



Quality and Methodology Information (QMI) for Excess Winter Mortality (EWM) in Northern Ireland

Introduction

The purpose of this QMI is to inform users about the quality of Excess Winter Mortality Statistics in Northern Ireland. This document provides a range of information that describes the quality of the data and details any points that should be noted when using the outputs.

Background to Excess Winter Mortality

The Northern Ireland Statistics and Research Agency (NISRA) produce estimates on Excess Winter Mortality using deaths which are registered with the General Register Office (GRO). The number of deaths can vary depending on the season and in particular tend to increase in the winter. These estimates present the difference between the actual number of winter deaths in the 4 month period December to March and the expected number of deaths.

Statistics which are produced from vital events registered in Northern Ireland are of a high quality and should have complete population coverage as it is a legal requirement to register any of these events that occur in Northern Ireland.

Contacts

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Overview of Methodology & General Notes

The methodology behind excess winter mortality is defined in Box 1. This is a standard definition which is used across the United Kingdom and by the World Health Organisation.

Box 1: Excess Winter Mortality (EWM) – method of calculation

The 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 non-winter deaths **occurring** in the preceding August to November and the following April to July:

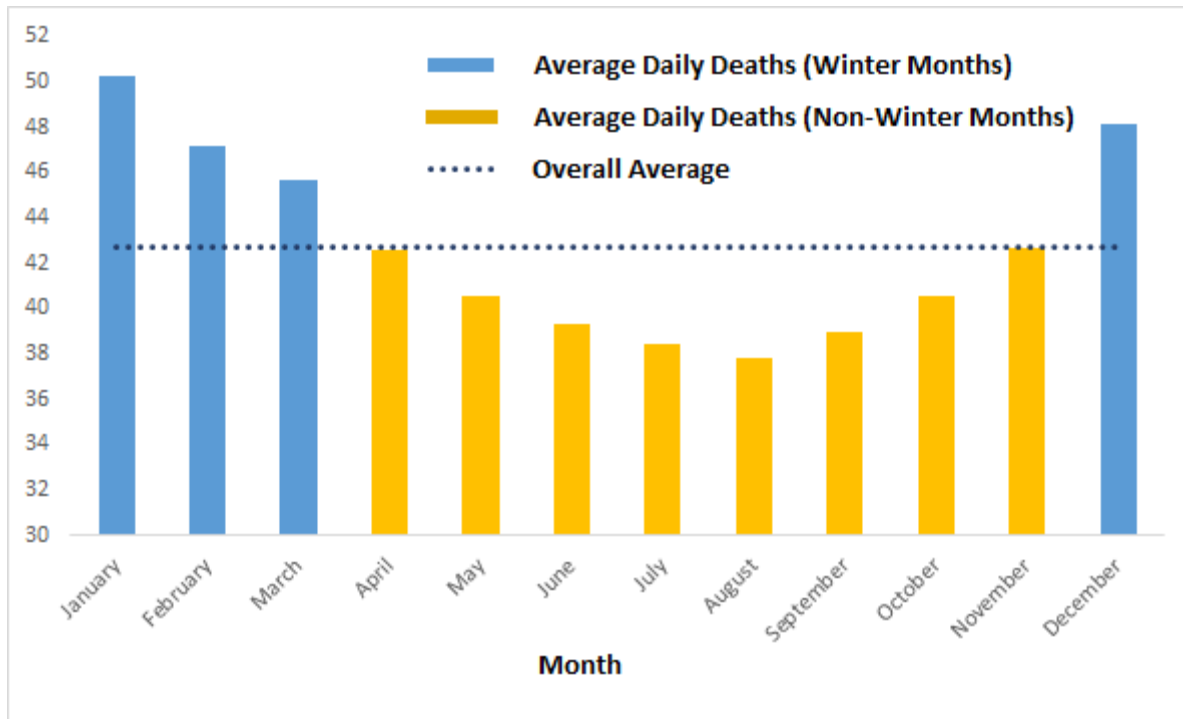
$$\text{Excess Winter Mortality} = \text{Deaths Occurring Dec to Mar} - \left(\frac{\text{Deaths Occurring Aug to Nov} + \text{Deaths Occurring Apr to Jul}}{2} \right)$$

The Excess Winter Mortality index is calculated as the number of excess winter deaths divided by the average non-winter deaths expressed as a percentage:

$$\text{EWM Index} = \left(\frac{\text{EWM}}{\text{Average non-winter deaths}} \right) \times 100$$

The four month winter period (December, January, February and March) is used because statistically, these are the months with higher mortality. This is shown graphically in Figure 1, where the average daily deaths by month is shown for the period 1981 to 2018.

Figure 1: Average Daily Deaths by Month 1981 – 2018 (Occurrence-Based)



It should be noted that this definition does have a practical issue in that, if mortality starts to increase outside the winter period, for example if mortality rises in November due to an influenza outbreak, then the number of deaths in the non-winter period will increase, which in turn will decrease the excess winter mortality.

These estimates should not therefore be interpreted as the number of people who died directly as a result of colder weather occurring during December to March. The situation is more complex than that – there are other seasonal issues such as influenza (as was seen in December 1989 when there was a major outbreak), and air quality and lack of sunlight which impact health/mortality. What is also clear from the mortality statistics is that December 2010, one of the coldest months on record, did not have mortality levels equivalent to that witnessed in December 1989.

These issues are discussed in more detail in Chapter 2 of the Eighty-Ninth Annual Report of the Registrar General 2010, ‘Seasonality of Mortality in Northern Ireland’¹

EWM estimates therefore only provide an informative summary of the comparative levels of mortality during the winter and non-winter periods in Northern Ireland.

1. <https://www.nisra.gov.uk/sites/nisra.gov.uk/files/publications/RG2010%5B1%5D.pdf>



Dimension	Assessment by the Author
Relevance	<p><i>The degree to which the statistical product meets user needs in both coverage and content.</i></p> <p>Excess Winter Mortality estimates in Northern Ireland are derived from routinely collected death registration data, covering all deaths occurring in Northern Ireland.</p> <p>Published figures relate only to deaths which occurred in Northern Ireland. As such, this includes deaths of individuals whose usual residence is outside Northern Ireland and excludes deaths of usual residents where the death occurred while outside Northern Ireland.</p> <p>Overall EWM figures are available from 1981 onwards. Estimates are not produced before this timeframe due to incomplete or estimated date of death fields within the database.</p> <p>Individual deaths are assigned to geographical areas by linking postcode of usual residence of the deceased to the latest version of the Central Postcode Directory (CPD). EWM figures by Local Government District are produced using the 2014 boundaries and have been revised back to 2008. Estimates at geographical levels below local government district are not produced, as the method used is not reliable at low geographical levels.</p> <p>Key users of Excess Winter Mortality statistics include the Department of Health (DoH), the Department for Communities (DfC) and the Public Health Agency (PHA) in monitoring the impact of cold weather and heat waves and the need for cold weather payments.</p> <p>Other users include academics, demographers and health researchers and charities such as AgeNI who conduct research into mortality trends and characteristics.</p>
Accuracy	<p><i>The proximity between an estimate and the unknown true value.</i></p> <p><i>Data Collection</i></p> <p>Registration of deaths in Northern Ireland is a legal requirement under the Births and Deaths Registration (Northern Ireland) Order 1976, therefore, the coverage of the data is complete for the entire population.</p> <p>All deaths in Northern Ireland should be registered within 5 days from the date of death. There are some situations where the registration of a death can be delayed, specifically where the death has been accidental, unexpected or</p>

suspicious. These deaths must be referred to the Coroner and can result in a delay in registration.

For deaths not referred to the Coroner, 89 per cent are registered within 7 days of the date of death, with 98 per cent registered within a year.

Where a death has been referred to the Coroner, on average, 75 per cent of Coroner's Cases in 2017 were registered within 90 days of the death occurring. This figure increased to 94 per cent by one year. If the death is not registered within one year of its occurrence, the GRO is able to authorise the registration of the death on the authority of the Registrar General.

Validation

As with all administrative sources of data, there are potential sources of error in death registration data including;

- Incorrect information supplied by the informant at registration
- Missing or incomplete data e.g. where the informant does not know the date of birth of the deceased.
- The exact date of death may not be known (for example, if the deceased is discovered some time after the death).

During the registration a provisional copy of the information is shared with the informant before the registration is finalised and the informant is asked to check the information supplied (e.g. to check that all spellings/dates are correct). Any further errors can be addressed at this stage, before being finalised on GRO's electronic system (NIROS).

There are some validation checks built into NIROS to help the Registrar with this process. Information supplied at death registration is generally believed to be correct since wilfully supplying false information may render the informant liable to prosecution for perjury.

Death statistics are extracted directly from NIROS and are subjected to further validation checks by the Vital Statistics Unit in the Vital Statistics & Administrative Research and Support Branch (VARs). Further details of these checks are available on the NISRA website:

https://www.nisra.gov.uk/sites/nisra.gov.uk/files/publications/vital_stats_QA.pdf

More information about the quality of the underlying mortality data can be found in the [Quality and Methodology Information \(QMI\) for Northern Ireland death statistics](#)

**Timeliness and
Punctuality**

***Timeliness refers to the time gap between publication and the reference period.
Punctuality refers to the gap between planned and actual publication dates.***

Timeliness

Excess winter deaths statistics are based on provisional deaths that occurred within a 12-month period. Due to the nature of estimates based on death occurrences, for which late registrations of deaths may occur, NISRA do not 'close' the database.

Each September NISRA produce an annual file showing the number of deaths occurring in the previous year and includes all deaths registered up to and including 31st August. This allows time for some late registrations (e.g. deaths that have been referred to the Coroner) to appear in the data.

Using provisional data allows NISRA more timely data rather than over a year after the time period in question, which was the position with the previous registration-based series. The drawback to this approach is that deaths which have a delay in registration (e.g. deaths referred to the Coroner) may not appear in this data. Revisions are made to previous years in this series to account for delayed registrations.

Similar arrangements pertain across the rest of the UK reflecting user needs in the respective territories.

Provisional EWM figures for the most recent winter and final figures for the previous winter are published annually in October, three months after the end of the reference period.

For more information on related releases, the [Statistics Release Calendar](#) is available online and provides 28 days advance notice of release dates.

Punctuality

The Vital Statistics work plan that includes scheduled publication dates is available on the NISRA Website. This is published at the start of each financial year at the following link: <https://www.nisra.gov.uk/publications/vital-statistics-documentation>

The [.GOV.UK release calendar](#) provides 28 days advance notice of releases. 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 Statistics](#).



Accessibility and Clarity	<p><i>Accessibility is the ease with which users are able to access the data, also reflecting the format 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.</i></p> <p><i>Accessibility</i></p> <p>The NISRA website is the primary vehicle for the release of EWM statistics in Northern Ireland. A combination of narrative, charts, graphs and data (specifically tailored to draw out the key findings from the statistics) may be downloaded in PDF and Microsoft Excel. The Vital Statistics Unit are working towards making available datasets for release on OpenDataNI. This will allow users the flexibility of producing their own analysis. Updates will be posted on the Vital Statistics area on the NISRA website as they become available.</p> <p>EWM data by Northern Ireland administrative geographies are available on the Northern Ireland Neighbourhood Information System (NINIS). A combination of interactive maps, charts, graphs and data may be created and downloaded in Microsoft Excel, CSV & PDF formats.</p> <p>NISRA vital statistics can provide ad-hoc analysis of EWM data free of charge to users upon request.</p> <p><i>Clarity</i></p> <p>Basic quality information relevant to each release is available in the background notes of the relevant Statistical Bulletin. See https://www.nisra.gov.uk/statistics/births-deaths-and-marriages/deaths</p>
Coherence and Comparability	<p><i>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.</i></p> <p>The method used by NISRA to calculate EWM is consistent with that of the World Health Organisation. This is the standard method used by the Office of National Statistics (ONS) to calculate Excess Winter Mortality in England and Wales and by National Records of Scotland (NRS) to calculate Increased Winter Mortality.</p> <p>This method has been applied consistently for all time periods, so EWM figures are available in NI from 1981 onwards.</p> <p>Winter mortality figures for Scotland are based on death registrations, whereas Northern Ireland and England and Wales are based on occurrences. In Scotland, a death must be registered within eight days rather than five days as in Northern Ireland, England and Wales. The Procurator Fiscal replaces the coroner system in England, Wales and Northern Ireland and has a duty to investigate all sudden, suspicious, accidental, unexpected and unexplained</p>



	<p>deaths, and any death occurring in circumstances that give rise to serious public concern. This process does not however delay a death being registered. Therefore Scottish registration data are not subject to the same registration delays as mortality data for Northern Ireland, England and Wales. Almost all deaths that occurred in the relevant period will therefore be included in the Scottish registration data.</p> <p>While ONS EWM figures for England and Wales are produced using the same method in other jurisdictions, ONS adjust provisional figures for the most recent winter using a special calculated factor. NRS and NISRA do not apply this factor.</p> <p>Excess Winter Mortality figures from Northern Ireland, Scotland, England and Wales are therefore broadly comparable.</p> <p>UK EWM figures are not available as NISRA, ONS & NRS all produce separate estimates.</p> <p>In October 2020 NISRA updated the methodology used to produce EWM estimates In order to align with the other UK counterparts and to apply for National Statistics accreditation. While the previous methodology broadly aligned with estimates in other UK regions, the methodology used in NI has been based on the month the death was registered, not when it occurred. Details of the change and the impact on the estimates is available in <i>Excess Winter Mortality in Northern Ireland Statistics: Methodology Change Guidance</i> <hyperlink></p>
Assessment of User Needs and Perceptions	<p><i>The processes for finding out about users and uses, and their views on the statistical products.</i></p> <p>All Vital Statistics publications specifically invite users to provide any feedback they might have in respect of the content, format and relevance of the release. No negative feedback has been received as part of this process.</p> <p>Customer satisfaction in NISRA is monitored through the People Survey. More specific feedback for Vital Events is sought through the Vital Events Statistics User Survey. Feedback is incorporated into future outputs where possible.</p>
Performance, Cost and Respondent Burden	<p><i>The effectiveness, efficiency and economy of the statistical output.</i></p> <p>While there is a legislative requirement to register a death within 5 days, there is no subsequent respondent burden unless of course they fail to fulfil their legal obligations in this respect. The production and quality assurance processes, which are considered to be both cost effective and efficient, have been streamlined wherever possible and are kept under review from a continuous improvement perspective.</p>



**Confidentiality,
Transparency
and Security**

The procedures and policy use to ensure sound confidentiality, security and transparent practices.

NISRA adhere to the United Kingdom Statistics Authority (UKSA) *Code of Practice for Official Statistics* and the [National Statistician's Guidance on Confidentiality of Official Statistics](#) in the collection and dissemination of EWM figures.

NISRA will comply with the General Data Protection Regulation (GDPR) 2016 and the Data Protection Act (DPA) 2018 which is an Act of Parliament governing the protection of personal data.