Te Puna
Whakaiti Pāmamae
Kai Whakapiri

New Zealand
Drug Foundation

Drug overdoses in Aotearoa

2024

Every year, well over a hundred New Zealand families lose a loved one due to accidental overdose.

Behind each number in our report are dozens of broken hearts, unfulfilled dreams, and whānau left behind to grieve.

Accidental overdose deaths are preventable. It is entirely unacceptable, therefore, that the number of fatal overdoses is steadily increasing in Aotearoa.

We can turn this around, but our approach needs an urgent paradigm shift. Last year, we published a comprehensive Overdose Prevention Plan that contains a list of meaningful actions we can take to prevent this extreme harm from happening, including specialist overdose prevention services, an expansion of harm reduction approaches, access to naloxone, and better preparedness for rapidly changing drug supplies.

Preventing overdose is not possible without surveillance. It may sound surprising that Aotearoa does not have a national mechanism that keeps track of overdose fatalities, and there is no national standard for counting these instances.

In the absence of a national overdose surveillance system, we try to access information that can enable us to estimate the harm and look at trends that could inform policy and services. In this report, we focus on coronial data that we access through requests under the Official Information Act. We also cover hospital presentation data for drug poisonings (non-fatal overdoses) and national mortality data that we access under an Information Sharing Agreement with Te Whatu Ora.

We focus on coronial data in this paper because, despite its limitations and delays, it is the timeliest way we can access overdose information.

Acknowledgements

We want to acknowledge the teams that assisted us in accessing the data, including the Office of the Chief Coroner (Ministry of Justice), and National Collections Data Services (Te Whatu Ora).

In particular, we want to acknowledge Lydia Ludbrook and Chris Lewis from the Te Whatu Ora National Collections Data Services team for their guidance on analysing hospitalisation and mortality data.

Overdose deaths in Aotearoa

Coronial data

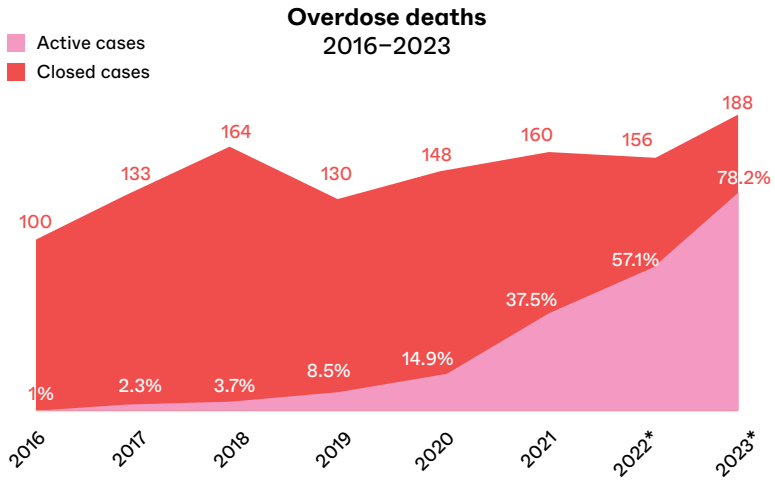
This section examines data from the coronial office of fatal, accidental overdoses cases in New Zealand between 2016 and 2023.

This data only includes accidental drug overdose deaths and excludes intentional self-harm or suicide deaths. It also does not include other drug-related death causes, such as communicable diseases, short- or long-term health complications and chronic health conditions that may occur as a result of drug use.

Cases between 2016 and 2023 were analysed for this report. Toxicology detection and data collection of substances before 2016 is inconsistent and therefore has been excluded.

1,179 people died of accidental drug overdose between 2016 and 2023.

Outside of a peak in 2018 caused by the synthetic cannabinoid crisis, fatal overdoses have been steadily increasing.



*Coronial inquiries take time

The most recent cases we present in the report are likely to be under active investigation. This means that the total numbers we present for these more recent cases are provisional and may change in time.

For the years 2022 and 2023, the majority of cases we analysed were still considered active cases under coronial inquiry. We have marked these years with an asterisk.

Coronial data caveats

Coronial data in New Zealand has limitations and cannot be used on its own as a definitive measure of overdose mortality. Rather, it should be considered an indicator of patterns in overdose deaths. Coronial data is limited by a significant delay in closing cases, which can take several years.

Data on active cases is restricted and only provides information on the class of drug involved in the death and the year the death occurred. Sometimes the drugs implicated in the death or the overall cause of death is changed when a case is closed by the coroner. As a result, active case numbers may be under- or over-reported in this dataset. In the case of emerging new psychoactive substances (NPS), such as nitazenes, we are unable to confirm how many active cases involved these substances.

This report has excluded cases considered by a coroner to be intentional self-harm (suicide). However, sometimes an active case is thought to be intentional, and is later closed as an accidental overdose, or the other way around. Such cases may result in overcounting or undercounting of overdose deaths, particularly in recent years with a high proportion of active cases.

Prioritisation

In cases where multiple drug types were detected in toxicology results, we have attributed a case as being caused by a drug class based on the following prioritisation:

1. Opioid drugs
2. Synthetic cannabinoids
3. Benzodiazepines
4. Alcohol
5. Stimulants
6. Other drugs (including antipsychotics, SSRIs, GHB/GBL)
7. Hallucinogens

To determine this order, we looked at drug mortality data from a number of international sources (examples included in the footnotes[1,2]) and compared the findings with overall drug availability in New Zealand. This provided us with a framework to prioritise what drug classes were most likely to lead to an overdose death. It is important to bear in mind that combining multiple drugs greatly increases the likelihood of death from overdose. In some cases, the final coroner-determined cause of mortality will differ from the allocated prioritisation of these coronial cases.

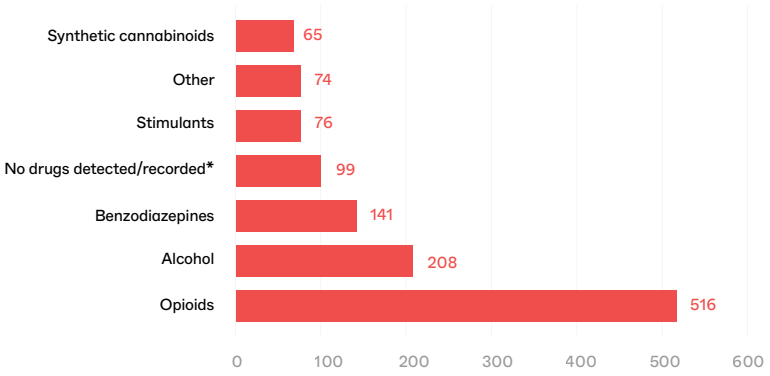
1. Hedegaard, H., Bastian, B. A., Trinidad, J. P., Spencer, M., & Warner, M. (2018). Drugs Most Frequently Involved in Drug Overdose Deaths: United States, 2011–2016. *National vital statistics reports: From the Centers for Disease Control and Prevention, National Center for Health Statistics, National Vital Statistics System*, *67*(9), 1–14.

2. Martins, S. S., Sampson, L., Cerdá, M., & Galea, S. (2015). Worldwide prevalence and trends in unintentional drug overdose: A systematic review of the literature. *American Journal of Public Health*, *105*(11), e29–e49. https://doi.org/10.2105/AJPH.2015.302843

Overdose deaths by drug type

Opioids continue to be responsible for the largest number of overdoses. This includes illicit, prescribed and diverted opioids. Opioid deaths were followed by alcohol and benzodiazepines.

Total number of fatal overdoses by drug type (active and closed cases)
2016–2023

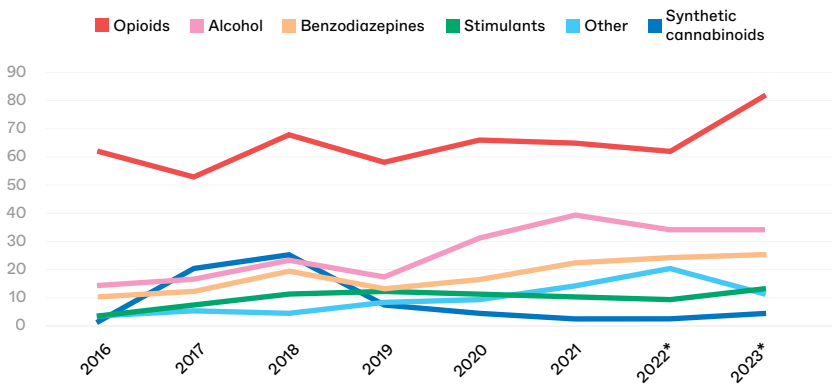


*Cases labelled as 'no drugs detected' are cases where the death has been coded by the coroner as a drug overdose, but toxicology data did not show any drugs. This sometimes happens if the drug is difficult to detect, or in cases where toxicology data is not recorded in the coronial information system.

Changes over time

These graphs depict the number of cases for each substance group between 2016 and 2023.

Fatal overdoses by drug type
Active and closed cases

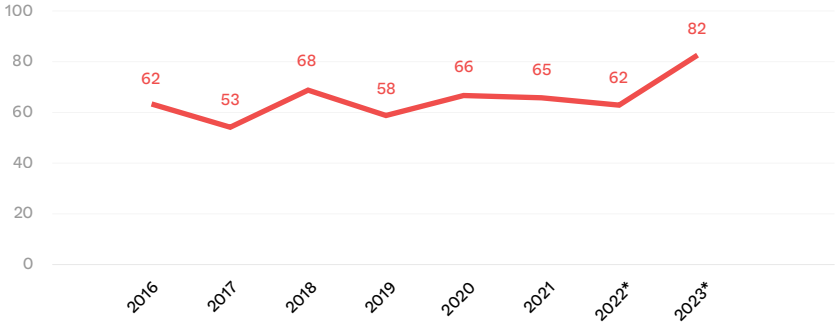


*A majority of cases in these years are still under active coronial inquiry.

Opioids

e.g., morphine, methadone, heroin, codeine, fentanyl, nitazenes

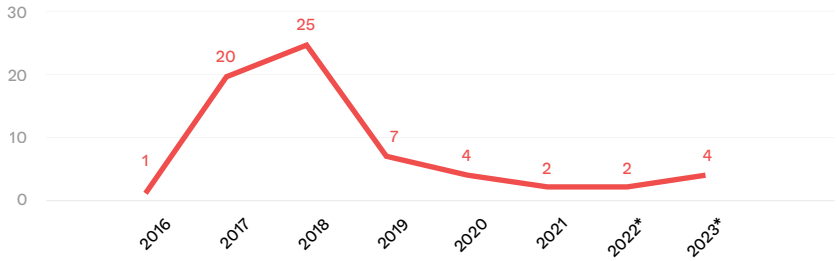
Fatal opioid overdoses
Active and closed cases



- Opioids continue to be the biggest contributor to overdose deaths in New Zealand.
- Over a third (35.7%) of closed opioid overdose cases involved more than one opioid (for example, codeine and fentanyl).
- The risk of overdose from opioids increases when a person also takes another depressant drug. Between 2016 and 2023, 90.7% of closed opioid overdose cases also involved at least one other depressant drug (e.g., another opioid, benzodiazepine, synthetic cannabinoid, etc.)

Synthetic cannabinoids

Fatal synthetic cannabinoid overdoses
Active and closed cases

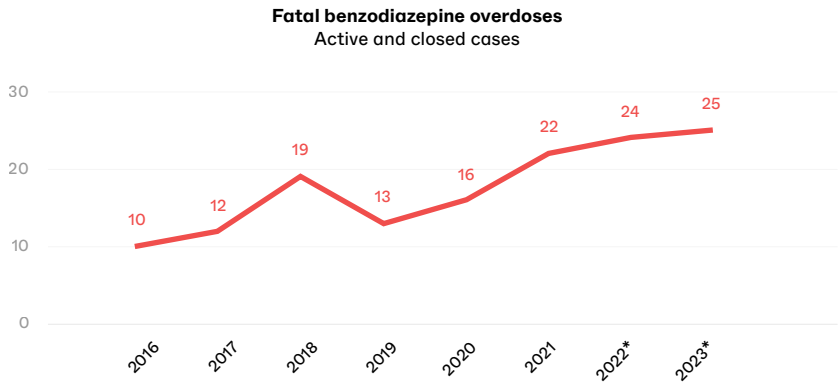


- Synthetic cannabinoid overdose deaths started to increase in 2017 and peaked in 2018 when New Zealand experienced a synthetic cannabinoid overdose crisis.
- Two synthetic cannabinoids were responsible for most of these deaths – AMB-FUBINACA and 5F-ADB.
- Synthetic cannabinoid overdoses have decreased since 2019 and remain relatively stable.
- In 2021, China banned the production of most synthetic cannabinoids on the market. This meant that the domestic supply of these drugs in New Zealand has substantially reduced.

*A majority of cases in these years are still under active coronial inquiry.

Benzodiazepines

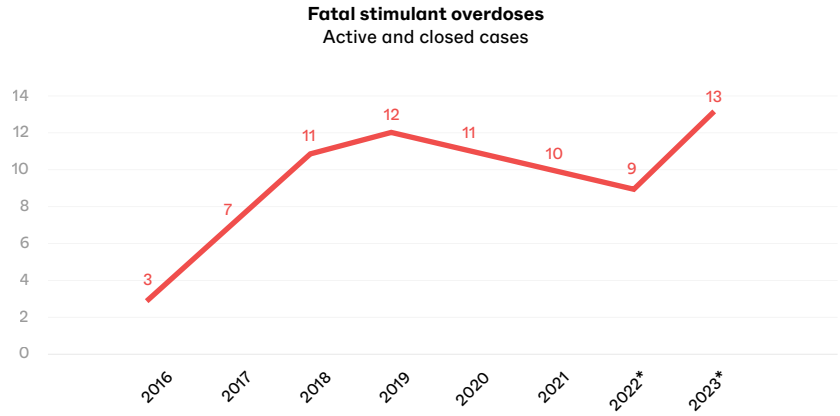
e.g., alprazolam (Xanax), diazepam, etizolam, bromazolam



- Overdoses involving benzodiazepines have steadily increased over the last five years.
- Diazepam was the most common benzodiazepine featured in closed overdose cases, followed by clonazepam. Pharmaceutical data from 2018 to 2022 does not show that these were prescribed more often than other benzodiazepines.
- Benzodiazepines are most dangerous when mixed with other depressant drugs. Of the 264 closed cases that involved benzodiazepines, 93.5% also had at least one other depressant drug (e.g., alcohol or codeine).

Stimulants

e.g., methamphetamine, methylphenidate, synthetic cathinones



- Stimulant overdose deaths have been relatively low and stable over the years. Because of the small numbers, these are subject to large year-to-year variations.
- Whether or not it was the cause of death, a stimulant was present in 22.5% of all closed overdose cases (189 cases). Of these, 52.4% featured an amphetamine (methamphetamine/amphetamine).

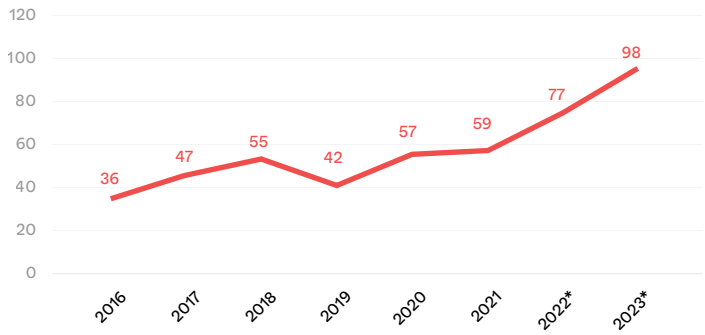
*A majority of cases in these years are still under active coronial inquiry.

Overdose cases involving alcohol

Alcohol features in many overdose cases, particularly those where more than one substance is detected. Alcohol can add to the risk of overdose death, particularly when it is mixed with other depressant drugs such as opioids, benzodiazepines, or synthetic cannabinoids. This graph shows all cases where alcohol was present, whether or not it was the likely cause of death.

Between 2016 and 2023, alcohol was involved in at least 35.4% of all overdose cases.

Overdose cases involving alcohol



*A majority of cases in these years are still under active coronial inquiry.

Overdose deaths by gender

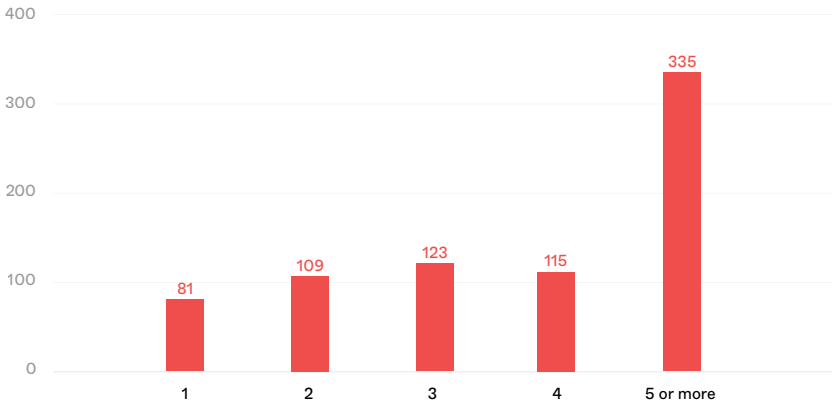
Men are more likely to die of an accidental drug overdose than women in New Zealand. Of the closed cases between 2016 and 2023, 65.2% were male and 34.8% were female. There is currently no data for gender diverse people.

Overdose deaths by gender (closed cases)
2016–2023

Multiple substances and fatal overdoses

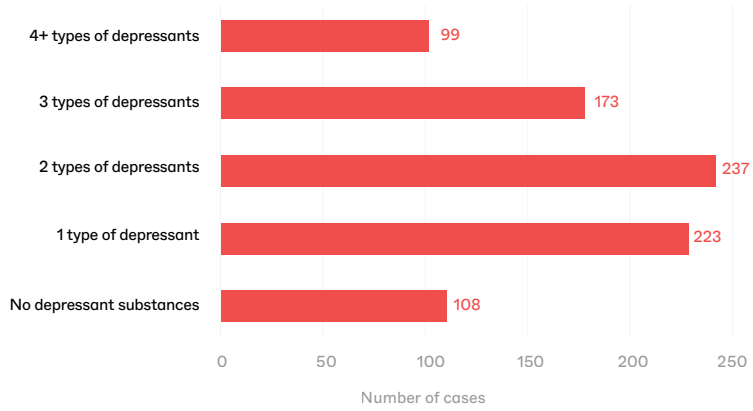
Most fatal overdoses in New Zealand involve more than one drug or medicine. Over half of all closed cases between 2016 and 2023 involved at least four different substances and 43.9% involved five or more.

Number of substances detected in overdose deaths (closed cases)
2016–2023



Most overdose cases involved at least one type of depressant (such as an opioid, a benzodiazepine, or alcohol) and many cases involved substances from several different types of depressants.

Number of depressant drugs in overdose deaths (closed cases)
2016–2023



Novel substances

New psychoactive substances (NPS) are novel drugs that are manufactured to mimic the effects of well-known illicit drugs. This is a wide group of substances that includes synthetic cathinones ('bath salts'), synthetic cannabinoids (synnies), novel benzodiazepines (e.g., etizolam, bromazolam) and novel synthetic opioids (e.g., nitazenes).

NPS can be difficult to test for, and some are not part of routine toxicology screening.

Novel psychoactive substances appeared in 8.5% of all closed overdose cases from 2016–2023.

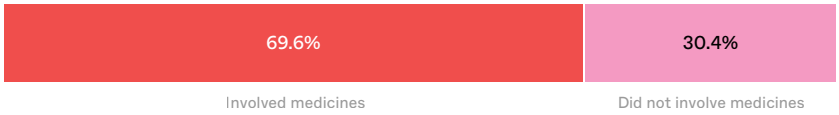
The majority of these were synthetic cannabinoids, but NPS stimulants, benzodiazepines and opioids also featured in the data.

Medicines and fatal overdose

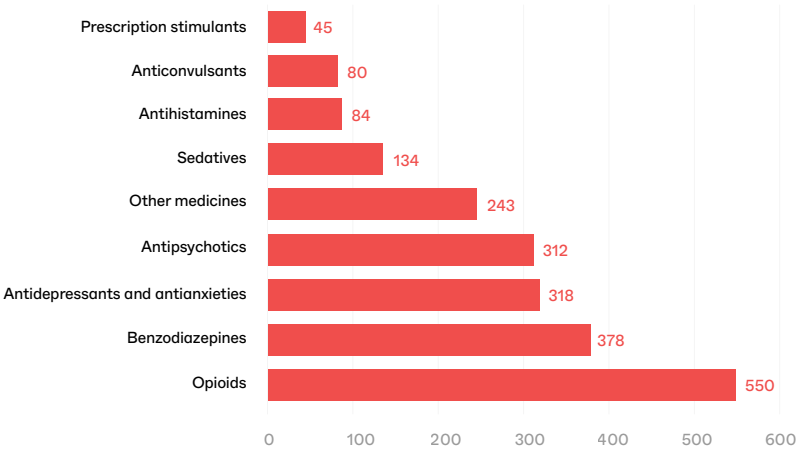
Medicines are involved in many overdose deaths (closed cases) in New Zealand.

While we don't know whether they were used as prescribed, or they were diverted or illicitly manufactured, it is important to consider how medicines can interact with illicit drugs.

Over two thirds of all closed cases from 2016–2023 involved at least one medicine.



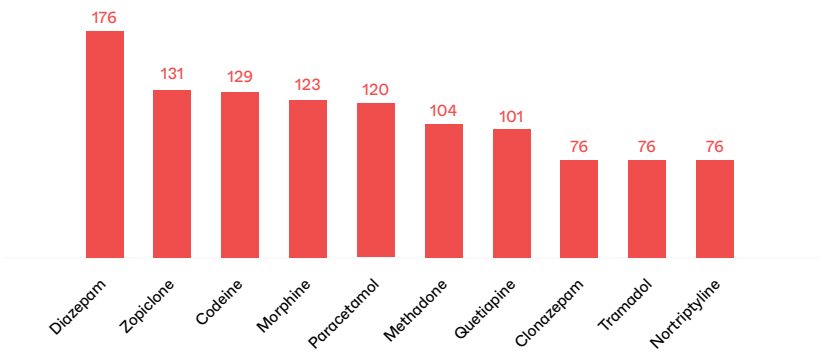
Medicines involved in overdose deaths (closed cases)
2016–2023



Several cases involved more than one medicine

Some medicines feature more heavily in overdose death cases. 14 different medications featured over 50 times each in closed cases. Diazepam, zopiclone and codeine were the most common medicines appearing in closed overdose cases.

Ten medicines most commonly appearing in overdose deaths (closed cases)
2016–2023

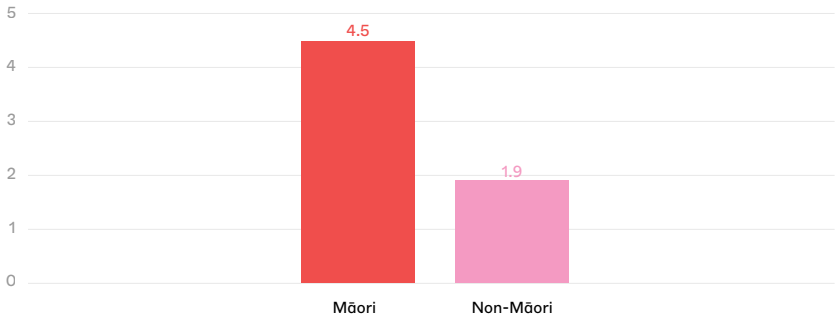


Overdose deaths by ethnicity

The graph below presents the average yearly mortality rates* among Māori and non-Māori aged 15 or over.

Concerningly, this rate is 2.4 times higher among Māori than non-Māori.

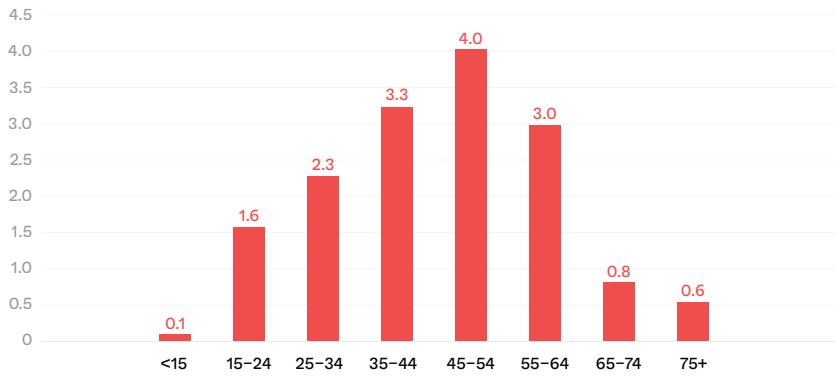
Annual accidental overdose mortality rate – excluding alcohol
per 100,000 population aged 15 and over
2016–2019



Overdose deaths by age group

The graph below presents the average yearly mortality rates* by age group. 45–54-year-olds suffer the highest rate of any age group.

Annual accidental overdose mortality rate – excluding alcohol
per 100,000 population
2016–2019



*Unfortunately, we were unable to access coronial data on active cases with ethnic or age breakdowns. This means that the information provided here is based on the Mortality Collection dataset that covered an older period of time (2016–2019; see the following pages for more details about this dataset).

Accurately measuring overdose deaths is challenging.

Aotearoa does not have a dedicated surveillance mechanism for tracking drug overdose deaths. Because of this gap in critical public health data, we try to access the best information available in the timeliest manner that we can. However, we don't have the same level of access to the data as national health agencies do.

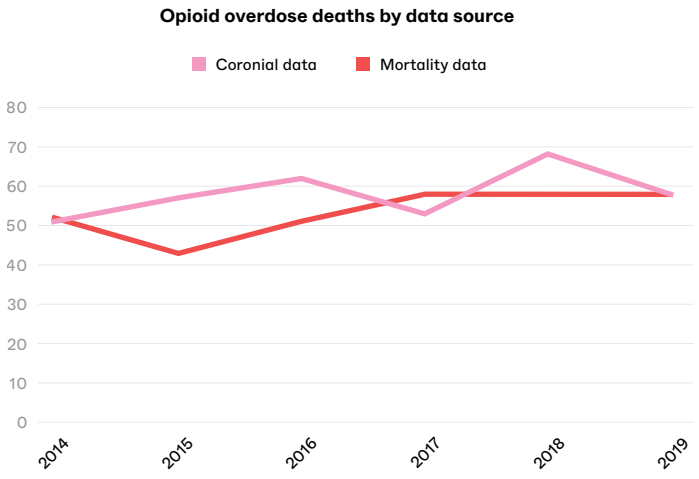
While national mortality data is collected by the Ministry of Health, reporting is delayed and the coding system does not allow straight-forward identification of overdose deaths in real time.

This year, we compared our analysis of coronial data with Mortality Collection data held by the Ministry of Health. This is New Zealand's official public repository containing information about all deaths that occurred in the country along with causes of mortality. Unlike the data we receive from the coronial office that relies on specific keyword searches, mortality data uses standardised clinical coding, making it less prone to random errors in retrieving information. However, there is usually a delay of a few years before this data is available, due to ongoing coronial inquiries and further data validation and processing.

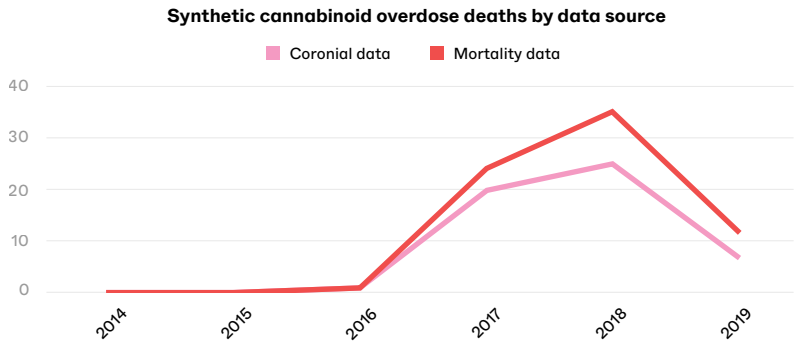
This analysis covers the national records of deaths in New Zealand.

To analyse the data, we followed the opioid mortality methodology from the US Substance Abuse and Mental Health Services Administration (SAMHSA), which we modified to cover multiple substances. We classified a case as a drug overdose if it included an Underlying Cause of Mortality external injury ICD-10 code of X40-X44 in combination with the relevant substance poisoning code. If multiple poisoning codes were present, we prioritised those that were the most likely to contribute to a fatal overdose (see page 4).

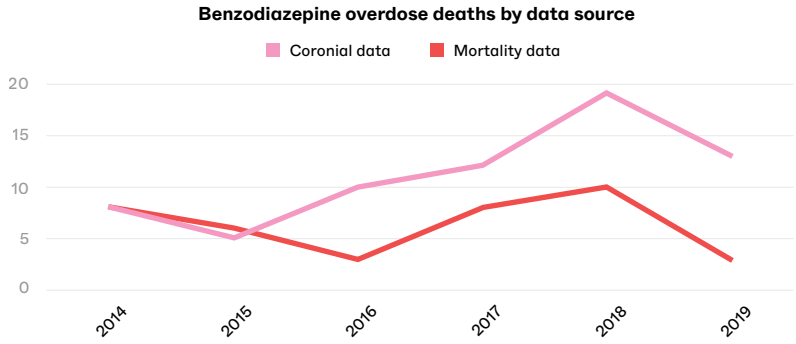
Opioids continue to be the class of drugs most likely implicated in fatal overdose in New Zealand. The discrepancy between the two data sources for the total number of deaths was just over 8% (ranging from +/- 0–25% each year). Data from mortality and coronial sources appears to show similar trends over time for the years that were covered in both datasets.



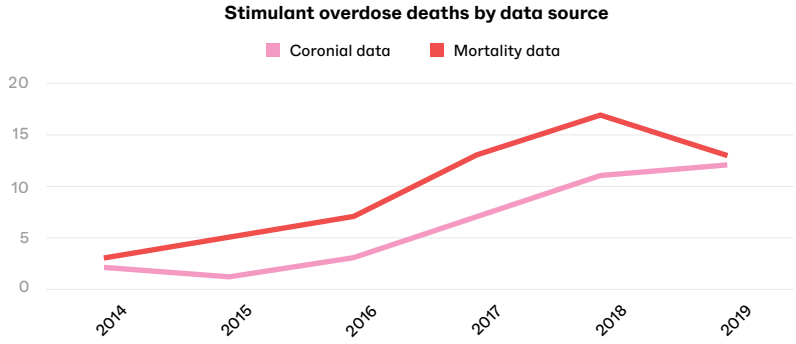
It appears that the coronial data analysis may underestimate the number of deaths caused by synthetic cannabinoids (overall, 36% discrepancy between sources). However, both data sources demonstrate a very similar trend over time.



While there are numerical differences between the two datasets we compared (43% difference for benzodiazepines over the period), the number of deaths estimated using both methods follow a similar pattern over time.



Stimulant overdose mortality estimates differed between datasets in terms of the numbers (38% difference), with coronial data underestimating the burden of stimulant overdose deaths. However, similar to other substance classes, they followed a very similar pattern over time.



While limited access to complete coronial data makes it difficult to accurately describe overdose deaths, we are reassured that the data we present in this report accurately represents the overall trends over time in different communities.

Because of its limitations, our report does not provide the timely source of information we need to prevent overdose deaths in New Zealand here and now.

We urgently need to develop a surveillance mechanism that captures the burden of overdose in our communities and can accurately track trends over time to stop preventable deaths from happening. This requires leadership and collaboration between all holders of key data, such as the health agencies, coronial offices, toxicology labs, and others.

Non-fatal overdoses
Drug poisoning presentations: public hospital discharge data

A non-fatal overdose is a major predictive factor for a future fatal overdose.

Very little research has been done to determine the incidence of non-fatal overdose in New Zealand. In this section, we present the hospitalisation data from the National Minimum Dataset (NMDS), provided to the NZ Drug Foundation under an Information Sharing Agreement with Te Whatu Ora Data Services team.

This data is most likely only the tip of the iceberg of non-fatal drug overdoses in Aotearoa. Our analysis only captures cases where people presented to the hospital, were assessed and either admitted, transferred, or discharged immediately. It does not include people who were treated by ambulance teams, received help from members of the community, or presented to after-hours clinics or GPs. **Many people who suffer a non-fatal overdose don't receive any help at all. Some may recover without treatment, while others sadly may die before getting help and end up being captured in fatal overdose figures.**

Data caveats

The NMDS data we present covers all DHBs and uses the same measures across all regions between 2014 and 2023. We only included cases of people aged 15 and over in the data.

We present cases where the ICD-10 diagnostic code for the primary diagnosis included poisonings with the following substances:

- Opioids
- Stimulants
- Cannabis
- Hallucinogens
- Other narcotics and psychotropics (this category includes synthetic cannabinoids)
- Benzodiazepines (and barbiturates: <10 cases overall)
- Alcohol

We believe that the criteria for selection of cases were conservative and will likely result in undercounting of accidental drug poisoning cases. We removed all cases where there were any codes present that could indicate intentional self-harm or poisoning by assault. We did not include cases where the substance involved was unknown. Cases where poisonings were present as non-primary diagnosis only were also excluded.

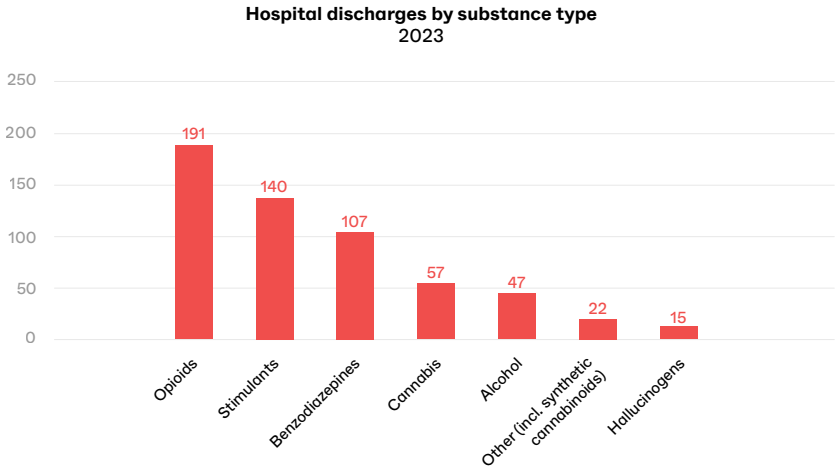
Anecdotal evidence suggests that, occasionally, cases that should be classified as accidental poisonings are misclassified as intentional self-harm – the frequency of this error is unknown.

This analysis assumes the validity of clinical diagnoses recorded and does not include toxicology data. Because of the limitations of ICD-10 coding and lack of toxicological data, this analysis is unable to provide information on NPS poisonings.

It is important to remember that not all accidental poisonings covered in this analysis resulted from deliberate ingestion of a substance. While this would be relatively rare among adults, some of the cases may include unknowingly consuming a substance that resulted in hospital presentation.

Hospital presentations for drug poisonings in 2023

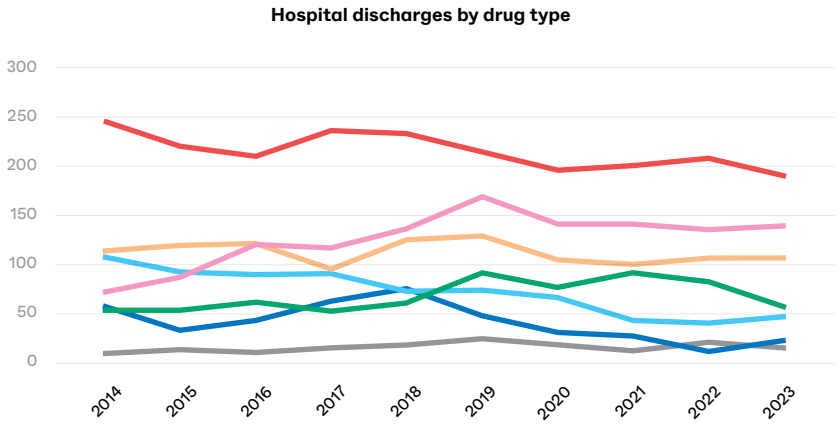
In 2023, there were 579 hospital presentations with drug poisonings. The most common implicated substance class was opioids, followed by stimulants, and benzodiazepines.



10-year trends in drug poisonings resulting in hospital presentation

Compared to the previous three years' average, the overall number of poisonings resulting in hospital visits has fallen slightly, by 6.6%. While for most substances the presentations appear to be relatively stable over the course of ten years, the stimulants presentations have been stubbornly higher over the last five years.

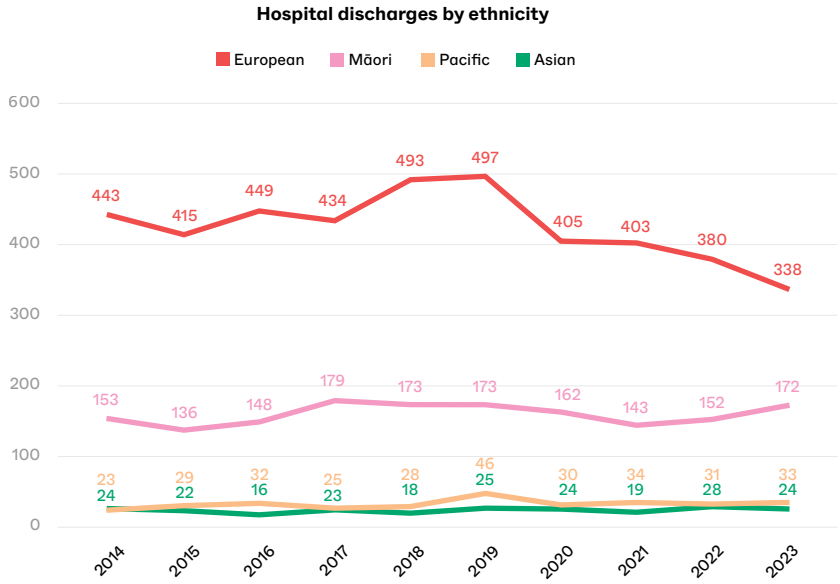
Concerningly, 10.2% of hospital presentations involved more than one depressant, which increases the risk of death.



	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	Total
Alcohol	108	93	90	91	73	74	66	43	40	47	725
Benzodiazepines	114	120	122	96	126	129	105	100	107	107	1126
Cannabis	53	53	62	52	61	92	77	92	82	57	681
Hallucinogens	9	13	10	15	18	24	18	12	20	15	154
Opioids	247	221	211	237	234	215	197	202	209	191	2164
Other (incl. synthetic cannabis)	57	33	43	63	76	48	31	27	11	22	411
Stimulants	72	87	121	117	137	170	142	142	136	140	1264
Total	660	620	659	671	725	752	636	618	605	579	6525

Hospital presentations for drug poisonings over time by ethnicity

The number of presentations has been falling for European New Zealanders over the last five years. However, it has remained stubborn for Māori, and last year even saw an increase of 12.9% for hospital discharges among Māori compared to the previous three years' average.



Deaths among people seen at New Zealand hospitals for drug poisoning

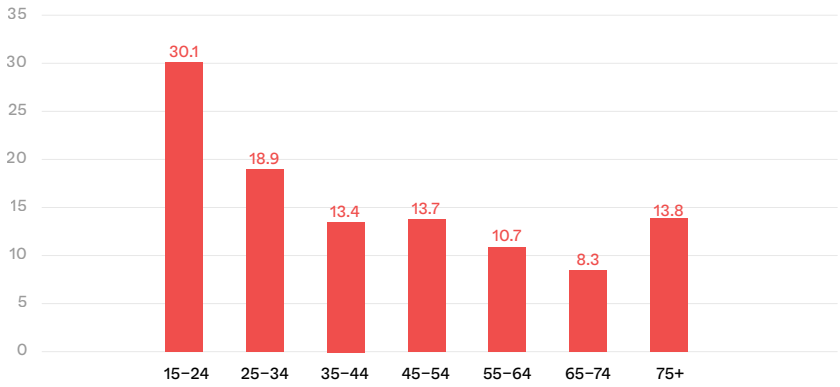
Between 2014 and 2023, 38 (0.6%) of 6,525 hospital presentations resulted in death.

This relatively low rate is not surprising considering that those who make it to the hospital are likely to receive adequate help. Another factor may be that the severity of the poisoning experienced by those presenting at hospitals is lower than among those who died before they were able to get help.

Young people are far more likely to need a visit to the hospital for drug poisoning

Relative to population size, 15–24-year-olds had the highest rate of poisoning resulting in a visit to the hospital, almost twice as high as the average rate.

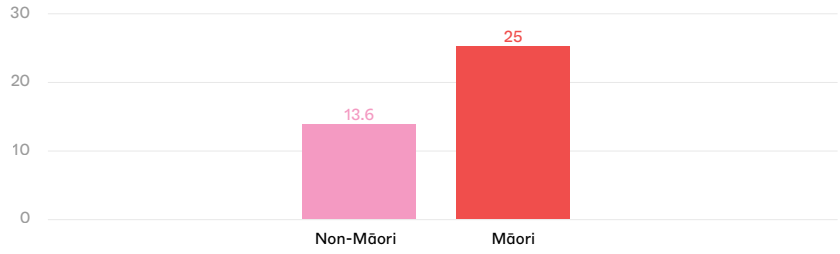
Annual rate of drug poisoning presentations (per 100,000)
2014–2023



Māori experience a higher rate of drug poisoning compared to non-Māori

Relative to the population size, Māori have 1.84 times the rate of drug poisonings that result in hospital visits compared to non-Māori in New Zealand.

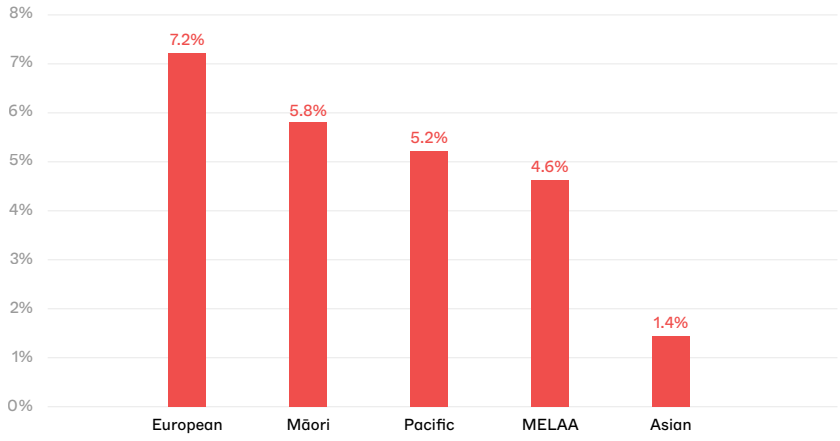
Annual rate of drug poisoning presentations (per 100,000 population aged 15 or older)
2014–2023



A relatively small number of people are seen repeatedly for drug poisoning

Over the ten years, 6,020 individuals were seen at the hospitals for drug poisonings. While the vast majority of these were seen only once, 389 people (6.5%) were seen twice or more. This was more common among NZ European individuals.

Proportion of individuals presenting for drug poisoning more than once
2014–2023



Summary and recommendations

Overall, the number of overdose deaths has been steadily increasing in Aotearoa.

These numbers are especially concerning among Māori, who suffer fatal overdoses at over twice the rate of non-Māori.

Overdose deaths are preventable and we can do better.

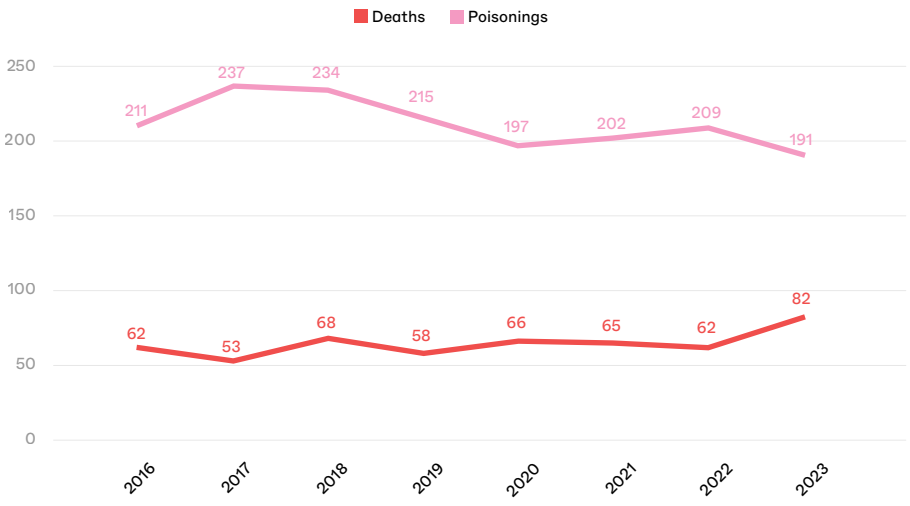
We need to urgently change gears and start addressing our country's lack of harm reduction services and effective overdose monitoring.

Overall, hospital presentations due to drug poisonings have gone down in New Zealand. While it may appear encouraging, this finding has not translated to fewer drug overdose deaths.

This is likely driven by a combination of factors, including the presence of high-potency substances in the illicit drug market that greatly increase the risk of death among the population of illicit opioid users. High Alert has released notifications of detections of nitazenes in New Zealand's illicit drug supply, and we are aware of severe poisonings, including likely deaths from nitazenes.

We are also concerned that fewer people may be showing up to hospital when they need help.

Opioid deaths and opioid poisoning hospital presentations
2016–2023



Summary and recommendations

Accidental overdoses are preventable.

We urgently need to shift our approach in order to reduce harm, stop the number of fatal overdoses increasing, and prepare ourselves for major changes in drug supply.

1 Develop and resource a comprehensive overdose programme in Aotearoa.

> This should include implementing the recommendations from our Overdose Prevention Plan. Interventions should target both those who have presented to hospital for drug poisoning and those who have never been in contact with the health system about their substance use.

2 Build a national overdose surveillance system.

> Reports like ours cannot replace a sustainable, standardised, and timely mechanism to track overdose deaths and non-fatal overdoses. A dedicated surveillance system is crucial for us to respond effectively, and to help shape policies and services that will prevent overdose mortality.

3 Ensure our legislation and regulations enable action.

> Politicians must enable communities to protect each other from harm. Outside of major drug law reform, there are many examples of minor legislative and regulatory changes that will save lives, such as a Good Samaritan clause, allowing non-commercial distribution of safer drug use equipment, and loosening the rules around naloxone delivery to communities.