

# NHS Lothian Drug-related Death Annual Report 2021

Public Health Intelligence Team

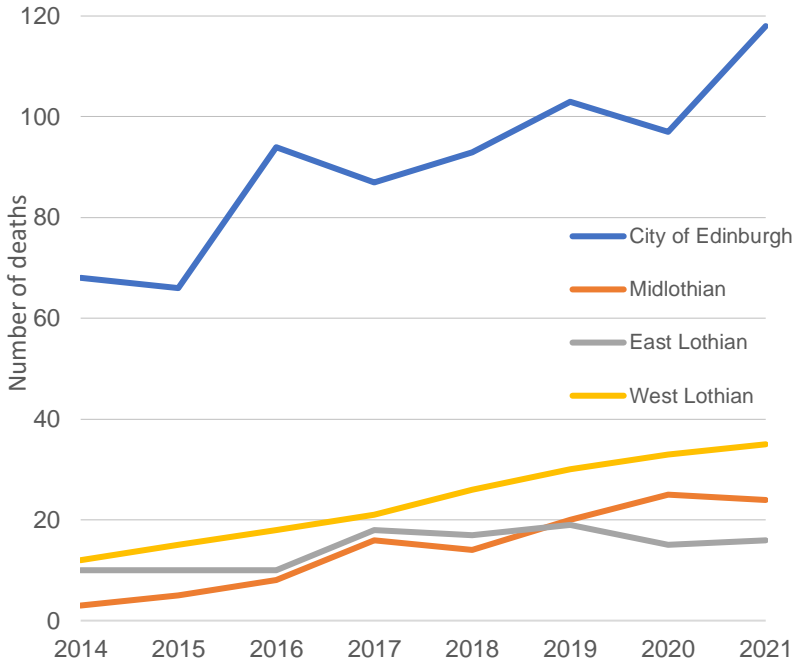
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## Summary

**Primary Drug-related deaths in NHS Lothian  
2014 to 2021**



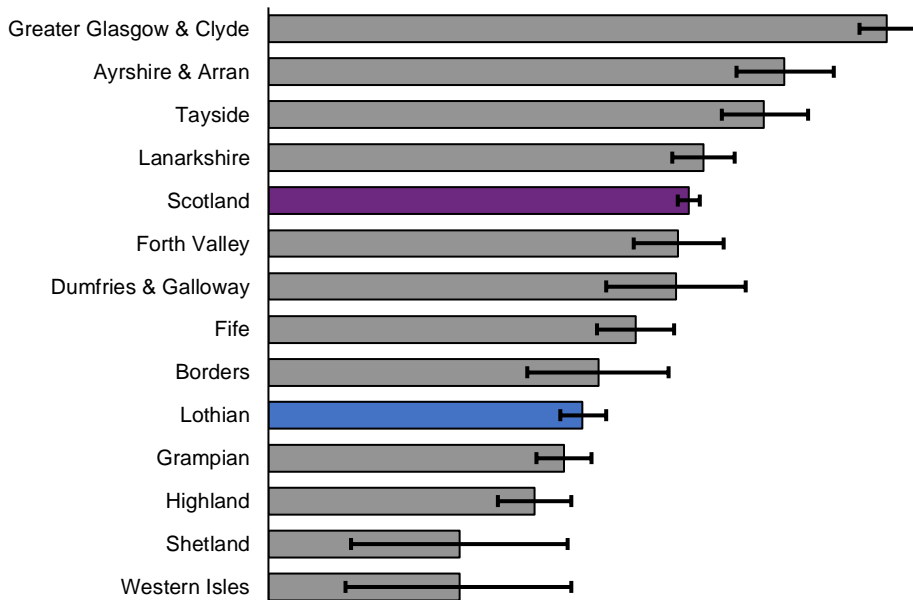
197 drug-related deaths were recorded in Lothian in 2021, the highest number ever. Nationally, 1,330 deaths were recorded, a 1% decrease compared to 2020, but still the second-highest count on record.

Of the 197 deaths in Lothian, 118 were recorded in Edinburgh, 35 in West Lothian, 24 in Midlothian and 16 in East Lothian.

Males accounted for 69% of drug-related deaths and females 31%.

63% of drug-related deaths occurred in the age group 35-54 years in Lothian.

**Drug-related deaths NHS Board areas, age standardised death rates per 100,000 population**



The rate of drug-related deaths varies substantially across Scotland. Greater Glasgow and Clyde continues to have the highest rate of drug-related deaths of all Scottish health boards with 33.7 age-standardised deaths per 100,000 population in the five-year period 2017 to 2021). In comparison Lothian recorded 17.1 drug-related deaths per 100,000 population in the same period which is below the rate of age-standardised drug-related deaths for Scotland of 22.9 deaths per 100,000.

Forty-six different drugs were implicated in drug-related deaths in Lothian in 2021. Methadone, etizolam and cocaine were the most commonly implicated drugs.

## Number of drug-related deaths over time in Lothian and a comparison to other areas

### Key findings:

- 197 drug-related deaths were recorded in Lothian in 2021
- Since 2014, there has been a 98% increase in drug-related deaths in Lothian
- The number of drug-related deaths varied widely per month in 2021 from a spike in the first quarter
- The increase in drug-related deaths was not distributed evenly throughout Edinburgh. The south-West locality saw an increase and the North-West a decrease.

In 2021, 197 drug-related deaths (DRDs) were recorded in Lothian, this is an increase on 2020 when 172 deaths were recorded. Table 1 below provides a breakdown for each locality within Lothian. Deaths occurring in prison are treated as a separate locality as are those with no fixed abode (NFA). Note that there is a difference in definition for drug-related deaths between NHS Lothian and National Records Scotland (NRS). NRS counts deaths only where drugs were listed as the first primary cause of death whereas NHS Lothian includes all primary drug-related deaths. This is explained in greater detail in Annexes B-D.

Table 1. Reports received and outcome by locality in Lothian in 2021 with 2020 as comparison

Area	Reports received	Not DRD	No cause given (unascertained)	Secondary DRD	Primary DRD	2020 1° DRDs
Edinburgh North-East	54	16	1	5	<b>32</b>	29
Edinburgh North-West	24	4	1	2	<b>17</b>	24
Edinburgh South-East	43	8	2	1	<b>33</b>	26
Edinburgh South-West	38	9	2	0	<b>27</b>	19
Edinburgh NFA	10	1	0	0	<b>9</b>	0
East Lothian	22	6	0	0	<b>16</b>	15
Midlothian	27	3	0	0	<b>24</b>	25
West Lothian	65	26	2	2	<b>35</b>	33
HMP Edinburgh & Addiewell	8	4	0	0	<b>4</b>	1
City of Edinburgh	169	38	6	8	<b>118</b>	97
<b>NHS Lothian</b>	<b>291</b>	<b>77</b>	<b>8</b>	<b>10</b>	<b>197</b>	<b>172</b>

The number of drug related deaths had remained unchanged between 2019 and 2020<sup>1</sup>. There has been an increase of 26 drug-related deaths in Lothian in 2021 compared to 2020, continuing the increasing trend in previous years and in contrast to the slight decrease seen nationally.

<sup>1</sup> Note that since the publication of the 2020 annual drug-related report one additional death was reported by National Records Scotland (NRS) which had previously missed their mid-December cut-off.

Overall, there was a 15% increase in the number of drug-related deaths in Lothian in 2021 compared to 2020. This increase, however, was largely due to the increase in deaths in Edinburgh which recorded 21 more deaths in 2021 than in 2020. The increase was also not equally spread throughout Edinburgh with the sharpest increase in the South-West of the city, encompassing Fountainbridge, Sighthill and Gorgie while the North-West locality of the city encompassing Gyle, Murrayfield and Inverleith experienced a decrease in deaths. Additionally, there were three more drug-related deaths in prison in 2021 compared to 2020.

Figure 1: Primary drug-related deaths in Lothian, 2014 to 2021

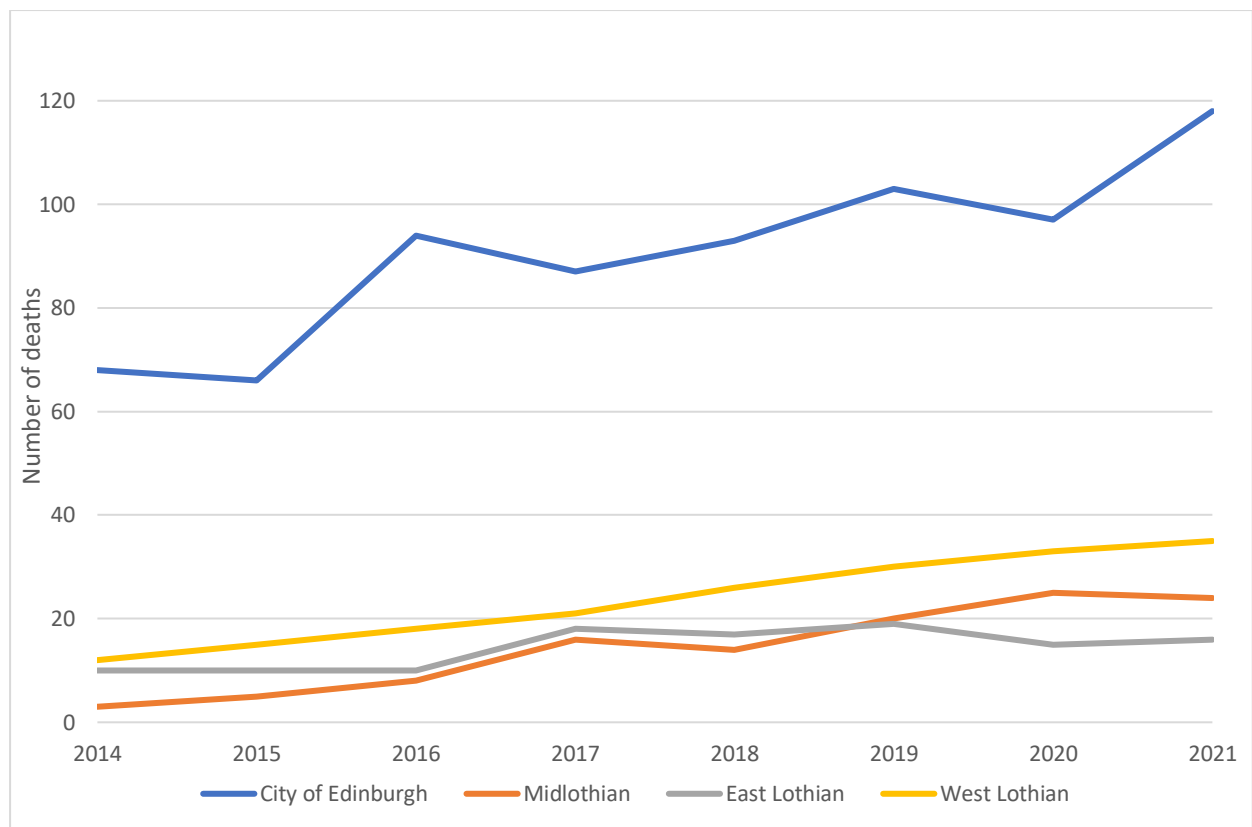


Figure 2. Suspected drug-related deaths by month between 2018-2021

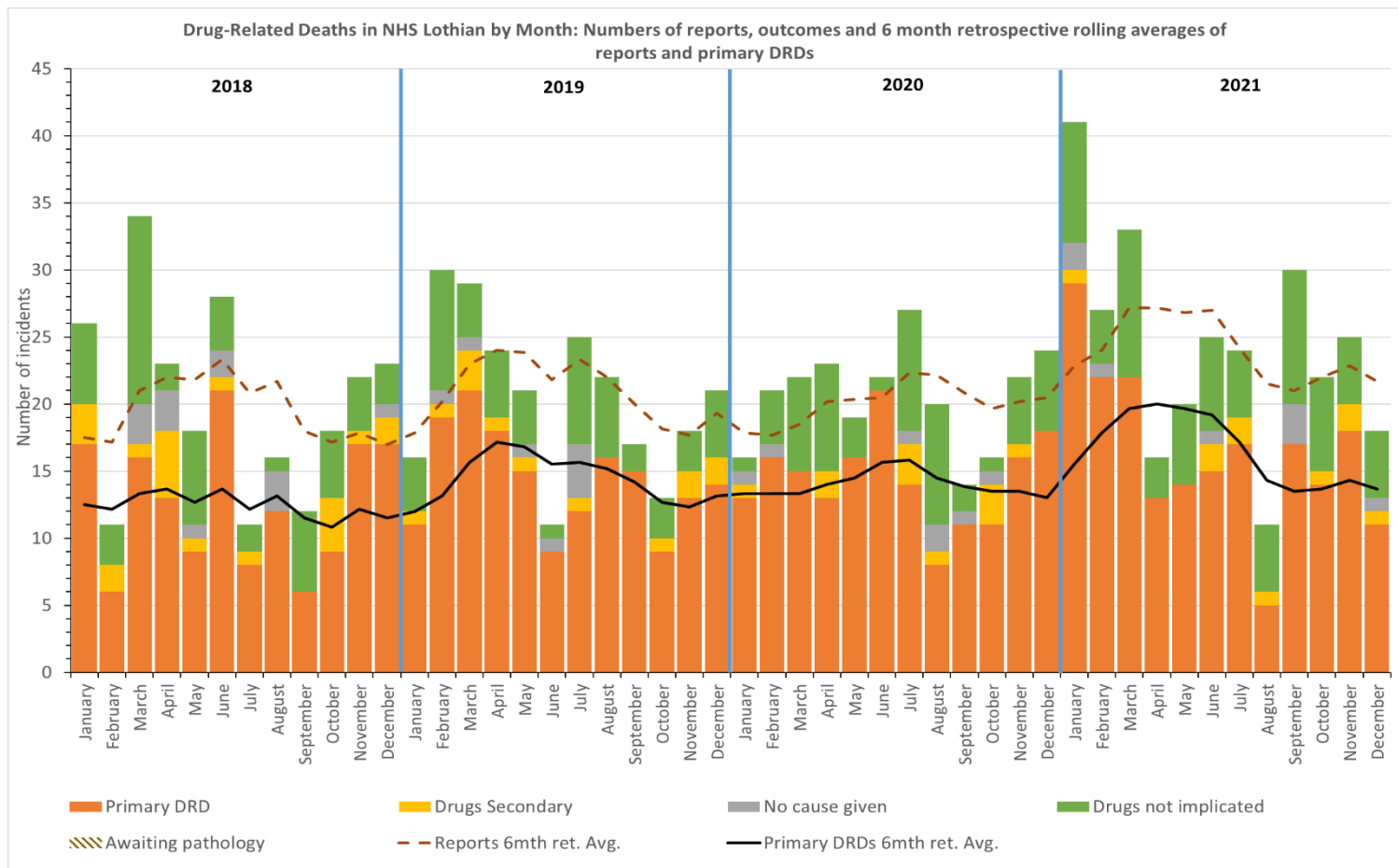


Figure 2 above shows the total number of reports of suspected drug-related deaths received by month, their status and outcome from January 2018 to December 2021. Note that there are 4 possible final outcomes: primary drug-related death, secondary drug-related death, no cause given (unascertained), and drugs not implicated. Due to the variable and unpredictable nature of the number of monthly reports and final outcomes over the period shown in the graph, two rolling averages are also shown. These are the average number of reports received (dashed red line) and primary drug-related deaths over the previous 6 months (solid black line) i.e., a retrospective rolling 6-month average. This smooths out the month-to-month variation to help reveal underlying trends (without removing all variation).

In the first quarter of 2021 (Jan- March) there was a spike in drug-related deaths to a level not seen before in Lothian with a total of 73 deaths. In the following months of the year the number returned to levels closer to those of previous years. As seen in previous years there was a dip in the number of suspected and confirmed drug-related deaths in the summer.

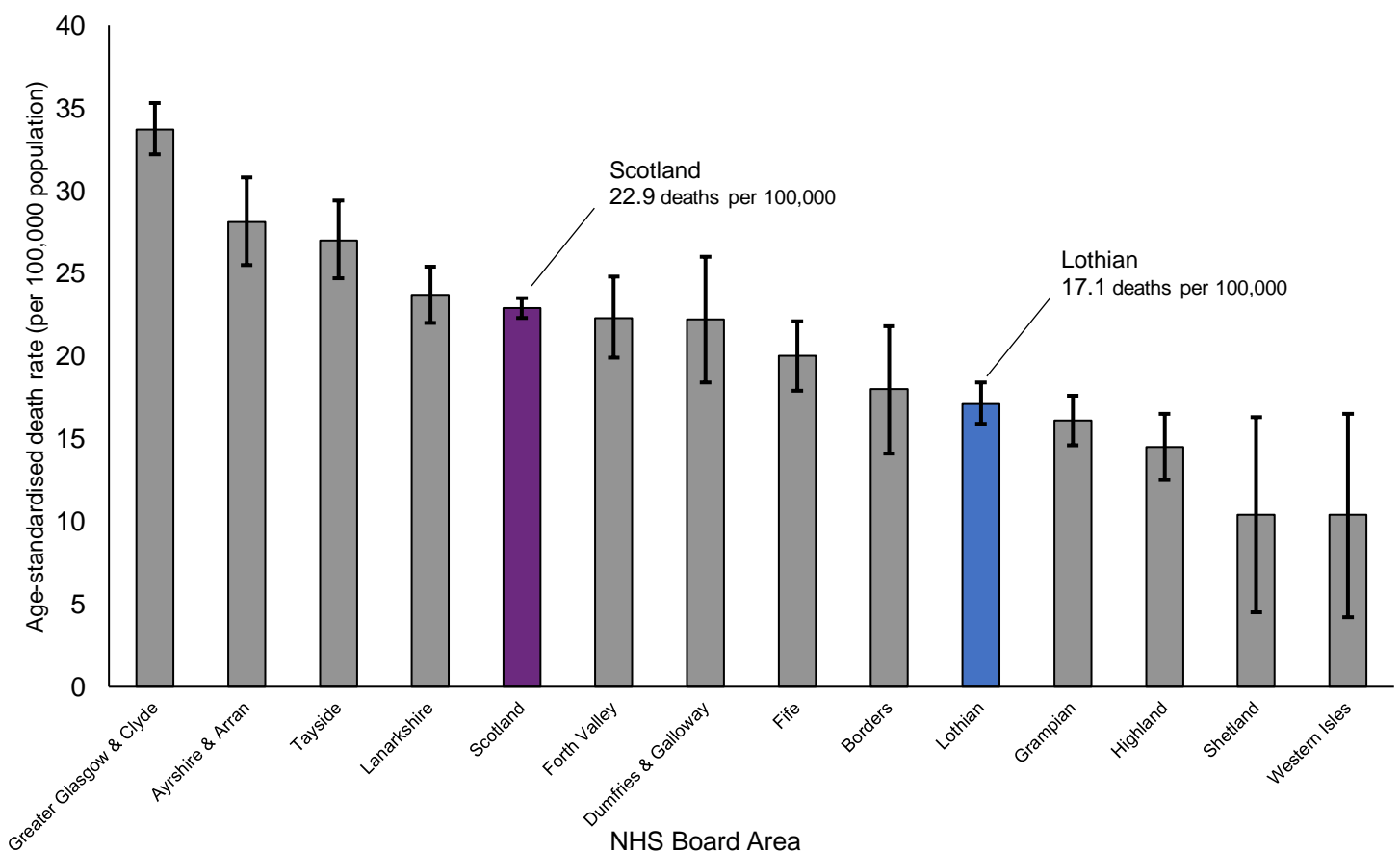
## Comparison of numbers of drug-related deaths and mortality rates in Lothian and other areas

The rate of drug-related deaths varies substantially between health boards across Scotland. Below (Figure 3) comparison of age-standardised drug-related death rates (per 100,000) is made between health boards.

Note that for comparison between health boards and council areas NRS data has been used in this section which is based on a different definition of drug-related deaths. The NRS definition only includes deaths in which drugs were listed as the first primary cause of death whereas NHS Lothian includes all primary drug-related deaths. See annex B and C for these definitions.

Greater Glasgow and Clyde continues to have the highest rate of drug-related deaths of all Scottish health boards with 33.7 age-standardised deaths per 100,000 population in the five-year period 2017 to 2021). In comparison Lothian recorded 17.1 drug-related deaths per 100,000 in the same period which is under the rate of age-standardised drug-related deaths for Scotland of 22.9 deaths per 100,000.

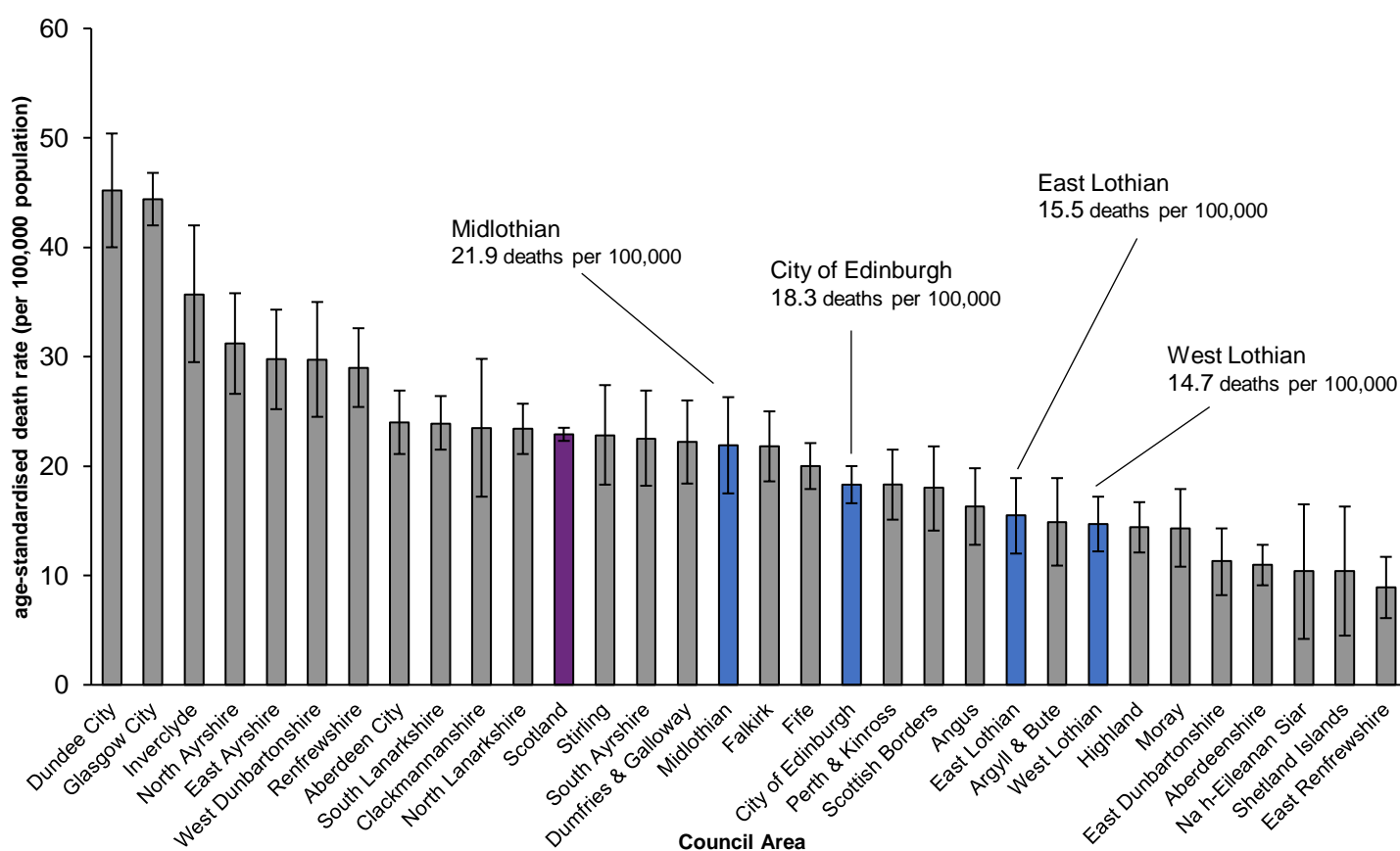
Figure 3: Drug misuse deaths for selected NHS Board areas, age standardised death rate per 100,000 population 2017-2021<sup>2</sup>



<sup>2</sup> Source: NRS Drug-related deaths in Scotland in 2021 Data Figure 5a

The rate of drug-related deaths has changed substantially in Scotland since 2000. Nationally the age-standardised death rate per 100,000 has increased from 6.3 in 2000-2004 to 22.9 in 2017-2021. This change has been particularly large in Greater Glasgow and Clyde increasing by 24.8 deaths per 100,000 over this period. By contrast the increase in Lothian has been below the Scottish average but nevertheless increased by 12.6 deaths per 100,000.

Figure 4: Drug misuse deaths for selected council areas, age standardised death rate per 100,000 population 2017-2021<sup>3</sup>



At a local authority level, between 2017 to 2021 Dundee City had the greatest number of age-standardised drug-related deaths per 100,000 at 45.2. Using Scotland as a benchmark the City of Edinburgh, East and West Lothian with 18.3, 15.5 and 14.7 deaths per 100,000 respectively, had lower rates of drug-related deaths. Of the local authority areas Midlothian reported the highest rate of drug-related death at 21.9 which is not statistically distinguishable from Scotland as a whole.

<sup>3</sup> Source: NRS Drug-related deaths in Scotland in 2021 Data Figure 6a



## Where in Lothian and when did people die from a drug-related death?

### Key findings:

- Drug-related deaths are observed across Lothian, but concentrated in a few postcode areas
- The largest growth in drug-related deaths occurred in Edinburgh which in previous years had stabilised

The largest number of drug-related deaths in 2021 in Lothian occurred in Edinburgh (118), followed by West Lothian (35), Midlothian (24) and East Lothian (16). This trend remains unchanged from previous years.

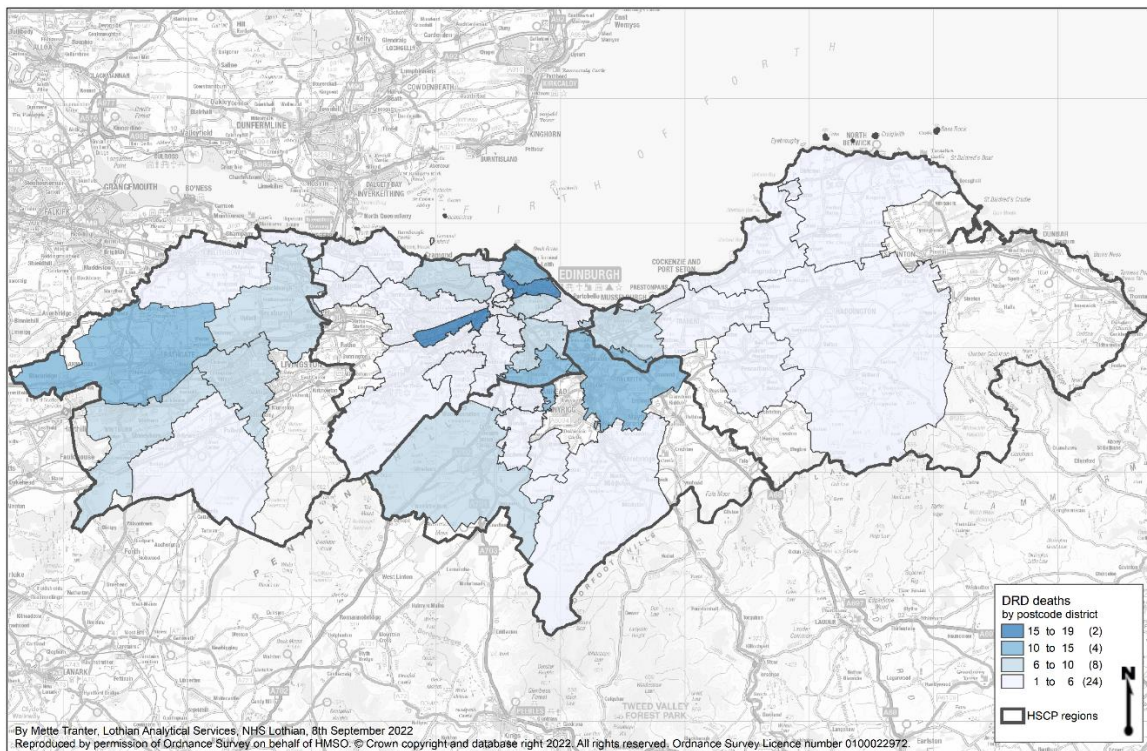
### Post code areas

Drug-related deaths are wide-spread throughout Lothian. In 2021, drug-related deaths were recorded in 38 of the 48 Lothian post code areas (compared to 39 in 2020). Fourteen postcodes recorded 5 or more drug-related deaths while six recorded 10 or more. The postcode with the greatest number of drug-related deaths EH11 (encompassing Sighthill, Georgie, and Saughton) with 19 followed by EH7 (encompassing Craightinny, Lochend, and Restalrig) with 16. Note that the population and size of postcode areas varies widely throughout Lothian.

Table 2: Drug-related deaths by postcodes area in NGS Lothian 2021

Locality	Postcode of residence	Number of drug-related deaths in 2021
Edinburgh South-West	EH11	19
Edinburgh North-East	EH7	16
West Lothian	EH48	11
Edinburgh South-East	EH17	10
Midlothian	EH22	10
Edinburgh North-East	EH6	10
Edinburgh South-East	EH16	8
West Lothian	EH47	8
Edinburgh South-East	EH8	8
Midlothian	EH26	7
Edinburgh North-West	EH4	7
West Lothian	EH52	7
East Lothian	EH21	6
West Lothian	EH54	6

Figure 5: Map of drug-related deaths in Lothian in 2021 (note drug-related deaths where the individual had no fixed abode or those that occurred in prison are not included).



## Demographics of those who suffered a drug-related death

Of the 197 primary drug-related deaths in Lothian in 2021, 135 were male (69%), 61 were female (31%), and one was transgender whose legal status was unknown. The split of sexes of those who suffered a drug-related death in Lothian in 2021 is consistent with national figures from National Records Scotland (NRS) which found males to account for 70% of drug-related deaths. However, the number of females has increased compared to 2020 from 23% to 31%, returning to the proportion seen in previous periods after a lower than expected number of deaths in females in 2020.

Nationally, there has been an increase in the likelihood of females to die from a drug related death. After adjustment for age, males are now 2.4 times as likely to die of a drug-related death decreasing from 4 times as likely in 2000.

Table 3. Age distribution

Sex	Mean (years)	Standard Deviation	Min	Median	Max	n
Female	44.5	12	20	43	80	61
Male	43.0	11.6	19	43	77	135
All	43.5	11.7	19	43	80	197

Note: One death of a transgender person has only been included in the 'all' group.

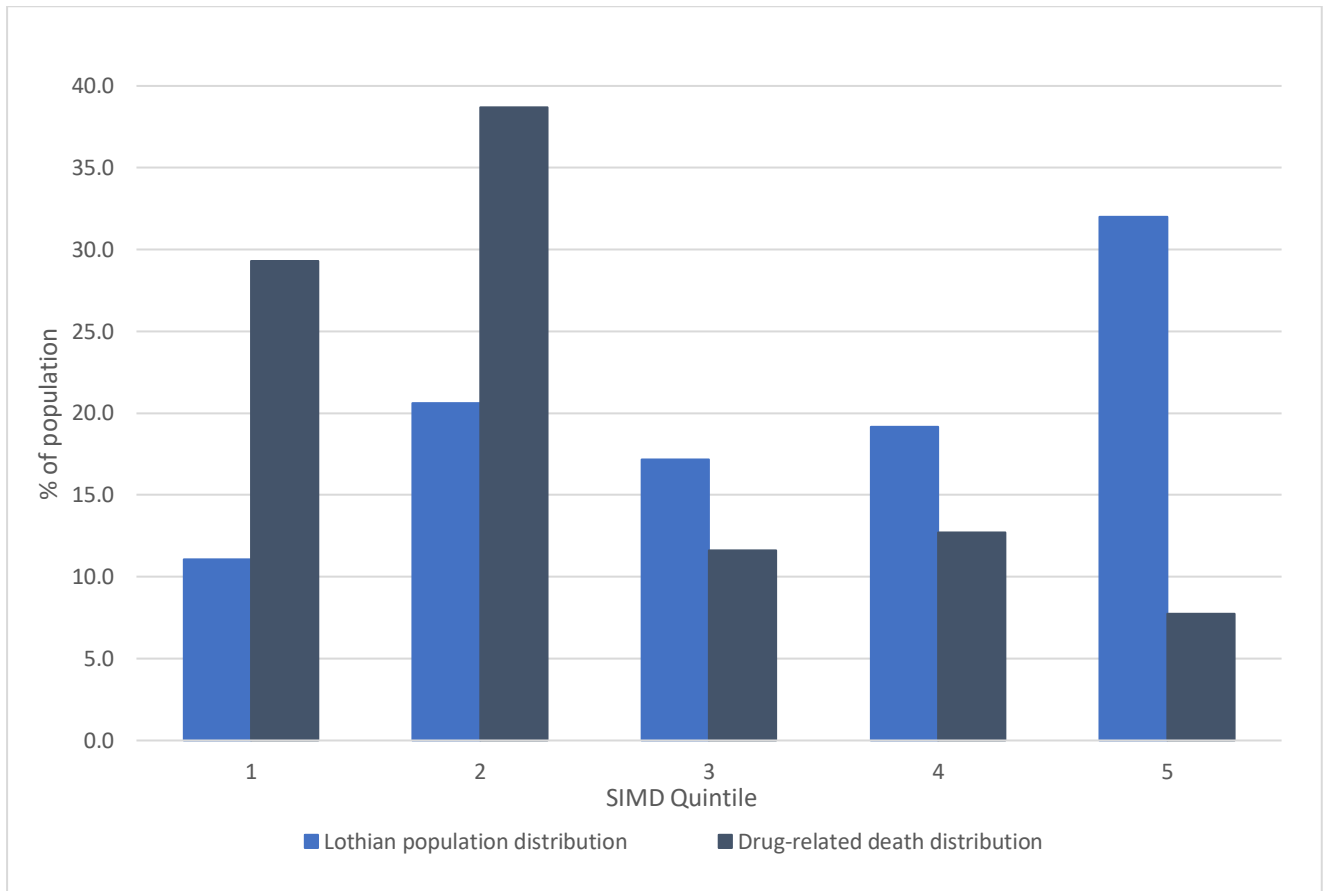
The median age of those who died from a drug-related death in 2021 has remained unchanged from 2020. However, nationally National Records of Scotland has found the average age of drug-related deaths has increased from 32 to 43 in the last 20 years. Similar to national figures, where 65% of all drug-related deaths in 2021 were in the age group 35-54, in Lothian 63% of deaths were within this age range (124), slightly lower than the 69% in 2020.

Table 4. Drug-related deaths by age-group and sex

		15-24	25-34	35-44	45-54	55-64	65+	Total
Male	2021	10	21	43	43	13	5	135
	2020	12	18	38	46	14	4	132
Female	2021	3	9	19	19	8	3	61
	2020	1	3	12	18	4	1	39
All	2021	13	30	62	62	22	8	197
	2020	13	21	50	64	18	5	172

Note that one death in 2021 was in a transgender person whose legal status was unknown and is included in the total count (but not breakdowns by sex) and one death in 2020 was in someone aged less than 15 and thus included in the total count (but not breakdowns by age).

Figure 6. Lothian population by Scottish Index of Multiple Deprivation (SIMD) quintile and Drug-related death distribution



Nationally in 2021, drug-related deaths after adjustment for age, were 15.3 times more likely for those living in the most deprived areas (SIMD quintile 1) than those who live in the least deprived areas (SIMD quintile 5). This equates to an age-standardised mortality rate of 64.3 per 100,000 population in the most deprived areas to 4.2 in the least deprived areas. The gap between the risk of a drug-related death in the most and least deprived areas has doubled in the last 20 years.

Drug-related death, as one of the ‘deaths of despair’ are more common for those who live in more deprived areas. In Lothian 11.1% of the population live in the most deprived quintile however this population experienced 29.3% of Lothian’s drug-related deaths in 2021. Additionally, 68% of drug-related deaths in 2021 in Lothian were residents of the two-most deprived quintiles. This was despite only 32% of the total Lothian population living in these areas.

## Contact with specialist services

### Key findings:

- 37% of those who suffered a drug-related death were in current contact with drug-misuse services (GP-NES or SMS)
- A further 15% of drug-related deaths had had contact with specialist services in the year leading to death

For each drug-related death, records were searched to establish the person's history of contact with specialist drug misuse services. All cases were checked for their Substance Misuse Service (SMS) and the General Practitioner National Enhanced Service (GP-NES) status.

Persons were deemed as currently in service for SMS if they had not been discharged from the service. For GP-NES, two data sources were used, records of appointments and prescription data. Persons with a history of GP-NES registration were classified as currently in service if they had had an appointment or a prescription within 60 days of death.

Table 5 below shows the service status for all drug-related deaths in Lothian in 2021 from either the date of discharge from SMS or 60-days after the last appointment or prescription from GP-NES. This method of classifying the service status of individuals was used for the 2019 annual report. The 2020 annual report differs slightly as contact with services was calculated solely on one's last prescription date due to the lack of appointment opportunities during the COVID-19 pandemic.

Table 5. No. of drug-related deaths by status and engagement with service – days since contact

Service and status	Number of cases	Percentage of cases
GP-NES current	30	15%
SMS current	44	22%
SMS 1 to 2 months	5	3%
GP-NES 61 to 365 days	11	6%
SMS 61 to 365 days	12	6%
GP-NES >1 year ago	13	7%
SMS >1 year ago	20	10%
No history of contact	62	31%

Over a third of those (37%) who suffered from a drug-related death were in current contact with drug misuse services at the time of their death (36% in 2020). This is a sustained increase from 2019 when 24% were found to be in service. A further 15% of those who suffered a drug-related death in 2021 were in contact with services in the year prior to their death. However, it is difficult to know if those that died from a drug-related death had engaged with other services, for example mental health services. Public Health Scotland estimates that in Lothian there are 9,000 persons with a drug problem (PDP) (with 95% CI 8,500 to 9,500), which gives an estimate of 12.4 deaths per 1,000 problem drug users (from 2015/2016 estimate) annually between 2013 and 2017.

## Situation and circumstances at death

### Key findings:

- Over three-quarters of those who suffered a drug-related death lived in permanent (rented or owned) accommodation
- Three-quarters of those who suffered a drug-related death were found dead
- 65% of those who suffered a drug-related death were not alone in the property and 44% were not alone in the room
- Most people died in their home 68%, followed by 18% in someone else's home.
- Drug-related deaths were most often found by a friend, family member or partner
- 13 drug-related deaths had children or young persons present

Understanding the immediate circumstances of drug-related deaths is crucial given that almost all overdoses are potentially reversible if recognised and treated on time, for example with Naloxone. This requires someone else to be present, to recognise the overdose and to act.

Table 6. Immediate circumstances at death

	Yes	No	Unclear or unknown	Other	% Yes
Found dead	147	25	25	0	75%
Lived alone	97	94	3	3	49%
Alone in premises at fatal event	68	121	6	2	35%
Alone in room at fatal event	111	65	19	2	56%

Three-quarters (147) of those who suffered a drug-related death in 2021 in Lothian were found dead, and for a further 13% the circumstances were unclear. Half of those who suffered a drug-related death in 2021 lived alone, however, this does not mean that the person was alone at the time of death. The percentage of those living alone has increased in the previous year from 41% to 49%.

Around two-thirds of those who died from a drug-related death in 2021 were not alone in the premises and 44% were not alone in the room at the time of death. While this may present an opportunity for interventions for example with naloxone, this would require the signs of an overdose such as heavy breathing, gouching (falling asleep/losing consciousness), or snoring to be detected. Only twenty-one cases had the signs of an overdose identified. Twelve of the deaths occurred in hospital indicating that most of the persons who suffer from a drug-related death do not expediently receive hospital care, however omitted from this picture is how many reached hospital and survived.

Table 7. Accommodation status

	Number of cases	%
Non-temporary	159	81%
Temporary other	18	9%
Hostel	4	2%
No fixed abode (NFA)	6	3%
Supported accommodation	5	3%
Prison	4	2%
Unknown	1	1%

Table 7 above provides a breakdown of the type of accommodation each person lived in at the time of their death. However, the accommodation status of some persons could have changed shortly before death and thus these figures may be subject to a degree of imprecision.

The definitions used are:

- Non-temporary accommodation: owned, privately rented, housing association, or council owned. Note that someone living long term in parents' or other family accommodation is included here.
- Temporary other: includes bed and breakfast accommodation not specifically for people experiencing homelessness and "sofa surfing" or staying short-term with friends.
- Hostel: is an established hostel for people with no other form of accommodation.
- No fixed abode (NFA): the person was sleeping outdoors with no form of accommodation.
- Supported accommodation means accommodation for those with extra needs with support staff present but not a hostel.

81% of those who suffered from a drug-related death in 2021 were registered as living in non-temporary accommodation. This is an increase compared to 2020 when 73% lived in non-temporary accommodation.

Two-thirds of drug-related deaths were found in their own homes (consistent with previous years). Other drug-related deaths were found in other's homes (17%) or in their temporary accommodation (9%). Relatively few cases were found outside (5) or in other circumstances (4) such as in prison, see table 8 for a full breakdown. The majority of those who suffered a drug-related death were discovered by their family or friends with the other deaths found by the police or others (which includes among others accommodation staff, emergency services, and strangers). See table 9 for a full breakdown.

Tragically children and young people have also been involved in drug-related deaths by losing a parent/ guardian or someone that they were close to. In 2021 in Lothian 10 children and 3 young people were present at the time of a drug-related death. Of the 197 people who died in 2021, 62 had children or young people (a total of 84 children and young people). See table 10 for a full breakdown of the children and young people linked to those who suffered a drug-related death.

Table 8. Where found

	Number	%
Own home	134	68%
Other's home	34	17%
In own room in temp accommodation/hostel	18	9%
Outdoors	5	3%
Unknown:	2	1%
Other	4	2%

Table 9. Who found?

	Number	%
Friend	55	28%
Family member (excluding partner)	45	23%
Partner	37	19%
Other	32	16%
Police (including welfare checks)	26	13%
Unknown	2	1%

Table 10. Child or Young Person linked to drug-related deaths

	Cases with children	Number of cases living with children or young people	Number of cases with children or young persons present at death
Children 0 to 15	29	12	10
Young persons aged 16 to 25	33	4	3



## Indicators of risk for a drug-related death

Stigma surrounding drug use can marginalise individuals and make it more difficult to seek help, therefore, events such as a non-fatal overdose or contact with the police, present an opportunity for preventative care by linking individuals with services and care.

### Non-fatal overdoses (NFO)

Prior non-fatal overdoses (NFO) are recorded for those that suffered from a drug-related death. Two sources are used to ascertain previous NFO, any mention of a recent (within 6-months of death) NFO mentioned in either the police or pathology reports or an individual recorded in the NHS Lothian dataset of non-fatal overdoses which contains data from the Scottish Ambulance service (SAS) and TRAK (NHS Lothian patient records).

In 2021, 37 (19%) of those that died from a drug-related death had been known to have a recent overdose.

### Police custody

Forty-four people who suffered a drug-related death in 2021 had been in police custody in the 6 months prior to their death and 6 people had both a recent overdose and were in police custody in the 6 months prior to their death.

## Drugs implicated

### Key findings:

- 46 different drugs were implicated in drug-related deaths in 2021, compared to 42 in 2020 and 55 in 2019
- Poly drug use remains the norm: the median number of drugs implicated in death was 4
- Opioids remain the most implicated class of drugs, followed by benzodiazepines
- 'Street' benzodiazepines (benzodiazepines not licensed for prescription) are more frequently implicated than 'prescribable' benzodiazepines
- Methadone, etizolam, and cocaine respectively are the most implicated drugs

Drugs implicated in death are those listed by the pathologist on the ME4 form. This form is specifically for the pathologist to confirm which drugs they believe were involved in each death. The extent that each primary drug was implicated in death is coded as below. The level of implication is significant in understanding how different drugs contributed to each drug-related death.

- 10: The drug was probably the cause of death on its own
- 20: The drug could have caused death on its own but other drugs will or may have contributed
- 30: The drug was one of a number of drugs that, acting in combination, were responsible for the death
- 40: The drug was implicated in death alone or in combination with other drugs and with another non-drug related factor, for example COPD or ischaemic heart disease

### Classes of drugs implicated

Sixteen different classes of drugs and 46 different drugs were implicated in at least one drug-related death in Lothian in 2021, this is compared to 50 and 42 different drugs implicated in 2019 and 2020 respectively. Table 11 below provides a full breakdown of the classes of drugs implicated including the number of drugs, deaths implicated in, and total times implicated. Furthermore, the level of implication in each death is also included (based on the above coding).

It remains uncommon for a single drug alone, of any class, to cause death (11 of 197 deaths) although in a further 13 deaths, one drug alone could have caused death, but one or more other drugs were present that also contributed to death. Most drug implications were part of mixed drug toxicity (653 of the 730 drugs implicated). Additionally, 53 drugs were implicated along with a pre-existing condition.

Opioids remain the most frequently being implicated in 173 of the 197 deaths, the nine different drugs were implicated a total of 262 times. Benzodiazepines are the second most frequently implicated class of drug, implicated in 139 deaths. Benzodiazepines work together with other classes of drugs to often increase the risk of death. Stimulants are the third most

implicated class of drugs. They were implicated in 91 deaths, compared to 82 in 2020. Stimulants are proportionally the most frequently implicated drug with a non-drug related factor such as ischaemic heart disease. Gabapentinoids, despite their reclassification in 2019 to controlled substances, have been implicated to a similar degree as in previous years.

Table 11. Classes of drugs in primary drug-related deaths in Lothian in 2021

Drug class	Number of different drugs	Number of DRDs implicated in	Total times implicated	Level of implication			
				10	20	30	40
Opioid	9	173	262	9	9	222	22
Benzodiazepine	11	139	203	1	1	192	9
Stimulants	4	91	98	1	2	84	11
Gabapentinoid	2	79	82	0	0	78	4
Anti-depressant	5	29	32	0	1	29	2
Alcohol	1	22	22	0	0	22	0
Anti-psychotic	3	9	9	0	0	8	1
Non-benzodiazepine GABAergic	2	7	7	0	0	7	0
Anaesthetic and NMDA receptor antagonist	1	4	4	0	0	3	1
Beta blocker	1	3	3	0	0	2	1
Antihistamine	2	3	3	0	0	2	1
NSAID	1	1	1	0	0	1	0
Anti-nausea	1	1	1	0	0	1	0
Anti-cholinergic	1	1	1	0	0	0	1
Anti-epileptic	1	1	1	0	0	1	0
Anti-malarials and amoebicides	1	1	1	0	0	1	0
<b>Grand Total</b>	<b>46</b>	<b>195</b>	<b>730</b>	<b>11</b>	<b>13</b>	<b>653</b>	<b>53</b>

### The most commonly implicated drugs

The most commonly implicated drugs in drug-related deaths in 2021 closely resemble that of 2020 and 2019 with the addition of buprenorphine, with some slight changes in ranking. A full breakdown and comparison to 2020 is provided in Table 12. Methadone remains the most commonly implicated drug and is frequently prescribed to people with an illicit opioid addiction undergoing opioid-substitution therapy. Methadone however is rarely the only drug implicated in a death. There has also been a large increase in the number of deaths where heroin was implicated with 54 deaths in 2021 compared to 29 in 2020.

Etizolam remains the second most common drug implicated with 100 deaths linked to the street benzo in 2021 compared to 71 in 2020, rising sharply from 43 implications in 2018. Diazepam implications have decreased slightly, potentially due to the increased use of other benzodiazepines.

Cocaine was implicated in 87 deaths in 2021 compared to 70 in 2020. Cocaine and other stimulants can be fatal in a non-dose dependent manner and thus likely to be implicated whenever they are present.

Table 12. The most commonly implicated drugs in drug-related deaths and a comparison with 2020

Drug class	Drug name	2021 DRDs	2020 DRDs	2021 rank	2020 rank
Opioid	Methadone	108	84	1	1
Benzodiazepine	Etizolam	100	71	2	2
Stimulant	Cocaine	87	70	3	=3
Gabapentinoid	Pregabalin	64	59	4	5
Benzodiazepine	Diazepam	61	70	5	=3
Opioid	Heroin derived morphine	54	29	6	6
Opioid	Morphine**	27	17	7	10
Opioid	Dihydrocodeine	24	21	8	9
Alcohol	Alcohol	22	26	9	8
Gabapentinoid	Gabapentin	18	27	10	7
Opioid	Buprenorphine	18	15	10	11

\*\*Morphine detected in the absence of 6-monoacetylmorphine (6-MAM) and lower levels of codeine.

## Opioids

Table 13 below provides a breakdown of the opioids implicated in drug-related deaths and their level of implication. Methadone and buprenorphine are the two most prescribed drugs in opioid substitution therapy (OST); however, they are not always prescribed to the person that has died (see table 18 below). The increase in deaths where heroin was implicated follows years of decreases (2018: 42, 2019: 38, 2020: 29). The South-East locality of Edinburgh had the highest number of deaths in which heroin was implicated at 12, the same number as in 2020. Tramadol which in 2018 was not implicated in Lothian has decreased slightly from 2020. A full breakdown of drugs implicated can be found in Annex A. Codeine has also increased in comparison to 2020, while oxycodone and fentanyl have decreased slightly.

Table 13. Opioid breakdown in primary drug-related deaths

Drug name	Level of implication				Total
	10	20	30	40	
Methadone	3	2	93	10	108
Heroin derived morphine	2	1	46	5	54
Morphine	1	0	23	3	27
Dihydrocodeine	2	4	17	1	24
Buprenorphine	0	1	16	1	18
Tramadol	0	0	11	1	12
Codeine	0	1	10	0	11
Oxycodone	1	0	5	0	6
Fentanyl	0	0	1	1	2

## Benzodiazepines

Eleven different benzodiazepines were implicated in deaths in 2021 an increase from the 9 implicated in 2020 but a decrease from the 13 in 2019. Table 14 below provides a breakdown of the benzodiazepines and other drugs acting in a similar manner along with their level of implication.

Table 14. Benzodiazepine and GABAergic drugs

Drug class	Drug name	Level of implication				Total
		10	20	30	40	
Benzodiazepine	Etizolam	0	1	93	6	100
	Diazepam	0	0	58	3	61
	Flubromazolam	1	0	8	0	9
	Clonazolam	0	0	8	0	8
	Clonazepam	0	0	7	0	7
	Alprazolam	0	0	7	0	7
	Flubromazepam	0	0	4	0	4
	Nitrazepam	0	0	2	0	2
	Lorazepam	0	0	2	0	2
	Flualprazolam	0	0	2	0	2
	Diclazepam	0	0	1	0	1
Non-benzodiazepine GABAergic	Zopiclone	0	0	6	0	6
	Zolpidem	0	0	1	0	1
Anti-epileptic	Carbamazepine	0	0	1	0	1

Etizolam remains the most implicated benzodiazepine greatly increasing from 2018. Diazepam implications have fallen from 70 in 2020 to 61 in 2021. This potentially reflects the availability of supply.

Public Health Scotland (PHS) has proposed a distinction between ‘prescribable’ and ‘street’ benzodiazepines (see Annex H). Applying this distinction to the implications of benzodiazepines in 2021: of the 203 benzodiazepines implicated in drug-related deaths in Lothian, 71 were prescribable and 132 were classified as street benzodiazepines. However, not all prescribable drugs were prescribed to the person whose death they were implicated in, see table 18 for prescription drugs’ implications in drug-related deaths.

### Stimulants

Stimulants while contributors to multi-drug deaths have a higher prevalence of being the sole drug in drug-related deaths or with another pathology such as ischaemic heart disease. Long term use of stimulants is known to cause heart disease. There has been an increase in implications from cocaine in 2021 (87) compared to 2020 (70), however the number of implications from other stimulants such as MDMA, amphetamine and methamphetamine have decreased. Table 15 below provides a breakdown of stimulants implicated in deaths in 2021.

Table 15. Stimulants implicated

Drug name	Level of implication				Total
	10	20	30	40	
Cocaine	1	1	75	10	87
Amphetamine	0	0	6	1	7
MDMA (ecstasy)	0	0	3	0	3
Methamphetamine	0	1	0	0	1

## Gabapentinoids

Implications of pregabalin in deaths has remained stable since 2019 and gabapentin implications have decreased compared to 2020. Gabapentinoids remain an important contributor to multi-drug deaths due to their depressant effects.

Table 16. Gabapentinoids implicated

Drug name	Level of implication				Total
	10	20	30	40	
Pregabalin	0	0	61	3	64
Gabapentin	0	0	17	1	18

## Alcohol

Alcohol, due to its depressant effect, can exacerbate the effects of other depressant drugs such as benzodiazepines and opioids and thus has only been implicated in deaths with other drugs. In 2012, this was the case in 22 drug-related deaths.

Table 17. Alcohol implicated in drug-related

Drug name	Level of implication				Total
	10	20	30	40	
Alcohol	0	0	22	0	22

## Prescription drugs implicated

Methadone is the most common prescription drug implicated in drug-related deaths. The proportion of methadone prescribed to the person whose death it was implicated in has remained the same in 2021 as 2020 at 65%. Other prescription opioids such as dihydrocodeine, codeine or buprenorphine are (as in 2020) less commonly prescribed to the person whose death they were implicated in. The gabapentinoids pregabalin and gabapentin have remained largely unprescribed to the person whose death they were implicated in.

Table 18. Prescription drugs implicated in Drug-related deaths and whether they were prescribed to the person who died

Drug name	Total implications	Prescribed	Not prescribed	Unknown	% Prescribed
Methadone	108	70	33	5	65%
Pregabalin	64	14	50	0	22%
Diazepam	61	28	33	0	46%
Dihydrocodeine	24	8	15	1	33%
Morphine	23	6	17	0	26%
Buprenorphine	18	7	9	2	39%
Gabapentin	18	6	12	0	33%
Tramadol	12	6	6	0	50%
Amitriptyline	12	5	7	0	42%
Mirtazapine	12	8	2	2	67%
Codeine	9	3	6	0	33%
Oxycodone	6	4	2	0	67%
Zopiclone	6	4	1	1	67%
Sertraline	5	3	2	0	60%
Quetiapine	4	2	1	1	50%

## Number of drugs implicated

The number of drugs implicated in drug-related deaths varies significantly between each death with a range from 1 to 11. However, the median number of drugs implicated in drug-related deaths remains 4 (same as in 2019 and 2020) from a median of 3 classes of drugs. Females had a median of 3 drugs implicated while males had 4. The most common or modal number of drugs implicated in drug-related deaths in 2021 in Lothian was 4, a decrease from 2020 when the mode was 5. Poly drug use remains the norm.

## Depressant, stimulant and mixed drug-related deaths

The increase of cocaine use has led to many drug-related deaths to be a mix of depressants and stimulants. Stimulants can act in a non-dose-dependent manner and often through cardiac effects. Stimulants do not counter or reverse the effects of depressant drugs and can, when combined, make cardiac effects more likely. However, compared to 2020 fewer deaths have been attributed to stimulants only and a greater percentage of deaths have been classified as mixed.

Table 19. Depressants, stimulants and mixed in 2021

	Number of DRDs	Percentage of DRDs
Depressants only	101	52%
Mixed depressants and stimulants	87	45%
Stimulants only	7	4%

## Conclusion

Each and every drug-related death is a tragedy that will impact the lives of the loved ones and the community that surrounded each person.

The increasing prioritisation of addressing the crisis of drug-related deaths in Scotland is encouraging. Recent steps such as the publication of the final report of the Scottish Drug Deaths Taskforce and the appointment of the Minister for Drugs Policy highlight this increased priority.

The implementation of the Medication Assisted Treatment standards (MAT) whereby all people accessing service have the option to start treatment from the day of presentation, can receive mental health and trauma informed care will hopefully reduce the number of drug-related deaths and other drug harms in Scotland. The further deployment of Naloxone for example to Police officers, taxi drivers and the prison service along with other harm reduction and education can also play a role in reducing the number of drug-related deaths. Additionally, the creation of RADAR, the Rapid Action Drug Alerts and Response system from Public Health Scotland will help monitor trends, new drugs and health and social harms related to drugs and help local areas correctly response to future changes.

Lastly, the hard work of all those involved in caring for people with a drug problem in the Lothians whether focused on harm reduction, treatment and recovery is gratefully acknowledged.



## Annex A. Count of implicated drugs

Drug class	Drug name	Level of implication				Total	Class total
		10	20	30	40		
Opioid							
	Methadone	3	2	93	10	108	262
	Heroin derived morphine	2	1	46	5	54	
	Morphine	1		23	3	27	
	Dihydrocodeine	2	4	17	1	24	
	Buprenorphine		1	16	1	18	
	Tramadol			11	1	12	
	Codeine		1	10		11	
	Oxycodone	1		5		6	
	Fentanyl			1	1	2	
Benzodiazepine							
	Etizolam		1	93	6	100	203
	Diazepam			58	3	61	
	Flubromazolam	1		8		9	
	Clonazolam			8		8	
	Clonazepam			7		7	
	Alprazolam			7		7	
	Flubromazepam			4		4	
	Nitrazepam			2		2	
	Lorazepam			2		2	
	Flualprazolam			2		2	
	Diclazepam			1		1	
Stimulant							
	Cocaine	1	1	75	10	87	98
	Amphetamine			6	1	7	
	MDMA (ecstasy)			3		3	
	Methamphetamine		1			1	
Gabapentinoid							
	Pregabalin			61	3	64	82
	Gabapentin			17	1	18	
Anti-depressant							
Tetracyclic anti-depressant	Amitriptyline		1	11		12	32
Tetracyclic anti-depressant	Mirtazapine			11	1	12	
SSRI	Sertraline			4	1	5	
Anti-depressant, other	Trazadone			2		2	
SSRI	Fluoxetine			1		1	
Alcohol							
	Alcohol			22		22	22
Anti-psychotic							
	Quetiapine			4		4	9
	Olanzapine			3		3	
	Chlorpromazine			1	1	2	
Non-benzodiazepine GABAergic							
	Zopiclone			6		6	7
	Zolpidem			1		1	
Anaesthetic and NMDA receptor antagonist							
	Ketamine			3	1	4	4

Beta blocker							
	Propranolol			2	1	3	3
Anti-histamine							
	Diphenhydramine			2		2	3
	Chlorpheniramine				1	1	
NSAID							
	Paracetamol			1		1	1
Anti-epileptic							
	Carbamazepine			1		1	1
Anti-nausea							
	Cyclizine			1		1	1
Antimalarials and amoebicides							
	Chloroquine			1		1	1
Anti-cholinergic							
	Procyclidine				1	1	1

## Annex B. NHS Lothian Drug-Related Death definition

Drug-related deaths in NHS Lothian are reported according to the cause of death as given by the pathologist in the detailed pathology and toxicology examination of deaths that are suspected to be drug related. These are classified into four possible overall outcomes:

### Primary drug-related death:

A death in which controlled substances are included in lowest line of the primary cause of death. These are the causes that are directly related to death. It is possible that non-drug causes may also be included in that line such as ischaemic heart disease.

### Secondary drug-related death:

A death in which controlled substances are included in the secondary cause of death (if one is present) but not in the primary cause of death. This secondary cause may include specific drugs or evidence that chronic drug abuse has contributed to death, although not directly.

### Unascertained:

In these cases, no cause of death can be determined by the pathologists with any degree of certainty and the primary and only cause of death is "1a Unascertained". It is possible that drugs were detected in some, but this is not adequate to show how they or other causes might have been implicated.

### Not a drug-related death:

In these cases, whilst a police report of a suspect drug related death was received, a cause not involving controlled substances has been determined to be the cause(s) of death, primary and (where present) secondary.

## Annex C: NRS definition of drug-related death<sup>4</sup>

### A2. The definition

Drug misuse deaths are defined as follows: (the relevant ICD10 codes are given in brackets):

- a) deaths where the underlying cause of death has been coded to the following subcategories of 'mental and behavioural disorders due to psychoactive substance use':
  - (i) opioids (F11);
  - (ii) cannabinoids (F12);
  - (iii) sedatives or hypnotics (F13);
  - (iv) cocaine (F14);
  - (v) other stimulants, including caffeine (F15);
  - (vi) hallucinogens (F16); and
  - (vii) multiple drug use and use of other psychoactive substances (F19).
- b) deaths coded to the following categories and where a drug listed under the Misuse of Drugs Act (1971) was known to be present in the body at the time of death (even if the pathologist did not consider the drug to have had any direct contribution to the death):
  - (i) accidental poisoning by and exposure to drugs, medicaments and biological substances (X40 – X44);
  - (ii) intentional self-poisoning by and exposure to drugs, medicaments and biological substances (X60 – X64);
  - (iii) assault by drugs, medicaments and biological substances (X85); and
  - (iv) poisoning by and exposure to drugs, medicaments and biological substances, undetermined intent (Y10 – Y14).

### A3. Deaths which are excluded

The NRS implementation of the definition excludes a small proportion of the deaths which were coded to one of the ICD10 codes listed in Section A2, specifically:

- deaths coded to drug abuse where the direct cause of death was secondary infections or later complications of drug use. The statistics therefore exclude deaths from:
  - secondary infections such as clostridium or anthrax infection resulting from the injection of contaminated drugs:
  - conditions which could be regarded as later complications of drug use, such as bronchopneumonia, lobar pneumonia, bilateral pneumonia, septicaemia or organ failure where drug misuse was not specified as the direct and immediate cause of death (even though it may have damaged greatly the person's health over the years - so reference to, for example, 'chronic' or 'long-term' drug abuse does not necessarily mean that it was the direct and immediate cause of death).
- deaths where a drug listed under the Misuse of Drugs Act was likely to be present only as part of a compound analgesic or cold remedy. For this purpose, NRS

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<sup>4</sup> Retrieved from: <https://www.nrscotland.gov.uk/files/statistics/drug-related-deaths/21/drug-related-deaths-21-annex-a.pdf>

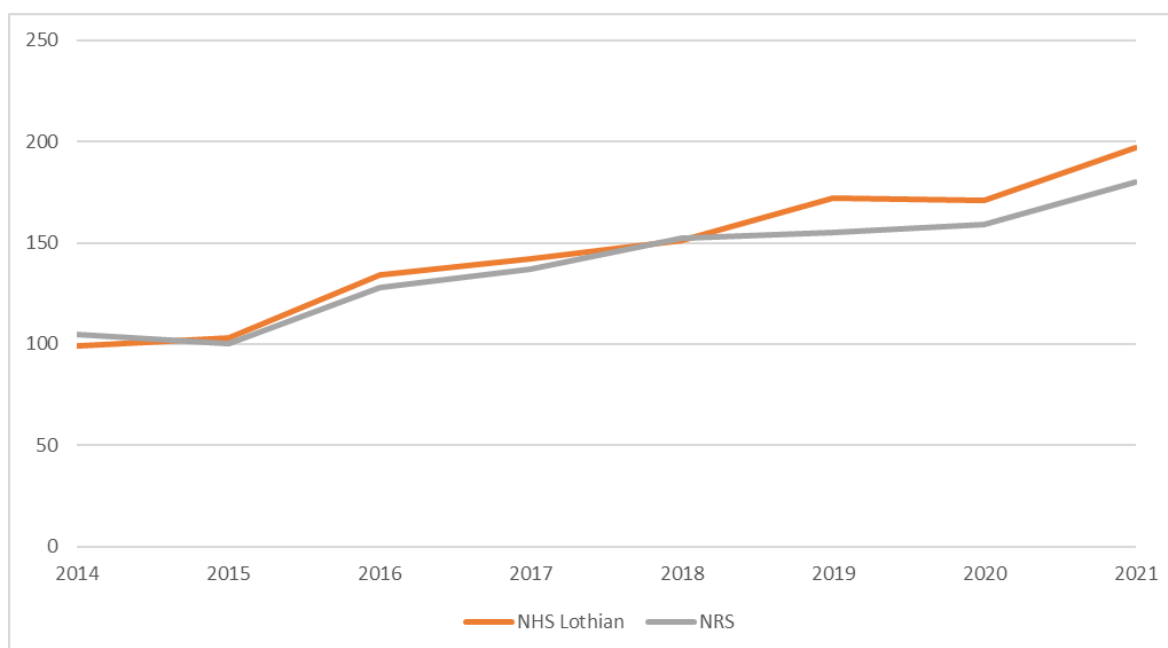
identified the following compound analgesics and cold remedies when producing its statistics:

- for 2018 and earlier years:
  - Co-codamol (paracetamol and codeine sulphate);
  - Co-dydramol (paracetamol and dihydrocodeine);
  - Co-proxamol (paracetamol and dextropropoxyphene); and
  - Dextropropoxyphene alone (as explained below).
- for 2019 onwards:
  - Codeine and aspirin (co-codaprin);
  - Codeine and brompheniramine maleate;
  - Codeine and dextropropoxyphene;
  - Codeine and diphenhydramine hydrochloride;
  - Codeine and ibuprofen;
  - Codeine and paracetamol (co-codamol, as before);
  - Dextropropoxyphene and paracetamol (co-proxamol, as before);
  - Dextropropoxyphene alone (as before, as explained below);
  - Dihydrocodeine and aspirin;
  - Dihydrocodeine and dextropropoxyphene;
  - Dihydrocodeine and paracetamol (co-dydramol, as before);
  - Pholcodine;
  - Tramadol and paracetamol;.

## Annex D: Reasons for the difference in NRS and NHS Lothian figures

In previous years there has been a small difference in the number of drug-related deaths reported by National Records Scotland and NHS Lothian, however in recent years this difference has grown, see figure below. For example, in 2018 NRS reported 152 drug-related deaths and NHS Lothian reported 151. There are well understood reasons for this difference, for example due to the difference in definition for a drug-related death (see Annex B and C) and due to NRS using the date of a deaths registration as the temporal mark compared to NHS Lothian using the date of the death.

Figure 7: Number of drug-related deaths recorded by NRS and NHS Lothian for the Lothian area 2014 to 2021



However, following the trend in more recent years the gap between the figures of NHS Lothian and NRS has continued to grow. In 2021 NHS Lothian reported 197 drug-related deaths and NRS 180.

In total between the two sets of cases, there is a total of 208 persons. One-hundred and sixty-nine (169) persons are included in both sets of cases. Eleven cases are in the NRS set of cases but not the NHS Lothian and 28 are in NHS Lothian but not NRS.

Of the 11 cases in the NRS dataset but not NHS Lothian six died in 2020, of these cases one was not previously reported to NHS Lothian. One case was a resident of another health board and died while visiting a Lothian. Three deaths were classified as unascertained by the pathologist and included by NRS as the person had a history of drug use. One death did not meet the criteria of a drug-related death in NHS Lothian.

Of the 28 cases included by NHS Lothian in 2021 twenty were due to the order in which the cause of death was written due to the definition employed by NRS. Cocaine is frequently implicated in deaths with a pre-existing condition such as ischaemic heart disease. Applying the NRS definition to these deaths means that they will not be flagged as drug related.

Three deaths were not included due to occurring after the mid December cut off and could be included in the list of deaths for 2022. A further 5 deaths were defined by the pathologist

as primary drug-related deaths but excluded by NRS all of which have at least one controlled substance implicated.

## Annex E: 'Prescribable' and 'street' benzodiazepines

### H5. 'Prescribable' benzodiazepines (and metabolites): as classified by PHS in June 2021

Chlordiazepoxide  
Clobazam  
Clonazepam  
Clorazepam  
Desmethyldiazepam  
Desmethyldiazepam  
Diazepam  
Diazepine  
Librium  
Loprazolam  
Midazolam  
Nitrazepam  
Nordiazepam  
Oxazepam  
Temazepam  
Valium  
7-aminoclonazepam  
7-aminonitrazepam

### H6. 'Street' benzodiazepines (and metabolites): as classified by PHS in June 2021

Adinazolam  
Alprazolam  
Bromazepam  
Clonazolam  
Cloxazolam  
Delorazepam  
Diclazepam  
Edizolam  
Etizolam  
Flualprazolam  
Flubromazepam  
Flubromazolam  
Flunitrazepam  
Lormetazepam  
Phenazepam  
Pyrazolam  
8-aminoclonazolam  
Bromazolam

See additional notes for the classification of Lorazepam in section H3 of the full annex retrievable from: <https://www.nrscotland.gov.uk/files/statistics/drug-related-deaths/21/drug-related-deaths-21-annex-H.pdf>