National Records of Scotland

Drug-related deaths in Scotland in 2020 – Additional Analyses

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This document contains some analyses that are additional to those that appear in the "Drug-related Deaths in Scotland in 2020" publication. They include some more detail on the numbers of deaths for which certain drugs were reported, death rates for problem drug users, and further analyses of the figures for NHS Board areas.

Contents

I. Drugs which were implicated in the deaths, and all drugs which were reported 3

II. Drug-related death rates for problem drug users 9

III. NHS Board areas: drugs implicated, and drug-death rates by age-group and for problem drug users.....11

IV. Deaths for which coronavirus (COVID-19) and a term like “drug use” were mentioned on the death certificate 14

These additional analyses refer to some of the publication’s Sections, and to its Annexes, Tables and Figures. All that material can be found in the documents and workbooks, which are available on the NRS website’s pages for this edition of:

- the Publication
- the Annexes
- most of the Tables and all the Figures
- the Additional Data (Tables SUB1, SUB2, HBX and CX)

More detailed statistical information about the nature and circumstances of people whose deaths were drug-related is available in the reports from the NHS's National Drug Related Deaths Database, which are described briefly in Annex B.

I. Drugs which were implicated in the deaths, and all drugs which were reported

This section provides statistics of deaths involving various substances, most of which is additional to the main points which appear in Section 8 of the publication. Later, Section III(a) analyses the substances implicated in drug-related deaths by NHS Board area.

The normal basis for figures for individual drugs (in NRS's statistics for 2008 onwards) is 'drugs which were implicated in, or which potentially contributed to, the cause of death' (more about this is given in Annex C) For simplicity, the words 'or which potentially contributed to' will very seldom be used henceforth. Section I(g) provides some other background information that should be kept in mind when using statistics about individual drugs.

I(a) - Deaths for which opiates or opioids were implicated

Heroin/morphine was implicated in the cause of 605 (45%) of the 1,339 drug-related deaths in 2020; methadone was implicated in 708 drug-related deaths (53%); codeine, or a compound containing it, was implicated in 51 drug-related deaths (4%); dihydrocodeine, or a compound of it, was implicated in 151 drug-related deaths (11%); and one or more opiates or opioids (including heroin/morphine, methadone, codeine and dihydrocodeine) were implicated in 1,192 drug-related deaths (89%);

Many of the drugs shown in Table 3 were implicated in more drug-related deaths in 2020 than in any previous year for which the numbers can be compared, including methadone (141 more than the previous largest number, which was 567 in 2019), dihydrocodeine, or a compound thereof (18 more than the previous largest number, which was 133 in 2018), and 'any opiate or opioid' (86 more than the previous largest number, which was 1,106 in 2019). However, there were exceptions. The number of drug-related deaths for which heroin/morphine was implicated in the cause of death fell from 651 in 2019 to 605 in 2020, but the latter was the second highest figure ever, clearly more than in 2018 or any earlier year. Drug-related deaths for which codeine, or a compound thereof, was implicated fell from 57 in 2019 (and 2018) to 51 in 2020, but the latter figure was more than in 2017 or any earlier year.

I(b) - Deaths for which benzodiazepines were implicated

Recent years' numbers of drug-related deaths in which benzodiazepines were implicated (see Table 3: 426 in 2016, 552 in 2017, 792 in 2018, 902 in 2019 and 974 in 2020) were all well above the level seen from 2008 to 2015 (under 200 per year).

However, the number of drug-related deaths for which 'prescribable' benzodiazepines (such as diazepam) were implicated in the cause of death has not increased as greatly (and had fallen to 204 in 2019). There were 210 such deaths in 2020: fewer than in both 2017 (when there were 234) and 2018 (238). Diazepam used to be the benzodiazepine that was most often implicated in drug-related deaths. Its numbers were 154 in 2016, 205 in 2017, 211 in 2018, 188 in 2019 and 194 in 2020, having fluctuated between 84 and 160 in the period from 2008 to 2015.

Most of the rise in the figure for benzodiazepines was due to 'street' ones (such as etizolam). 'Street' benzodiazepines were implicated in 303 drug-related deaths in 2016, 423 in 2017, 675 in 2018, 823 in 2019 and 879 in 2020: an increase of 56 in the latest year. Recent years' figures are far greater than in any previous year (there were between 40 and 60 per year from 2013 to 2015, and even fewer before then). Etizolam is the 'street' benzodiazepine that is most often implicated in drug-related deaths. Its numbers were 223 in 2016, 299 in 2017, 548 in 2018, 754 in 2019 and 806 in 2020: a rise of 52 in the latest year. The figures for etizolam

were much smaller in previous years (for example, 0 up to 2011, 1 in 2012, which was the first year in which it was implicated in a drug-related death which was registered in Scotland, and 43 in 2015).

Of course, some deaths involve more than one benzodiazepine, or a mixture of 'prescribable' and 'street' benzodiazepines.

Etizolam and some of the other 'street' benzodiazepines (such as diclazepam) were not controlled under the Misuse of Drugs Act until 31 May 2017, but were subject to the Psychoactive Substances Act when it came into force on 26 May 2016. Each was implicated in only single-figure numbers of deaths (if any) before 2014 (etizolam) and 2015 (diclazepam, or a metabolite thereof), as can be seen from the slightly larger figures (on the 'drug poisoning' or ONS/'wide' definition basis) for those two drugs given in Table Y. Some other 'street' benzodiazepines (alprazolam, diclazepam, flualprazolam, flubromazolam and phenazepam) appear in Table Y; others have smaller numbers and so are shown only in the extra Table SUB1. The latter uses information from NRS's database (which does not appear in this publication) to provide the number of drug-related deaths for which each of the substances which has been reported to NRS (including each of the 'prescribable' and 'street' benzodiazepines) was implicated in the cause. Table SUB1 shows that alprazolam was implicated in 34 of the 1,339 drug-related deaths that were registered in 2020, diclazepam in 6, flualprazolam in 36, flubromazolam in 43 and phenazepam in 43. Please note that there may be slightly higher figures for some substances in Table Y, because that covers the 1,461 drug poisoning deaths (using the ONS/'wide' definition) that were registered in 2020. Table SUB1 also gives the numbers of drug-related deaths for which certain metabolites of diclazepam were said to be implicated in the cause of death (those figures should not be added together because both diclazepam and one or more of its metabolites may have been reported for a particular death).

I(c) - Deaths for which gabapentin/pregabalin, cocaine, ecstasy-type drugs, amphetamines and alcohol were implicated

One or both of gabapentin and pregabalin were implicated in 502 drug-related deaths (37% of the total of 1,339) in 2020. This was 59 more than in 2020, and the largest figure ever. Table 3 shows that the number of such deaths has risen greatly in recent years, having been zero or in single figures up to 2011, it rose through 25 in 2012, 56 in 2013, 86 in 2014, 131 in 2015, 208 in 2016, 242 in 2017, 367 in 2018 and 443 in 2019 – each year having, at the time, the largest number ever.

As gabapentin and pregabalin did not become controlled substances (under the Misuse of Drugs Act) until 1 April 2019, Table 3's figures for them for 2019 and earlier years do not include any deaths, before then, that were caused by gabapentin and/or pregabalin but for which no substances that were controlled at the time of death were present. However, the information in Table CS1 shows that there were, at most, 10 such deaths in any previous year. Table Y shows the numbers of drug poisoning deaths (using the ONS/'wide' definition) for which gabapentin and/or pregabalin were implicated in the cause of death: they are a bit higher (e.g. 91 in 2014, compared with 86 such drug-related deaths in 2014) due to including deaths which did not involve any substances that were controlled at the time.

Cocaine was implicated in, or potentially contributed to, 459 drug-related deaths (34%) in 2020. This was 87 more than in 2020, and the largest figure ever. The number of such deaths has increased greatly in recent years, having been fewer than 50 in every year up to 2014 (for several years there had typically been around 30-45 per year) before rising to 93 in 2015, 123 in 2016, 176 in 2017, 273 in 2018 and 372 in 2019 – each year having, at the time, the largest number ever.

Ecstasy-type drugs were implicated in 40 drug-related deaths (3%) in 2020. This was 15 more than in 2019, and the largest figure ever. The number of such deaths have not changed much in recent years, having been 25 to 35 in each of the previous four years, and fewer in 2015 and earlier years.

Amphetamines were implicated in 60 drug-related deaths (4%) in 2020. This was 8 more than in 2019, and the largest figure ever. The number of such deaths has increased recently, having been around 20 to 30 per year from 2011 to 2017 (and smaller numbers in previous years), it increased to 46 in 2018 and 52 in 2019, each of which was, at the time, the largest figure ever.

Alcohol was implicated in the cause of 173 (13%) of the 1,339 drug-related deaths in 2020. This was 33 more than in 2019, and the largest number ever. Over the previous ten or so years, the number of such deaths had fluctuated in the range from a little under 100 to a little over 150. The previous largest numbers had been 167 (in 2008) and 165 (in 2009).

I(d) - Drugs which were found to be present in the body (whether or not they were implicated in the cause of death)

Although the normal basis for figures for individual drugs (in NRS's statistics for 2008 onwards) is 'drugs which were implicated in, or which potentially contributed to, the cause of death', NRS can also produce figures on the basis of 'all drugs which were found to be present in the body', including any other drugs which were present, but which were not considered to have had any direct contribution to the death (for 2008 onwards: see paragraph C5 of Annex C). The upper half of Table 6 gives figures for drugs which were implicated in the cause of the death (the normal basis); the lower half provides figures for drugs which were present (whether or not they were implicated).

There are large percentage differences between the two halves of the table in the figures for 'prescribable' benzodiazepines (and diazepam in particular): 'prescribable' benzodiazepines were found to be present in the body in the case of 447 of the drug-related deaths in 2020, but had been implicated in only 210 of those deaths (for diazepam, the equivalent figures are 399 and 194).

There are also notable percentage differences between the figures in the two halves of the table for codeine (or a codeine-containing compound), which was found in 111 deaths but was believed to have been implicated in only 51 of them; for dihydrocodeine (or a compound containing it) for which the corresponding numbers are 206 and 151 respectively, for gabapentin or pregabalin (for which the numbers are 630 and 502, respectively), for cocaine (516 and 459), and for alcohol (431 and 173).

The figures for heroin/morphine and methadone do not differ much (in percentage terms) between the two halves of the table: these drugs were believed to be implicated in, or to have contributed to, the death in almost every case in which they were found; the same was also the case for 'street' benzodiazepines (and etizolam in particular), ecstasy-type drugs and amphetamines.

I(e) - Deaths for which only one drug was implicated

Most drug-related deaths are of people who took more than one drug. In such cases, it may not be possible to deduce, from the information held in the NRS database, which (if any) of them was thought to be the (main) cause of the death, except to the extent that (for 2008 onwards) the database distinguishes between (a) drugs which were implicated in, or which potentially contributed to, the cause of death and (b) any other drugs which were present, but which were not considered to have had any direct contribution to the death. NRS's database

has no information about the amounts of each drug that were found, or the possible consequences of taking particular combinations of drugs.

Table 7 shows the numbers of drug-related deaths for which only one drug was reported, which are the minimum numbers of deaths which may be wholly attributable to the specified drugs.

The top half of the table shows that there were 88 deaths for which only one drug (and, perhaps, alcohol) was found to be present in the body (representing 7% of the total for the year - so 93% of deaths were of people who had taken more than one drug). With a few possible exceptions (the footnote to the table gives further details), these deaths will be wholly attributable to the specified drug (or, perhaps, to that drug in combination with alcohol).

These numbers are all small, when compared to the total number of drug-related deaths. There were 17 drug-related deaths for which the only drug reported was heroin/morphine; seven for which only methadone was mentioned; one drug-related death with only codeine reported; four involving only dihydrocodeine; and one can deduce, using the relevant sub-totals, that there were two for which buprenorphine was mentioned and 15 for which another opiate or opioid was mentioned. There were 13 drug-related deaths for which only a benzodiazepine was reported: in eight of these cases, it was etizolam; in two cases, diazepam; and therefore in three cases another benzodiazepine. In addition, one drug-related death involved gabapentin or pregabalin, there were 16 drug-related deaths for which only cocaine was reported, and also two involving only an ecstasy-type drug, six for which only amphetamines were reported, and four which involved 'any other drug'.

The drugs which are not named individually in Table 7 (including any other opiates and benzodiazepines) can be identified using information from NRS's database: nine of the 'only one drug (and, perhaps, alcohol)' drug-related deaths involved tramadol; five involved oxycodone; one involved flubromazolam; one involved temazepam; and for six there was mention only of unspecified drugs (including one reported as 'opiate' and one as 'benzodiazepine'). In total, there were 33 drug-related deaths for which alcohol was mentioned along with only one drug.

The lower half of Table 7 shows drug-related deaths for which only one drug (and, perhaps, alcohol) was implicated in the death. The numbers here are larger, because this part of the table includes deaths for which other drugs were mentioned as being present but were not considered to have had any direct contribution to the death. So, for example, the figures for methadone are the numbers of drug-related deaths for which only methadone (and, perhaps, alcohol) was implicated in the death - any other drugs (such as diazepam) which were found to be present in the body were not considered to have had any direct contribution to the death.

There were 40 drug-related deaths for which heroin/morphine was the only drug which was implicated in the death; 23 for which methadone was the only such drug; six due to codeine (or a compound thereof); 14 drug-related deaths caused by dihydrocodeine (or a compound thereof); and one can deduce, using the relevant sub-totals, that three were due to buprenorphine and 17 were caused by another opiate or opioid. There were also 21 drug-related deaths due to benzodiazepines (of which 14 were caused by etizolam, three by diazepam and therefore four by other benzodiazepines); three due to gabapentin or pregabalin; 35 for which cocaine was the only such drug; seven drug-related deaths due to ecstasy-type drugs; seven caused by amphetamines; and eight drug-related deaths from 'any other drug'. In 54 cases, alcohol was implicated in the cause of death, along with one drug.

Again, the drugs which are not named individually in Table 7 (including any other opiates and benzodiazepines) can be identified using information from NRS's database: tramadol caused ten deaths; oxycodone was responsible for six; flubromazolam caused two; and several drugs

were each implicated in one death (temazepam, pentobarbitone, sulpiride, verapamil and zopiclone). Six deaths were caused by unspecified drugs (including one reported as 'opiate' and one as 'benzodiazepine').

In total, 184 deaths are counted in the lower half of Table 7. Therefore, in 2020, there were 184 deaths (14% of all drug-related deaths) for which only one drug (plus, perhaps, alcohol) was implicated in the cause of death.

I(f) - Ages and sexes of people who died from taking certain drugs

Table 6 provides information about the ages and sexes of people who died having taken various drugs (perhaps more than one of the substances listed in the table, and maybe other drugs as well).

The top half of the table provides figures on the normal basis: 'drugs which were implicated in, or potentially contributed to, the cause of death'. For drug-related deaths in 2020, the balance between the sexes did not vary much with the drug that was implicated in the death. For most of the drugs shown, women accounted for a percentage of deaths that was not far from their overall figure of 27% of all drug-related deaths. The female percentage was highest (38%) for the 151 deaths for which dihydrocodeine (or a compound) was implicated, and was 35% for the 51 deaths for which codeine (or a compound) was implicated. Men accounted for 73% of all drug-related deaths. The male percentage was highest (82%) for the 60 deaths for which amphetamines were implicated; it was 81% for the 459 deaths for which cocaine was implicated and 80% for the 40 deaths for which an ecstasy-type drug was implicated.

There were only a few large differences between the distributions by age of people for whom the drugs listed in Table 6 were implicated in the cause of their deaths. Most notably, the under 25s accounted for 40% of the 40 deaths in which an ecstasy-type drug was implicated, compared with only 6% of all drug-related deaths. In addition, 38% of the 40 'ecstasy' deaths were of people who were aged 25-34, compared with 19% of all drug-related deaths, and 22% of the 51 'codeine' deaths were of people aged 55 and over, compared with 12% of all drug-related deaths.

It should be noted that most of the drugs mentioned in the previous two paragraphs were not implicated in many deaths, so 'random' factors could have a large effect on their percentages by sex or by age-group.

The lower part of Table 6 provides figures for all drugs which were found present in the body, including those which were not considered to have had any direct contribution to the death. Women accounted for 27% of all drug-related deaths in 2020, but for 39% of the 111 deaths for which codeine (or a compound thereof) was found, and for 36% of the 206 deaths for which dihydrocodeine (or a compound) was found. Men accounted for 73% of all drug-related deaths, but for 81% of the 63 deaths for which amphetamines was found, and 81% of the 516 deaths for which cocaine was found. Again, 'random' factors could have affected some of these percentages.

I(g) – Background

Many drug-related deaths involve combinations of drugs. For example, in 2006, diazepam was mentioned in almost a fifth of the deaths for which heroin or morphine were reported; and heroin, morphine or methadone were mentioned in over half of the deaths for which cocaine was reported. A complete list of all the substances which were reported to NRS for every death from poisoning (including deaths which are not counted as 'drug-related' for the purpose of these statistics) can be found in Table 6.12 of the annual Vital Events Reference Tables, which are available on the NRS website.

Various tables give information on the frequency of reporting of selected drugs, whether alone or in combination with other substances. The drugs which are listed in several of them (Tables 3, 6, 7, HB3 and C3) are reported in the majority of drug-related deaths (for example, not counting alcohol, at least one of them was reported in 96% of the drug-related deaths in 2000, and in 98% of cases in 2019). 'Unspecified drug(s)' is recorded in only a small proportion of drug-related deaths (on average, only a couple of per cent per year).

Since the tables record individual mentions of particular drugs, there will be multiple-counting of some deaths (for example if both heroin and diazepam were implicated in the cause of a death in the latest year, that death will be counted in six of the 'drug' columns of Table 3 (and of the other tables with the same columns): 'heroin/morphine', 'heroin/morphine, methadone or buprenorphine', 'any opiate or opioid', 'any benzodiazepine', 'any 'prescribable' benzodiazepine' and 'diazepam'). Therefore, these tables do not give the numbers of deaths that are wholly attributable to each of the drugs mentioned.

The tables show a combined figure for 'heroin/morphine' because it is believed that, in the overwhelming majority of cases where morphine has been identified in post-mortem toxicological tests, its presence is a result of heroin use.

Annex H explains which benzodiazepines are categorised as 'prescribable' drugs, and which as 'street' drugs.

It is not possible to make a direct comparison with the figures for 2007 and earlier years because there is a break in the series between 2007 and 2008, due to the revision of the questionnaire which collects information about the drugs found in the body (as explained in Annex C, paragraphs C4 to C6). The statistics may also be affected by other differences, between years or between areas, in the reporting of drugs found in the body (examples of which are given in Annex C, paragraphs C10 to C12). Therefore, apparent changes in the numbers of deaths for which particular drugs were reported must be interpreted with caution, and with the knowledge that there is a clear break in the figures between 2007 and 2008. The change in the method of data collection may have contributed to the apparent large percentage increases, between 2007 and 2008, in the figures for methadone, benzodiazepines generally and diazepam specifically.

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II. Drug-related death rates for problem drug users

II(a) - Introduction and Background

The age-standardised drug-related death rates per 100,000 population which are given in the publication (e.g. for Scotland as a whole in Section 3, and for NHS Board and Council areas in Section 7) are based on the size of the whole population, the vast majority of whom do not use drugs. Therefore, those figures do not indicate the likely death rate for people who use drugs.

Drug-related death rates among drug users can be calculated using the numbers of problem drug users (age 15-64) that were estimated by the Information Services Division (ISD) of NHS National Services Scotland, which is now part of Public Health Scotland (PHS). The ISD (now PHS) publication explains that the estimates are produced by combining data from a number of sources. The latest such estimates, for the 2015/16 financial year, are available from the ISD web-site . For the purpose of these estimates,'problem drug use' is defined as the problematic use of opiates (including illicit and prescribed methadone use) and/or the illicit use of benzodiazepines, and implies routine and prolonged use (as opposed to recreational and occasional use). It follows that the ISD (now PHS) estimates will be smaller than the total number of people who used illicit drugs at some time during the year.

In June 2020, PHS published larger estimates of the number of problem drug users, which had been produced using a wider definition, and so would give lower death rates per 1,000 problem drug user. The tables in this publication do not use those estimates because PHS described them as 'experimental' statistics, and has concluded that population prevalence estimates for the additional drug types are less reliable than using the same methods and data sources for the long-standing definition.

II(b) - Drug-related death rate for problem drug users: overall, and 95% confidence interval

Table 9 shows the ISD (now PHS) estimates of the number of problem drug users in 2015/16 along with the annual average number of drug-related deaths for 2013-2017 (rather than the annual averages for 2015-2019, which are 'centred' around 1 July 2017, as they would be less comparable to the estimates for 2015/16, which are 'centred' around 1 October 2015). The first two figures on the first row show that Scotland had 730 drug-related deaths (of all ages) per year (on average) between 2013 and 2017, and an estimated 57,300 problem drug users (aged 15-64) in 2015/16. Combining those figures gives an annual average of 12.7 drug-related deaths per 1,000 problem drug users. The difference between the coverage of the two figures ('all ages' for deaths; '15-64' for problem drug users) should not matter much, as there are relatively few drug-related deaths of people aged 0-14 or 65+ (see Table 4).

The ISD (now PHS) publication provides '95% confidence intervals' to indicate the likely margins of error in some of the figures. For the estimated total number of problem drug users for 2015/16, the 95% confidence interval is from 55,800 to 58,900 (or roughly +/- 3%). The values of the lower and upper ends of the confidence intervals can be used to calculate a likely range for the drug-related death rate. Dividing the annual average of 730 drug-related deaths by the value at the upper end (58,900 problem drug users) givers a minimum for the drug-death rate of 12.4 per 1,000 problem drug users; dividing by the value at the lower end (55,800 problem drug users) gives a maximum for the drug-death rate of 13.1 per 1,000 problem drug users.

II(c) - Drug-related death rates for problem drug users: by age and sex and by NHS Board area

Using the ISD (now PHS) estimates of the numbers of problem drug users by age and by sex

in the same way, it appears that the annual average drug-death rate (per 1,000 problem drug users) might be very slightly higher for females (12.9) than for males (12.6) – but the difference is not significant statistically (both figures are within the overall estimate's likely range of 12.4 to 13.1 per 1,000).

However, it is clear that the death rate rises with age: 6.3 per 1,000 for problem drug users who are aged 15-24; 11.3 for 25-34 year olds; and 13.9 for those aged 35-64.

ISD did not publish 95% confidence intervals for its estimates of problem drug users broken down by age and sex. However, one would expect them to be wider (in percentage terms) for the smaller sub-groups of the population, because that is generally the case for the 95% confidence intervals for NHS Board and council areas (as can be seen in Tables HB5 and C5).

Section III(c) includes information about NHS Board areas' drug-related death rates for problem drug users.

III. NHS Board areas: drugs implicated, and drug-death rates by age-group and for problem drug users

Section 6 of the publication analysed NHS Board areas' age-standardised drug-related death rates. This section provides other breakdowns of their figures.

III(a) - NHS Board areas: drugs implicated

Table HB3 shows, for NHS Board areas, the drugs that were implicated in drug-related deaths. While there appear to be some geographical differences in the reporting of certain drugs, the figures should be used with particular care, for two reasons. First, the effects of some of the points on the reporting of substances that are mentioned in paragraph C12 of Annex C could vary between areas. Second, more generally, figures for areas within Scotland must be used with caution, because they may be affected by (e.g.) large percentage year-to-year fluctuations: some examples are given in Annex D.

The comments that follow relate only to the 'worst affected' areas (for this purpose, the areas with at least 50 drug-related deaths in 2020), because unusual percentages could arise, purely by chance, for areas with relatively small total numbers of drug-related deaths.

Heroin/morphine was believed to have been implicated in 45% of the total number of drug-related deaths in 2020. Most of the worst affected areas' figures were around this level, being between 38% and 54%, with one exception: Lothian, for which heroin/morphine was implicated in only 28% of its drug-related deaths (44 out of 159). Methadone was implicated in 53% of drug-related deaths overall. All the worst affected areas' figures were within 5%-points of that (they were all between 49% and 58%). Codeine (or a compound thereof) was implicated in only 4% of drug-related deaths, and all but two of the worst affected areas had a similar small percentage (between 0% and 6%), the two exceptions being Forth Valley (13%: 10 out of 77) and Fife (11%: 7 out of 65). In the case of dihydrocodeine (or a compound thereof), which was implicated in 11% of drug-related deaths, there was not much variation among the worst affected areas, whose figures were all between 8% and 14% apart from Grampian (18%: 18 out of 99). Overall, 89% of drug-related deaths had at least one opiate or opioid implicated in the cause of death. Among the worst affected areas, this percentage was between 85% and 93%, with one exception: 97% for Fife (63 out of 65).

Benzodiazepines were implicated in 73% of drug-related deaths in 2020. Most of the worst affected areas had a similar percentage (between 72% and 79%), with two exceptions: Grampian, with only 57% (56 out of 99) and Forth Valley (82%: 63 out of 77). However, there were much greater differences between areas for 'prescribable' benzodiazepines and 'street benzodiazepines. 'Prescribable' benzodiazepines were implicated in 16% of drug-related deaths in Scotland as a whole, with the percentage being highest in Lothian (42%: 66 out of 159), Grampian (40%: 40 out of 99) and Fife (26%: 17 out of 65), and lowest in Greater Glasgow & Clyde (2%: 11 out of 444), Ayrshire & Arran (3%: 3 out of 106), and Lanarkshire (4%: 7 out of 185) - although this comparison might be affected by the differences in reporting practices which are mentioned in paragraph C12 of Annex C. In general, the corresponding figures for diazepam (the most commonly reported 'prescription' benzodiazepine) are similar. 'Street' benzodiazepines were implicated in 66% of drug-related deaths in Scotland as a whole, with the percentage being highest in Tayside (76%: 80 out of 105) and Forth Valley (74%: 57 out of 77), and lowest in Grampian (33%: 33 out of 99) and Lothian (52%: 83 out of 159). Etizolam, the most commonly reported 'street' benzodiazepine, was implicated in 60% of drug-related deaths in Scotland as a whole, the percentage varying from 24% in Grampian (24 out of 99) and 43% in Lothian (68 out of 159) to 73% in Tayside (77 out of 105) and also 73% in Forth Valley (56 out of 77).

Gabapentin and/or pregabalin were implicated in 37% of drug-related deaths in Scotland in 2020, with particularly high figures for Lothian (50%: 79 out of 159) and Fife (49%: 32 out of 65); the other worst affected areas' figures were between 32% and 43%. Cocaine was implicated in 34% of drug-related deaths, and between 27% and 39% for all the worst affected areas with one exception: 65% for Grampian (64 out of 99).

Ecstasy-type drugs were implicated in 3% of drug-related deaths in Scotland in 2020 This did not vary much: the worst affected areas' figures were all between 0% to 8%. Amphetamines were implicated in 4% of drug-related deaths. Again, there was not much variation between areas: all had figures between 1% and 9%. Finally, alcohol was implicated in 13% of drug-related deaths, and in between 9% and 18% for all the worst affected areas, with one exception: 25% in Grampian (25 out of 99).

The figures given in Table HB3 are on the standard basis (drugs implicated in, or which potentially contributed to, the cause of death), and so are not comparable to figures (in the editions for 2008 and earlier years) on the basis of 'all drugs which were [reported as having been] found to be present in the body'. The NRS website has versions of Table HB3 which give (i) figures for 2008 on the normal basis and (ii) figures for 2009 onwards on the 'all drugs which were found to be present in the body' basis.

III(b) - NHS Board areas' drug-related death rates per 100,000 population by age-group

NHS Board areas' drug-related death rates per 100,000 population for a particular age-group may be calculated using the annual average number of drug-related deaths of that age for the latest 5-year period (to reduce the effect on the figures of year-to-year fluctuations) and the population of that age in the middle of the 5-year period (as a proxy for the average population over the whole period).

Such rates for a number of age-groups are given in Table HB4. Even though they were calculated using five-year averages, they must still be used with caution for the less populated areas. Of the 'more populous' areas (for this purpose, the areas with populations of at least 300,000 of all ages), Greater Glasgow & Clyde had the highest drug-related death rates per 100,000 population for the two oldest of the five age-groups for which figures are provided: 76.5 for the 45-54 age-group, and 23.3 for the 55-64 age-group; both well above the overall average rates for Scotland as a whole for the same 5-year period (42.2 and 12.6 respectively). None of the other more populous areas had rates for those age-groups that were so large as to be worthy of comment. For 35-44 year olds, Ayrshire & Arran had the highest rate (93.0 per 100,000 population), followed by Tayside (83.3) and Greater Glasgow & Clyde (81.9); none of the other more populous areas had a rate that was higher than the overall Scottish figure (60.6). In the case of 25-34 year olds, Ayrshire & Arran, Forth Valley, Lanarkshire and Tayside had rates which were clearly above-average (47.0, 42.6, 39.5 and 36.6, respectively, compared with 29.1 for Scotland as a whole). None of the more populous areas had a rate for 15-24 year olds which was sufficiently higher than the 9.3 for Scotland as a whole to warrant commenting upon.

III(c) - NHS Board areas' drug-related death rates per 1,000 problem drug users: overall

Areas' numbers of problem drug users were estimated by what was the NHS's Information Services Division (ISD – now part of Public Health Scotland [PHS]), as explained in Section II 'Death rates for problem drug users'. Table HB5 provides those figures, with their '95% confidence intervals', each area's estimated drug-related death rate per 1,000 problem drug users (calculated using its annual average number of drug-relared deaths), and the likely range of values for that figure; Figure HB5 shows the rates and their confidence intervals.

For Scotland as a whole, it is estimated that (between 2013 and 2017) there were, on average, 12.7 drug-related deaths (of all ages) per year per 1,000 problem drug users (aged 15-64) in 2015/16. Among the more populous areas, this rate was lowest in Lanarkshire (11.3), Forth Valley (11.5) and Greater Glasgow & Clyde (11.6) and highest in Fife (17.1), Grampian (16.2) and Highland (14.6).

The table shows wide (in percentage terms) confidence intervals for some areas, particularly for the ones with relatively small populations. As a result, some areas have wide likely ranges of values for their death rates, including some of the more populous areas (for example, for Fife, the likely range of values for the drug-related death rate is from 15.5 to 19.2 per 1,000 problem drug users).

The range of values of drug-related death rates for the 'mainland' NHS Board areas is a narrower (in percentage terms) when rates are calculated on this basis (which takes account of the number of people whose lives are at risk) than when they are calculated per 100,000 population. For example, Table HB5 shows that the lowest 'mainland' drug-related death rate per 1,000 problem drug users was 11.3 (Lanarkshire), and the highest was 21.6 (Borders), so the highest figure was 'only' 1.9 times the lowest one. In contrast, in Table HB1, the lowest 'mainland' drug-related death rate per 100,000 population was 12.1 (for Highland), and the highest was 30.3 (Greater Glasgow & Clyde), so the highest figure was 2.5 times the lowest one. Or, using Table HB4's drug-death rates per 100,000 people aged 15-64, the lowest 'mainland' rate was 19.3 (for Highland) and the highest 43.8 (for Greater Glasgow & Clyde), so the ratio was about 2.3. The 'island' areas are excluded from such comparisons because their relatively small numbers may lead to large percentage fluctuations in their rates.

IV. Deaths for which coronavirus (COVID-19) and a term like "drug use" were mentioned on the death certificate

In 2020, there were no drug-related deaths which had COVID-19 mentioned on the death certificate. The information from the death registration records shows that COVID-19 was neither the underlying cause nor a contributory factor in any of the drug-related deaths in 2020.

Also, of all the deaths registered in 2020 for which COVID-19 was the underlying cause of death, there were only seven for which the death certificate (or other information sources – see Annex C) indicated that the person may have been a problem drug user. In those cases, a term like "drug use", "drug abuse" or "chronic drug misuse" appeared on the death certificate (or other information sources). However, it should be noted that more deaths of problem drug users could have been due to COVID-19, but NRS cannot identify them as such because their death certificates (or any other information that NRS received) did not mention drug use, abuse or misuse.

Any deaths from medical conditions (such as heart disease) for which COVID-19 and, say, "drug use" were mentioned on the death certificate are not counted in the above figures. That is because the above figures were produced from the data for deaths for which the underlying cause was either "drug-related" or COVID-19 itself: deaths from other causes were not counted.