

Deaths: quality assurance of administrative data used in population statistics, Dec 2016

The quality assurance undertaken on administrative data for Deaths data used within Population Statistics Division (PSD) publications.

Contact:
Pete Large
pop.info@ons.gsi.gov.uk

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1 . Introduction

Death data are obtained from death registrations in England, Wales, Scotland and Northern Ireland. Death Statistics are published by the Office for National Statistics (ONS) for England and Wales, National Records of Scotland (NRS) for Scotland and the Northern Ireland Statistics and Research Agency (NISRA) for Northern Ireland. ONS also publishes UK death figures.

This report covers the processes, from data collection through to publications produced by Population Statistics Division of ONS, which use death data as an administrative data source. This report is designed to help people better understand the level of quality assurance that goes into death data prior to use by Population Statistics Division. It identifies potential risks in data quality and accuracy as well as details of how those risks are mitigated.

It should be noted that death statistics are produced by Health Analysis and Life Events Division and not Population Statistics Division; as such the full range of published death statistics is not covered by this report. Other uses of death data within ONS are not covered by this report. This report is intended to supplement existing documentation:

- ONS [mortality quality and methodology information](#) and [the user guide to mortality statistics](#)
- [the deaths background information page from the NRS website](#) and the [corresponding vital events general background information page](#)
- the documents available on [the Vital Stats section of the NISRA website](#)

This report has been published in a bid to help people understand the data processing undertaken and provide reassurance that the subsequent statistics produced by Population Statistics Division using death data are suitably robust.

Within Population Statistics Division, death data are used in the production of:

- Mid-Year Population Estimates (from national to county district level)
- Life Tables (national)
- Ageing Analysis
- Population Projections (national and subnational)
- the Longitudinal Study

Death statistics are produced on a registrations basis; this means that the deaths included are those deaths which were registered within the calendar year.

Death data used as a component of population change are provided on an occurrences basis, which means that the deaths included are those deaths which have been registered but occurred within the year in question. Death data used by the Longitudinal Study and in the production of life tables are those deaths which were registered in the year in question, regardless of when they occurred. The Ageing Analysis Team uses death data which is both occurrence and registration based.

Within Population Statistics Division, death data were assessed separately by relevant teams using [the UK Statistics Authority's Quality Assurance of Administrative Data Toolkit](#), which assesses an administrative data source in terms of the risk to data quality and its onward use in statistics as well as the profile of the statistics produced from the source. The results of those assessments are an A2 rating for death data relating to England and Wales, Scotland and Northern Ireland. The A2 rating means that an enhanced level of assurance is required for these sources and this report will provide information to meet this level of assurance. If you feel that this report does not adequately provide this assurance then please contact pop.info@ons.gov.uk with your concerns.

The rating used is the highest assurance rating provided by any team within Population Statistics Division, it is not the product of the highest risk and the highest profile. While an A2 assurance rating was provided, some teams provided an A1 assurance rating. The scores provided by each team and the rationale behind those scores will be provided, in terms of both the risk and profile components, later in this report.

The toolkit outlines 4 areas for assurance; the rest of this report will be split into these areas, with further subdivisions by country. The areas for assurance are:

- operational context and administrative data collection
- communication with data supply partners
- QA principles, standards and checks applied by data suppliers
- producer's QA investigations and documentation

2 . Operational context and administrative data collection

2.1 England and Wales

Following a death there is a legal requirement, under the Births and Death Registration Act 1836, for it to be registered within 5 days. Registration information is provided by a relative ([or other qualified informant](#)) and collected in register offices by the Local Registration Service, on behalf of the General Register Office (GRO). In order to complete the registration, the registrar requires the Medical Certificate of Cause of Death (MCCD). There are reasons why deaths may not be registered within 5 days, for example if the death is referred to a coroner.

The death should be registered in the same registration district as the death occurred. If this is not possible then the death may be registered elsewhere within England and Wales and the register office which undertakes the registration will send the registration details to the appropriate district.

In order to complete a MCCD, a doctor must have seen the deceased after death or during the last 2 weeks of life. If the death occurs in hospital, the consultant who is responsible for the patient's care must ensure that the death is certified. If the death occurs outside of hospital, more than one General Practitioner (GP) may have been involved in the patient's care and be eligible to complete the MCCD; if available the deceased's GP will normally complete the MCCD. If there was no medical contact in the final two weeks of life then the death must be referred to the coroner to investigate and certify the cause.

For the coroner to complete a MCCD then an investigation through post-mortem, inquest or both must have been undertaken. Should this occur then the time between death and registration is likely to exceed 5 days.

The coroner will order a post-mortem examination if the death was sudden and the cause was unknown, if there was no doctor in attendance or if the death has been referred directly by the police. If the post-mortem shows that the death was due to natural causes then the coroner notifies the registrar that they do not intend to hold an inquest.

A coroner will hold an inquest if there is reasonable cause to suspect that the death was due to anything other than natural causes. The purpose of inquests is to conclude how the person died and determine the medical cause of death. If legal proceedings commence in relation to the death then the coroner must adjourn the inquest until proceedings are complete. At the time of adjournment the coroner may issue a form to allow the death to be registered. If at the time there is insufficient evidence to code a cause of death a temporary code is supplied by the coroner.

If a person is missing but believed to be deceased then either the coroner can conduct an inquest without a body, based on police evidence (under section 15 of the Coroners Act 1988), or an application to the High Court may be made under the Presumption of Death Act 2013. To have a valid claim for the High Court, the petitioner must be a relative of the individual who is missing and presumed dead and the missing person is thought to have died or has not been known to be alive for at least 7 years. If the petition is successful the death is recorded on the Register of Presumed Deaths and GRO informed; a death certificate may then be granted. The number of entries on the Register of Presumed deaths is passed onto ONS, but due to the time delay since the death occurred, these deaths are not recorded in ONS deaths data.

There are also a small number of uncertified deaths registered each year, more information on these is available in [the user guide to mortality statistics](#).

Data are validated upon entry into Registration Online system (RON) by the registrar. Should for any reason RON not be working, paper copies of the death certificate are used and the data are entered onto RON once it becomes available. A specimen death certificate is available in [the user guide to mortality statistics](#).

Many of the variables collected at death registration are required under legalisation (further details are available in the [mortality quality and methodology information](#) and [the user guide to mortality statistics](#)).

Data collected at death registration includes:

- sex
- place where death occurred
- cause of death
- date of death
- date of birth
- deceased's usual place of residence

As part of the death registration process, before data are submitted on RON, the registrar asks the informant to verify that all data entered are accurate. The registrar is then able to correct any errors. There are some validation checks built into RON 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.

Deaths recorded on RON system are sent electronically to ONS on a daily basis. If a record fails to load onto ONS systems an error report is generated by the system and ONS send information to the General Registrar Office (GRO) for investigation and resolution. If an incomplete record is received GRO will investigate and provide resolution.

The number of deaths registered may differ from the number of deaths occurring in any given time period for the following reasons:

1. The death may be registered in the following time period due to the time permitted to register a death
2. The death may be subject to an inquest, which may move the registration into a time period after the time period in which the death occurred

There is no known bias in the difference between registrations and occurrences: a report on [the impact of registration delays on mortality statistics](#) provides more detail. The timeliness of registrations means that they are used rather than occurrences. If the death is registered in a later time period than that in which the death occurs, then the death will be included in death registration statistics but not death occurrence statistics.

ONS makes use of a number of classifications in mortality statistics based on information collected at registration, these include:

- International Classification of Disease (ICD-10): this is the medical classification listed by the World Health Organisation used to assign cause of death, to enable trends in cause of death to be monitored and compared internationally
- Standard Occupational Classification (SOC): this classifies individuals based on the jobs they hold and the skill level used in those jobs, in deaths this is used to help monitor trends and assess whether types of work are more prone to higher mortality rates by cause of death
- National Statistics Socio-Economic Classification (NS-SEC): this is constructed to measure the employment relations and conditions of occupations and is used to assess the differences in mortality due to conditions of employment

Any changes to the data collection processes or classifications are detailed in [the user guide to mortality statistics](#) as is a fuller explanation of ICD-10 codes and changes in ICD processing. There is also a specific information note on [recent changes to cause of death coding](#).

Once data are received by ONS they are automatically coded for geography, occupation and cause of death. When automatic coding fails data are manual coded. Quality assurance is undertaken to assess whether there are duplicates or missing registrations. Once preliminary checks have been passed a subset is taken, frequencies are then checked to ensure that data are complete and valid. The dataset is then signed off as fit for purpose for statistical production, then tables are assembled and checked; data extracts are taken for PSD.

2.2 Scotland

There is a legal duty under the Registration of Birth, Death and Marriages (Scotland) Act 1965 for any death occurring in Scotland to be registered within 8 days. Registration may take place in any registration district. If registration occurs in a different registration district from that in which the death took place then the registrar for the district of death is informed that an out of area registration has occurred. Registration information is collected by National Records of Scotland (NRS).

The MCCD should be completed by the doctor who was in attendance during the last illness of the deceased. However, another medical practitioner may complete the MCCD using suitable information, such as case notes, should the doctor who was in attendance be unavailable.

Under certain circumstances the Crown Office and Procurator Fiscal Service must be notified of the death. These circumstances are detailed in the guidance document for medical practitioners: [Reporting Deaths to the Procurator Fiscal](#). All reportable deaths must be notified to the procurator fiscal as soon as possible after the occurrence and before any steps are taken to issue a death certificate. If a death certificate has been issued to the family and the procurator fiscal declines to accept the cause of death, this will have to be retrieved from the family.

Registration of deaths which are notified to the procurator fiscal is not significantly delayed, and the vast majority are registered within 8 days of occurrence. Investigations by the procurator fiscal may subsequently revise the information recorded on the cause of death but the fact of death is recorded soon after occurrence. Differences in statistics on occurrences and registrations are therefore much smaller in Scotland than in England and Wales.

At registration, [a relative or other qualified person](#) will provide information to the registrar who will enter it onto the Forward Electronic Register (FER). The system is electronic for the vast majority of offices but there are a few manual offices where data arrives in FER after a couple of days delay. At registration the MCCD is presented. The Certificate of Death (Scotland) Act 2011 requires that a random sample of qualifying MCCDs be reviewed by an independent panel. The aim of this is to

- improve the quality of MCCDs
- provide better quality information about causes of death so that health services can be better prepared for the future
- ensure that the processes around death certification are robust and have appropriate safeguards in place

If the MCCD is selected, the informant will be notified of this and death registration will be delayed until such time as the review is complete. The reviews are expected to take 1 to 3 working days so should not adversely affect the statistics although a small number of records may change year of registration. Should the funeral need to take place within a certain time period then there are procedures in place to accommodate this. A [death certification question and answer webpage](#) is available to address concerns and provide information about the reviews. Details as to which MCCDs are eligible for selection can be found within [Section 2 Clause 4 of the Certificate of Death \(Scotland\) Act 2011](#).

Data collected at death registration and the registration process is broadly similar to that collected in England and Wales.

Registration data recorded on FER are sent to NRS where they are coded for geography, occupation and cause of death. An initial dataset is taken and subject to further quality assurance and issue resolution for specific registration data. Further information relating to cause of death may also be provided by a certifying doctor or the Procurator Fiscal. Table production then takes place on a dataset that has been signed off as fit for purpose. As part of table production quality assurance is carried out to ensure accuracy. These tables are then used by PSD.

2.3 Northern Ireland

Data are collected under the Births and Deaths Registration (Northern Ireland) Order 1976. Deaths should be registered within 5 days of occurrence, although there are some situations where registration may be delayed. Registration may take place at any District Register Office in Northern Ireland. Registration information is collected by GRO for Northern Ireland.

For around three quarters of deaths, a doctor involved in the care of the deceased during their last 28 days of life completes the MCCD, with the remaining [deaths referred to the coroner](#) and the appropriate procedures followed.

At registration, [a relative or other qualified person](#) will provide information to the registrar who will enter it onto the electronic registration system managed by GRO for Northern Ireland. Statisticians within Northern Ireland Statistics and Research Agency's (NISRA) Vital Statistics team have a live link to the system to download registrations as required.

GRO for Northern Ireland uses automated coding software to code cause of death in the majority of cases. For the remainder, including all deaths involving a coroner's inquest, manual coding is performed.

More information on the background and quality of deaths registration data in Northern Ireland is available in the [Northern Ireland Death Statistics Quality Assessment](#) document.

Data collected at death registration and the registration process is broadly similar to that collected in England and Wales.

Once data are received by NISRA they are automatically coded for geography and cause of death. When automatic coding fails data are manual coded. Once coding is complete quality assurance is undertaken to assess whether there are duplicates or missing registrations. Checks on specific registration data such as sex specific cause of death against sex are carried out. The dataset is then signed off as fit for purpose for statistical production, then tables are assembled and checked; PSD then use these tables for their statistical production.

3 . Communication with data supply partners

3.1 England and Wales

A Service Level Agreement (SLA) is in place between ONS and General Register Office (GRO). The SLA

- covers the provision of life events data to ONS
- ensures that data quality is monitored and performance is reported on
- details the procedures for issue resolution and escalation
- sets out procedures for handling system and processing changes
- outlines data security provisions
- specifies the frequency of data supply

Should the SLA require modification, such as for a new piece of legislation, there are procedures within the SLA which sets out how ONS and GRO are to agree the modifications.

Life Events and Population Sources Division hold quarterly management meetings, which are attended by GRO, Population Statistics Division and other areas of ONS. At these meetings issues affecting the production of death statistics for England and Wales are discussed, for example legislative changes. A standard agenda item for the meeting is the SLA, under which aspects of data quality and SLA performance are covered including:

- communication of planned interruptions
- details of any unexpected interruptions and the impact these have had
- the number of incomplete records provided
- the number of investigations outstanding
- the time for these investigations to be completed

As part of the ONS quality assurance process any perceived errors identified are raised with GRO for investigation and resolution in accordance with the SLA. A performance report is agreed between ONS and GRO on an annual basis as part of the SLA and this is discussed by a steering group covering all topics for which the SLA applies, not just deaths.

The quarterly management meetings also act as a means to discuss:

- processing issues
- progress towards publications
- any risks, concerns or issues which exist or may emerge and the mitigation of those
- analysis programmes of other areas of ONS

Feedback on death statistics are welcomed by Life Events and Population Sources Division who publish these statistics and supply data to Population Statistics Division. Population Statistics Division does not actively seek feedback specifically on death statistics from the people who use their statistics. This is because deaths are used in the cohort component method, which is the international standard method of calculating population estimates. For other uses, such as in the Longitudinal Study, the data are the best available and most appropriate data source. Should concerns be raised about death data or their use by Population Statistics Division then these would be responded to as appropriate.

There is also the opportunity for people to raise concerns using the Annual ONS Customer Satisfaction Survey.

To help prevent the disclosure of information about individuals there is a [disclosure control guidance document for births and deaths](#).

3.2 Scotland

Data for Scotland are downloaded from the National Records of Scotland website by Population Statistics Division after statistics have been published; as such there is no formal agreement for them to supply data. There is communication with colleagues from NRS on an ongoing basis and there are regular meetings for ONS, Welsh Government, National Records of Scotland (NRS) and Northern Ireland Statistics and Research Agency (NISRA) to discuss vital events issues.

When there has been a delay in the publishing of Scottish death statistics, NRS have shared statistical information with ONS prior to publication. This enabled ONS to publish UK population statistics on the same day or after the publication of Scottish data by NRS. The information shared was in the form of an aggregated table and publication dates were agreed prior to information being shared.

3.3 Northern Ireland

Occurrences based data for Northern Ireland are specifically requested and a template is sent to them for completion. Registrations based data is downloaded by Population Statistics Division from the Registrar General Annual Report after publication. No formal agreement is in place for them to supply data. There is communication with colleagues from NISRA on an ongoing basis and there are regular meetings for ONS, Welsh Government, NRS and NISRA to discuss vital events issues.

4 . QA principles, standards and checks applied by data suppliers

This section details the checks and standards applied to the data prior to receipt by Population Statistics Division. The checks carried out by Population Statistics Division upon receipt of the data are detailed in Section 5.

4.1 England and Wales

4.1.1 Checks carried out by the General Register Office

As part of the death registration process, before data are submitted through the Registration Online (RON) system, the registrar asks the informant to verify that all data entered are accurate. The registrar is then able to correct any errors. There are some validation checks built into RON 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.

The General Register Office (GRO) conduct some quarterly quality assessments of the data they supply to ONS, for more information on these checks please see section 4.4 of [the user guide to mortality statistics](#).

4.1.2 Checks carried out prior to the annual subset being finalised

Records are sent to ONS on a daily basis. Should a record fail to be loaded then an automated error report is generated by ONS. If a record loads but is incomplete then GRO are contacted and the record is investigated.

On receipt by ONS, data are subject to a variety of consistency and sense checks. Checks are carried out to ensure that the number of deaths received by ONS is the same as the number of deaths reported at register offices. Missing, suspicious or duplicate records are referred to GRO for investigation and resolution.

Validity checks on variables are run to ensure that all codes are valid and that each entry seems plausible. Sense checks and frequency counts are conducted to quality assure the subset, for example checking counts by area are of a similar size to previous years. Outlying values for key variables such as age at death are given close scrutiny, as are age or sex-specific causes of death. Any concerns are then investigated.

Following detailed quality assurance, the subset is declared as final. Death statistics are produced from this annual subset and published. For more information on these checks please see [the user guide to mortality statistics](#).

4.1.3 Checks carried out prior to publication of death statistics by Life Events and Population Sources Division

A system transfer takes place copying the final annual death subset from the processing system to a statistical system designed for output production. Frequency counts are compared to ensure that the data from the two different systems are the same and that the transfer has been successful.

Statistics planned for publication are checked to ensure the output from the statistical system matches the final subset on the processing system. Sense checks are carried out to ensure consistency within and across publications. Additivity checks and comparisons with previous years are also conducted. For more information on these checks please see [the user guide to mortality statistics](#).

Mid-year data provided to Population Statistics Division comprise the first 6 months of data from the newly signed off annual subset (January to June) and the last 6 months of data from the previous subset (July to December). Frequency counts by month are used to ensure that the correct data are provided and that totals used are correct. This data is provided on both a date of occurrence of death and a date of death registration basis.

4.1.4 Checks carried out after publication of death statistics

Death statistics are also subject to regular quality reviews, the last of these was in summer 2015. Death statistics passed the regular quality review with some minor recommendations such as noting some aspects earlier in documents in the [mortality quality and methodology information](#) adding specific information into the mortality quality and methodology information from [the user guide to mortality statistics](#). Quality reviews are conducted every three years with the next one expected in Summer 2018.

4.2 Scotland

There are checks built into the Forward Electronic Register (FER) system to ensure that, prior to data being sent to NRS, some validity quality assurance has already been undertaken. Information supplied is then verified with the informant before being declared on the system.

During registration, the registrar will allocate codes, such as registration district where the death occurred. All events registered on FER are examined by a district examiner to check for quality and accuracy. Vital Events Statistical Branch staff within NRS also check the coding received for anomalies and, following investigation, correct the coding if appropriate.

Sense checks on resultant data are made, for example to ensure that component figures sum to aggregates and consistent results are produced. More information on the quality assurance process for deaths in Scotland is available from [the deaths background information page from the NRS website](#) and [the corresponding vital events general background information page](#).

4.3 Northern Ireland

There are checks built into GRO for Northern Ireland's electronic registration system to ensure that prior to data being extracted by Northern Ireland Statistics and Research Agency's (NISRA) Vital Statistics team, some validity quality assurance has already been undertaken. During the registration a provisional copy of the information is printed out before the registration is finalised and the informant is asked to check the information supplied (for example, to check that all spellings or dates are correct). Any further errors can be addressed at this stage, before being finalised.

NISRA Vital Statistics team carry out a variety of additional validation checks, including trend analysis, bounds checking, record consistency and distributional analysis. Any concerns are raised with GRO for Northern Ireland and, following investigation, errors are corrected if appropriate. For more information see NISRA's [Vital Statistics Quality Assurance Procedures document](#).

5 . Producer's QA investigations and documentation

The checks carried out by each team to ensure that data are valid for their requirements are detailed below as are concerns about the data and the rationale behind the risk-profile score for each team.

It should be noted that the administrative source is closely aligned to the production requirements of these statistics and therefore they are expected to be of very high quality. There will be a small number of errors in the dataset as errors are made in the registration process and are corrected at a later date. These are unlikely to affect the key variables used in population statistics, should these variables be affected, then they will be discussed in the relevant section below.

Local authority death tables for England and Wales, Scotland and Northern Ireland are used by the Population Estimates Unit (PEU) as part of the cohort component method in the production of mid-year population estimates to represent the number of deaths in an area that year.

Death tables are used by the Mortality Analysis Team to produce life tables and in the calculation of mortality assumptions for population projections.

The Ageing Analysis team make use of both death tables and death records obtained from Health Analysis and Life Events. The data are used, in conjunction with population estimates, to produce ageing analysis and statistics and to feed into mortality assumptions for population projections.

The Population Projections Unit (PPU) use death data in their assumptions of mortality and death tables in their own right in the production of national and sub-national projections.

A sample of death records for England and Wales are used as a source of information made available within the longitudinal study to approved researchers on approved projects in a secure environment. The data provided have identifiable information such as name, address and date of birth removed to protect individuals from being identified. When researchers wish to take data out of the secure environment it is only possible to do so in aggregated form and is subject to disclosure control in line with the disclosure control guidance document for births and deaths.

5.1 Population Estimates Unit

Deaths are used in population estimates as part of the cohort component method. Checks are carried out on all components of population change including deaths. Checks include identifying any significant changes between years for the number of deaths within an area. Should the data have changed significantly, then several years will be investigated to see if it is reflective of a longer trend. If this does not prove to be the case then Life Events and Population Sources Division is contacted for confirmation and/or investigation. The ratio of male deaths to female deaths is also investigated in this manner.

Checks are carried out to ensure that components are consistent at different geographic levels, for example that the number of deaths for the UK equals the number of deaths for England, Wales, Scotland and Northern Ireland. Checks are also carried out to ensure that estimates are reached from components of change and the population estimate from the previous year.

The data items of interest are the fact that the death occurred, the sex of the person who died, the date of birth (as this determines the age of the deceased), the date of death and the area of usual residence. There are no known issues with these variables. Date of birth is as provided at registration but the registrar has no means of verification; as part of our ongoing data quality assessment ONS is undertaking work to validate age at death, with results expected to be published in Autumn 2016.

The Population Estimates Unit produces mid-year population estimates from national to local authority level. Population estimates are used to make decisions on resource allocation by central and local government as such was deemed to have a higher public interest profile.

Population Estimates Unit deemed death data to have an A1 assurance rating for England and Wales, Scotland and Northern Ireland, with low risk and high public profile, due to the:

- close alignment between the purpose for collection and the use in statistics
- administrative sources are used as the sole source to measure deaths and subsequently produce death statistics which are national statistics, the use of the administrative sources here are also to measure deaths
- legal requirement to register a death
- need for a death certificate in making funeral arrangements and the winding up of an estate
- standardised collection process
- completeness of the data
- small number of variables used
- quality assurance processes the data goes through at each stage
- fact that deaths are only one component used in the calculation of population estimates
- use of the data in Government resource allocation
- coverage reported in the media

5.2 Mortality Analysis Team (Life Tables)

The Mortality Analysis Team conduct sense checks on the death data and check that data is consistent with previous years. Death data is used to feed into models to determine life expectancy at the national level. More information on this process is available in the [Life Tables Quality and Methodology Information document](#).

The data items of interest are that the death occurred, the area of usual residence and the sex of the deceased and the date of birth which is used to determine the age at death. There are no known issues with these variables. Date of birth is as provided at registration but the registrar has no means of verification; as part of our ongoing data quality assessment ONS is undertaking work to validate age at death, with results expected to be published in Autumn 2016.

The Mortality Analysis Team produces national life tables. Life tables are used to determine life expectancy and feed into pension calculations. The statistical output has a strong media profile and as such was deemed to have a higher public interest profile.

The Mortality Analysis Team deemed death data to have an A2 assurance rating for England and Wales, Scotland and Northern Ireland, with low risk and a high public profile, due to the:

- close alignment between the purpose for collection and the use in statistics
- administrative sources are used as the sole source to measure deaths and subsequently produce death statistics which are national statistics, the use of the administrative sources here are also to measure deaths
- legal requirement to register a death
- need for a death certificate in making funeral arrangements and the winding up of an estate
- standardised collection process
- completeness of the data
- small number of variables used
- quality assurance processes the data goes through at each stage
- use of life tables in pension calculations, analysis and research

5.3 Ageing Analysis Team

The Ageing Analysis Team conduct sense checks on the death data and check that data is consistent with previous years. Death data is used to feed into estimates of the very old at the national level. More information on this process is available in [the population estimates of the very old \(including Centenarians\) Quality and Methodology Information document](#).

The data items of interest are that the death occurred, the area of usual residence and the sex of the deceased and the date of birth which is used to determine the age at death. There are no known issues with these variables. Date of birth is as provided at registration but the registrar has no means of verification; as part of our ongoing data quality assessment ONS is undertaking work to validate age at death, with results expected to be published in Autumn 2016.

The Ageing Analysis Team produces population estimates of the very old. These are used to feed into national life tables produced by the Mortality Analysis Team and into national population projections. They are also used in resource allocation and planning of services for older people as well as by life insurance companies in calculating mortality rates at older ages. The statistical output has a low media profile compared with other population outputs but still has media presence and as such was deemed to have a medium public interest profile.

The Ageing Analysis Team deemed death data to have an A2 assurance rating for England and Wales, Scotland and Northern Ireland, with low risk and a medium public profile, due to the:

- close alignment between the purpose for collection and the use in statistics
- administrative sources are used as the sole source to measure deaths and subsequently produce death statistics which are national statistics, the use of the administrative sources here are also to measure deaths
- legal requirement to register a death
- need for a death certificate in making funeral arrangements and the winding up of an estate
- standardised collection process
- completeness of the data
- small number of variables used
- quality assurance processes the data goes through at each stage
- use in resource allocation and planning of services for older people
- use by life insurance companies in calculating mortality rates
- use in the production of life tables and population projections

5.4 Population Projections Unit

The Mortality Analysis Team produces assumptions which feed into national population projections. Quality assurance of these assumptions is carried out by the Mortality Analysis Team prior to supply to the Population Projections Unit. Past and projected numbers of deaths and mortality rates, along with other individual components of population change, are assessed once the projections have been run to ensure that they look sensible both in isolation and in conjunction with other components and with the previous set of projections

Death data are used to feed into sub-national population projections for England as one of the components of change. The data supplied is an extract from finalised death data and as such has been fully quality assured by Life Events and Population Sources Division prior to supply. As such the Population Projections Unit judge that no further quality assurance is necessary at the time of initial data supply beyond a simple check to ensure that they have data for the correct number of areas and variables. As with the national population projections, past and projected numbers of deaths and mortality rates, along with other individual components of population change, are assessed once projections have been run to ensure that they look sensible both in isolation and in conjunction with other components and with the previous set of projections; individual local authorities are examined in detail if these checks result in any concerns.

The data items of interest are the fact that the death occurred, the sex of the person who died, the date of birth (as this determines the age of the deceased), the date of death and the area of usual residence. There are no known issues with these variables. Date of birth is as provided at registration but the registrar has no means of verification; as part of our ongoing data quality assessment ONS is undertaking work to validate age at death, with results expected to be published in Autumn 2016.

The Population Projections Unit produces mid-year population projections from national to local authority level, as well as for Clinical Commissioning Groups. Population projections are used to make decisions on resource allocation by central and local government and are judged to have a relatively high public interest profile.

Population Projections Unit deemed death data to have an A1 assurance rating for England and Wales, Scotland and Northern Ireland, with low risk and a high public profile, due to the:

- close alignment between the purpose for collection and the use in statistics
- administrative sources are used as the sole source to measure deaths and subsequently produce death statistics which are national statistics, the use of the administrative sources here are also to measure deaths
- legal requirement to register a death
- need for a death certificate in making funeral arrangements and the winding up of an estate
- standardised collection process
- completeness of the data
- small number of variables used
- quality assurance processes the data goes through at each stage
- fact that deaths are only one component used in the calculation of population projections
- use of projections in resource allocation planning
- prominence given to population projections in the media

5.5 Longitudinal Study Branch

The Longitudinal Study use data for England and Wales only. Extracts from the deaths annual subset are taken for any instance where the deceased has a Longitudinal Study date of birth; there are four of these dates of birth during the year. The totals extracted each year are checked to ensure that they are approximately 1% of deaths. The records that have proven to be valid are added into the Longitudinal Study database and matched, where possible, to form a record for the life events of an individual.

There are a number of data items of interest, these include the date of death, date of death registration, date of birth, the area of usual residence, marital status of the deceased, national statistics socio-economic classification, cause of death. While data items relating to occupation of the deceased are made available from death data on the Longitudinal Study, it is recommended to researchers that occupational information is taken from linked Census data.

There are some quality issues around the completion of the MCCD in relation to cause of death and there have been reforms in this area looking to address the issues. For more information please see Section 4 of the [user guide to mortality statistics](#).

There are no other known issues with these variables. Date of birth is as provided at registration but the registrar has no means of verification; as part of our ongoing data quality assessment ONS is undertaking work to validate age at death, with results expected to be published in Autumn 2016.

The Longitudinal Study is used primarily by approved researchers from academia and across government; it is also used to produce the [mortality by NS-SEC release](#). Given the low use of the Longitudinal Study across government and academia and the low profile it has in the media it was deemed to have a lower public interest profile.

The Longitudinal Study deemed death data to have an A1 assurance rating for England and Wales, with low risk and a low public profile, due to the:

- close alignment between the purpose for collection and the use in statistics
- administrative source is used as the sole source to measure deaths and subsequently produce death statistics which are national statistics, the use of the administrative source here is also to measure deaths
- legal requirement to register a death
- need for a death certificate in making funeral arrangements and the winding up of an estate
- standardised collection process
- completeness of the data
- quality assurance processes the data goes through at each stage