

Quality assurance of administrative data used in population statistics: Births and deaths data

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1. Overview of births and deaths data

Data supplier:	NRS Vital Events
Supplier info:	The Vital Events branch within NRS is responsible for providing statistics registered by local registration offices on births, marriages, deaths, civil partnerships and divorces.
Data type (counts or unit records)	Counts
Data content:	The following variables are included in the births and deaths data: <ul style="list-style-type: none">• Geographic area (council, data zone)• Age (at mid-year)• Sex• Count
Supply schedule:	Annually
Use of data:	Production of : <ul style="list-style-type: none">• Mid-year population estimates• Small area population estimates• Centenarians (and people aged 90 and over) population estimates• Population projections for Scotland• Sub-national population projections
Matrix Score	A1 – Basic Assurance
Last review date	06 October 2020

2. Data source information

It is a legal requirement for individuals to register all births and deaths which occur in Scotland. The Vital Events team within NRS are responsible for publishing statistics on births, marriages, deaths, civil partnerships and divorces from civil registration events which are registered at local registration offices.

Information about the quality of the birth and death information used for population estimates is available in the [Vital Events section](#) of the NRS website. Papers on the NRS website cover the quality of the data obtained from the registration system and the processes used to collect the data and check it, as well as the processes and checks in place to quality assure the statistical databases that are used to create the counts of births and deaths used in the population estimates.

The number of births and deaths which occur within Scotland are used as a component of population change in a range of population statistics. Statistics on

births and deaths published in the Vital Events section of the NRS website are based on the date of registration of the event. However, the number of births and deaths used as a component in population statistics are based on the date on which the event occurred. For example, the numbers of births and deaths used in the mid-year population estimates are those which occurred between the 1 July of one year and the 30 June of the next year.

3. Operational context and administrative data collection

3.1 Births

There is a legal duty under the Registration of Births, Deaths and Marriages (Scotland) Act 1965 for any birth occurring in Scotland to be registered within 21 days. Registration may take place in any registration district. If registration occurs in a different registration district from that in which the birth took place then the registrar for the district of birth is informed that an out of area registration has occurred.

To ensure that the birth has actually taken place, hospitals provide a list of the births occurring within it to the local registrar to ensure that all births are recorded. At registration, the registrar asks the informant to produce the birth card or form issued by the hospital. Where the informant is unable to produce any documentation from the hospital, the registrar checks the list of births provided by the hospital. If the child was born in another registration district, the registrar contacts the hospital or asks the registrar from that district to check their hospital list.

At registration, data are provided by the parents, or other qualified people and entered by registrars into the national electronic registration system, the Forward Electronic Register (FER) where data validation takes place. 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.

Registration data recorded on FER are sent to NRS where they are coded for geography and occupation. Multiple birth registrations are linked together before quality assurance for duplicates and missing data are carried out. An initial dataset is taken and subject to further quality assurance and issue resolution for specific registration data, for example, missing mother's date of birth.

3.2 Deaths

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 NRS.

The Medical Certificate of Cause of Death (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.

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, and
- 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](#).

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.

4. Communication with data supply partners

The Population and Migration Statistics team have close links with the Vital Events team as they are both part of the NRS Demographics Statistics and Vital Events department and work within the same building. NRS Vital Events have close links with the NRS Registration team, who in turn have close links with registration offices across Scotland. These close working relationships mean that any data quality issues, or planned changes in data collection, are considered in advance and any issues can be considered before the data is used in the population estimates. The Population and Migration Statistics team, the Vital Events team and the Registration team all sit within the Statistical Services area of NRS. This means one person has oversight of the whole area which will help improve the already good links between all the teams.

5. Quality assurance principles, standards and checks applied by data suppliers

Information about the quality of the birth and death information used for population estimates is available in the [Vital Events section](#) of the NRS website. This includes the quality of data obtained from the registration system and the processes used to collect the data and check it, as well as the processes and checks in place to quality assure the statistical databases that are used to create the counts of births and deaths used in the population estimates.

There are well established processes in place for registering vital events and various checks have been built into the registration process and system. For example, a registrar must be satisfied that a birth has taken place before registering it, and use a card that is issued by the hospital or attending midwife as evidence of the birth taking place in Scotland. It is thought that the vital events registration system captures nearly all events taking place in Scotland. The number of missed events will be very small and therefore will not have an effect on the population estimates. There are also checks in place to check the quality of the information captured on registration certificates.

Quality assurance is also carried out on the vital events statistical database. The overall numbers are obtained from NRS's Forward Electronic Register (FER) system, which holds the official record for each event (as entered by the local Registrar). Any differences between the statistical database's numbers of events and the figures from FER are investigated, in order to identify any events for which (a) records are missing from the statistical database or (b) records should be deleted from the statistical database. NRS Vital Events then resolves any discrepancies: for example, by obtaining the data for any events which were found to be missing from its statistical database.

There is the potential for unreliability of vital events figures for small areas, for short periods or for particular sub-groups. Several [examples](#) of this can be found in a section of the NRS website on fluctuations in death statistics, particularly when the numbers involved are small. Vital events figures for a small area, for example, may

be subject to large percentage fluctuations from year to year, due simply to the inevitable variability of natural events.

6. Producer’s quality assurance investigations and documentation

Given the close working relationship between the Vital Events and Population and Migration Statistics teams within NRS, the quality assurance measures during the Vital Events processing of births and deaths are considered adequate for the use of the data in the population estimates.

Checks are carried out on all the components of population change, including births and deaths. Data is compared against previous years to identify significant changes. Checks are also carried out to ensure components are consistent at different geographic levels, for example, that the number of births for Scotland equals the sum of all births in Scottish council areas. Checks are also carried out to ensure that the previous population estimate and components of change sum to the latest population estimate. The Vital Events team are contacted if any unusual patterns arise for confirmation and/or investigation.

6.1 Strengths and limitations of the data source

Strengths	Limitations
<ul style="list-style-type: none"> • Legal requirement for registration of births and deaths. • Standardised collection process. • Quality assurance process at each stage of data processing. • Data sources are used to produce National Statistics on births and deaths. 	<ul style="list-style-type: none"> • A very small number of events may not be captured, for example, if someone died and their body was undiscovered. • Births are allocated to the usual residence of the mother. Therefore in the case where a child is not living with their mother, births may be allocated to the wrong area. • No adjustments are made for non-resident deaths.

7. Risk/Profile Matrix

This section contains a risk/profile matrix for the births and deaths data. The matrix reflects the levels of risk of data quality concerns and the public interest profile of the statistics. These have been determined by a review undertaken by the NRS Population and Migration Statistics team using the information contained within the UK Statistics Authority's [Administrative Data Quality Assurance Toolkit](#). For the use of data for this project, the cell highlighted is appropriate:

Level of risk of quality concerns	Public interest profile		
	Low	Medium	High
Low	Statistics of low quality concern and low public interest. [A1]	Statistics of low quality concern and medium public interest. [A1/A2]	Statistics of low quality concern and high public interest. [A1/A2]
Medium	Statistics of medium data quality concern and low public interest. [A1/A2]	Statistics of medium quality concern and medium public interest. [A2]	Statistics of medium quality concern and high public interest. [A2/A3]
High	Statistics of high data quality concern and low public interest. [A1/A2/A3]	Statistics of high quality concern and medium public interest. [A3]	Statistics of high quality concern and high public interest. [A3]

*A1/A2/A3 – definitions supplied UK Statistics Authority's [Administrative Data Quality Assurance Toolkit](#).

Justification for Matrix Score

The public interest profile has been set to high due to the use of population estimates and projections statistics to make decisions on resource allocation by central and local government.

The risk of quality concerns has been set to low given there is a legal requirement to register births and deaths, the data is collected in a standardised process and the data is subject to various quality assurance processes at each stage. Also these administrative data sources are used as the sole input to produce National Statistics on births and deaths.

As the scores were deemed low for risk of quality concerns and high for public interest profile, the assurance rating was deemed by the Population and Migration Statistics team as A1: Basic assurance (highlighted in matrix above).

8. Useful links and contact details

You can access detailed statistics that we have produced from the [Statistics](#) section of our website. Scottish Census statistics are available on the [Scotland's Census](#) website.

We also provide information about [future publications](#) on our website. If you would like us to tell you about future statistical publications, you can register your interest on the Scottish Government [ScotStat website](#).

You can also follow us on twitter [@NatRecordsScot](#)

Enquiries and suggestions

Please contact our Statistics Customer Services if you need any further information.
Email: statisticscustomerservices@nrscotland.gov.uk

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