

Probable Suicides: Methodology

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1. How NRS classifies deaths as probable suicides

NRS classifies the underlying cause of death on the basis of the information collected on the death certificate together with any additional information provided by official sources, such as the doctor who certified the death (following a request from NRS for further details), pathologists, or the Crown Office and Procurator Fiscal Service (COPFS).

By convention, the word 'suicide' (or a synonym) does not appear on the death certificate. Examples of terms which often appeared in the cause of death text for the cases which were counted as probable suicides in 2007 include:

- poisoning, with a mention of the substance[s] involved - e.g. 'paracetamol poisoning';
- overdose, again specifying the substance[s] - e.g. 'amitriptyline overdose';
- hanging;
- suspension by a ligature;
- suspension by the neck from [name of object involved];
- drowning;
- fall from a height, accompanied by a brief description of the resulting injuries (e.g. 'multiple injuries', 'head and chest injuries') and, occasionally, an indication of the type of location (e.g. 'cliff', 'bridge'); and
- struck by train, or impact with train, again accompanied by a short statement about the resulting injuries.

The International Statistical Classification of Diseases and Related Health Problems (ICD), which is used to code the causes of deaths, has separate categories for deaths which, on the basis of the information that is available, can be classified as being the result of:

- intentional self-harm (ICD-9 codes E950-959; ICD-10 codes X60-X84 plus Y87.0 and
- events of undetermined intent (ICD-9 codes E980-989; ICD-10 codes Y10- Y34 plus Y87.2,

'Intentional self-harm' includes cases where it is clear from (e.g.) a note that was left, or something that the deceased had said or done, that the person's intention was suicide. 'Intentional self-harm' also includes cases where the evidence establishes that a person died as a result of self-inflicted injuries, even if it is not clear that suicide was the intention - so this category will include a death that was the result of

a 'cry for help' that went wrong, because the death was caused by the deceased harming him/herself intentionally.

'Events of undetermined intent' are cases where it is not clear whether the death was the result of intentional self-harm, an accident or an assault. For example, if a body is washed up on the shore of a firth, it may not be possible to establish whether the person jumped in with suicide in mind, drowned accidentally (e.g. having slipped and fallen in), or was deliberately pushed in.

Because it is thought that most of the deaths which are classified as being the result of 'events of undetermined intent' are likely to be suicides, it is conventional to combine them with the 'intentional self-harm' deaths to produce these statistics. This will over-estimate the true number of suicides, because some 'undetermined intent' deaths will not have been suicides - but their numbers are unknown. Deaths in the two youngest age-groups are not likely to be suicides, but it may not have been determined whether they were the result of an accident or an assault.

The statistics are produced using the National Records of Scotland's (NRS) classification, for statistical purposes, of the causes of deaths, in terms of the ICD rules. An 'intentional self-harm' code is used only in cases where it is clear to NRS that it is appropriate, on the basis of what was recorded on the death certificate or of information from other official sources (such as the Crown Office and Procurator Fiscal Service, a pathologist, or the doctor who certified the death) that had been received by the time that NRS 'freezes' its statistical database for the calendar year, (e.g. NRS 'froze' its statistical database for 2017 at the end of April 2018). There will be deaths for which information that subsequently comes to light would have resulted in a different classification, had NRS known of it before it 'froze' the statistical database. NRS does not revise its statistical classification of deaths after it has 'frozen' its database, because that would change the figures whenever new evidence came to light, possibly many years later. The figures will therefore be higher than would be the case if (say) one counted only those deaths which had been confirmed as suicide following the completion of the relevant legal processes.

COPFS has advised NRS that Procurators Fiscal will provide their views (on whether deaths should be counted as being due to accidents, assault, intentional self-harm or events of undetermined intent) as soon as they can, but there are cases for which COPFS cannot advise whether a death was (say) an accident or a suicide until the conclusion of what could be a lengthy investigation. Therefore, NRS does not ask COPFS for the information required to classify more precisely the deaths which are in the 'undetermined intent' category shortly before NRS 'freezes' its data for the calendar year. However, NRS does seek advice in any cases where different sources provide conflicting information - a situation which arises only occasionally.

1.1. How the classification of a death may change as further information becomes available

NRS's classification (for statistical purposes) of a particular death may change as further information becomes available. For example, suppose that:

- when first registered, the cause of death simply says 'drowning', in which case NRS would classify the death as 'Y21 - drowning and submersion, undetermined intent';
- later, having investigated the circumstances surrounding the death, COPFS might conclude that the person had taken their life, and inform NRS that the death was the result of intentional self-harm. If so, NRS would change the code to 'X71 - intentional self-harm by drowning and submersion';
- on the other hand, COPFS might establish that the death was the result of an accident, in which case NRS would allocate the most appropriate one of the codes in the 'W65 - W74 - accidental drowning and submersion' range (which include 'W65 - drowning and submersion while in bath-tub' and 'W66 - drowning and submersion following fall into bath-tub'). If the information which was available to NRS at that time was insufficient to determine which specific 'accidental drowning' code should be used, NRS would use code 'W74 - unspecified drowning and submersion' (NB: NRS would not issue a medical enquiry seeking whatever further information about the accident would be needed to select precisely the right code - e.g. to determine whether it should be 'W65' or 'W66'); or
- if informed (e.g.) by COPFS, or finding out in some other way (e.g. from Scottish Government's (SG's) data on homicide victims) that the deceased had been killed, by drowning, by another person, NRS would assign code 'X92 - assault by drowning and submersion'.

However, if no further information came to light before NRS 'froze' its data for the calendar year, the code would remain an 'undetermined intent' one, and so the death would be counted as a probable suicide.

1.2. Classifying deaths for which NRS has no information about any intent behind the act that caused the death

One might expect NRS to classify all deaths from 'external' causes (e.g. poisoning, fires, drowning) as 'events of undetermined intent' (and hence as 'probable suicides') until such time as it receives the relevant information from an appropriate official source (e.g. COPFS). In fact, NRS classifies as 'undetermined intent' only some types of the deaths for which it has no information about (what is believed to be) any intent behind the act that caused them: NRS classifies differently certain other types of death. For many years, NRS's medical coders have been instructed to classify different types of 'external' cause deaths in particular ways, in those cases where they have no information about any intent. Some (possibly all) of these practices were based on recommendations from NRS's Medical Adviser at the time each guideline was set out.

For example, in the absence of any information (e.g. from COPFS) about intent, NRS will count a death as being due to an accident (rather than an 'event of undetermined intent' - and hence not count it as a 'probable suicide') if it was the result of:

- a transport vehicle collision / crash;

- a fall in a place that seems unlikely to be a venue for suicide (e.g. down stairs);
- a fracture for which no cause was specified - if the person was aged 75 or over and the type of fracture is one that seems likely to be caused by a fall, NRS will classify the death as being due to an accidental fall; otherwise, NRS will classify it as being due to 'accidental exposure to unspecified factor';
- drowning while diving or having fallen from a boat;
- hanging - if the person was aged 15 or under.

NRS will classify some other types of death as accidental, if it has no information about any intent. There are only three sets of circumstances in which NRS will classify a death as 'intentional self-harm' in the absence of any advice to the contrary (e.g. from COPFS):

- asphyxiation by a plastic bag – if the person was aged 16 or over;
- hanging - if the person was aged 16 or over; and
- carbon monoxide poisoning - if the person had been in a motor vehicle, or anywhere else that seems likely to be a venue for a suicide (e.g. in the garage of a house).

For example, when NRS 'froze' its data for 2007, 517 deaths had been coded as being due to intentional self-harm. Information from the Crown Office (CO) determined the classification of 407 cases as 'intentional self-harm', and pathologists contributed to the classification of 34 of them (including some which CO had not advised on). NRS classified 93 deaths as 'intentional self-harm' (87 of which were hangings) in the absence of any information from CO or pathologists.

2. The Change, Made in mid-2009, in the Procedure Used by the Crown Office and Procurator Fiscal Service to Inform the National Records of Scotland (NRS) About Suicides

2.1. Background

In mid-2009, the way in which the Crown Office and Procurator Fiscal Service notifies NRS of deaths which should be counted as being due to suicides changed.

Previously, a Procurator Fiscal (PF) who believed that a death was a suicide would submit a report on the case to the Crown Office (CO), which would consider the report, decide whether the death was a suicide and (if appropriate) tell NRS to count it as such. With effect from mid-2009, the procedure was changed, so that not all suicides were required to be reported to the CO. As a result of this, a new arrangement was developed for PFs to notify NRS, for each traumatic or suspicious death reported to a PF whether they believe it was due to (i) accident, (ii) intentional self-harm, (iii) assault, or (iv) undetermined intent, using an amended version of a form which PFs were already routinely sending to NRS. The Notes of Guidance for this state that PFs should specify 'undetermined intent' in cases 'where the evidence

is insufficient for the PF to form a view, on the balance of probabilities, as to which of the other categories is appropriate'.

The change has therefore altered the way in which some deaths are classified - ones which the PFs thought were more likely than not to be suicides, but for which there was insufficient evidence for the preparation of 'suicide' reports for the CO. Such deaths would previously have been counted as being due to events of undetermined intent, but now they are likely to be counted as due to intentional self-harm. This changed the balance between the numbers of deaths counted as being due to 'events of undetermined intent' and to 'intentional self-harm'.

The change may also have affected the numbers of deaths which are counted as being due to accidents or assault. This is because there may be deaths, which would previously have been counted as being due to events of undetermined intent, which are now counted as being due to accidents or assault because PFs can use the amended form to express their views, on the balance of probabilities, of the nature of these deaths (under the previous arrangements, the PFs might not have told NRS how to count such deaths).

The new procedure was used on a 'pilot' basis by a few PF offices in Spring 2009, before being introduced throughout Scotland for forms which were submitted with effect from 6 July 2009. Because a PF may not be able to provide NRS with a final view until several weeks (or perhaps months) after a death was registered, the new procedure applied for most (but not all) of the traumatic or suspicious deaths registered in 2009 - so the figures for 2009 do not show the effect of using the new procedure on the whole year's data, and may be subject to the effects of 'teething' troubles. It follows that 2010 was the first year for which the new procedure operated for a full year, so (strictly speaking) the figures for 2009 are not directly comparable with those for either 2008 or 2010.

2.2. The Likely Impact of this Change

Since 2009, there has been an increase in the percentage of poisoning deaths which Procurators Fiscal (PFs) have described as being the result of accidents, and a corresponding fall in the proportion which they have described as being due to events of undetermined intent.

- For 2009 and 2010, PFs were of the considered view that around a third of poisoning deaths were accidental, and roughly 30 per cent were due to events of undetermined intent;
- These percentages changed over the next few years. By 2015, the proportion of poisoning deaths that PFs classified as accidental had risen, and, as a consequence, there had been a fall in the proportion that were classified as due to events of undetermined intent. Over the same period, there was little change in the number of poisoning deaths believed to be due to intentional self-harm or assault.

Because deaths due to events of undetermined intent are included in the number of probable suicides, this has contributed to the reduction in the number of probable suicides. Had there been no variation in the proportion of poisonings counted as accidental:

- recent years' reductions in the numbers of probable suicides would have been smaller than are shown by the published figures (but there would still have been a decrease); and
- the numbers of accidental deaths (based on the old coding rules) would have remained within the range that has contained the values for every year from 1995.

2.3. Estimating the scale of the resulting changes to the figures

NRS has estimated roughly what the figures for 2009 to 2014 (on the basis of the old coding rules) might have been, had those years' 'accidental' and 'undetermined intent' poisoning deaths been split between those two natures of death in the same way as they were in 2015. On average, per year, there might have been about 50 more accidental deaths, and therefore around 50 fewer probable suicides, than shown in the published figures. The estimates for different years vary, but are all between roughly 20 and 90. It follows that:

- the variation in the proportion of poisoning deaths counted as accidental appear not to have affected greatly the numbers of probable suicides (on the basis of the old coding rules) for 2009 to 2014: the estimated effect is a decrease of between two per cent and 11 per cent, depending upon the year.
- the changes have definitely not altered the direction of the trend. For example, in that period, the highest numbers of probable suicides (on the basis of the old coding rules) were 781 in 2010, 772 in 2011 and 762 in 2012. Even if each 8 of them was reduced by the largest estimate of the effect (which is for 2011, and is under 90), they would all still be larger than the figure of 656 for 2015. So, it would remain the case that the number of probable suicides (on the basis of the old coding rules) would be clearly lower in 2015 (and 2014) than in the previous five or more years. The latest year's figure (656) would also be well below the level that was seen around the year 2000, when six consecutive years had values that were between 874 and 899.

The estimated effects represent smaller percentages of the larger numbers of accidental deaths: using the figures on the old basis, and would have increased the total by between one per cent and seven per cent, depending upon the year. Even if the numbers of accidental deaths (on the basis of the old coding rules) for 2009 to 2014 were each increased by the largest estimate of the effect in any one year (under 90), they would all remain within the range of roughly 1,250 to 1,400 that has contained the values for every year from 1995.

2.4. Some other points to note

As well as changing over time, the balance between 'accident' and 'undetermined intent' in PFs' views has varied between different parts of Scotland. As a result, the changes may have had different effects at different times on the figures for different areas.

NRS's method of estimating the effect of the changes is a 'crude' one, intended solely to provide an indication of whether the scale of the effect might be large enough to alter the main messages from the statistics. NRS has no way of knowing

which of (say) the 2009 deaths might have been classified differently, had those deaths been classified in 2015, and no intention of trying to produce estimates for, say, different areas of Scotland or different age-groups, because breaking the statistics down in such ways would mean that the numbers involved in the calculations would be much smaller and so the results could be far less reliable. For Scotland as a whole, the estimated scale of the effect of the change to figures based on the old coding rules is (on average) about 50 per year: breaking this down between several categories (for example parts of Scotland, or age-groups) could give results for individual categories that were small and subject to large percentage uncertainties.

NRS has also estimated roughly what the figures for 2011 to 2014, on the basis of the new coding rules, might have been, had the percentages from 2015 applied in those years. The effects are larger (on average, about 100 per year), because figures based on the new coding rules include more 'undetermined intent' deaths. However, because NRS cannot produce figures based on the new coding rules for 2010 or earlier years, such estimates are of limited value, as they cannot be compared with earlier years' numbers.

Finally, it should be emphasised that the figures for 2015 should be more accurate than those for the previous few years, because PFs informed NRS as to the likely intent behind, or accidental nature of, a higher percentage of poisoning deaths in 2015 than in the previous years.

2.5. Effect on the Total Number of Probable Suicides

The reduction in the number of probable suicides between 2008 and 2009 is not large enough for one to be confident that it was caused by, or even mainly due to, the change of procedure, and that the same applies in the case of the increase between 2008 and 2009 in the number of deaths which are counted as being due to accidents. It appears that any effect of the change is no greater than the likely range of year-to-year fluctuation in the numbers.

As the number of deaths counted as being due to assault fell in 2009, the change in procedure has clearly not caused that figure to rise. When the numbers of deaths from specific causes are examined, the main rises in accidental deaths do not correlate well with the main falls in deaths from events of undetermined intent, which suggests that the change in procedure has not caused many deaths which would previously have been counted as probable suicides to be classified now as accidents. Therefore, most of the fall in the number of probable suicides (and most of the rise in the number of accidental deaths) appears to be due to year-to-year fluctuation (rather than the introduction of the new procedure).

The overall trend (as indicated by the 5-year moving average) has been generally downwards since around 2000 (although the numbers have tended to fluctuate from year to year). Given that overall trend, a drop in the total number of probable suicides between 2008 and 2009 was not unexpected. The extent of the fall (97) appears to be within the likely range of values around the moving average, so it could be due to year-to-year fluctuation (like the fall of 105 between 2002 and 2003). In recent years, the annual total number of probable suicides has been around 800-or-so. While the 2009 figure of 746 is smaller than any of the previous six years'

numbers (which are, in ascending order, 763, 765, 794, 835, 838, 843), it is not excessively low (as, with an underlying rate of 800 per year, the likely range of values in any given year is from about 743 to around 857). So the reduction in 2009 in the total number of probable suicides could be the result of year-to-year fluctuation - it is not large enough for one to be confident that it was caused by, or even mainly due to, the change in procedure.

2.6. Effect on numbers of deaths from various types of external cause

As mentioned earlier, the change in procedure could have led to some of the deaths which would previously have been counted as due to events of undetermined intent now being counted as due to accidents and assault. Information about any trends in these figures can be obtained from the Vital Events Reference Tables. Statistics of deaths from 'external causes' from Vital Events Reference Table 6.1 have been put into a separate workbook called Suicides – estimating any likely effect of procedural change (Excel - 53 Kb), together with charts which show some of the figures for 2000 onwards (as that is the first year for which Scottish cause of death statistics are based on ICD-10 codes).

The first chart shows the numbers of deaths from the specified types of external cause. In general, the figures have not changed markedly since 2000, although there have been some year-to-year fluctuations.

The remaining charts give the numbers of deaths from (a) accidents, (b) intentional self-harm, and (c) events of undetermined intent. These charts include 5-year moving averages, which should show more clearly if there are any overall trends. The moving averages are plotted against the middle years for the periods (e.g. the average for 2000 to 2004 appears against 2002). The last 5-year average shown is the one for 2004 to 2008 (plotted against 2006), because the 5-year average for 2005 to 2009 could be affected by the change of procedure in 2009.

2.6.1. Deaths due to assault

The first chart shows that the number of deaths which were due to assault is relatively small (around 100 per year). The statistics from Table 6.1 show a fall in deaths from assault in 2009, so the change in procedure has not caused any more deaths to be counted as due to assault. In any case, because NRS cross-checked its data on deaths from assault against information from the Scottish Government's statistics of homicides, previous years' figures for deaths due to events of undetermined intent should have included very few cases which PFs would now indicate were likely to be due to assault.

2.6.2. Deaths due to accidents

The second chart shows that the number of deaths due to accidents has generally been falling over the years since 2000. The 5-year moving averages suggest a steady downward trend, the grey dashed lines show the likely lower and upper limits of year-to-year fluctuation around the trend, and the thin dashed line shows a rough extension of the trend to the other years. There are two years for which the number of deaths due to accidents departs markedly from the general trend: 2004 (when there was an increase of 65) and 2009 (a rise of 71).

The increase between 2008 and 2009 could be (mainly) due to the introduction of the new procedure: if so, then previous years' figures for 'undetermined intent' deaths (and, hence, total numbers of probable suicides) might have included many deaths that, under the new procedure, PFs have indicated are likely to be due to accidents - perhaps 60-or-so per year (based on the difference between the actual and 'trend' values for 2009). In that case, the change in procedure would account for most of the fall of 97 in the total number of probable suicides. However, the increase between 2008 and 2009 could also be an example of the kind of large year-to-year fluctuation that occurs from time to time (like the rise between 2003 and 2004). With an underlying rate of roughly 1,300 deaths due to accidents per year, the likely range of values in any given year is from about 1,228 to around 1,372, so an increase from 1,261 in 2008 to 1,332 in 2009 is well within the likely range of year-to-year fluctuation. Therefore, while the increase between 2008 and 2009 in the number of deaths due to accidents could be a consequence of the change in procedure, it is not large enough for one to be confident that it was caused by, or was even mainly due to, that change.

For completeness, the third and fourth charts show 'intentional self-harm' and 'undetermined intent' deaths. For the former, the overall trend is generally downwards, but there are year-to-year fluctuations, for the latter, there is no clear 11 trend, with some large percentage changes in other years in addition to the big fall between 2008 and 2009.

2.6.3. 'Undetermined intent' and 'accidental' deaths from specific causes

A more detailed analysis uses the numbers of deaths for each specific cause (which can be obtained from the 2008 and 2009 versions of Vital Events Reference Table 6.4). The main reasons for the number of 'undetermined intent' deaths dropping by 96 between 2008 and 2009 were falls in deaths from the following causes (which are identified by their ICD-10 codes):

- Y10 - poisoning by and exposure to nonopioid analgesics, antipyretics and antirheumatics, undetermined intent - fall of 16 (from 25 to 9).
- Y11 - poisoning by and exposure to antiepileptic, sedative-hypnotic, antiparkinsonism and psychotropic drugs not elsewhere classified, undetermined intent - fall of 21 (from 47 to 26).
- Y12 - poisoning by and exposure to narcotics and psychodysleptics (hallucinogens) not elsewhere classified, undetermined intent - fall of 35 (from 99 to 64).
- Y21 - drowning and submersion, undetermined intent - fall of 18 (from 37 to 19).

No other 'undetermined intent' cause of death had a fall of five or more. Together, the above four causes of death accounted for 90 of the overall net fall of 96 in 'undetermined intent' deaths.

If the change in procedure had had a significant effect on the number of probable suicides, one would expect to see large increases in the corresponding numbers of 'accident' deaths. The changes between 2008 and 2009 in the figures for accidental deaths from these four causes are as follows:

- X40 - accidental poisoning by and exposure to nonopioid analgesics, antipyretics and antirheumatics - no change (2 in both years).
- X41 - accidental poisoning by and exposure to antiepileptic, sedativehypnotic, antiparkinsonism and psychotropic drugs not elsewhere classified - rise of 17 (from 3 to 20).
- X42 - accidental poisoning by and exposure to narcotics and psychoseptics (hallucinogens) not elsewhere classified - fall of 1 (from 56 to 55).
- W65 to W74 - accidental drowning and submersion (there are different codes for different types of location) - rise of 33 (from 7 to 40).

If the introduction of the new procedure changed the classification of some deaths from 'undetermined intent' to 'accident', each fall in the 'undetermined intent' figures 12 should have a corresponding rise in the 'accident' figures (which might not be as large, since some of the deaths previously counted as 'undetermined intent' could now be counted as 'intentional self-harm' rather than 'accident'). In fact, the changes for each of the specified causes are as follows:

- Y10/X40 - 'undetermined intent' falls by 16, 'accident' does not change at all.
- Y11/X41 - 'undetermined intent' falls by 21, 'accident' rises by 17.
- Y12/X42 - 'undetermined intent' falls by 35, 'accident' falls by 1.
- Y21/W65-74 - 'undetermined intent' falls by 18, 'accident' rises by 33.

So, only one of the four causes has a fall in 'undetermined intent' deaths that is consistent with the increase in 'accident' deaths. That most of the changes do not correlate well suggests that much of the increase in the number of accidental deaths is due to year-to-year fluctuation (rather than the introduction of the new procedure). One can also look at the causes for which there were large increases in the number of accidental deaths between 2008 and 2009, which are as follows:

- W00 to W19 - falls - up by 51 (from 634 to 685).
- W65 to W74 - accidental drowning and submersion - up by 33 (from 7 to 40).
- X41 - accidental poisoning by and exposure to antiepileptic, sedativehypnotic, antiparkinsonism and psychotropic drugs not elsewhere classified - up by 17 (from 3 to 20).

Together, these three causes accounted for 101 of the overall net rise of 71 in 'accident' deaths (there were reductions for some of the other causes). Clearly, 'falls' was the biggest single cause of the rise in accidental deaths, accounting for about two-thirds of the net increase - but there was reduction of only 7 in the number of 'undetermined intent' deaths from 'falling' (codes Y30 and Y31: down from 30 to 23). Again, a poor correlation between the increases in 'accident' deaths and the decreases in 'undetermined intent' deaths suggests that most of the rise in the

number of accidental deaths is due to year-to-year fluctuation (rather than the introduction of the new procedure).

3. Changes to coding rules for deaths registered from the start of 2011

At the start of 2011, NRS implemented new rules for coding the causes of death. How 'drug abuse' deaths from 'acute intoxication', and 'alcohol intoxication' deaths, are coded changed: in 2010 and earlier years, they were counted under 'mental and behavioural disorders'; for 2011 onwards, they are classified under 'poisoning', so some of them will be counted as probable suicides, and some as accidental deaths. Examples of the cases concerned are people who were known or suspected habitual drug abusers, for whom the cause of death was certified as 'adverse effects of heroin', 'methadone toxicity' or 'morphine intoxication'. Unless NRS has been informed that the overdose was believed to be accidental or deliberate, it classifies 13 such deaths as being due to 'poisoning by ..., undetermined intent', which means that they will be counted as probable suicides. More information about this is available from the Death Certificates and Coding the Causes of Death section of this website.

NRS has estimated how many of the deaths registered in 2011 and later years would have been counted under the old coding rules, in order that users of the statistics can see any underlying trends without the break in the series caused by the introduction of the new coding rules. (However, NRS has not estimated how many of the deaths which were registered in 2010 or earlier years would have been counted under the new coding rules, because NRS's data for 2010 and earlier years were not coded in a way that would allow reliable figures on the basis of the new coding rules to be produced.)

Since 2011, there has been a marked fall in NRS's estimate of the number of deaths that are counted as probable suicides using the new coding rules, but would not have been counted as such under the old coding rules (i.e. the new coding rules estimate minus the old coding rules estimate): from 117 in 2011, through 68 in 2012, 49 in 2013 and 37 in 2014 to 16 in 2015 and 16 in 2017 (although it rose temporarily to 31 in 2016). This is a consequence of the reduction in the proportion of poisoning deaths that PFs have described as being due to events of undetermined intent, which was mentioned earlier.

The fact that the difference between the "old coding rules" and "new coding rules" figures got smaller (over the years from 2011 to 2015) caused the "new coding rules" figures to fall faster than the "old coding rules" ones (over that period). For example, of the deaths that were registered in 2011, NRS estimates that 117 more were counted as probable suicides under the new coding rules than would have been counted under the old coding rules. The corresponding figure for 2012 is 68, which is 49 fewer - so the number of deaths which are only counted under the new coding rules fell by 49 between 2011 and 2012. That is why the drop between 2011 and 2012 in the number of probable suicides is 49 greater for statistics based on the new coding rules than for figures based on the old rules. The table below shows that there was a similar (but smaller) effect on the changes between later years (with the exception of the change between 2015 and 2016): in each case, the drop in the number of probable suicides was greater for the figures based on the new coding rules than for the numbers based on the old coding rules. However, both figures

increased in 2016, with the rise in the number of probable suicides being greater for the figures based on the new coding rules than for the numbers based on the old coding rules.

4. Fluctuations and statistical variation

The numbers of suicides can fluctuate markedly from year to year, particularly for the smaller Health Board and Council areas. Therefore, some of the tables include 5-year moving annual averages, as these should provide a better indication of the overall long-term trend than the figures for the individual years.

As well as the figures for Scotland as a whole and the 5-year moving average, Chart 1 also shows the likely range of values around the moving average. This likely range of statistical variability in the figures is estimated by assuming that the numbers represent the outcome of a Poisson process, with the underlying rate of occurrence in each year being the same as the value of the 5-year moving average which is centred on that year. 'Upper' and 'lower' boundaries of an approximate '95% confidence interval' around the moving average are calculated by adding/subtracting twice the standard deviation. (For a Poisson distribution, the mean and the variance are the same, so the standard deviation is simply the square root of the moving average). For the period from 1976 to 2005 (inclusive), two of the 30 years have a figure which is outwith this range - broadly in line with what one would predict based on statistical theory (only about 5% of observations would be expected to fall outwith an approximate 95% confidence interval).

5. Other sources of suicide data

The 'Suicide' section of the Scottish Public Health Observatory (ScotPHO) web site provides further statistics about suicides, including:

- standardised mortality ratios, with confidence intervals, for Health Board and Local Authority areas; and
- comparisons with the statistics for other parts of the UK and some other countries in Europe.
- The ScotPHO website also provides other relevant information.

Further information is available on our website for the following:

- Death certificates and coding the causes of death and
- other Sources of information for coding the causes of death