

Excess winter mortality in England and Wales QMI

Contact:

mortality@ons.gov.uk
+44 (0)1633 455867

Release date:

11 June 2015


Next release:

To be announced

Table of contents

1. [Methodology background](#)
2. [Executive summary](#)
3. [Output quality](#)
4. [About the output](#)
5. [How the output is created](#)
6. [Validation and quality assurance](#)
7. [Concepts and definitions](#)
8. [Other information](#)
9. [Sources for further information or advice](#)

1 . Methodology background

National Statistic	
Frequency	Annual
How compiled	Sample based survey
Geographic coverage	England and Wales
Last revised	11 June 2015

2 . Executive summary

This report is part of a rolling programme of quality reports being introduced by the Office for National Statistics (ONS) to accompany statistical outputs. Quality and Methodology Information reports are overview notes that pull together important qualitative information on the various dimensions of quality as well as providing a summary of methods used to compile the output.

This report concerns deaths related to excess winter mortality (EWM) in England and Wales and it provides you with information on the usability and fitness for purpose of these statistics.

In common with other countries, England and Wales experience higher levels of mortality in the winter than in the summer. To measure this increase, each year ONS calculates the number of excess winter deaths and the EWM index. More details about the methods used to calculate EWM can be found later in this report. The number of excess winter deaths is a statistical measure of the increase in mortality during winter compared with the rest of the year and is not the number of people who died directly as a result of cold weather.

Until 2009, these figures were published as an annual report in the ONS journal [Health Statistics Quarterly](#), but since 2010 they have been published as a [statistical bulletin](#).

The bulletin contains main findings and commentary on the latest years of data, with a time series of figures from 1950 to 1951 available. Figures are broken down by sex, age of the deceased and region of usual residence. Final figures for the previous winter are also included, broken down by age, sex and cause of death.

This output is compiled using a death occurrences database, which is a part of the national mortality database for England and Wales. ONS mortality data come from information collected when a death is registered. Information about the underlying mortality data, including details on how the data are collected and coded, is available in the [Mortality metadata](#).

This report contains the following sections:

- Output quality
- About the output
- How the output is created
- Validation and quality assurance
- Concepts and definitions
- Other information, relating to quality trade-offs and user needs
- Sources for further information or advice

3 . Output quality

(This report provides a range of information that describes the quality of the data and details any points that should be noted when using the output.)

We have has developed [Guidelines for Measuring Statistical Quality](#); these are based upon the five European Statistical System (ESS) Quality Dimensions. This report addresses these quality dimensions and other important quality characteristics, which are:

- relevance
- timeliness and punctuality
- coherence and comparability
- accuracy
- output quality trade-offs
- assessment of user needs and perceptions
- accessibility and clarity

More information is provided about these quality dimensions in the following sections.

4 . About the output

Relevance

(The degree to which statistical outputs meet users' needs.)

The data used to calculate excess winter mortality (EWM) figures are drawn from routinely collected death registration data, which cover all deaths occurring in England and Wales. More general information on the collection, production and quality of mortality data is available in [Mortality metadata](#).

The main users of EWM data include:

- Department of Health
- Public Health England
- Welsh Assembly Government
- Primary care organisations
- Public health observatories
- Local authorities
- Charities such as Age UK and National Energy Action

Research suggests that mortality during the winter increases more in England and Wales compared with other European countries with colder climates. The elderly are more vulnerable than others during the winter, hence policies aimed at tackling EWM, such as winter fuel payments ([Directgov](#), 2010) and influenza vaccinations ([NHS Choices](#), 2010), particularly focus on older people. In addition, some public health observatories (for example, the West Midlands) have launched special projects aimed at reducing [excess winter deaths](#). The annual EWM figures allow users to assess whether these policies are having an impact on EWM.

Provisional and final EWM figures are available for regions of England, and Wales. UK figures are not available as ONS holds death registration data for only England and Wales.

National Records of Scotland (NRS) produces an annual report on [Increased Winter Mortality](#).

Northern Ireland Statistics and Research Agency (NISRA) have produced reports on Excess Winter Mortality since 2011.

Final EWM figures for the previous winter are available on request for the following local areas:

- Local and unitary authority
- Primary care organisation in England and local health board in Wales
- Parliamentary Constituencies

Excess winter mortality figures are not currently calculated for areas smaller than Parliamentary because of the small number of deaths. However, monthly deaths data for small geographical areas are available on request, and this would allow you to aggregate data for a number of years in order to calculate EWM.

Excess winter mortality figures for local areas are produced using boundaries in place at the time, but a back series based on consistent boundaries was created and published in the 2013 to 2014 bulletin. This back series shows local area EWM between 1991 to 1992 and 2012 to 2013 using boundaries in place in August 2014.

Local area EWM figures for the most recent winter are not produced, as the methods used to estimate these provisional figures are not reliable at a local level.

Excess winter mortality figures by region are available from 1991 to 1992 onwards. Historical EWM data for England and Wales are available from 1950 to 1951 onwards. It is not possible to calculate EWM before this time, as electronic death records are not available.

Although EWM is associated with low temperatures, conditions directly relating to cold, such as hypothermia, are not the main cause of excess winter mortality. The majority of additional winter deaths are caused by cerebrovascular diseases, ischaemic heart disease and respiratory diseases ([The Eurowinter group](#), 1997). Although cancer causes more than a quarter of all deaths annually, previous research ([Johnson and Griffiths](#), 2003) found that there was no clear seasonal pattern for these deaths.

Final EWM figures for the previous winter are available broken down by underlying cause of death for the following broad causes: circulatory disease, respiratory disease, dementia, and injury and poisoning. It is not possible to break provisional EWM deaths down by underlying cause, because the data have not undergone the same thorough quality checks as final data. More details about the quality checks that are carried out on death registration data can be found in the ONS publication [Deaths registered in England and Wales](#).

Provisional EWM figures are produced for the most recent winter using special estimation methods (see the [How the output is created](#) section), and so are rounded to the nearest 100. Final EWM figures for the previous winter are rounded to the nearest 10. Temperature data supplied by the Met Office are also presented for comparison purposes.

Timeliness and punctuality

(Timeliness refers to the lapse of time between publication and the period to which the data refer. Punctuality refers to the gap between planned and actual publication dates.)

Each September, ONS produces an annual file showing the number of deaths occurring in the previous year. This extract is taken approximately 5 months after the annual “death registrations” extract is taken, in order to give more time for late registrations (for example, deaths that have been referred to a coroner) to appear in the data. At the same time, a special extract of all deaths occurring in January to July of the current year is taken from the live death registrations database.

Information from these two datasets is combined and provisional EWM figures are produced using the number of deaths occurring each month between August of the previous year and July of the current year. Final figures are produced using the same time period 1 year earlier.

Provisional EWM figures for the most recent winter and final figures for the previous winter are published annually in November. Compared with the annual death occurrences file, the provisional mortality data for the current year undergo fewer quality checks and do not include late registrations, meaning provisional EWM figures can be made available much earlier than final figures.

Hence, provisional EWM figures are published 8 months after the end of the winter period and 4 months after the end of the non-winter period; and final EWM figures are released 20 months after the end of the winter period and 16 months after the end of the non-winter period.

The provisional release date of the statistical bulletin on excess winter mortality is announced in the [GOV.UK statistical release calendar](#) up to a year in advance.

The date is then finalised at least 4 weeks before publication. The bulletin is published annually each November, which is 4 months after the end of the reference period. This delay is because of the large amount of quality checking that must be performed on the underlying mortality data.

In previous years, the EWM annual report has always been released on the pre-announced date. In the unlikely event of a change to the pre-announced release schedule, public attention will be drawn to the change and the reasons for the change will be explained fully at the same time, as set out in the [Code of Practice for Official Statistics](#).

5 . How the output is created

Source data

This output provides figures to enable monitoring of the number of excess winter deaths in England and Wales, including analysis of the types of causes of these deaths. Excess winter mortality (EWM) is calculated by comparing the number of deaths occurring in winter with the number occurring in a non-winter period. To calculate this, ONS uses data on death occurrences, which is part of the national mortality database for England and Wales.

All ONS mortality data come from information collected when a death is certified and registered. We code all of the causes mentioned on a death certificate using the [International Statistical Classification of Diseases and Related Health Problems, Tenth Revision \(ICD-10\)](#). From all of the causes mentioned, an underlying cause of death is selected using ICD coding rules. Deaths which are certified by a doctor are coded using the automated cause coding system (known as PCACCS).

Most deaths (around 95%) are registered within 1 month of the date of occurrence, although violent or unexpected deaths, which need further investigation from a coroner, can take much longer. So that timely EWM figures can be produced, we generate a special mortality dataset in September for deaths that were registered by this month, but which occurred up to the end of July.

Further details about how ONS mortality data are collected and coded can be found in the [Mortality metadata](#) and the [Mortality Statistics Quality and Methodology Information](#).

Definitions

Excess winter mortality

The ONS standard method defines the winter period as December to March and compares the number of deaths that occurred in this winter period with the average number of deaths occurring in two non-winter periods; the preceding August to November and the following April to July (see Example 2).

$$\text{Average of non - winter deaths} = \frac{\text{Deaths in Aug - Nov} + \text{Deaths in April - July}}{2}$$

$$\text{EWM} = \text{Number of winter deaths (Dec - March)} - \text{Average non - winter deaths}$$

Excess winter mortality index

The EWM index is calculated so that comparisons can be made between sexes, age groups and regions, and is calculated as the number of excess winter deaths divided by the average non-winter deaths, expressed as a percentage:

$$\text{EWMIndex} = \frac{\text{EWM}}{\text{Average non - winter deaths}} \times 100$$

The EWM index is presented with 95% confidence intervals, which are calculated as:

$$95\% \text{ confidence intervals} = \text{EWM Index} \pm 1.96 \times \left[\frac{\text{EWM Index}}{\sqrt{\text{EWM}}} \right]$$

How the bulletin is produced

The excess winter mortality bulletin is created using death occurrence data. These are part of the national mortality database for England and Wales, which is held by ONS. The death occurrences database is updated each year to include the previous year's final figures.

A special mortality dataset is generated in September for deaths that were registered by this month, but which occurred up to the end of July for the present year. This dataset contains provisional death occurrence data for January to July of the current year. These two datasets are then used in combination to calculate the excess winter mortality.

As this special mortality dataset is provisional, deaths that are registered because they were referred to a coroner or an inquest was held may not be included in the extract if they were registered after September, even if the death occurred between January and July. This means that the figures contained in the dataset would understate the true number.

In order to compensate for this, a factor is then calculated using the number of deaths from the previous year's provisional and final datasets. The factor represents the percentage of deaths per month that were registered by the time the final dataset was created but were not at the time the provisional dataset was created. These factors are created for the total number of deaths per month and then applied to each corresponding month in the current year's provisional dataset (see Example 1).

$$\text{Factor} = 1 + \frac{(\text{Final deaths} - \text{Provisional deaths})}{\text{Provisional deaths}}$$

This results in an estimated number of final deaths for January to July in the current year. EWM can then be calculated for the most recent winter. As these figures are provisional, they are rounded to the nearest 100 and are not produced for areas smaller than region of England.

Final EWM figures are calculated using all final data for the previous winter. They are rounded to the nearest 10 and are broken down by underlying cause of death, age and sex. Final EWM figures are also available for local areas.

Comparisons of EWM or EWM indexes and average temperature information from the UK Met Office are also analysed in order to examine the trends that occur between temperatures and number of deaths.

Example 1: Calculation of excess winter mortality adjustment factors

Month	2006–07			2007–08		
	Provisional deaths	Final deaths	Percentage not registered	Rounded factor	Provisional deaths	Adjusted deaths
August	n/a	n/a	n/a	1	38,394	38,394
September	n/a	n/a	n/a	1	37,308	37,308
October	n/a	n/a	n/a	1	40,682	40,682
November	n/a	n/a	n/a	1	41,923	41,923
December	n/a	n/a	n/a	1	47,616	47,616
January	47,152	47,571	0.89	1.01	48,097	48,524
February	44,561	45,030	1.05	1.01	41,314	41,749
March	44,145	44,849	1.59	1.02	43,465	44,158
April	40,715	41,528	2	1.02	41,757	42,591
May	39,468	40,552	2.75	1.03	38,477	39,534
June	36,986	38,327	3.63	1.04	35,199	36,475
July	37,179	38,729	4.17	1.04	35,707	37,196

Example 2: Calculation of provisional EWM figures, using the adjusted deaths from Example 1

Winter period: December 2007 to March 2008 deaths	182,255
Pre non-winter period: August to November 2007 deaths	158,307
Post non-winter period: April to July 2008 deaths	155,614
Average non-winter deaths	156,960
EWM = winter deaths – average non-winter deaths	182,255 – 156,960
	25,295
Rounded provisional EWM figure	25,300
EWM Index = (EWM / average non-winter deaths) x 100	(25,295 / 156,960) x 100
	16.1

This example provides calculations for the winter period 2007 to 2008, as 2008 is a leap year, the winter period will have the same number of days as each of the non-winter periods. In cases where the winter period does not contain a leap day, the overall EWM figure is not adjusted.

6 . Validation and quality assurance

Accuracy (The degree of closeness between an estimate and the true value.)

The legal requirement to register all deaths occurring in England and Wales means that death registrations provide an almost complete data source for mortality statistics.

The mortality data from which these excess winter mortality (EWM) figures are calculated are routinely collected under various Acts of Parliament. The data cover nearly all deaths occurring in England and Wales and are considered to be high quality. The majority of deaths are certified by a doctor using the Medical Certificate of Cause of Death (MCCD), but some deaths, for example, those which were violent or unexpected, are certified by a coroner.

As with all administrative sources of data, there are a number of potential sources of error in death registrations data, including:

- the death certificate was completed incorrectly by the doctor or coroner
- incorrect information was supplied by the informant at death registration
- some information may be missing, for example, if the informant doesn't know the deceased's date of birth
- a death may have been registered twice, so the database contains duplicate records
- the exact date of death may not be known (for example, if the deceased is discovered some time after death)
- errors were made by the registrar when registering the death
- errors in the automatic coding system used to code the cause of death
- errors were made by ONS coders when coding cause of death, or other variables (for example, occupation)

Quality checks are in place to minimise these errors, these include checks that are carried out at the time of registration, data entry checks, coding validation checks and pre- and post-analysis frequency checks. Risk is minimised as the coding is carried out by highly trained, experienced ONS staff who apply standardised ICD coding rules.

Data for the current year come in the form of a special extract taken from the live database and have not been through all of these rigorous quality checks. Therefore, provisional EWM figures will be less accurate than final figures.

Further details about the collection and validation of ONS mortality data can be found in the annual [Mortality statistics: deaths registered in England and Wales \(Series DR\)](#) publication.

ONS mortality data are "complete" in the sense that eventually all deaths occurring in England and Wales will be entered onto the ONS death registration database. Almost 95% of deaths are registered within 1 month of the date of occurrence. However, deaths that need further

investigation from a coroner can take much longer. Therefore a small number of deaths that occurred during the reference period, but have not yet been registered, will be missing from the data extract used to calculate EWM.

More details of the estimation methods used to correct this issue can be found in the How the output is created section. Although a small number of deaths that occurred several months or years earlier will be registered after final EWM figures are published, these figures are not updated as the impact of these late registrations on EWM figures is likely to be minimal. More information on the [impact of registration delays](#) is available.

Figures based on a small number of events are subject to random fluctuations, therefore the EWM index is presented with 95% confidence. A 95% confidence interval is a range within which the true population value lies with 95% probability. It is a standard way of expressing the statistical accuracy of a calculated estimate. If an estimate has a high error level, the corresponding confidence interval will be very wide. The error levels are dependent mainly on the size of the population. At a national level the overall error will be smaller than the error associated with a local authority or smaller age or sex groups and therefore some error levels may be smaller or larger than expected.

Provisional estimated EWM figures for the most recent winter are provided at the same time as final figures for the previous winter. A comparison of provisional and final figures for 2010 to 2011 showed that the England and Wales provisional figures underestimate the number of excess winter deaths by around 1.5%. Provisional EWM figures for regions tend to be less accurate: they underestimated by up to 5.6% and overestimated by up to 2.2% for the same period (see Example 3).

Example 3: Comparison of provisional and final figures for 2010 to 2011

2010/11	Provisional figures		s	%		
	EWM	EWM Index				
England and Wales	25,700	16.6	26,080	16.9	-1.48	-1.81
England	23,700	16.4	24,120	16.7	-1.77	-1.83
North East	1,400	17.1	1,370	17	2.14	0.58
North West	3,400	16	3,330	15.6	2.06	2.5
Yorkshire and The Humber	2,500	16.2	2,540	16.5	-1.6	-1.85
East Midlands	2,400	18.1	2,400	18.6	0	-2.76
West Midlands	2,700	17.2	2,850	18.2	-5.56	-5.81
East	2,500	15.4	2,570	15.9	-2.8	-3.25
London	2,500	16.8	2,500	16.9	0	-0.6
South East	4,000	16.8	4,060	17.2	-1.5	-2.38
South West	2,400	14.8	2,500	15.3	-4.17	-3.38
Wales	1,900	20.2	1,960	20.4	-3.16	-0.99

The accuracy of the provisional figures also varies quite considerably between age groups, with numbers for 0 to 64 showing the greatest change. There are generally fewer excess winter deaths in the 0 to 64 age group and deaths in this age group are more likely to have a coroner inquest (which will delay death registration). Provisional EWM figures for this age can vary in the number of excess winter deaths by up to 20%.

Therefore, provisional EWM figures for this age group should be treated with caution, especially at the region level. EWM for the oldest age group (85 years and over) are more consistent, with provisional estimates being no more than 7% different from the final figures. The accuracy for other age groups falls between these two extremes.

More information about the quality assurance and accuracy of the underlying mortality data can be found in the [Mortality metadata](#) and the [Mortality Statistics Quality and Methodology Information](#).

Coherence and comparability

(Coherence is the degree to which data that are derived from different sources or methods, but refer to the same topic, are similar. Comparability is the degree to which data can be compared over time and domain, for example, geographic level.)

The method used by ONS to calculate excess winter mortality is consistent with that of the World Health Organisation Regional Office for Europe. This standard method is used by National Records of Scotland (NRS) to calculate Increased Winter Mortality and by Northern Ireland Statistics and Research Agency (NISRA) to calculate their Excess Winter Mortality tables. This method has also been used in a number of academic papers researching factors related to EWM, for example, [Healy, 2003](#)).

This method has been applied consistently for all time periods, so England and Wales data are available from 1950 to 1951 onwards and English region level data are available from 1991 to 1992 onwards. Local area EWM data are available from 1997 onwards, based on the boundaries that were in place when the figures were calculated. However, special datasets based on consistent boundaries can be produced on request. Data showing the number of deaths occurring each month are only available for the latest year, but data from 1959 onwards are available on request.

Within England and Wales the number of excess winter deaths is likely to vary based on the size, sex and age structure of the population. Large local authorities, such as Birmingham, Sheffield and Leeds, will have a greater number of excess winter deaths, simply because they have more people living there and so have more deaths overall throughout the year. Similarly, because the number of deaths in England and Wales has fallen since 1950, the number of excess winter deaths has also fallen.

The EWM index expresses the number of excess winter deaths as a percentage change compared with the number of deaths occurring throughout the rest of the year. This means that the variations in structure and size of the population in each area will not bias this statistic. It is for this reason that the EWM index, not the number of excess deaths, should be used when comparing areas or examining trends over time.

The number of deaths requiring a coroner's inquest has increased slightly, so that the delay between when a death occurs and when it is registered has also increased slightly. However, the vast majority (99%) of deaths are registered within 9 months of occurrence and so will be included in the final EWM figures. Therefore, this is unlikely to have affected comparability over time.

Excess winter mortality figures are produced using a standard method, from death registration data supplied to ONS by registrars and coroners. This is the definitive source of mortality data. Some public health observatories and primary care organisations use ONS mortality data to calculate EWM for their local area. These figures are likely to differ from ONS figures because they are based on provisional death registration data that has not been through the same quality assurance as the final death occurrences data used by ONS. In addition, ONS adjusts provisional figures for the most recent winter using a special calculated factor; other organisations may not apply this factor.

UK figures are not available as ONS only hold death registration data for England and Wales. National Records of Scotland produce an [annual winter mortality report](#).

Northern Ireland Statistics and Research Agency produced a report on [excess winter mortality](#).

Winter mortality figures for Scotland and Northern Ireland are both based on death registrations, whereas England and Wales figures are based on occurrences. In Scotland, a death must be registered within 8 days and fact of death can be registered (with a cause given as unascertained, pending investigations) before the Procurator Fiscal has completed their investigations. Therefore, Scottish mortality data are not subject to the same registration delays as mortality data for England and Wales. Hence, almost all deaths that occurred in the relevant period will be included in the Scottish figures, so that winter mortality figures from Scotland are comparable with ONS figures for England and Wales.

However, this is not true for Northern Ireland mortality data, as for some causes of death there can be a significant delay between when the death occurred and when it was registered. NISRA have compared EWM figures based on occurrences and registrations and the difference is quite large in some years. Therefore, EWM figures from Northern Ireland, and England and Wales are not directly comparable.

7 . Concepts and definitions

(Concepts and definitions describe the legislation governing the output and a description of the classifications used in the output.)

Source data - Mortality data are based on the information collected when a death is registered. The collection and dissemination of this data are governed by a range of legislation including the [Births and Deaths Registration Act 1953](#) and the [Population \(Statistics\) Act 1938](#) and [1960](#). More details on this legislation and other relevant legislation can be found in the [Mortality metadata](#).

Underlying cause of death - ONS codes all of the causes of death mentioned on the death certificate using the [International Classification of Diseases: ICD-10](#). From all of the causes mentioned, an underlying cause of death is selected using ICD coding rules. The underlying cause of death is defined by the World Health Organisation as:

- the disease or injury that initiated the train of events directly leading to death, or
- the circumstances of the accident or violence that produced the fatal injury (or poisoning)

8 . Other information

Output quality trade-offs

(Trade-offs are the extent to which different dimensions of quality are balanced against each other.)

As described in the Timeliness and punctuality section, excess winter mortality (EWM) statistics are based on both final and provisional deaths that occurred within a given 12-month period.

Using this provisional dataset allows ONS to publish the data in a more timely fashion, rather than over a year after the end of the winter period in question, which would be needed if using the finalised data. The disadvantage of using this provisional data means that late registrations (for example, deaths that have been referred to a coroner) will not appear in the data, meaning that the EWM deaths and index produced in the bulletin will not be 100% accurate.

We are aware that users would like more timely outputs; however, this is not possible without a change in the legislation surrounding death registration. In order to better manage the trade-off between timeliness and usefulness, we are planning to investigate ways of estimating the impact of registration delays.

Assessment of user needs and perceptions

(The processes for finding out about uses and users, and their views on the statistical products.)

Feedback from users is invited in the statistical bulletin with the inclusion of a standard statement : "We welcome feedback from users on the content, format and relevance of this release." The [Health and Life Events User Engagement Strategy](#) is available to download from the ONS website. Please send feedback to the postal or email address at the end of this document."

In addition, user feedback is requested at the bottom of all emails sent by customer service teams within the Life Events and Population Sources division. The standard wording is:"We welcome feedback on the content, format and relevance of the data provided. Please provide any feedback and state whether you would like your contact details to be added to our list of users. All known users will be invited to participate in any consultations that are run."Feedback is also received through regular attendance of ONS researchers at user group meetings and conferences. In addition, the views of a wide range of users were sought as part of the [UK Statistics Authority assessment of mortality statistics](#).

9 . Sources for further information or advice

Accessibility and clarity

(Accessibility is the ease with which users are able to access the data, also reflecting the format(s) in which the data are available and the availability of supporting information. Clarity refers to the quality and sufficiency of the metadata, illustrations and accompanying advice.)

The publication date of future releases of EWM figures is announced on [GOV.UK](#) 12 months in advance, which enables equal access to outputs for all users.

The excess winter mortality (EWM) statistics described in this section can be accessed free of charge on the [EWM product page](#).

Our recommended format for accessible content is a combination of HTML webpages for narrative, charts and graphs, with data being provided in usable formats such as CSV and Excel. Our [website](#) also offers users the option to download the narrative in PDF format. In some instances other software may be used, or may be available on request. Available formats for content published on our website but not produced by us, or referenced on our website but stored elsewhere, may vary. For further information please refer to the contact details at the beginning of this report.

The statistical bulletin begins with a brief introduction to the topic of winter mortality, highlighting main policy implications. It then goes on to explain our methods to calculate the number of excess winter deaths, the excess winter mortality index and 95% confidence intervals. It also contains a number of tables and charts, which are accompanied by a commentary describing the main trends over time in relation to sex, age, area of usual residence of the deceased, cause of death and temperature.

Figure 1

Excess winter deaths by year and 5-year central moving average, England and Wales, 1950 to 1951 onwards In addition, the numbers of excess winter deaths from 1950 to 1951 onwards, are available to download in Microsoft Excel or .csv format

Figure 2

Mean number of daily deaths each month and mean monthly temperatures, for the last three winters

Figure 3

Excess winter deaths and average winter temperature, England and Wales, 1999 to 2000 onwards

Figure 4
Weekly deaths from all causes and Royal College of General Practitioners (RCGP) Influenza like Illness (ILI) consultation rates per 100,000 population, 1999 onwards

Figure 5
Excess winter mortality index by sex and age group in England and Wales, for the last three winters

Figure 6
Excess winter mortality index by region of England, and Wales, for the last three winters

Figure 7
Excess winter mortality index by region of England and Wales, for the last three winters where final data available

Table 1
Excess winter mortality by age group, in regions of England, and Wales from 1991 to 1992 to the most recent winter (this table is available to download in Microsoft Excel and .csv format from the [Office for National Statistics EWM product page](#))

Table 2
Excess winter mortality by sex, age group and underlying cause of death, England and Wales, showing 3 years of final data (not available for the most recent winter as cause of death has not been quality assured in the provisional data)

Table 3
Excess winter deaths for local and unitary authorities in England and Wales, 1991 to 1992 to latest final year

Table 4
Monthly deaths by age, sex and regions of England, and Wales, for the most recent year of final data

For presentation and accuracy purposes, the EWM data in these tables are rounded to the nearest 10 (final data) or the nearest 100 (provisional data). Excess winter mortality is a statistic calculated from monthly deaths and it is not possible to work back to the underlying data. In line with our policy on protecting confidentiality within birth and death statistics, disclosure control of the monthly deaths dataset is not needed. This is because when the data are broken down by region, month of death and broad age group, the numbers of deaths are sufficiently large and does not provide identifiable individual records.

Local area EWM data for primary care organisations in England or local health boards in Wales and Parliamentary Constituencies in England and Wales are available on request from the ONS Mortality team, on the same day as national figures are published. Advice on the limitations and suitable use of data from these more detailed tables are provided with each individual request. Any additional enquires or requests for bespoke excess winter mortality data can be made via email to mortality@ons.gov.uk or telephone on +44 (0)1633 455867. Users should receive an acknowledgement within 2 working days, but the timescale and cost of providing bespoke datasets or tables will vary according to requirements.

In addition to this Quality and Methodology Information report, basic quality information relevant to each release is available in the quality and methodology section of the relevant statistical bulletin.

Researchers can apply to access the individual record data contained on the database. For more information, please contact the ONS Mortality Analysis Team.

If any ONS data are copied from the website then the user must acknowledge ONS as the data's source, all data on the ONS website are Crown Copyright.

For information regarding conditions of access to data, please refer to the following links:

- [Terms and conditions](#) (for data on the website)
- [Copyright and reuse of published data](#)
- [Pre-release access \(ended from 1 July 2017\)](#)
- [Accessibility](#)
- Access to microdata via the [Virtual Microdata Laboratory](#)

Useful links

[Disclosure Control Policy for Birth and Death Statistics](#)