

Child mortality statistics 2009

England and Wales

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Office for National Statistics

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Contents

Page

List of main tables and appendices

1	Introduction	7
1.1	Data analysed in this publication	7
	Deaths	
	Live births and stillbirths	
1.2	Associated publications on the ONS website	9
2	Notes and definitions	10
2.1	Tables in this publication	10
	Symbols and conventions	
2.2	Registration of births and deaths	11
	Live births and stillbirths	
	Deaths	
2.3	Referral to the coroner	12
	Coroners' inquests	
	Legally uncertified deaths	
2.4	Infant deaths	14
2.5	Occurrences and registrations	14
	Births	
	Deaths	
2.6	Usual residence and place of occurrence	15
2.7	Areal coverage	15
2.8	Base populations	16
2.9	Deaths rates	16
2.10	Coding the underlying cause of death	17
	Selection and modification rules	
2.11	Neonatal and stillbirth cause of death certificates	18
2.12	ONS cause of death groups	18
2.13	Final cause of death	19
2.14	Stillbirths	19
2.15	Linkage of births and deaths	19
2.16	Unlinked cases	19
2.17	Socio-economic classification as defined by occupation	19
2.18	Births within/outside marriage, and sole/joint registration	20
2.19	Country of birth of mother	20
2.20	Birthweight	20
2.21	Parity	20
2.22	Further information	20

3	Some background to mortality data	23
3.1	The deaths databases	23
3.2	Legislation	23
3.3	Automated cause coding of deaths	24
4	Quality of data	25
4.1	Registration online (RON)	25
4.2	Entry of data into Registration Service Software (RSS)	25
4.3	Mortality data	25
	Registration of the death	
	Checks made by the Registration Service	
	Receipt of death registration data at ONS	
	Validation process	
	Automated Cause Coding System (ACCS)	
	Checks before and after extraction of data for analysis	
	Checks on routine outputs	
4.4	Births data	27
	Summary of checks and validations	
	Missing information and imputation	
Text tables		
A	Stillbirths, and neonatal and infant deaths, by method of certification, 2009	14
B	Infant deaths of non-residents, 2004–09	15
References		30
Glossary		31
Annex A	Country groupings for birthplace of mother of deceased, 2009	34
Annex B	ONS classification of stillbirths and associated ICD–10 code	35
Annex C	ONS classification of neonatal deaths and associated ICD–10	36
Annex D	ONS classification of postneonatal deaths and associated ICD–10	37

List of main tables and appendices (England and Wales unless stated)

Summary tables

- Table 1** Live births, stillbirths, infant deaths and childhood deaths under 15: numbers and rates, 1980–2009
- Table 2** Live births, stillbirths, infant deaths and childhood deaths under 15: country of occurrence and sex, numbers and rates, 2009 (UK and constituent countries)
- Table 3** Live births, stillbirths and infant deaths: area of residence, numbers and rates, 2009

Causes of death

- Table 4** Postneonatal and childhood deaths: broad underlying cause groups, age and sex, 2009

Linked infant deaths (Tables 5–8, 10–15)

- Table 5** All infant deaths and linked infant deaths: numbers and rates, 1980–2009

ONS cause groups

- Table 6** Live births, stillbirths and linked infant deaths: ONS cause group and birthweight, 2009
- Table 7** Live births, stillbirths and linked infant deaths: ONS cause group and age of mother, 2009
- Table 8** Live births, stillbirths and linked infant deaths: ONS cause groups, marital status of mother, parity and type of registration, 2009
- Table 9** Stillbirths: ONS cause groups and birthweight by gestation period, 2009

Birthweight

- Table 10** Live births, stillbirths and linked infant deaths: birthweight by age of mother, numbers and rates, 2009
- Table 11** Live births, stillbirths and linked infant deaths: birthweight and mother's country of birth, numbers and rates, 2009
- Table 12** Live births, stillbirths and linked infant deaths: birthweight, type of registration and socio-economic classification of father as defined by occupation, numbers and rates, 2009

Age of mother

- Table 13** Live births, stillbirths and linked infant deaths: mother's age, parity (inside marriage), marital status and type of registration, numbers and rates, 2009

Place of delivery

Table 14 Live births, stillbirths and linked infant deaths: place of delivery, birthweight, numbers and rates, 2009

Table 15 Live births, stillbirths and linked infant deaths: place of delivery, and age of mother, numbers and rates, 2009

Serial tables

Table 16 Live births, stillbirths and infant deaths: within and outside marriage (for births), and age at death, numbers, 1921–2009

Table 17 Stillbirth and infant death rates: age at death, 1921–2009

1 Introduction

Child mortality statistics presents final statistics on stillbirths, infant deaths and childhood deaths that occurred in England and Wales in 2009. It replaces the annual reference volume DH3 and contains selected tables from this publication although some tables have been amended to improve the presentation of the data. The birth cohort (that is babies born in a reference year who died before their first birthday) tables are now published as a separate package of tables. These are available at: www.statistics.gov.uk/StatBase/Product.asp?vlnk=15362

This publication is produced by the Office for National Statistics (ONS). On 1 April 2008, ONS became the executive office of the UK Statistics Authority, a non-ministerial department which reports directly to Parliament. The overall objective of the UK Statistics Authority is to promote and safeguard the quality of official statistics that serve the public good. This publication is published under the National Statistics logo, the designation guaranteeing that those outputs have been produced to high professional standards set out in a code of practice, and have been produced free of political influence.

The Tenth Revision of the *International Statistical Classification of Diseases and Related Health Problems* (ICD-10)¹ has been used in this publication to classify cause of death at age 28 days and above. A hierarchical classification in ICD-10 has also been developed by the ONS for statistics relating to stillbirths and neonatal deaths (0-27 days after live birth). These are derived from a special death certificate (instead of the standard death certificate), which was introduced by ONS in 1986. It is not possible to derive a single underlying cause of death for stillbirths and neonates from this certificate, or to compare the information available on neonatal deaths with that on postneonatal deaths, as these are certified on the standard death certificate.

1.1 Data analysed in this publication

The registration of life events (births, deaths, marriages and civil partnerships) is a service carried out by the Local Registration Service in partnership with the General Register Office (GRO) in Southport.

Deaths

The information used in this publication is based on the details collected when deaths are certified and registered. Most deaths are certified by a medical practitioner, using the Medical Certificate of Cause of Death (MCCD). In certain cases, deaths are referred to a coroner who sends information to the registrar which is used instead of that on the MCCD to register the death. In some cases additional information provided on part B of the coroner's certificate (Form 99(REV)) is forwarded to ONS by the registrar.

The data used in this publication are summarised below.

Death **occurrences** refer to the number of deaths occurring in a period, while death **registrations** refer to the number of deaths registered in a period. Unlike the majority of other mortality outputs produced by ONS, this publication is based on death occurrences.

Usual residence of deceased (the place where the deceased was normally resident) is supplied by the informant. No distinction is made between deaths of

civilians and deaths of non-civilians. Further information about the assignment of a death of a person whose usual residence is outside England and Wales is given in section 2.7.

Age is derived from the date of birth and from the date of death supplied by the informant, except after inquest when the coroner supplies this information.

Sex is as given by the informant (or coroner).

Occupation is recorded for both father and mother at birth registration. The informant is asked whether the mother was in paid employment at any time before the child's birth, and a description of the occupation may be recorded. The informant may not wish to have details of the mother's occupation entered in the register, but it may still be recorded for use in statistical analyses. If the father is unemployed his last full-time occupation will be recorded. This information is linked to the infant death record to enable analyses by socio-economic classification, as defined by occupation, in Table 12.

The **underlying cause of death** is selected from the medical condition or conditions mentioned on the MCCD or on the coroner's certificate. The underlying cause of death is not derived for stillbirths or neonatal deaths. More information can be found in sections 2.10–2.12.

Live births and stillbirths

Most of the information, for both live births and stillbirths, is usually supplied to registrars by one or both of the parents.

For live births, **birthweight** is notified to the local health authority by the hospital where the birth took place, or by the midwife or doctor in attendance at the birth. This information is then supplied to the registrar.

For stillbirths, details of cause of death and of the duration of pregnancy and weight of fetus are supplied on a certificate or notification by the doctor or midwife either present at the birth or who examined the body. The certificate or notification is then taken by the informant to a registrar.

The details below are collected for both **live births** and **stillbirths**.

The **date of birth** is supplied in a conventional way, except in the case of a multiple birth when the time is also recorded.

Those registering the birth are also required to provide the following information, treated as confidential, under the provisions of the Population (Statistics) Acts, as below:

- i. the **mother's date of birth**
- ii. the **father's date of birth**, if his name is entered in the register

If the child's parents were married to each other at the time of the birth, or when the child was conceived even if they later divorced or the father died before child's birth:

- iii. the **date of the parents' marriage**
- iv. **whether the mother has been married more than once**
- v. **number of previous** children by her present husband and any former husband,

(a) **born alive**, and (b) **stillborn**

These confidential details are used to provide information on the marital status of the mother, and – if married – on her parity. Further information on parity can be found in section 2.21. Other statistical information collected at registration includes the economic activity of the parents (such as industry and employment status) and whether the confinement resulted in a multiple birth.

1.2 Associated publications on the ONS website

The ONS website (www.ons.gov.uk/about) provides a comprehensive source of freely available vital statistics and ONS products)

ONS is launching a new website on 30 April 2011 which will improve the way users can access our statistics. However, many existing bookmarks and links will no longer work and users will need to update them. Find out more at www.ons.gov.uk/about/what-we-do/programmes---projects/web-development/index.html

2 Notes and definitions

2.1 Tables in this publication

The main tables in this publication fall into two groups related to the infant mortality data used in each.

- Tables 1–4 and 16–17 are based on numbers of infant (and childhood) deaths occurring in 2009, and registered by September 2010. These correspond to deaths in the ‘standard’ extract for all deaths occurring in 2009 – see section 2.5 for more details. Table 9 is based solely on stillbirths.
- Tables 5–8 and 10–15 are based on numbers of infant deaths occurring in 2009 that have been successfully linked to their corresponding birth records, and comprise the 2009 infant death cohort. More details on linkage are given in section 2.15. Children born outside marriage have been treated separately in some tables. One reason for this is that the mother’s parity is not included in the information given at the registration of a birth outside marriage (see section 2.18). Occupation data for the father are only available for births inside marriage and births outside marriage registered jointly by the father and the mother.

The denominators used to calculate rates for stillbirths and infant deaths are births that occurred in the same year, that is, the true population at risk. For childhood deaths, the denominators are the mid-year population estimates.

In Table 6, postneonatal and childhood deaths are analysed by broad underlying cause group (see section 2.12).

Symbols and conventions

In this publication:

- | | |
|----|---|
| 0 | denotes a number too small to be shown to the level of precision of the table |
| - | denotes nil |
| .. | denotes not available |
| : | denotes not applicable |
| * | suppressed to protect confidentiality |

Rates in tables calculated from fewer than 20 deaths are distinguished by **italic** type as a warning to the user that their reliability as a measure may be affected by the small number of events. Rates were not calculated where there were fewer than 3 deaths in a cell, denoted by (:). It is ONS practice not to calculate rates where there are fewer than 3 deaths in a cell, as rates based on such low numbers are susceptible to inaccurate interpretation.

Some data items collected under the Population Statistics Acts have been aggregated to protect confidentiality. Occasionally, it has been necessary to apply secondary suppression to avoid the possibility of disclosure by differencing. Figures in some tables may not add precisely due to rounding or suppression.

2.2 Registration of births and deaths

Live births and stillbirths

Every registrar of births and deaths is required to secure the prompt registration of births occurring within the sub-district covered. Registration of a live birth is legally required within 42 days of its occurrence and the registrar will, if necessary, send a requisition to the person whose duty it is to register the birth.

Under the National Health Service Acts 2006, all births must also be notified within 36 hours to the local Primary Care Trust (Local Health Board in Wales) where the birth occurred. This is carried out by the hospital where the birth took place, or by the midwife or doctor in attendance at the birth. A list of births that occurred in the sub-district is supplied to the registrar, in order to check whether every birth has been registered.

The following people are qualified to give information to the registrar concerning a birth:

- the mother of the child, or the father if the child was born within marriage
- the occupier of the house in which the child was (to the knowledge of that occupier) born
- any person present at the birth
- any person having charge of the child

The duty of giving information is placed primarily upon the parents of the child, but in the case of death or inability of the parents the duty falls on one of the other qualified informants.

The particulars to be registered concerning a birth are prescribed by the Births and Deaths Registration Act 1953, and are covered in section 1.1 above. Certain other particulars are collected for statistical purposes under the Population (Statistics) Acts 1938 and 1960 and are not entered in the register.

The procedures and information required for stillbirths are similar to those for live births. The main difference is the recording of the cause of death of the stillborn child, on evidence given by the doctor or midwife present at the birth or who examined the body.

Normally, information for the registration of a birth must be given personally by the informant to the registrar for the sub-district in which the birth occurred. However, an informant may supply these details to any registrar by making a declaration of these particulars. The declaration is sent to the registrar of the sub-district where the birth occurred and that registrar will enter the particulars in the register.

Deaths

When a death occurs, the attending doctor completes a Medical Certificate of Cause of Death (MCCD). This should normally be taken to the local registrar of births and deaths for the district in which the death occurred. However, since April 1997, information may be provided to a registrar in a different district. This is known as the registration of **deaths by declaration** and is mostly used for the deaths of infants.

The certifying doctor must have been in attendance during the last illness of the deceased. The person delivering the doctor's certificate to the registrar, known as the informant, is often a relative of the deceased. The majority of deaths are handled in this way and the death is registered within five days of the date of death, as required by law.

However, there are circumstances when a MCCD cannot be issued immediately, such as those deaths reported to a coroner, and the registration is consequently delayed. Some examples of these situations are given in the following paragraphs.

The following people are qualified to give information to the registrar concerning a death:

- a relative of the deceased
- a person present at the death
- the occupier of the house where the death occurred
- any resident of the house
- the person causing the disposal/cremation of the body
- any person who found the body or was in charge of the body

The particulars to be registered concerning a death are set out in the Births and Deaths Registration Act 1953 and are covered in section 1.1 above. Certain other particulars are collected for statistical purposes under the Population (Statistics) Acts 1938 and 1960 and are not entered in the register.

2.3 Referral to the coroner

For some deaths the doctor may certify the cause and report the case to the coroner, or the registrar may report it.

Deaths that should be referred to a coroner include those where:

- the cause is unknown
- the deceased was not seen by the certifying doctor either after death or within the 14 days before death
- the death was violent, or unnatural, or suspicious
- the death may have been due to an accident (whenever it occurred)
- the death may have been due to self-neglect or neglect by others
- the death may have been due to an industrial disease, or related to the deceased's employment
- the death occurred during an operation or before recovery from the effects of an anaesthetic
- the death may have been a suicide
- the death occurred during or shortly after detention in police or prison custody
- there was no doctor available who was legally qualified to certify the death

Coroners have a number of possible courses of action once a death has been referred. When they are satisfied that the death is due to natural causes and the cause is correctly certified, the local registrar is notified (Form 100A) and they can then register the death using the cause given on the MCCD. In rare cases where no medical certificate is available, the death will be registered as uncertified and the cause taken from Form 100A.

Alternatively, the coroner may order a post-mortem examination, particularly where the death was sudden and the cause unknown, or for deaths where there was no doctor in attendance, which may have been referred directly by the police. If the post-mortem shows unequivocally that the death was due to natural causes, the coroner notifies the registrar that they do not intend to hold an inquest (Form 100B). The cause of death given by the coroner on the Form 100B is based on the information from the postmortem held by the pathologist.

Coroners' inquests

If an inquest is necessary, the death can usually be registered only after the inquest has taken place. In a very few cases the coroner holds an inquest without a post-mortem. In most cases the inquest concludes the investigation and the death is then certified by the coroner (Form 99(REV)). This provides the registrar with details of the deceased and the inquest findings as to cause of death.

If it appears that someone is to be charged with an offence in relation to the death, the coroner must adjourn the inquest until legal proceedings are completed. Since 1978 it has been possible to register these deaths at the time of adjournment, when the coroner issues Form 120. This form includes details of injuries that led to the death, but no verdict. In the case of motor vehicle incidents, there is enough information to code the cause of death. Other deaths, such as possible homicides, are given a temporary code for underlying cause of death until final information becomes available. This is supplied by the coroner to the registrar on Form 121.

Legally uncertified deaths²

A very small proportion (0.2 per cent in 2009) of deaths remains legally 'uncertified'. ONS receives copies of at least one certificate of cause of death for these cases, which are registered and coded as normal. This group includes deaths for which the doctor who completed the medical certificate did not fulfil all the legal requirements for doing so: for example, where the doctor was not in attendance with the deceased during the last illness, or did not see the body, and the coroner did not order a post-mortem but issued Form 100A.

Table A gives numbers of deaths by method of certification for those infants aged under 1 year, in 2009. Stillbirths may be certified by the medical practitioner or the midwife who is present at or who conducts the delivery, or who examines the body after birth. In practice, 52 per cent were certified by midwives in 2009 and 46 per cent by doctors.

The conditions for certifying neonatal deaths are as for other deaths – that the doctor should have been in attendance during the deceased's last illness, should have seen the patient prior to death or seen the body, and that the cause of death is known and is 'natural'.

Inquests on stillbirths and neonatal deaths are rare. Eighty-seven per cent of neonatal deaths in 2009 were certified by a doctor, and 11 per cent by a coroner with only 9 per cent subject to a coroner's inquest. This reflects the fact that nearly all neonatal deaths occur in hospitals and that infant deaths can be certified as due to sudden infant death syndrome (SIDS) without being subject to inquest.

Table A: Stillbirths, and neonatal and infant deaths: by method of certification, 2009

England and Wales

Numbers/percentages

Method of certification	Stillbirths		Neonatal deaths		Infant deaths	
	number	%	number	%	number	%
Total deaths	3,688	100	2,205	100	3,191	100
Certified by doctor	1,682	45.6	1,919	87.0	2,513	78.8
After referral to coroner	-	-	485	22.0	682	21.4
Certified by coroner	-	-	246	11.2	635	19.9
After inquest	-	-	199	9.0	546	17.1
Certified by midwife	1,931	52.4	:	:	:	:
Other	75	2.0	40	1.8	43	1.3

Source: Office for National Statistics

2.4 Infant deaths

Infant deaths (under 1 year) at various ages are defined as:

Early neonatal – deaths under 7 days

Perinatal – stillbirths and early neonatal deaths

Late neonatal – deaths between 7 and 27 days

Neonatal – deaths at age under 28 days

Postneonatal – deaths between 28 days and 1 year

2.5 Occurrences and registrations

Births

The 2009 annual totals of live births and stillbirths used in the main tables are derived from the standard annual extract: 706,248 live births, and 3,688 stillbirths.

This extract includes:

- all births that occurred in 2009 and were registered either in 2009, or by 25 February 2010. The latter allows for a period two weeks longer than the 42 day legal time limit, by which time a birth occurring on 31 December 2009 should have been registered and, therefore, also permits the capture of some births registered late

- births occurring in 2008 that were registered between 26 February 2009 and 25 February 2010 (that is, births in the previous year that had not been tabulated previously)

Deaths

Tables 1–4, 16 and 17 in this publication present **deaths occurring in 2009** and were taken from the standard dataset created from the deaths database in September 2010. For an annual extract of death occurrences to be acceptably complete, it must be taken some months after the end of the data year to allow for late death registrations. Although there will inevitably be a small number of deaths not registered when the annual extract of death occurrences is taken, delaying the timing of the extract will delay the publication of the data.

Not all infant death occurrence records can be linked to their original birth records. However, those records that can be linked create an additional dataset: the death cohort. The numbers in the death cohort are infant deaths that occurred in 2009 that have been linked with their corresponding birth record; Tables 5–8 and 10–15 use these numbers.

2.6 Usual residence and place of occurrence

Births are usually assigned to areas according to the usual residence of the mother at the time of birth, as stated at registration. However, a birth may take place in an area other than that of the mother's usual residence.

For deaths, the informant supplies details of the usual residence of the deceased to the registrar. If the deceased lived in a private household, but was away from home at the time of death, the usual residence is still recorded. However, the death must be registered in the area within which it occurred. This can be achieved in two ways. The informant can either visit the registrar responsible for the area within which the death occurred, or they can inform their nearest registrar who will forward on the details for the registration. The latter process is called registration by declaration. Table B gives recent numbers of infant deaths that occurred in England and Wales for those infants not usually resident in England and Wales.

Table B: Infant deaths of non-residents, 2005–09
England and Wales

	Numbers				
	2005	2006	2007	2008	2009
Deaths at ages under 1 year	3,259	3,321	3,264	3,284	3,191
<i>of which</i>					
deaths of residents outside England and Wales	31	39	36	38	39
<i>Per cent of total</i>	0.95	1.17	1.10	1.16	1.22

Source: Office for National Statistics

2.7 Areal coverage

The births and deaths recorded in this publication are those occurring (and then

registered) in England and Wales. Births and deaths to residents of England and Wales that occur, and are registered, outside of England and Wales are excluded. Births and deaths to persons whose usual residence is outside England and Wales are included for any total figures for England and Wales, but are excluded from any sub-division of England and Wales. In 2009 there were 253 live births, and 21 stillbirths in England and Wales to visitors whose residence was elsewhere. The birth to a mother, and the death of a person, whose usual residence is outside England and Wales are included in total figures for England and Wales, but excluded from any sub-division of England and Wales.

2.8 Base populations

The population figures used to calculate childhood death rates in this publication, are mid-year estimates of the resident population of England and Wales based on the 2001 Census of Population. These estimates include members of HM and non-UK armed forces stationed in England and Wales, but exclude those stationed outside. ONS mid-year population estimates are updated figures using the most recent census, allowing for births, deaths, net migration and ageing of the population.

In this publication, the population estimates used for the calculation of mortality rates for 2009 are the latest available at the time of its production and were published as follows:

- Population estimates for 2009 were published on 24 June 2010
- Revised population estimates for 2002 to 2008 were published on 13 May 2010

Further details about population estimates can be found on the ONS website.

2.9 Death rates

The rates presented in this publication are described below. Strictly speaking they are rates only when both numerator and denominator refer to the same time period, for example, the stillbirth rate. When the time periods in each are different they are ratios.

Stillbirth rate

Number of stillbirths per 1,000 live births and stillbirths.

Infant mortality rate

Number of deaths at ages under 1 year, per 1,000 live births

Perinatal mortality rate

Number of stillbirths plus number of deaths at ages under 7 days, per 1,000 live births and stillbirths.

Early neonatal mortality rate

Number of deaths at ages under 7 days, per 1,000 live births.

Neonatal mortality rate

Number of deaths at ages under 28 days, per 1,000 live births.

Postneonatal mortality rate

Number of deaths at ages 28 days and over, but under 1 year, per 1,000 live births.

Age-specific child mortality rate

Number of deaths in a particular age group per 100,000 population in that group.

2.10 Coding the underlying cause of death

For deaths at ages 28 days and over, the death certificate used in England and Wales accords with that recommended by the World Health Organisation (WHO) in the tenth revision of the International Statistical Classification of Diseases and Related Health Problems (ICD–10).¹ It is set out in two parts:

- Part I gives the condition or sequence of conditions leading directly to death, while
- Part II gives details of any associated conditions that contributed to the death, but are not part of the causal sequence

The selection of the **underlying cause of death** for deaths at ages 28 days and over is based on ICD rules and is made from the condition or conditions reported by the certifier, as recorded on the certificate. The underlying cause of death is defined by WHO as:

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

Selection and modification rules

The selection of the underlying cause of death is generally made from the condition or conditions mentioned on the certificate in the lowest completed line of Part 1 of the MCCD. If the death certificate has not been completed correctly – for example, if there is more than one cause on a single line with no indication of sequence, or the conditions entered are not an acceptable causal sequence – it becomes necessary to apply one or more of the **selection rules** in ICD–10. Even where the certificate has been completed properly, there are particular conditions, combinations or circumstances when **modification rules** have to be applied to select the correct underlying cause of death. On some death certificates, for instance, it may happen that two or more causes are given that, when linked together, point to another cause – not mentioned directly on the certificate – as underlying. These cases of ‘inferred’ underlying causes, though, are few and most common among diseases of the circulatory system and late effects of cerebrovascular disease. However, in some cases the underlying cause of death can be selected from Part II of the MCCD.

The purpose behind the selection and modification rules, therefore, is to derive the most useful information from the death certificate and to do it uniformly so that:

- data will be comparable between places and times
- each death certificate produces only one underlying cause of death

The procedures above apply in this publication only to deaths at ages 28 days and over. For stillbirths, and for deaths at ages under 28 days, a different method of cause coding is used, described below.

2.11 Neonatal and stillbirth cause of death certificates

The neonatal and stillbirth certificates, introduced in January 1986 follow recommendations of WHO in the ICD, whereby causes of death are given separately in the following categories:

- main diseases or conditions in infant/fetus
- other diseases or conditions in infant/fetus
- main maternal diseases or conditions affecting infant/ fetus
- other maternal diseases or conditions affecting infant/ fetus, and
- other relevant causes

While conditions arising in the mother that affected the infant could be mentioned on certificates prior to 1986, no provision was made for those cases in which the certifier considered that both maternal and infant conditions contributed to the death. The current certificates overcome this problem. However, since equal weighting is given to main conditions in the infant and in the mother, it is no longer possible to identify a single underlying cause of death for neonatal deaths and stillbirths.

2.12 ONS cause of death groups

As noted in the introduction, **new stillbirth and neonatal death certificates** were introduced on 1 January 1986 making it impossible to identify a single underlying cause of death in these cases, or to make direct comparison between neonatal and postneonatal causes of death. For this reason, in conjunction with a team of experts in the field, ONS developed a method for classifying the causes of neonatal deaths and of stillbirths. This is known as the ONS cause groups hierarchical classification, which is also referred to as the ONS cause groups. This 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 directs any mention, in the case of neonatal deaths or 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 ICD–10 codes into these nine categories for neonatal deaths appears as Annex C. Corresponding groupings for stillbirths and for postneonatal deaths are shown in Annexes B and D, respectively. Tables 6–9 in this publication

present statistics using these classifications.

2.13 Final cause of death

The conditions mentioned on the death certificate are used to derive an underlying cause of death. In some cases, more information on cause of death becomes available after the death has been registered, such that the underlying cause may be subsequently amended. Around 0.2 per cent of deaths have their underlying cause amended. ONS uses these details of amended cause wherever possible in its statistics and tables. Users with access to individual records of deaths as shown in the public record (which is never amended) may thus find some differences with published statistics. However, sometimes the later information becomes available only after the annual extract for deaths has been taken.

2.14 Stillbirths

The Stillbirth (Definition) Act 1992 defines a stillbirth as

‘a child which has issued forth from its mother after the twenty-fourth week of pregnancy, and which did not at any time after becoming completely expelled from its mother breathe or show other 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 above, but at 28 or more weeks completed gestation. Figures for stillbirths from 1993 are thus 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.³

2.15 Linkage of births and deaths

The linkage of birth and infant death records has been conducted since 1975 to obtain information on the social and biological factors of the baby and parents collected at birth registration.

Death registration gives only a limited amount of information about the parents of the deceased infant, for example, occupation of parent. However, a considerable amount of information is given at birth registration. This includes: age of each parent, number of previous children born within marriage (the mother’s parity), country of birth of parents, place of birth and whether the baby was a singleton or multiple birth. Tables 5–15 analyse most of these factors and include information on cause of death and birthweight.

2.16 Unlinked cases

The unlinked cases can be split into two groups: those that cannot be linked (such as those born outside England and Wales, foundlings, and adopted children) and others that should have been linked but for which no birth record could be found. Around 2 per cent of infant deaths cannot be linked to a birth record.

2.17 Socio-economic classification as defined by occupation

The information on occupation of the father is coded for all infants dying in the first year of life, and all stillborn babies, but for only a sample of 1-in-10 live births. The ‘All’ rows in Table 12 are based on the full births or deaths extract, and are not

presented as the sum of the socio-economic classification breakdown. Therefore, the socioeconomic breakdowns do not add to the totals.

In Table 12, the live birth figures for each socio-economic classification have been grossed up by a multiple of 10. By combining occupation with the employment status, a code for socio-economic classification (or social class in volumes up to 2001) may be derived. From 1991 to 2000 the occupation of the father was coded using the Standard Occupational Classification SOC90,⁴ and occupation codes were allocated to the Registrar General's Social Class. The Standard Occupational Classification (SOC) is revised every 10 years and in 2001, SOC2000^{5,6} replaced SOC90.

The coding of employment status also changed in 2001 to be consistent with the 2001 Census and SOC2000. Since 2001, the National Statistics Socio-economic Classification (NS-SEC)⁷ has categorised the socio-economic classification of people, and has replaced the Registrar General's Social Class and Socio-economic Group (SEG). SOC2000 and employment status are used to derive NS-SEC for stillbirths and infant deaths. The classification is based not on skills but on employment conditions, which are considered central to describing the socio-economic structure of modern societies.

NS-SEC has eight analytic classes, the first of which can be subdivided:

- 1 Higher managerial and professional occupations
 - 1.1 Large employers and higher managerial occupations
 - 1.2 Higher professional occupations
- 2 Lower managerial and professional occupations
- 3 Intermediate occupations
- 4 Small employers and own-account workers
- 5 Lower supervisory and technical occupations
- 6 Semi-routine occupations
- 7 Routine occupations
- 8 Never worked and long-term unemployed

Students, occupations not stated or inadequately described, and occupations not classifiable for other reasons are added as 'Not Classified'.

2.18 Births within/outside marriage, and sole/joint registration

In general, a birth within marriage is that of a child born to parents who were lawfully married to one another either:

- at the date of the child's birth, or
- when the child was conceived, even if they later divorced, or the father died before the child's birth

Only for a birth within marriage will the registrar collect, for statistical use, confidential particulars relating to the date of the parents' marriage, whether the mother has been married more than once, and the number of the mother's previous live born and stillborn children.

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, however, identify children whose parents marry after the birth of the child. Consequently, all relevant tables (numbers 8, 12 and 13) in

this publication relate to the child's status at birth. This ensures that the numerators and denominators used to calculate rates are compatible.

Births occurring outside marriage 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 if an affiliation order or statutory declaration is provided. Information from the birth registration is used to determine whether the mother and father jointly registering a birth outside marriage 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.

2.19 Country of birth of mother

The birthplace of the parents of children born in England and Wales has been recorded at birth registration since 1969, but these data have been available for an infant mortality analysis of social factors only since 1975, when routine linkage was started. Live births, stillbirths and infant deaths by country of birth of mother are analysed in Table 11. The groupings of countries used are defined in Appendix A.

2.20 Birthweight

Birthweight is measured in grams. Depending on the software used, the birthweight is either passed electronically to the registrar from the notification by the midwife or doctor in attendance at the birth, or is supplied to the registrar by the local health authority. 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. Where no birthweight is recorded on the birth registration, ONS attempt to obtain this figure from the birth notification record. Any remaining missing birthweights are included in the 'Not stated' total for the relevant tables in this publication. In 2009 birthweight was not stated for 0.7 per cent of all live births and for 1.1 per cent of stillbirths.⁸

2.21 Parity

Information on previous births is collected only for women whose birth within marriage is being registered. In this publication, parity is defined as the number of previous live-born or stillborn children by the present or any former husband, as stated at birth registration. This could include any previous births by a husband that occurred outside the marriage.

2.22 Further information

Requests for mortality data should be made to the address below. In addition, more information on the data in this publication and on the quality of deaths data can be obtained from:

Vital Statistics Outputs Branch
Office for National Statistics
Segensworth Road
Titchfield
Fareham
Hants
PO15 5RR
Telephone: 01329 444110

Email: vsob@ons.gsi.gov.uk

3 Some background to mortality data

3.1 The deaths databases

In the deaths processing system there are two deaths databases, one for register information and the other for statistical data. The registration database contains mainly textual information that appears on the death certificate. This corresponds to most of the details supplied by informants to a registrar, available to applicants requesting a copy of the death certificate. The deaths statistical database contains only coded details of each death. When outputs are required, the statistical database can supply information on individual deaths or provide datasets for tabulation. The statistical database is continually updated and amended as further information becomes available.

3.2 Legislation

The existing provisions for the registration of deaths and the processing, reporting and analysis of mortality data appear in different legislation that reflects the distinct and separate roles of the Registrar General for England and Wales and the UK Statistics Authority (the preferred name for the Statistics Board).

The Registrar General is guided by the following:

- **Population (Statistics) Act 1938:** deals with the statistical information collected at registration
- **Births and Deaths Registration Act 1953:** covers all aspects of the registration of births, stillbirths and deaths
- **Population (Statistics) Act 1960:** makes further provision for collecting statistical detail at registration
- **Registration of Births and Deaths Regulations 1987:** cover further aspects of the registration of births and deaths
- **Coroners Act 1988:** sets out the procedures to be followed by coroners in handling deaths
- **Stillbirth (Definition) Act 1992:** which altered the definition of a stillbirth to 24 or more weeks completed gestation, instead of the previous definition of 28 or more weeks
- **Deregulation (Stillbirth and Death Registration) Order 1996:** allows for the registration of deaths by declaration
- **National Health Service Act 2006 and National Health Service (Wales) Act 2006:** which consolidate legislation relating to the health service and separate provision of the health service in Wales from that in England. The Acts require notification of a birth or death to the local Primary Care Trust (Local Health Board in Wales) where the birth or death occurred. Both Acts include provision for the supply of information on individual deaths to the National Health Service by the Registrar General

The UK Statistics Authority is guided by the following:

- **Registration Service Act 1953:** section 19 requires the UK Statistics Authority to produce annual abstracts of the number of live births, stillbirths and deaths
- **Statistics and Registration Service Act 2007:** (the 2007 Act) transfers some of the statistical functions of the Registrar General, including the production of an annual abstract, to the UK Statistics Authority and the Office for National Statistics (ONS) becomes the executive office of the UK Statistics Authority. The 2007 Act also provides the Registrar General with a power to allow them to disclose any information about a birth, death or a stillbirth to the UK Statistics Authority for statistical purposes. It also enables the UK Statistics Authority to produce and publish statistics relating to any matter

The coming into force of the **Statistics and Registration Service Act 2007** on 1 April 2008 and accompanying machinery of government changes ended the arrangement whereby the National Statistician was concurrently the Registrar General for England and Wales. At the same time, the General Register Office (GRO) ceased being part of the Office for National Statistics (ONS) and was moved to the Identity and Passport Service. The National Health Service Central Register (NHSCR), formerly part of ONS, also transferred to the NHS Information Centre for Health and Social Care (IC).

The Statistics Board is the legal successor to ONS and inter alia undertakes the former statistical functions of the Registrar General. The responsibility for the production of mortality statistics is now a function of the UK Statistics Authority (the preferred name for the Statistics Board) which is required to produce an annual abstract of mortality statistics in order that the Minister for the Cabinet Office can lay it before Parliament.

3.3 Automated cause coding of deaths

Since 1993 the majority of ONS mortality data have been coded automatically using software developed by the National Center for Health Statistics (NCHS) in the USA. Specific text terms from the death certificate are converted to ICD codes and then selection and modification rules are assigned to apply the underlying cause of death. Using computer algorithms to apply rules increases the consistency and improves the international and temporal comparability of mortality statistics. The cause coding of deaths certified after inquest is still done manually by experienced coders. This is because the software cannot readily cope with the free format text used by coroners when describing the circumstances of death.

Stillbirths and neonatal deaths are automatically coded using an ONS in house, online coding system (TRACER). This system incorporates the use of a dictionary to obtain the cause of death, but no single underlying cause of death is derived.

4 Quality of data

4.1 Registration online (RON)

In November 2006 a pilot for an online system of registering life events by registrars (RON) commenced in five registration districts. Following the success of this pilot, RON was implemented in most register offices on 26 March 2007. However, as a result of significant performance problems, the system was suspended in April 2007 resulting in around half of registrars reverting to using the previous electronic system, Registration Service Software (RSS). Throughout 2008 work to improve the performance of RON was carried out and during this period more registration districts were moved back onto RON. This process continued into 2009, and by the beginning of July 2009 RON had been fully implemented in all register offices in England and Wales.

4.2 Entry of data into Registration Service Software (RSS)

RSS was rewritten in 1998 and issued to Register Offices in 1999. The deaths statistical fields used in RSS are validated in three respects:

- a) **range:** checking that codes fall into an expected range of values;
- b) **data type:** checking that text appears where it should, and numeric values appear where they should; and
- c) **logic:** cross-checking with values in one or more other fields

Cross-validations are carried out by checking logical consistency between various items recorded by the registrar. These include information collected on type of certification, referral to coroner, and whether a post-mortem was carried out.

4.3 Mortality data

Mortality statistics in England and Wales are derived from the registration of deaths certified by a doctor or a coroner. The data pass through a number of processes before becoming usable for analysis. These processes are complex, and involve a wide range of people, organisations and computer systems.

Registration of the death

As noted earlier, data items other than the cause of death depend largely on information supplied to the registrar by the informant. Some details may be verified later, for example, date of birth and usual address which can be checked with data held on the National Health Service Central Register (NHSCR). For deaths certified following an inquest, the coroner, police officers or other witnesses may supply this information, which cannot later be checked by the registrar.

Checks made by the Registration Service

Checks are made on death registration details at various times by registrars, superintendent registrars, and inspectors of registration. They are made on death registration data 'in the field', prior to Quarterly Certified Copies (QCCs) being received at GRO in Southport. QCCs are copies of all entries made in each register

and the QCC is used to maintain a central register of events. While a number of districts still submit their copies in this historic way, the registration service is currently going through a period of transition. Those registrars operating under the new procedures now submit their certified QCCs electronically to GRO, with the electronic copy used to form the central record.

Receipt of death registration data at ONS

Details of deaths are received by ONS from register offices electronically. Routine and automated checks are carried out on each death record and the combined data are then loaded on to the deaths database. Regular receipt and diagnostic reports are produced, resulting in weekly contacts with the identified registrars to resolve any problems.

Validation processes

Once on the database, the data pass through a series of validation processes which are carried out automatically, with any inconsistencies highlighted. Simple validations include examination of dates or employment status to ensure that they are likely. More complicated validations include checks for consistency between dates of birth, death and registration, or between age and marital status.

Automated Cause Coding System (ACCS)

ACCS processes data for most deaths to derive codes for each medical condition on the certificate and to identify the underlying cause. The accuracy of automated coding is checked regularly in accordance with data quality requirements. Periodical reports on persistent coding problems are referred to a medical epidemiologist.

Checks before and after extraction of data for analysis

The first of these are carried out as a final check of what is held on the deaths database before an annual extract of data is taken. These comprise frequency checks for a range of fields, covering age, sex, underlying cause, and area of residence. Also checked are possibly incorrect combinations of fields. Any apparent errors or inconsistencies result in checks of individual cases by coders who make amendments, as required. Some of these checks are also carried out routinely every month.

Further examinations are carried out once the data extract has been taken. They include checks similar to those done before extraction, to ensure that corrections made at that stage were properly carried out. After the annual extract used for mortality analyses has been produced as a dataset in a statistical computing package, a further set of frequency counts and two-way tables are prepared to ensure that no new errors have been introduced at this stage. These checks are to ensure that the frequency distributions are both valid and plausible and broadly similar to those for the previous year's data.

Checks on routine outputs

At present these include:

- systematic checks of totals (row, column, and other) against known correct figures, such as frequency counts mentioned above or other outputs based on similar data. The

'known correct' figures are those extracted from the database and from a SAS dataset. These are checked against each other and against 'accepted as correct' figures from previous years. Staff also refer back to original table specifications, where necessary

- checks of individual cells against correct figures, as above
- an overall check of figures for consistency and 'sense', that is, that they are what would be expected compared with the previous year's tables

These checks are carried out by the Primary Mortality Outputs team in Vital Statistics Outputs Branch in consultation with a medical epidemiologist.

4.4 Births data

Birth statistics in England and Wales are derived from the registrations of live births and stillbirths. The data pass through a number of processes before becoming usable for analysis. Many of these processes are similar to those applied to deaths data, described above.

Summary of checks and validations

As noted in section 1.1, data items, other than the cause of death for a stillbirth, depend largely on information supplied by the informant. As the person registering the birth is usually the mother and/or the father this information tends to be accurate.

When someone attends to register a birth, the registrar is instructed to make the following checks:

- the birth occurred in their area
- the birth occurred within the last three months (if the birth occurred more than three months ago, a superintendent registrar must be present to register the birth)
- the informant is qualified to give information, and
- the birth has not already been registered

The registrar also needs to ascertain:

- whether the baby was born alive or was stillborn, and
- whether the mother and father were married at the time of the birth of the child

The registrar has a duty to ensure that all births in his/her area are registered. Health authorities have to inform the registrar of all births occurring in their area; the registrar then uses this information to check that all births have been registered. The registrar must send reminders to new parents informing them that they need to register the birth before the statutory time limit for registration expires (42 days after the birth).

Most of the data collected are from information given at registration by informants. The exceptions to this are:

- birthweight, which is entered at a later date from information provided to the registrar by the health authority, and
- for stillbirths the cause of death, duration of pregnancy, and weight of fetus, which are supplied on a certificate or notification of stillbirth

All births accepted onto the births database that need routine coding are periodically identified and coded as required. In addition, ad hoc checks are carried out for stillbirths, once coding of the cause of death is complete. Ad hoc checks on both live births and stillbirths evolve continuously during exploratory surveillance of data quality and some of these are later incorporated as routine checks.

The detailed routine coding and data checks include:

- postcoding – to give usual residence for the mother of the child
- checks where the date of birth of the mother imply that the age of the mother is over 50
- communal establishment coding (for place of birth)
- country of birth of mother coding
- cause of death for stillbirths, and
- birthweight – (see section 2.20)

At the end of the year final checks are carried out on the births database before an annual extract is taken from the live database to produce a dataset in SAS. These comprise frequency checks for a range of fields, covering age, sex, and area of residence. Possible incorrect combinations of fields are also checked. Any apparent errors or inconsistencies result in checks of individual cases by coders and amendments made as required.

Further checks are carried out once the data extract has been taken. They include checks similar to those made before extraction in order to ensure that corrections made at that stage were properly carried out. After the annual extract used for births analyses has been produced as a dataset in SAS, a further set of frequency counts and two-way tables are prepared to ensure that no new errors have been introduced at this stage. These checks are to ensure that the frequency distributions are both valid and plausible and broadly similar to those for the previous year's data.

Most of the checks before and after extract use automated procedures.

Missing information and imputation

Occasionally, information might be missing from an entry. This can occur for a number of reasons including, the informant refusing to give information, or the informant not knowing the information.

Under the Population Statistics Acts (PSA) certain confidential data items are collected at the registration of a birth. If any of these data items are missing, an appropriate value is imputed by ONS for the data item or the corresponding derived variable.

The methodology used to impute missing PSA data items has developed over recent years. Prior to 2004 the donor record chosen to impute a missing data item was the most recently processed complete record appropriate to that data item. From 2004 onwards all imputed values for PSA data items were re-imputed using CANCEIS (Canadian Census Edit and Imputation System) which selects the most appropriate donor record from the entire annual dataset. Compared with the previous imputation system, this improved the distribution of mothers' ages (especially in small areas) and the distributions for each of the other PSA data items.

From 2007 in cases where the mother's date of birth was missing on the birth

registration records, the mother's date of birth was taken from birth notifications records and mothers' age was calculated. The remaining missing PSA data items were then re-imputed using CANCEIS as in previous years.⁸

References

1. World Health Organisation (1992–94) *International Statistical Classification of Diseases and Related Health Problems*, volumes 1, 2 and 3 (Tenth Revision). WHO: Geneva.
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5. Office for National Statistics (2000) *Standard Occupational Classification 2000: volume 1. Structure and descriptions of unit groups*, TSO: London.
6. Office for National Statistics (2000) *Standard Occupational Classification 2000: volume 2. The coding index*, TSO: London.
7. Rose D and O'Reilly K (1998) *The ESRC Review of Government Social Classification.*, ERSC & ONS: Swindon.
8. [Births Tables: Metadata 2009](#)

Glossary

ACCS	Automated Cause Coding System software developed by National Center for Health Statistics, USA (NCHS).
Annual extract	The dataset taken from the main deaths database from which most of the tabulations in this publication are derived. Sometimes it is referred to as the 'standard' extract.
Antepartum	Occurring just before birth.
Canadian Census Edit and Imputation System (CANCEIS)	A donor-based imputation system used to impute missing values for Population Statistics Acts data items for birth records since 2004
Cause groups	The ONS cause groups is another term used for 'Hierarchical classification'; see below.
Childhood	Children under 16 years of age.
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.
Death cohort dataset	In this publication, this analysis consists of infant deaths that occurred only in 2009 and have been linked to their birth record.
Declaration	The method by which an informant can register a death in a different district from that in which the death occurred.
Early neonatal	Relating to infants aged under 7 days.
Epidemiologist	A person concerned with the incidence and distribution of diseases and other factors, including the environment, relating to health.
General Register Office (GRO)	The GRO (part of the Identity and Passport Service since 1 April 2008) is responsible for ensuring the registration of all births, deaths, marriages and civil partnerships that have occurred in England and Wales and for maintaining a central archive.
Hierarchical classification	ONS' method for classifying the causes of neonatal deaths and stillbirths, made up of groups of ICD codes referred to as 'ONS cause groups'.
ICD	International Classification of Diseases and Related Health Problems.

Infant deaths	Under 1 year.
Inquest	Inquiry into the cause of an unexplained, sudden or violent death, held by a coroner.
Joint registration	A birth, occurring outside marriage, registered by both mother and father of the child.
Linkage	The matching of infant death records to their corresponding birth record.
MCCD	Medical Certificate of Cause of Death.
Modification rules	Rules used in ICD–10 applied to select the correct underlying cause of death.
NCHS	National Center for Health Statistics, USA, who developed ACCS.
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.
ONS	Office for National Statistics.
Parity	The number of previous liveborn or stillborn children born to a woman by the present or any former husband - only collected for women whose birth within marriage is being registered.
Perinatal	Stillbirths and early neonatal
Postneonatal	Relating to infants aged between 28 days and 1 year
QCC Quarterly Certified Copy	Copies made of each Register, sent to GRO at Southport.
Registrar	Local Authority employee responsible for the registration of births, deaths, marriages and civil partnerships.
Registrar General	Statutory appointment with responsibility for the administration of the registration Acts in England and Wales, and other related functions as specified by the relevant legislation.
Registration officer	Generic term for registrar, superintendent registrar and additional registrars.

Registrations	Number of deaths according to the date on which the deaths were registered.
RON	Registration online. A web-based system which enables registrars to record births, stillbirths, deaths and civil partnerships online.
RSS	Registration Service Software. System of collecting data electronically at the registration of a birth or a death. Used prior to the introduction of RON.
SAS	Statistical software package used for tabulation.
Selection rule	Rules used in the ICD to determine the correct selection of the underlying cause of death.
SOC 2000	Standard Occupational Classification 2000 is the current occupational classification. SOC2000 codes, details of employment status and size of organisation are required for the derivation of NS-SEC. See NS-SEC.
Stillbirth	A child that has issued forth from its mother after the 24th week of pregnancy, and that did not at any time after being completely expelled from its mother breathe or show any signs of life.
Superintendent registrar	Local Authority employee with responsibilities relating to births, deaths, marriages and other registration functions, as specified in the relevant legislation.
TRACER	ONS on-line cause coding system used for stillbirths and neonatal deaths.
True population	The number of live births in a given at risk year used as the denominator when calculating the mortality rate for the number of deaths of babies born in the same year.
UK Statistics Authority	The UK Statistics Authority is an independent body operating at arm's length from government as a non-ministerial department, directly accountable to Parliament. It was established on 1 April 2008
Underlying cause	The cause of death selected for primary tabulation (excludes deaths at age under 28 days).
VSOB	Vital Statistics Outputs Branch (at ONS).
WHO	World Health Organisation.

Annex A Country groupings for birthplace of mother of deceased, 2009

<i>United Kingdom</i>	England, Wales, Scotland, Northern Ireland
<i>Elsewhere in United Kingdom</i>	Channel Islands, Isle of Man, UK (part not stated)
<i>Outside United Kingdom</i>	
Irish Republic	Eire, Ireland (part not stated)
Other European Union	Austria, Belgium, Bulgaria, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Italy, Latvia, Lithuania, Luxembourg, Malta, The Netherlands, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden
Rest of Europe	All other European countries, including Turkey, Russia and the rest of the former Soviet republics
Commonwealth	
<i>Australia, Canada and New Zealand</i>	
<i>New Commonwealth</i>	
<i>Asia</i>	Bangladesh, India, Pakistan
<i>East Africa</i>	Kenya, Malawi, Mozambique, Tanzania, Uganda, Zambia
<i>Southern Africa</i>	Botswana, Lesotho, Namibia, South Africa, Bantu Homelands, Bophuthatswana, Transkei, Venda, Walvis Bay, Swaziland
<i>Rest of Africa</i>	Cameroon, The Gambia, Ghana, Mauritius, Nigeria, Seychelles, Sierra Leone
<i>Far East</i>	Brunei, Malaysia, Singapore
<i>Caribbean</i>	Anguilla, Antigua and Barbuda, Bahamas, Barbados, Belize, Bermuda, British Virgin Islands, Cayman Islands, Dominica, Grenada, Guyana, Jamaica, Leeward Islands, Montserrat, St Christopher (St Kitts) and Nevis, St Lucia, St Vincent and the Grenadines, Trinidad and Tobago, Turks and Caicos Islands, West Indies, New Commonwealth - Other Caribbean Islands
<i>Rest of the New Commonwealth</i>	Australian Antarctic Territory, Christmas Islands, Cocos (Keeling) Islands, Coral Sea Islands Territory, Heard and McDonald Islands, Norfolk Islands, British Antarctic Territory, British Indian Ocean Territory, Cook Islands, Falkland Islands, East Falkland, West Falkland, Fiji, Gibraltar, Kiribati, The Maldives, Nauru, New Hebrides, Niue, Papua New Guinea, Pitcairn Islands Group, St Helena and Dependencies, Ascension Island, Gouch Island, Inaccessible Island, Middle Island, Nightingale Island, Stoltenhoff Island, Tristan Da Cunha, Solomon Islands, Sri Lanka, Tokelau Islands, Tonga, Tuvalu, Vanuatu, Western Samoa
United States of America	
Rest of the World and not stated	

Annex B ONS classification of stillbirths and associated ICD–10 codes

Group	Description	ICD–10 codes
1	Congenital anomalies	<p>Main or other infant conditions</p> <p>D550–D589, D610, D640, D66–D682, D691–D694, D70–D721, D740, D750, D760–D761, D800–D899, E700–E859, E880–E889, G120–G129, G600–G609, G700–G719, G800–G809, G900–G909, I340–I379, I420–I425, I440–I459, K740–K746, Q000–Q079, Q200–Q239, Q242–Q249, Q251–Q269, Q271–Q289, Q310–Q313, Q318–Q319, Q320–Q349, Q382–Q459, Q600–Q609, Q610–Q611, Q613–Q619, Q620–Q639, Q641–Q649, Q673–Q676, Q743, Q750–Q759, Q761–Q799, Q800–Q819, Q850–Q939, Q960–Q999</p> <p>Main or other maternal conditions:</p> <p>O350–O352</p>
2	Antepartum infections	<p>Main or other infant conditions:</p> <p>A000–B99, G00–G09, E321, H650–H669, H700–H709, I300–I309, I330–I339, J00–J069, J100–J189, J200–J22, J36, J370–J371, J47, J850–J869, K350–K359, K610–K614, K650–K659, N111, N12, N136, N300, N390, P027, P230–P239, P350–P379, P38, P390–P399</p> <p>Main or other maternal conditions:</p> <p>O353</p>
4 and 8a	Asphyxia, anoxia or trauma (intrapartum and antepartum)	<p>Main or other infant conditions</p> <p>P000, P016–P017, P020–P021, P022, P024–P026, P030–P039, P050–P059, P080–P082, P100–P159, P200–P219, P240–P241, P249, P524–P529, P90, P910–P919</p> <p>Main or other maternal conditions:</p> <p>O100–O16, O363, O365, O430–O439, O440–O469, O48, O620–O689, O690–O699</p>
5	External conditions	<p>Main or other infant conditions:</p> <p>E40–E441, E46, P242–P248, J690, P800–P809, P830–P831, P833–P839, P920–P929, U509, V01–Y98</p>
7	Other specific conditions	<p>Main or other infant conditions:</p> <p>C000–C97, D100–D489, D600–D609, D684, E000–E320, E328–E349, I270, I514, J849, P002, P005–P006, P023, P028–P029, P293, P500–P519, P530–P549, P550–P570, P579, P580–P589, P591–P599, P60–P611, P613–P619, P700–P749, P760–P769, P780–P789, P810–P819, P832, P93, P961–P962</p> <p>Main or other maternal conditions:</p> <p>C000–C97, D100–D369, D370–D489, D600–D609, D684, E000–E320, E322–E349, I310–I319, I470–I499, I514, I710–I719, J450–J459, K529, O240–O249</p>
0 and 8b	Other conditions (intrapartum and antepartum)	All other codes

Annex C ONS classification of neonatal deaths and associated ICD–10 codes

Group	Description	ICD–10 codes
1	Congenital anomalies	<p>Main or other infant conditions</p> <p>D550–D589, D610, D640, D66–D682, D691–D694, D70–D721, D740, D750, D760–D761, D800–D899, E700–E859, E880–E889, G120–G129, G600–G609, G700–G719, G800–G809, G900–G909, I340–I379, I420–I425, I440–I459, K740–K746, Q000–Q079, Q200–Q239, Q242–Q249, Q251–Q269, Q271–Q289, Q310–Q313, Q318–Q319, Q320–Q349, Q382–Q459, Q600–Q609, Q610–Q611, Q613–Q619, Q620–Q639, Q641–Q649, Q673–Q676, Q743, Q750–Q759, Q761–Q799, Q800–Q819, Q850–Q939, Q960–Q999</p> <p>Main or other maternal conditions:</p> <p>O350–O352</p>
2	Antepartum infections	<p>Main or other infant conditions:</p> <p>A500–A509, P027, P230–P239, P350–P359, P370–P379</p> <p>Main or other maternal conditions:</p> <p>O353</p>
3	Immaturity related conditions	<p>Main or other infant conditions</p> <p>P010–P011, P018, P070–P073, P220–P229, P250–P258, P270–P279, P280–P289, P520–P523, P578, P590, P77, P964</p> <p>Main or other maternal conditions:</p> <p>O289</p>
4	Asphyxia, anoxia or trauma (intrapartum)	<p>Main or other maternal conditions:</p> <p>P000, P016–P017, P020–P021, P022, P024–P026, P030–P039, P050–P059, P080–P082, P100–P159, P200–P219, P240–P241, P249, P524–P529, P90, P910–P919</p> <p>Main or other maternal conditions:</p> <p>O100–O16, O363, O365, O430–O439, O440–O469, O48, O620–O689, O690–O699</p>
5	External conditions	<p>Main or other infant conditions:</p> <p>E40–E441, E46, P242–P248, J690, P800–P809, P830–P831, P833–P839, P920–P929, U509, V01–Y98</p>
6	Infections	<p>Main or other infant conditions:</p> <p>A000–A499, A510–B99, G000–G09, E321, H650–H669, H700–H709, I300–I309, I330–I339, J00–J069, J100–J189, J200–J22, J36, J370–J371, J47, J850–J869, K350–K359, K610–K614, K650–K659, N111, N12, N136, N300, N390, P360–P369, P38, P390–P399</p>
7	Other specific conditions	<p>Main or other infant conditions:</p> <p>C000–C97, D100–D489, D600–D609, D684, E000–E320, E328–E349, I270, I514, J849, P002, P005–P006, P023, P028–P029, P293, P500–P519, P530–P549, P550–P570, P579, P580–P589, P591–P599, P60–P611, P613–P619, P700–P749, P760–P769, P780–P789, P810–P819, P832, P93, P961–P962</p> <p>Main or other maternal conditions:</p> <p>C000–C97, D100–D369, D370–D489, D600–D609, D684, E000–E320, E322–E349, I310–I319, I470–I499, I514, I710–I719, J450–J459, K529, O240–O249</p>
9	Sudden infant deaths	<p>Main or other infant conditions:</p> <p>R95–R98</p>
0	Other conditions	All other codes

Annex D ONS classification of post neonatal deaths and associated ICD–10 codes

Group	Description	ICD–10 codes
1	Congenital anomalies	Main or other infant conditions D550–D589, D610, D640, D660–D682, D691–D694, D700–D721, D740, D750, D760–D761, D800–D899, E700–E859, E880–E889, G120–G129, G600–G609, G700–G719, G800–G809, G900–G909, I340–I379, I420–I425, I440–I459, K740–K746, O350–O352, Q000–Q079, Q200–Q239, Q242–Q249, Q251–Q269, Q271–Q289, Q310–Q313, Q318–Q319, Q320–Q349, Q382–Q459, Q600–Q609, Q610–Q611, Q613–Q619, Q620–Q639, Q641–Q649, Q673–Q676, Q743, Q750–Q759, Q761–Q799, Q800–Q819, Q850–Q939, Q960–Q999
2	Antepartum infections	A500–A509, O353, P027, P230–P239, P350–P359, P370–P379
3	Immaturity related conditions	O289, P010–P011, P018, P070–P073, P220–P229, P250–P258, P270–P279, P280–P289, P520–P524, P578, P590, P770, P964
4	Asphyxia, anoxia or trauma (intrapartum)	O100–O16, O363, O365, O430–O439, O440–O469, O480, O620–O689, O690–O699, P000, P016–P017, P020–P021, P022, P024–P026, P030–P039, P050–P059, P080–P082, P100–P159, P200–P219, P240–P241, P249, P524–P529, P90, P910–P919
5	External conditions	E40–E441, E46, P242–P248, J690, P800–P809, P810, P830–P831, P833–P839, P920–P929, U509, V01–Y98
6	Infections	A000–A499, A510–B99, G000–G09, H650–H669, H700–H709, I300–I309, I330–I339, J00–J69, J100–J189, J200–J22, J36, J370–J371, J47, J850–J869, K350–K359, K610–K614, K650–K659, N111, N12, N136, N300, N390, P360–P369, P38, P390–P399, E321
7	Other specific conditions	C000–C97, D100–D489, D600–D609, D684, E000–E320, E328–E349, I270, I310–I319, I470–I499, I514, I710–I719, J450–J459, J849, K529, O240–O249, P002, P005–P006, P023, P028–P029, P293, P500–P519, P524, P530–P549, P550–P570, P579, P580–P589, P591–P599, P60–P611, P613–P619, P700–P749, P760–P769, P780–P789, P810–P819, P832, P930, P961–P962