User guide to child and infant mortality statistics

Supporting information for Child and infant mortality statistics, which presents final statistics on stillbirths, infant deaths and childhood deaths that occurred in England and Wales in a calendar year.

Contact:
Population Life Events team
health.data@ons.gov.uk
+44 1329 444110

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1 . Introduction

We produce child and infant mortality statistics that are published under the Accredited official statistics logo, the designation guaranteeing that those outputs have been produced to high professional standards set out in the Code of Practice for Statistics, and have been produced free from any political interference.

This page provides information on the collection, production and quality of our Child mortality (death cohort) tables and Infant mortality (birth cohort) tables.

The main differences between these two sets of tables are that:

- the death cohort tables are based on the year the death occurred while the birth cohort are based on the year infant was born, whether they died in the same year or the following year
- the death cohort tables cover both infant deaths (under 1 year of age) and child deaths (between 1 and 15 years of age), while the birth cohort tables are for infants only
- in both cases, the death record has been linked to the relevant birth registration record so that tables broken down by information available on the birth registration (but not the death registration) can be produced; we also link the data to a third source, the birth notification records provided by the NHS; these records contain information about gestation length and ethnicity of the baby, which is not available on the birth registration

Figures from the death cohort tables are described and explained in a single Child and infant mortality publication, because they provide the most timely statistics.

The Child and infant mortality statistics Quality and Methodology Information report contains important information on:

- the strengths and limitations of the data and how it compares with related data
- the quality of the output, including the accuracy of the data
- uses and users of the data
- how the output was created

The User guide to birth statistics provides more detailed information on the collection, production and quality of birth statistics based on birth registration data and notification data.

Following the results of an infant mortality user consultation carried out in 2017, we combined the Birth cohort tables for infant deaths and the Pregnancy and ethnic factors influencing births and infant mortality into one publication called Infant mortality (birth cohort) tables. In addition, there have been revisions to both these tables and the death cohort tables to improve presentation and to meet our user needs. More detail is available in the response to the consultation.

From the 2019 data release of Child and infant mortality in England and Wales onwards:

- the death cohort is now additionally linked to birth notification data, to allow for timely analysis of infant mortality by gestational age
- the death cohort tables now include all infant deaths rather than just those infant deaths that linked to their corresponding birth registration
- there have been several updates made to the death cohort tables to improve clarity for users and increase consistency across tables and across other ONS publications; no existing data have been removed, unless they can be found in other ONS publications

From the 2020 data release of Child and infant mortality in England and Wales onwards:

- the death cohort tables now include analysis of infant mortality by ethnicity of the baby, using revised ethnic group categories
- there have also been updates to both the death cohort and birth cohort tables with both sets of tables now being presented in line with the GSS accessibility guidance

These changes are explained further in Section 7.

Our child and infant mortality datasets are currently undergoing a transformation process. The purpose of this transformation is to:

- reduce the number of tables that are produced, without any information being lost
- publish tables in a tidy format, which helps analysis

From 2024 datasets onwards, we have reduced the number of tables by grouping and reformatting data that were across multiple tables in earlier datasets. A look-up tab has been added to the file to assist users in identifying the new location of data.

From 2024 onwards, additional tables include more granular detail on the cause of death for stillbirths and neonatal deaths by ICD-10 chapter, block, or category.

The Office for National Statistics policy on protecting confidentiality in birth and death statistics is available.

2 . Occurrences and registrations

Deaths

The majority of the Office for National Statistics death statistics are based on when a death is registered rather than when it occurred. In most cases, this makes little difference in monitoring trends because the difference between when the death occurred and when it is registered is small.

However, in the case of infant deaths, this delay can be much longer and many deaths occurring in a year will be registered after that year has finished. Table 1 shows that since 2014, between 10% and 14% of infant deaths that occurred in a reference year were registered the following year. This proportion is larger than has been seen historically for all deaths. Figures for all deaths that occurred in a reference year by the year of registration are available in Table 6 of the Impact of registration delays to mortality statistics tables.

Table 1: Percentage of infant deaths that were registered the year after they occurred, 2014 to 2024
England and Wales

	Percentage of infant deaths
2014	10.8
2015	9.5
2016	10.9
2017	12.1
2018	12.3
2019	10.5
2020	10.7
2021	10.3
2022	13.3
2023	12.8
2024	12.4

Source: Child and infant mortality statistics from the Office for National Statistics

We use the date of occurrence rather than the date of registration to monitor infant mortality patterns over time. In some cases, the time delay between a death occurrence and registration can be quite long, due to formal investigations which are more prevalent for infants than for the general population. It is therefore necessary to wait until enough time has passed to be confident that the registrations received sufficiently represent the situation for our users, while recognising their need for timely information.

Births

The annual totals of live births and stillbirths included in these tables are derived from the standard annual extract of live births and stillbirths. This extract includes all births that occurred and were registered in England and Wales in a calendar year, but also include a small number of late registrations from the previous year.

Coronavirus (COVID-19) pandemic and birth statistics

Birth registration services in England and Wales were temporarily suspended in March 2020 because of the coronavirus (COVID-19) pandemic. From June 2020, registration services restarted where it was safe to do so. Consequently, 2020 births registrations came in much later than in normal years with 42% arriving after 42 days (the usual legal limit). Delays in birth registrations continued in 2021, with 26% arriving after 42 days. We decided to strike a balance between timeliness and completeness, and we took the 2020 annual birth registrations dataset on 12 August 2021 and the 2021 annual birth registrations dataset on 15 May 2022.

Birth registration delays in 2020 have also had an impact on data linkage between infant deaths, birth registrations and birth notifications used for our death cohort tables in the data years 2020 and 2021. This is explained further in Section 7. We have also discussed birth registration delays and how they affect our statistics in more detail in Births in England and Wales explained: 2020.

3 . Child and infant deaths

In Child mortality (death cohort) tables, child deaths are defined as between 1 and 15 years of age.

Infant deaths (under 1 year) can be broken down as follows:

Stillbirths

The Stillbirth (Definition) Act 1992 defines a stillbirth as:

“A baby born after 24 or more weeks completed gestation and which did not, at any time, breathe or show signs of life.”

This definition has been in use since 1 October 1992. Prior to this, the Births and Deaths Registration Act 1953 defined a stillbirth as previously stated, but at 28 or more weeks completed gestation. Figures for stillbirths from 1993 are not comparable with those for previous years. The effect of this change on figures for 1992 is analysed in the annual volume of birth statistics for that year (Office of Population, Censuses and Surveys 1994).

Registration and certification of stillbirths, neonatal and infant deaths

General information about the registration and certification of stillbirths, neonatal and infant deaths in England and Wales can be found in the User guide to mortality statistics. It also provides information about the specific details collected when a death is certified and registered.

Death rates

We calculate the following rates for England and Wales in the Child and infant mortality publication:

- stillbirth rate
- perinatal mortality rate
- early neonatal mortality rate
- neonatal mortality rate
- postneonatal mortality rate
- infant mortality rate
- age-specific child mortality rate

More information on how we calculate these rates is available in Section 8 of this report.

4 . Referral to the coroner

On 9 September 2024, Death Certification Reform (DCR) was implemented in England and Wales. Among the changes was the introduction of a statutory medical examiner (ME) system to improve the quality and accuracy of the medical certificate of cause of death (MCCD). While most infant deaths are certified by a doctor, some may be reported to the coroner by the certifying doctor in conjunction with the medical examiner.

The circumstances under which a death has to be referred are covered in our User guide to mortality statistics.

Table 2 provides the numbers of deaths by method of certification for those infants aged under one year.

The conditions for certifying neonatal deaths are the same as for other deaths:

- the doctor should have been in attendance during the deceased's last illness
- the doctor should have seen the patient before death or seen the body
- the cause of death is known

Almost all neonatal deaths occur in hospitals. Infant deaths do not need an inquest to be certified as sudden infant death syndrome (SIDS). Therefore, only 14.8% of infant deaths and 14.3% of neonatal deaths were subject to a coroner's inquest.

Table 2: Neonatal and infant deaths: by method of certification, 2024
England and Wales

Numbers and percentages

Method of certification	**Neonatal deaths**		**Infant deaths**	
	number	**%**	**number**	**%**
Total deaths	1,758	100.0	2,318	100.0
Doctor	1,365	77.6	1,753	75.6
Doctor after referral to coroner	191	10.9	255	11.0
Coroner	344	19.6	515	22.2
Coroner after inquest	252	14.3	343	14.8
Medical examiner	19	1.1	20	0.9
Uncertified	30	1.7	30	1.3

Source: Child and infant mortality statistics from the Office for National Statistics

5 . Area coverage and base populations

Area coverage

Births and deaths to residents of England and Wales that occur and are registered outside of England and Wales are excluded.

Births and deaths registered in England and Wales to persons whose usual residence is outside England and Wales are included in any total figures for England and Wales, but are excluded from any subdivision of England and Wales.

Figures for live births and stillbirths to women whose usual residence is outside of England and Wales can be found in our Births in England and Wales: 2024 (refreshed populations) bulletin.

Table 3 provides the number of infant deaths that occurred in England and Wales by calendar year, for those infants who were not usually resident in England and Wales.

Table 3: Infant deaths of non-residents, 2014 to 2024
England and Wales

	All infant deaths	Infant deaths of residents outside England and Wales	% of all infant deaths
	Numbers		Percentage
2014	2,517	18	0.7
2015	2,578	23	0.9
2016	2,651	25	0.9
2017	2,636	23	0.9
2018	2,488	13	0.5
2019	2,390	20	0.8
2020	2,226	9	0.4
2021	2,323	11	0.5
2022	2,349	7	0.3
2023	2,320	14	0.6
2024	2,318	16	0.7

Source: Child and infant mortality statistics from the Office for National Statistics

Base populations

The population figures used to calculate child mortality rates are mid-year estimates of the resident population of England and Wales based on the census of population. The Office for National Statistics mid-year population estimates are based on updates from the most recent census allowing for births, deaths, net migration and ageing of the population.

The population estimates used for the calculation of mortality rates are the latest consistent estimates available at the time of production. Further information on population estimates and their methodology is also available.

UK comparisons

Considerations need to be made when drawing comparisons between infant mortality statistics for England and Wales and statistics for Scotland and Northern Ireland.

It is a legal requirement across the UK that all births and deaths are registered, which means that infant mortality can be expressed as the number of infant deaths per 1,000 live births. This is an internationally recognised measure of infant mortality and means that fair comparisons can be made over time and between countries.

In England and Wales, there can be long delays between when an infant dies and when the death is registered. Deaths should be registered within five days, unless they are referred to a coroner for investigation, where the delay between the date of occurrence and date of registration can be longer. The Office for National Statistics (ONS) produces figures based on when the death occurred and also when it was registered.

Statistics based on death registrations are timelier, however, deaths registered in any given year will include deaths that happened in that year as well as previous years. Statistics based on death occurrences cannot be produced until later as there must be time to account for late registrations. However, these statistics are the most accurate representation of deaths in a given year. Infant deaths in England and Wales based on death occurrences are the preferred figures and the ones used to monitor trends in infant mortality over time.

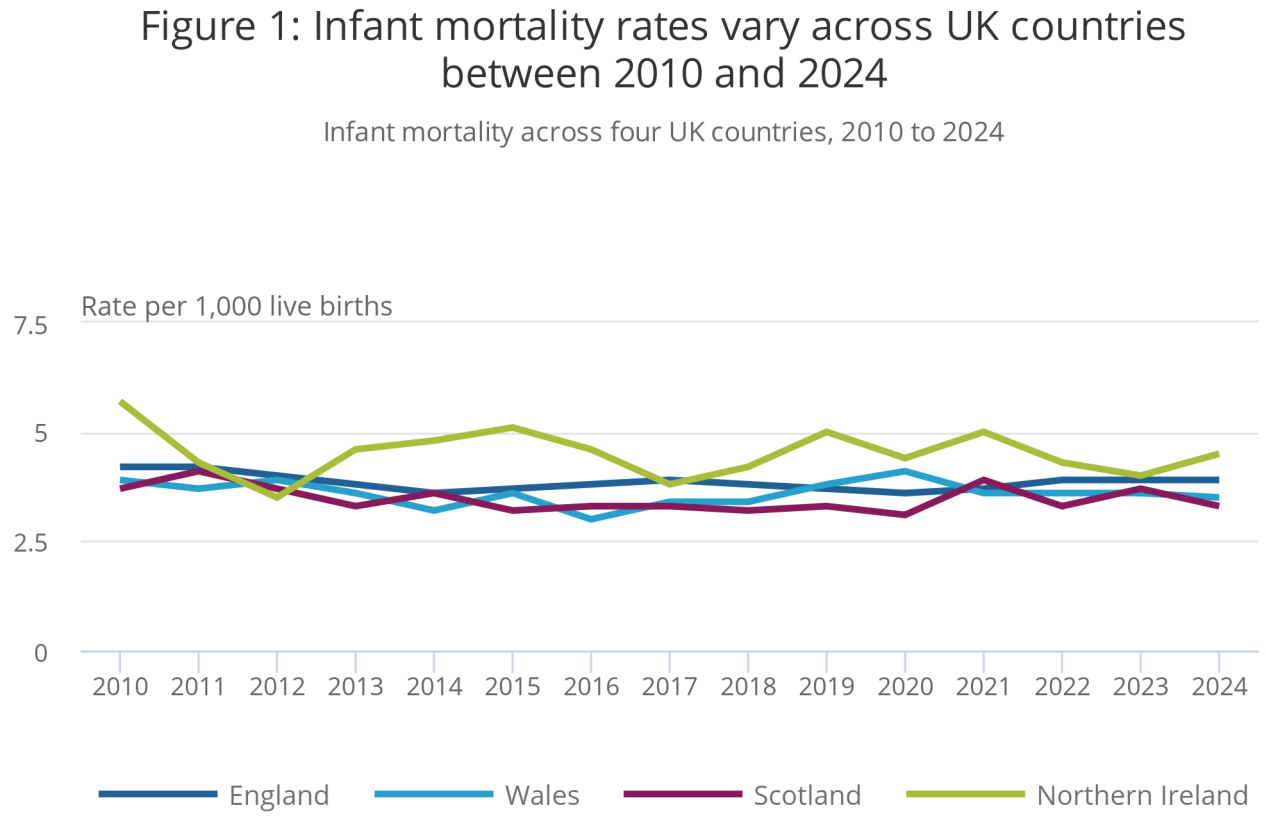
National Records of Scotland (NRS) publish infant death figures in Scotland based on date of registration. This is because registration delays are shorter in Scotland than in England and a Scottish series based on date of occurrence would be almost identical to the one based on date of registration.

Similarly, Northern Ireland Statistics and Research Agency (NISRA) present all of their data on infant deaths using the date of registration rather than the date of occurrence, acknowledging that infant deaths are likely to be referred to the coroner, which means that the death may be registered later.

Figure 1 shows infant mortality rates per 1,000 live births for England, Wales, Scotland and Northern Ireland. The England and Wales rates are based on death occurrences, the figures presented in our death cohort tables. The figures for both Scotland and Northern Ireland are based on death registrations.

Figure 1: Infant mortality rates vary across UK countries between 2010 and 2024

Infant mortality across four UK countries, 2010 to 2024



Source: Child and infant mortality statistics from the Office for National Statistics , National Records Scotland, Northern Ireland Statistics and Research Agency

Notes:

1. England and Wales data are based on date of occurrence, and Scotland and Northern Ireland data are based on date of registration.

6 . Cause of death

In England and Wales, stillbirths and neonatal deaths are registered using a special death certificate introduced in 1986 (Annex D), which enables reporting of relevant diseases or conditions in both the infant and the mother (see the User Guide to Mortality Statistics for more detail). Equal weighting is given to main conditions recorded in the infant and in the mother, so it is no longer possible to identify a single underlying cause of death for neonatal deaths and stillbirths. For postneonatal deaths (between 28 days and one year), a single underlying cause of death can be reported using the standard death certificate.

Office for National Statistics cause groups

The Office for National Statistics (ONS) developed a hierarchical classification system (PDF, 72KB) producing broad cause groups to enable direct comparison between neonatal and postneonatal deaths. This classification is referred to as the ONS cause groups, and allows the death to be assigned to a specific category, based on the likely timing of the damage leading to the death.

A computer algorithm assigns any mention, in the case of neonatal deaths, and underlying cause in the case of postneonatal deaths, to the first appropriate class of the following mutually exclusive categories:

Before the onset of labour:

1. congenital anomalies
2. antepartum infections
3. immaturity related conditions

In, or shortly after labour:

4. asphyxia, anoxia, or trauma

Postnatal:

5. external conditions
6. infections
7. other specific conditions
9. sudden infant deaths

Unclassified:

0. other conditions

A similar algorithm is used for stillbirths.

The grouping of International Classification of Diseases: ICD-10 codes into these nine categories for neonatal and postneonatal deaths is shown in Annexes B and C respectively. Corresponding groupings for stillbirths are shown in Annex A. (Annexes A.1, B.1 and C.1 refer to 2001 to 2010; Annexes A.2, B.2 and C.2 refer to 2011 to 2013; Annexes A.3, B.3 and C.3 refer to 2014 to 2020; and Annexes A.4, B.4 and C.4 refer to 2021 onwards).

However, for the data years 2001 to 2013, postneonatal deaths were assigned to the ONS cause groups based on mentions rather than underlying cause.

From the 2021 data year, the hierarchical classification used to classify ONS cause of death groups for stillbirth and neonatal deaths has been updated to align with changes to the cause of death coding software. As such, ONS cause groups from 2021 onwards are not directly comparable with 2014 to 2020 data.

Stillbirths by Office for National Statistics cause of death

Dual coding of the 2,371 stillbirths registered in 2020 in England and Wales enabled identification of the differences because of the reclassification. For stillbirths, 311 records (13.1%) changed cause group when reclassifying them into ONS cause groups. Of the eight ONS cause groups, three groups saw statistically significant changes in the number of records. These three cause groups were:

- asphyxia, anoxia or trauma (antepartum/unknown)
- congenital anomalies
- other conditions

The asphyxia, anoxia or trauma (antepartum/unknown) cause group saw a net loss of 75 records because of the reclassification, a 16.8% decrease in the number of records. These records were reclassified mainly into the other specific conditions (86) and other conditions antepartum/unknown (25) cause groups. The largest number of new records entering the cause group came from the other conditions antepartum/unknown cause group (31).

The congenital anomalies cause group saw a 16.8% increase in the number of records, a net increase of 79 records. This increase was primarily because of reclassification from the other specific conditions (65) cause group, with a further 14 records being reclassified from several other cause groups.

In the other conditions cause group, the update resulted in a 4.3% decrease, a net loss of 51 records. A total of 89 records were reclassified into new cause groups, the largest being to the other specific conditions (45) and asphyxia, anoxia or trauma antepartum/unknown (31) cause groups.

Neonatal deaths by Office for National Statistics cause of death

For neonatal deaths, 79 records (3.3%) changed cause groups when reclassifying them into ONS cause groups. Of the nine ONS cause groups for neonatal deaths, two saw statistically significant changes (congenital anomalies and antepartum infections).

Congenital anomalies saw a 3.2% increase in the number of records in this cause group, a net increase of 23. The increase was mostly the result of the reclassification of ICD-10 codes, which were previously attributed to the immaturity related conditions cause group (17).

Antepartum infections saw a 6.8% decrease in the number of records, a net decrease of 11 records. Deaths were reclassified into the immaturity related conditions (six), congenital anomalies (three) and other conditions (three) cause groups.

ICD-10 chapters, blocks and categories

As of 2024 data, cause of death for stillbirths and neonatal deaths are published by differing ICD-10 levels, in addition to the broader cause groups. These tables were introduced to provide users with a more detailed causes of death.

The ICD-10 levels (chapters, blocks, or categories) included in the tables were chosen to be granular enough to be meaningful and useful to users while avoiding many low numbers.

Three tables present:

- the main condition of the infant
- the main condition of the mother
- the main condition of the infant and the mother

7 . Linkage of births and deaths

Since 1975, infant death records have been linked to their corresponding birth registration record. This is because the birth registration includes a considerable amount of information about the parent(s) that is not available on the death record. This enabled analysis of certain risk factors and demographic characteristics that would otherwise be unavailable, including:

- age of each parent
- number of previous children born to the mother
- country of birth of parents
- place of birth
- whether the baby was a singleton or multiple birth

Until the 2019 data year, the death cohort only included infant deaths that linked to their corresponding birth registration. Any death cohort tables that presented analysis of birth registration variables presented the total number of linked infant deaths, that is infant deaths that were successfully linked to their birth registration.

However, the basis of the death cohort changed from the 2019 data year onwards. The death cohort now includes all infant deaths, not just infant deaths that linked to a corresponding birth registration. Between 2007 and 2019, approximately 3% of infant deaths could not be linked to a birth registration record. These records consist of deaths of babies born outside England and Wales, foundlings, adopted children and deaths that should have been linked but for which no birth registration record could be found.

In 2020, 9.5% of infant deaths could not be linked to a birth registration or birth notification (Table 4). Of these unlinked death records, 96.6% were of babies born in England and Wales (in 2019 this figure was 73.6%) and 54.2% were of babies born between March and June 2020 when birth registration services were suspended because of the coronavirus (COVID-19) pandemic. Of the unlinked death records for those born between March and June 2020, the majority (88.1%) were neonatal deaths.

The linkage rate subsequently improved. The percentage of infant deaths not linked to a birth registration or birth notification record fell to 5.1% in 2021 and 3.8% in 2024.

It is likely that the suspension of birth registration services between March and June 2020 and subsequent delays in birth registrations have affected how many infant deaths in 2020 and 2021 could be linked to their birth record. A lower linkage rate of infant deaths to birth records in 2020 and 2021, compared with previous years, may affect coverage of analysis of infant mortality risk factors from the birth registration or notification.

In 2019, death cohort tables that analyse birth registration variables such as age of mother, any infant deaths that did not successfully link to their birth registration are either included in a “Not stated” category, or where rates are being produced on linked infant deaths they are presented separately. From the data year 2020, a separate category is presented for unlinked deaths in addition to the “Not stated” category.

Linking death cohort data to birth notification

The birth notification is a document completed by the doctor or midwife present at the birth. This data source is supplied to the Office for National Statistics (ONS) by the NHS and includes information on gestational length and ethnicity of the baby (as defined by the mother) that is not available on the birth registration.

Our birth cohort tables use the birth notification as the basis for a dataset of all babies born in a reference year, linked to their birth registration and then linked to infant death records to determine whether the infant died before their first birthday.

Unlike our birth cohort dataset, our death cohort dataset has not been routinely linked to birth notification information. However, from the data year 2019 onwards, the death cohort has now been linked to the birth notification to enable new, more timely statistics on infant mortality by gestational age and ethnicity of the baby. The linkage has also been applied to previous data years from 2007 onwards, which is the earliest year for which linkage to the birth notification is possible. Some death records will not have linked to the birth registration and therefore will not have linked to the birth notification. Table 4 shows the linkage rate of the death cohort to the birth notification across these years.

Table 4: Death cohort to birth notification linkage rate, 2007 to 2024
England and Wales

Year	All infant deaths	Linked infant deaths (linked to birth registration and birth notification)	Unlinked infant deaths		Linkage rate (%)
			No link to birth notification	No link to birth registration or birth notification	
2007	3,264	3,139	50	75	96.2
2008	3,284	3,205	2	77	97.6
2009	3,191	3,135	3	53	98.2
2010	3,077	3,008	12	57	97.8
2011	3,025	2,962	2	61	97.9
2012	2,912	2,854	3	55	98.0
2013	2,686	2,627	11	48	97.8
2014	2,517	2,480	10	27	98.5
2015	2,578	2,453	78	47	95.2
2016	2,651	2,588	14	49	97.6
2017	2,636	2,547	35	54	96.6
2018	2,488	2,413	12	63	97.0
2019	2,390	2,315	3	72	96.9
2020	2,226	2,015	3	208	90.5
2021	2,323	2,205	12	106	94.9
2022	2,349	2,279	17	53	97.0
2023	2,320	2,227	23	70	96.0
2024	2,318	2,229	19	70	96.2

Source: Child and infant mortality statistics from the Office for National Statistics

Socio-economic classification as defined by occupation

For the child and infant mortality publications, the information on occupation and employment is used to derive National Statistics Socio-economic Classification (NS-SEC). To be able to do this, the occupation information of parent(s) from the birth and death certificate must first be coded. For death certificates for infant deaths, and stillborn babies, this coding is completed for all records. However, for live births, only 10% are coded as this is deemed sufficient quality for statistical analysis.

This means that the figures presented in any tables that show NS-SEC based on live births are calculated by multiplying the breakdowns for the 10% of coded records by 10. As a result, the sum of the NS-SEC breakdowns do not match the grand total, which is based on the full birth and death extracts.

From 1991 to 2000, occupation was coded using the Standard Occupational Classification SOC90, and occupation codes were allocated to the Registrar General's Social Class. Since 2001, the National Statistics Socio-economic Classification (NS-SEC) has categorised the socio-economic classification of people.

The Standard Occupational Classification is revised every 10 years, and in 2011 SOC2010 replaced SOC2000. A report outlining the impact of re-basing the NS-SEC on SOC2010 is available.

The number of classes used will depend on both the analytical purposes and the quality of available data.

Until the 2011 data year, the ONS published child mortality and birth statistics by NS-SEC using the father's NS-SEC. Historically, this decision was based on the premise that many mothers either did not have a paid occupation or chose not to state their occupational details at birth registration. Following wider societal changes, this premise is now considered out of date (and has been for years prior to 2011). However, to ensure comparability in our statistics we continued to produce NS-SEC breakdowns on this basis until 2011.

From the 2012 data year, the ONS has used the combined method for reporting NS-SEC for birth and child mortality statistics (using the most advantaged NS-SEC of either parent, and creating a household-level classification rather than just using the father's classification). More information can be found in a A combined approach to National Statistics socio-economic classification.

Births within or outside marriage or civil partnership, and sole and joint registration

Since 1 September 2009, following the implementation of the Human Fertilisation and Embryology Act (2008), same-sex female couples have been able to register the birth of a child as mother and second parent. The Act also made provision for two men to be officially recognised as the parents of a child through the provision of a parental order, obtainable through the courts.

In 2024, 1,680 births were registered to same-sex couples within a marriage or civil partnership and 793 were registered to same-sex couples who were not married or in a civil partnership. These are presented in the same registration categories as all other births.

A birth within marriage or civil partnership is that of a child born to parents who were lawfully married or in a civil partnership either:

- at the date of the child's birth, or
- when the child was conceived, even if they later divorced or were granted a civil partnership dissolution or the father or second parent died before the child's birth

Births occurring outside marriage or civil partnership may be registered either jointly or solely. A joint registration records details of both parents, and requires them both to be present. A sole registration records only the mother's details. In a few cases, a joint registration is made in the absence of the father or second parent if an affiliation order or statutory declaration is provided.

Information from the birth registration is used to determine whether the mother and father or second parent jointly registering a birth outside marriage or civil partnership, were usually resident at the same address at the time of registration. Births with both parents at the same address are identified by a single entry for the informant's usual address, while different addresses are identified by two entries.

Some infants born outside marriage are deemed to have been born within marriage when the natural parents subsequently marry between the infant's birth and death. Birth registrations do not identify children whose parents marry after the birth of the child. All relevant tables in Child mortality (death cohort) tables and Infant mortality (birth cohort) tables relate to marital status at birth. This ensures that the numerators and denominators used to calculate rates are compatible.

Mother's country of birth

Parents' country of birth for children born in England and Wales has been recorded at birth registration since 1969, but these data have only been available for an infant mortality analysis of social factors since 1975 when routine linkage was started. A breakdown of the mother's country of birth groupings can be found alongside the published tables.

Mother's age

For 2013 to 2017, if the mother's age was missing, it was imputed using the most recently processed complete record of similar characteristics to the incomplete record. However, the improvement of these imputations on the quality of the statistics was unclear given the small number of records this affects. Imputation of mother's age was discontinued in March 2018 to make processing more efficient and our methods easier for users to understand. The remaining records where mother's age is missing are now categorised as "not stated" in our tables. This affects 2018 births data onwards.

Birthweight

Birthweight is measured in grams. For live birth registrations, the birthweight is passed electronically to the ONS from the notification by the midwife or doctor in attendance at the birth. These details are then supplied to the registrar. For stillbirths, details of the weight of the fetus are supplied on a certificate or notification by a doctor or midwife. The certificate or notification is then taken by an informant to the registrar.

In cases where no birthweight is recorded, the birth is included in the total "all weights" but not distributed among the individual categories. Any remaining missing birthweights are included in the "Not stated" total for the relevant tables containing birthweight. Annual figures for records where the birthweight was not recorded for live births and stillbirths can be found in the User guide to birth statistics.

In 2020, the methodology towards birthweights was adjusted. From the 2019 data year onwards, implausible birthweights have been removed from individual categories but are included in the total "all weights". Infants with implausible birthweights were identified by comparing the recorded birthweight and gestational age. More detailed information about this change can be found in Section 4 of the User guide to birth statistics.

Number of previous children

In May 2012, the ONS implemented a legislative change to improve the statistical information collected at birth registration in England and Wales. Two amendments were made to the Population (Statistics) Act 1938 – the legislation which requires registrars to collect confidential information for statistical purposes. The changes were made within the Welfare Reform Act 2009.

The two amendments mean that:

- information is now collected at all birth registrations on the total numbers of previous live births and previous stillbirths that the mother has had (not just those with the current or former husband); this has simplified the question asked by registrars and provides improved coverage

- information is now collected at all birth registrations on either: whether the mother has been previously married or in a civil partnership (if she is currently married or in a civil partnership); or whether the mother has ever been married or in a civil partnership (if she is not currently married or in a civil partnership)

This brings the birth registration process more in line with equality legislation.

Prior to May 2012, information on the number of previous children with a current or former husband and whether the mother had previously been married was only collected for births occurring within marriage.

When the Population (Statistics) Act came into force in 1938, only 4% of live births in England and Wales occurred outside marriage, so the information required was collected for nearly all mothers. However by 2011 nearly half of births (47%) took place outside marriage or civil partnership and so the legislation no longer reflected modern society.

Only minor changes were made to published tables for 2012 and 2013 as the first full year of new data was 2013, but some childhood deaths in this year will relate to births in 2012 prior to the changes being implemented. The main improvements resulting from the amendments to the Population (Statistics) Act 1938 have been introduced to published tables for child deaths occurring in 2014. Figures for 2014 onwards are not comparable with previous years.

Gestation

Gestational age is measured in completed weeks. For stillbirths, gestation is recorded at birth registration and is therefore available on our annual births datasets.

For live births and infant deaths, gestation is not recorded on the birth registration. For these, gestation comes from the birth notification which is linked to corresponding death records in our annual Infant mortality (birth cohort) tables and Child mortality (death cohort) tables.

Gestational age is grouped as follows:

Ethnicity of the baby

Ethnicity of the baby is not collected at birth registration. Birth registrations and infant deaths are linked to their corresponding birth notification to enable analysis of the ethnicity of the baby. Any infant deaths that did not successfully link to the birth notification are included in an unlinked category.

In 2021, ethnic groups used to present statistics on ethnicity of the baby were updated to better align with the 2021 Census. These new 6 and 12 category ethnic groupings have been used to analyse live births, stillbirths and infant mortality.

Between 2020 and 2023, three new death cohort tables have been included, providing data on the numbers and rates of live births, stillbirths and infant mortality by ethnicity for England and Wales. Figures in these tables are not comparable with previous Child and infant mortality publications, but are comparable with figures found in Births and infant mortality by ethnicity, England and Wales. Table 5 and Table 16 of the 2019 birth cohort tables have been updated with the new ethnic groups.

8 . Calculating infant and child mortality rates

The rates presented in these publications are described in this section.

Stillbirth rate:

$$\frac{\text{Number of stillbirths}}{\text{Number of total births}} \times 1000$$

Perinatal mortality rate:

$$\frac{\text{Number of stillbirths} + \text{number of deaths at ages under 7 days}}{\text{Number of total births}} \times 1000$$

Early neonatal mortality rate:

$$\frac{\text{Number of deaths at ages under 7 days}}{\text{Number of live births}} \times 1000$$

Neonatal mortality rate:

$$\frac{\text{Number of deaths at ages under 28 days}}{\text{Number of live births}} \times 1000$$

Postneonatal mortality rate:

$$\frac{\text{Number of deaths at ages 28 days and over, but under 1 year}}{\text{Number of live births}} \times 1000$$

Infant mortality rate:

$$\frac{\text{Number of deaths at ages under 1 year}}{\text{Number of live births}} \times 1000$$

Age-specific child mortality rate:

$$\frac{\text{Number of deaths in a particular age group}}{\text{Number of persons in that age group in the population}} \times 100000$$

Significance testing

Within this bulletin, a change that is described as statistically significant has primarily been assessed using a chi-square test; for infant mortality data where we have all the death records, they help tell the difference between a change caused by random fluctuations between years and a real change in the infant mortality rate. If the result is said to be statistically significant it is not likely caused by chance, therefore, we can say with more confidence that the difference is likely to be a real change.

9 . Further information

Our website (www.ons.gov.uk) provides a comprehensive source of freely available vital statistics and Office for National Statistics (ONS) products. More information on our website can be obtained from the contact numbers and addresses found in this section.

Special extracts and tabulations of child mortality data for England and Wales are available to order (subject to legal frameworks, disclosure control, resources and our charging policy, where appropriate). Such enquiries should be made to the Child Health team at Health.Data@ons.gov.uk or +44 1329 444110). All user requested data will be published on the website.

Other sources of information on births and deaths

Additional information on the background and quality of mortality data can be found in the User guide to mortality statistics. Further information and background on birth statistics can be found in the User guide to birth statistics.

Other sources of data on births and deaths

Deaths occurring in a given year

- Child mortality (death cohort) tables - statistics on stillbirths, infant deaths and childhood deaths occurring in a calendar year in England and Wales.
- Infant mortality (birth cohort) tables - statistics on stillbirths, live births and deaths of infants born in a calendar year in England and Wales.
- Unexplained deaths in infancy - both sudden infant deaths and deaths for which the cause remained unknown or unascertained.

Deaths registered in a given year

Summary data for mortality in England and Wales are available in the Deaths registrations summary tables. A geographical breakdown of infant death numbers and rates by local authority and county level is available in Deaths registered in England and Wales by area of usual residence.

Other UK countries

For infant mortality data for other UK countries please see the latest infant death statistics for Northern Ireland and the latest infant death statistics for Scotland.

Births

We provide the main summary statistics for live births in England and Wales in our Births in England and Wales: 2024 (refreshed populations) bulletin.

Other useful information

The ONS response to the review of infant mortality statistics that took place between 20 April and 20 July 2017 is available.

Results from the ICD-10 bridge coding study for stillbirths and neonatal deaths

Disclosure Control Policy for Birth and Death Statistics

We welcome feedback from users on the content, format and relevance of child/infant mortality outputs.

10 . Glossary

Antepartum

Occurring just before birth.

Cause groups

The ONS cause groups is another term used for “Hierarchical classification”; see the relevant subheading in this section.

Child

Children aged between 1 and 15 years.

Congenital anomaly

A structural or functional abnormality of the human body that develops before birth.

Coroner

Public official responsible for the investigation of violent, sudden or suspicious deaths.

Early neonatal

Relating to infants aged under 7 days.

Hierarchical classification

The ONS's method for classifying the causes of neonatal deaths and stillbirths, made up of groups of International Classification of Diseases and Related Health Problems (ICD) codes referred to as "ONS cause groups".

ICD

International Classification of Diseases and Related Health Problems.

Infant

Child aged under 1 year.

Inquest

Inquiry into the cause of an unexplained, sudden or violent death, held by a coroner.

Linkage

The matching of infant death records to their corresponding birth registration record or birth notification record.

Neonatal

Relating to infants aged under 28 days.

NS-SEC

National Statistics Socio-economic Classification categorises the socio-economic classification of people, and has replaced the Registrar General's Social Class and the Socio-economic Group (SEG).

Occurrences

Number of deaths according to the date on which the death occurred.

Perinatal

Stillbirths and early neonatal.

Postneonatal

Relating to infants aged between 28 days and 1 year.

Registrar

Local authority employee responsible for the registration of births, deaths, marriages and civil partnerships.

Registrations

Number of deaths according to the date on which the deaths were registered.

SOC 2010

Standard Occupational Classification 2010 is the current occupational classification. SOC2010 codes, details of employment status and size of organisation are required for the derivation of NS-SEC. See NS-SEC.

Stillbirth

A baby born after 24 or more weeks completed gestation and which did not, at any time, breathe or show signs of life.

Underlying cause of death

“The disease or injury which initiated the train of morbid events leading directly to death, or the circumstances of the accident or violence which produced the fatal injury” in accordance with the rules of the International Classification of Diseases (excludes deaths at age under 28 days).

WHO

World Health Organization.

11 . Cite this methodology

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