

Audit of Drug Misuse Deaths in Leeds 2014-2016

Report authors and acknowledgments

Report Authors

Daniel Burn, Health Improvement Principal (Drugs, Alcohol and Tobacco), Adults and Health Directorate, Leeds City Council

Julie Stafford, Advanced Health Improvement Specialist (Alcohol and Drugs), Adults and Health Directorate, Leeds City Council

Adam Taylor, Senior Information Analyst, Adults and Health Directorate, Leeds City Council

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Parminder Grewal, Advanced Health Improvement Specialist (Healthy Living), Adults and Health Directorate, Leeds City Council

Lynne Hellewell, Public Health Manager, Adults and Health Directorate, Leeds City Council

Alice Stockwell, Public Health Support Officer, Adults and Health Directorate, Leeds City Council

Roxana Summers, Advanced Health Improvement Specialist (Equality and Diversity), Adults and Health Directorate, Leeds City Council

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1. Executive summary

Drug misuse deaths are preventable. Yet, in 2016, the number of people who died due to opiates in England overtook the number of people who died in a road traffic accident in the UK for the first time – with a particular increase in the number of older people and longer-term drug users. Consequently, the prevention of drug misuse deaths is a national priority – something acknowledged in the national Drug Strategy 2017¹ and *Drug misuse and dependence: UK guidelines on clinical management* (2017)².

The prevention of drug misuse deaths is a priority in Leeds – with drug-related deaths in men a specific focus in the 2017/18 Director of Public Health's Annual Report. The city's integrated drug and alcohol service (Forward Leeds) review all drug misuse deaths in their service, with the Commissioning Team in the Adults and Health Directorate at Leeds City Council having a similar process for reviewing drug misuse deaths that occur in their commissioned services.

1.1 Key findings

Demographics

- The audit was based on 99 drug misuse deaths that occurred between 2014 and 2016
- The age group with the highest number of deaths was 40-49 years old
- The vast majority (80%) of individuals who died were male.

Employment

- 69% of individuals were unemployed – significantly higher than the unemployment rate in the Leeds population during the same period (8.4% in 2014; 6.1% in 2015; and 5.1% in 2016).³

Geography and deprivation

- Substance misuse deaths occur more often in areas of high deprivation, with almost half (44%) of those who died having lived in the most deprived quintile of Leeds
- The areas with the highest number of drug misuse deaths were to the southwest and southeast of the city centre, with City and Hunslet, Armley, Beeston and Holbeck, and Burmantofts and Richmond Hill the areas with the highest numbers of drug misuse deaths – accounting for almost a third of all drug misuse deaths across the three years of the audit.

Social isolation

- The majority (63%) of those who died of a drug misuse death died alone, with males more likely to have lived alone than females
- The vast majority of individuals (95%) were either single, separated or widowed. Only 5% were married/co-habiting.

Living arrangements and place of death

- The majority (63%) of those who died did so at home – 63% of whom also lived alone
- In almost half (42%) of cases, no one else was present at the time of death. And where someone was 'present' they were often in a different room in the property at the time of death.

Risk Factors

- There was a high prevalence in the audit population of a number of risk factors, including: worklessness (80% of cases), mental health issues (74% of cases), being in receipt of benefits (72% of cases) and physical illness/ disability (64% of cases), with 49% of individual having had experienced divorce/ relationship breakdown/ problems, 34% had previous convictions, 32% had been in prison, and 33% had a family member or friend with a history of drug use
- Over a third (37%) of individuals had previously overdosed.

Illegal and prescription drug use

- The majority (73%) of the audit population had prescription drugs in their system at their time of death
- 9% of individuals had no illicit drugs in their system at their time of death – but, had prescription drugs present
- Where injecting status was known, nearly two thirds (63%) of those who died were injecting drug users.

Contact with General Practice, Accident and Emergency, and specialist drug and alcohol services

- Nearly a quarter (23%) of individuals saw their GP within the week before their death, with almost half (43%) having seen their GP within the month before their death
- Over one in five individuals had been to Accident and Emergency in the 12 months prior to their death – although, such contact was unknown in the majority of cases
- Only 14% of individuals had been in contact with a specialist drug and alcohol service within the month before their death, although 51% had been in contact with such a service at some point in their lives (everyone for whom such information was available, as this was unknown in the remainder – 49% – of cases).

2. Introduction

2.1 Why is preventing drug misuse deaths important?

Preventing deaths from drug misuse is a national priority. In 2017, 3,756 people died in England and Wales as a result of drug poisoning. Of these, two-thirds were classified as drug misuse deaths, i.e. deaths involving illegal drugs (not just opiates).^{4, 5}

Nationally, despite fluctuations from year to year, drug misuse deaths have shown a 'persistent background rise'⁶ since records began in 1993. The majority of these deaths have been from heroin/opiate misuse. In 2016, the number of people who died due to opiates (1,989) in England alone overtook the number of people who died in road traffic accidents (1,732) across the whole of the UK.⁷

40-49 year olds have the highest rates of drug misuse deaths, for the second year in a row, with rates having fallen in all age groups but the very oldest (50-69 and 70+). This further supports the idea that there is an aging cohort of people, who were in their mid to late teens (the typical age of onset for heroin use) during the heroin 'epidemic' experienced in the UK from the early 1980s to the mid to late 1990s, who are now at the greatest risk of overdose death.

There is strong evidence that the risk of fatal overdose among heroin/opiate user's increases substantially with age. In the short to medium term, and as highlighted in a recent ACMD report⁵, we may be observing an increasing rate of opiate-related deaths among a dwindling population of older users. However, recent evidence suggests that the cohort effect described above is only a partial explanation for the increase in drug misuse deaths since 2012, due to the fact that drug deaths have been occurring in increasing numbers across other age groups and for different types of drug use.

Drugs implicated in some of these deaths include novel psychoactive substances (NPS), like the synthetic cannabinoids (SCRAs), pregabalin and gabapentin. There are also continued increases in drug misuse deaths where cocaine and benzodiazepines were mentioned on the death certificate.⁸ This suggests that factors other than the age cohort effect must therefore be in play.

2.2 National policy

In March 2016, and following substantial increases in drug-related deaths nationally, the Advisory Council on the Misuse of Drugs (ACMD) set up a dedicated working group to examine how to reduce drug-related deaths, with a focus on opioid-related deaths. They concluded that the ageing profile of heroin users, with increasingly complex health and social care needs coupled with the continuation of multiple risky behaviours, contributed to the increase.

The same year, Public Health England published *Understanding and preventing drug-related deaths: the report of a national expert working group to investigate drug-related deaths in England*⁸. The expert group made the following recommendations:

- Ensuring drug treatment is easy to access and attractive, especially to those currently not being reached
- Rapidly optimising interventions for people coming into treatment
- Keeping people in treatment for as long as they benefit
- Strengthening governance and competence in treatment services
- Sharing learning between services who have contact with those at high risk
- Promoting effective risk management
- Intervening following non-fatal overdoses
- Promoting adequate dosing of opioid substitution treatment and supervised consumption
- Support improved access for people who use drugs to broader physical and mental health care services
- Promoting stop smoking services in drug treatment
- Supporting the provision of naloxone
- Supporting the use of naltrexone for relapse prevention
- Promoting better links with coroners
- Improving information recorded and transferred between agencies understanding and preventing drug-related deaths.

In addition, deaths from drug misuse is also an indicator included in the Public Health Outcomes Framework.

Ensuring drug-related deaths are properly assessed and understood, as well as reducing behaviours that can increase the risk of drug-related deaths, is also a key aim in the Drug Strategy 2017.¹

Published in the same year, *Drug misuse and dependence: UK guidelines on clinical management*², also contains information on reducing the risks of drug-related overdose and preventing drug-related deaths, including guidance on the use of naloxone in an overdose situation.

2.3 Drug misuse deaths in the local setting

Drug misuse deaths are a priority in Leeds, with drug-related deaths in men the subject of one of the chapters in the 2017/18 Director of Public Health's Annual Report, *Nobody left behind: good health and a strong economy*.⁹ The chapter reports that, mirroring the national picture, Leeds has experienced "a 'persistent background rise' in drug misuse deaths", including an increase in the number of older and longer-term opiate users dying. Although, it also points to the more positive picture – that such increases are not being seen in younger opiate or opioid users. However, the report does highlight the concerning issue of rising deaths among men. The report goes on to state that "there is an urgent need to understand more about what is going on in Leeds with this changing pattern of deaths" – something this audit explores.

In response to this, Forward Leeds (Leeds Integrated Drug and Alcohol Service) review all drug misuse deaths in their service, with the Commissioning Team in the Adults and Health Directorate at Leeds City Council having a similar process for reviewing all drug misuse deaths in all of the services that they commission (both drug and alcohol and non-drug and alcohol services). Both of these review processes are used to inform practice, making recommendations for improvement, and ensuring resources are targeted at those most at risk.

Interventions that aim to reduce drug misuse deaths also contribute towards the ambition of the City Council's Best City Plan¹⁰ – which includes, reducing health inequalities and improving the health of the poorest the fastest, and keeping people safe from harm, protecting the most vulnerable, as two of its priority areas.

2.4 The aim of the audit

Although the ONS releases statistics on drug-related deaths annually, the data is limited in terms of the level of detail provided. The aim of the audit is to supplement this information, providing a detailed, meaningful account of deaths across Leeds, that can be used to ensure resources are appropriately targeted to those most at risk. As stated in the Director of Public Health's Annual Report 2017/18, the audit will give a better understanding of the risk factors and characteristics associated with drug misuse deaths in the city, and will help target interventions in ways that better meet the changing needs of those at risk.

2.5 Background and purpose of report

In March 2016, *An Audit of Drug Related Death Confidential Inquiry Systems in Yorkshire and the Humber*¹¹, concluded that:

- Historically there was a well-regarded drug-related death confidential inquiry process in Leeds. However, it was discontinued, due to organisational changes
- Providers were continuing to conduct reviews for individual deaths, but there was no pattern or trend analysis undertaken or shared with the commissioner
- These above gaps, having been identified, were selected as priorities.

The audit recommended that Leeds:

- Ensured the drug-related death (DRD) review process fed into the strategic planning processes
- Developed clear governance arrangements for the DRD review process
- Ensured the capacity to develop and maintain partnerships with other agencies to enhance the input to the DRD review process
- Contributed to the annual Yorkshire and Humber DRD learning event when this is implemented.

2.6 The Coroner's Office

The West Yorkshire Eastern Area covers a geographical area of Leeds, Wakefield and Pontefract with a population of approximately 1.1m people, and has within its area 6 prisons, 2 Teaching Hospitals and 5 NHS Regional Centres of Excellence. In 2014, there were 6,317 registered deaths in Leeds (3,121 males, 3,196 females). This rose in 2015, to 6,790 (3,315 for males, 3,475 for females), and dropped again in 2016, to 6,592 (3,244 for males, 3,348 for females). Over the three years, the death rate per 1,000 of the Leeds population was 8.2 in 2014, 8.8 in 2015, and 8.4 in 2016. This was lower than the rate for the whole of England during the same period – 8.6 in 2014, 9.0 in 2015, and 8.9 in 2016.¹²

Her Majesty's Coroner for Leeds investigates any sudden or unexplained death. They are independent of both local and central government and are required to act in accordance with set rules and procedures.

The role of the Coroner's Court

When a person dies in England or Wales, the death has to be registered, even if they are a visitor to the country. There are only two ways in which the death can be registered:

1. If a doctor was in attendance during the final illness of the person who died and is able to issue a medical certificate of the cause of the death in a form acceptable to the local Registrar of Deaths
2. If the above cannot be achieved, the death is reported to a Coroner.

A Coroner can deal with a death reported to them in one of three ways:

1. They might authorise burial following a discussion with the doctor who attended the individual ("Pink Form A") without a post-mortem examination
2. They can order a post-mortem examination. If that examination yields a cause of death that is entirely natural, and there are no other circumstances that would make the death an "unnatural" death, the coroner may issue "Pink Form B" to the Registrar of Deaths that allows burial or cremation to take place
3. They can conduct an inquest into the death if there is reasonable cause to suspect that the deceased
 - a. has died a violent or an unnatural death
 - b. has died a sudden death of which the cause is unknown, or
 - c. has died in prison or in such a place or in such circumstances as to require an inquest.

3. Methodology

3.1 Data source

Coroner's records of death were utilised for this audit of drug misuse deaths. All deaths are reported to the Coroner. Where drug poisoning and misuse are suspected, an autopsy is requested and an inquest held. The Coroner's Registrar of Deaths was able to give the Public Health Team access to all records of deaths that occurred during the timeframe, containing information on drugs and/or alcohol.

The Public Health Team and the Leeds and Wakefield Coroner's Office worked in partnership in order to complete this work. At all stages of this work, access to the Coroner's Office and their records was granted with an Information Sharing Agreement that was adhered to by all staff in the project team at all times.

3.2 Process overview

The identification and collection of the data occurred in a three stage process. The first stage involved identifying all the records that fitted the inclusion criteria. During the second stage, records were stratified and eliminated. During the third stage, records were examined in full to extract data relevant for this audit.

3.2.1 Stage 1

The Coroner's record of all deaths reported in the qualifying three year period, from 2014 to 2016, were examined to identify relevant records to take forward to the second stage. This was a manual paper exercise whereby records displaying the individual's name, address, age, date of death, details from the death certificate on cause of death, how the Coroner's Office handled the death (i.e. if an inquest was required or not) and the verdict of any inquest held were identified.

These paper records were manually examined by three researchers, separately, with any records meeting at least one of the criteria below included. Once identified as relevant, the details of the death were inputted into an electronic template. If there was a difference of opinion between the researchers regarding a record, this was resolved by discussion and consensus.

Criteria for Stage 1:

Records should be included if the individual lived within the Leeds area and had at least one of the following criteria:

- Any individual with a verdict of 'drug or alcohol-related death'
- Any individual who had a cause of death in which drugs or alcohol intoxication, misuse or abuse was implicated regardless of verdict (e.g. overdose, chronic drug use, heroin toxicity)
- Any individual in which acute alcohol intoxication/ acute use of drugs is mentioned in the death certificate
- Any individual for whom there is insufficient information to exclude at this stage

- Exclude any records for which none of the above criteria apply and there is a clear natural/ non-suspicious cause of death.

3.2.2 Stage 2

At Stage 2, further exclusion criteria were used to eliminate records.

Criteria for Stage 2:

Records will be stratified and/or excluded if any of the following criteria apply:

- Death is clearly stated to be from a natural cause (e.g. a medical pathology)
- Death due to alcohol with no other cause or prescription or illegal drug use implicated
- Death due to poisoning from prescription or non-prescription drug use with no illegal drug misuse implicated.

The remaining records were stratified into 3 categories:

1. Alcohol only death

Records where the primary and secondary cause of death was related to alcohol intoxication, with no other prescription or illegal drug implicated, were stratified into the alcohol only category. On discussion with the Coroner's Officer, it was highlighted that no further detailed case file would exist for these cases in the Coroner's Office. These records were therefore identified as not being able to progress to Stage 3 for this audit process and that separate basic analysis of these alcohol records could occur, if needed.

Using the drug death definitions (see Box 1, below) of the Office of National Statistics (ONS), the records were stratified into a further 2 categories:

2. Drug poisoning death

At this stage a number of the drug poisoning records did not contain sufficient detail, so further information for clarification was sought from the Coroner's electronic database. If this further clarification did not provide any additional information to confirm as a drug misuse death, then the record was stratified into the drug poisoning category.

Where possible, this stage was undertaken by two researchers. Any differences of opinion were resolved by discussion and consensus. If no consensus could be reached, a third researcher was contacted to decide if the record should progress to stage 3.

3. Drug misuse death

All drug deaths which contained sufficient information from Stage 1, or after further clarification from the Coroner's electronic records in Stage 2 were identified as a drug misuse death (as per definition in Box 1, below) were stratified into this category.

Box 1

Definitions

The European Monitoring Centre for Drugs and Drug Addiction (EMCDDA) defines 'Drug related death' as:

"Deaths happening shortly after consumption of one or more psychoactive drugs, and is directly related to this consumption."

The UK's standardised definition of deaths due to drug poisonings, include legal as well as illegal drugs, accidental poisoning, and suicides and deaths due to drug misuse. 'Drug misuse deaths' are a subset of 'drug poisoning deaths'. A drug misuse death being;

(a) Deaths where the underlying cause is drug abuse or drug dependence and

(b) Deaths where the underlying cause is drug poisoning and where any of the substances controlled under the Misuse of Drugs Act 1971 are involved."

'Death in Service' is the term often used when describing the process of notification of a death of a service user involved with commissioned local drug and alcohol services.

Results of stratification

The total number of records collected in the audit period from the Coroner's Office was 229. Table 1 shows these records across the identified years, stratified into each category.

From Table 1, it can be seen that drug misuse deaths accounted for a considerably larger proportion of deaths (45%) when compared to drug poisoning (15%). However, numbers and proportions were similar when comparing drug misuse deaths with the alcohol only deaths (40%).

Type of death	2014	2015	2016	Total	%
Drug poisoning	18	10	8	36	15
Alcohol	30	30	31	91	40
Drug misuse	39	35	28	102	45
Total	72	68	60	229	100

Table 1: Type of death by year

3.2.3 Stage 3

The stratified drug misuse death records identified in Stage 2 were requested to be examined by the project team over a number of months, with the associated case files examined in detail over a number of identified days. The data from each case file was extracted onto a pre-prepared electronic template used by all researchers. The data was entered and transferred straight into a secure drive folder.

During the first session of data input of the case files for Stage 3, a number of issues and questions were raised by the researchers. After the session, these issues were discussed, with a number of the case files compared. From these discussions a number of changes were made to the pre-prepared template, with existing files transferred to this. Inter-observer reliability was improved by this process, as it will have reduced differences in the input into the template being used at subsequent sessions.

Stage of audit process	Number of cases
End of Stage 1	229
End of Stage 2	Drug misuse – 102; drug poisoning – 36; alcohol - 91
End of Stage 3	99

Table 2: Number of cases by stage of audit process

During Stage 3 of the process, it was discovered that three of the case files identified were not accessible to the project team – two were not yet in the office and consequently could not be viewed, another did not have the sufficient information required for inclusion in the study. This meant that the final analysis and findings are based on 99 cases (see Table 2).

4. Findings

4.1 Overall numbers

Although the total number of drug misuse deaths between 2014 and 2016 was 102, the total number of cases included in Stage 3 of the audit was 99 – due to the research team being unable to access the case notes for three cases. Table 3 shows the number of cases per year. As shown, the number of deaths between 2014 and 2016 decreased, from 39 to 28. This pattern remained once the three cases which were not included at this stage were removed, as they were evenly distributed across each year of the study.

Stage of audit process	2014	2015	2016	Total
Cases identified in Stage 3	39	35	28	102
Final number of cases included	38	34	27	99

Table 3: Number of cases included in study by year

As this is the first audit of its kind in Leeds, there are no previous audits to compare any of the findings reported here. However, the data can be compared to data collected by the ONS, who reported a higher number of deaths related to drug misuse during the same period – 139 in total between 2014 and 2016.¹³

Using Directly Standardised Rates (which account for year on year changes in the overall population of Leeds), the drug misuse death rate (for all 102 cases) over the three years (2014 to 2016) was 4.0 per 100,000 (confidence intervals: 3.3-4.9). The comparable ONS rate for the same time period was 6.2 (confidence intervals: 5.2-7.3)¹³. Although this is higher, it is consistent with the higher number of deaths the ONS classed as drug misuse deaths.

Table 4 shows the number of drug misuse deaths per 100,000 (Directly Standardised Rates) for all 102 cases, across the three years that were audited. It shows that the drug misuse death rate decreased during this time, from 4.5 in 2014, to 4.1 in 2015, to 3.2 in 2016.

Year	DSR per 100,000	Confidence Internal
2014	4.5	3.2-6.1
2015	4.1	2.9-5.8
2016	3.2	2.1-4.6

Table 4: Directly Standardised Rate (for all 102 cases) by year

Due to the fact that the research team were unable to access the case notes for three of the 102 cases, the remainder of the findings section is based on the 99 cases where case notes were accessible.

4.2 Age distribution

When looking at deaths by age (Figure 1), there is a gradual increase in deaths from the age of 20-29 years, peaking at 40-49 years – the age group most likely to die prematurely from a drug misuse death – with 36% of individuals in this age category. A total of 67% of drug misuse deaths were people aged 30-49 years, mirroring national trends.

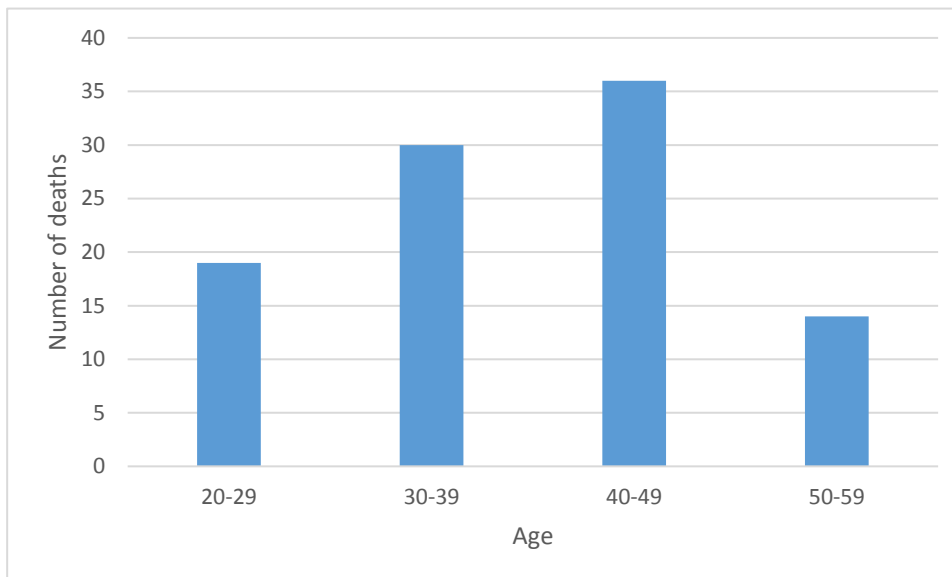


Figure 1: Number of deaths by age (ten year intervals)

When looking at the age distribution at five year intervals (Figure 2), a peak is also revealed in the 25-29 year old category, with 13% of deaths occurring in this age group. This highlights a particular risk of drug misuse death in both the late 20s and late 30s into the early 40s. Further analysis highlighted that 90% of these deaths were from heroin or opiates.

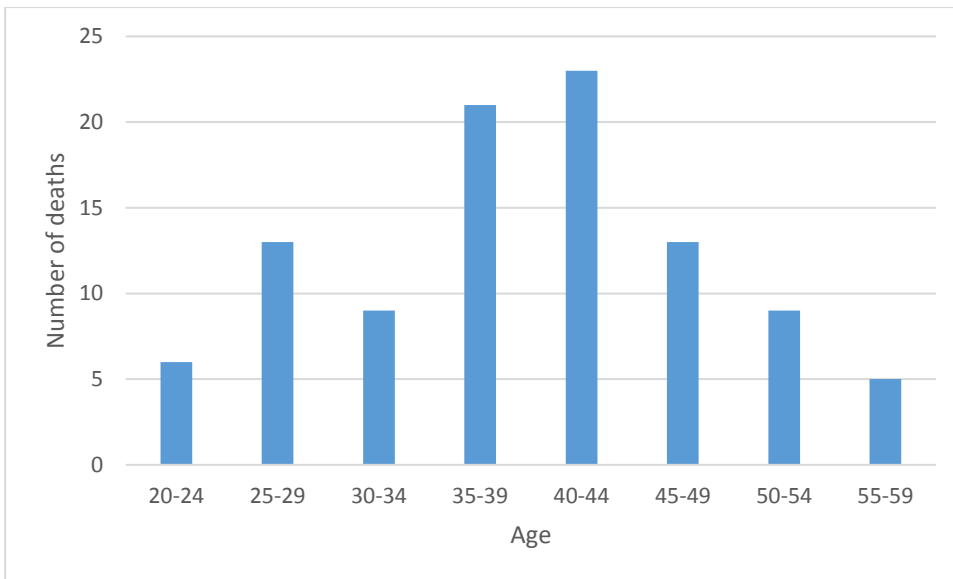


Figure 2: Number of deaths by age (five year intervals)

4.3 Gender

Figure 3 shows males accounted for 80% of drug misuse deaths. This means that for every female death there were four male deaths. Again, this mirrors national drug misuse death trends.

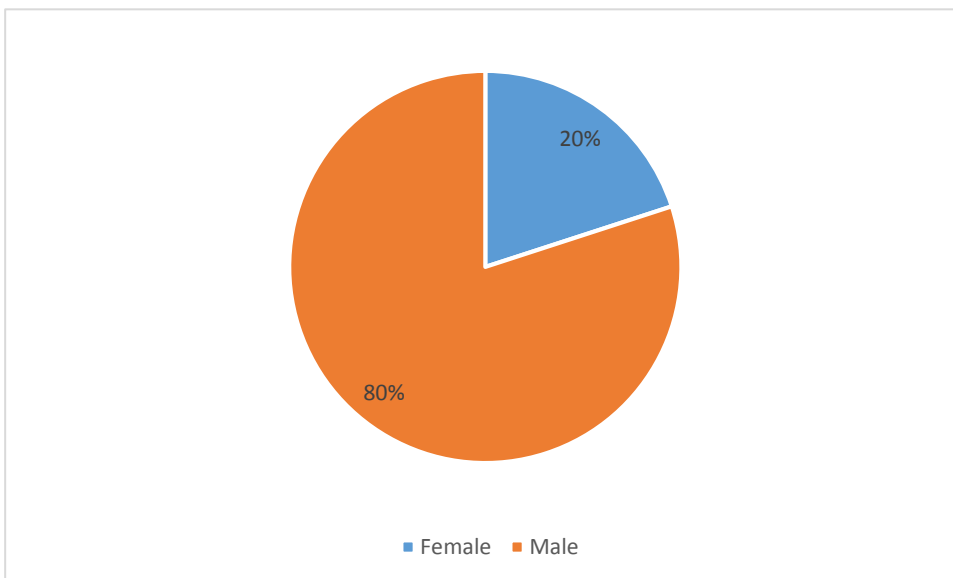


Figure 3: Gender (percentages)

However, when examined across the three years, male and female deaths had very different patterns. Male deaths increased from 29 in 2014, to 32 in 2015, before dropping to 18 in 2016. Whereas the trend for female deaths was the opposite, dropping from 9 in 2014, to 2 in 2015, before returning to 9 in 2016 (see Figure 4).

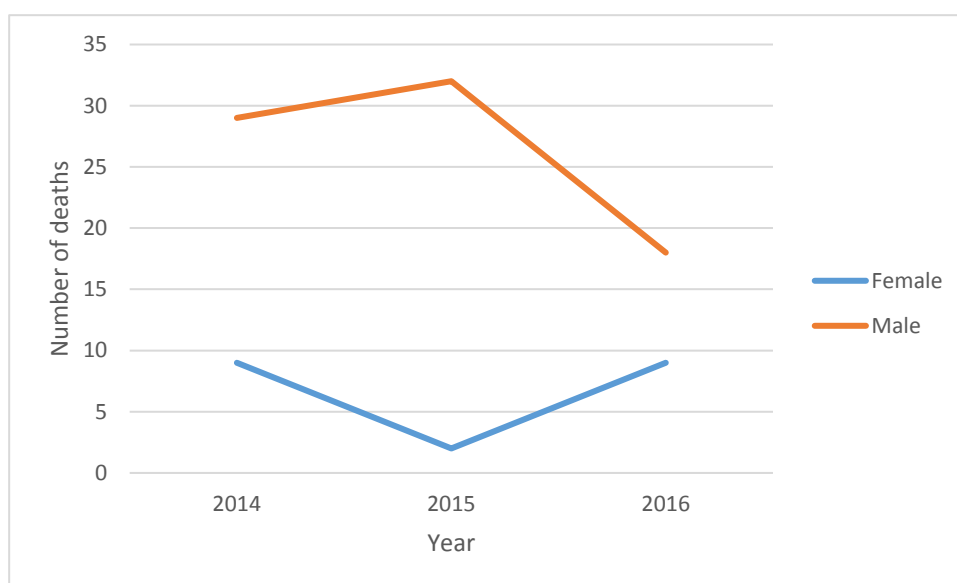


Figure 4: Number of deaths by gender and year

Table 5 shows the number of drug misuse deaths per 100,000 (Directly Standardised Rates) for each of the three years, by gender. The pattern mirrors the one in Figure 4, with the rate of deaths per 100,000 increasing from 6.4 in 2014, to 7.2 in 2015, before dropping to 3.9 in 2016 for males, and the equivalent rate dropping from 2.2 in 2014, to 0.5 in 2015, before returning to 2.2 in 2016 for females.

Year	Males DSR per 100,000 (confidence interval)	Female DSR per 100,000 (confidence interval)
2014	6.4 (4.2-9.1)	2.2 (1.0-4.2)
2015	7.2 (4.9-10.2)	0.5 (0.1-1.9)
2016	3.9 (2.3-6.1)	2.2 (1.0-4.2)

Table 5: Directly Standardised Rate by gender and year

4.4 Ethnicity

As Table 6 shows, the vast majority of those who died were white (94%), with the only other death (where ethnicity was known) an Asian male. The ethnicity of five individuals was unknown.

Ethnicity	Total	%
White	93	94
Asian	1	1
Not known	5	5
Total	99	100

Table 6: Ethnicity (numbers and percentages)

4.5 Sexual orientation

As Table 7 shows, 66% of those who died had their sexuality recorded as heterosexual, with 6% recorded as homosexual. However, sexual orientation was not well recorded in the cases notes, with sexual orientation not known in over a quarter (28%) of cases.

Sexual orientation	Total	%
Hetrosexual	65	66
Homosexual	6	6
Not known	28	28
Total	99	100

Table 7: Sexual orientation (numbers and percentages)

4.6 Marital status

Just over three quarters of those who died were single at the time of death, with the vast majority (95%) either single, separated or widowed, as shown in Table 8. Only 5% were married/co-habiting.

Marital status	Total	%
Single	75	76
Separated	17	17
Married/co-habiting	5	5
Widowed	2	2
Total	99	100

Table 8: Marital status (numbers and percentages)

4.7 Employment

Figure 5 shows the employment status of the audit population. The most common employment status was unemployed (69%). A total of 21% of individuals were employed (12% manual employment; 7% non-manual employment; 2% self-employed).

The unemployment rate for those who died of drug misuse was significantly higher than that of the general population of Leeds, with ONS data showing that the unemployment rate across Leeds city was 8.4% in 2014, 6.1% in 2015, and 5.1% in 2016.³

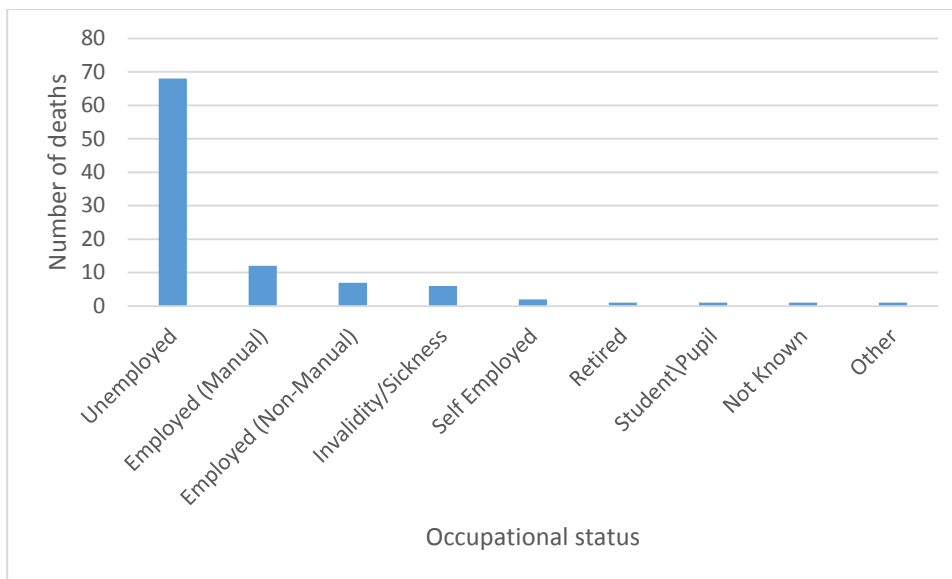


Figure 5: Number of deaths by occupational status

4.8 Geography and deprivation

The location in Leeds where the drug misuse deaths took place (between 2014-2016) has been analysed by council ward, and by deprivation, and is shown in Figure 6. The map uses the individual's home address, even if the death did not happen at their home address (due to the fact that the location of the death was often unknown, or nonspecific e.g. the death happened at 'a friend's house'). The map shows that the areas where there were the highest levels of deaths (7 to 9) are all grouped in a cluster, immediately southwest and southeast of the city centre.

Drug Misuse Deaths by Ward and Deprivation
(2014-2016)

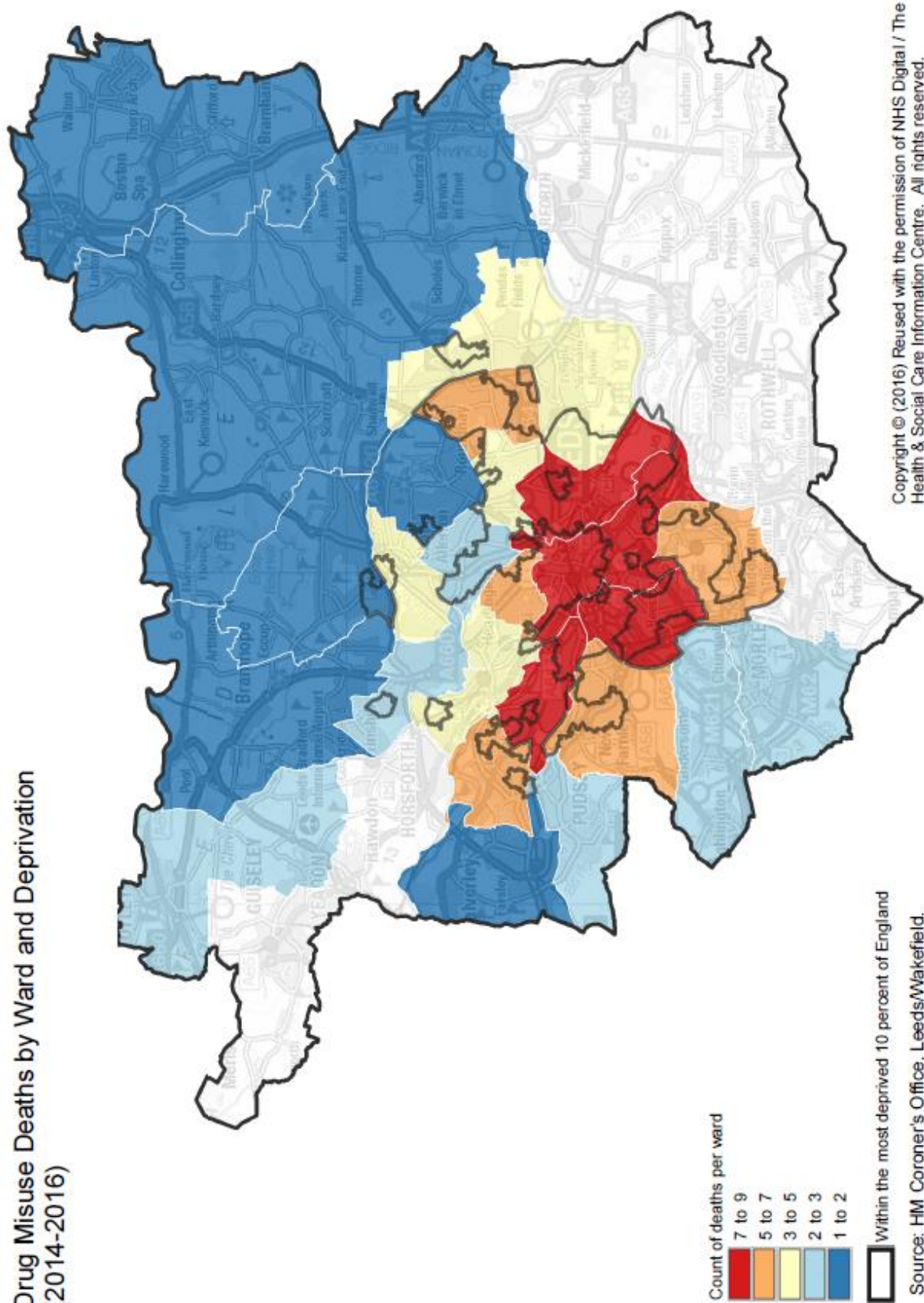


Figure 6: Drug misuse deaths by ward and deprivation

The postcode districts with the highest deaths are show in Table 9 – which shows 13 individuals lived in LS12, 10 in LS9 and 9 in LS10 (accounting for almost a third of all drug misuse deaths in Leeds between 2014-16).

Postcode district	Total
LS12	13
LS9	10
LS10	9
LS13	8
LS11	8
LS6	7
LS15	7

Table 9: Number of deaths by postcode district

Although deprivation does not map onto postcode districts neatly, geographic distribution of deprivation tends to align with high numbers of drug-related deaths.

Table 10 shows how the deaths were distributed across the wards in Leeds in which those who died lived. The wards with the highest number of deaths were City and Hunslet (9), Armley (8), Beeston and Holbeck (7), and Burmantofts and Richmond Hill (7). These four areas alone made up almost a third of all of the drug misuse deaths across the three years.

Ward	Total
Adel and Wharfedale	1
Alwoodley	1
Armley	8
Beeston and Holbeck	7
Bramley and Stanningley	5
Burmantofts and Richmond Hill	7
Calverley and Farsley	1
Chapel Allerton	2
City and Hunslet	9
Cross Gates and Whinmoor	4
Farnley and Wortley	6
Gipton and Harehills	4
Harewood	1
Headingley	3
Hyde Park and Woodhouse	5
Killingbeck and Seacroft	6
Kirkstall	4
Middleton Park	6
Moortown	3
Morley North	2
Morley South	2
No Fixed Abode	1
Otley and Yeadon	2
Pudsey	2
Roundhay	1
Temple Newsam	3
Weetwood	2
Wetherby	1
Total	99

Table 10: Number of deaths by ward

The population of Leeds can be divided into five 'deprivation quintiles' – one being the most deprived 20% of the Leeds population, to five (the least deprived 20% of the Leeds population). Figure 7 shows the distribution of cases across the deprivation quintiles for Leeds. As the chart shows, almost half (44%) of those who died of a drug misuse death lived in the most deprived quintile of Leeds, with over half of the total number of females (11 out of 20) in this group. A third of those who died lived in the second most deprived quintile of Leeds, with the number of drug misuse deaths decreasing as deprivation decreases. Only one of the individuals who died lived in the least deprived quintile of Leeds, with another having no fixed abode.

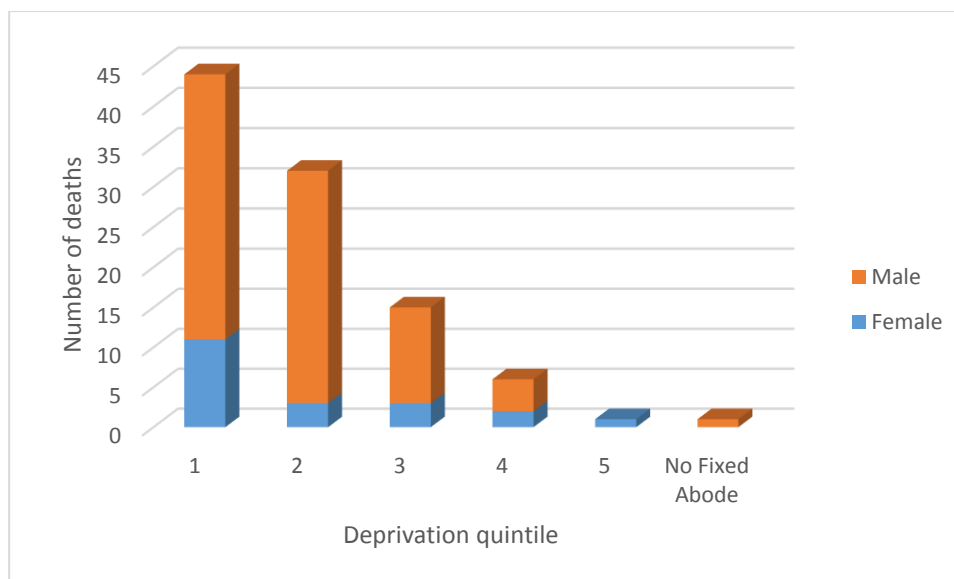


Figure 7: Number of deaths by deprivation quintile and gender

In addition, England can be divided into ten ‘deprivation deciles’, ranging from one (the most deprived 10% of the country) to ten (the least deprived 10% of the country). Almost half of those who died of a drug misuse death in Leeds lived in an area that was in the most deprived 10% of the country. This highlights a clear link between deprivation and drug misuse deaths.

4.9 Living arrangements and place of death

The majority (63%) of those who died lived alone, with males more likely to live alone than females – 65% of males, compared to 55% of females.

As shown in Table 11, the remaining 31% lived with other people – either friends (13%), parents (9%), partners (7%), partners and children (1%) or just children (1%). Females were a lot more likely to live with a partner (including with children) than males – 25% of females, compared to only 4% of males. All 9 individuals who lived with their parents were male.

Those remaining either had no fixed abode (2%), had no living arrangements recorded (2%), or had ‘other’ living arrangements (2%).

Living arrangements	Total	%
Living alone	62	63
Living with friends	13	13
Living with parents	9	9
Living with partner	7	7
Living with partner & children	1	1
Living with self & children	1	1
No fixed abode	2	2
Not known	2	2
Other	2	2
Total	99	100

Table 11: Living arrangements (numbers and percentages)

In addition, the majority (63%) of drug misuse deaths occurred at the individual's home. The second most common place of death was in a hospital, with 15% of deaths occurring here, closely followed by a residential premises (14%) – usually a friend's house or a hostel. Only 2% of deaths occurred on the street (see Table 12).

Place of death	Total	%
Home	62	63
Hospital	15	15
Residential premises	14	14
Other	6	6
Street/ highway	2	2
Total	99	100

Table 12: Place of death (numbers and percentages)

Table 13 shows living arrangements by place of death. As shown, of the 62 individuals who died at home, 39 (63% of these) lived alone.

Living arrangements	Place of death					Total
	Home	Hospital	Residential Premises	Other	Street/ Highway	
Living alone	39	10	7	5	1	62
Living with friends	8	1	4			13
Living with parents	4	1	3		1	9
Living with partner	7					7
Living with partner & children	1					1
Living with self & children		1				1
No fixed abode	1	1				2
Not known		1		1		2
Other	2					2
Total	62	15	14	6	2	99

Table 13: Living arrangements by place of death

As shown in Table 14, in over two out of five cases (42%) no one else was present at the time of death. However, even though there was someone present in the majority of cases (58%), when examined in more detail, the case notes reveal a different picture. In over a third of the cases where someone else was present, they were in a different room in the property, often discovering the individual had overdosed/ died later – sometimes not until the following morning. In a few cases, the overdose/ death wasn't even immediately recognised as one, with one case where a friend merely thought the individual was asleep.

Anyone else present	Total	%
Yes	57	58
No	42	42
Total	99	100

Table 14: Anyone present at time of death (numbers and percentages)

4.10 Risk factors

There was a high prevalence of risk factors amongst the audit population, with worklessness (80% of cases), mental health issues (74% of cases), being in receipt of benefits (72% of cases) and physical illness/ disability (64% of cases) the highest.

In addition, 49% of individual had experienced divorce/ relationship breakdown/ problems, 34% had previous convictions, 32% had been in prison, and 33% had a family member or friend with a history of drug use.

Although 16% of individuals were classed as homeless, the majority were living with family, friends or in hostels, and not on the streets, with many describing their homelessness as 'off and on'.

Risk factors	Total	%	Total unknown	%
Worklessness	79	80	0	0
Receiving benefits	71	72	7	7
Divorce/ relationship breakdown/ problems	49	49	4	4
Homelessness	16	16	0	0
Been in prison	32	32	2	2
Previous convictions	34	34	0	0
Physical Illness/ disability	63	64	1	1
Mental health	73	74	3	3
Domestic violence	8	8	0	0
Child abuse	11	11	0	0
Previously in care	12	12	0	0
Children removed from home	23	23	0	0
Victim of sexual abuse	8	8	1	1
Sex work	2	2	2	2
Family or friend history	33	33	19	19

Table 15: Risk factors (numbers and percentages)

4.11 History of overdose

Table 16 shows the number of times individuals had previously overdosed. Although the majority of individuals (61%) had never previously overdosed, over a third (37%) had – 22 once, 6 twice and 9 three or more times.

Number of times overdosed	Total	%
None	60	61
Once	22	22
Twice	6	6
Three or more	9	9
Not known	2	2
Total	99	100

Table 16: Previous overdoses (numbers and percentages)

4.12 Illegal and prescription drug use

As shown in Figure 8, although 90 of the 99 individuals who died of a drug misuse death had illicit drugs in their system at their time of death, 9 did not – with all 9 having prescription drugs in their system at this time.

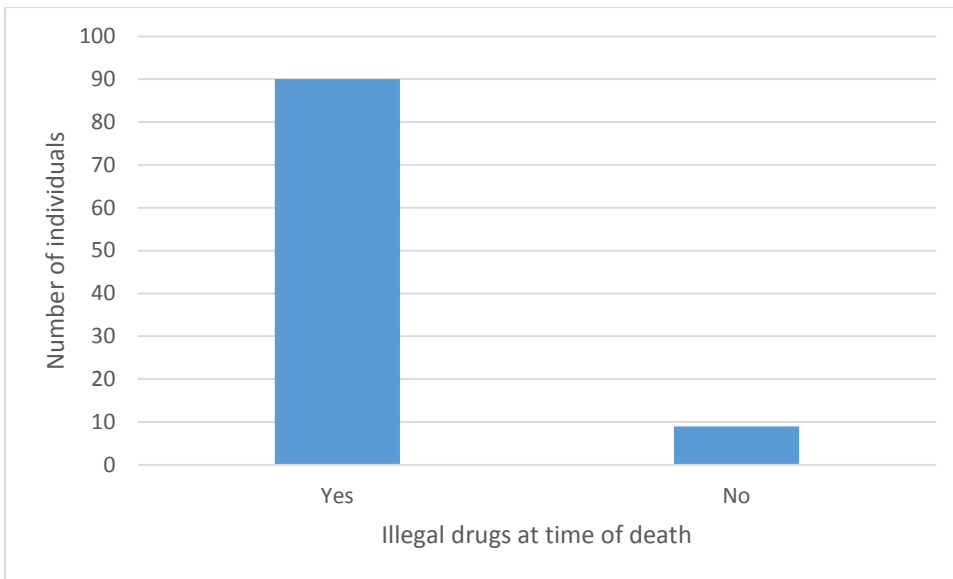


Figure 8: Illegal drugs at time of death by number of individuals

In addition to the 9 individuals who only had prescription drugs in their system, when looking at the whole audit population, the majority of individuals (72 in total) had prescription drugs in their system, as shown in Figure 9.

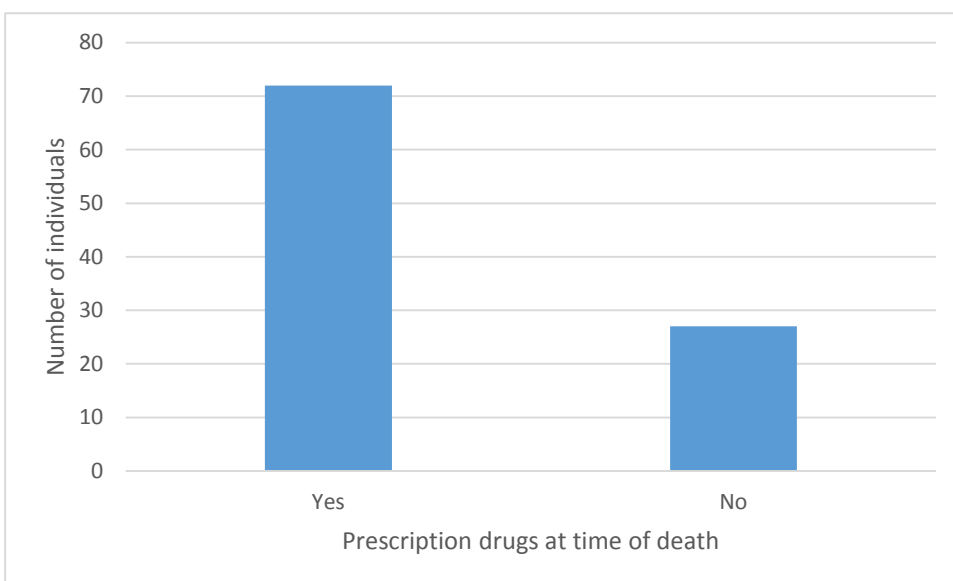


Figure 9: Prescription drugs at time of death by number of individuals

Figure 10 shows that the majority (59%) of individuals who died were injecting drug users. This accounted for nearly two thirds (63%) of those where injecting status was known (something that was unknown in 7 cases). Over a third of individuals did not inject drugs.

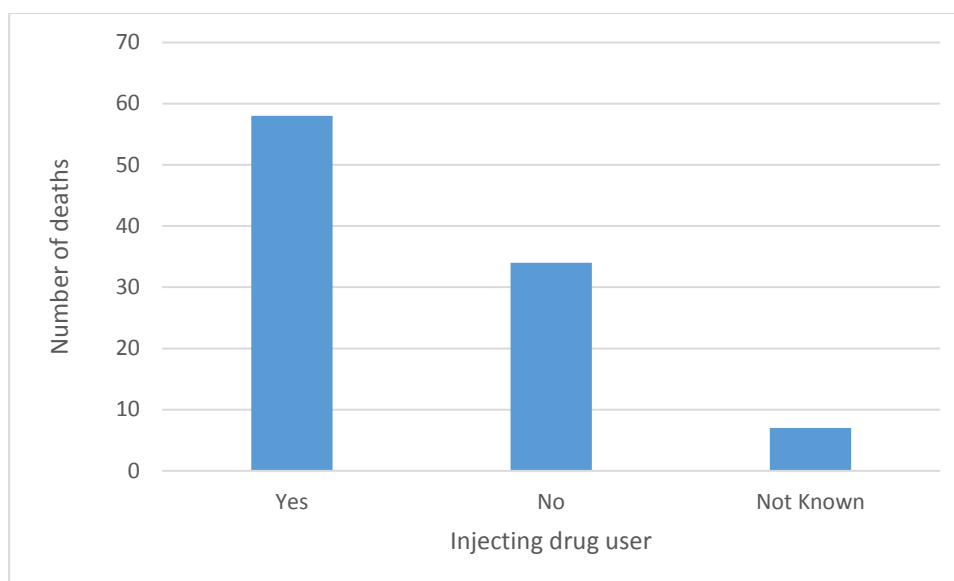


Figure 10: Injecting drug users

4.13 Contact with General Practice, Accident and Emergency, and specialist drug and alcohol services

Table 17 shows the last known contact individuals had with Primary Care before they died. Nearly a quarter (23%) of individuals saw their GP within the week before their death, with almost half (43%) having seen their GP within the month before their death. The vast majority (86%) of individuals had seen their GP during the previous 12 months. In addition, almost half (47%) of those who had visited their GP in the last 12 months had mental health listed as one of the reasons for contact.

Last contact with General Practice	Number	%
Within last week	23	23
Within last month	43	43
Within last 3 months	56	57
Within last 6 months	69	70
Within last 12 months	85	86
Ever	94	95
Not known	5	5

Table 17: Last contact with General Practice by time period (numbers and percentages)

Figure 11 represents all of those (43 in total) who visited their GP within the month prior to their death, and the drug-related reason for this contact. Nine individuals went to their GP because of illegal drug use, two in relation to prescription drug use, and eight for both (a total of 19 – almost half of those who made such contact).

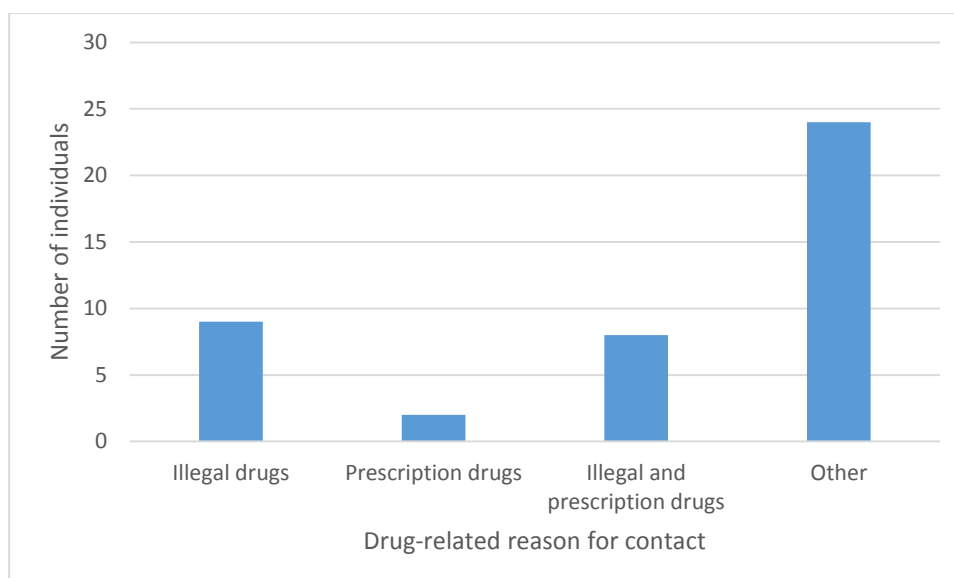


Figure 11: Drug-related reason for contact with General Practice (within last month) by number of individuals

Table 18 shows the last known contact individuals had with Accident and Emergency. Over one in five individuals had been to Accident and Emergency in the 12 months prior to their death. However, contact with Accident and Emergency was not very well reported in the case notes, with such contact unknown in the majority (72%) of cases.

Last contact with Accident and Emergency	Number	%
Within last week	6	6
Within last month	11	11
Within last 3 months	14	14
Within last 6 months	17	17
Within last 12 months	21	21
Ever	28	28
Not known	71	72

Table 18: Last contact with Accident and Emergency, by time period (numbers and percentages)

Table 19 shows the last known contact individuals had with a specialist drug and alcohol service. Only 14% of individuals had been in contact with such a service within the month before their death. In addition, half (51%) had at some point in their lives had contact with such services – everyone for whom such information was available. The fact that so few of those had had more recent contact suggests they had dropped out of treatment, when still needing it. Although, it is important to note that such contact was unknown for almost half (49%) of the cases.

Last contact with specialist drug and alcohol service	Number	%
Within last week	8	8
Within last month	14	14
Within last 3 months	18	18
Within last 6 months	24	24
Within last 12 months	36	36
Ever	50	51
Not known	49	49

Table 19: Last contact with specialist drug and alcohol service by time period (numbers and percentages)

4.14 Verdict of inquest

As shown in Table 20, the majority of cases (57%) had a verdict of 'drug-related death', although another 8% of cases were classed as 'drug and alcohol-related death'. 12% cases were classed as 'accidental death', with 6% suicides.

Coroner's verdict	Total	%
Drug-related death	56	57
Accidental death	12	12
Drug and alcohol-related death	8	8
Open	6	6
Suicide	6	6
Dependence on drugs	5	5
Death by misadventure	3	3
Narrative conclusion	1	1
Non-dependent abuse of drugs	1	1
Intravenous drug use	1	1
Total	99	100

Table 20: Coroner's verdict by gender (numbers and percentages)

5. Recommendations

The following recommendations are based on the findings from the audit, as well as national policy.

Area for action 1: reduce the risk of drug-related deaths in key populations

The audit highlighted that those at the highest risk of a drug-related death:

- were White British
- were aged 25-29 and 35-44
- were single/ separated/ divorced/ had relationship problems
- lived alone
- were unemployed/ experience worklessness
- lived in the most deprived areas of Leeds
- had mental health issues
- had physical illness/ disability
- had a history of overdose
- were injecting drug users.

Recommendation 1

Continue to target interventions at those identified as at most risk, particularly those areas highlighted in the annual report of the Director of Public Health 2017/18, namely:

- Conducting a review of routes of opiate treatment for males, ensuring interventions are targeted at the times of greatest risk, with treatment services that are appropriate to need
- Addressing the physical and mental health needs of heroin and opiate users, including access and support with employment, housing and other services that promote sustained recovery

Recommendation 2

- Ensure there is sufficient naloxone coverage, across the city, for both those in treatment and those not in treatment – by distributing naloxone kits and training to (non-drug and alcohol treatment) services that come into contact with those who use drugs.

Recommendation 3

Engage with partners who are likely to have early contact with those who are at risk of a drug-related death (e.g. street outreach, pharmacies, the police) to ensure effective access to appropriate services.

Recommendation 4

Bring together key stakeholders (statutory and third sector) who have contact with individuals with drug and alcohol issues, and include them in the development of the next Leeds Drug and Alcohol Strategy and Action Plan.

Area for action 2: better care for those with co-occurring mental health and drug conditions

Three quarters (74%) of the audit population had mental health issues, with almost half (47%) of those who had visited their GP in the 12 months prior to their death having mental health listed as one of the reasons for contact.

Recommendation 5

Bring together key stakeholders (statutory and third sector) who have contact with individuals with co-occurring mental health and drug/alcohol conditions, by re-establishing the Dual Diagnosis Strategy Group.

Recommendation 6

Audit service provision for those with co-occurring mental health and drug/alcohol conditions and develop a plan for improvement.

Area for action 3: maximise the role of General Practice/Primary Care in identifying those at risk of drug-related death

The audit highlighted that 43% of those who died had been in contact with General Practice within the month prior to their death (almost half of whom had drug use listed as one of the reasons for contact), with the vast majority (86%) having had such contact within the previous 12 months.

Recommendation 7

Work with Primary Care to identify those at risk of overdose and drug-related death.

Area for action 4: reduce the number of individuals developing addiction to medicines and improve interventions for those already addicted

The majority of individuals (73%) had prescription drugs in their system at the time of their death. Nine individuals only had prescription drugs in the system. In addition, almost half of those who visited their GP within the month prior to their death in relation to their drug use also used prescription drugs.

Recommendation 8

Work with the Clinical Commissioning Group and Primary Care around addiction to medicines.

Recommendation 9

Work with drug and alcohol services to improve treatment for those who are addicted to prescribed and over-the-counter medicines.

Area for action 5: reduce the number of people dropping out of drug treatment

Only 14 individuals in the audit population were known to have been in contact with a specialist drug and alcohol service within the last month. However, where such contact was known (in 50 cases), all individuals had been in contact with such services at some point.

Recommendation 10

Work with local drug and alcohol services to identify those at risk of dropping out of treatment and reengage with those who already have.

Area for action 6: review all drug-related deaths in the city and implement recommendations to improve service delivery

Although the Coroner's Registrar of Deaths was able to give the Public Health Team access to all records which contained information on drugs that occurred in Leeds from 2014 to 2016, this was a one off arrangement. And while Leeds City Council currently reviews drug-related deaths in its commissioned services, there is no system for capturing those who die who are not in contact with these services.

Recommendation 11

Explore ways to build upon the existing drug-related death review processes in the city.

Recommendation 12

Set up a robust drug alerts system in the city.

6. Limitations of audit

Although every effort was made to ensure that the audit was as robust as possible, it has limitations.

The records held by the Coroner contain the best available information, in terms of detail, on drug misuse deaths. However, as the primary concern of the Coroner's process is to judge cause of death, their files do not always contain all of the information that may be desired for an audit of this kind.

In addition, some of the information contained in Coroner's case files are based on witness statements and are consequently third party accounts. Such information is subjective and could be at risk of bias.

As this audit is based on deaths between 2014 and 2016, there is a time lag between the deaths occurring and the publication of this report. Consequently, care needs to be taken when interpreting the findings, as they are not necessarily reflective of the current situation in Leeds.

The audit is based on only 99 cases, so small changes can make a big difference.

7. References

- ¹ HM Government (2017), 2017 Drug Strategy
https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/628148/Drug_strategy_2017.PDF
- ² Clinical Guidelines on Drug Misuse and Dependence Update 2017 Independent Expert Working Group (2017), Drug misuse and dependence: UK guidelines on clinical management
https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/673978/clinical_guidelines_2017.pdf
- ³ Office for National Statistics (2018), Labour Market Profile – Leeds
https://www.nomisweb.co.uk/reports/lmp/la/1946157127/subreports/ea_time_series/report.aspx
- ⁴ Office for National Statistics (2018), Deaths related to drug poisoning in England and Wales: 2017 registrations
<https://www.ons.gov.uk/peoplepopulationandcommunity/birthsdeathsandmarriages/deaths/bulletins/deathsrelatedtodrugpoisoninginenglandandwales/2017registrations>
- ⁵ Advisory Council on the Misuse of Drugs (2016), Reducing opioid-related deaths in the UK
<https://www.gov.uk/government/publications/reducing-opioid-related-deaths-in-the-uk>
- ⁶ Wright, C (2017), Health Matters: Heroin availability and drug misuse deaths
<https://publichealthmatters.blog.gov.uk/2017/03/01/health-matters-heroin-availability-and-drug-misuse-deaths/>
- ⁷ Hamilton, I and Monaghan, M (2016), Drugs fatalities overtake car fatalities for the first time; The Conversation <http://theconversation.com/drugs-fatalities-overtake-car-fatalities-for-the-first-time-64972>
- ⁸ Public Health England (2016), Understanding and preventing drug-related deaths: the report of a national expert working group to investigate drug-related deaths in England
https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/669308/Understanding_and_preventing_drug_related_deaths_report.pdf
- ⁹ Leeds City Council (2018), Nobody left behind: good health and a strong economy – the annual report of the Director of Public Health in Leeds 2017/18 <https://www.leeds.gov.uk/residents/health-and-social-care/keeping-well-and-healthy/director-of-public-health-annual-report>
- ¹⁰ Leeds City Council (2018), Best Council Plan 2018/19-2020/21
<https://www.leeds.gov.uk/docs/BCP%2018-21%20whole%20plan%20FINAL.pdf>
- ¹¹ Public Health England (2016), An Audit of Drug Related Death Confidential Inquiry Systems in Yorkshire and the Humber
- ¹² Office for National Statistics (2017), Deaths registered by area of usual residence, UK
<https://www.ons.gov.uk/peoplepopulationandcommunity/birthsdeathsandmarriages/deaths/datasets/deathsregisteredbyareaofusualresidenceenglandandwales>
- ¹³ Office for National Statistics (2018), Drug-related deaths by local authority, England and Wales
<https://www.ons.gov.uk/peoplepopulationandcommunity/birthsdeathsandmarriages/deaths/datasets/drugmisusedeathsbylocalauthority>