General Register Office
for
SCOTLAND
information about Scotland's people

Drug-related deaths in Scotland in 2009

Statistics of drug-related deaths in 2009 and earlier years, broken down by cause of death, selected drugs reported, age and sex. Includes three tables of figures for Health Board areas, and three for Council areas

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Contents

Main Points

The key points in this publication are:

- On the basis of the definition used for these statistics, there were 545 drug-related deaths registered in Scotland in 2009, 29 (5 per cent) fewer than in 2008. However, this was the second-highest number ever recorded, 90 (20 per cent) more than in 2007 and 254 (87 per cent) more than in 1999. The number of drug-related deaths has risen in seven of the past ten years: the long-term trend appears to be upwards.
- Males accounted for 76 per cent of the drug-related deaths in 2009.
- In 2009, there were 189 drug-related deaths of people aged 35-44 (representing 35 per cent of all drug-related deaths) and 178 drug-related deaths of 25-34 year olds (33 per cent). In addition, 71 people aged under 25 died (13 per cent), as did 78 45-54 year olds (14 per cent) and 29 people aged 55 and over (5 per cent).
- The Health Board areas which accounted for most of the 545 drug-related deaths in 2009 were:
    - Greater Glasgow & Clyde - 200 (37 per cent); and
    - Lothian - 81 (15 per cent).
- Using the annual average for 2005-2009, to reduce the effect on the figures of year-to-year fluctuations:
    - for Scotland as a whole, the average of 466 drug-related deaths per year represented a death rate of 0.09 per 1,000 population;
    - only one Health Board area had a higher rate: Greater Glasgow & Clyde (0.14);
    - the next highest rate was for Tayside (0.09); and
    - five areas had rates of 0.08.
- Comparing the annual average for 2005-2009 with that for 1996-2000:
    - the percentage increases in the number of drug-related deaths were about the same for males (80 per cent) and females (77 per cent);
    - the percentage increases for 35-44 year olds and people aged 45-54 were larger than for 25-34 year olds and people aged 55 and over, and there was a fall in the number of drug-related deaths of people aged under 25; and
    - the Health Board areas with the largest increases in the numbers of drug-related deaths were Greater Glasgow & Clyde (up by 52), Lanarkshire (up by 25), Lothian (up by 22) and Ayrshire & Arran (up by 21).
- With effect from this publication, the General Register Office for Scotland (GROS)'s standard basis for the figures for individual drugs for 2008 and subsequent years is "drugs which were implicated in, or which potentially contributed to, the cause of death". Of the 545 drug-related deaths in 2009:
    - heroin and/or morphine were implicated in, or potentially contributed to, the cause of 322 deaths (59 per cent of the total);
    - methadone was implicated in, or potentially contributed to, 173 deaths (32 per cent);
    - benzodiazepines (e.g. diazepam) were implicated in, or potentially contributed to, 154 deaths (28 per cent);
    - cocaine, ecstasy and amphetamines were implicated in, or potentially contributed to, 32, 2 and 6 deaths respectively; and
    - alcohol was implicated in, or potentially contributed to, 165 deaths.

  There are only slight differences from the corresponding numbers for 2008, which appear for the first time in this paper (the figures for 2008 that were published previously were on a different basis). Because of a change in the method used to collect information about the substances which were found in the body (see Section 2), “individual drugs” figures for 2008 and 2009 cannot be produced on the same basis as those for earlier years. However, an indication of longer-term trends can be

obtained by comparing the annual averages for 2003-2007 and 1996-2000, which show:
    - marked increases in the numbers of deaths for which heroin and/or morphine, cocaine and alcohol were reported;
    - not much change in the numbers of deaths for which methadone, diazepam and ecstasy were reported; and
    - a marked fall in the number of deaths for which temazepam was reported.
- Most drug-related deaths were of people who took more than one drug. There were relatively few deaths for which only one drug (and, perhaps, alcohol) was found present in the body, including 36 for which only heroin/morphine (and, perhaps, alcohol) was reported, and 10 for which only methadone (and, perhaps, alcohol) was mentioned. There were more deaths for which only one drug (and, perhaps, alcohol) was implicated in, or potentially contributed to, the cause (whether or not anything else was present), including 148 cases where that drug was heroin/morphine and 54 where it was methadone.

1 Introduction

1.1 This is the latest edition of an annual paper which provides statistics of drug-related deaths which were registered in Scotland over the period from 1996 to 2009. The figures were produced using a definition of “drug-related deaths” which was introduced in 2001 for the “baseline” figures for the UK Drugs Strategy. This definition was agreed by a working party set up following the publication, by the Advisory Council on the Misuse of Drugs, of a report on “Reducing drug related deaths”. The Office for National Statistics has also prepared data on drug-related deaths in England and Wales using this definition. This paper's statistics of drug-related deaths are used in the development of policy by the Scottish Government, to inform the discussions and recommendations of its National Forum on Drug-related Deaths, and by a number of other interested parties such as NHS Boards and local Alcohol and Drug Partnerships.

1.2 Section 2 gives some background on the collection of information on drug-related deaths in Scotland. Section 3 describes the figures for Scotland, Section 4 covers the statistics for Health Board areas and Section 5 refers to the figures for Council areas and the potential problems that may affect the figures for these and smaller areas. Annex A sets out the definition of drug-related deaths used in this paper; Annex B refers to, and gives figures for, some other definitions of drug-related deaths; Annex C provides some References; and Annex D contains the questionnaire used to collect further information about drug-related deaths with effect from 2008. Then follow the tables and charts, which can be broadly grouped thus:

- Tables 1 to 7, Figure 1 - statistics for Scotland;
- Table 8 - age-specific death rates for Scotland and NHS Board areas;
- Tables HB1 to HB3 - statistics for NHS Board areas;
- Tables C1 to C3 - statistics for Council areas;
- Tables X, Y and Z, Figure 2 - statistics which are not on the standard basis.

In the tables, ".." indicates ‘not available’ or ‘not applicable’. There may be slight discrepancies between some of the figures in different tables for some of the years from 2000 to 2006, due to the use of a new database (see paragraph A4 of Annex A).

1.3 The main change made in this edition is the result of discussions at meetings of the National Forum on Drug-related Deaths. The standard basis of the figures for individual drugs that GROS produces for 2008 and subsequent years is now "drugs which were implicated in, or which potentially contributed to, the cause of death". Section 2 includes an explanation of why there has been a change from the basis which was used in the previous edition ("all drugs which were found present in the body"). The following tables are affected:

- Table 3 - Drug-related deaths by selected drugs reported, Scotland;
- Table HB3 - Drug-related deaths by selected drugs reported and NHS Board area;
- Table C3 - Drug-related deaths by selected drugs reported and Council area;
- Table Y - Drug-related deaths, on the basis of the Office for National Statistics (ONS) “wide” definition, by selected drugs reported.

A new Table 6 allows users of the statistics to compare the figures for 2009 on the two bases, and also shows how the numbers on the two bases for 2009 break down by sex and by age-group. In addition, alternative versions of Tables HB3 and C3 are now available on the GROS web site (they can be found via links from the pages which give access to the editions of this publication for 2008 and 2009), providing figures for Health Boards and Councils:

- for 2008 on the new standard basis ("drugs which were implicated in, or which potentially contributed to, the cause of death"); and
- for 2009 on the basis which was used in the previous edition of the publication ("all drugs which were found present in the body").

1.4 Other improvements which have been made for this edition are:

- a new Table 7 shows the numbers of deaths for which (a) only one drug (plus, possibly, alcohol) was mentioned, and (b) only one drug (plus, possibly, alcohol) was implicated in, or potentially contributed, to the cause of death (other drugs may have been present, but were not considered to have had any direct contribution to the death);
- a new Table 8 gives the drug-related death rate, per 1,000 population, for each age-group, for Scotland (for each year from 2000) and for individual Health Boards (using the annual average for the latest five years);
- a new Table Y shows how the numbers of drug-related deaths on the “wide” definition relate to the Drug Strategy “baseline” definition, and gives figures for deaths from some causes which may be associated with present or past drug misuse, and Annex B has been expanded to provide some information on these matters;
- in all tables which had the “45 and over” age-group, there are now separate age-groups for “45-54” and "55 and over";
- Section 5 provides more information about the problems that may affect the figures for areas with smaller populations; and
- the way in which the information about drug-related deaths is processed has been refined, to take account of any changes in the classification of substances under the Misuse of Drugs Act - further information about this is given in paragraph A2 of Annex A.

2 Data sources

2.1 The General Register Office for Scotland (GROS) holds details of all deaths which are registered in Scotland. By convention, deaths are counted on the basis of the

calendar year in which they are registered rather than the year of occurrence (as the latter might not be known). GROS closes its database for a calendar year around the end of the following June, so the statistics for 2009 are based upon the information which GROS had obtained by June 2010. GROS classifies the underlying cause of each death using International Classification of Diseases (ICD) codes, based on what appears in the medical certificate of the cause of death together with any additional information which is provided subsequently by (e.g.) certifying doctors, the Crown Office, pathologists or Procurators Fiscal.

2.2 Drug-related deaths are identified using details from the death registrations supplemented by information from a specially-designed questionnaire, which is completed by forensic pathologists. GROS requests this information for all deaths involving drugs or persons known, or suspected, to be drug-dependent. Additionally, GROS follows up all cases of deaths of people where the information on the death certificate is vague or suggests that there might be a background of drug abuse. A copy of the questionnaire used with effect from 2008 is in Annex D. This enhancement to the data collection system was described in a paper published by GROS in June 1995 (see Annex C: References).

2.3 The questionnaire was revised for 2008, in order to collect more complete information about the substances present in the body. This caused a break in the series of figures for "drugs reported". The discontinuity arose because:

- pre-2008, the form asked about the "principal drug or solvent found in a fatal dose" and about "any other drugs or solvents involved in this death" - so some pathologists reported only the substances which, they believed, contributed directly to each death;
- now the form asks about the drugs or solvents "implicated in, or which potentially contributed to, the cause of death" and about "any other[s] … which were present, but which were not considered to have had any direct contribution to this death" - so some pathologists now report substances which they would not have mentioned previously.

2.4 When GROS received the completed questionnaires for 2008 deaths, it simply recorded all the drugs which had been reported, without making any distinction between (a) drugs or solvents 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 this death. So, when GROS produced the "drugs reported" figures for 2008 that were published in August 2009, it did so by counting all the drugs which had been reported as having been found to be present in the body. It is thought that the change in the information collected using the questionnaires accounted for most (if not all) of the apparent large increases, between 2007 and 2008, in the figures for (e.g.) benzodiazepines, diazepam and alcohol that were published in August 2009.

2.5 At its meeting in September 2009, the National Forum on Drug-related Deaths discussed the basis of GROS's figures for deaths for which particular drugs were reported. GROS considered the comments that were made, and prepared proposals for changing its method of producing these statistics, which were put to the National Forum's meeting in February 2010, revised in the light of the views expressed there, and subsequently implemented when GROS produced the figures given in this edition of the publication. These are the main points to note about the change in the basis of GROS's figures for deaths involving particular drugs:

- "Drugs which were implicated in, or which potentially contributed to, the cause of death" is now the standard basis for the figures for 2008 onwards that GROS produces for individual drugs.
- GROS reprocessed the data from the questionnaires for 2008, in order to distinguish 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. This distinction is also made when processing the questionnaires for 2009 onwards.
- As a result, GROS can now produce figures for 2008 onwards:
    - (i) on the new standard basis - i.e. counting only drugs which were reported under (a); and
    - (ii) on the "all drugs which were found to be present in the body" basis - i.e. covering drugs which were reported under either (a) or (b).

2.6 It should be noted that:

- this change has not affected the overall total number of drug-related deaths - it has just reduced the number of drugs which are counted, for the purpose of the standard figures, for some deaths (e.g. the change reduces markedly the figure for "benzodiazepine deaths" for 2008); and
- while the change has reduced the size of the discontinuity, between 2007 and 2008, in the figures for individual drugs, there is still a break in the series due to the introduction of the new questionnaire. This is because, in 2007 and earlier years, some pathologists reported, in the old questionnaire, all the drugs that they found (i.e. not just the drugs that they believed were implicated in, or contributed to, the cause of death) - so they provided information on the "all drugs which were found to be present in the body" basis (i.e. not on the new standard basis). GROS cannot produce figures for 2007 (or any earlier year) on the new standard basis unless pathologists complete copies of the new questionnaire in respect of the relevant deaths, which is impractical: pathologists would have to refer to old records, which may no longer exist, or which might not contain the information that the pathologists would need to make the distinction 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.

2.7 Following the change in the standard basis of GROS's figures for individual drugs:

- in this publication, Tables 3 and Y provide figures for both 2008 and 2009 on the new standard basis, Tables HB3 and C3 give figures for 2009 on the new standard basis, and Table 6 shows the figures for 2009 on the two bases;
- revised versions of Tables HB3 and C3, giving figures for 2008 on the new standard basis, are available from the GROS web site; and
- alternative versions of Tables HB3 and C3, giving figures for 2009 on the "all drugs which were found to be present in the body" basis, are available on the GROS web site (which makes it clear that they are not on the standard basis).

2.8 The statistics of drug-related deaths may be affected by other differences, between years and/or between areas, in the way in which the information was produced. For example:

- technical advances may enable the detection of small quantities of substances that could not have been found in the post-mortems that were performed several years ago;

- the range of substances for which tests are conducted may change - e.g. for a number of years, a laboratory did not routinely test for the presence of cannabis (because the view was that, in general, it did not contribute to causing deaths), but now does so more often, because Procurators Fiscal are now more likely to want to know whether the deceased had been using it. More generally, advice is that there is a demand to obtain more complete and thorough toxicology on all cases tested for drugs, which includes fuller examinations for, and hence a greater possibility of finding, more drugs; and
- pathologists in one area report any findings of benzodiazepines by referring to that group of drugs unless they are sure that only one particular benzodiazepine (e.g. diazepam) was used, so the areas which they serve appear to have low proportions of deaths for which diazepam is mentioned (compared to areas where diazepam is more likely to be reported, and where there are proportionately fewer reports of benzodiazepines as a group).

3 Drug-related deaths: trends, causes of death, drugs reported, sex and age

3.1 Overall numbers

3.1.1 On the basis of the definition used for these statistics, there were 545 drug-related deaths in 2009. While this represents 29 (5 per cent) fewer deaths than in 2008, it was still the second-highest number recorded since this series of figures began in 1996, and was 90 (20 per cent) more than in 2007, 189 (53 per cent) more than in 2004, and 254 (87 per cent) more than in 1999. The figures in Table 1 show that the number of drug-related deaths has risen in seven of the past ten years: the long-term trend appears to be upwards.

3.1.2 However, the statistics also show some year to year fluctuations. For this reason, moving annual averages are likely to provide a better guide to the long-term trend than the change between one year and the next. Figure 1 illustrates this:

- The black blobs show the figures for each year.
- The continuous grey lines show two moving annual averages - a 3-year average (thin grey line) and a 5-year average (thick grey line). The latter should provide a better indication of the overall long-term trend.
- The broken grey lines show the likely range of variation around the 5-year moving average. Statistical theory suggests that, if the number of deaths can be represented as the result of a Poisson process, for which the underlying rate at which the events (deaths) occur is given by the 5-year moving average, then random year to year variation would result in only about one year in 20 having a figure outwith this range (which is a "95% confidence interval", calculated thus: the underlying rate of occurrence plus or minus 1.96 times its standard deviation; for a Poisson process, the standard deviation is the square root of the underlying rate of occurrence).

3.1.3 Looking at the chart, it is clear that individual years' figures tend to fluctuate around a long-term upward trend, and are generally within the likely range for random year to year variation about the trend. It also appears that the figure for 2008 may have been unusually high (it would be above the upper end of the likely range, if that were extrapolated to 2008), and that the figure for 2009 is broadly in line with the long-term trend (if that is extrapolated to 2009). Therefore, the fall in 2009 could be followed by a rise in 2010 - in the same way as the fall in 2003 (from what was, at that time, an unusually high value in 2002) was followed by a rise in 2004.

3.2 Underlying causes of death

3.2.1 Table 2 shows the number of drug-related deaths categorised by the underlying cause, using groupings of the ICD codes. The majority (380 or 70 per cent in 2009) were coded to "drug abuse" (which is described within the ICD classification as "mental and behavioural disorders due to psychoactive substance use").

3.2.2 As some of the figures can fluctuate markedly from year-to-year, a better indication of the main changes over the years shown in the table should be obtained from a comparison of the averages for the 5-year periods at the start and end. These show that there have been increases in the numbers of deaths for which the underlying cause is "drug abuse" (from an average of 189 per year in 1996-2000 to an average of 307 in 2005-2009), "accidental poisoning" (from an average of 13 to an average of 48), and "undetermined intent" (from an average of 25 to an average of 76). There was little change in the number of deaths caused by intentional self-poisoning (averages of 34 per year in 1996-2000, and 36 in 2005-2009).

3.3 Selected drugs reported

3.3.1 The GROS database records a wide range of drug combinations (e.g., 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). "Unspecified drug(s)" is recorded in only a small proportion of cases (on average, under 3% per year). Table 3, Table 6 and Table 7 give information on the frequency of reporting of selected drugs, whether alone or in combination with other substances. The drugs listed in these tables are reported in the majority of drug-related deaths (for example, not counting alcohol, at least one of them was reported in 91 per cent of the drug-related deaths in 2000, and in 87 per cent of cases in 2009). 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.

3.3.2 Since these tables record individual mentions of particular drugs, there will be multiple-counting of some deaths (e.g. if both heroin and diazepam were implicated in, or potentially contributed to, the cause of a death in 2009, it will be counted in three of the columns of Table 3: under "heroin/morphine", under "benzodiazepines" and under "diazepam"). Therefore, these tables do not give the numbers of deaths that are attributable to each of the drugs mentioned. When more than one drug was reported for a particular death, it may not be possible to deduce, from the information held in the GROS 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. GROS' database has no information about the amounts of each drug that were found, or the possible consequences of taking particular combinations of drugs.

3.3.3 For 2008 onwards, the standard basis for GROS's figures for individual drugs is "drugs which were implicated in, or which potentially contributed to, the cause of death" (see Section 2). Table 3 and the top half of Table 6 show that heroin/morphine was implicated in, or potentially contributed to, the cause of 322

(59 per cent) of the deaths in 2009; methadone was implicated in, or potentially contributed to, 173 (32 per cent) of the deaths; and benzodiazepines were implicated in, or potentially contributed to, 154 (28 per cent) of the deaths. Cocaine, ecstasy and amphetamines were implicated in, or potentially contributed to, 32, 2 and 6 deaths respectively. Alcohol was implicated in, or potentially contributed to, the cause of 165 of the 545 drug-related deaths in 2009.

3.3.4 As mentioned in Section 2, GROS can also produce, for 2008 onwards, 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. The lower half of Table 6 shows figures for 2009 on this basis. The main differences between the two halves of the table are in the figures for benzodiazepines (and diazepam in particular): benzodiazepines were found to be present in the body in the case of 386 of the drug-related deaths in 2009, but had been implicated in, or potentially contributed to, only 154 of those deaths (the corresponding figures for diazepam are 329 and 116). The other drugs for which there are large percentage differences between the figures in the two halves of the table are cocaine (found present in 57 cases; implicated in, or potentially contributed to, 32 deaths) and amphetamines (for which the numbers are 16 and 6, respectively); there is also a large difference for alcohol (277 and 165). The figures for heroin/morphine, methadone and ecstasy do not differ much 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.

3.3.5 Most drug-related deaths are of people who took more than one drug: in such cases, it may not be possible to say which drug or drugs caused the death. 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 deaths for which only one drug (and, perhaps, alcohol) was found to be present in the body: all these deaths must 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 36 deaths for which the only drug reported was heroin/morphine, or (perhaps) heroin/morphine and alcohol; only 10 deaths for which only methadone (perhaps with alcohol) was mentioned; and only 7 deaths for which only a benzodiazepine (perhaps with alcohol) was reported. In total, there were 40 deaths for which alcohol was mentioned along with only one drug.

3.3.6 The lower half of Table 7 shows deaths for which only one drug (and, perhaps, alcohol) was implicated in, or potentially contributed to, the death. The numbers here are larger, because this part of the table will include deaths for which other drugs were mentioned as being present but not considered to have had any direct contribution to the death. So, for example, the figures for methadone are the numbers of deaths for which only methadone (and, perhaps, alcohol) was implicated in, or potentially contributed to, 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 148 deaths for which heroin/morphine (and, perhaps, alcohol) was the only drug which was believed to have been implicated in, or to have contributed to, the death; 54 deaths for which methadone (and, perhaps, alcohol) was the only such drug; and 90 deaths for which alcohol was implicated in, or potentially contributed to, the cause of death, along with one drug. The numbers for each of the other drugs shown are all in

single figures, so there were very few deaths which were believed to be due solely to one of those drugs alone.

3.3.7 In the lower half of Table 7, the sum of the figures for heroin/morphine, methadone, benzodiazepines, cocaine, ecstasy and amphetamines is 220, or 40 per cent of the total of 545 drug-related deaths in 2009, which means that one of these drugs (and, perhaps, alcohol) was the only drug which was implicated in, or potentially contributed to, the cause of two-fifths of all drug-related deaths in 2009. Information from GROS's database (which does not appear in any of the tables) shows that there were also 44 deaths for which a drug which is not shown in the table (and, perhaps, alcohol) was the only drug which was implicated in, or potentially contributed to, the cause of death (including 22 cases where the only drug was dihydrocodeine; 5 cases where it was codeine; and 4 cases where it was "unspecified drug" - in some of these cases, alcohol was also implicated). Therefore, there was a total of 264 cases (48 per cent of all drug-related deaths), where only one drug (and, perhaps, alcohol) was believed to have been implicated in, or potentially contributed to, the cause of death.

3.3.8 Table 3 shows that, between 2008 and 2009, there were only small changes in the numbers of deaths for which each of the drugs identified in the table was implicated in, or potentially contributed to, the cause of death. For example, heroin/morphine was implicated in, or potentially contributed to, 324 deaths in 2008 (which is the revised figure for 2008, on the new standard basis) and 322 deaths in 2009; for methadone, the corresponding figures were 169 in 2008 and 173 in 2009.

3.3.9 It is not possible to make a direct comparison with the figures for earlier years because there is a break in the series between 2007 and 2008, due to the revision, with effect from 2008, of the questionnaire which collects information about the drugs which were found in the body (see paragraphs 2.3 to 2.7). The statistics may also be affected by other differences, between years or between areas, in the reporting of drugs found in the body (see paragraph 2.8). 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.

3.3.10 Because some of the figures can fluctuate markedly from year to year, the main changes over time are best identified by comparing the averages for 1996-2000 and 2003-2007 (the latter being the final 5-year period before the break in the series). These show that there were marked increases in the numbers of deaths for which there were reports of:

- heroin and/or morphine - from an average of 128 per year in 1996-2000 to an average of 229 in 2003-2007;
- cocaine - from an average of 6 to an average of 38;
- alcohol - from an average of 91 to an average of 129;

that there was not much change in the numbers of deaths for which there were reports of:

- methadone (averages of 74 and 90);
- diazepam (averages of 116 and 103); and
- ecstasy (averages of 7 and 13);

and a marked fall in the number of deaths for which temazepam was reported (from an average of 47 per year in 1996-2000 to an average of 12 in 2003-2007).

3.3.11 However, while comparing 5-year averages should reduce the effect of year-to-year fluctuations, it will not necessarily give the full picture. In this case, it does not reveal some marked changes during the period:

- The number of deaths for which diazepam was reported rose from under 100 in 1996 and 1997 to over 200 in 2002 and then fell back to under 100 in 2005, 2006 and 2007.
- The number of deaths for which methadone was reported appeared to fall in the late 1990s, but then rose to 114 in 2007 - above the level recorded in 1996 (100).

3.4 Sex and age

3.4.1 Table 4 shows that males accounted for the vast majority (413, or 76 per cent) of the drug-related deaths in 2009. This was the case throughout the past decade, although the precise balance between the sexes has varied from year to year. For example, between 2008 and 2009, the number of male drug-related deaths dropped (from 461 to 413) whereas there was an rise in female deaths (from 113 to 132), so the male percentage fell from 80 per cent to 76 per cent. Comparing the averages for 1996-2000 and 2005-2009, to reduce the effects of year-to-year fluctuations on the figures, the percentage increases in the number of drug-related deaths were about the same for males (80 per cent) and females (77 per cent).

3.4.2 In recent years, of the age-groups shown, the largest number of drug-related deaths has tended to be among 25-34 year olds: using the averages for 2005-2009, 159 out of 466 deaths (34 per cent) were of 25-34 year olds. There were almost as large numbers in the 35-44 age-group (on average, 153 per year from 2005 to 2009, or 33 per cent). In 2009, there were 189 drug-related deaths of people aged 35-44 (representing 35 per cent of all drug-related deaths) and 178 drug-related deaths of 25-34 year olds (33 per cent). In addition, 71 people aged under 25 died (13 per cent), as did 78 people aged 45-54 (14 per cent) and 29 aged 55 and over (5 per cent). The table shows that the number of deaths in a particular age-group can fluctuate markedly over the years (for example, the number of under 25s who died was 100 in 2002, 48 in 2005, and 94 in 2007). However, some clear trends can be seen. Comparing the averages for 1996-2000 and 2005-2009 (to reduce the effects of year-to-year fluctuations on the figures), there have been large percentage increases in the number of deaths of 35-44 year olds (from an average of 46 per year in 1996-2000 to an average of 153 in 2005-2009) and people aged 45-54 (from an average of 12 to an average of 57); the number of deaths of 25-34 year olds rose less rapidly (from an average of 108 to an average of 159), as did deaths of people aged 55 and over (from an average of 10 to an average of 22); and there was a fall in the number of people aged under 25 who died (from an average of 83 to an average of 75).

3.4.3 Changes in the ages of drug-related deaths can also be seen from the values of the lower quartile (a quarter of drug-related deaths were of people of this age or under), median (half the deaths were of people of this age or under) and upper quartile (a quarter of the deaths were of people of this age or older), which appear in the table:

- The lower quartile age at death rose from 22 years in 1996 to 28 years in 2009.
- The median age at death increased from 28 years in 1996 to 35 years in 2009.
- The upper quartile age at death rose from 34 years in 1996 to 43 years in 2009.

The median is used (rather than the average) because it should be affected less by any unusually high (or low) values.

3.4.4 Table 5 shows that, in 2009, 296 (72 per cent) of the male deaths were of known or suspected drug abusers compared to 84 (64 per cent) of the female deaths. Of the 29 deaths aged 55 and over, only 7 (24 per cent) were of people who were known, or suspected, to be drug-dependent. The table also provides a more detailed breakdown of the numbers by age-group for each sex.

3.4.5 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 GROS's new standard basis: "drugs which were implicated in, or potentially contributed to, the cause of death". In cases in which the drugs listed below were implicated in, or potentially contributed to, the cause of death, men accounted for the following percentages of the deaths:

- cocaine - 88 per cent (28 out of 32);
- alcohol - 83 per cent (137 out of 165);
- heroin/morphine - 82 per cent (264 out of 322); and
- methadone - only 73 per cent (127 out of 173).

There were not great differences between the distributions by age of people for whom the drugs shown in the table were implicated in, or potentially contributed to, the cause of their deaths.

3.4.6 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 24 per cent of all drug-related deaths, but for lower proportions of deaths for which cocaine was found (14 per cent - 8 out of 57), heroin/morphine was found (18 per cent - 62 out of 338) and alcohol was found (19 per cent - 52 out of 277). Women also accounted for high proportions of the relatively small numbers of deaths for which temazepam and amphetamines were found (10 out of 20, and 7 out of 16, respectively). Again, there is not much difference between the distributions by age of the people who died having taken the specified drugs.

3.4.7 The top half of Table 7 gives the numbers of deaths for which only one drug (and, perhaps, alcohol) was found to be present in the body: all these deaths must be wholly attributable to the specified drug (or, perhaps, to that drug in combination with alcohol). The numbers are all relatively small, so there is little that can be said about the ages and sexes of the people involved. The bottom half of the table shows deaths for which only one drug (and, perhaps, alcohol) was implicated in, or potentially contributed to, the death. Paragraph 3.3.6 explained why these numbers are larger. However, only for heroin/morphine (148 deaths) and, possibly, methadone (54 deaths) are the figures large enough for analysis of the ages and sexes of the people involved. The only point worth noting is that females accounted for only 18 per cent (26 out of 148) of the deaths for which heroin/morphine (and, perhaps, alcohol) was the only drug which was implicated in, or potentially contributed to, the cause of death, compared with 24 per cent of all drug-related deaths. The distributions by age were similar to that of all drug-related deaths.

3.4.8 Table 8 provides, for a number of age-groups, drug-related death rates per 1,000 population. The top part of the table shows how these rates have changed, for

Scotland as a whole, over the years from 2000 to 2009. Throughout the period, the drug-related death rate per 1,000 population has been highest for people aged 25-34 (it was 0.28 in 2009, and averaged 0.25 over the five years from 2005 to 2009). The rate for 35-44 year olds is a little lower (0.25 in 2009, with a latest 5-year average of 0.20). For both the 15-24 and 45-54 age-groups, the rate is around 0.10; for 55-64 year olds it is about 0.02. Since 2000, the rates for the 25-34, 35-44 and 45-54 age-groups have tended to increase, whereas there has been relatively little change in the rates for 15-24 and 55-64 year olds.

4 Health Board areas: trends, causes, drugs reported, and death rates by age-group

4.1 Deaths are normally classified by geographical area on the basis of the usual place of residence of the deceased (or, if that is not known, or is outwith Scotland, on the basis of the location of the place of death). Table HB1 shows the numbers of drug-related deaths for each Health Board area. Of the 545 deaths in 2009, 200 (37 per cent) were counted against the Greater Glasgow & Clyde NHS Board area. Lothian, with 81 (15 per cent), had the next highest total followed by Grampian (52 or 10 per cent), Lanarkshire (47 or 9 per cent), Tayside (44 or 8 per cent), Ayrshire & Arran (39 or 7 per cent) and Fife (32 or 6 per cent).

4.2 Because of the generally small numbers involved, particularly for some Health Board areas, great care should be taken when assessing any apparent trends shown in the table. Year-to-year variation in the figures could result in apparently large percentage changes. This is more likely for the areas with smaller populations, but can also be seen sometimes in the figures for the more populous areas (e.g. Greater Glasgow & Clyde: 151 in 2004; 111 in 2005; 162 in 2006). Therefore, using 5-year moving annual averages should ‘smooth out’ the effects of any fluctuations, and so provide a better indication of the longer-term trends. The areas with the largest increases between their annual averages for 1996-2000 and 2005-2009 were Greater Glasgow & Clyde (up by 52, from 113 to 165), Lanarkshire (up by 25, from 19 to 44), Lothian (up by 22, from 44 to 66) and Ayrshire & Arran (up by 21, from 10 to 31).

4.3 The table also shows the population of each Health Board area, and what its average number of drug-related deaths per year (for 2005-2009) represented per 1,000 population (using the population in the middle of the 5-year period as a proxy for the average population over the whole period). For Scotland as a whole, the average of 466 drug-related deaths per year represented a rate of 0.09 per 1,000 population. Only one area had a higher rate than this: Greater Glasgow & Clyde (0.14). The next highest rate was for Tayside (0.09); five areas had rates of 0.08.

4.4 Table HB2 gives a breakdown by cause of death for each Health Board area. Table HB3 shows some geographical differences in the reporting of certain drugs: figures which should be used with particular care, in the light of the points mentioned in sections 2 and 3.3, the effects of which could be proportionately greater on the figures of some of the areas with lower populations. Note also that the figures given in Table HB3 are on GROS's new standard basis (drugs implicated in, or which potentially contributed to, the cause of death), and so are not comparable to the previous edition's figures for 2008 (which were on the basis of "all drugs which were found to be present in the body"). As mentioned earlier, the GROS web site has versions of Table HB3 which give (i) figures for 2008 on the new standard basis and

(ii) figures for 2009 on the "all drugs which were found to be present in the body" basis.

4.5 Table HB3 shows that, for most NHS Board areas, heroin/morphine was believed to have been implicated in, or to have potentially contributed to, a majority of the deaths - for example, 33 out of 52 in Grampian, 111 out of 200 in Greater Glasgow & Clyde, 35 out of 47 in Lanarkshire, and 31 out of 44 in Tayside. However, there was a lower proportion in Lothian (36 out of 81). Greater Glasgow & Clyde had an above-average proportion for which methadone was implicated in, or potentially contributed (74 out of 200) as did Lothian (35 out of 81); there were lower proportions in Fife (8 out of 32), Grampian (9 out of 52) and Lanarkshire (9 out of 47). The table also shows that benzodiazepines were implicated in, or potentially contributed, only small proportions of the deaths in some areas but in more than half the deaths in Grampian (28 out of 52), Lothian (47 out of 81) and Tayside (28 out of 44) - although this comparison might be affected by differences in reporting practices (see section 2).

4.6 The lower part of Table 8 provides, for each Health Board, for a number of age-groups, the drug-related death rate per 1,000 population. As with the overall rates in Table HB1, the figures were calculated using the average number of drug-related deaths per year (for 2005-2009), by taking the population in the middle of the 5-year period as a proxy for the average population over the whole period. Even though the figures are five-year averages, they must still be used with caution for the less populated areas (e.g. just three 15-24 year old drug-related deaths in the five years from 2005 to 2009, inclusive, caused Western Isles to have a death rate for that age-group which was double its rate for Scotland as a whole). Of the more populous areas, Greater Glasgow & Clyde had the highest drug-related death rates: 0.33 for 25-34 year olds and 0.34 for the 35-44 age-group; both well above the overall rates for Scotland as a whole (0.25 and 0.20, respectively). Ayrshire & Arran and Tayside had rates for 25-34 year olds which were almost as high (0.29 and 0.30, respectively), but their rates for the 35-44 age-group were much lower (0.19 and 0.23, respectively) and not far from the level for Scotland as a whole. Greater Glasgow & Clyde's death rate for 45-54 year olds was 0.13, well above the overall level of 0.08, which also happened to be the highest figure for any of the other areas. However, the pattern was less clear for the 15-24 age-group, for which several areas had death rates which were above the overall level.

5 Council areas (trends, causes and drugs reported) and areas with smaller populations

5.1 Tables C1, C2 and C3 provide figures for individual Council areas. Again, because of the relatively small numbers involved, particularly for some areas, great care should be taken when using these figures. Even the numbers for the most populous areas may be subject to large percentage year-to-year fluctuations (e.g. Glasgow's figures from 2004 to 2008 were as follows: 106, 75, 113, 90, 121; Edinburgh's from 2003 to 2009 were: 26, 17, 41, 30, 43, 66, 45). Again, the points mentioned in sections 2 and 3.3 may have a proportionately greater effect on the numbers for some of the areas with smaller populations. Again, the figures given in Table C3 are on GROS's new standard basis (drugs implicated in, or which potentially contributed to, the cause of death), and so are not comparable to the previous edition's figures for 2008, which were on the basis of "all drugs which were found to be present in the body". As mentioned earlier, the GROS web site has versions of

Table C3 which give (i) figures for 2008 on the new standard basis and (ii) figures for 2009 on the "all drugs which were found to be present in the body" basis.

5.2 As the numbers of drug-related death for areas with smaller populations will be lower, and may be subject to proportionately larger year-to-year fluctuations, it is unlikely that much useful information could be obtained from looking at the figures for small areas for a single year, or for a few years taken together. There could also be concerns about the sensitivity of data relating to small areas, as it might be possible, in some circumstances, to infer something about identifiable individuals from such data. Therefore, one should only look at such figures for several years taken together. Even then, the smaller the areas are, the more (in percentage terms) their figures may be influenced by how GROS allocates deaths to areas, based upon the details that are collected by the registration process. A wide range of information about the basis of the statistics, plus examples of the fluctuations in and possible unreliability of figures for small areas, will be made available on the GROS web site in due course.

5.3 An example of the scale of the numbers for small areas is given by an analysis for the National Forum on Drug-related Deaths, which used data for postal districts for the eight years from 2000 to 2007 (inclusive). This was done in response to a request, at a Forum meeting in September 2008, for GROS to "identify any geographical concentrations of drug-related deaths". Postal districts are not normally used for statistical analysis, but in this case they provided a convenient way to describe the extent to which the numbers of drug-related deaths were concentrated in certain parts of Scotland, by using a geography that would be more meaningful to Forum members than, say, the Datazones or Intermediate Zones that are used in Neighbourhood Statistics. The current GROS database has records for 2,893 drug-related deaths (on the basis of the standard definition) in Scotland in the specified eight years. Of the postal districts, G21 had the largest number (67 - an average of 8.4 per year). Four other postal districts had totals of 50 or more drug-related deaths for that period: G33 (54); G20 (53); G32 (51); and AB24 (50). Figures were not provided for every individual postal district, because of the numbers involved. There were 25 postal districts which each had 29 or more drug-related deaths over the eight years: each of them accounted for more than 1% of the total for Scotland for that period. Taken together, these 25 postal districts accounted for about a third of all drug-related deaths in Scotland between 2000 and 2007. The remaining two-thirds of drug-related deaths in that period were deaths of residents of postal districts which had, at most, 28 such deaths over the eight years - i.e. areas which had, on average, at most 3½ drug-related deaths per year (many averaged fewer than one drug-related death per year). It follows that, while some postal districts have markedly more drug-related deaths than others, the problem is clearly a very widespread one, with most deaths being of people who had been living in areas which had relatively few drug-related deaths.

Annex A The definition of drug-related deaths used for these statistics (the GROS implementation of the "baseline" definition for the UK Drugs Strategy)

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" (see the References in Annex C). A report by the Advisory Council on the Misuse of Drugs (ACMD - see 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". GROS was represented on this group, and this paper presents information on drug-related deaths using the approach that was agreed, on the basis of the definition as it was implemented by GROS.

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).

NB: if a drug's legal status changes, GROS aims to count it on the basis of its classification on the day the person died (as GROS does 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 GROS'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. These include:

- deaths coded to mental and behavioural disorders due to the use of alcohol (ICD10 code: F10), tobacco (F17) and volatile substances (F18);
- deaths from Acquired Immune Deficiency Syndrome (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) 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.

GROS also excluded from its implementation of the definition 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 caused by clostridium novyi infection, 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); and
- 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 that were published previously and those which are produced henceforth. This is due to a change in the way in which “drug-related” deaths are identified using the data held by GROS. This process has two stages:

- First, extract all the records of deaths which satisfy the “wide” definition (see Annex B). The method used for this stage has not been changed.
- Second, scrutinise the extracted records and identify the ones which should be counted under GROS'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 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.

Annex B Some other definitions of drug-related deaths

B1. Other bodies may use other definitions for other purposes: this annex gives some examples. It then discusses how some deaths from certain other causes might be counted as well, to obtain a wider view of mortality arising from drug misuse.

B2 First, there is a “wide” definition which is used by the Office for National Statistics (ONS) to provide figures for deaths from drug poisoning. It covers the following cause of death categories (the relevant codes from the International Classification of Diseases, Tenth Revision [ICD10], are given in brackets):

- 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”:
    - opioids (F11);
    - cannabinoids (F12);
    - sedatives or hypnotics (F13);
    - cocaine (F14);
    - other stimulants, including caffeine (F15);
    - hallucinogens (F16);
    - volatile solvents (F18); and
    - multiple drug use and use of other psychoactive substances (F19).
- deaths coded to the following categories:
    - accidental poisoning (X40 – X44);
    - intentional self-poisoning by drugs, medicaments and biological substances (X60 – X64);
    - assault by drugs, medicaments and biological substances (X85); and
    - event of undetermined intent, poisoning (Y10 – Y14).

The main differences between this “wide” definition and the one used to produce the statistics given in this paper (the “baseline” definition for the UK Drugs Strategy) are:

- the first part also includes deaths coded to “volatile substances" (F18);
- the second part is not restricted to cases where a drug listed under the Misuse of Drugs Act (1971) was known to be present in the body at the time of death.

Therefore, the “wide” definition's figures are markedly higher.

B3. Second, there is the definition used by the European Monitoring Centre for Drugs and Drug Addiction (EMCDDA) for its "general mortality register". The rules for this definition refer to particular codes for the underlying causes and the types of substance involved, and (in some cases) specify the combinations that must occur

for a death to be counted under this definition. It produces figures which are broadly similar to those of the UK Drug Strategy definition, but which cover deaths which involved the use of a different (albeit overlapping) range of drugs: so some deaths which are counted under the EMCDDA definition are not counted under the UK Drug Strategy definition, and vice versa.

B4. Because GROS has details of all the deaths which were registered in Scotland, it can produce figures using the ONS “wide” definition and the EMCDDA "general mortality register" definition, as well as using the definition of the “baseline” for the UK Drug Strategy. These are given in Table X. As the table and Figure 2 show, the numbers produced using the three definitions tend to rise and fall in broadly similar ways, and so all three definitions give similar impressions of the long-term trend, although they differ regarding the numbers of deaths in each year.

B5. As explained above, the ONS “wide” definition includes all deaths coded to accidental poisoning, and to intentional self-poisoning by drugs, medicaments and biological substances, whether or not a drug listed under the Misuse of Drugs Act was present in the body. Table Y shows the numbers of deaths (on this basis) in each year from 2000 to 2009 for which a range of drugs (including anti-depressants, anti-psychotics, paracetamol or a compound, and tramadol) were reported: for example, the number of deaths for which anti-depressants were reported tended to be in the range 70-90 per year between 2000 and 2007, whereas for paracetamol or a compound the number fell from around 120 to about 60. Section 2 explains why there is a break in the series between 2007 and 2008.

B6. The Scottish Crime and Drug Enforcement Agency (SCDEA) uses a different definition. In Autumn 2007, GROS compared some of the details of the drug-related deaths (in terms of the “baseline” UK Drug Strategy definition) in 2006 that were held by GROS and the deaths that were recorded in an SCDEA database of drug-related deaths. The results may be summarised as follows:

- 321 deaths were counted by both GROS and SCDEA;
- 100 deaths were counted by GROS but not by SCDEA. These included:
    - 14 deaths occurring in December 2005 which were not registered until 2006;
    - 28 definite suicides;
    - 19 probable suicides (classified as "events of undetermined intent");
    - 8 cases coded to "accidental overdose";
    - 29 cases coded to "drug abuse".
- 53 cases were counted by SCDEA but not by GROS. These comprised:
    - 13 deaths occurring in December 2006 which were not registered until 2007 - most (if not all) of which will be included in the GROS figures for 2007;
    - 21 deaths for which drugs (whether named or unspecified) were recorded in the GROS database - but either the drugs mentioned were not covered by the “baseline” definition or the deaths were coded to causes other than drug abuse or drug overdose;
    - 19 deaths which had no mention of drugs in the GROS database (13 were coded to "unascertained" cause of death). Returns from Procurators Fiscal were still outstanding for several of these when the GROS database for 2006 was closed at the end of June 2007. SCDEA recorded the involvement of heroin or methadone in 15 deaths, so it is likely that some of them would have been counted in

GROS's figures for drug-related deaths had all the relevant information been available before its database for 2006 closed.

B7. Other organisations may interpret the term "drug-related deaths" in other ways.

B8. Among the recommendations made by the National Forum on Drug-related Deaths in its annual report for 2009/10 was one which relates to this paper:
In recognition of the expanding range of causes of drug related deaths, and in keeping with the aims of the Advisory Committee on Misuse of Drugs report on Drug Related Deaths (published in 2000) to include a wider view of mortality caused by drug misuse, the forum recommends:

- that GROS include a table within their annual drug related deaths report that reflects deaths from “some causes which may be associated with present or past drug misuse”;
- that in the coming year, this includes detail on deaths caused by Hepatitis C and Human immunodeficiency virus (HIV); and
- that the forum and GROS explore the possibility of including violence, trauma and road traffic accidents in future reports.

As a result, Table Z has been added to this paper. The top part of this table gives the numbers of deaths which are counted as “drug-related” (on the basis of the “wide” definition), with separate figures for:

- the basis used for the statistics in this report (i.e. the Drug Strategy “baseline” definition, as implemented by GROS);
- deaths which are within the “baseline” definition but are excluded from the figures produced by GROS for reasons which are given in paragraph A3 of Annex A;
- all other deaths which are counted as “drug-related” in terms of the “wide” definition.

The remainder of the table gives the information requested by the National Forum: the numbers of deaths from some causes which may be associated with present or past drug misuse. At present, this shows only the following two causes of death:

- Hepatitis C - the virus may be transmitted through sharing needles when injecting recreational drugs. It has been estimated that nearly 40% of intravenous drug users have the infection and around 35% of people with the virus will have contracted it this way (source: BBC website health section, http://www.bbc.co.uk/health/, 27 July 2010). However, the infection can be transmitted in other ways, such as through a tattoo or body piercing with equipment that has not been properly sterilised, or a blood transfusion or medical treatment in a country where blood screening for hepatitis C is not routine, or where medical equipment is reused but not adequately sterilised. Therefore, only a proportion of deaths caused by Hepatitis C will be due to drug misuse.
- HIV - using a needle or syringe that has already been used by someone who is infected is one of the two main ways to become infected, the other being unprotected sexual intercourse with an infected person. Therefore, only a proportion of deaths caused by HIV will be due to drug misuse.

It is expected that this table will be expanded in subsequent editions of this report, in the light of discussions between GROS and members of the National Forum.

Annex C References

Arrundale J and Cole S K. "Collection of information on drug-related deaths by the General Register Office for Scotland". General Register Office for Scotland, 1995.

Christophersen O, Rooney C and Kelly S. "Drug-related mortality: methods and trends". "Population Trends" 93, Office for National Statistics, 1998.

Corkery, J. "UK drug-related mortality - issues in definition and classification". "Drugs and Alcohol Today" volume 8 issue 2, Pavilion Journals, 2008.

The Advisory Council on the Misuse of Drugs. "Reducing drug related deaths". Home Office, 2000.

Annex D The questionnaire used to obtain further information about drug-related deaths, with effect from 2008

NB: A different questionnaire was used for 2007 and earlier years. Following consultation with members of the Pathologists sub-group of the National Forum on Drug-related Deaths, the current version was introduced for use with effect from 2008.

Confidential **Form ME4**
General Register Office for Scotland *Crown Office*

DEATHS INVOLVING OR RESULTING FROM ABUSE OF CONTROLLED SUBSTANCES

***Please return to**:* Vital Events Branch, GROS, Ladywell House, Ladywell Road, Edinburgh EH12 7TF

Name of deceased: ……

Date of birth (*dd/mm/yyyy*)**:** **/** **/** **Date of death:** (*dd/mm/yyyy*)**:** **/** **/**

1. Was the deceased a known or suspected **habitual** drug/solvent abuser? Yes ☐ No ☐

2. Was the death the result of overdose / intoxication? Yes ☐ No ☐

3. Was the death due to a complication of drug abuse? Yes ☐ No ☐
(e.g. acute infection or cocaine-related cardiac arrhythmia
- but ***not*** chronic infections or diseases, such as Hepatitis C or HIV)

If 'Yes', please specify ……..

4(i) Based on the available evidence, what were the main drugs or solvents you believe were implicated in, or which potentially contributed to, the cause of death? (If possible, list in **descending** order of importance in relation to the cause of death):

a. ……..... d. ……

b. ……. e. ……

c. …….. f. ……

4(ii) Please specify any other drug(s)/solvent(s) which were present, but which were not considered to have had any direct contribution to this death:

a. ……..... c. ……

b. ……. d. ……

5. Was alcohol present at the time of death? Yes ☐ No ☐

If 'Yes', was it implicated in the cause of death Yes ☐ No ☐

6. Pathologist's view of cause of death *(full details - as would appear on a medical certificate of cause of death):*

I **(a)** ……...
(b) ……...
(c) ……
(d) ……...
II ……...

7. Any other comments or information which may help in coding this death?

……

……

Table 1 Drug-related deaths in Scotland, 1996 - 2009

Year	Drug-related deaths registered in year	Annual moving averages		Likely range of values around 5-year average #	
		3-year average	5-year average	likely lower	likely upper
1996	244				
1997	224	239			
1998	249	255	260	228	292
1999	291	277	278	245	310
2000	292	305	309	275	344
2001	332	335	323	288	358
2002	382	344	336	300	372
2003	317	352	345	308	381
2004	356	336	362	325	400
2005	336	371	377	339	415
2006	421	404	428	388	469
2007	455	483	466	424	509
2008	574	525			
2009	545				

see paragraph 3.1.2 of commentary

Figure 1 Drug-related deaths in Scotland, 3- and 5-year moving averages, and likely range of values around 5-year moving average

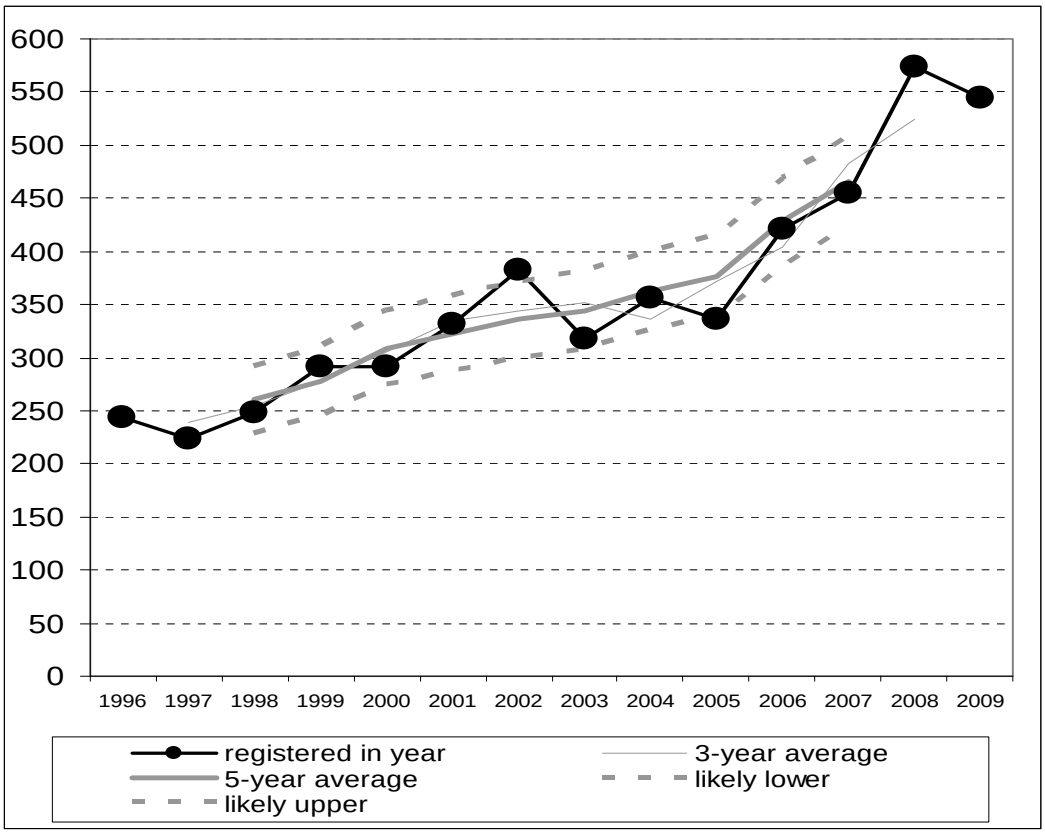

Table 2 Drug-related deaths by cause of death, Scotland, 1996 - 2009

Year	All categories	Cause of death category (ICD10 codes)				
		Drug abuse (F11-F16, F19)	Accidental poisoning (X40-X44)	Intentional self-poisoning (X60-X64)	Assault by drugs, etc. (X85)	Undetermined intent (Y10-Y14)
1996-2000 average	260	189	13	34	0	25
1996	244	175	10	41	0	18
1997	224	142	14	42	0	26
1998	249	179	16	32	0	22
1999	291	227	12	19	1	32
2000	292	220	11	34	0	27
2001	332	227	19	34	0	52
2002	382	280	17	30	0	55
2003	317	216	15	40	0	46
2004	356	232	32	32	0	60
2005	336	204	31	43	0	58
2006	421	280	51	40	0	50
2007	455	299	39	27	0	90
2008	574	370	59	34	0	111
2009	545	380	60	34	0	71
2005-2009 average	466	307	48	36	0	76

Table 3 Drug-related deaths by selected drugs reported[1], Scotland, 1996 - 2009

Year	Heroin / morphine [2]	Meth-adone	Benzodiazepines			Cocaine	Ecstasy	Amphet-amines	Alcohol
			Any benzo-diazepine	*of which:* Diaz-epam	Temaz-epam				
1996-2000 average	128	74	..	116	47	6	7	..	91
1996	84	100	..	84	48	3	9	..	87
1997	74	86	..	93	33	5	2	..	70
1998	121	64	..	113	58	4	3	..	86
1999	167	63	..	142	56	12	8	..	89
2000	196	55	164	146	39	4	11	3	123
2001	216	69	182	156	20	19	20	5	140
2002	248	98	245	214	16	31	20	13	156
2003	175	87	186	153	35	29	14	10	128
2004	225	80	140	113	5	38	17	10	116
2005	194	72	110	90	7	44	10	11	114
2006	260	97	94	78	10	33	13	11	131
2007	289	114	109	79	4	47	11	11	157
2008 rev.	324	169	149	115	7	36	5	11	167
2009	322	173	154	116	9	32	2	6	165
annual averages:									
2003-2007	229	90	128	103	12	38	13	11	129
2005-2009	278	125	123	96	7	38	8	10	147

1. More than one drug may be reported per death. These are mentions of each drug, and should not be added to give total deaths.
Up to 2007, some pathologists reported only those drugs which they thought caused, or contributed to, the death
From 2008, pathologists report separately (a) drugs which were implicated in, or which potentially contributed to the cause of death and (b) other drugs which were present but which were not considered to have had any direct contribution to the death
The figures for 2008 onwards are on the first basis - i.e. basis (a) - which is now the standard basis for GROS's figures for individual drugs. The figures for 2008 have been revised from those published in the previous edition.
There may be other differences between years and/or areas in the way in which the information was produced - see Section 2.

2. See paragraph 3.3.1 of commentary.

Table 4 Drug-related deaths by sex and age, Scotland, 1996 - 2009

Year	Drug-related deaths	Sex		Age-group #					Age		
		Male	Female	under 25	25 - 34	35 - 44	45 - 54	55 & over	Lower quartile	Median	Upper quartile
1996-2000 average	260	207	53	83	108	46	12	10	..	..	..
1996	244	185	59	86	103	32	13	10	22	28	34
1997	224	179	45	76	89	31	14	14	23	29	35
1998	249	194	55	88	103	37	9	12	23	27	34
1999	291	237	54	94	118	62	10	7	23	28	35
2000	292	239	53	73	126	69	16	8	25	30	36
2001	332	267	65	80	140	70	31	12	25	31	38
2002	382	321	61	100	153	92	27	10	24	30	37
2003	317	256	61	78	123	81	20	17	25	31	37
2004	356	289	67	81	138	92	35	10	25	31	38
2005	336	259	77	48	104	126	37	21	28	36	41
2006	421	334	87	69	154	127	54	16	27	34	40
2007	455	393	62	94	149	149	45	18	26	34	41
2008	574	461	113	92	211	174	71	26	27	34	41
2009	545	413	132	71	178	189	78	29	28	35	43
2005-2009 average	466	372	94	75	159	153	57	22	..	..	..

#. For 2001, 2003 and 2006, there are differences of one or two between the overall total for the year and the sum of the figures for the individual age-groups. This is due to the use of a new database - see Annex A, paragraph A4.

Table 5 Drug-related deaths by sex, age and cause of death, Scotland, 2009

	All categories	Cause of death category (ICD10 codes)				
		Drug abuse (F11-F16, F19)	Accidental poisoning (X40-X44)	Intentional self-poisoning (X60-X64)	Assault by drugs, etc. (X85)	Undetermined intent (Y10-Y14)
All deaths	**545**	380	60	34	0	71
Males	**413**	296	47	20	0	50
Females	**132**	84	13	14	0	21
Under 25	**71**	51	10	3	0	7
25-34	**178**	136	15	7	0	20
35-44	**189**	142	18	7	0	22
45-54	**78**	44	11	10	0	13
55 and over	**29**	7	6	7	0	9
Males						
Under 25	**52**	36	7	3	0	6
25-34	**136**	108	11	3	0	14
35-44	**146**	111	17	5	0	13
45-54	**56**	34	8	5	0	9
55 and over	**23**	7	4	4	0	8
Females						
Under 25	**19**	15	3	0	0	1
25-34	**42**	28	4	4	0	6
35-44	**43**	31	1	2	0	9
45-54	**22**	10	3	5	0	4
55 and over	**6**	0	2	3	0	1

Table 6 Drug-related deaths by sex, age and selected drugs reported[1], Scotland, 2009

	Heroin / morphine [2]	Meth-adone	Benzodiazepines			Cocaine	Ecstasy	Amphet-amines	Alcohol
			Any benzo-diazepine	*of which:* Diaz-epam	Temaz-epam				
(a) drugs which were implicated in, or which potentially contributed to, the cause of death									
All deaths	**322**	**173**	**154**	**116**	**9**	**32**	**2**	**6**	**165**
Males	264	127	118	89	3	28	2	5	137
Females	58	46	36	27	6	4	0	1	28
Under 25	42	25	26	19	0	5	2	0	18
25-34	120	54	56	46	2	10	0	1	60
35-44	112	67	53	38	5	12	0	4	52
45-54	40	21	13	9	1	4	0	1	29
55 and over	8	6	6	4	1	1	0	0	6
Males									
Under 25	31	20	18	13	0	3	2	0	15
25-34	96	44	48	38	2	8	0	0	49
35-44	98	42	41	31	1	12	0	4	44
45-54	32	17	8	5	0	4	0	1	23
55 and over	7	4	3	2	0	1	0	0	6
Females									
Under 25	11	5	8	6	0	2	0	0	3
25-34	24	10	8	8	0	2	0	1	11
35-44	14	25	12	7	4	0	0	0	8
45-54	8	4	5	4	1	0	0	0	6
55 and over	1	2	3	2	1	0	0	0	0
(b) all drugs which were found to be present in the body									
All deaths	**338**	**188**	**386**	**329**	**20**	**57**	**2**	**16**	**277**
Males	276	136	298	254	10	49	2	9	225
Females	62	52	88	75	10	8	0	7	52
Under 25	44	28	54	46	1	10	2	0	28
25-34	122	59	131	117	3	16	0	5	99
35-44	120	73	140	118	9	21	0	8	97
45-54	43	22	48	38	6	8	0	3	41
55 and over	9	6	13	10	1	2	0	0	12
Males									
Under 25	33	23	40	35	0	7	2	0	23
25-34	97	45	105	92	3	13	0	1	78
35-44	104	46	107	90	5	20	0	5	79
45-54	34	18	36	29	2	7	0	3	33
55 and over	8	4	10	8	0	2	0	0	12
Females									
Under 25	11	5	14	11	1	3	0	0	5
25-34	25	14	26	25	0	3	0	4	21
35-44	16	27	33	28	4	1	0	3	18
45-54	9	4	12	9	4	1	0	0	8
55 and over	1	2	3	2	1	0	0	0	0

1. More than one drug may be reported per death. These are mentions of each drug, and should not be added to give total deaths.
Part (a) counts only drugs which, the pathologist believed, were implicated in, or potentially contributed to, the cause of death
Part (b) counts all the drugs which the pathologist found to be present in the body, including those which the pathologist did not consider to have had any direct contribution to the death

2. See paragraph 3.3.1 of commentary.

Table 7 Drug-related deaths involving only one drug by sex, age and selected drugs reported[1], Scotland, 2009

	Heroin / morphine [2]	Meth-adone	Benzodiazepines			Cocaine	Ecstasy	Amphet-amines	Alcohol *(with only one drug - see notes)*
			Any benzo-diazepine	*of which:* Diaz-epam	Temaz-epam				
(a) only one drug (and, perhaps, alcohol) was found to be present in the body									
All such deaths	**36**	**10**	**7**	**6**	**1**	**2**	**1**	**1**	**40**
Males	31	9	5	5	0	2	1	1	34
Females	5	1	2	1	1	0	0	0	6
Under 25	8	0	1	1	0	0	1	0	3
25-34	9	6	1	1	0	2	0	0	12
35-44	14	3	2	2	0	0	0	1	15
45-54	4	0	2	1	1	0	0	0	7
55 and over	1	1	1	1	0	0	0	0	3
Males									
Under 25	6	0	0	0	0	0	1	0	2
25-34	7	6	1	1	0	2	0	0	11
35-44	14	2	2	2	0	0	0	1	14
45-54	3	0	1	1	0	0	0	0	4
55 and over	1	1	1	1	0	0	0	0	3
Females									
Under 25	2	0	1	1	0	0	0	0	1
25-34	2	0	0	0	0	0	0	0	1
35-44	0	1	0	0	0	0	0	0	1
45-54	1	0	1	0	1	0	0	0	3
55 and over	0	0	0	0	0	0	0	0	0
(b) only one drug (and, perhaps, alcohol) was implicated in, or potentially contributed to the cause									
All such deaths	**148**	**54**	**7**	**6**	**1**	**7**	**1**	**3**	**90**
Males	122	42	5	5	0	6	1	3	72
Females	26	12	2	1	1	1	0	0	18
Under 25	21	6	1	1	0	0	1	0	7
25-34	56	16	1	1	0	4	0	0	36
35-44	51	19	2	2	0	1	0	3	26
45-54	16	10	2	1	1	1	0	0	17
55 and over	4	3	1	1	0	1	0	0	4
Males									
Under 25	16	6	0	0	0	0	1	0	5
25-34	42	12	1	1	0	3	0	0	30
35-44	47	12	2	2	0	1	0	3	20
45-54	13	9	1	1	0	1	0	0	13
55 and over	4	3	1	1	0	1	0	0	4
Females									
Under 25	5	0	1	1	0	0	0	0	2
25-34	14	4	0	0	0	1	0	0	6
35-44	4	7	0	0	0	0	0	0	6
45-54	3	1	1	0	1	0	0	0	4
55 and over	0	0	0	0	0	0	0	0	0

1. Part (a) of this table gives the number of deaths for which each of the specified drugs was the only drug which was found to be present in the body. For example, a death for which:
   (a) both cocaine and alcohol were implicated would be counted twice: once under "cocaine" and once under "alcohol"
   (b) both cocaine and alcohol were implicated, and methadone was found to be present in the body but was not considered to have had any direct contribution to the death, would NOT be counted at all in the upper part of the table

   The final column of part (a) gives the number of drug-related deaths for which alcohol was found to be present in the body together with only one drug

   Part (b) of this table gives the number of deaths for which each of the specified drugs was the only drug which was considered to have been implicated in, or potentially contributed, to the cause of death. The pathologist may have reported that other drugs were present in the body - but, if so, the pathologist did not consider that they had any direct contribution to the death.

   The final column of part (b) gives the number of drug-related deaths for which alcohol was thought, by the pathologist, to be implicated in the cause of death together with only one drug

   For example, a death for which:
   (a) both cocaine and alcohol were implicated would be counted twice: once under "cocaine" and once under "alcohol"
   (b) both cocaine and alcohol were implicated, and methadone was found to be present in the body but was not considered to have had any direct contribution to the death, would also be counted under "cocaine" and "alcohol" (but not under "methadone")
   (c) cocaine, methadone and alcohol were ALL implicated would NOT be counted at all in this table

2. See paragraph 3.3.1 of commentary.

Table 8 Drug-related deaths per 1,000 population, Scotland, 2000 to 2009, and NHS Boards, annual averages for 2005 to 2009

	Age-group					
	15 - 24 [1]	25 - 34	35 - 44	45 - 54	55 - 64 [2]	All ages [3]
(a) Scotland						
2000	0.12	0.18	0.09	0.02	0.01	0.06
2001	0.12	0.20	0.09	0.04	0.01	0.07
2002	0.16	0.23	0.12	0.04	0.01	0.08
2003	0.12	0.19	0.10	0.03	0.02	0.06
2004	0.12	0.22	0.12	0.05	0.00	0.07
2005	0.07	0.17	0.16	0.05	0.02	0.07
2006	0.10	0.25	0.16	0.08	0.02	0.08
2007	0.14	0.24	0.19	0.06	0.02	0.09
2008	0.13	0.33	0.23	0.10	0.03	0.11
2009	0.10	0.28	0.25	0.10	0.03	0.10
average of rates for latest five years (2005 to 2009)	0.11	0.25	0.20	0.08	0.02	0.09
(b) NHS Board areas: annual averages for 2005 to 2009 [4]						
Ayrshire & Arran	0.11	0.29	0.19	0.06	0.02	0.08
Borders	0.10	0.16	0.09	0.01	0.01	0.04
Dumfries & Galloway	0.15	0.20	0.09	0.04	0.01	0.05
Fife	0.12	0.24	0.14	0.06	0.01	0.08
Forth Valley	0.13	0.22	0.08	0.07	0.03	0.07
Grampian	0.11	0.24	0.13	0.08	0.02	0.08
Greater Glasgow & Clyde [5]	0.12	0.33	0.34	0.13	0.04	0.14
Highland [5]	0.08	0.21	0.12	0.03	0.01	0.06
Lanarkshire	0.09	0.24	0.17	0.06	0.01	0.08
Lothian	0.07	0.18	0.17	0.08	0.04	0.08
Orkney	0.00	0.21	0.00	0.00	0.00	0.02
Shetland	0.16	0.24	0.06	0.00	0.00	0.05
Tayside	0.14	0.30	0.23	0.06	0.02	0.09
Western Isles	0.22	0.32	0.00	0.00	0.00	0.05

1. Other tables which provide figures by age-group give the number of drug-related deaths of people who were aged under 25. However, this column's figures are for ages 15-24, inclusive, as there are very few drug-related deaths of people aged 0-14
2. Other tables which provide figures by age-group give the number of drug-related deaths of people who were aged 55 and over However, this column's figures are for ages 55-64, inclusive, as there are few drug-related deaths of people aged 65 and over
3. Including ages 0-14 and 65+
4. Calculated by dividing the average number of drug-related deaths per year over the specified 5-year period by the estimated population in the middle of the 5-year period (which is a proxy for the average population over the whole of the period).
5. New NHS Board areas including parts of former Argyll & Clyde prior to its dissolution on 1 April 2006.

Table HB1 Drug-related deaths by NHS Board area, 1999 - 2009 (with averages for 1996-2000 and 2005-2009)

NHS Board area	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	Annual averages 1996 to 2000	Annual averages 2005 to 2009	Population in 2007	2005-2009 average deaths per 1,000 pop'n [1]
Scotland	**291**	**292**	**332**	**382**	**317**	**356**	**336**	**421**	**455**	**574**	**545**	**260**	**466**	**5,144,200**	**0.09**
Ayrshire & Arran	15	20	35	33	19	20	15	25	36	40	39	10	31	367,020	0.08
Borders	0	1	1	0	2	2	7	2	4	7	5	1	5	111,430	0.04
Dumfries & Galloway	7	7	8	9	9	7	7	5	10	9	8	6	8	148,300	0.05
Fife	9	12	11	12	12	17	21	19	28	37	32	9	27	360,428	0.08
Forth Valley	8	4	9	24	12	16	14	24	26	23	14	4	20	288,473	0.07
Grampian	38	31	46	47	37	39	23	47	45	41	52	29	42	535,290	0.08
Greater Glasgow & Clyde [2]	129	132	117	152	131	151	111	162	157	197	200	113	165	1,192,419	0.14
Highland [2]	8	4	6	13	10	12	13	12	16	24	21	4	17	308,790	0.06
Lanarkshire	23	29	24	37	25	33	40	40	48	44	47	19	44	560,042	0.08
Lothian	39	37	54	39	40	36	57	46	54	94	81	44	66	809,764	0.08
Orkney	0	0	0	0	0	0	0	1	0	1	0	0	0	19,860	0.02
Shetland	0	1	1	1	0	0	1	2	2	1	0	0	1	21,950	0.05
Tayside	14	14	19	14	19	23	26	35	29	53	44	21	37	394,134	0.09
Western Isles	1	0	1	1	1	0	1	1	0	3	2	0	1	26,300	0.05
Argyll & Clyde [3]	30	31	22	31	27	35	29	36	..	..	..	..	..	..	..
Greater Glasgow & Clyde pt.	29	28	21	26	24	31	26	35	..	..	..	..	..	..	..
Highland pt.	1	3	1	5	3	4	3	1	..	..	..	..	..	..	..
Greater Glasgow [3]	100	104	96	126	107	120	85	127	..	..	..	..	..	..	..
Highland [3]	7	1	5	8	7	8	10	11	..	..	..	..	..	..	..

1. using the population in the middle of the 5-year period as a proxy for the average population over the whole period

2. New NHS Board areas including parts of former Argyll & Clyde.
3. Former NHS Board areas (before dissolution of Argyll & Clyde on 1 April 2006).

Table HB2 Drug-related deaths by cause of death and NHS Board area, 2009

NHS Board area	All categories	Cause of death category (ICD10 codes)				
		Drug abuse (F11-F16, F19)	Accidental poisoning (X40-X44)	Intentional self-poisoning (X60-X64)	Assault by drugs, etc. (X85)	Undetermined intent (Y10-Y14)
Scotland	**545**	**380**	**60**	**34**	**0**	**71**
Ayrshire & Arran	39	29	7	1	0	2
Borders	5	2	1	2	0	0
Dumfries & Galloway	8	2	2	1	0	3
Fife	32	24	4	3	0	1
Forth Valley	14	12	0	1	0	1
Grampian	52	36	3	6	0	7
Greater Glasgow & Clyde	200	132	31	10	0	27
Highland	21	16	0	1	0	4
Lanarkshire	47	31	4	4	0	8
Lothian	81	55	4	5	0	17
Orkney	0	0	0	0	0	0
Shetland	0	0	0	0	0	0
Tayside	44	39	4	0	0	1
Western Isles	2	2	0	0	0	0

Table HB3 Drug-related deaths by selected drugs reported[1] and NHS Board area, 2009

NHS Board area	Heroin / morphine [2]	Meth-adone	Benzodiazepines			Cocaine	Ecstasy	Amphet-amines	Alcohol
			Any benzo-diazepine	*of which:* Diaz-epam	Temaz-epam				
Scotland	**322**	**173**	**154**	**116**	**9**	**32**	**2**	**6**	**165**
Ayrshire & Arran	29	13	8	7	0	1	1	1	8
Borders	2	0	3	2	0	0	0	0	2
Dumfries & Galloway	5	2	2	2	0	1	0	0	3
Fife	17	8	12	12	0	0	0	2	6
Forth Valley	10	2	5	5	0	0	0	0	4
Grampian	33	9	28	1	0	11	0	1	16
Greater Glasgow & Clyde	111	74	12	11	1	14	0	1	65
Highland	12	7	4	2	0	0	0	0	6
Lanarkshire	35	9	4	4	0	0	0	1	18
Lothian	36	35	47	45	6	4	1	0	23
Orkney	0	0	0	0	0	0	0	0	0
Shetland	0	0	0	0	0	0	0	0	0
Tayside	31	14	28	25	2	1	0	0	13
Western Isles	1	0	1	0	0	0	0	0	1

1. More than one drug may be reported per death. These are mentions of each drug, and should not be added to give total deaths.
Up to 2007, some pathologists reported only those drugs which they thought caused, or contributed to, the death
With effect from 2008, pathologists report separately (a) drugs which were implicated in, or which potentially contributed to, the cause of death and (b) other drugs which were present but which were not considered to have had any direct contribution to the death
The figures in this table are on the first basis - i.e. basis (a) - which is now the standard basis for GROS's figures for individual drugs. They are on a different basis from those published in Table HB3 of the previous edition.
There may be other differences between years and/or areas in the way in which the information was produced - see Section 2.

2. See paragraph 3.3.1 of commentary.

Table C1 Drug-related deaths by Council area, 1999 - 2009 (with averages for 1996-2000 and 2005-2009)

Council area	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	Annual averages 1996 to 2000	Annual averages 2005 to 2009	Population in 2007	2005-2009 average deaths per 1,000 pop'n
Scotland	**291**	**292**	**332**	**382**	**317**	**356**	**336**	**421**	**455**	**574**	**545**	**260**	**466**	**5,144,200**	**0.09**
Aberdeen City	22	22	32	34	21	27	11	26	23	27	27	20	23	209,260	0.11
Aberdeenshire	11	6	14	9	13	8	10	16	17	11	18	7	14	239,160	0.06
Angus	2	3	1	4	5	8	8	11	3	8	9	2	8	109,870	0.07
Argyll & Bute	1	3	1	5	3	4	3	1	9	4	7	1	5	91,350	0.05
Clackmannanshire	0	0	0	7	2	5	3	7	5	4	3	1	4	49,900	0.09
Dumfries & Galloway	7	7	8	9	9	7	7	5	10	9	8	6	8	148,300	0.05
Dundee City	12	7	13	6	9	11	11	16	23	29	30	14	22	142,150	0.15
East Ayrshire	6	3	10	12	3	4	4	9	13	13	12	2	10	119,570	0.09
East Dunbartonshire	2	4	3	1	6	5	1	2	7	6	5	3	4	104,850	0.04
East Lothian	2	1	2	6	4	2	5	3	4	7	6	2	5	94,440	0.05
East Renfrewshire	3	4	3	5	3	5	1	3	3	6	7	2	4	89,260	0.04
Edinburgh, City of	25	28	39	27	26	17	41	30	43	66	45	32	45	468,070	0.10
Eilean Siar	1	0	1	1	1	0	1	1	0	3	2	0	1	26,300	0.05
Falkirk	5	1	7	8	6	7	8	10	15	10	5	2	10	150,720	0.06
Fife	9	12	11	12	12	17	21	19	28	37	32	9	27	360,500	0.08
Glasgow City	91	96	84	111	93	106	75	113	90	121	135	82	107	581,940	0.18
Highland	7	1	5	8	7	8	10	11	7	20	14	3	12	217,440	0.06
Inverclyde	12	11	12	8	7	9	7	9	10	5	7	9	8	81,080	0.09
Midlothian	4	3	5	2	3	5	5	6	1	6	9	3	5	79,510	0.07
Moray	5	3	0	4	3	4	2	5	5	3	7	2	4	86,870	0.05
North Ayrshire	5	11	15	14	9	13	6	11	18	15	19	4	14	135,760	0.10
North Lanarkshire	11	18	12	28	22	20	25	24	27	30	35	11	28	324,680	0.09
Orkney Islands	0	0	0	0	0	0	0	1	0	1	0	0	0	19,860	0.02
Perth & Kinross	0	4	5	4	5	4	7	8	3	16	5	5	8	142,140	0.05
Renfrewshire	11	11	5	9	11	14	10	17	21	27	26	9	20	169,600	0.12
Scottish Borders	0	1	1	0	2	2	7	2	4	7	5	1	5	111,430	0.04
Shetland Islands	0	1	1	1	0	0	1	2	2	1	0	0	1	21,950	0.05
South Ayrshire	4	6	10	7	7	3	5	5	5	12	8	3	7	111,690	0.06
South Lanarkshire	17	12	16	14	8	17	16	22	31	23	19	11	22	309,500	0.07
Stirling	3	3	2	9	4	4	3	7	6	9	6	1	6	88,190	0.07
West Dunbartonshire	5	5	6	13	6	8	15	12	16	23	13	5	16	91,090	0.17
West Lothian	8	5	8	4	7	12	7	7	6	15	21	6	11	167,770	0.07

Table C2 Drug-related deaths by cause of death and Council area, 2009

Council area	All categories	Cause of death category (ICD10 codes)				
		Drug abuse (F11-F16, F19)	Accidental poisoning (X40-X44)	Intentional self-poisoning (X60-X64)	Assault by drugs, etc. (X85)	Undetermined intent (Y10-Y14)
Scotland	**545**	**380**	**60**	**34**	**0**	**71**
Aberdeen City	27	20	2	2	0	3
Aberdeenshire	18	11	1	3	0	3
Angus	9	8	1	0	0	0
Argyll & Bute	7	6	0	0	0	1
Clackmannanshire	3	3	0	0	0	0
Dumfries & Galloway	8	2	2	1	0	3
Dundee City	30	26	3	0	0	1
East Ayrshire	12	11	1	0	0	0
East Dunbartonshire	5	3	0	0	0	2
East Lothian	6	3	0	1	0	2
East Renfrewshire	7	6	0	0	0	1
Edinburgh, City of	45	32	0	2	0	11
Eilean Siar	2	2	0	0	0	0
Falkirk	5	3	0	1	0	1
Fife	32	24	4	3	0	1
Glasgow City	135	87	23	8	0	17
Highland	14	10	0	1	0	3
Inverclyde	7	5	0	1	0	1
Midlothian	9	5	0	1	0	3
Moray	7	5	0	1	0	1
North Ayrshire	19	12	4	1	0	2
North Lanarkshire	35	24	3	3	0	5
Orkney Islands	0	0	0	0	0	0
Perth & Kinross	5	5	0	0	0	0
Renfrewshire	26	15	7	1	0	3
Scottish Borders	5	2	1	2	0	0
Shetland Islands	0	0	0	0	0	0
South Ayrshire	8	6	2	0	0	0
South Lanarkshire	19	13	2	1	0	3
Stirling	6	6	0	0	0	0
West Dunbartonshire	13	10	0	0	0	3
West Lothian	21	15	4	1	0	1

Table C3 Drug-related deaths by selected drugs reported[1] and Council area, 2009

Council area	Heroin / morphine [2]	Meth-adone	Benzodiazepines			Cocaine	Ecstasy	Amphet-amines	Alcohol
			Any benzo-diazepine	*of which:* Diaz-epam	Temaz-epam				
Scotland	**322**	**173**	**154**	**116**	**9**	**32**	**2**	**6**	**165**
Aberdeen City	20	3	13	1	0	6	0	1	7
Aberdeenshire	10	3	8	0	0	4	0	0	5
Angus	9	1	5	5	0	0	0	0	5
Argyll & Bute	3	3	0	0	0	0	0	0	1
Clackmannanshire	3	0	1	1	0	0	0	0	0
Dumfries & Galloway	5	2	2	2	0	1	0	0	3
Dundee City	19	12	18	16	1	1	0	0	7
East Ayrshire	12	3	3	3	0	0	0	0	2
East Dunbartonshire	0	4	0	0	0	0	0	0	1
East Lothian	2	3	3	3	1	0	0	0	1
East Renfrewshire	4	1	0	0	0	1	0	0	5
Edinburgh, City of	18	20	27	25	3	1	1	0	16
Eilean Siar	1	0	1	0	0	0	0	0	1
Falkirk	3	2	1	1	0	0	0	0	2
Fife	17	8	12	12	0	0	0	2	6
Glasgow City	72	48	9	8	1	7	0	1	44
Highland	9	4	4	2	0	0	0	0	5
Inverclyde	5	2	0	0	0	0	0	0	1
Midlothian	3	3	5	5	0	3	0	0	1
Moray	3	3	7	0	0	1	0	0	4
North Ayrshire	13	6	4	4	0	1	1	0	3
North Lanarkshire	27	8	3	3	0	0	0	1	15
Orkney Islands	0	0	0	0	0	0	0	0	0
Perth & Kinross	3	1	5	4	1	0	0	0	1
Renfrewshire	19	7	2	2	0	3	0	0	9
Scottish Borders	2	0	3	2	0	0	0	0	2
Shetland Islands	0	0	0	0	0	0	0	0	0
South Ayrshire	4	4	1	0	0	0	0	1	3
South Lanarkshire	9	6	2	2	0	2	0	0	5
Stirling	4	0	3	3	0	0	0	0	2
West Dunbartonshire	10	7	0	0	0	1	0	0	3
West Lothian	13	9	12	12	2	0	0	0	5

1. More than one drug may be reported per death. These are mentions of each drug, and should not be added to give total deaths.
Up to 2007, some pathologists reported only those drugs which they thought caused, or contributed to, the death
With effect from 2008, pathologists report separately (a) drugs which were implicated in, or which potentially contributed to, the cause of death and (b) other drugs which were present but which were not considered to have had any direct contribution to the death
The figures in this table are on the first basis - i.e. basis (a) - which is now the standard basis for GROS's figures for individual drugs. They are on a different basis from those published in Table C3 of the previous edition.
There may be other differences between years and/or areas in the way in which the information was produced - see Section 2.

2. See paragraph 3.3.1 of commentary.

Table X Drug-related deaths in Scotland - different definitions, 1996 - 2009

Year	this paper (based on UK Drug Strategy "baseline" definition)	ONS "wide" definition	EMCDDA "general mortality register" definition
1996	244	460	208
1997	224	447	188
1998	249	449	230
1999	291	492	272
2000	292	495	318
2001	332	551	376
2002	382	566	417
2003	317	493	331
2004	356	546	387
2005	336	480	352
2006	421	577	416
2007	455	630	450
2008	574	737	556
2009	545	716	532

Figure 2 Drug-related deaths in Scotland - different definitions

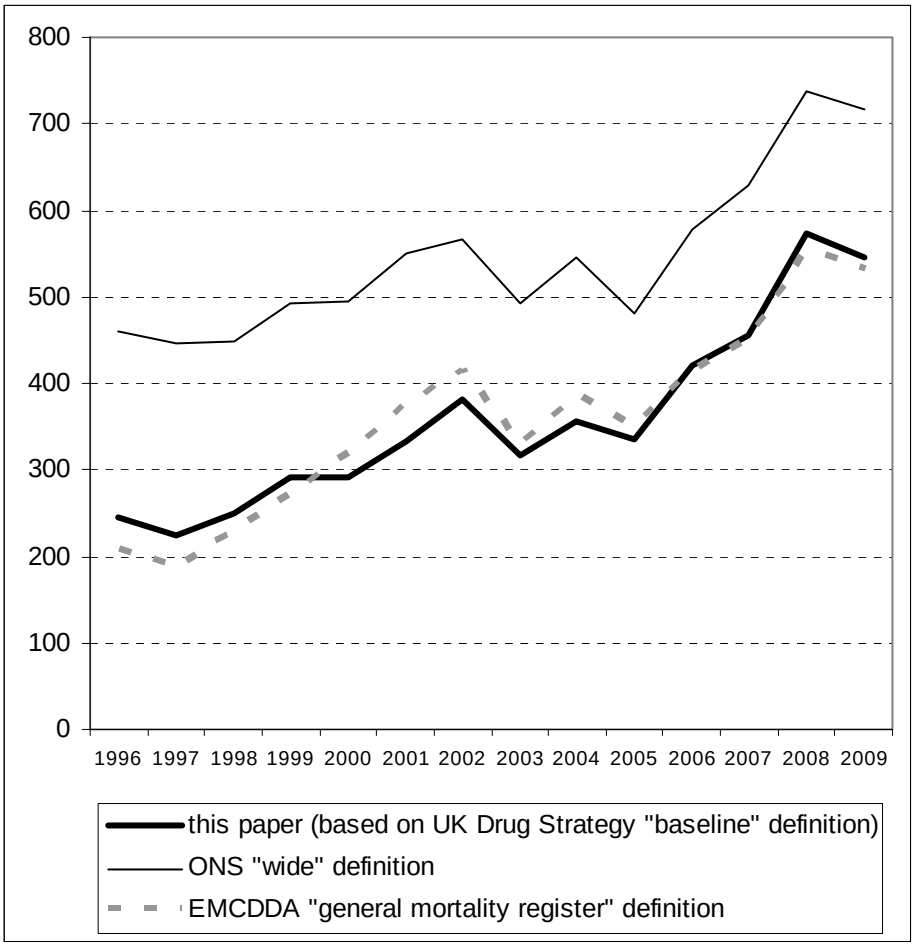

Table Y Drug-related deaths, on the basis of the ONS "wide" definition, by selected drugs reported, 2000 - 2009

Drugs [1, 2]	2000	2001	2002	2003	2004	2005	2006	2007	2008 rev.	2009
All drug-related deaths *(on the "wide" definition)*	**495**	**551**	**566**	**493**	**546**	**480**	**577**	**630**	**737**	**716**
Amphetamines	3	5	13	10	10	11	11	12	12	7
Anti-depressants [3]	78	93	82	83	86	67	93	84	101	97
Anti-psychotics [4]	12	10	8	8	11	5	21	26	25	19
Benzodiazepines [5]	165	185	248	189	140	110	94	109	150	158
Cannabis	24	23	35	21	5	6	3	8	1	0
Cocaine	4	20	31	30	38	44	33	47	41	33
Diazepam	147	159	217	154	113	90	78	79	116	120
Ecstasy-type	12	21	20	15	17	10	12	12	5	2
Heroin/diamorphine or Morphine [6]	218	221	250	176	226	194	260	291	327	326
Methadone	56	71	100	91	80	71	96	115	171	177
Paracetamol or a compound [7]	120	127	117	85	107	62	53	56	55	43
Temazepam	39	20	16	37	5	7	9	4	7	9
Tramadol	1	8	6	15	11	16	17	26	32	40
Alcohol	164	186	190	168	145	134	151	181	196	187

1. More than one drug may be reported per death. These are mentions of each drug, so do not add up to the overall total.
   Up to 2007, some pathologists reported only those drugs which they thought caused, or contributed to, the death.
   With effect from 2008, pathologists report separately:
   (a) drugs which were implicated in, or which potentially contributed to, the cause of death; and
   (b) other drugs which were present but which were not considered to have had any direct contribution to the death
   The figures for 2008 onwards are on the first basis - i.e. basis (a) - which is now the standard basis for GROS's figures for individual drugs. The figures for 2008 have been revised from those published in the previous edition.
   There may be other differences between years and/or areas in the way in which the information was produced - see Section 2.
2. The figures for some of the "controlled" drugs may differ slightly from those given in earlier tables for two reasons.
   First, they were produced from GROS's new database, rather than the old database (see paragraph A4).
   Second, a small proportion of the deaths which involved controlled drugs were excluded from the figures which appear in the earlier tables, for reasons such as those given in paragraph A3.
3. e.g. amitriptyline, citalopram, dothiepin, fluoexetine, prothaiaden
4. e.g. chlorpromazine, clozapine, olanzapine
5. including diazepam and temazepam (which appear separately below)
6. see paragraph 3.3.1 of commentary.
7. e.g. co-codamol or co-proxamol, or mention of dextropropoxyphene or propoxyphene (even if there is no mention of paracetamol or a compound analgesic)

Table Z Drug-related deaths, on the basis of the ONS "wide" definition, by how they relate to the Drug Strategy "baseline" definition, and deaths from some causes which may be associated with present or past drug misuse, 2000 - 2009

Cause of death	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
All drug-related deaths (on the "wide" definition)	495	551	566	493	546	480	577	630	737	716
of which:										
on the basis used for this report's statistics (i.e. the Drug Strategy "baseline" definition, as implemented by GROS)	**292**	**332**	**382**	**317**	**356**	**336**	**421**	**455**	**574**	**545**
deaths within the Drug Strategy "baseline" definition, but excluded from this report's statistics because ... [1]										
(a) … cause of death was a secondary infection or a related complication [2]	22	9	10	9	6	12	13	10	23	22
(b) … controlled substance was present only as part of a compound analgesic or a cold remedy	3	4	6	0	0	1	2	8	10	3
other deaths counted as "drug-related" by the "wide" definition - but not on the basis used for this report [3]	178	206	168	167	184	131	141	157	130	146
Deaths from some causes which may be associated with present or past drug misuse [4]										
Underlying cause of death, with its ICD10 [5] code(s):										
Hepatitis C (B18.2)	1	2	3	5	5	10	14	12	18	21
HIV (B20-24)	23	33	33	33	16	31	19	21	18	27
Total all deaths from the specified causes	24	35	36	38	21	41	33	33	36	48

1. paragraph A3 of Annex A explains why these kinds of deaths are excluded from the standard definition of "drug-related death" figures produced by GROS
2. including (e.g.) deaths caused by infections that resulted from the use of heroin which was contaminated by, say, anthrax
3. including (e.g.) accidental deaths which were caused by the use of drugs which were not controlled at the time, such as those before 16 April 2010 which resulted from using mephedrone (assuming that no controlled drugs were found in the body)
4. only a proportion of deaths from these causes can be attributed to drug misuse - see paragraph B8 of Annex B
5. "ICD10" is the International Statistical Classification of Diseases and Related Health Problems, Tenth Revision

Notes on Statistical Publications

Enquiries

Enquiries about this publication should be addressed to:
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General Register Office for Scotland

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E-mail: kirsty.maclachlan@gro-scotland.gsi.gov.uk.

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Organisation	Contact
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The Office for National Statistics (ONS) is responsible for producing a wide range of economic and social statistics. It also holds the Census of Population for England and Wales.	Customer Contact Centre, Room 1.015, Office for National Statistics, Cardiff Road, Newport, NP10 8XG. Telephone: 0845 601 3034 Minicom: 01633 812399 E-mail: info@statistics.gsi.gov.uk Website: http://www.ons.gov.uk
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