

# **The National Drug-Related Deaths Database (Scotland) Report: Analysis of Deaths occurring in 2014**

**Lee Barnsdale**

**Ruth Gordon**

**Lesley Graham**

**Dave Walker**

**Vicky Elliott**

**Barbara Graham**

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## Executive Summary

This is the sixth report from the National Drug-Related Deaths Database (NDRDD) for Scotland which presents data for the calendar year 2014 and trend data back to 2009. The NDRDD was established to collect detailed information regarding the nature, health and social circumstances of individuals who have died a Drug-Related Death (DRD). This report analyses a specific cohort of DRDs in Scotland on which National Statistics have already been published by National Records of Scotland (NRS) [1]. Information on methods and definitions is included in the appendices.

[Section 3](#) focuses on 575 unintentional and undetermined deaths (i.e. non-suicides) involving controlled substances that occurred in Scotland in 2014. These were largely a subset of the 613 DRDs reported by NRS. [Section 4](#) compares the characteristics of DRDs involving Novel Psychoactive Substances (NPS) to the rest of the NDRDD cohort and comments on any differences in deaths involving specific types of NPS. [Section 5](#) reports on female DRDs from 2009-2014 and [Section 6](#) reports on the 47 deaths from suicide involving controlled drugs recorded in 2014 (also a subset of the 613 DRDs reported by NRS).

### Key Findings:

#### Profile of Individuals

- The average age of those who died increased across the time series, reflecting the known ageing profile of problem drug users.
- The majority (53%) of individuals lived in the 20% most deprived neighbourhoods (SIMD quintile 1).
- Most individuals who died lived alone (54%) and in their own home (73%). The percentage of those who lived alone all of the time increased over the time series.
- Most DRDs (54%) were among long-term (i.e. more than 10 years) drug users. The percentage of DRDs who were long-term drug users increased over time.
- Over half of those who died (53%) had previously experienced a non-fatal overdose.
- Nearly two thirds (63%) had a medical condition recorded in the six months before death. Recent medical ill health among DRDs increased over time.
- Most individuals (60%) had experienced a psychiatric condition in the six months before death. Recent psychiatric ill health among DRDs increased over time, particularly depression and anxiety.
- Two thirds of people consumed drugs (67%) and died (63%) in their own home. The percentage of the cohort in each of these categories increased over the time series.
- Over half of DRDs (54%) occurred when others were present at the scene of the overdose (46% of individuals died alone).

#### Contact with Services

- Just over half who died (53%) were in recent (within 6 months) contact with drug treatment services; recent drug treatment service contact increased over time.

- One in ten individuals (10%) had been discharged from hospital in the month before death.
- 70% of individuals (90% of those whose death was related to opioid use) were in contact with a service with the potential to address their problem drug use or deliver harm reduction interventions in the six months before death.
- Around one third (29%) were prescribed an Opioid Replacement Therapy (ORT) drug (predominantly methadone) at the time of death. The percentage prescribed an ORT drug increased over time.
- Most individuals (54%) prescribed methadone received a dose within the recommended therapeutic range. However, 39% were prescribed less than the recommended dose.
- Anti-depressants were prescribed to 30% of the cohort and had increased over time. In 2014, anti-depressant presence among those not recently prescribed them (32%) was higher than in previous cohorts.

### Drugs Present and Implicated in Death

- Heroin (58%), anti-depressant (46%) and gabapentin (17%) presence at post mortem increased in 2014 (see Figure 7).
- Diazepam (70%) and methadone (40%) presence was lower than in most previous cohorts.
- Opioids (methadone, heroin, morphine or buprenorphine) were implicated in three quarters (76%) of DRDs.
- Diazepam, alcohol and anti-depressants were commonly found at post mortem (70%, 48% and 46% respectively), but were implicated in less than half of DRDs (20%, 36% and 25% respectively) where present.
- Half of individuals on ORT (51%) had heroin present at death (lower than among those not prescribed ORT (63%)).

### 'Novel' Psychoactive Substances (NPS)

- Unlike previous years, the number of NPS-related deaths (112) increased only slightly in 2014.
- NPS-related deaths continued to be dominated by those involving Benzo-type NPS (90).
- Following its control in 2012, phenazepam presence decreased and etizolam presence increased in 2014.
- In 2014, those who died following Stimulant-type NPS use more closely resembled Benzo-type NPS users than in previous years and the cohort overall.

### Female Drug-Related Deaths

- The ratio of women to men has not changed much over time (as in previous cohorts, around one quarter (24%) of DRDs in 2014 were among females).
- The relative increase in the number of DRDs from 2009 to 2014 was greater among females (54%) than males (28%).

- An overall ageing effect was observed over time in DRDs, however this was more pronounced in females.
- A higher percentage of females lived with their spouse/partner (34% compared to 17% of males), were a parent or parental figure (46% compared to 36% of males) or had at least one individual present at the time of death (63% compared to 57% of males).
- Females were significantly more likely to suffer both domestic (43%) and/or sexual abuse (33%) than males (6% and 8% respectively).
- A higher percentage of females experienced at least one medical condition in the six months prior to death than males (68% compared to 54%).
- A higher percentage of females experienced at least one psychiatric condition in the six months prior to death than males (66% compared to 47%).

### Deaths by Suicide

- On average, persons who died by suicide involving controlled drugs were older (44 years) than those whose death was classified as non-intentional (39 years).
- Deaths by suicide accounted for a higher percentage of DRDs among females (14%) than males (5%).
- Known drug use was lower among the death by suicide cohort (40%) than the non-intentional death cohort (85%).

### Conclusion

The increasing numbers of people dying Drug-Related Deaths (DRD) requires continued effort on both preventative and treatment fronts. The information from the National Drug-Related Death Database (NDRDD) paints a picture of an ageing cohort of long term drug users with multiple complex health and social care needs. Many show high risk factors for DRD such as injecting drug use, a history of multiple overdoses and living alone. Reports of an increase in psychiatric problems, particularly anxiety and depression, are backed up by an increase in anti-depressant prescribing and increasing contact with mental health services. This calls for person-centred, needs-based, recovery-orientated treatment services along with robust risk assessment.

Although over time there has been an increase in the provision of Opioid Replacement Therapy (ORT) and of contact with wider services (such as mental health and hospital care) there may still be problems with engagement of and retention in treatment for those at very high risk, given only 29% of those who died had been prescribed ORT at the point of death. This suggests that all services in contact with those with drug problems should not only be aware of risk factors in those who use drugs but also maximise opportunities to intervene/signpost into treatment, for example health services in the criminal justice system. Particular interventions to reduce DRDs such as 'Take-Home' Naloxone (THN) can be supplied from these settings.

Polydrug use remains a common feature. A decrease in deaths where methadone was implicated has been offset by the increase in deaths involving heroin. Unlike previous years, the number of 'Novel' Psychoactive Substance (NPS) deaths increased only slightly and continued to be dominated by Benzo-type drugs. However, there was evidence that older, injecting drug users have started using Stimulant-type NPS alongside 'traditional' drugs of abuse. The role of NPS in DRDs in the future may change with the forthcoming

Psychoactive Substances Act 2016, given the possible evidence of the effect of a ban on phenazepam. However, the role of opioids remains dominant across DRDs as a whole.

There needs to be a better understanding of prescribing, particularly the interactions between psychoactive medications. Most of those who died whilst on ORT had been on long-term supervision and had been prescribed a therapeutic dose. Those on ORT were also more likely to have been prescribed a benzodiazepine and/or anti-depressant (perhaps reflecting more service contact). There was also increasing evidence of the presence of illicit (non-prescribed) anti-depressants at post-mortem in those who died a drug-related death.

Explanations for the greater relative increase in deaths among women than men over time (54% compared to 28%) are inconclusive. High risk factors were evident in women such as a more pronounced ageing effect, an increased likelihood of having suffered domestic violence and sexual abuse and an increased likelihood of having a medical or psychiatric history. However, they were also more likely to have some protective factors such as not living alone and being on ORT. Given the higher number of women living with others, more targeted training of their partners/families to administer THN may be of benefit.

Known drug use among those in the death by suicide cohort was considerably lower than among those whose death was non-intentional. This, along with fewer having heroin/morphine present, suggests that not all were habitual drug users.

Whilst evidence-based treatment and harm reduction measures help to reduce the risk of drug-related mortality and increase individuals' life chances, other initiatives to address socio-economic, educational and employment chances that contribute to poor health are also vital.

## 1: Introduction

This is the sixth report from the National Drug-Related Deaths Database (NDRDD) for Scotland which presents data for the calendar year 2014 and trend data back to 2009. The NDRDD was established to collect detailed information regarding the nature of Drug-Related Deaths (DRDs) and the health and social circumstances of individuals who have died. This report analyses a specific cohort of DRDs in Scotland on which National Statistics have already been published by National Records of Scotland (NRS).

The NRS [1] reports annually on the number of DRDs and the substances involved. The NDRDD [2-6] reports seek to contextualise these deaths in relation to the health and social circumstances of the deceased. This provides us with insights into the lives of these individuals and highlights potential areas for intervention.

### 1.1: Defining ‘Drug-Related Deaths’

Different organisations and authors adopt various definitions of what constitutes a DRD. The definition used in this report matches that from the NRS report [1]. The NRS obtains details of all deaths registered in Scotland and identifies DRDs based on a supplementary questionnaire (an ME4 form) that is completed by the forensic pathologist. The NRS DRD definition, including the specific diagnosis codes used, can be found in [Appendix A1](#).

Prior to 2012 [2-4], the NDRDD definition did not include deaths by suicide (defined as ‘intentional self-poisoning’), which are included in the NRS definition. To maintain consistency with previous publications the main body of this report focuses on unintentional and undetermined deaths and assault by drugs (n=575), while intentional self-poisonings (deaths by suicide: n=47) are described separately in [Section 6](#).

### 1.2: NRS Report on Drug-Related Deaths 2014

In its most recent publication [1], NRS reported that 613 DRDs were registered in Scotland in 2014. This was 16% higher than the number reported in 2013 (527). The 2014 figure was the highest number of DRDs ever recorded by NRS, 257 (72%) more than in 2004. Part of this increase is attributable to changes in the classification of drugs (which is explained in the NRS publication). Nevertheless, the updated 3-year and 5-year moving averages suggest that while there is considerable year-to-year fluctuation (for example, in 2008 and 2013), a long-term upward trend in DRDs is apparent. The NRS report is available [here](#).

### 1.3: Report Outline

This report focuses on the **nature, health and social circumstances of DRDs occurring in Scotland in 2014**. It contains:

- an account of the data collection and analysis of the 2014 NDRDD cohort;
- a full description of results from the 2014 NDRDD cohort of non-intentional deaths (including linked hospital admission and prescribing data) and comparison with results from previous NDRDD cohorts to identify changes and trends over time;
- additional sections are also included describing:
  - o the role of ‘Novel’ Psychoactive Substances (NPS) in DRDs;
  - o female DRDs including comparisons with males and changes over time;
  - o deaths by suicide involving controlled substances; and,
- consideration of the results within the wider policy and health protection context.

## 2: Methods

Drug-Related Deaths (DRDs) in Scotland are recorded and examined by Local Critical Incident Monitoring Groups who collaborate with the police and Procurator Fiscal to identify such cases in their local area. On completion of the post mortem examination, the Local Critical Incident Monitoring Group and local Data Collection Co-ordinator decide if the case matches the inclusion criteria for the National Drug-Related Deaths Database (NDRDD). If these criteria are met, a case record is submitted to ISD.

The proforma used for NDRDD data collection was designed to collect data on a wide range of details concerning the individuals' health and social circumstances and circumstances of death. Information on the circumstances of the deceased was collected from a range of sources including the Scottish Prison Service and Scottish Ambulance Service as well as notes from drug treatment services, GPs, hospitals etc. Information was recorded using a secure online database administered by ISD. These data were then anonymised, added to the composite NDRDD dataset and analysed descriptively using SPSS v21.

As a result of ongoing data improvements, some analyses include figures which differ from previous reports [2-6]. Specifically, due to late data submissions, an additional 42 deaths are reported for 2013, increasing the total 2013 cohort to 527. Of these 527 deaths, 42 (37 cases reported previously) were classed as death by suicide, therefore the number of 2013 non-intentional deaths analysed in the main body of this report increased to 485 (448 cases reported previously).

In order to provide an alternative perspective on medical and psychiatric co-morbidities, information from ISD's general acute inpatient and day case admissions (SMR01) and psychiatric inpatient admissions (SMR04) datasets were linked to the NDRDD cohort. These analyses provide indicators of hospital stays (numbers of stays, time period between discharge and death – see Sections [3.4.3](#), [4.4](#) and [5.2.4](#)) and a description of multi-morbidity (see Sections [3.3.1](#), [3.3.2](#) and [5.2.3](#)).

In addition, data from ISD's Prescribing Information System was used to supplement the NDRDD dataset, providing further detail about prescribing from 2009 onwards, when patient identifiable Community Health Index numbers were first included. These data are reported in Sections [3.2.3](#) (substitute prescribing) and [3.7.3](#) (other prescriptions). In respect of both linkages, all relevant permissions for use and reporting of data were obtained in accordance with ISD's Information Governance processes.

Further information on methods is available in [Appendix A2](#).

### 2.1: The 2014 National Drug-Related Deaths Database Cohort

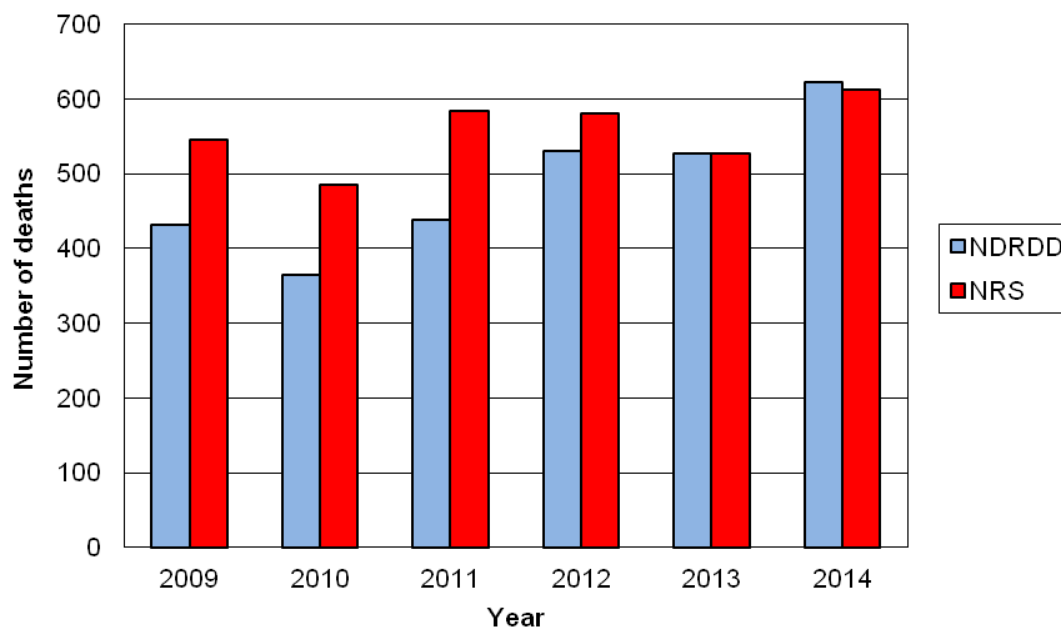
In 2014, a total of **661** records were submitted to ISD for the NDRDD. Of these, 39 (5.9%) did not meet the criteria for inclusion - the reasons for excluding these cases are detailed in [Appendix A3](#). The percentage of cases excluded was slightly higher than in 2013 (4.5%).

Using the National Records of Scotland (NRS) definition, a total of **622** records were identified as eligible for inclusion in the NDRDD cohort. This was an 18% increase compared to the number of cases reported in 2013 (527), reflecting the increase in DRDs recorded by NRS. For the first time, the figure reported by NDRDD was higher than that reported by NRS (613). Figure 1 shows the relative size of the two datasets over time. General increases in the size of the NDRDD cohort can partly be explained by the inclusion of deaths by suicide since 2012. However, the 2014 NDRDD cohort was larger than the



NRS cohort due to specific factors (e.g. improved completion rates and the different reporting periods used by NRS and NDRDD) which are described in detail in [Appendix A3](#).

**Figure 1: Number of Drug-Related Deaths in NRS and NDRDD Cohorts (2009-2014)**



After matching to NRS data, it was possible to identify a total of 11 records for which no NDRDD return was submitted to ISD. In 2014, the percentage of missing records was 1.7%, which was much lower than for the 2013 report (10.5%)<sup>1</sup> at the time of publication [6]. However, despite this decrease in the percentage of missing 2014 cases (and the late submission of a number of 2013 cases), there remain some differences in the operational definition of DRD which informs data collection in some NHS Board areas, which has resulted in an increase in partial data submissions.

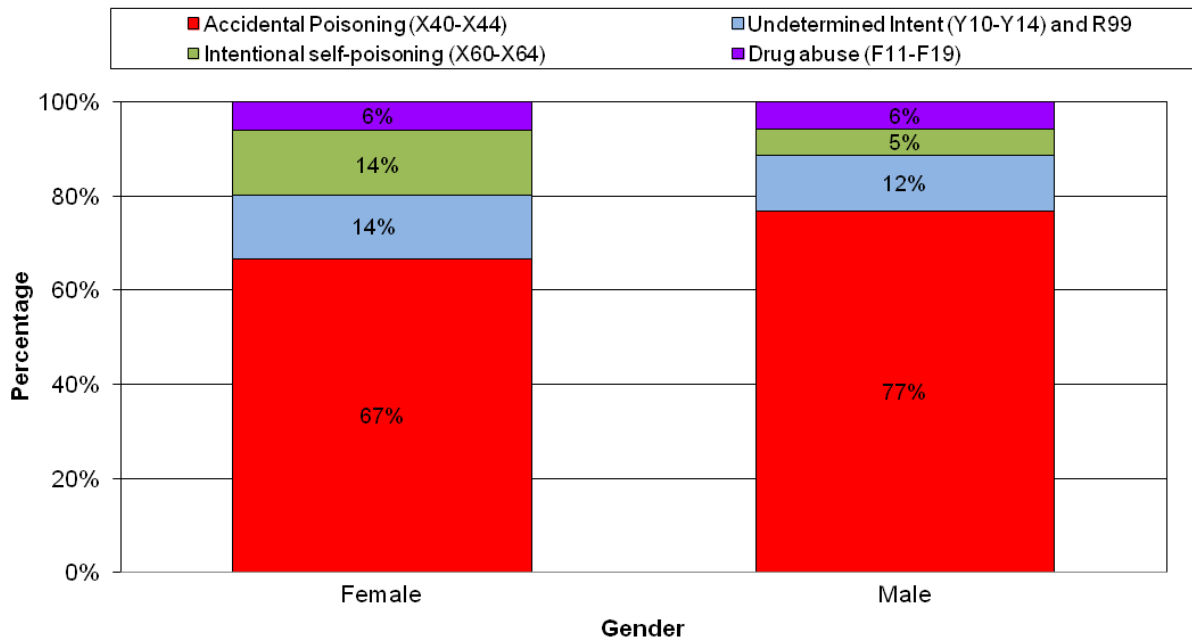
Of the **622** records which were identified as eligible for inclusion in the NDRDD cohort, 47 (7.6%) cases were classed as deaths by suicide ('intentional self-poisoning' in Figure 2: reported in further detail in [Section 6](#))<sup>2</sup>. Therefore, a total of **575** records were identified as eligible for inclusion in the main NDRDD cohort in 2014 (hereafter referred to as 'the NDRDD cohort' or as 'non-intentional deaths').

Figure 2 shows the percentage of causes of death (as classified by ICD10 code) by gender. Deaths by suicide ('intentional self-poisoning') accounted for a higher percentage of deaths among females (14%) than males (5%). This was consistent with previous years.

<sup>1</sup> 2014: 11 (missing eligible cases) / 633 (622 eligible NRS cases + 11 missing eligible cases) = 1.7%. 2013: 57 (missing eligible cases) / 542 (485 eligible NRS cases + 57 missing eligible cases) = 10.5%.

<sup>2</sup> To bring the NDRDD cohort more in line with the volume of cases reported by NRS, deaths categorised as 'intentional self-poisoning' were included in NDRDD for the first time in 2012, but are excluded from the main NDRDD cohort in order to ensure that it remains consistent in scope, and therefore comparable, over time.

Figure 2: Cause of Drug-Related Death by Gender (NDRDD, 2014)



## 2.2: Statistical Testing and Presentation of Findings

While percentages in 2014 are described throughout, direct inter-group or inter-year comparisons in the commentary are generally restricted to those where a statistically significant difference ( $p < 0.05$ ) was identified and are described as ‘higher’ or ‘lower’ (or similar).

Comparisons of proportions where samples were expected to be similar in nature (e.g. individual NDRDD cohorts) were tested using a T-test; a chi-square test was used where groups were thought to be different in nature (e.g. males and females). Where comparisons involved small numbers of cases (e.g. inter-year comparison of Stimulant-type ‘Novel’ Psychoactive Substance (NPS) deaths), Fisher’s exact test was used. While the T-test was used where individual years appeared to be outliers (e.g. higher percentage in 2014 than in any previous cohort), a chi-square test for trend was used where there was evidence of a linear change over time.

Differences in means were tested using an Independent Samples T-test. Medians were tested using Mood’s Median Test.

Throughout this report, the number of cases where information was known is only reported when completion was lower than 90% or where analysis relates to a specific group (e.g. females). For the main cohort, where not stated, denominator figures are available in the [data tables](#).

### 3: Results and Commentary

This section presents the findings from the 575 non-intentional Drug-Related Deaths (DRDs) in the 2014 National Drug-Related Deaths Database (NDRDD) cohort, along with comparisons to previous years. Results are organised into the following thematic subsections, each concluding with a description of Key Findings.

- **Socio-Demographics:** Examines the demographic and social characteristics of the NDRDD cohort, providing insights into the lives of those who died a DRD.
- **Substance Use History:** Describes the extent and duration of substance use, associated treatments and known risk factors among the NDRDD cohort.
- **Medical and Psychiatric History and Significant Life Events:** Documents recent medical and psychiatric conditions (and associated hospital admissions) and experience of significant life events including domestic or sexual abuse.
- **Contact with Services:** A description of recent contact with services to provide insights into issues faced by individuals in the period immediately before death and the potential for harm reduction interventions.
- **Circumstances of Death:** A description of the circumstances of deaths, providing insights into contributing factors and potential interventions.
- **Toxicology Data:** Information about the drugs *present* in the body at post mortem and those thought by pathologists to have been *implicated* in death.
- **Prescribing:** A description of deaths among individuals receiving Opioid Replacement Therapies and the prescription of other drugs among the NDRDD cohort.

The [data tables](#) include findings from the five previous cohorts from 2009, allowing comparisons to be made.

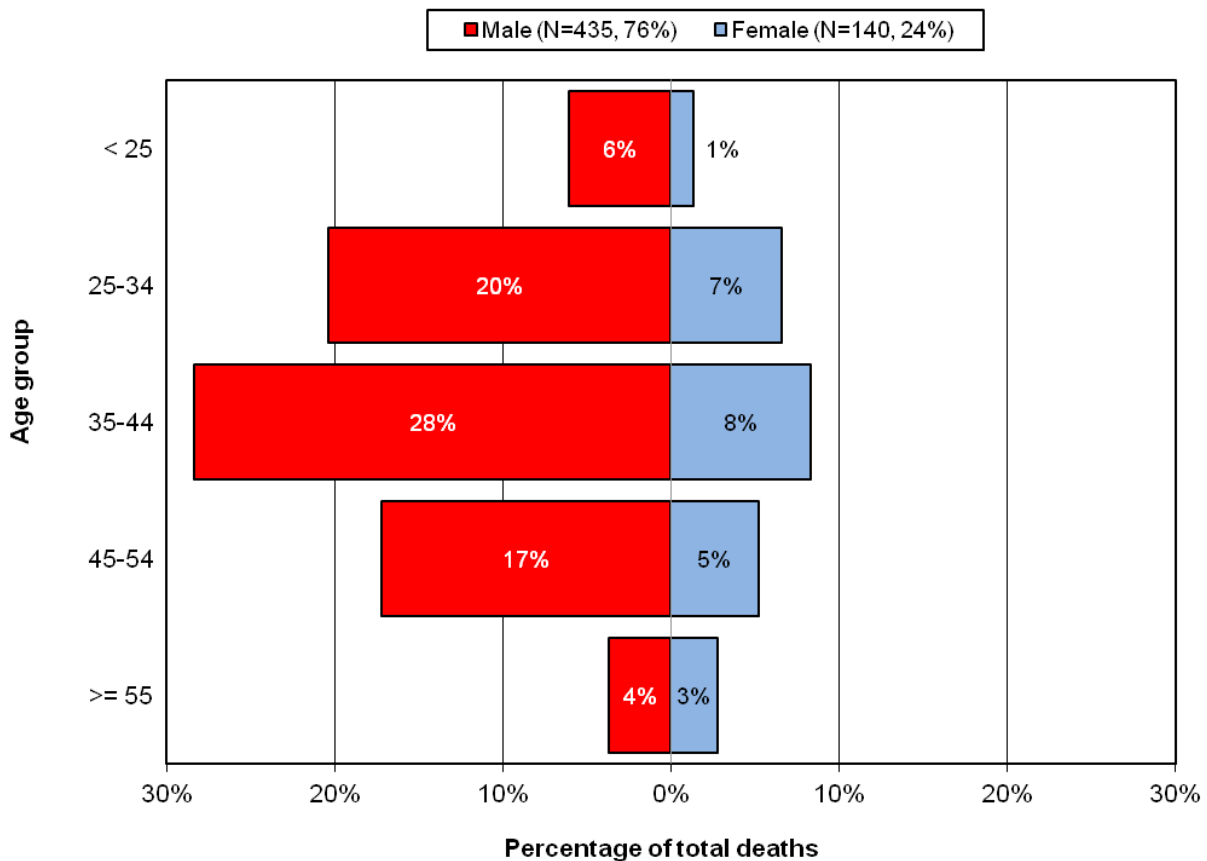
The Key Findings found at the end of each subsection have been summarised in the [Key Messages](#) section and in the [Conclusion](#).

### 3.1: Socio-Demographics

#### 3.1.1: Age and Gender

As in previous cohorts, around three quarters of DRDs in 2014 were male (435, 76%). The age profile of DRDs was similar across both sexes, with the highest percentage of deaths observed among those aged 35-44 (211, 37%) (Table 1 and Figure 3).

**Figure 3: Percentage of Drug-Related Deaths by Age Group and Gender (NDRDD: 2014)<sup>1</sup>**

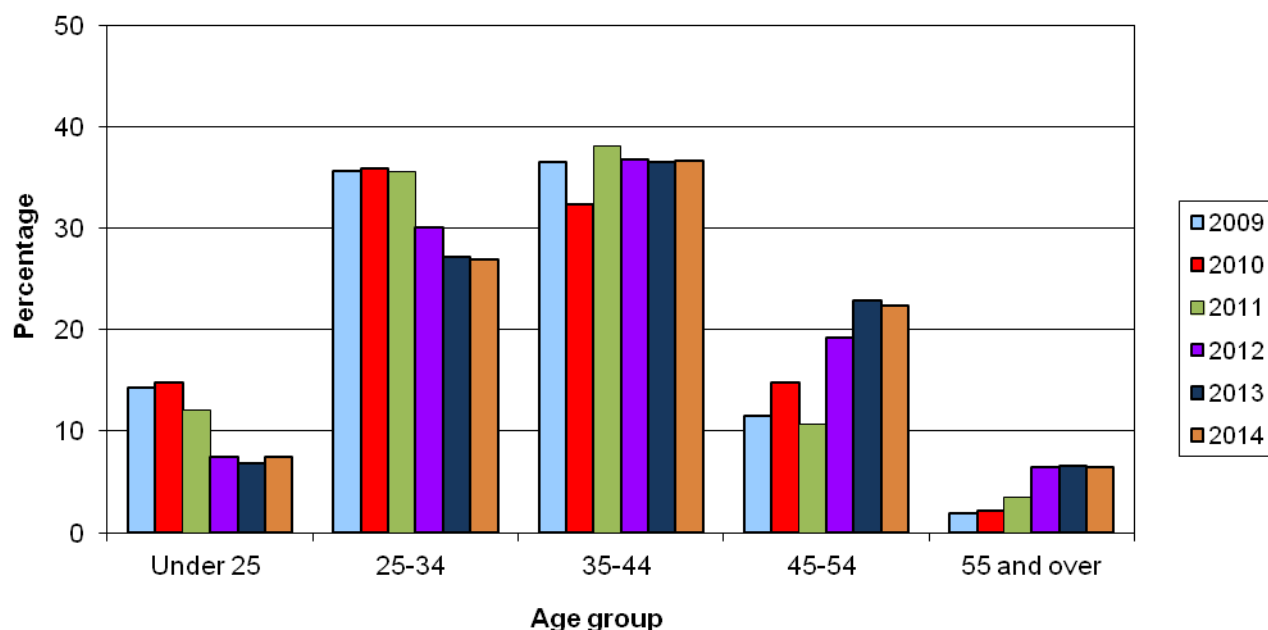


Note:

1. Due to rounding, totals in this chart do not equal 100%.

The average age of individuals increased from 34.4 in 2009 to 39.1 in 2014, reflecting the ageing profile of problem drug users [7-10].

In 2014, two-thirds of DRDs were among those aged 35 or over (377, 66%), compared to half of DRDs in 2009 (216; 50%). In particular, DRDs among those aged 45 and over doubled over the same time period; from 13% in 2009 to 29% in 2014 (Figure 4).

**Figure 4: Percentage of Drug-Related Deaths by Age Group (NDRDD: 2009-2014)**

### 3.1.2: Deprivation

The Scottish Index of Multiple Deprivation (SIMD) classifies postcode areas by deprivation on a scale of one to five. Slightly more than half those who died (296, 53%) lived in the most deprived neighbourhoods (SIMD quintile 1) in Scotland. In 2014, only seventeen individuals (3%) who died lived in the least deprived areas (SIMD quintile 5). The deprivation profile of DRDs has changed little since 2009 (Table 2).

### 3.1.3: Living Arrangements

Almost three-quarters of those who died were reported to be living in their own home prior to death (400, 73%) while 15% (84) lived in a relative's home (Table 3)<sup>3</sup>. Seven per cent (37) lived in a hostel, were of no fixed abode or sleeping rough prior<sup>4</sup> to death. The percentage living in their own home increased over time (2009: 61%, 2010: 61%, 2011: 61%, 2012: 72%, 2013: 71%).

More than half of the cohort lived on their own at least part of the time (310, 58%) or all of the time (288, 54%) prior to death. The percentage living on their own all of the time increased over time (2009: 41%, 2010: 53%, 2011: 49%, 2012: 53%, 2013: 53%). One fifth of individuals (112, 21%) were reported to live with their spouse/partner while 14% (76) lived with their parents (Table 4).

### 3.1.4: Parenthood and Living with Children

In 2014, 37% (196) of individuals in the cohort were a parent or parental figure to a child or children aged under 16 (similar to most previous years). The total number of children who lost a parent/parental figure due to DRD in 2014 was 310 (Table 5).

<sup>3</sup> It is important to note that individuals could have been reported as living at more than one place of residence at the time of death.

<sup>4</sup> Recognised to be among the most vulnerable in terms of a range of risks including DRD [11].

Thirty-eight individuals (7%) were living with a child when they died. Of the 310 children who lost a parent/parental figure due to DRD, 53 (17%) were living with them at the time of death (Table 6).

In 2014, 130 DRDs occurred among injecting drug users who were a parent or parental figure to a child or children aged under 16<sup>5</sup>. Of these, 19 (15%) were living with children at the time of their death. A total of 26 children lived with those known to inject drugs prior to their death (data not shown in tables).

### Key Findings:

- As in previous cohorts, around three quarters (76%) of DRDs in 2014 were among males.
- The average age of those who died increased across the time series, reflecting the known ageing profile of problem drug users.
- The majority (53%) of individuals lived in the 20% most deprived neighbourhoods (SIMD quintile 1).
- Most individuals who died lived alone (54%) and in their own home (73%). The percentage of those who lived alone all of the time increased over the time series.
- In 2014, 310 children lost a parent/parental figure due to a drug-related death.

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<sup>5</sup> Children living with parents known to inject drugs were recognised to be among those at highest risk of harm in 'Hidden Harm' by the then Scottish Executive [12].

## 3.2: Substance Use History

### 3.2.1: Drug Use and Injecting Status Prior to Death

In the 2014 cohort, 85% of individuals (482) were known to be using drugs at some point prior to death (Table 7). This figure was broadly consistent with previous years.

Of those known to use drugs, 312 (72%) were known to have used for more than ten years and 35% (153) had used for 20 or more years. The percentage known to have used drugs for more than ten years increased over time (2009: 55%, 2010: 61%, 2011: 62%, 2012: 64%, 2013: 71%).

In 2014, 66% (318) of those known to use drugs were also known to inject drugs<sup>6</sup>. The percentage of individuals known to have injected drugs for more than ten years (186, 63%) increased over time (2009: 44%, 2010: 50%, 2011: 49%, 2012: 59%, 2013: 61%) (Table 8).

### 3.2.2: Drug Detoxification

In 2014, data on drug detoxification was known for 87% (500) of the cohort. Of these, around one in ten individuals (53, 11%) were known to have undertaken a drug detoxification in the year prior to death. Only nine individuals (17% of those recently detoxed) died within one month of a drug detoxification (Table 9).

### 3.2.3: Substitute Prescribing

Using data from ISD's Prescribing Information System, one third of the 2014 NDRDD cohort (198, 34%) had been prescribed an Opioid Replacement Therapy (ORT) drug at some point since 2009<sup>7</sup>. Of those prescribed an ORT drug, 94% (186) had been prescribed methadone at some point since 2009 (data not shown in tables).

Around three in ten (166, 29%) were prescribed an ORT drug at the time of death. In 2014, 90% (149) of these individuals received methadone, with the remainder receiving suboxone (11) or buprenorphine (6) (Table 10). The percentage of the cohort prescribed an ORT increased over the time series (2009: 21%, 2010: 24%, 2011: 26%, 2012: 28%, 2013: 31%) as did the percentage prescribed methadone (2009: 18%, 2010: 20%, 2011: 24%, 2012: 27%, 2013: 29%, 2014: 26%). Roughly three quarters of ORT prescriptions were supervised (119, 74%) (Table 11).

Over half of those receiving methadone (81, 54%) were prescribed 60-120mg daily (the therapeutic dose recommended by the Orange Guidelines [15]), 39% (58) were prescribed under 60mg daily and 5% (8) were prescribed over 120mg daily. The median methadone dose was 70.0mg daily – this has remained consistent over time (2009: 67.5mg, 2010: 65.0mg, 2011: 70.0mg, 2012: 70.0mg, 2013: 70.0mg - data not shown in tables).

Information on the duration of treatment indicated that three-quarters (112, 75%) had been prescribed an ORT for one year or more and around one fifth (27, 18%) received ORT for over ten years. The percentage receiving an ORT drug for over ten years has remained roughly the same since 2010 (Table 12). The duration of methadone prescription was largely similar; 80% (108) having received methadone for more than one year (Table 13).

<sup>6</sup> This includes those injecting intravenously, intramuscularly ('muscle popping'), or subcutaneously.

<sup>7</sup> Due to issues with capturing Community Health Index numbers from hospital prescriptions [13-14], there is a risk that the figures presented may underestimate opioid substitute prescribing since 2009. Inter-year comparisons were not included in this report due to the restricted look back period available for analysis.

### 3.2.4: Previous Overdoses

Over half of the 2014 cohort had previously experienced a non-fatal overdose (305, 53%); a similar percentage to previous years. Among those who had previously overdosed, 52 (17%) were known to have overdosed at least five times prior to their death (Table 14). The median number of previous overdoses was two and has remained unchanged since 2011 ((2009: 1, 2010: 3) data not shown in tables).

Of those who had experienced a previous overdose, 28% (83) had overdosed within six months of death (18% (54) had overdosed within the three months prior to death). These findings were largely consistent with previous cohorts (Table 15).

### 3.2.5: Alcohol-Related Problems

Recording of 'problem alcohol use' as a recent medical condition decreased over the time series (from 37% in 2009 to 6% in 2014). As a decrease of this magnitude was not consistent with general population alcohol statistics [16] and clinical experience, an alternative category, taking into account a broader range of indicators<sup>8</sup> was calculated. This showed that over half (298, 52%) of 2014 DRDs had received treatment, been in contact with services, or had medical or psychiatric notes recorded about alcohol-related problems in the six months before death. In 2014, a higher percentage of DRD victims had recent alcohol-related problems than in previous cohorts (2009: 43%, 2010: 45%, 2011: 39%, 2012: 42%, 2013: 38% - data not shown in tables).

### Key Findings:

- Most DRDs (54%) were among long-term (i.e. more than 10 years) drug users. The percentage of DRDs who were long-term drug users increased over time.
- Most DRDs (55%) were among those known to inject drugs. The percentage of DRDs who were long-term injecting drug users increased over time.
- Around one third (29%) were prescribed an ORT drug (predominantly methadone) at the time of death. The percentage prescribed any ORT drug and specifically methadone, increased over time.
- Most ORT prescriptions (74%) were supervised.
- Most individuals (54%) prescribed methadone received a dose within the recommended therapeutic range. However, 39% were prescribed less than the recommended dose.
- Over half of those who died (53%) had previously experienced a non-fatal overdose.
- Over half of individuals (52%) who died had recently experienced alcohol-related problems.

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<sup>8</sup> Since production of the 2013 report, an additional 'problem alcohol use' variable has been calculated across the time series, categorising individuals as having recent alcohol-related problems if any of the following were recorded in the six months prior to death: Alcohol-related medical condition; Alcohol-related psychiatric condition; problem alcohol use noted in mental health history; contact with alcohol services; and, treatment for alcohol dependence. As the scope of this category extends beyond medical conditions, it is not reported in [Section 3.3.1](#).



### 3.3: Medical and Psychiatric History and Significant Life Events<sup>9,10</sup>

#### 3.3.1: Medical History

##### **Recent Medical Conditions**

There were 363 cases in the 2014 NDRDD cohort (63%) where a medical condition had been recorded in the six months prior to death (Table 16 & Figure 5). The percentage with a medical condition recently recorded increased over time (2009: 46%, 2010: 48%, 2011: 53%, 2012: 65%, 2013: 64%). In 2014, 24% (138) were recorded as having a recent respiratory condition, 20% (115) suffered from an 'other condition'<sup>11</sup> and 15% (87) had Hepatitis C. Recent recording of Hepatitis C was higher among known injecting drug users (83/318, 26%) than among those not known to inject drugs (4/257, 2%) (data not shown in tables).

Analysis of recent multiple morbidity showed that individuals had a mean average of 0.6 of seven key medical conditions<sup>12</sup> examined (Table 17). In 2014, the average number of recent medical conditions was higher than in 2009 (0.5). In 2014, individuals aged 35 and over had a higher average (0.7) than those under 35 (0.4), as did Long-Term Injecting Drug Users (LT-IDU) (1.0) when compared with other drug use groups (Not Known Drug Users (NKDU): 0.5, Non-Injecting Drug Users (N-IDU): 0.4, Injecting Drug Users (IDU): 0.5).

In 2014, individuals had experienced general acute inpatient stays in relation to an average of 0.8 of the seven medical conditions examined in the previous ten years. In 2014, the average number of general acute stays was higher than in 2009 (0.6). Individuals aged 35 and over had a higher average (0.9) than those under 35 (0.6) and LT-IDU had a higher average number of medical conditions (1.0) than N-IDU (0.5) and IDU (0.7).

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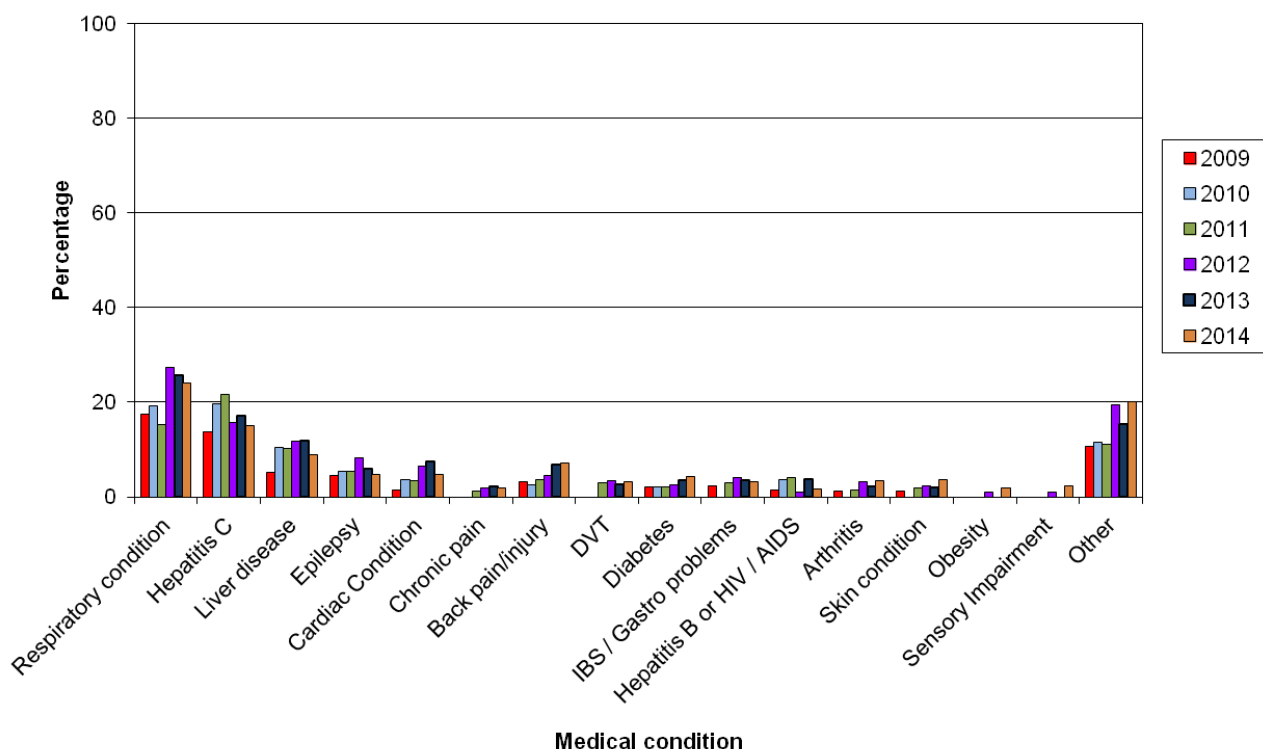
<sup>9</sup> Information from medical records (e.g. GP notes) and other data sources is collected and recorded by NDRDD Data Collection Co-ordinators. Collection of these data is dependent upon the comprehensiveness of source information (e.g. GP notes). Conditions or events are recorded as occurring within a specific time period if noted as such in records (e.g. lifetime occurrence of a condition may not be recorded as occurring in the past six months, potentially leading to underestimates of some co-morbidities). Likewise, many conditions or events may not be recorded in medical/psychiatric notes (they may be unknown to the individual, undiagnosed, or not reported). The figures presented in this section may also be influenced by the lack of definitional rigour associated with some diagnoses or events, subjective differences in assignment of psychiatric diagnoses and the interpretation of those who record such information for the NDRDD.

<sup>10</sup> It is important to note that individuals could have more than one medical or psychiatric condition recorded. However, it should be noted that some psychiatric conditions (e.g. bipolar and schizophrenia) are regarded as mutually exclusive. 'Drug addiction', 'problem alcohol use' and 'psychiatric conditions' were removed from the medical conditions variables and any relevant information on 'psychiatric conditions' was transferred to the psychiatric conditions variables. These changes were applied to all cohorts, ensuring figures are more robust than those previously reported.

<sup>11</sup> The category 'Other medical conditions' includes the following diagnoses: Eating Disorder; Learning Disability; Migraine; Kidney Disease; Pancreatitis (not alcohol-related); and cases recorded as 'Other medical condition' (e.g. fracture, cancers).

<sup>12</sup> The seven key medical conditions examined were respiratory disease, Hepatitis C, liver disease, epilepsy, cardiac problems, stomach problems and HIV/Hepatitis B.

**Figure 5: Medical Conditions Recorded in the Six Months Prior to Death (NDRDD: 2009-2014)<sup>1</sup>**



Note:

1. Annual category percentages relating to small numbers of cases have been removed from this chart.

### 3.3.2: Psychiatric History

#### **Recent Psychiatric Conditions**

There were 346 cases in the cohort (60%) where a specific psychiatric condition had been recorded in the six months prior to death (Table 18). This percentage increased over the time series (2009: 40%, 2010: 40%, 2011: 47%, 2012: 56%, 2013: 60%). In 2014, 44% (253) were recorded as suffering from depression, 30% (171) from anxiety and 6% (37) from other psychiatric disorders. Changes over time are shown in Figure 6.

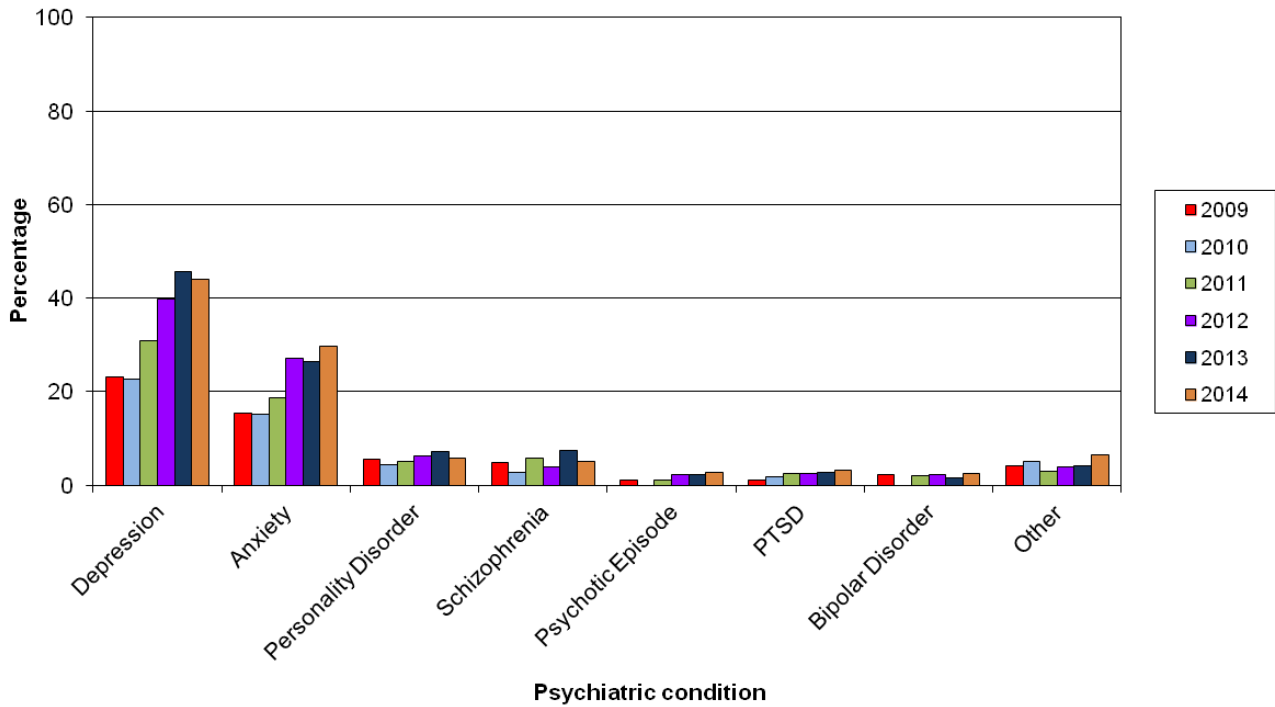
Analysis of recent multiple morbidity showed that, in 2014, individuals had an average of 0.9 of the seven psychiatric conditions recorded recently (Table 19). The average number of recent psychiatric conditions increased from 2009 (0.5) to 2014 (0.9).

Further analysis showed that admission to a psychiatric hospital was less common than recent recording of psychiatric diagnoses. In the ten years before death, individuals in the 2014 cohort had experienced psychiatric inpatient stays in relation to an average of 0.2 of the seven conditions examined<sup>13</sup> (Table 19). There were no real differences between

<sup>13</sup> The seven psychiatric conditions examined were depression, anxiety, personality disorder, schizophrenia, psychotic episode, Post Traumatic Stress Disorder and bipolar disorder.

groups on the basis of age or type/length of drug use and no discernable trend over time was evident.

**Figure 6: Psychiatric Conditions Recorded in the Six Months Prior to Death (NDRDD: 2009-2014)<sup>1</sup>**



Note:

1. Annual category percentages relating to small numbers of cases have been removed from this chart.

### 3.3.3: Recent Significant Events

In 2014, 364 individuals (63%) were recorded as having experienced a significant event in the six months prior to death (Table 20)<sup>14</sup>. In 2014, 28% (160) were recorded as suffering ill health or a recent diagnosis – this percentage increased over time (2009: 19%, 2010: 18%, 2011: 14%, 2012: 19%, 2013: 24%). Twelve per cent (69) experienced a relapse and 10% either a bereavement or breakdown of a significant relationship in the past six months.

### 3.3.4: Domestic and Sexual Abuse

In the 2014 cohort, 86 (15%) individuals were reported to have been a victim of domestic violence at some point prior to death (Table 21). Eighty individuals (14%) had experienced sexual abuse at some point prior to death (Table 22). Neither measure showed any evidence of consistent change over time.

<sup>14</sup> It is important to note that individuals could have more than one significant event recorded.

## Key Findings:

- Nearly two thirds (63%) had a medical condition recorded in the six months before death. Recent medical ill health among DRDs increased over time.
- Almost one quarter of those who died (24%) recently suffered from a respiratory condition, while one in seven (15%) had Hepatitis C.
- Medical co-morbidity was positively related to older age groups and groups engaged in higher risk/long term drug use.
- Most individuals (60%) had experienced a psychiatric condition in the six months before death. Recent psychiatric ill health among DRDs increased over time, particularly depression and anxiety.
- Most individuals (63%) had experienced a significant event in the six months before death (most commonly, ill health or a recent diagnosis).
- One in seven individuals had experienced domestic (15%) and/or sexual abuse (14%) prior to death.

### 3.4: Contact with Services<sup>15</sup>

#### 3.4.1: Drug Treatment Services

In the 2014 cohort, 68% of individuals (392) had been in contact with a drug treatment service at some point in their lives. Over half (305, 53%) were in contact with drug treatment services in the six months prior to death (Table 23) with this percentage increasing over time (2009: 33%, 2010: 33%, 2011: 31%, 2012: 54%, 2013: 51%). In 2014, one third of the cohort (187, 33%) attended an addiction service and 22% (128) had seen their GP (Table 24).

In 2014, 40% (229) of individuals were being treated for their problem drug use at the time of death – this percentage increased over time (2009: 32%, 2010: 32%, 2011: 31%, 2012: 36%, 2013: 36%) (data not shown in tables).

#### 3.4.2: Non-Drug Treatment Services

Among the 2014 cohort, 77% (444) had been in contact with services for reasons other than management of a drug misuse problem at some point in their lives (an increase compared to 2012 (66%), when these data were first available). Recent contact (within 6 months) (307, 53%) was higher than in previous NDRDD cohorts (2009: 43%, 2010: 42%, 2011: 44%, 2012: 48%, 2013: 48%). Among the 2014 cohort, 26% (152) had recently seen mental health services, 15% (84) had been in contact with social work and 11% had each been in contact with housing (65) and alcohol (63) services (Table 25). The percentage of the cohort in recent contact with mental health services increased over time (2009: 19%, 2010: 20%, 2011: 18%, 2012: 24%, 2013: 23%).

Among those who had been discharged from a psychiatric hospital in the six months before death, 73% (27/37) had been in recent contact with mental health services. This was higher than the percentage in recent contact among those not recently discharged from a psychiatric hospital (125/538, 23%) (data not shown in tables).

#### 3.4.3: Hospital Stays<sup>16</sup>

Ten per cent (57) of the 2014 NDRDD cohort had been discharged from a general acute or psychiatric hospital following an inpatient or day case episode within four weeks of death (Table 26). Cumulatively, 20% (117) had been discharged within twelve weeks of death. The percentage with experience of a hospital stay in the ten years before death was comparable to previous years (2009: 83%, 2010: 87%, 2011: 85%, 2012: 82%, 2013: 85%, 2014: 86%).

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<sup>15</sup> Although the NDRDD collects information on contact within different time periods, this section emphasises contact within six months of death in order to illustrate which services might have had an impact in terms of preventing DRD. Prison custody and hospital discharges are exceptions; both are also examined using timescales of four and twelve weeks before death for comparison with indicators in ISD's naloxone report [17].

<sup>16</sup> NDRDD data was linked to ISD's acute (SMR01) and psychiatric (SMR04) hospital inpatient databases in order to examine the number and nature of medical and psychiatric admissions and how recently before death they had occurred. Admissions to Scottish hospitals in the ten years before death were included within this analysis.

### **General Acute Hospital Stays**

Over four in five individuals (478, 83%) had been discharged from a general acute hospital in the ten years before death – this percentage was comparable over the time series (2009: 81%, 2010: 84%, 2011: 84%, 2012: 81%, 2013: 82%). Three in ten (168, 29%) had been discharged from a general acute hospital within six months of death (Table 27).

General acute hospital admission appeared to be related to type/length of drug use; a lower percentage of NKDU had been discharged from a general acute hospital in the ten years before death (67, 80%) compared to LT-IDU (172, 92%). Recent (within six months) general acute discharges were higher among LT-IDU (66, 36%) than N-IDU (39, 24%).

Among individuals with experience of general acute stays in the ten years before death, the median number of inpatient stays was eight – higher than in the 2009 to 2011 cohorts (2009: 6, 2010: 6, 2011: 6, 2012: 8, 2013: 7). As expected, a higher median number of stays was observed among those aged 35 and over (9) compared to those under 35 (6). Individuals categorised as LT-IDU also had more general acute stays (9) than N-IDU (6).

### **Psychiatric Hospital Stays**

Examining psychiatric inpatient episodes (SMR04) among the cohort, around three in ten (159, 28%) had been discharged from a psychiatric hospital in the ten years before death. This percentage changed little over the time series (2009: 25%, 2010: 28%, 2011: 24%, 2012: 28%, 2013: 26%). Six per cent (37) had been discharged from a psychiatric hospital in the six months before death (Table 28).

Three in ten of those aged over 35 (113, 30%) had at least one psychiatric stay in the ten years before death compared to around one quarter of those aged under 35 (46, 23%). Three in ten LT-IDU (58, 31%) compared with one in five NKDU (17, 20%) had at least one previous psychiatric stay.

The median number of psychiatric stays observed in the 2014 NDRDD cohort was two. No differences were evident between the groups examined.

#### **3.4.4: Criminal Justice System**

Due to problems accessing police custody records in Glasgow, police custody contact data was missing for 15% (86) of the cohort. Where known, 26% (128) had been in police custody in the six months prior to death (Table 29). In 2014, 41 individuals were reported to have been in police custody in the four weeks prior to death and 71 in the twelve weeks prior to death (Table 30). However, given the issues with missing data, these figures may underestimate the actual level of police custody contact.

Prison custody data was missing for 12% (67) of the cohort. Where known, almost half of the cohort (248, 49%) had ever been in prison and around one in ten (57, 11%) had spent time in prison in the six months prior to death (Table 31). Among 2014 DRDs, 19 individuals were released from prison in the four weeks prior to death and 36 were released in the twelve weeks prior to death. The percentage of individuals released from prison within four and twelve weeks of death was lower in 2014 (3% and 6% respectively) than in 2009 (10% and 14% respectively) (Table 32).

Experience of having been in prison was related to length/type of drug use. In 2014, where prison custody experience was known, only 7% (6/84) of NKDU had been in prison, compared to 37% (60/164) of N-IDU, 48% (64/132) of IDU and 63% (118/186) of LT-IDU (data not shown in tables).

### 3.4.5: Contact with Services Relevant to Problem Drug Use

While drug treatment episodes and hospital admissions may directly address individuals' substance use problems, components of the care provided in prison and police custody are also informed by the needs of problem drug users. Therefore, all such services have the potential to detect/address problem drug use and to promote overdose awareness and deliver harm reduction interventions.

In each NDRDD cohort, over two-thirds of individuals had been in drug treatment, in prison or police custody or discharged from hospital in the six months prior to their death (2009: 70%, 2010: 67%, 2011: 71%, 2012: 74%, 2013: 69%, 2014: 70%). In 2014, of these individuals, 91% (369/404) had opioids present at the time of death (data not shown in tables).

#### Key Findings:

- Just over half who died (53%) were in recent (within 6 months) contact with drug treatment services; recent drug treatment service contact increased over time.
- Just over half of individuals who died (53%) were in recent contact (within 6 months) with non-drug treatment services (e.g. social work, housing). Mental health service contact among DRDs increased over time.
- One in ten individuals (10%) had been discharged from hospital in the month before death.
- Where known, one in four individuals (26%) had been in police custody in the six months prior to death.
- Where known, one in ten individuals (11%) had been in prison in the six months prior to death.
- 70% of individuals (90% of those whose death was related to opioid use) were in contact with a service with the potential to address their problem drug use or deliver harm reduction interventions in the six months before death.

### 3.5: Circumstances of Death

#### 3.5.1: Time and Location<sup>17</sup>

Information on the distribution of DRDs by day and month is available in Tables 33 & 34. There was no consistent pattern in terms of monthly or seasonal variation.

The NHS Boards with the highest number of DRDs in 2014 were Greater Glasgow & Clyde (177), Lothian (99) and Lanarkshire (62) (Table 35).

The mainland NHS Boards with the highest crude mortality rates based on the normal residence of the deceased were Greater Glasgow & Clyde (0.15 deaths per 1,000 population), Ayrshire & Arran (0.13) and Tayside (0.12) (Table 36)<sup>18</sup>.

#### 3.5.2: Place of Drug Use and Place of Death

Where known, over two-thirds of individuals (353, 67%) consumed the drugs present at death in their own home, while one quarter (131) consumed them in another person's home (Table 37). The percentage who consumed drugs at home increased across the time series (2009: 55%, 2010: 59%, 2011: 61%, 2012: 68%, 2013: 65%).

Where known, 63% of individuals (356) died in their own home and one fifth (114, 20%) died in another person's home. Fifty people (9%) died in hospital (Table 38). The percentage of the cohort who died in their own home increased across the time series (2009: 51%, 2010: 53%, 2011: 53%, 2012: 62%, 2013: 60%).

The percentage increases over time in drug consumption and death at home are likely to be linked to the increase in the percentage of individuals living in their own home at the time of death.

#### 3.5.3: Scene of Overdose

Where known, another person was present at the scene of the fatal overdose in over half (291, 54%) of DRDs in 2014. Presence in the same room was recorded in 150 (28%) DRDs, a similar percentage to previous years (Table 39).

In the majority of cases (466, 82%) an ambulance attended the scene of death; a similar percentage to previous years. Among the 100 cases (18%) cases where an ambulance did not attend, there were 10 deaths (2%) when an ambulance was not required because it was clear that the deceased was beyond medical intervention (Table 40).

Where known, an attempt was made to resuscitate the individual in almost half of cases (239, 44%) (Table 41). In two-thirds of these cases, resuscitation was attempted by ambulance staff (163, 68%) (Table 42)<sup>19</sup>.

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<sup>17</sup> NRS examines the geographical distribution of DRDs in their National Statistics [1]. However, as the main NDRDD cohort is restricted to non-intentional deaths and is based upon calendar year rather than the year in which death was registered, similar analyses are also included in this report.

<sup>18</sup> Due to small numbers of DRDs, island NHS Boards have been excluded from this comparison and relevant figures should be interpreted with caution.

<sup>19</sup> It should be noted that different people (in differing roles) may have attempted resuscitation on the same individual.



### 3.5.4: Naloxone Availability and Use<sup>20</sup>

Naloxone is an opioid antagonist which is used to reverse the effects of an overdose [17]. Opioids (methadone, heroin/morphine or buprenorphine) were implicated in 420 of the 555 DRDs with known toxicology (76%). Whether or not there was a 'Take-Home' Naloxone (THN) kit available was known in 324 (77%) of the opioid deaths. THN was reported to be available at the scene of overdose in 21 of these DRDs (6%) and was administered on 18 occasions (86% of cases where available) (Table 43).

Previous THN supply to the deceased was known in 88% (504) cases in the 2014 cohort. Where known, 15% (74) of the 2014 cohort had been supplied with THN before death compared with 8% in 2012 and 3% in 2013. Among these cases, where known<sup>21</sup>, naloxone was available at the scene of overdose in 38% (13) of DRDs (2012: 40%, 2013: 31%) and, where available, was used in 69% (9) of DRDs (2012: 100%, 2013: 25%)<sup>22</sup>. Where naloxone was not used, there were no other persons present at the scene of overdose or they were not in the same room (data not shown in tables).

#### Key Findings:

- Two thirds of people consumed drugs (67%) and died (63%) in their own home. The percentage of the cohort in each of these categories increased over the time series.
- Over half of DRDs (54%) occurred when others were present at the scene of the overdose (46% of individuals died alone).
- THN was administered in 18/21 opioid-related cases where it was available.
- One in seven individuals (15%) had been supplied with THN, but it was available at the scene of death in less than half (38%) of these cases.

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<sup>20</sup> Questions were added to the NDRDD form in 2010 with the intention of collecting information on the availability of 'take-home' naloxone. However, an examination of 2010 and 2011 NDRDD data suggested that the questions in the data collection form were not solely measuring 'take-home' naloxone as had been intended but administration by a range of people including relatives, paramedics and hospital staff. The naloxone questions in the 2012 proforma were refined to specify administration of 'take home' naloxone provided directly to individuals at risk of an opioid overdose. Due to this change, naloxone availability and use from 2012 is not comparable to previous years.

<sup>21</sup> Naloxone availability at the scene of overdose was poorly recorded among those supplied with THN (known in only 46% of cases (34/74)).

<sup>22</sup> Naloxone availability at DRDs in a home environment (own home, other's home, hostel, B&B/temporary accommodation) was 39% (12/31) in cases where availability was known.

### 3.6: Toxicology Data

Information on the *presence* of a drug at post mortem is collected as part of the NDRDD dataset. Since 2011, ISD has also received pathology information from National Records of Scotland (NRS) about whether substances were (i) *implicated* in the death and (ii) *not implicated* in the death.

The determination as to whether substances were implicated in death (whether they caused or contributed to death) is complex and lies with the pathologist who will consider toxicological findings in combination with pathological and circumstantial evidence before coming to a conclusion. The relationship between presence and implication is not straightforward. Some drugs are more potent than others and there is significant risk to life even at so-called ‘therapeutic’ levels, particularly when ingested with other drugs or alcohol. Conversely, other drugs are considered to pose less risk to life, even when an excess of the drug is ingested<sup>23</sup>. See [Appendix A2](#) for further information about these data.

#### 3.6.1: Drugs Present at Time of Death

NDRDD toxicology results showing the drugs *present* in the body at the time of death (but not necessarily contributing to the death) indicated that the vast majority of DRDs (550, 96%) had multiple drugs present at the time of death. This was similar to previous cohorts (2009: 97%, 2010: 98%, 2011: 97%, 2012: 96%, 2013: 92% - data not shown in tables).

- Diazepam was the drug most commonly found at post mortem (400, 70%). This percentage was higher than in 2013 (62%) but lower than in any other cohort (2009: 77%, 2010: 76%, 2011, 79%, 2012: 77%) (Table 44 and Figure 7).
- In 2014, heroin/morphine was present in 58% of deaths (335). While lower than the percentages observed in 2009 (72%) and 2010 (63% (not significant)), this was an increase compared to 2011 (51%), 2012 (47%) and 2013 (48%).
- Alcohol was present at post mortem in around half of DRDs (278, 48%) in 2014. This fluctuated throughout the time series, ranging from 58% in 2009 to 37% in 2011.
- Anti-depressants were present in 264 cases (46%) in 2014. The percentage with anti-depressants present increased over time (2009: 22%, 2010: 27%, 2011, 34%, 2012: 42%, 2013: 38%).
- In 2014, methadone was present in 40% of DRDs (232). Methadone presence continued to decrease and was lower than in 2011 (56%), when it was present among more DRDs than heroin/morphine.
- The next most common drugs found present at post mortem were codeine<sup>24</sup> (163, 28%), cannabis (110, 19%), gabapentin (95, 17%), paracetamol (85, 15%), dihydrocodeine (81, 14%) and etizolam (a ‘Novel’ Psychoactive Substance (NPS) benzodiazepine) (79, 14%).

<sup>23</sup> In order to calculate drugs implicated as a percentage of drugs present, the 20 cases with no NRS data were removed, resulting in toxicology data for drugs present and drugs implicated being available for 555 individuals.

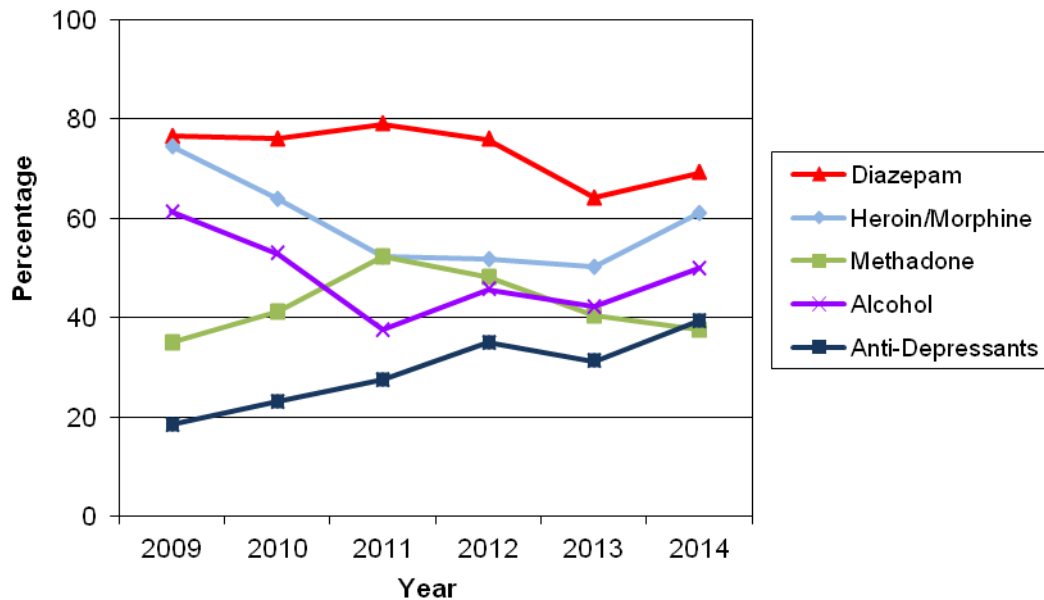
<sup>24</sup> It is important to note that codeine may be present in post mortem toxicology as a result of acetylcodeine being a naturally occurring impurity in illicit heroin rather than because of use as a prescribed or ‘over the counter’ medication.

- The percentage of DRDs with codeine present was higher than in any previous cohort. Gabapentin prevalence also continued to increase since first being recorded in 2010 and was higher than in 2011 (4%).
- Phenazepam (an NPS benzodiazepine) presence at post mortem (9, 2%) was lower than in 2013 (15%). However, prevalence of etizolam (another NPS benzodiazepine) (14%) was higher than in 2013 (3%).

Drugs present at post mortem by gender (Table 45) is described in [Section 5](#).

When analysed by age, cannabis (28%), etizolam (21%) and cocaine (17%) were more likely to be present at post mortem among individuals aged under 35, than those aged 35 and over (14%, 10% and 6% respectively). The opposite was true of anti-depressants, which were more likely to be present among older individuals (49% compared to 40%) (Table 46).

**Figure 7: Most Common Drugs Present at Post Mortem (NDRDD: 2009-2014)**



### 3.6.2: Combinations of Drugs Present at Time of Death

Heroin-diazepam was the most common combination of drugs found at post mortem (245, 43%). Further information about drug combinations present is available in Table 47.

### 3.6.3: Drugs Implicated in Death

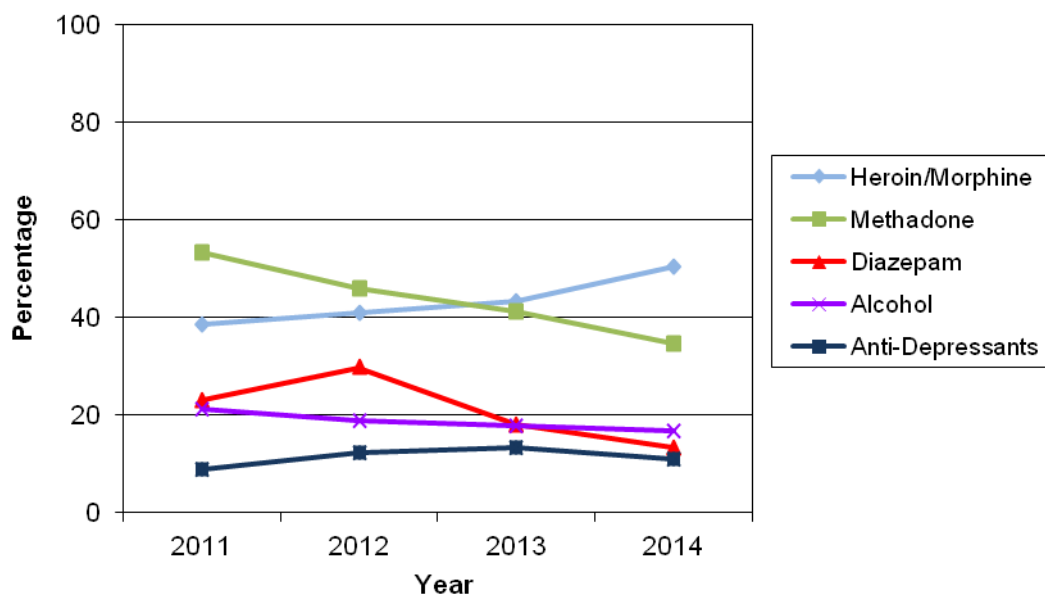
Additional information on drugs implicated in, or potentially contributing to, death has been supplied by NRS since 2011 and was available for 555 (97%) NDRDD non-intentional deaths in 2014. Among these cases, multiple drugs were implicated in 69% (384/555) of 2014 NDRDD deaths (roughly the same percentage as in other years).

Opioids (methadone, heroin, morphine or buprenorphine) were *implicated* in three quarters (420, 76%) of DRDs with NRS toxicology information.

Heroin/morphine was the drug most frequently implicated in deaths (290, 52%), followed by methadone (199, 36%), alcohol (96, 17%), diazepam (77, 14%), anti-depressants (63, 11%) and gabapentin (61, 11%) (Table 48 and Figure 8).

In 2014, methadone was implicated in the lowest percentage of DRDs observed since 2011 (2011: 54%, 2012: 45%, 2013: 41%), as was diazepam (2011: 23%, 2012: 29%, 2013: 19%). In line with increasing presence in DRDs, heroin/morphine implication was at its highest since 2011 (2011: 40%, 2012: 40%, 2013: 44%).

**Figure 8: Most Common Drugs Implicated in Death (NDRDD/NRS: 2011-2014)**



Despite only featuring in a small number of cases, where ecstasy was present, it was implicated in 93% of those DRDs (14/15) (Table 49). Among drugs more commonly seen in DRDs, methadone was implicated in 91% of DRDs where present (199/218), followed by heroin/morphine (90%, 290/323), cocaine (83%, 43/52) and dihydrocodeine (77%, 60/78).

In contrast, although alcohol, anti-depressants and diazepam were among the most commonly found drugs at post mortem, they were implicated in less than half of deaths where present (alcohol: 96/267, 36%; anti-depressants: 63/255, 25%; diazepam: 77/390, 20%).

In 2014, the percentage of cases where diazepam was present and implicated continued to decrease and was lower than any other year (2011: 30%, 2012: 38%, 2013: 30%). Likewise, alcohol's implication/presence percentage was lower than in 2011 and 2013 (2011: 60%, 2012: 42%, 2013: 48%).

**Key Findings:**

- Heroin (58%), anti-depressant (46%) and gabapentin (17%) presence at post mortem increased in 2014 (see Figure 7).
- Diazepam (70%) and methadone (40%) presence was lower than in most previous cohorts.
- Opioids (methadone, heroin, morphine or buprenorphine) were implicated in three quarters (76%) of DRDs.
- Diazepam, alcohol and anti-depressants were commonly found at post mortem (70%, 48% and 46% respectively), but were implicated in less than half of DRDs (20%, 36% and 25% respectively) where present.

### 3.7: Prescribing

Individuals who consume illicit drugs in addition to prescribed ORT drugs may be at higher risk of overdose, blood borne virus infection and offending than those complying with a treatment programme tailored specifically to their needs [15]. Some insights into compliance with ORT prescriptions and the potential diversion of ORT drugs can be gained from examination of drugs present in the body at post mortem.

#### 3.7.1: Drugs Present by Substitute Prescription

Among individuals who had opioids (heroin/morphine, methadone or buprenorphine) present at death and were in contact with a drug treatment service in the six months prior to death, 56% (162/291) were in receipt of an ORT prescription at the time of death (data not shown in tables).

Over eighty per cent (143/166, 86%) of those receiving an ORT (or 93% (139/149) of those receiving methadone<sup>25</sup>) had methadone present in their body at post mortem compared to 22% (89/400) of those not prescribed an ORT. While methadone presence among those on ORT remained roughly the same as previous years, the percentage of those not receiving an ORT who had methadone present (22%) was lower than in all previous cohorts apart from 2013 and had shown a decreasing trend since 2011 (2009: 28%, 2010: 31%, 2011 46%, 2012: 33%, 2013: 26%) (Table 50).

Around half (84/166, 51%) of those in receipt of an ORT had heroin/morphine present in their body at post mortem, compared to 63% (251/400) of those not in receipt of an ORT. Reflecting the increase in heroin/morphine presence, these percentages were higher than in 2012 (39% and 51%) and 2013 (36% and 55%).

Eighty-one per cent (134/166) of those receiving an ORT had diazepam present compared with 67% (266/400) who were not receiving an ORT. Over half (90/166, 54%) of those in receipt of an ORT had anti-depressants present at post mortem compared to 43% (173/400) of individuals not receiving an ORT.

#### 3.7.2: Methadone-Related Deaths

Following heroin/morphine, methadone was the second most frequently implicated drug among the 2014 cohort (199, 36%), having decreased since 2011 (54%). In 2014, over half of individuals whose death was linked to methadone (115, 58%) were in receipt of a methadone prescription prior to death.

Of the 149 individuals in the cohort who were in receipt of a methadone prescription, 115 (77%) had methadone implicated in their death (Table 51). Of these individuals:

- 71% (81) received their prescription on a supervised basis (Table 52);
- 80% (83) had been prescribed methadone for one year or more (Table 53); and,
- 59% (68) were prescribed the recommended therapeutic dose (60-120mg) [15] (Table 54).

Across the times series, there were ten cases where methadone was the only drug present in the body at post mortem. In half of these cases (5, 50%) the individual was in receipt of methadone at the time of death. In terms of implication, there were 34 deaths in 2014 (6%

<sup>25</sup> Of the ten individuals with a methadone prescription who did not have methadone present at post mortem, all those where supervision status was known (8) received their methadone in a supervised setting.

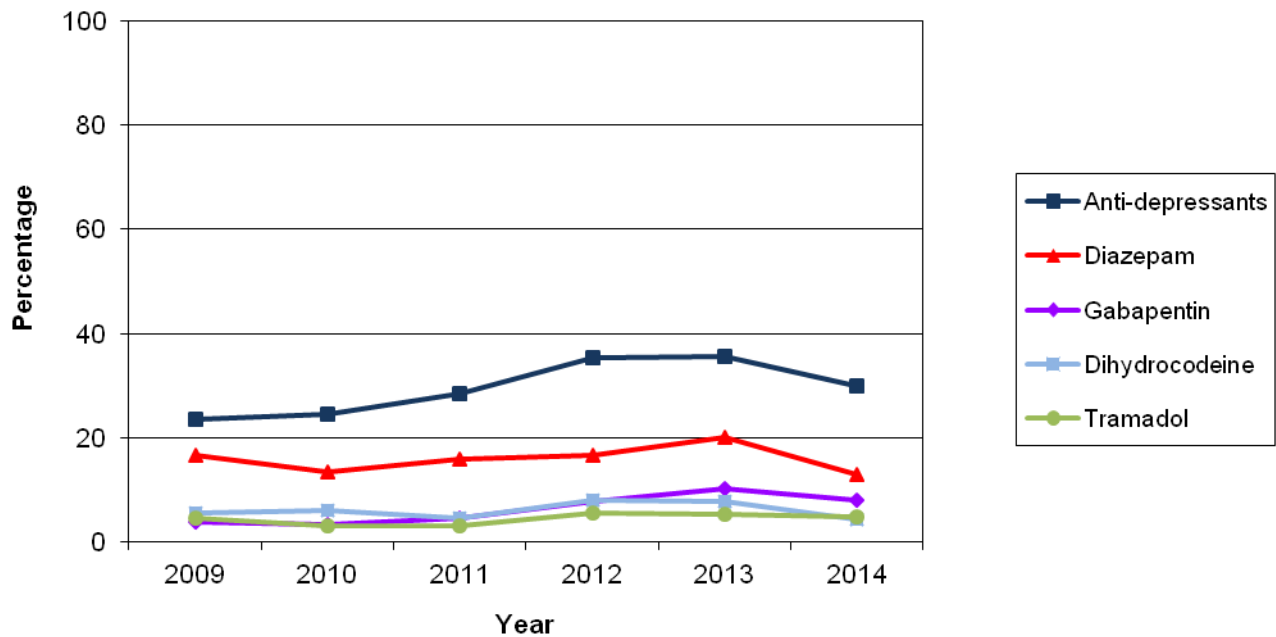
of total, or 17% (34/199) of methadone-implicated deaths) where methadone was the only substance thought to have caused or contributed to death (2011: 27%, 2012: 24%, 2013: 21%). In 47% (16) of these deaths, the individual was in receipt of methadone at the time of death (data not shown in tables).

### 3.7.3: Presence of Other Prescribed Medications<sup>26</sup>

Using data from ISD’s Prescribing Information System (PIS), it is possible to identify recent dispensing activity (within 30 days of death) in relation to specific prescription drugs. Comparing this information with drugs present in the body at post mortem facilitates examination of compliance with prescribed medication and potential diversion of drugs.

In 2014, diazepam was recently prescribed to around one in eight of the NDRDD cohort (75, 13%), a decrease from 20% prescribed diazepam in 2013 (Table 55 and Figure 9). Recent diazepam prescribing was observed among 19% of those prescribed an ORT at the time of death and 11% of those who were not. Among those recently prescribed diazepam, it was present at post mortem in 89% (67/75) of cases. However, usage among those not recently prescribed diazepam was also high; it was present in two thirds (333/500, 67%) of such deaths, similar to previous cohorts.

**Figure 9: Percentage of Deaths where Individuals Received Recent Prescription for Specified Drugs (PIS: 2009-2014)**



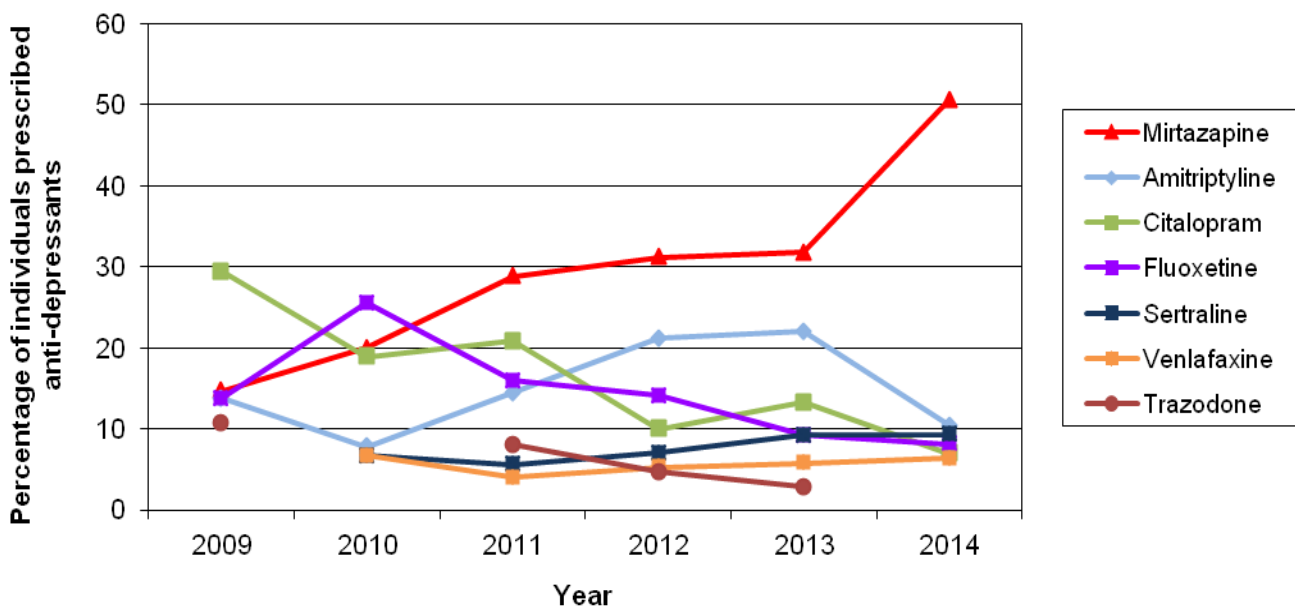
Recent anti-depressant prescribing was observed in 30% of DRDs in 2014 (172). While at its highest in 2013, an increase in recent anti-depressant was evident across the entire time series (2009: 24%, 2010: 25%, 2011: 29%, 2012: 35%, 2013: 36%). Recent anti-

<sup>26</sup> It should be noted that, in some cases, exact dispensing dates are not provided in the Prescribing Information System, which instead defaults to the last day of the month, when the prescription was paid. Therefore, although some cases are included in which it appears that the drug was dispensed after death, this provides a fairly robust estimation of individuals prescribed specific drugs. Although CHI completeness (described in Note 7 above) is more problematic in relation to ORT drugs, information on other types of prescriptions may also be influenced by this issue.

depressant prescribing was observed among 39% of those prescribed an ORT at the time of death and 26% of those who were not. Over three-quarters (136/172, 79%) of those recently prescribed anti-depressants had them present at post mortem. Anti-depressants were also found at post mortem in 32% (128/403) of individuals not recently prescribed them; an increase compared to previous years (2009: 10%, 2010: 17%; 2011: 20%, 2012: 25%, 2013: 18%).

Recent anti-depressant prescribing among DRDs appears to have changed over time (Table 56 and Figure 10). In 2014, among those prescribed an anti-depressant in the 30 days before death, mirtazapine (87, 51%) was most frequently observed as the last prescribed anti-depressant, followed by amitriptyline (18, 10%), sertraline (16, 9%) and fluoxetine (14, 8%). Recent mirtazapine prescribing among DRDs increased across the time series and was higher than in previous cohorts (2009: 15%, 2010: 20%, 2011: 29%, 2012: 31%, 2013: 32%). Conversely, citalopram prescribing was lower than in 2009 (29%).

**Figure 10: Anti-Depressant Most Recently Prescribed by Year (PIS: 2009-2014)**



Recent tramadol prescribing was found among only a small number of DRDs in 2014 (28, 5%) and has shown little change between cohorts. Tramadol was found present in six in ten deaths where recently prescribed (17/28, 61%). Presence among those not recently prescribed tramadol was 5% and has been relatively consistent over time.

Recent dihydrocodeine prescribing was also relatively infrequent (25, 4% of DRDs in 2014) and consistent between cohorts. Where recently prescribed, dihydrocodeine was found at post mortem in 72% (18/25) of cases and where not, in 12% (63/550) – both findings were consistent over time.

Recent gabapentin prescribing was observed in 8% (46) of DRDs in 2014. The percentage of DRDs where recent gabapentin prescribing was observed increased over time (2009: 4%, 2010: 3%, 2011: 5%, 2012: 8%, 2013: 10%). In cases where gabapentin had recently been prescribed, presence at post mortem was 72% (33/46) in 2014. Where it had not been prescribed, it was found in 12% of DRDs (62/529).

## Key Findings:

- Methadone presence among those not prescribed methadone was low (22%) and has decreased since 2011.
- Half of individuals on ORT (51%) had heroin present at death (lower than among those not prescribed ORT (63%)).
- Most individuals who were prescribed methadone and had it implicated in their death had been prescribed the drug for one or more years (80%), received it under supervision (71%) and were prescribed a dose within the recommended therapeutic range (59%).
- Anti-depressants were prescribed to 30% of the cohort and had increased over time. In 2014, anti-depressant presence among those not recently prescribed them (32%) was higher than in previous cohorts.
- Adherence (presence of recently prescribed drug at time of death) to prescribed drugs was generally high, ranging from 89% (diazepam) to 61% (tramadol).



### 3.8: Key Messages

This is the sixth report from the NDRDD. The NDRDD has reported on DRDs from 2009 onwards [2-6] in order to gain a better understanding of Scotland's high rate of drug-related mortality. The main section of the report describes the characteristics and circumstances surrounding the non-intentional deaths of 575 individuals in 2014.

#### The Ageing Cohort of Problem Drug Users

Those who died from DRD continued to be predominantly male and live in the most deprived communities in Scotland. The average age of individuals who died has increased over time and, particularly from 2012 to 2014, individuals recorded by NDRDD have increasingly been from older age groups. These figures reflect the widely recognised and documented associations between deprivation and health inequalities [18] and with the 'ageing cohort' of problem drug users [1,7-10,19-20]. Specifically, they also correspond with changes in the estimated population of people with problematic drug use [10], which indicated that problem drug users aged 35 and over increased from 0.9% of population in 2006, to 1.4% of population in 2012/13.

Individuals known to be engaged in persistent, high-risk substance use have dominated all NDRDD cohorts. However, while the percentage who were known drug users, polydrug user, injecting drugs users or who had overdosed prior to death remained relatively unchanged, the percentage of long-term drug users, long-term injecting drug users or those who had recent alcohol-related problems has increased over time. The ageing population of problem drug users is reflected in these changes, along with increases in other correlates of older age (increases in the proportion of individuals living alone, living in their own home<sup>27</sup> (and among drug users, consuming drugs at home and dying at home [9])).

The increasing prevalence among DRDs of older individuals with long-term drug using careers is also likely to be associated with increases in the percentage with medical and/or psychiatric conditions, medical and psychiatric multiple morbidity and experience of hospital admission over time [7-9,23].

The ageing population of problem drug users continues to present a range of challenges for health and social care services. The correspondence between Scotland's ageing cohort of problem drug users, increasing number of older, long-term intravenous drug users present in DRD statistics and their apparent association with the changes observed above, raise some important questions regarding future service provision. The complex health and social care needs of this group are likely to result in simultaneous increases in demand for services, increased risk of death due to co-morbidities and increased exposure to periods of elevated overdose risk. However, older drug users in particular are reported to be less satisfied (and consequently, at higher risk of non-engagement) with drug treatment services due to perceived lack of fit with their needs [7-8]. Non-engagement consequently increases the isolation and loneliness experienced by older drug users [9] and may also increase the risk that an overdose may occur in circumstances where there are limited opportunities for intervention (e.g. when alone or when others present do not have the capacity to help). These issues are being investigated by a Working Group led by the Scottish Drugs Forum, with the support of the Scottish Government and ISD. However, the age (and other associated correlates) of individuals requiring drug treatment should be routinely factored

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<sup>27</sup> Among DRDs both indicators were higher than in the Scottish population [21] and are acknowledged risk factors for DRD [22].

into local service planning and should feature as a key consideration when assessing risk of DRD prior to delivering individual treatments.

### Increasing Contact with Services, Challenges in Retention

The majority of the cohort had been in contact with drug treatment and non-drug treatment services (e.g. mental health, social work) within the six months before death. The percentage prescribed an ORT drug also increased over time. These findings demonstrate that individuals who died from DRD had complex and multi-faceted needs and an increasing proportion accessed a range of services prior to death. Therefore, while services appear to be achieving some success in facilitating access to services, the continuing rise in DRDs in spite of this change suggests that there may be problems maintaining contact with problem drug users or retaining them in treatment. Tailoring services to the needs of specific groups may help optimise treatment retention and therefore reduce risk of DRD [8,24]. The mixture of health and social care services recently accessed by individuals also suggests that there are opportunities for drug and non-drug services to work collaboratively to reduce the risks of drug-related death.

In each NDRDD cohort, over two-thirds of individuals had been in drug treatment, in prison or police custody or discharged from hospital in the six months prior to their death. In 2014, of these individuals, 91% (369/404) had opioids present at the time of death (data not shown in tables). While each of these services either explicitly supports individual recovery from problem drug use or incorporates substance misuse within the paradigm of care provided, each service may lead to a period of elevated overdose risk as support is withdrawn or individuals relapse into drug use [15,25-28].

### Elevated Overdose Risk and Naloxone Provision

Unexpected discharge from drug treatment services (e.g. because of non-compliance) creates an obvious risk of elevated overdose risk as treatment (e.g. ORT) is withdrawn [15]. It is well evidenced that the period immediately following release from prison is a time of heightened DRD risk [25-27]. Periods of imprisonment can result in reduced drug tolerance (due to abstinence or changes in the quantity or quality of illicit drugs), increasing the risk of overdose for individuals who return to drug use after their release. Likewise, discharge from hospital is also regarded as a risk factor for opioid-related death (due to a reduction of opioid tolerance or withdrawal during an inpatient stay [28]).

The evidence on increased overdose risk after release from custody or following treatment already suggests it is vitally important that services (both drug-related and non drug-related) work together to promote retention in treatment, continuity of care and awareness of overdose risk. If patterns of drug use can be identified during service contact there is potential to reduce the number of DRDs by undertaking targeted harm reduction measures (e.g. THN distribution). Naloxone is an opioid antagonist which is used to reverse the effects of an overdose. The National Naloxone Programme supplies THN kits from prisons and community outlets to opioid users at risk of overdose and has been associated with a reduction in opioid-related deaths following prison release [17]. The observed decrease over the NDRDD time series in the number and percentage of DRDs with a prison antecedent confirms these findings. Hospitals and police custody suites also provide further opportunities for THN distribution (the latter is the subject of a forthcoming recommendation from the National Coordinating Network for Healthcare and Forensic Medical Services for People in Police Care, a partnership between NHS Boards and Police Scotland).

## Frequent Opportunities for Life-Saving Interventions

With other persons present at more than half of overdoses, opportunities for intervention occurred frequently and in many cases resuscitation was attempted. Factors that may have prevented more lives being saved are that those present may not have been in the same room and, if present, may have failed to identify an overdose, not have had sufficient capacity to intervene or chosen not to intervene for fear of criminal repercussions [29].

THN supply appears to be increasing over time among DRDs [30], enhancing the potential for life saving interventions to be delivered by family/friends or peers who have received overdose awareness/naloxone training and had the capacity to intervene. THN was reported to be available at the scene of death in 21 cases where opioids (methadone, heroin/morphine or buprenorphine) were implicated in death and was administered in 18 cases. There was no information available as to why naloxone failed to prevent death in these cases.

## Continuing Polydrug Use and an Increase in Heroin-Related Deaths

Polydrug use was evident in almost all DRDs across the time series. Diazepam continued to be the substance most commonly found present at post mortem, followed by heroin/morphine and alcohol. However, substances varied widely in the percentage of deaths in which they were implicated; ecstasy, methadone and heroin were implicated in over 90% of deaths where present, while anti-depressants and diazepam were implicated in less than one third. Multiple substances were implicated in over two thirds of DRDs.

Further emphasising the importance of THN distribution, opioids (methadone, heroin, morphine or buprenorphine) were implicated in three quarters of DRDs with NRS toxicology information. The percentage of deaths with heroin/morphine present increased in 2014, having been stable during the period from 2011 to 2013. In contrast, the percentage of deaths with methadone present continued to decrease from its peak in 2011. These trends support the conclusion that, following the end of the heroin drought in 2010 and 2011<sup>28</sup> (during which individuals sought alternatives to heroin, such as methadone [33,34]), heroin quality/availability has now increased [35]. The heroin drought may have contributed to increases in the percentages in recent contact with drug treatment services and/or in receipt of an ORT prescription from 2012 onwards. However, as discussed above, that these percentages have not decreased despite the end of the heroin drought suggests that services are achieving some success in maintaining contact with individuals with problem drug use.

## Decreasing Methadone-Related Deaths; Interactions with ORT Treatment

The 2011 and 2012 NDRDD reports [4-5] examined methadone-related deaths in detail after an increase in the number of deaths in which it was found present at post mortem. The number of methadone prescriptions in Scotland rose from 15.2 defined daily doses per 1,000 population per day in 2009/10, to 15.9 in 2010/11 and has since fallen to 13.6 in 2014/15<sup>29</sup>. While Suboxone use is increasing over time (from 0.2 defined daily doses per 1,000 population per day in 2009/10 to 0.8 in 2014/15 [13]), it remains much less commonly

<sup>28</sup> During this period, the purity of the heroin available in the UK was unusually low [31-32].

<sup>29</sup> Annual figures showing the numbers of individuals prescribed methadone in years 2011/12 to 2014/15 were recently published by ISD [14].

prescribed than methadone. ORT and methadone prescription was observed in around a third of the NDRDD cohort and increased over time despite these changes in general prescribing patterns and reductions in methadone presence at the time of death.

Despite concerns expressed about its safety, methadone is regarded as an effective treatment [36] which is safer than heroin [37] and continues to be the main ORT drug used in Scotland [13,38]. Where present at post mortem, pathologists tend to report methadone as potentially contributing to death. Most individuals who died while prescribed methadone had it present in post mortem toxicology results and implicated in their death. Among such cases, methadone prescription was generally characterised by longer-term supervised prescription within recommended therapeutic dose ranges. However, methadone was very rarely the sole drug consumed before death nor was it often the only drug implicated in death. There were a significant minority of such cases where individuals were prescribed less than the recommended dose and it seems likely that in such instances 'topping up' ORT prescriptions with illicit drugs may have contributed to death [39]. However, deaths which occurred in spite of apparently responsible ORT prescribing practices may have had a range of causes (a polydrug binge despite ORT treatment, 'topping up' with illicit opioids, vulnerability due to other co-morbidities or a combination of these factors). Those receiving an ORT were more likely to have diazepam or anti-depressants present at post mortem than those not prescribed an ORT. These drugs were also more commonly prescribed to those on ORT prescriptions. While more understanding on the interactions between specific substances is required, prescription of other psychoactive medications prior to death may further elevate the risk of drug-related death (particularly when consumed alongside illicit drugs).

Due to difficulties gathering personal identifiers from ORT prescriptions, there are challenges generating robust information on the extent, nature, duration and efficacy of ORT prescribing [13-14]. However, the percentage of those prescribed an ORT who had heroin/morphine present increased in 2014 but remained lower than the percentage observed among individuals without an ORT prescription. This suggests that even among individuals who had died, ORT had helped to reduce the use of illicit opioids. However, there was evidence of diversion of ORT prescriptions among the cohort - methadone was present at post mortem in around a quarter of those cases where not prescribed (a substantial decrease from almost half in 2011).

### High Levels of Benzodiazepine Use and Continued Uncertainty about their Role in DRDs

Despite slight reductions in recent years, presence of all benzodiazepines at post mortem was roughly consistent across the time series (2009: 80%, 2010: 80%, 2011: 86%, 2012: 82%, 2013: 77%, 2014: 78%). Despite their prominence, there is a limited understanding of the role of benzodiazepines (e.g. diazepam, phenazepam, etizolam) in DRDs. Interpretation of the extent to which benzodiazepines contribute to respiratory depression (the main mode of death among DRDs) and therefore their implication in such death, is complex, leading to variation in pathology practice between areas<sup>30</sup>. In response, the National Forum on Drug-Related Deaths commissioned work addressing why benzodiazepines are common in DRDs and what role they play in such deaths [40]. This systematic review of evidence highlights significant gaps in knowledge, particularly in relation to new Benzo-type NPS and the interactions with other co-present substances and physical/psychological effects of the high benzodiazepine doses often reported in DRDs.

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<sup>30</sup> This may be particularly relevant for the NPS-related deaths, most of which featured benzodiazepine-type drugs about which the toxicological data and evidence base is not developed.

## Increased Prescribing and Presence of Anti-depressants

In line with general increases in anti-depressant prescribing in Scotland [41], anti-depressant presence at post mortem and recent anti-depressant prescribing among drug-related deaths both increased across the time series. These changes may be linked to the increasing percentage of cases where depression was recorded as a recent psychiatric condition. However, the increase in the presence of anti-depressants at post mortem among those not prescribed them is a concerning development which suggests that illicit use of these substances may be increasing or that their use may be a risk factor for drug-related death. Reductions in the prescribing of amitriptyline may be explained by a move away from tricyclic anti-depressants to safer Selective Serotonin Reuptake Inhibitors (SSRIs) such as mirtazapine [41]. However the reduction in citalopram (also an SSRI) prescribing is likely to be a reflection of guidance on its prolongation of the QTc interval (which may be associated with cardiac arrest [42]). Evidence of similar cardiac effects among those prescribed methadone [43] may have effectively contraindicated its use among problem drug users due to potential cardiac toxicity [44]. Mirtazapine is recognised as safer and to have specific benefits (e.g. increasing hunger, promoting sleep) for this client group [45]. However, as with benzodiazepines [40], there is little known about the effects of such drugs when consumed in large (in excess of recommended therapeutic range) quantities or in the context of polydrug use.

## Evidence of Prescribed Drug Diversion/Illicit Markets

Among the 2014 cohort, recent anti-depressant prescribing was most common, followed by diazepam. Anti-depressant and gabapentin prescribing increased over the time series. Adherence (the presence of a recently prescribed drug at time of death) to prescribed drugs was generally high, ranging from 89% (diazepam) to 61% (tramadol). Non-presence among those prescribed a drug could result from forgetting to take, running out of, or selling prescribed medication. However, a clearer indication of potential drug diversion was evident from the analysis of drug presence among those not prescribed a medication. It is possible that these individuals may have consumed drugs legitimately prescribed to them more than 30 days before (and therefore not be classified as 'recently prescribed'). However, the results appear to provide consistent evidence of a substantial illicit market for diazepam and a smaller market for dihydrocodeine and tramadol. There was also evidence of increasing illicit consumption of anti-depressants and gabapentin among the NDRDD cohort.

## 4: 'Novel' Psychoactive Substances<sup>31</sup>

There is growing evidence that global drug markets and drug trends are changing [35,46]. There has been an extraordinary rise in the number, type and availability of 'Novel' Psychoactive Substances (NPS) in Europe over the last decade. NPS have been subject to increasing regulation in the UK using Temporary Class Banning Orders and addition to the schedule of substances controlled under the Misuse of Drugs Act 1971<sup>32</sup>. However, over 100 new substances were reported to the EU Early Warning System in 2014, taking the total number of NPS being monitored by the European Monitoring Centre for Drugs and Drug Addiction (EMCDDA) to more than 450 with more than half of these being reported in the last three years alone [47].

Recent National Records of Scotland (NRS) [1] and National Drug-Related Deaths Database (NDRDD) [5-6] reports have included sections on NPS. NDRDD reports have helped to address the lack of information on harms related to NPS, the characteristics of the individuals involved and the circumstances surrounding their deaths. The apparent dichotomy of cases with either 'Benzodiazepine-type' (hereafter referred to as 'Benzo-type') or Stimulant-type NPS recorded within toxicology has been a consistent theme in these analyses and was the subject of a subsequent analysis on NPS implicated deaths [48]. These analyses concluded that individuals whose death involved Benzo-type NPS shared many characteristics with opioid-related Drug-Related Deaths (DRDs) while Stimulant-type cases seemed to reflect increases in recreational use of NPS by younger people. This section provides an update of data from 2014 NPS-related deaths, comparing findings to the overall 2014 NDRDD cohort and NPS-related deaths reported in previous years.

Details of the NPS definition and inclusion criteria used by NRS are available at [Appendix A1.1](#). It is important to note that the 112 NPS-related deaths reported in 2014 are largely a subset of the 613 DRDs<sup>33</sup> on which National Statistics were published by NRS [1]. In 2014, NRS counted 114 DRDs (including deaths by suicide) where NPS were either present or implicated in death, 8 of which were excluded (these were outwith the NRS definition, mainly due to uncontrolled NPS being the only substance present). As the NDRDD cohort is based on the NRS definition, this means that cases where only uncontrolled NPS were involved are also excluded from this analysis. The NDRDD also recorded 114 NPS-related deaths in 2014 (based on year of death rather than year of registration used by NRS). This section excludes deaths by suicide involving NPS (2) and therefore reports on the 112 non-intentional NPS deaths in 2014. These NPS-related deaths are also included in the analysis of 575 non-intentional deaths forming the main body of this report.

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<sup>31</sup> The term 'NPS' has been used in NDRDD reports in preference to 'Legal Highs' because the latter term failed to recognise a) changes in the controls applied to relevant substances and b) the differential effects of those substances. However, it should be noted that in this report 'NPS' is coterminous with 'Legal Highs', 'synthetic substances' and other terms applied to this group of substances.

<sup>32</sup> Further controls on the sale and distribution of NPS will be implemented when the Psychoactive Substances Act becomes law in April 2016.

<sup>33</sup> Four of the 112 NPS-related deaths occurring in 2014 were not included in the NRS publication, as these deaths were not registered until 2015.

## 4.1: Overall

The number of NPS-related<sup>34</sup> DRDs in 2014 was 112 (19%). Numerically, this was almost the same as in 2013 (110, 23%), but was a slight decrease (non-significant) in percentage terms.

All NPS-related DRDs in 2014 involved polydrug consumption. The majority of NPS-related deaths had Benzo-type NPS drugs recorded within toxicology (90, 80%) with fewer featuring Stimulant-type NPS drugs (25, 22%). The percentage of Benzo-type NPS DRDs was roughly similar to previous years (2011: 70%, 2012: 67%, 2013: 79%). Whereas before 2014 only two deaths had been recorded with both Benzo-type and Stimulant-type NPS drugs present at time of death, four such cases were recorded in 2014.

In 2014, NHS Greater Glasgow & Clyde had the most NPS-related deaths (32, 29%), followed by Ayrshire & Arran (21, 19%) and Lothian and Tayside (both 17, 15%). The geographical distribution of NPS deaths was broadly similar to the overall NDRDD cohort.

## 4.2: Socio-Demographics

As in previous years, NPS-related DRDs occurred mostly among males (86, 77%).

The average age of individuals was 35.8 years in 2014; lower than the overall NDRDD cohort (39.1). Unlike previous years, Benzo-type and Stimulant-type NPS-related DRDs were similar in age (36.0 and 34.5 respectively). While the average age of Benzo-type NPS DRDs was approximately the same over time, the average age of DRDs related to Stimulant-type NPS increased from 27.5 in 2011 to 34.5 in 2014. While individuals aged 35 and over accounted for less than one quarter of Stimulant-type NPS DRDs in previous years (2011: 14%, 2012: 17%, 2013: 24%), in 2014, these individuals accounted for more than one half of such deaths (13, 52%).

As in the overall NDRDD cohort, and similar to NPS DRDs in previous years, most deaths were among those living in areas classified by Scottish Index of Multiple Deprivation (SIMD) as among the most deprived (SIMD quintile 1 (61, 54%) and quintile 2 (28, 25%)). In 2014, 82% (74) of Benzo-type NPS deaths and 68% (17) of Stimulant-type NPS deaths were among those from quintiles 1 & 2 (no significant changes over the time series were noted within either group).

Similar to the overall NDRDD cohort and NPS DRDs in other years, around half of NPS-related deaths (58, 52%) occurred where individuals were living on their own at least part of the time. Unlike previous years, Benzo and Stimulant-type NPS DRDs were equally likely to be living on their own (52% (47) and 48% (12) respectively).

## 4.3: Substance Use History

As in the overall NDRDD cohort, the vast majority of NPS-related DRDs (106, 95%) were among individuals known to have used drugs at some point prior to their death with over two thirds (74, 70%) known to have used drugs for a long period of time (i.e. 11 years or more). Unlike previous years, Stimulant-type NPS-related deaths (23, 92%) were as likely as Benzo-type NPS-related deaths (85, 94%) to involve known drug users.

Similar to the overall NDRDD cohort, around two thirds (69, 65%) of all NPS-related cases who were known to have used drugs previously were also known to inject drugs. Known

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<sup>34</sup> Includes cases where NPS were present or implicated.

injecting drug use in Stimulant-type NPS-related deaths was 65% (15); an increase from both 2012 and 2013 (2011: 40%, 2012: 20%, 2013: 28%).

Almost four in ten of the 2014 NPS-related death cohort (43, 38%) were known to be on an Opioid Replacement Therapy (ORT) prescription (42 (98%) methadone) at the time of death. The percentage observed was similar to the NDRDD cohort (29%) and NPS DRDs in previous years (2011: 30%, 2012: 25%, 2013: 32%). ORT prescription among the Benzo-type NPS group remained roughly the same (33, 37%), but was higher than in previous years among Stimulant-type NPS DRDs (10, 40%) (2011: 17%, 2012: 0%, 2013: 12%).

#### 4.4: Contact with Services

Almost six in ten (64, 57%) of the 2014 NPS-related death cohort were in contact with drug treatment services in the six months prior to death; roughly the same as the overall NDRDD cohort in 2014 (53%). The percentage in contact with treatment services in the six months before death increased from 28% in 2011 to 54% in 2013. For the first time, more than half of Stimulant-type NPS DRDs were in contact with treatment services in the six months prior to death (14, 56%) (2011: 14%, 2012: 17%, 2013: 24%).

Almost one in four (42, 38%) of the total NPS-related death cohort had been discharged from acute general or psychiatric hospital in the six months prior to death. This was similar to the overall NDRDD cohort (184, 32%) and higher than NPS cohorts in 2011 and 2013 (2011: 17%, 2012: 28%, 2013: 21%). No differences were observed in the percentage of the Stimulant-type NPS (8, 32%) and Benzo-type NPS groups (36, 40%) discharged from hospital in the six months prior to death.

Where known<sup>35</sup>, 30% (32) of 2014 NPS-related DRDs had been in police custody in the six months prior to death (similar to the overall NDRDD cohort). For the first time, more than half of Stimulant-type NPS DRDs had recently been in police custody (2011: 23%, 2012: 27%, 2013: 24%, 2014: 58%).

Where known, 13% (15) of 2014 NPS-related DRDs had been in prison in the six months prior to death. This was similar to the overall NDRDD cohort and to NPS-related deaths in previous years.

#### 4.5: Circumstances of Death

Similar to the overall NDRDD cohort and NPS-related DRDs in previous years, the drug use that led to death typically took place in a home environment; either the deceased's home (60, 62%) or in the home of someone else (25, 22%). Similarly, 61% (68) and 21% (24) were pronounced dead in their own or someone else's home respectively.

There were persons present at over half (71, 63%) of all NPS-related DRDs where data were available, similar to the NPS-related DRDs in previous years and the overall NDRDD cohort. In 2014, the percentage of Stimulant-type (56%) and Benzo-type (63%) NPS-related DRDs with persons present was roughly the same.

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<sup>35</sup> It should be noted that due to problems accessing police custody records in Glasgow, a large amount of data (143, 32% of the NDRDD cohort) for 2013 was missing, which may introduce bias into trend comparison.



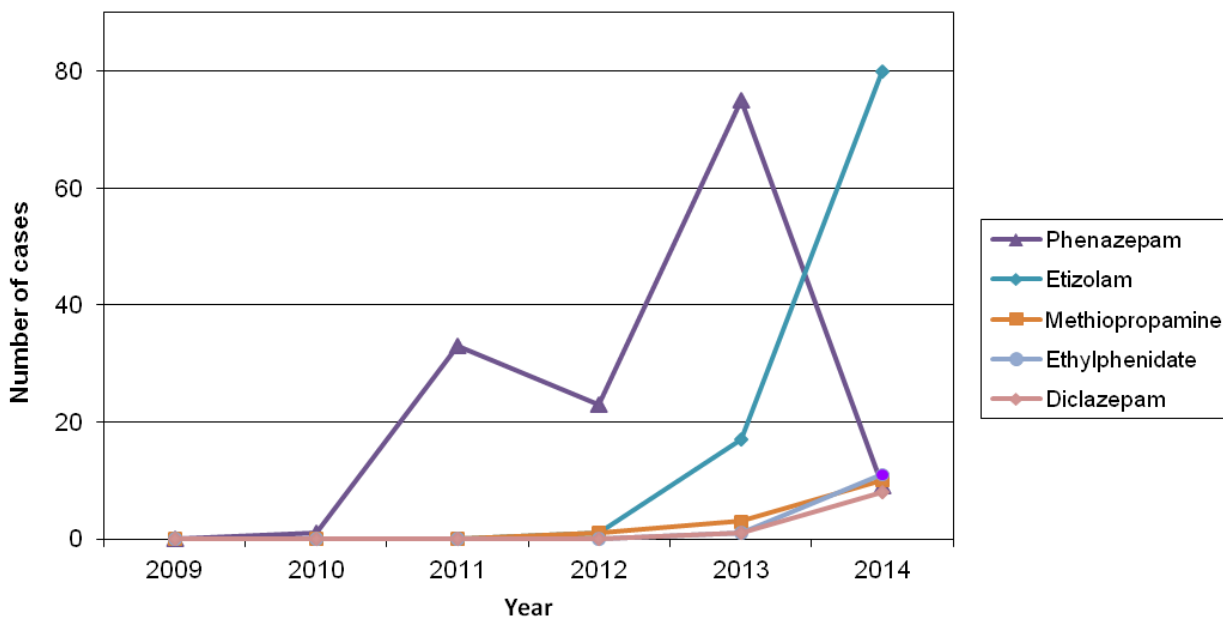
## 4.6: Toxicology Data

### 4.6.1: Drugs Present at Time of Death<sup>36</sup>

In total there were 26 different NPS recorded across the time series. Sixteen types of NPS were recorded in 2014 (the widest variety of NPS (18) was observed in 2013). The majority (90, 80%) of NPS-related deaths had Benzo-type drugs recorded within toxicology, mainly etizolam (79) (Figure 11). Etizolam was first identified within DRD toxicology in 2011 and has now been present in a total of 98 DRDs (81% in 2014). Until 2013, DRDs with phenazepam present had increased annually (of a total of 141 cases, 75 (53%) were in 2013), however, only nine cases were identified in 2014.

In 2014, a further 25 (22%) DRDs featured a range of Stimulant-type NPS, although there were no clear patterns in presence over time. For example, having been observed in only a handful of deaths in previous years, ethylphenidate (11, 44%) and methiopropamine (MPA) (10, 40%) were the most common Stimulant-type NPS recorded in 2014. Also, having been noted in ten deaths in 2013, PMA/PMMA was noted in only one death in 2014.

**Figure 11: Number of Specific NPS Recorded Within DRD Toxicology (NDRDD: 2009-2014)**



Examining all NPS-related deaths, the specific drugs most commonly present alongside NPS at toxicology were diazepam (74, 66%), heroin (65, 58%), methadone (59, 53%), anti-depressants (55, 49%) and alcohol (46, 41%) (Table 57). Among all NPS DRDs, the presence of other drugs was largely consistent over time.

Variations by NPS drug type were less evident in 2014. Unlike in previous years, co-presence of heroin, methadone, diazepam or anti-depressants was not significantly higher among the Benzo-type NPS than among the Stimulant-type NPS group. Deaths with Benzo-type NPS recorded in toxicology typically included only one NPS (co-presence of other NPS was rare). While in previous cohorts, the co-presence of other Stimulant-type

<sup>36</sup> As it was possible for multiple NPS to be present in toxicology results, figures will exceed 100%.

drugs (i.e. cocaine, ecstasy/MDMA) was more likely in DRDs where Stimulant-type NPS were recorded, no such differences were observed in 2014.

Comparing 2011 and 2014, the co-presence of ecstasy/MDMA and cocaine decreased among Stimulant-type NPS DRDs. Heroin, methadone, diazepam and anti-depressant co-presence among Stimulant-type NPS DRDs were at their highest in 2014. Other trends appeared inconsistent between years or reflected changes in the overall cohort.

#### 4.6.2: Drugs Implicated in Death

Additional information on drugs implicated in, or potentially contributing to, death was available for 108 (96%) NPS-related deaths in 2014. There was direct NPS implication in 50% (54) of these DRDs. Overall, direct NPS implication was recorded in 10% (54/555) of 2014 DRDs with relevant information (2011: 6%, 2012: 5%, 2013: 12%). In 2014, NPS implication was higher among Stimulant-type NPS DRDs than among benzo-type NPS DRDs (67% and 44% respectively, of cases with relevant information).

#### Key Findings:

- Unlike previous years, the number of NPS-related deaths (112) increased only slightly in 2014.
- NPS-related deaths continued to be dominated by those involving Benzo-type NPS (90).
- The socio-demographic characteristics of individuals whose death was related to Benzo-type NPS continued to closely resemble the overall NDRDD cohort.
- Following its control in 2012, phenazepam presence decreased and etizolam presence increased in 2014.
- In 2014, those who died following Stimulant-type NPS use more closely resembled Benzo-type NPS users than in previous years and the cohort overall.

#### 4.7: Key Messages

Unlike previous years [1,6], the number of NPS-related deaths increased only slightly in 2014. All deaths with NPS present in the body at post mortem also had other substances present (all involved polydrug use).

NPS-related deaths continued to be dominated by those involving Benzo-type NPS. However, the specific drugs involved in NPS DRDs changed over time, reflecting changes in legislation. Phenazepam presence decreased in 2014 and (as predicted in last year's NDRDD report) was largely replaced by etizolam. Despite phenazepam being controlled as a Class C drug in the UK since June 2012, this suggests that the impact of the ban, at least in terms of reducing associated mortality, was not immediate [6]. It is possible that similar changes may be observed when etizolam is controlled or as the sale or distribution of psychoactive substances (including NPS) is made illegal when the Psychoactive Substances Act becomes law in April 2016.

NPS use creates a range of challenges in terms of control, detection, service provision and treatment. While specific trends in usage were observed among Benzo-type NPS (with individual substances dominating in specific time periods), the toxicological data and evidence base is not sufficiently developed to provide an accurate indication of harm, or where death occurred, implication [40,49]. Similarly, the broad range of Stimulant-type NPS reported and the inconsistency in their involvement from year to year presents difficulties in

how best to target prevention strategies to those who use these drugs and to ensure staff are adequately trained to respond appropriately.

The analysis of five years of data included in last year's report [6] found that socio-demographic characteristics of individuals whose death was related to Benzo-type NPS closely resembled those of the overall NDRDD cohort, while those whose death was related to Stimulant-type NPS were younger, more likely to be living with their parents, were less likely to be known drug users and less likely to have used opioids.

Data from 2014 indicated that individuals whose death was related to Stimulant-type NPS use more closely resembled Benzo-type NPS users than in previous years. In 2014, among Stimulant-type NPS deaths, average age, the percentage known to inject drugs and the percentage prescribed an ORT drug at death increased while co-presence of ecstasy/MDMA and cocaine decreased. Further, there were no differences between Stimulant-type and Benzo-type NPS deaths in the percentage known to live alone, to use drugs, to be in recent contact with drug treatment services or police custody, or where co-presence of heroin, methadone, diazepam or anti-depressants was recorded.

These changes may be indicative of the reported increase in NPS consumption among people who inject drugs in Scotland in 2014. Specifically, a cohort of individuals injecting ethylphenidate (a short-acting stimulant NPS) alongside opioids was reported in the Lothian area and was associated with an increase in frequency of injecting, unsafe injecting practices and bacterial infections [50-51]. Similarly methiopropamine (also a short-acting injectable stimulant used alongside opioids) presence increased among Stimulant-type NPS DRDs in 2014 and may also have been associated with some of the changes described above.

These findings are important in that the content and delivery of harm reduction messages that were thought to be more pertinent to Benzo-type NPS users (i.e. intervention across both health and criminal justice settings; including general practice, Injecting Equipment Provision (IEP) services, police custody and prisons) may now also apply to Stimulant-type NPS users. Likewise, the challenges associated with an ageing drug user cohort (e.g. isolation and co-morbidity) may also apply to a broader range of NPS users than previously thought.

## 5: Female Drug-Related Deaths

### 5.1: Introduction

The most recent National Records of Scotland (NRS) report on Drug-Related Deaths (DRDs) [1] stated “**the percentage increase in the number of drug-related deaths was greater for females** (141% between 2000-2004 and 2010-2014) **than for males** (50% between 2000-2004 and 2010-2014)”.

The NRS figures above include suicides, which were not recorded in the National Drug-Related Deaths Database (NDRDD) until 2012. However, for the three-year period from 2012 to 2014, deaths by suicide (‘intentional self-poisoning’) accounted for a higher percentage of deaths among females (63/435, 14%) than males (78/1,245, 6%) (see also [Section 2.1](#) above).

This section of the report focuses on the 2,774 (F: 634, M: 2,140) NDRDD non-intentional deaths for the six-year period from 2009 to 2014. NDRDD figures for the period 2009 to 2014 show that the annual percentage of female DRDs in relation to the total reported changed little over the time series (from 21% (91/432) in 2009 to 24% (140/575) in 2014). However, as shown in the NRS figures, the relative increase in DRDs was greater among females (54%, 91 deaths in 2009 to 140 in 2014) than males (28%, 341 deaths in 2009 to 435 in 2014).

The results presented below describe the changes observed in the female cohort (of non-intentional deaths) since the NDRDD was established and how these characteristics differed from the male cohort, in an attempt to shed some light on these differing trends.

### 5.2: Results and Commentary

#### 5.2.1: Socio-Demographics

##### **Age**

Over the six-year period from 2009 to 2014, the mean age of the 634 female DRDs (37.9 years) was similar to the 2,140 male DRDs (36.9 years).

The increased presence of those in older age groups among DRDs was apparent in both genders, although more marked among females. Individuals aged 35 and over increased from 44% (40/91) of female deaths in 2009 to 67% (94/140) in 2014. Among males, the percentage increased from 52% (176/341) in 2009 to 65% (283/435) in 2014.

##### **Deprivation**

Among female deaths for the six-year period 2009 to 2014, of those with a known address, over half (340/609, 56%) were living in the most deprived SIMD quintile (SIMD1); a similar percentage to male deaths (1,069/2,026, 53%). Only 2% (12/609) of females lived in the least deprived SIMD quintile (SIMD5) which was lower than for male deaths (79/2,026, 4%). No discernible trend over time was evident.

##### **Living Arrangements**

Amongst DRDs, where known, around three-quarters of females (469/612, 77%) lived in their own home at the time of death. This percentage was higher than among males (1,342/2,080, 65%). For both genders, the percentage increased between 2009 and 2014: females increased from 74% (66/89) to 82% (107/131); males increased from 57% (194/338) to 71% (293/414).

The percentage of females living alone all of the time was 41% (242/596); which was lower than for males (1,090/2,039, 53%). For both genders, the percentage increased between 2009 and 2014: females increased from 31% (27/88) to 40% (51/126); males increased from 44% (146/331) to 58% (237/406).

Across the six-year period 2009 to 2014, females were twice as likely to live with their spouse/partner (202/596, 34%) than males (349/2,039, 17%). The percentage living with parents was lower for females (58/596, 10%) than for males (357/2,039, 18%).

### ***Parenthood and Living with Children***

Amongst DRDs, a higher percentage of females were likely to be a parent or parental figure to a child or children aged under 16 (282/610, 46%) compared to males (729/2,039, 36%). The percentage for females showed no clear trend over time.

Females were also more likely to be living with a child at the time of death (86/607, 14%) than males (130/2,018, 6%). Again, no clear trend over time could be discerned.

### ***Marital Status***

In terms of marital status, the percentage of female DRDs who were married at the time of death (174/596, 29%) was almost double that of males (318/2,025, 16%). The percentage of females single at death (305/596, 51%) was lower than for males (1,254/2,025, 62%).

### ***Employment Status***

Like males (1,489/2,140, 70%), most female DRDs (453/634, 71%) were categorised as 'unemployed'. However, the percentage 'employed (paid/unpaid)' was lower for females (20/634, 3%) than males (221/2,140, 10%). The percentage categorised as 'long-term sick/disabled' was higher for females (135/634, 21%) than for males (358/2,140, 17%).

## **5.2.2: Substance Use History**

### ***Drug Use and Injecting Status Prior to Death***

Among DRDs, a lower percentage of females were known to have used drugs (525/622, 84%) compared to males (1,865/2,107, 89%). The percentage of females known to have used drugs decreased from 90% (81/90) in 2009 to 80% (109/136) in 2014.

Of those known to have used drugs, 66% (335/504) of females were known to be injecting drug users; this percentage was similar to the male cohort (1,145/1,775, 65%).

### ***Drug Detoxification***

Data on drug detoxification was known in 91% (575/634) of female DRDs. Of these, 10% (56/575) were known to have undertaken a drug detoxification in the year prior to death. Of those known to have undertaken a drug detoxification in the year prior to death only eleven females (11/56, 20%) died within one month of a drug detoxification. Similar figures were observed for males.

### ***Substitute Prescribing***

Among female DRDs from 2009 to 2014, 38% (237/623) had been prescribed an Opioid Replacement Therapy (ORT) drug at the time of death, higher than the percentage for males (498/2,120, 23%). Of these, a higher percentage of females were prescribed methadone (223/237, 94%) than males (446/498, 90%).

The percentage of females prescribed an ORT drug at the time of death was 32% (29/91) in 2009 and 41% (56/136) in 2014. The percentage of males prescribed an ORT drug at

death increased from 18% (62/341) in 2009 to 26% (110/430) in 2014. These changes were driven by a generalised increase in methadone prescribing across the time series.

### **Previous Overdoses**

A higher percentage of females than males experienced at least one overdose prior to death (365/634, 58% and 1,029/2,140, 48% respectively). The percentage of females that had experienced five or more previous overdoses (93/351, 26%) was higher than in the male cohort (148/999, 15%). Among both sexes, 17% had their last overdose within the three months prior to death.

## 5.2.3: Medical and Psychiatric History and Significant Life Events

### **Recent Medical History**

A higher percentage of female DRDs (429/634, 68%) experienced at least one medical condition in the six months prior to death (males: 1,164/2,140, 54%). The percentage of females experiencing a recent medical condition increased over time from 49% (45/91) in 2009 to 76% (107/140) in 2014. Females had a higher prevalence of recent respiratory conditions (206/634, 32%) and Hepatitis C (126/634, 20%) recorded than males (400/2,140, 19% and 345/2,140, 16% respectively).

- The percentage of female DRDs suffering with respiratory conditions increased from 24% (22/91) in 2009 to 36% (50/140) in 2014. The percentage among males also increased; from 16% (53/341) in 2009 to 20% (88/435) in 2014.

Analysis of recent (within six months of death) multiple morbidity showed that individuals had an average, over the period 2009 to 2014, of 0.6 of seven key medical conditions examined (respiratory disease, Hepatitis C, liver disease, epilepsy, cardiac condition, Stomach problems, HIV/HepB). Female DRDs had a higher average (0.8) than males (0.6).

General acute hospital stays in the ten years before death for the seven medical conditions described above were examined for the period 2009 to 2014. Female DRDs had a higher prevalence of respiratory (221/634, 35%) and stomach/gastrointestinal (113/634, 18%) admissions than males (511/2,140, 24% and 274/2,140, 13% respectively).

Analysis of multiple morbidity showed that, in the ten years before death, individuals in the 2009 to 2014 NDRDD cohort had experienced general acute inpatient stays in relation to an average of 0.7 of the seven medical conditions examined. Females had a higher mean (0.9) than males (0.7). Both genders had an increase over the six-year period 2009 to 2014: females increased from 0.7 to 0.9; males increased from 0.5 to 0.7.

### **Recent Psychiatric History**

A higher percentage of female DRDs (417/634, 66%) experienced at least one psychiatric condition in the six months prior to death than males (1,014/2,140, 47%). Depression was the most common condition in both males and females, although the percentage amongst females (311/634, 49%) was higher than amongst males (673/2,140, 31%). A higher percentage of females experienced anxiety (207/634, 33%) and personality disorders (65/634, 10%) than males (425/2,140, 20%) and (95/2,140, 4%) respectively. A lower percentage of females experienced schizophrenia (22/634, 3%) compared to males (119/2,140, 6%).

- For both genders the percentage recently experiencing depression increased over the six year period: in females it increased from 33% (30/91) in 2009 to 54% (76/140) in 2014; among males, it increased from 21% (70/341) in 2009 to 41% (177/435) in 2014

- For both genders, the percentage recently experiencing anxiety almost doubled over the six year period: females increased from 21% (19/91) in 2009 to 39% (54/140) in 2014; males increased from 14% (47/341) in 2009 to 27% (117/435) in 2014.

Analysis of recent multiple morbidity showed that individuals had a mean average, over the six-year period 2009 to 2014, of 0.8 of the seven psychiatric conditions (depression, anxiety, personality disorder, schizophrenia, psychotic episode, post traumatic stress disorder, bipolar disorder). Females had a higher average (1.0) than males (0.7).

The increase in the average number of recorded recent psychiatric conditions from 2009 (0.5) to 2014 (0.9) was highly significant. The increase amongst females from 2009 (0.7) to 2014 (1.2) was greater than the increase amongst males 2009 (0.5) to 2014 (0.9).

Analysis of hospital admission data for the ten years prior to death showed that admission to a psychiatric hospital was considerably less common than recent recording of psychiatric diagnoses. Hospital admissions in relation to depression were higher among female DRDs (65/634, 10%) than males (115/2,140, 5%), while schizophrenia admissions were higher among males (78/2,140, 4%) than females (13/634, 2%).

Analysis of multiple morbidity showed that individuals in the 2009-2014 NDRDD cohort had experienced psychiatric inpatient stays in relation to an average of 0.2 of the seven conditions examined. Females had an average of 0.3 conditions; which was higher than for males (0.2 conditions). No discernible trend over time was evident.

### ***Recent Significant Events***

A higher percentage of female DRDs (399/634, 63%) experienced at least one significant life event in the six months prior to death than males (1,226/2,140, 57%). Recent ill health was the most common event for both genders, although the percentage was higher amongst females (175/399, 44%) than males (400/1,226, 33%). A higher percentage of females had child custody issues (55/399, 14%) than males (60/1,226, 5%).

### ***Domestic and Sexual Abuse***

A higher percentage of female DRDs had a history of domestic abuse (270/634, 43%) when compared to males (119/2,140, 6%). The percentage of females experiencing sexual abuse (212/634, 33%) was also higher than for males (162/2,140, 8%).

### ***Suicide Attempts***

A higher percentage of female DRDs (206/634, 32%) had a previous suicide attempt recorded than males (541/2,140, 25%).

## **5.2.4: Contact with Services**

### ***Drug Treatment Services***

The percentage of female DRDs (422/634, 67%) and male DRDs (1,365/2,140, 64%) who were known to have had contact with drug treatment services at some point in time was roughly the same. However, a higher percentage of females were in contact with drug treatment services in the six months prior to death (320/634, 50%, compared to 42% (891/2,140) of males.

### ***Non-Drug Treatment Services***

A higher percentage of female DRDs (292/372, 78%) had contact at some point with services for reasons other than management of a drug misuse problem, than males (822/1,167, 70%)<sup>37</sup>. Contact with social services increased for female DRDs from 35% (41/118) in 2012 to 46% (64/140) in 2014. There was also an increase in females in contact with homeless services from 2012 (23/118, 19%) to 2014 (32/140, 23%).

A higher percentage of females had contact with non-drug treatment services in the six months prior to death: females (333/634, 53%); males (967/2,140, 45%). The non-drug treatment service most commonly used in that period was 'mental health services': for females the percentage was 28% (180/634), higher than for males (433/2,140, 20%).

### ***Hospital Stays***

A higher percentage of females had been discharged following a general acute hospital stay in the six months prior to death (33%, 207/634) when compared to males (26%, 548/2140). No discernible trend over time was evident.

### ***Criminal Justice System***

Over the time series, where known, a lower percentage of females than males had been in police custody in the six months prior to death (151/547, 28%, males: 619/1,882, 33%). The percentage fluctuated over time for both genders.

Over the six-year period 2009 to 2014, where known (females: 586, males: 2038), a lower percentage of females had ever been in prison (188/586, 32%, compared to males: 1,144/2,038, 56%), and a lower percentage had been in prison in the six months prior to death (45/586, 8%, males: 344/2,038, 17%). Percentages fluctuated over the time series for both genders.

## **5.2.5: Circumstances of Death**

### ***Place of Drug Use and Place of Death***

Where known, a higher percentage of females consumed the drugs present at death in their own home (395/575, 69%) than males (1,192/1,942, 61%). Further, 63% of females (389/619) died in their own home, which was higher than males (1,182/2,113, 56%).

Over the six year period (2009 to 2014) females saw a greater increase in the percentage of deaths in their own home (2009: 54%, 2014: 68%) than males (2009: 50%, 2014: 62%), and a greater decrease in deaths in another's home (females: 2009: 26%, 2014: 17%), males: 2009: 25%, 2014: 21%).

### ***Persons Present at Scene of Overdose***

Others were present at a higher percentage of female DRDs (373/595, 63%) than male DRDs (1,162/2,026, 57%) (data were only known for 2,621 cases). Among females, 33% (198/595) died when another person(s) was in the same room. This was higher than for males (472/2,026, 23%).

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<sup>37</sup> Please note that data for contact outwith 6 months prior to death are only available for 2012-2014, as data was only collected on contact under 6 months prior to death for the years 2009-2011.



### ***Ambulance Attendance and Attempted Resuscitation***<sup>38</sup>

Where known, 83% of DRDs (2,270/2,748) were attended by an ambulance (females: 84%, males: 82%). Females had a higher percentage of resuscitation attempts (292/602, 49%) than males (875/2,071, 42%).

### ***Naloxone Availability and Use***

Whether or not there was a 'take-home' naloxone kit available was known in 75% (194/257) of the opioid deaths in females during the 3-year period 2012-2014. Naloxone was reported to be available at the scene of overdose in 8/194 opioid deaths (4%) and was administered on all 8 occasions (100% of cases where available). Figures for males were: availability known (662/856, 77%); naloxone available (25/662, 4%); naloxone administered (16/24 of cases where available and administration known, 67%).

## 5.2.6: Toxicology Data

### ***Drugs Present at Time of Death***

Over the six-year period 2009 to 2014, for female DRDs, the most frequently found drugs present in the body at death were: diazepam (73%), methadone (56%), anti-depressants (56%), heroin/morphine (47%), alcohol (40%), dihydrocodeine (20%), and codeine (15%).

Over the six-year period 2009 to 2014, for male DRDs, the most frequently found drugs present in the body at death were: diazepam (73%), heroin/morphine (59%), alcohol (48%), methadone (42%), anti-depressants (30%), codeine (21%), and cannabis (16%).

- A higher percentage of females had methadone present (354/634, 56%) than males (904/2,140, 42%), but a lower percentage had heroin/morphine present (301/634, 47%) than males (1,257/2,140, 59%).
- The percentage of females with diazepam present at post mortem was higher in 2014 (99/140, 71%) than the percentage in 2013 (57%), but lower than all previous years (2009: 79%, 2010: 78%, 2011: 79%, 2012: 80%).
- The percentage of females with methadone present was at its lowest in 2014 (49%); in previous years the percentages were: 2009 (54%), 2010 (57%), 2011 (72%), 2012 (50%) and 2013 (58%).
- There was an increased over the time series in the presence of anti-depressants among female DRDs; the percentage in 2014 (93/140, 66%) was double the percentage in 2009 (30/91, 33%).
- The percentage of females with heroin/morphine present fluctuated over the time series; however, the percentage in 2014 (69/140, 49%) was lower than in 2009 (58/91, 64%).
- The percentage of females with phenazepam present was lower in 2014 (3/140, 2%) than in 2013 (17/114, 15%). Similarly, for males, the percentage with phenazepam present was higher in 2014 (6/435, 1%) than in 2013 (56/371, 15%).
- The percentage with etizolam present was higher in 2014 (19/140, 14%) than in 2013 (5/114, 4%). Among males, the percentage with etizolam present also increased from 3% (11/371) in 2013 to 14% (60/435) in 2014.

<sup>38</sup> Resuscitation on any one individual may have been attempted by more than one person

### ***Drugs Implicated in Death***

Data relating to drugs implicated in death were only available from 2011 onwards. For female DRDs during this period, the drugs most frequently implicated in the death were: methadone (233/451, 52%), heroin/morphine (163/451, 36%), anti-depressants (110/451, 24%), diazepam (83/451, 18%), dihydrocodeine (74/451, 16%), alcohol (69/451, 15%) and gabapentin (52/451, 12%).

For male DRDs from 2011 to 2014, the drugs most frequently implicated in the death were: heroin/morphine (691/1,469, 47%), methadone (601/1,469, 41%), diazepam (319/1,469, 22%), alcohol (300/1,469, 20%), and dihydrocodeine (162/1,469, 11%).

Methadone implication was higher among female DRDs but decreased for both sexes: the percentage among females decreased from 2011 (62/93, 67%) to 2014 (64/137, 47%); and the percentage for males decreased from 2011 (172/338, 51%) to 2014 (135/418, 32%).

Gabapentin implication amongst female DRDs increased from 2% (2/93) in 2009 to 19% (26/137) in 2014.

### **Key Findings:**

- The ratio of women to men has not changed much over time (as in previous cohorts, around one quarter (24%) of DRDs in 2014 were among females).
- The relative increase in the number of DRDs from 2009 to 2014 was greater among females (54%) than males (28%).
- An overall ageing effect was observed over time in DRDs, however this was more pronounced in females.
- A higher percentage of females lived with their spouse/partner (34% compared to 17% of males), were a parent or parental figure (46% compared to 36% of males) or had at least one individual present at the time of death (63% compared to 57% of males).
- Females were significantly more likely to suffer both domestic (43%) and/or sexual abuse (33%) than males (6% and 8% respectively).
- A higher percentage of females (38%) than males (23%) were prescribed an ORT drug at the time of death and had methadone implicated in death (52% and 41% respectively).
- A higher percentage of females experienced at least one medical condition in the six months prior to death than males (68% compared to 54%).
- A higher percentage of females experienced at least one psychiatric condition in the six months prior to death than males (66% compared to 47%).

### **5.3: Key Messages**

This analysis has studied females who died from a DRD (non-intentional), describing their characteristics in order to support service planning and provision and identify potential areas for harm reduction interventions.

Over the six years from 2009 to 2014 females represented less than a quarter of non-intentional DRDs. Therefore, the absolute annual numbers of female DRDs were small when compared to males, meaning that increases in indicators among females over time may appear relatively larger than among males. The female DRD cohort was specifically analysed to investigate whether there were any detectable differences in their

characteristics that might underpin the larger relative increase in the number of DRDs (non-intentional) from 2009 to 2014 when compared to males.

Across the range of indicators analysed it was possible to detect similar patterns and trends between males and females in characteristics such as deprivation and employment status, whilst differences were observed in a variety of others. It is difficult to ascertain which variations have clinical significance or to distinguish which effects may be linked to the ageing cohort or gender variation that exists in the wider population.

The effect of an ageing cohort of problem drug users was evident among both males and females, although more pronounced in females; with an increase between 2009 (44%) and 2014 (67%) in the percentage of females aged over 35 years. The percentage of DRDs among males aged over 35 years increased from 52% in 2009 to 65% in 2014.

Differences were apparent in other characteristics including living arrangements, marital status, parenthood/living with children and being alone at the time of death. Females were more likely to be living with their spouse/partner and were also more likely to have at least one individual present at the time of death. That DRDs among females increased at a higher relative rate than among males in spite of there appearing to be more potential opportunities for intervention suggests that other persons present did not have the capacity to intervene (plausible if female drug users were more likely to use drugs alongside others) or were not sufficiently aware of overdose symptoms and may have benefitted from targeted harm reduction interventions/overdose awareness training.

Amongst DRDs the majority of both males and females were known to have used drugs, however the percentage of females known to have used drugs decreased over the six year period. Despite this apparent change, a higher percentage of females were prescribed an ORT drug at the time of death. This is likely to have been related to the higher rate of methadone use and methadone implication among females compared to males.

A high percentage of both males and female DRDs had contact with one or more service (including specific drug treatment services, health, criminal justice, social or homeless services). Variation was observed in the service types accessed by males and females. Females were more likely to have been in contact with both drug and non-drug treatment services within the six months prior to death.

Females were significantly more likely to have suffered from both domestic and/or sexual abuse than males. However, these percentages reflect instances where abuse was known and recorded. Therefore, the true prevalence of abuse and its association with problem drug use among those who died was unknown [52]. Likewise, comparisons to the prevalence of abuse in the wider community of problem drug users or in the general population were similarly problematic.

A higher percentage of females had experienced at least one medical and/or psychiatric condition in the six months prior to death than males, with almost half of females reporting experiencing depression. A number of indicators of morbidity, co-morbidity and contact with health services (including hospital discharge) were higher for females than males, although the extent to which this reflected similar patterns of service use among the general population was also not known.

There were some differences in the patterns of drugs implicated in the deaths of males and females. In accordance with the increasing reported prevalence of depression in females, implication of antidepressants in deaths of females had increased. Further investigation of the prescribing of these drugs may indicate if this increase is linked to legal prescribing or illicit drug use.

## 6: Deaths by Suicide in the 2014 NDRDD Cohort

### 6.1: Introduction

Known risk factors for death by suicide in the general population are wide ranging and can include: depression, previous suicide attempts, incidents of self-harm, other mental health problems, unemployment, alcohol and/or substance abuse, tragic life events, violence and sexual abuse [53-55]. Research has shown that individuals engaged in problematic drug use, particularly in the Scottish context, exhibit such risks [28,56-58]. In addition, studies of individuals in drug and alcohol treatment have shown previous suicide attempts and current suicidal thoughts are common [59]. The risk of death by suicide is greater when several risk factors occur concurrently.

During the 2008 'Choose Life' summit, NHS Health Scotland made a commitment to lead work to establish a Scottish Suicide Information Database (ScotSID) to improve the quality of information available on deaths by suicide in Scotland (this work is now led by ISD Scotland and provides comprehensive data on all deaths by suicide). The 2014 ScotSID report, based on 2009-2012 data, highlighted the link between death by suicide and the most deprived populations [60].

In previous reports additional analysis of deaths by suicide, comparing those who were known to have used drugs and those who were not known to have used drugs was provided. Due to the small number of Drug-Related Deaths (DRDs) recorded as 'intentional self-poisoning', an increase in draft data submissions and the subsequent increase of unknown outcomes, this is no longer possible. National Drug-Related Deaths Database (NDRDD) forms were submitted to ISD in respect of 47 deaths by suicide in 2014. It is important to note that these deaths are largely a subset of the 613 DRDs and 696 deaths by suicide on which National Records of Scotland (NRS) published National Statistics in 2015 [1,61].

### 6.2: Results and Commentary

Differing perceptions of case inclusion by Local Critical Incident Monitoring Groups meant that some NHS Boards did not submit NDRDD data for deaths by suicide in 2013 or 2014, particularly when these occurred among older individuals. Due to this potential selection bias in the submission of NDRDD forms, the 2013 and 2014 death by suicide cohorts are not compared in the following analysis.

Taking into account the different time periods for case inclusion and delays in determining cause of death, NDRDD could potentially have received forms for 595 NRS deaths (43 of which were 'intentional self-poisoning'). Of these, a total of 584 NDRDD forms were returned (the 11 potential NDRDD forms not completed were all 'non-intentional' deaths). Therefore, for the suicide cohort, 43 NDRDD forms of a potential 43 were completed (0% non-completion) compared to 2% of 'non-intentional' deaths (541/552). Comparable figures for 2013 were 24% of eligible deaths by suicide and 10% of 'non-intentional' deaths not submitted to NDRDD. However, in 2014, a large number of partial data submissions negatively influenced data quality. In addition to the 43 deaths by suicide also reported by NRS, a further four cases were reported to NDRDD, bringing the total to 47. Of these 47 deaths by suicide, only 23 (49%) forms were complete. The 24 incomplete responses included seven forms which were entered into the database as draft entries containing only basic demographic details.

## 6.2.1: Socio-Demographics

### **Age and Gender**

The mean age of the 47 deaths by suicide (43.7 years) was higher than the 575 individuals in the NDRDD cohort (39.1 years). In both cohorts, there was a higher percentage of males than females: 76% (435/575) in the NDRDD cohort; and 53% (25/47) in the deaths by suicide cohort.

As described in [Section 2.1](#), deaths by suicide ('intentional self-poisoning') accounted for a higher percentage of deaths among females (22/162, 14%) than males (25/460, 5%).

### **Living Arrangements**

Deaths by suicide were similar to the NDRDD cohort in many respects: where known, 78% (28/36) of deaths by suicide lived in their own home at the time of death compared to 73% (400/545) in the NDRDD cohort. By contrast, the percentage living with parents was higher among deaths by suicide (9/33, 27%) than in the NDRDD cohort (76/532, 14%). A similar percentage of those dying from suicide (17/32, 53%) and in the NDRDD cohort (329/525, 63%) were childless at death. In terms of marital status, the percentage of those dying from suicide who were single at death (14/33, 42%) was also comparable with the NDRDD cohort (312/532, 59%).

### **Employment Status**

Where known, among deaths by suicide, 55% (18/33) were categorised as 'unemployed'; lower than 80% (406/508) in the NDRDD cohort. The percentage categorised as 'long-term sick/disabled' in the deaths by suicide cohort (9/33, 27%) was comparable with the NDRDD cohort (133/508, 26%).

## 6.2.2: Substance Use History

### **Drug Use and Injecting Status Prior to Death**

In 2014, known drug use among the death by suicide cohort (16/41, 40%) was lower than among the NDRDD cohort (482/566, 85%). Similar to the overall cohort, the majority of the 16 deaths from suicide who were known to have used drugs were male (11, 69%), and most were known to have used drugs for a considerable length of time. Twelve individuals (86%) had been using for six years or more.

Of the 16 deaths by suicide among those known to have used drugs, 19% (3) were known to have injected drugs; lower than the NDRDD cohort (66%).

### **Previous Overdoses**

Twenty-nine (62%) of those dying from suicide had experienced at least one overdose previously, compared with (305/575, 53%) in the NDRDD cohort.

## 6.2.3: Medical and Psychiatric History and Significant Life Events

### **Recent Medical History**

A smaller percentage of those dying from suicide experienced a medical condition in the six months prior to death (22/47, 47%) than those in the NDRDD cohort (363/575, 63%), with a number of individuals experiencing more than one medical condition. However, there was higher percentage with Hepatitis C in the NDRDD cohort (87/575, 15%) than in the cohort of deaths by suicide (1/47, 2%).

### ***Recent Psychiatric History***

In the six months prior to death, 29 of the 47 (55%) individuals dying from suicide experienced a particular psychiatric condition; the percentage experiencing such conditions in the NDRDD cohort was 60% (346/575). Many of the individuals were suffering from more than one psychiatric condition and the occurrence of most psychiatric conditions was similar in both cohorts.

### ***Recent Significant Events***

More than half (26/47, 55%) of the individuals dying from suicide had experienced at least one significant life event, with 15 (32%) experiencing recent ill health and five (11%) suffering the breakdown of a significant relationship. These percentages were similar to those in the overall NDRDD cohort (63%, 28% and 10% respectively).

## 6.2.4: Circumstances of Death

### ***Place of Death***

Where known, a similar percentage of those dying from suicide and in the NDRDD cohort were pronounced dead in their own home (28/36, 78% compared to 356/562, 63%).

### ***Persons Present at Scene of Overdose***

Where known, those dying from suicide were more likely to be on their own at death (23/34, 68%) compared with the NDRDD cohort (247/538, 46%). None of the eleven individuals who died when at least one individual was present at the location died when another person was in the same room, whereas 53% (150/285) of the NDRDD cohort did.

## 6.2.5: Toxicology Data

### ***Drugs Present at Time of Death***

Among individuals who died from suicide, the drugs most frequently found present in the body were: anti-depressants (26/47, 55%), alcohol (22/47, 47%), diazepam (19/47, 40%), codeine (19/47, 34%), paracetamol (14/47, 30%), heroin (9/47, 19%), dihydrocodeine (7/47, 15%), gabapentin (6/47, 13%), followed by cannabis and tramadol (both 5/47, 11%).

Diazepam (19/47, 40%), heroin (9/47, 19%) and methadone (3/47, 6%) were present in the body at death among individuals who died from suicide; this was lower than the overall NDRDD cohort (70%, 58% and 40%, respectively). However, paracetamol was present in the body in more individuals who died from suicide (14/47, 30%) compared to the overall NDRDD cohort (15%).

### ***Drugs Implicated in Death***

A slightly different pattern was observed in the drugs which were implicated in the deaths. Alcohol was implicated in the deaths for 8 of the 47 (17%) individuals dying from suicide; the same as in the NDRDD cohort (96/555, 17%). Among those dying from suicide 3/47 (6%) had methadone and 8/47 (17%) had heroin/morphine implicated in the death, lower than in the NDRDD cohort (36% and 52%, respectively). In contrast, anti-depressants (15/47, 32%) and codeine (12/47, 26%) were implicated in more deaths from suicide than the NDRDD cohort (11% and 5%, respectively).

For the individuals who died from suicide the drugs most frequently implicated in the death were: anti-depressants (32%), codeine (26%), heroin/morphine and alcohol (both 17%), dihydrocodeine and tramadol (both 15%), and gabapentin (11%).

## Key Findings:

- On average, persons who died by suicide involving controlled drugs were older (44 years) than those whose death was classified as non-intentional (39 years).
- Deaths by suicide accounted for a higher percentage of DRDs among females (14%) than males (5%).
- Known drug use was lower among the death by suicide cohort (40%) than the non-intentional death cohort (85%).
- A lower percentage of deaths by suicide had diazepam (40%), heroin/morphine (19%) or methadone (6%) present in the body at post mortem compared with the non-intentional death cohort (70%, 58% and 40%, respectively).
- A higher percentage of deaths by suicide had paracetamol present in the body at post mortem (30%) than in the non-intentional death cohort (15%).

## 6.3: Key Messages

This analysis studied individuals who died from suicide involving a controlled substance to help highlight any emerging patterns which will aid those involved in the care of problem drug users, in an attempt to identify those who are particularly vulnerable to DRD.

Many of the problems recognised as inherent among individuals known to use drugs are also recognised causes of suicide [28, 53-59]. The risk factors for death from suicide applicable to the general population (depression, previous non-fatal suicide attempts, incidents of self-harm, other mental health problems, unemployment, alcohol and/or substance abuse, and tragic life events) were clearly evident in both the individuals dying from suicide and NDRDD cohort. However, there were indications from the descriptive comparisons of the individuals who died from suicide and the NDRDD cohort that there were differences between the two in several key areas.

Although drugs were involved in the death, the key difference from the main cohort is that the death had been categorised as 'intentional' in these 47 individuals whereas the 575 in the main cohort were categorised as 'non-intentional' DRDs. It is perhaps unsurprising that deaths by suicide as a whole were different from the NDRDD cohort given that a smaller percentage of the deaths by suicide cohort were known to have used drugs.

Half of individuals (49% of known cases) in the death by suicide cohort had made a previous suicide attempt compared with 29% of the NDRDD cohort.

The demographic composition of the two cohorts also differed in a variety of respects. The individuals dying from suicide were older than in the NDRDD cohort. A higher proportion of females recorded by NDRDD were classified as deaths by suicide than males. Among deaths by suicide, a higher percentage of individuals lived with their parents and a lower percentage of individuals were categorised as 'unemployed' than in the NDRDD cohort.

As in 2013, toxicology data also highlighted important differences between the groups. Among deaths by suicide, a smaller percentage had diazepam, heroin/morphine or methadone present in the body at post mortem, while a higher percentage had paracetamol present. Implication largely mirrored these patterns; however a higher percentage of deaths by suicide had codeine and anti-depressants implicated in death than in the NDRDD cohort.

## 7: Conclusion

The increasing numbers of people dying Drug-Related Deaths (DRD) requires continued effort on both preventative and treatment fronts. The information from the National Drug-Related Death Database (NDRDD) paints a picture of an ageing cohort of long term drug users with multiple complex health and social care needs. Many show high risk factors for DRD such as injecting drug use, a history of multiple overdoses and living alone. Reports of an increase in psychiatric problems, particularly anxiety and depression, are backed up by an increase in anti-depressant prescribing and increasing contact with mental health services. This calls for person-centred, needs-based, recovery-orientated treatment services along with robust risk assessment.

Although over time there has been an increase in the provision of Opioid Replacement Therapy (ORT) and of contact with wider services (such as mental health and hospital care) there may still be problems with engagement of and retention in treatment for those at very high risk, given only 29% of those who died had been prescribed ORT at the point of death. This suggests that all services in contact with those with drug problems should not only be aware of risk factors in those who use drugs but also maximise opportunities to intervene/signpost into treatment, for example health services in the criminal justice system. Particular interventions to reduce DRDs such as 'Take-Home' Naloxone (THN) can be supplied from these settings.

Polydrug use remains a common feature. A decrease in deaths where methadone was implicated has been offset by the increase in deaths involving heroin. Unlike previous years, the number of 'Novel' Psychoactive Substance (NPS) deaths increased only slightly and continued to be dominated by Benzo-type drugs. However, there was evidence that older, injecting drug users have started using Stimulant-type NPS alongside 'traditional' drugs of abuse. The role of NPS in DRDs in the future may change with the forthcoming Psychoactive Substances Act 2016, given the possible evidence of the effect of a ban on phenazepam. However, the role of opioids remains dominant across DRDs as a whole.

There needs to be a better understanding of prescribing, particularly the interactions between psychoactive medications. Most of those who died whilst on ORT had been on long-term supervision and had been prescribed a therapeutic dose. Those on ORT were also more likely to have been prescribed a benzodiazepine and/or anti-depressant (perhaps reflecting more service contact). There was also increasing evidence of the presence of illicit (non-prescribed) anti-depressants at post-mortem in those who died a drug-related death.

Explanations for the greater relative increase in deaths among women than men over time (54% compared to 28%) are inconclusive. High risk factors were evident in women such as a more pronounced ageing effect, an increased likelihood of having suffered domestic violence and sexual abuse and an increased likelihood of having a medical or psychiatric history. However, they were also more likely to have some protective factors such as not living alone and being on ORT. Given the higher number of women living with others, more targeted training of their partners/families to administer THN may be of benefit.

Known drug use among those in the death by suicide cohort was considerably lower than among those whose death was non-intentional. This, along with fewer having heroin/morphine present, suggests that not all were habitual drug users.

Whilst evidence-based treatment and harm reduction measures help to reduce the risk of drug-related mortality and increase individuals' life chances, other initiatives to address socio-economic, educational and employment chances that contribute to poor health are also vital.



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## Glossary

ACMD:	Advisory Council on the Misuse of Drugs
ACPOS:	Association of Chief Police Officers, Scotland
DRD:	Drug-Related Death
EMCDDA:	European Monitoring Centre for Drugs and Drug Addiction
ICD:	International Classification of Diseases
ISD:	Information Services Division
IDU:	Injecting Drug Users
LT-IDU:	Long-Term Injecting Drug Users
NDRDD:	National Drug-Related Deaths Database
N-IDU:	Non-Injecting Drug Users
NKDU:	Individuals Not Known to be Drug Users
NPS:	Novel Psychoactive Substances
NRS:	National Records of Scotland
ORT:	Opioid Replacement Therapy
SIMD:	Scottish Index of Multiple Deprivation
SPS:	Scottish Prison Service

## List of Tables

Table No.	Name	Time period	File & size
<a href="#">ALL</a>	Full worksheet containing all 57 tables	2009-2014	308kb
1	Age and gender	2009-2014	-
2	SIMD quintile areas of deprivation	2009-2014	-
3	Where the deceased was living at the time of death	2009-2014	-
4	Whom the deceased was living with at the time of death	2009-2014	-
5	Children under 16 years the deceased was a parent or parental figure to	2009-2014	-
6	Children under 16 years who lived with the deceased	2009-2014	-
7	Known to have used drugs prior to death?	2009-2014	-
8	Known injecting drug use (IDU) and length of injecting drug use	2009-2014	-
9	Drug detoxification within the 12 months prior to death and length of time prior to death since last drug detoxification	2009-2014	-
10	Prescribed an Opioid Replacement Therapy (ORT) drug at time of death?	2009-2014	-
11	How prescribed ORT drug was dispensed by type of ORT drug	2009-2014	-
12	Length of time in receipt of ORT prescription	2009-2014	-
13	Length of time in receipt of methadone prescription	2009-2014	-
14	Overdoses experienced prior to death	2009-2014	-
15	Number of months since last known non-fatal overdose	2009-2014	-
16	Experienced a particular medical condition in the six months prior to death?	2009-2014	-
17	Mean number of medical conditions	2009-2014	-
18	Experienced a particular psychiatric condition in the six months prior to death?	2009-2014	-
19	Mean number of psychiatric conditions	2009-2014	-
20	Experienced a significant event in the six months prior to death?	2009-2014	-
21	Victim of domestic violence prior to death	2009-2014	-

Table No.	Name	Time period	File & size
22	Victim of sexual abuse prior to death	2009-2014	-
23	Contact with drug treatment services prior to death	2009-2014	-
24	Type of services people were in contact with prior to death	2009-2014	-
25	Type of services people were in contact with prior to death for reasons other than management of a drug misuse problem	2009-2014	-
26	Deaths by time since most recent hospital (general acute or psychiatric) stay	2009-2014	
27	Deaths by time since most recent general acute hospital stay	2009-2014	
28	Deaths by time since most recent psychiatric hospital stay	2009-2014	
29	Been in police custody in six months prior to death?	2009-2014	-
30	Number of weeks between police custody release and death	2009-2014	-
31	Been in prison custody ever or in six months prior to death?	2009-2014	-
32	Number of weeks between prison release and death	2009-2014	-
33	Deaths by day of occurrence	2009-2014	-
34	Deaths by month of occurrence	2009-2014	-
35	Deaths by NHS Board area of death	2009-2014	-
36	Crude mortality rate by NHS Board of residence	2009-2014	-
37	Number of deaths by place of drug use	2009-2014	-
38	Where the individual was pronounced dead	2009-2014	-
39	Persons present at scene of fatal overdose and their location	2009-2014	-
40	Ambulance attending the scene of fatal overdose?	2009-2014	-
41	Resuscitation attempted?	2009-2014	-
42	Resuscitation attempted by whom?	2009-2014	-
43	Take-home naloxone availability and administration	2012-2014	-
44	Drugs found present in body at post mortem	2009-2014	-



Table No.	Name	Time period	File & size
45	Drugs found present in body at post mortem by gender	2009-2014	-
46	Drugs found present in body at post mortem by age (34 and under/35 and over)	2009-2014	-
47	Drug combinations found present in body at post mortem	2009-2014	-
48	Drugs found present in body at post mortem and drugs implicated in the deaths	2009-2014	-
49	Drugs implicated as a percentage of drugs found present in body at post mortem	2009-2014	-
50	Prescribed an ORT drug at time of death by drug found present in body at post mortem	2011-2014	-
51	Methadone implicated deaths and prescribed ORT drug	2011-2014	-
52	Methadone implicated deaths and dispensing of prescribed methadone	2011-2014	-
53	Methadone implicated deaths and length of time in receipt of methadone prescription	2011-2014	-
54	Methadone implicated deaths and dose of prescribed methadone	2009-2014	-
55	Prescribed a drug at time of death by drug found present in body at post mortem	2009-2014	-
56	Prescribed an anti-depressant within 30 days prior to death, by anti-depressant prescribed	2009-2014	-
57	NPS-related deaths with another drug present in body at post mortem	2009-2014	-

## Contact

### Lee Barnsdale

Principal Information Analyst

[leebarndale@nhs.net](mailto:leebarndale@nhs.net)

0131 275 6055

### Ruth Gordon

Senior Information Analyst

[r.gordon@nhs.net](mailto:r.gordon@nhs.net)

0131 275 6335

## Further Information

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## Appendices

### A1: National Records of Scotland Definition of a Drug-Related Death

The following is an extract taken from the National Records of Scotland (NRS), Drug-Related Deaths in Scotland 2014 report [1].

- A1. The definition of a 'drug-related death' is not straightforward. Useful discussions on definitional problems may be found in articles in the Office for National Statistics publication 'Population Trends' and in the journal 'Drugs and Alcohol Today' (please go to References in Annex C). A report by the Advisory Council on the Misuse of Drugs (ACMD) – (mentioned in the References), considered current systems used in the United Kingdom to collect and analyse data on drug-related deaths. In its report, the ACMD recommended that 'a short life technical working group should be brought together to reach agreement on a consistent coding framework to be used in future across England, Wales, Scotland and Northern Ireland'. National Records of Scotland (NRS), formerly General Register Office for Scotland (GROS), was represented on this group, and this publication presents information on drug-related deaths using the approach that was agreed, on the basis of the definition as it was implemented by GROS and, now, NRS.
- A2. The 'baseline' definition for the UK Drugs Strategy covers the following cause of death categories (the relevant codes from the International Statistical Classification of Diseases and Related Health Problems, Tenth Revision [ICD10], are given in brackets):
- a) deaths where the underlying cause of death has been coded to the following sub-categories 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:
    - (i) accidental poisoning (X40 – X44);
    - (ii) intentional self-poisoning by drugs, medicaments and biological substances (X60 – X64);
    - (iii) assault by drugs, medicaments and biological substances (X85); and
    - (iv) event of undetermined intent, poisoning (Y10 – Y14).

**Note:**

If a drug's legal status changes, NRS aims to count it on the basis of its classification on the day the person died (as they do not know when the drug was taken). For example, mephedrone was banned under the Misuse of Drugs Act with effect from 00.01 on 16 April 2010. Therefore, if mephedrone was the only drug found to be present in the body, a death coded to one of the categories listed under (b) would not be counted in NRS's implementation of the 'baseline' definition if it occurred before 16 April 2010.

A3. A number of categories of what may be regarded as 'drug-related' deaths are excluded from the definition because the underlying cause of death was not coded to one of the ICD10 codes listed above. Examples of deaths which are not counted for this reason are:

- deaths coded to mental and behavioural disorders due to the use of alcohol (ICD10 code: F10), tobacco (F17) and volatile substances (F18);
- deaths from AIDS where the risk factor was believed to be the sharing of needles;
- deaths from drowning, falls, road traffic and other accidents (except the inhalation of gastric contents, or choking on food) which occurred under the influence of drugs; and
- deaths due to assault by a person who was under the influence of drugs, or as a result of being involved in drug-related criminal activities.

Also excluded from the GROS/NRS implementation of the definition are a small proportion of the deaths which were coded to one of the ICD10 codes listed in paragraph A2, specifically:

- deaths coded to drug abuse where the direct cause of death was secondary infections or related complications. These include deaths which were due to clostridium novyi infection that was the result of the injection of contaminated heroin (Annex A of 'Drug-related Deaths in Scotland in 2000' explained that 22 such cases had been identified when the 2000 deaths data file was closed in May 2001, adding that it was not clear whether additional deaths had subsequently been identified). Similarly, these figures exclude the 13 deaths which were caused by the outbreak of anthrax that was associated with contaminated heroin and started in December 2009. Also excluded from the statistics are deaths caused by bronchopneumonia, organ failure and other later complications of drug use, in cases where drug misuse was not the direct and immediate cause of death (even though it may have damaged greatly the person's health). However, it should be noted that deaths for which the cause was given as (e.g.) 'bronchopneumonia, heroin intoxication' are included in these statistics because it is assumed that the medical condition is an immediate consequence of the drug toxicity;
- deaths where a drug listed under the Misuse of Drugs Act was present as part of a compound analgesic or cold remedy. These deaths are excluded in order that deaths from overdoses of legally prescribed non-controlled drugs are not counted as 'drug-related'. Examples of such combinations include:
  - co-proxamol (paracetamol and dextropropoxyphene);
  - co-dydramol (paracetamol and dihydrocodeine); and
  - co-codamol (paracetamol and codeine sulphate).

All three of these compound analgesics, particularly co-proxamol, have commonly been used in suicidal overdoses. As it is believed that dextropropoxyphene has rarely, if ever, been available other than as a constituent of a paracetamol compound, deaths caused by

dextropropoxyphene have been excluded even if there is no mention of a compound analgesic or paracetamol. However, deaths for which codeine or dihydrocodeine were reported without any mention of paracetamol have been included, as these drugs are available on their own and are known to be abused in that form.

A4. From time to time, there may be minor discrepancies between the figures for 2006 and earlier years that were published previously and those which are produced now. This is due to a change in the way in which 'drug-related' deaths are identified using the data held by NRS. This process has two stages:

- first, extract all the records of deaths which satisfy the 'wide' definition (Annex B). The method used for this stage has not been changed; and
- second, scrutinise the extracted records and identify the ones which should be counted under NRS's implementation of the 'baseline' definition. The method used for this stage was changed with effect from June 2008.

Previously, the data were examined by the former GROS Vital Events Statistician, who had considerable knowledge and experience of dealing with information about drug-related deaths. He used Excel's facilities to set a number of indicators, and so identified the cases which should be counted under GROS's implementation of the 'baseline' definition. This method clearly relied greatly on the Statistician's personal expertise. He retired in Spring 2008.

Now, most of this work is done by SAS computer programs, using a look-up table to identify particular types of drugs (John Corkery of the National Programme on Substance Abuse Deaths supplied most of the content of the look-up table).

The new method was tested by using it to prepare figures for each year for 2000 to 2006, inclusive. The results were the same as, or within just 1-2 of, the figures which had been published previously. After examining the cases which were being counted differently by the old and the new methods, it was concluded that any flaws in the new method were not significant, and that it should be used henceforth. However, to avoid confusing users of these statistics, the tables which appeared in editions of this publication which were produced before the method was changed give figures for 2006 and earlier years which were extracted from the database produced by the old method, and so are as published previously. However, any subsequent new analyses of the data for 2000 onwards are likely to use the database produced by the new method, and so may include some totals or sub-totals (for the years from 2000 to 2006, inclusive) that differ slightly from the figures which were published previously, because the new method was used to produce the database of relevant cases for those years.

### A1.1: 'Novel' Psychoactive Substances (NPS)-Related Deaths

The National Drug-related Deaths Database (NDRDD) adopts the same definition as NRS when including NPS within the dataset:

*"The term 'New [or 'Novel'] Psychoactive Substances' (NPSs) is meant to cover the kinds of substances that people have, in recent years, begun to use for intoxicating purposes. NPSs include so-called 'legal highs' (by which is meant substances which were legally available at the time of the death, whether or not they have since become controlled). In general, when an NPS first became available, it would not have been a controlled substance under the Misuse of Drugs Act 1971. Some NPSs may still not be controlled under the Act. The definition of NPSs therefore includes current so-called 'legal highs', and also substances which used to be described as 'legal highs' but are now controlled."* [1]

### ***NRS Criteria for Counting NPS-Related Deaths***

A death due solely to one of these drugs would be counted in the NRS National Statistics on Drug-Related Deaths (DRDs) if the person died on or after the specified date that the drug became controlled. A death due solely to an NPS drug would not be counted by NRS if it involved a drug that was not controlled at the time of death.

The National Statistics on DRDs in 2014 published by NRS [1] included 106 NPS deaths, having excluded 8 further DRDs where uncontrolled NPS were either the a) only substance involved, b) among a range of substances, all of which were uncontrolled or c) were present but not implicated, having featured alongside a controlled and implicated substance. Further information on NPS case inclusion is included in [Section 4](#).

## A2: Methods

### A2.1: Data Collection Development

#### A2.1.1: The National Forum on Drug-Related Deaths (NFDRD) Research and Data Monitoring Subgroup

The National Forum on Drug-Related Deaths (NFDRD) Research and Data Monitoring Subgroup (formerly known as the Data Collection Subgroup) oversees the process of data collection and steers the delivery of this report. Whilst the National Drug-Related Deaths Database (NDRDD) is led by ISD, the subgroup is comprised of individuals from a range of organisations and professional backgrounds. Members are listed on the [ISD website](#).

#### A2.1.2: The NDRDD Data Collection Form

The proforma used for NDRDD data collection was developed by the NFDRD Data Collection Subgroup. It was designed to collect data on a wide range of details concerning the individuals' social circumstances and health. These variables include socio-demographic information, drug use history, medical history, circumstances surrounding the death, details of substitute prescriptions and drugs detected in the person's body through toxicological and pathological examination. In addition, data are collected regarding the individual's contact with services (e.g. health, social care and criminal justice) prior to death. Although the dataset has been reviewed each year since its inception, the core data items collected remain unchanged.

### A2.2: Data Collection Process

#### A2.2.1: Case Identification

In the event of an unexpected death, the police complete a Sudden Death Report which is passed to the Procurator Fiscal. The Procurator Fiscal then calls for a full pathological and toxicological post mortem examination to be conducted to determine the cause of death. On completion of the post mortem examination, the Local Critical Incident Monitoring Group and local Data Collection Co-ordinator decide if the case matches the inclusion criteria for the NDRDD (i.e. if it is a Drug-Related Death (DRD) as per the NDRDD definition). If these criteria are met, a case record is submitted to ISD.

#### A2.2.2: Local Area Drug-Related Death Surveillance

DRDs in Scotland are recorded and examined by Local Critical Incident Monitoring Groups who often collaborate with the police and Procurator Fiscal to identify such cases in their local area. Each area has a Data Collection Co-ordinator who works closely with the Local Critical Incident Monitoring Group and other key partners to collate the information on each DRD. Data Collection Co-ordinators are listed on the [ISD website](#).

#### A2.2.3: Data Sources and Data Collection

In addition to the Sudden Death Report completed by the police and the pathology report, information surrounding the circumstances of the deceased is collected from a wide range of sources. These sources include the Scottish Prison Service and Scottish Ambulance Service as well as notes from drug treatment services, GPs, psychiatrists, hospitals and pharmacies. For most NDRDD data items, the main information sources were identical for

all NHS Boards in Scotland. However for some items there was variance in their recording depending on local practice.

#### A2.2.4: Information Support, Data Entry and Data Transfer

Prior to the collection of data on 2014 deaths, ISD implemented a secure online database enabling direct entry of DRD information by Data Collection Co-ordinators. The ISD NDRDD manager was available to provide IT support, advice and guidance throughout this process. Information was recorded and validated using the secure online database administered by ISD. These data were then anonymised, added to the composite NDRDD dataset and analysed descriptively using SPSS v21.

#### A2.2.5: Incorporation of 'Drugs Implicated' Data from National Records of Scotland (NRS)

The NDRDD dataset provides information about the drugs *present* in the body at post mortem. NRS provides additional information about whether substances were (i) *implicated* in the death and (ii) *not* implicated in the death. Pathologists provide NRS with additional information about most DRDs. However, when information is not received, NRS assumes all drugs mentioned on the death certificate were implicated in the death.

Presence of a drug in the body at post mortem does not necessarily mean that the drug contributed to death and interpretation of post mortem toxicology is complex. The determination as to whether a drug has caused or contributed to death lies with the pathologist who will consider toxicological findings in combination with pathological and circumstantial evidence before coming to a conclusion.

This report incorporates this information, which was supplied to ISD by NRS with the relevant permissions and subsequently matched to the NDRDD dataset. The supplementary NRS information allows for a more meaningful analysis of the circumstances of individual drug deaths, taking into account the substances that have contributed towards deaths.

### A2.3: Data Quality Assurance

In addition to front-end validation within the electronic spreadsheet and Oracle database, the NDRDD data were cross-matched with records obtained from the NRS Vital Events database which contains the records of all those who die in Scotland. ICD-10 codes were then extracted and compared with the relevant codes within the NDRDD. This quality assurance process made it possible to thoroughly investigate any anomalous differences between the NDRDD and NRS data. Details regarding the outcomes of this matching process can be found in [Appendix A3](#)

### A2.4: Data Confidentiality and Information Governance

The data collected for the NDRDD are not directly covered by the Data Protection Act 1998. However, ISD considers the data to be protected under a duty of confidence. Personal-identifying details regarding each individual are entered into the NDRDD as this information is necessary for potential linkage to other data sets and cross-matching. However, all measures are taken to protect the confidentiality of these data and the NDRDD project adheres to the six Caldicott Guardian Principles.



## A3: Construction of the 2014 National Drug-Related Deaths Database Cohort<sup>39</sup>

### A3.1: Drug-Related Deaths (DRDs) for 2014 Reported by Different Agencies

NDRDD	NRS
622	613

The National Drug-Related Deaths Database (NDRDD) reports on a subset of 622 of the DRDs in Scotland in 2014 and is therefore not a National Statistics output for Scotland but a descriptive account of a cohort of deaths where further information was available. The National Statistics output for the number of DRDs registered annually in Scotland is published by National Records of Scotland (NRS) in its annual DRD report [1]. The number of DRDs registered in 2014 and reported by NRS was 613.

### A3.2: Matching the NDRDD Records to NRS Death Records

As in previous NDRDD reports [2-4], the data were quality assured by matching the NDRDD death records to those held by NRS. NRS thoroughly review the death certificates for all deaths registered in a given calendar year before determining whether or not they were drug-related. The 2014 NRS figure of 613 was therefore derived from this comprehensive process.

A total of 661 records were returned to ISD for inclusion in the NDRDD for 2014 and these were matched to ISD's database (SMR99) of every death registered in Scotland in 2014 (including the 613 DRDs). Thirty nine (out of 661) of the NDRDD records did not meet the NDRDD definition of a DRD. Therefore the final 2014 NDRDD cohort (analysed for this report) comprised of 622 records. The reasons for the removal of the 39 records are shown below.

	Number of cases excluded
Deaths coded to something unrelated to the use of a controlled substance e.g. chronic ischaemic heart disease (ICD10 code I25), other chronic obstructive pulmonary disease (J44)	32
Unable to identify whether the death was drug-related due to missing data	7
<b>Total</b>	<b>39</b>

<sup>39</sup> Police Scotland figures for 2014 (and associated comparisons) are not included in this year's report. After the creation of Police Scotland, it was recognised that the systems used in 2014 by the legacy police forces were developed independently and in consequence, provided a disparate national picture. Going forward, the introduction of the new Police Scotland Drugs Related Deaths Database will enhance intelligence in relation to drug-related deaths by providing a consistent national recording mechanism and potential for the early indication of trends that may be reported by local policing divisions. Following introduction of the database, national results will be reported within future NDRDD reports.

### A3.3: Explanation of the Difference between the NDRDD and NRS 2014 Figures

The reasons why the NRS figure of 613 is lower than the NDRDD figure of 622 are shown in the table below. This illustrates that the NDRDD uses the date of death to allocate the death to a particular year whereas NRS uses the date the death was registered, resulting in a net loss of 18 cases to the NDRDD figure. The 18 NRS cases where death occurred in 2013 but was registered in 2014 (not included in the 2014 NDRDD figure) were included in the 2013 NDRDD cohort. Further, the 19 cases where death occurred in 2014 (and are reported by NDRDD in this report) but was registered in 2015 (and therefore not included in the 2014 NRS figure) will be included in the NRS 2015 cohort. Thus, although there is a difference in the case inclusion criteria used by NRS and NDRDD reports, this only affects deaths occurring at the end of each calendar year. Notwithstanding data collection issues affecting the NDRDD cohort, no cases are entirely excluded from either cohort.

	Number	Total
The number of DRDs reported by NRS for 2014.	613	
Less the NRS deaths that occurred in 2013 but were registered in 2014 i.e. not included in the 2013 NDRDD figure.	-18	595
Less the NRS deaths that were included in the 2014 NRS figure but for which a NDRDD record was not returned to ISD.	-11	584
Add the NDRDD deaths that occurred in 2014 but were registered in 2015 i.e. not included in the 2014 NRS figure.	+19	603
Add the NDRDD deaths that were not included in the 2014 NRS figure but for which a NDRDD record was returned to ISD, and the death met the NDRDD definition of a DRD.	+19	622
Cases in NDRDD cohort to be analysed.	622	

Of the 11 deaths that NRS have counted as DRDs for which ISD did not receive any returns for the NDRDD database, 4 (36.4%) were for NHS Lothian, 2 (18.2%) for Ayrshire and Arran, 2 (18.2%) for Grampian, 1 (9.1%) for Fife, Lanarkshire and Highland.

### A3.4: Reasons why NRS DRDs were not Captured by the NDRDD Data Collection

1. The pathologist (or the Local Critical Incident Monitoring Group informed by the pathologist) decided that the death was a suicide whereas NRS had counted the death as an 'event of undetermined intent' because NRS had not been told that the death was believed to be a suicide by the date on which NRS 'froze' its statistical data records for that year (N.B. a death certificate will not state whether a death was a suicide. NRS relies on Procurators Fiscal to inform it whether a traumatic or suspicious death was believed to be the result of an accident, assault, or intentional self-harm). In this scenario a NDRDD record was not completed and returned to ISD for the death, but the death was probably counted by NRS as an 'event of undetermined intent' DRD, or possibly an 'accidental' DRD.
2. The pathologist (or the Local Critical Monitoring Group) decided that the Cause of Death was 'unascertained' and that the death should therefore not be classed as a DRD whereas the information that NRS received had indicated that the death was a DRD.

3. The NRS decided that the death was a DRD because an illicit drug was present in the toxicology, but the pathologist (or the Local Critical Incident Monitoring Group) considered that:
  - i) either the level of the illicit drug was so small that the death could not be considered as being a DRD, or
  - ii) the only illicit drug(s) listed in the toxicology were being prescribed to the deceased at the time of death and therefore these drugs should not be considered as being illicit

NRS is not informed about the levels of drugs found, or whether the drugs had been prescribed to the deceased. In any case, the 'UK Drug Strategy' DRD definition (which NRS applies) does not exclude deaths because there was a low level of drug found or because they had been prescribed to the deceased (see Point 2.b in [Appendix A1](#)).

4. Where the pathologist's Cause of Death consisted of several elements, only one of which was related to illicit drug intoxication, and where the pathologist (or the Local Critical Incident Monitoring Group) decided that the non-illicit drug element was the main cause of death whereas the NRS decided that the death was in fact drug-related (it should be noted that in the majority of cases where the Cause of Death consists of several elements the NRS reach the same conclusion as the pathologist as to what the single main Cause of Death is).
5. The Data Collection Co-ordinator was not informed about a DRD. For example, when there is no evidence at the time of death to suggest a potential DRD, the Police Sudden Death report would not show the death as being a suspected DRD. Occasionally, via post-mortem and toxicology testing, the Procurator Fiscal will later find that such a death was a DRD. In some areas the Procurator Fiscal may not inform the police and the Local Critical Incident Monitoring Group about such a DRD and consequently ISD will not be sent a NDRDD record. The NRS will normally know about these DRDs as they receive toxicology and cause of death information directly from the pathologist. Note that this scenario will not arise in areas where the pathologist has direct links with the Local Critical Incident Monitoring Group and the Data Collection Co-ordinator.
6. There is an ongoing criminal investigation surrounding a DRD and the Procurator Fiscal has not given permission for certain information relating to a death to be released to the Data Collection Co-ordinator and the Co-ordinator has consequently been unable to complete a NDRDD record for the death. However, the NRS may have enough available information to define the death as a DRD.
7. For the NDRDD, the place where someone dies determines what area the death is assigned to. However, NRS's figures for DRDs in Scotland are normally registered by the geographical area of the usual place of residence of the deceased. If the place of residence is outside Scotland, then the location of death within Scotland is assigned. In the case of someone who had recently moved residence within Scotland, NRS is likely to count the death by the former area of residence (provided that he/she had been resident there for at least 12 months). This could lead to small discrepancies in the number of DRDs that NRS and NDRDD assign to a particular area of Scotland.

## A4: Publication Metadata (Including Revisions Details)

Metadata Indicator	Description
Publication title	The National Drug-Related Deaths Database (Scotland) Report: Analysis of Deaths occurring in 2014
Description	A detailed examination of a subset of the Drug-Related Deaths that occurred in Scotland in 2014 (including trend data from 2009-2014 where available).
Theme	Health and Social Care
Topic	Drug-related mortality
Format	PDF with Excel tables
Data source(s)	<p>Data from the National Drug-Related Deaths Database (NDRDD) held by ISD. Data are collected at a local level by data co-ordinators. For each record they access a variety of sources including drug treatment services, GPs, prisons, police etc.</p> <p>Data from the National Records of Scotland (NRS) for drug-related deaths in 2014. This was supplied to ISD by the NRS for this report.</p>
Date that data are acquired	Data for this report were submitted to ISD in October 2014 and were then quality assured. Note: data are gathered locally soon after each death and are collated before being sent to ISD by the agreed deadline. NRS data were also submitted to ISD in October 2014.
Release date	22 March 2016
Frequency	Annually
Timeframe of data and timeliness	All drug-related deaths that occurred in calendar year 2014 are considered relevant.
Continuity of data	This is the sixth NDRDD report. In 2012 the definition of 'drug-related death' used by NDRDD was expanded to include deaths by suicide. However deaths by suicide were reported separately in <a href="#">Section 6</a> of the report, to ensure the continued comparability of findings from the main cohort of non-intentional deaths. Other definitions have remained consistent over time.
Revisions statement	No planned revisions
Revisions relevant to this publication	N/A
Concepts and definitions	Detailed information of the deaths relevant to this report is shown in <a href="#">Appendix A1</a> .
Relevance and key uses of the statistics	Planning; epidemiology; research; provision of services and access to services; improved understanding of topic area.

Metadata Indicator	Description
Accuracy	All records are validated when entered into the ISD database. Any issues identified within the record are highlighted to the data provider and corrected before analysis begins.
Completeness	Detailed breakdowns of completeness are available in the <a href="#">data tables</a> .
Comparability	The data captured can be used for year-on-year comparisons.
Accessibility	It is the policy of ISD Scotland to make its web sites and products accessible according to <a href="#">published guidelines</a> .
Coherence and clarity	The report is available as a PDF file with tables clearly linked for ease of use.
Value type and unit of measurement	Counts, numbers and percentages.
Disclosure	The <a href="#">ISD protocol on Statistical Disclosure Protocol</a> was followed.
Official Statistics designation	Official Statistics
UK Statistics Authority Assessment	N/A
Last published	28 April 2015
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Date of first publication	25 January 2011
Help email	<a href="mailto:r.gordon@nhs.net">r.gordon@nhs.net</a>
Date form completed	10 March 2016

## **A5: Early Access Details (Including Pre-Release Access)**

### **Pre-Release Access**

Under terms of the 'Pre-Release Access to Official Statistics (Scotland) Order 2008', ISD are obliged to publish information on those receiving Pre-Release Access ('Pre-Release Access' refers to statistics in their final form prior to publication). The standard maximum Pre-Release Access is five working days. Shown below are details of those receiving standard Pre-Release Access and, separately, those receiving extended Pre-Release Access.

### **Standard Pre-Release Access:**

- Scottish Government Health Department
- NHS Board Chief Executives
- NHS Board Communication leads
- Scottish Prison Service
- National Records of Scotland

### **Early Access for Quality Assurance**

These statistics will also have been made available to those who needed access to help quality assure the publication:

- NFDRD Research and Data Monitoring Subgroup

## A6: ISD and Official Statistics

### About ISD

Scotland has some of the best health service data in the world combining high quality, consistency, national coverage and the ability to link data to allow patient based analysis and follow up.

Information Services Division (ISD) is a business operating unit of NHS National Services Scotland and has been in existence for over 40 years. We are an essential support service to NHSScotland and the Scottish Government and others, responsive to the needs of NHSScotland as the delivery of health and social care evolves.

**Purpose:** To deliver effective national and specialist intelligence services to improve the health and wellbeing of people in Scotland.

**Mission:** Better Information, Better Decisions, Better Health

**Vision:** To be a valued partner in improving health and wellbeing in Scotland by providing a world class intelligence service.

### Official Statistics

Information Services Division (ISD) is the principal and authoritative source of statistics on health and care services in Scotland. ISD is designated by legislation as a producer of 'Official Statistics'. Our official statistics publications are produced to a high professional standard and comply with the Code of Practice for Official Statistics. The Code of Practice is produced and monitored by the UK Statistics Authority which is independent of Government. Under the Code of Practice, the format, content and timing of statistics publications are the responsibility of professional staff working within ISD.

ISD's statistical publications are currently classified as one of the following:

- National Statistics (ie assessed by the UK Statistics Authority as complying with the Code of Practice)
- National Statistics (ie legacy, still to be assessed by the UK Statistics Authority)
- Official Statistics (ie still to be assessed by the UK Statistics Authority)
- other (not Official Statistics)

Further information on ISD's statistics, including compliance with the Code of Practice for Official Statistics, and on the UK Statistics Authority, is available on the [ISD website](#).