazepam | 55 | 44 | 54 | 53 | 44 | 66 | 53 | 58 |
| Clonazepam | 7 | 11 | 12 | 11 | 8 | 14 | 12 | 8 |
| Alprazolam | 9 | 4 | 7 | 7 | 7 | 5 | 4 | 6 |
| Oxazepam | 3 | 3 | 3 | 6 | 11 | 7 | 3 | 8 |
| **Total** | **67** | **56** | **67** | **62** | **58** | **79** | **67** | **69** |
| **Pharmaceutical opioids** | | | | | | | | |
| Methadone | 14 | 22 | 19 | 13 | 15 | 20 | 20 | 15 |
| Oxycodone | 16 | 14 | 12 | 7 | 16 | 12 | 11 | 16 |
| Codeine | 9 | 9 | 7 | 5 | 3 | 11 | 7 | 7 |
| Tramadol | 8 | 3 | 5 | 4 | 5 | 6 | 4 | 5 |
| **Total** | **48** | **47** | **48** | **34** | **45** | **55** | **41** | **42** |

**Table 7** continued from previous page.

| Contributing drug | Q3 2020 | Q4 2020 | Q1 2021 | Q2 2021 | Q3 2021 | Q4 2021 | Q1 2022 | Q2 2022 |
|---|---|---|---|---|---|---|---|---|
| **Antidepressants** | | | | | | | | |
| Mirtazapine | 16 | 13 | 17 | 10 | 10 | 13 | 15 | 19 |
| Amitriptyline | 7 | 9 | 10 | 8 | 9 | 6 | 10 | 7 |
| Citalopram | 10 | 9 | 4 | 8 | 5 | 8 | 11 | 7 |
| Venlafaxine | 3 | 6 | 3 | 3 | 6 | 8 | 7 | 6 |
| **Total** | **41** | **46** | **41** | **37** | **32** | **49** | **46** | **40** |
| **Antipsychotics** | | | | | | | | |
| Quetiapine | 17 | 8 | 10 | 11 | 11 | 12 | 11 | 10 |
| Olanzapine | 6 | 13 | 11 | 7 | 6 | 10 | 15 | 9 |
| **Total** | **29** | **27** | **27** | **21** | **22** | **29** | **31** | **25** |
| **Anticonvulsants** | | | | | | | | |
| Pregabalin | 18 | 16 | 16 | 9 | 18 | 22 | 18 | 13 |
| Gabapentin | 3 | 1 | 3 | 0 | 2 | 2 | 3 | 2 |
| **Total** | **25** | **19** | **22** | **12** | **24** | **27** | **24** | **22** |

In order, the five most prevalent contributing drugs to overdose deaths across the period were diazepam (which played a contributory role in 427 overdose deaths), heroin (382 deaths), alcohol (294 deaths, not shown in Table 7), methamphetamine (257 deaths), and methadone (138 deaths). These five drugs, in the same order, were also the five most prevalent contributors to Victorian overdose deaths across the period 2012-2021.

For most contributing drugs, there was a high degree of variation from quarter to quarter in the number of involved deaths, which made it difficult to pick out any notable findings. The only possible exception was heroin, which contributed to more than 60 deaths in each of Q1 and Q2 2022 compared to an average of 42 deaths per quarter across the preceding six quarters. This finding is explored further in Section 3.
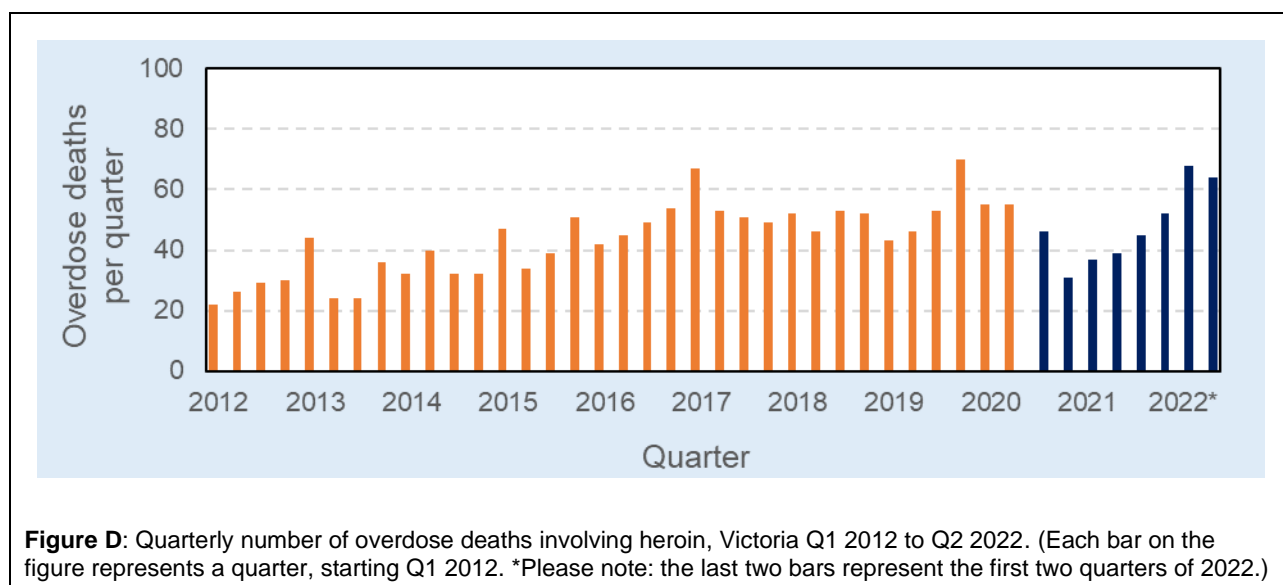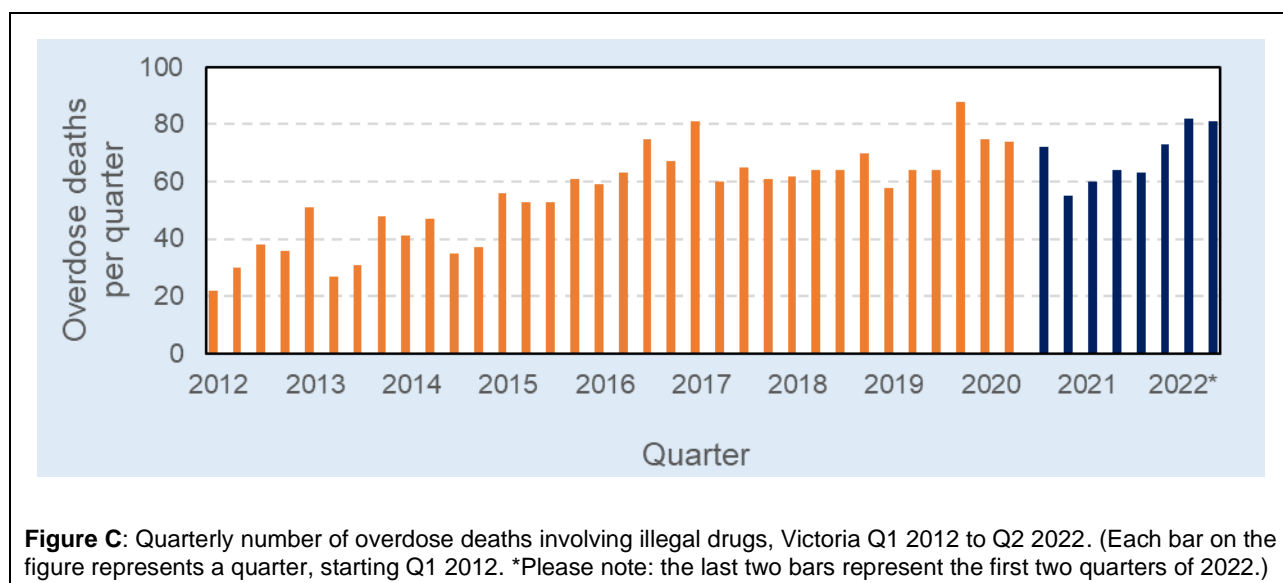
# 3. Context

This section contains further analysis of selected themes, issues or other findings that emerge from the data.

## 3.1. Illegal drug involvement

As noted in Section 2.3, the contribution of illegal drugs to Victorian overdose deaths in the most recent two quarters examined (Q1 2022 and Q2 2022) appeared to be elevated compared to previous quarters. Among the illegal drugs, heroin involvement was noted in Section 2.5 to be particularly high in these two quarters.

To examine whether this recent period of elevated illegal drug involvement was unusual, the quarter-by-quarter analysis was extended back in time to the beginning of 2012; the results are shown in Figure C (for all illegal drugs) and Figure D (for heroin specifically), with the most recent eight quarters of data shown in blue.



**Figure C**: Quarterly number of overdose deaths involving illegal drugs, Victoria Q1 2012 to Q2 2022. (Each bar on the figure represents a quarter, starting Q1 2012. *Please note: the last two bars represent the first two quarters of 2022.)



**Figure D**: Quarterly number of overdose deaths involving heroin, Victoria Q1 2012 to Q2 2022. (Each bar on the figure represents a quarter, starting Q1 2012. *Please note: the last two bars represent the first two quarters of 2022.)

As is evident from the figures, there have been past quarters (for example Q1 2017 and Q4 2019) when the number of illegal drug-involved and/or heroin-involved overdose deaths was elevated compared to what came before. For this reason, the Q1 2022 and Q2 2022 data should be interpreted with caution: it may represent natural fluctuation in time, or a temporary 'spike', rather than an emerging trend. The Court will continue to monitor this, and share its data with the community and relevant organisations engaged in prevention.

# Attachment A

The following definitions and explanatory notes are included to assist in understanding and interpreting the contents of this report.

## Definition of overdose

The term "overdose" is used throughout this report to describe any death where the expert death investigators (the coroner, forensic pathologist and forensic toxicologist) determined the acute toxic effects of a drug or drugs played a contributory role. This usage is consistent with the definition of a 'drug poisoning death' recommended by the United States Substance Abuse and Mental Health Services Administration (SAMHSA).[4]

Deaths associated with the behavioural effects of drug taking (for example, a fatal motor vehicle collision while affected by drugs and alcohol) or its chronic effects (for example, alcoholic liver disease) are excluded from the Register. Likewise, deaths resulting from allergic reactions to drugs are excluded, and deaths caused by injuries during drug administration.

The definition of the term "drug" largely reflects the SAMHSA definition:

*Any chemical compound that may be used by or administered to humans or animals as an aid in the diagnosis, treatment, or prevention of disease or injury; for the relief of pain or suffering; to control or improve any physiologic or pathologic condition; or for the feeling it causes.*

However, in this report alcohol is also included as a drug, whereas it is explicitly excluded under the SAMHSA definition.

## Death surveillance

In Victoria, all deaths from suspected non-natural causes, including suspected overdoses, are required to be reported to the Coroners Court of Victoria. When a death is reported, the Court's trained staff review the Police Report of Death for the Coroner and any other available material (for example notes on the electronic case record) and code basic information about the deceased into the Court's Surveillance database. The information includes:

- Name.

- Sex.

- Age.

- Date of birth.

- Address where the deceased usually resided.

- Address where the fatal incident occurred.

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4    Goldberger BA, Maxwell JC, Campbell A, Wilford BB, "Uniform Standards and Case Definitions for Classifying Opioid-Related Deaths: Recommendations by a SAMHSA Consensus Panel", *Journal of Addictive Diseases*, 2013;32(3): 231-243.

- Evidence of Aboriginal and Torres Strait Islander identity.

- Summary of circumstances as set out in the police report to the coroner.

Additionally, at this initial stage Court staff code information about the deceased's likely intent and the mechanism of death, using a slightly modified version of the ICD-10 Chapter 20 external causes of morbidity and mortality classification system. For example, if a death upon initial report appeared to be an unintentional drug overdose, the intent would be coded as "Unintentional" and the mechanism would be "Poisoning".

The coding of intent and mechanism is reviewed as the coroner's investigation progresses and more is known about what happened in each case. Sometimes the intent and/or mechanism will be changed because of what is learned during the course of the investigation, particularly when the cause of death is confirmed and again when the coroner makes their finding.

## Victorian Overdose Deaths Register

While possible and probable overdoses may be identified during initial death surveillance, no case is added to the Victorian Overdose Deaths Register until the forensic medical cause of death has been established. This is because the SAMHSA recommendations require that the formal cause of death must be established before a death can be classified as an overdose.

Trained coders conduct regular searches across the Surveillance database, scanning cases with newly confirmed causes of death and reviewing autopsy reports to establish whether each case meets the definition of an overdose death. Any such death is added to the Register and further information is recorded about the context in which it occurred. At this stage, the coders record the specific drug or drugs that the expert death investigators identified as playing a contributory role in the death. (Only contributing drugs are coded; any detected drugs that were not found to contribute to the death are set aside.)

## Delay between death report and data collation

The requirement for a confirmed forensic medical cause of death means that Victorian overdose deaths data cannot be produced as quickly as some other types of coronial data. In some cases, the forensic pathologist and forensic toxicologist may be able to arrive at a forensic medical cause of death very quickly (within one to two weeks after the death is reported); but in other cases where there are complex circumstances and competing possibilities to assess, they may require up to several months to formulate the cause of death.

As a rule of thumb, the Court usually releases overdose deaths data with at least a six-month delay or time lag from date of death report, to ensure that most forensic medical causes of death are confirmed and therefore the data is as accurate as possible.

## Drug type classification

To aid analysis of the overdose deaths data, the contributing drugs across all Victorian overdose deaths are classified into three main types, being:

- **Pharmaceutical drugs**, defined as drugs that have approved clinical uses and can be accessed through the health system in Australia.

- **Illegal drugs**, defined as drugs that are prohibited from manufacture, sale or possession in Australia.

- **Alcohol.**

While most contributing drugs fit within this classification system, a small number could be both pharmaceutical and illegal. These include:

- **Ketamine**, which is approved for anaesthesia and (less commonly) to manage symptoms of opioid withdrawal, and is also illegally imported and sold in unregulated drug markets. Ketamine is classified as a pharmaceutical drug because it can be obtained legally in Australia, while recognising that in some cases it was probably not sourced via the health system.

- **Amphetamines**, which are approved for treatment of conditions such as narcolepsy and attention deficit disorders but are also illegally imported and sold in unregulated drug markets. These present a substantial classification challenge, and the following approach has been adopted:

  a. An amphetamine that contributed in the absence of methamphetamine detection is classified as a pharmaceutical drug. The reason was, in most cases where the amphetamine source is identified in Victorian overdose deaths, it is a pharmaceutical preparation such as dexamphetamine or lisdexamfetamine.

  b. Methamphetamine is classified as an illegal drug.

  c. Amphetamine detected in the presence of methamphetamine is assumed to be a metabolite of methamphetamine (rather than present in its own right) unless there is positive evidence of separate pharmaceutical amphetamine consumption.

- **Pentobarbitone**, which is approved for sedation and euthanasia of animals in Australia, and is also distributed for assisted dying in Victoria, but is very often found to have been imported illegally in Victorian deaths. Pentobarbitone is classified as a pharmaceutical drug because it can be obtained legally in Australia, while recognising that (like ketamine) the health system is probably not the source in most Victorian overdose deaths.

- **Etizolam**, which is a legal benzodiazepine in some countries but has no approved clinical use (and therefore is illegal) in Australia. Etizolam is classified as an illegal drug for this reason.

- **Cocaine**, which has clinical uses as well as being a major illegal drug imported into Australia. Cocaine is classified as an illegal drug because there are no clear instances in the Victorian overdose deaths data of clinical-sourced cocaine being used.

## Changes in reported frequencies over time

The contents of the Victorian Overdose Deaths Register are regularly revised and updated as coronial investigations progress. Through the coroner's investigation, an overdose death initially characterised as unintentional may be reclassified as a suicide; or a death initially thought to be unrelated to drug consumption might be found to be a fatal overdose. The data reported out of the Register represents the Court's best understanding of the deaths at the time when it was extracted, but data extracted at another time may be different.