Childhood, Infant and Perinatal Mortality in England and Wales, 2010

Coverage: England and Wales
Date: 26 April 2012
Geographical Area: Country
Theme: Population
Theme: Health and Social Care

Key Findings

• There were 3,077 infant deaths (deaths under 1 year) in England and Wales in 2010, compared with 7,899 infant deaths in 1980 and 3,191 in 2009

• In 2010 the infant mortality rate was 4.3 deaths per 1,000 live births, the lowest ever recorded in England and Wales, and compares with an infant mortality rate of 12 deaths per 1,000 live births in 1980 and 4.5 deaths per 1,000 live births in 2009

• Infant mortality rates were lowest among babies of mothers aged 30–34 years (3.8 deaths per 1,000 live births) and highest among babies of mothers aged 40 years and over (5.8 deaths per 1,000 live births)

• In 2010 the infant mortality rates for very low birthweight babies (under 1,500 grams) and low birthweight babies (under 2,500 grams) were 164.9 and 36.8 deaths per 1,000 live births respectively

Summary

This statistical bulletin presents final statistics on infant deaths and childhood deaths that occurred in 2010 in England and Wales. It also contains additional analyses by some of the key risk factors affecting infant deaths, including age of mother and birthweight. These characteristics are derived from linking the death to the corresponding birth registration record.

This is the first time that final 2010 figures on infant and childhood mortality, based on occurrences, have been published by the Office for National Statistics (ONS).
The infant death figures in this bulletin differ slightly from those presented in the Infant and perinatal mortality by social and biological factors, 2010 which are based on provisional figures for 2010. The difference between these figures is relatively small (see Background note 2). The live births and stillbirths figures also differ slightly. In this bulletin these are based on birth occurrences plus late registrations from the previous year, while the ‘social and biological factors’ report uses occurrences only within each year.

As part of a larger release of annual mortality data, ONS also publishes infant mortality statistics according to the year in which the death was registered. Mortality data based on death registrations can include deaths that occurred in previous years, meaning that the total of infant deaths based on death registrations may differ from the total number of infant deaths used in this statistical bulletin.

**Background**

Although infant mortality rates have continued to fall in England and Wales over the past 30 years, the rates of change were not constant over the period. The change in the first half of the period was more than twice that in the second half. General improvements in healthcare and more specific improvements in midwifery and neonatal intensive care can partly explain the overall fall in the rate.

Despite the downward trend, evidence in the Marmot Review: Fair Society, Healthy Lives noted that factors including births outside marriage, maternal age under the age of 20 and deprivation, were independently associated with an increased risk of infant mortality (2010, the Marmot review). The review went on to say that 'Low birth weight in particular is associated with poorer long-term health outcomes and the evidence also suggests that maternal health is related to socioeconomic status.'

**Infant and Perinatal Mortality Rates**

There were 3,077 infant deaths that occurred in England and Wales in 2010 giving an infant mortality rate of 4.3 deaths per 1,000 live births (the lowest rate ever recorded in England and Wales). Since 1980, when the rate was 12 deaths per 1,000 live births, there has been a 64 per cent fall in infant mortality rates in England and Wales. The infant mortality rate in 2009 was 4.5 deaths per 1,000 live births.
Infant, neonatal and postneonatal mortality rates: 1980–2010

England and Wales

Over the same period there has been a similar fall in neonatal mortality rates (deaths under 28 days) and postneonatal mortality rates (deaths between 28 days and 1 year). The neonatal mortality rate fell by 62 per cent, from 7.7 deaths per 1,000 live births in 1980 to 2.9 deaths per 1,000 live births in 2010. The postneonatal mortality rate fell by 70 per cent over the same period, from 4.4 deaths per 1,000 live births in 1980 to 1.3 deaths per 1,000 live births in 2010.

In 2010 there were 3,714 stillbirths and 1,657 deaths at age under 7 days, giving a perinatal mortality rate of 7.4 deaths per 1,000 total births. Since 1980, when the perinatal mortality rate was 13.3 deaths per 1,000 total births, there has been a 44 per cent fall in the rate.

Linking Birth and Death Records

Linking birth and infant death records improves our understanding of the key characteristics of the baby’s parents that have been registered on the birth registration record (see Background note 3). In 2010, 98 per cent of infant deaths in England and Wales were successfully linked to their corresponding birth registration record. The linkage rate for infant deaths has remained consistent since the linking exercise began.
**Age of Mother at Birth**

The infant mortality rate for all infant deaths linked to their corresponding birth registration record was 4.2 deaths per 1,000 live births in 2010. For these linked deaths, infant mortality rates were lowest among babies of mothers aged 30 to 34 years (3.8 deaths per 1,000 live births) and highest among mothers aged 40 years and over (5.8 deaths per 1,000 live births). Research shows that there is a u-shaped relationship between mortality and maternal age, with the lowest risk of infant mortality among babies whose mothers were aged 30–34 at birth (Oakley et al. 2009).

**Birthweight**

Low birthweight is one of the known risk factors for infant deaths and can be caused by a number of factors. Smoking has been identified as a major modifiable risk factor contributing to low birthweight, according to the Department of Health, ‘Babies born to women who smoke weigh on average 200g less than babies born to nonsmokers.’ (Department of Health, 2001)

**Infant and neonatal mortality rates for low birthweight babies: by age of mother, 2010**

England and Wales

![Graph showing infant and neonatal mortality rates for low birthweight babies by age of mother, 2010](chart_image)

Source: Office for National Statistics

**Notes:**
1. Linked infant deaths (occurred in 2010).
2. Babies weighing less than 2,500 grams.

**Download chart**

[XLS format](chart_file) (28 Kb)
In 2010 the infant mortality rates for very low birthweight babies (under 1,500 grams) and low birthweight babies (under 2,500 grams) were 164.9 and 36.8 deaths per 1,000 live births respectively. This is significantly higher than the rate of 1.4 deaths per 1,000 live births among babies of normal birthweight (over 2,500grms).

For babies of low birthweight, the infant mortality rate was highest among mothers aged under 20 years (43.9 deaths per 1,000 live births) and lowest among mothers aged 35 to 39 years (34.1 deaths per 1,000 live births). Although the neonatal death rates for low birthweight babies were lower than the corresponding infant mortality rates, they showed a similar pattern by mother’s age.

**Socio-Economic Status**

The age at which women have children has been shown to be related to their socio-economic status (Cooper, 2001), Chapter 7 and significant differences in infant mortality rates by socio-economic group persist in England and Wales (Oakley et. al. 2009 (5.18 Mb Pdf)).

Using the father’s occupation and employment status as a proxy for socio-economic status, infant mortality rates were highest for babies with fathers employed in semi-routine occupations (5.5 deaths per 1,000 live births) and lowest for those employed in the professional and higher managerial occupations (3.0 deaths per 1,000 live births).

For perinatal deaths the pattern was the same, with the highest rate among babies with fathers employed in semi-routine occupations (9.0 deaths per 1,000 total births) and lowest among higher professional occupations (5.7 deaths per 1,000 total births). These variations may be the result of the link between lower socio-economic status and poorer maternal health which can ultimately affect infant mortality rates.

**Child Mortality Rates**

Between 1980 and 2010 the age-specific mortality rate (crude death rate) for children aged 1 to 14 years fell by 65 per cent, from 31 deaths per 100,000 population in 1980 to 11 deaths per 100,000 in 2010. The age-specific mortality rate for children aged 1 to 4 years fell by 67 per cent over the same period, from 51 deaths per 100,000 population in 1980 to 17 deaths per 100,000 in 2010. Over the past 30 years child death rates from respiratory and circulatory deaths in England and Wales have been falling, as they have for the whole population, reflecting advances in medical care and preventative measures generally. In 2010 congenital related conditions and cancers were the most common causes of death for children aged under 16 years.

**Users and Uses of Infant Mortality Statistics**

Infant mortality is seen as a key measure among health outcomes and there is a long established link between social and health inequalities, and infant mortality. The Department of Health (DH) is a key user of child mortality statistics. Previously, the department has used infant mortality data in conjunction with other analyses performed by the Office for National Statistics to monitor the Public Service Agreement (PSA) target on infant mortality for England and Wales. Currently, infant mortality continues to take a central role in DH’s work on tackling health inequalities within the NHS.
Outcomes Framework 2011/12. Other users of infant mortality data include academics, independent researchers, charities and media.

Further Information

More data on childhood, infant and perinatal mortality statistics in England and Wales in 2010 are available on the ONS website.

A Quality and Methodology Information document for Child mortality statistics is available on the ONS website.

Further information on data quality, legislation and procedures relating to childhood, infant and perinatal mortality is available on the ONS website in Child mortality statistics metadata (163.2 Kb Pdf).

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

The birth cohort tables for infant deaths provide specific data for deaths of infants born in a given calendar year using additional data from the birth registration record. Gestation specific mortality presents data on live births and infant deaths by gestational age, while Infant and perinatal mortality by social and biological factors provides statistics on infant and perinatal mortality by father’s occupation; mother’s country of birth; birthweight; and mother’s age. Unexplained deaths in infancy includes both sudden infant deaths and deaths for which the cause remained unknown or unascertained.

The Births summary tables, England and Wales provide key summary statistics for live births in England and Wales.

More general information on the collection, production and quality of mortality data is available in Mortality metadata (2.46 Mb Pdf).

A user consultation to review infant mortality statistics produced by ONS took place between 5 July and 16 August 2011 and the ONS response to the review is available on the ONS website.

References


Background notes

1. The live birth and stillbirth numbers are based on all births that occurred in the reference year, plus any late birth registrations from the previous year. Mortality figures are based on deaths that occurred in the reference year and may differ from previously published figures based on deaths registered in a reference year.

2. In 2010, the difference between provisional infant death figures in Infant and perinatal mortality by social and biological factors and final infant death figures in this bulletin was around 0.1 per cent.

3. The linkage of infant death records to their corresponding birth registration record has been conducted since 1975 to obtain information on social and biological factors of the baby and parents collected at birth registration. These include the baby’s birthweight; mother’s age; mother’s country of birth; father’s socio-economic status (based on his occupation); and for those born within marriage, the number of previous children born. The main reasons for this are either; a birth registration record cannot be found, or the birth was registered outside England and Wales.

4. Definitions used in child mortality statistics:

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

   Early neonatal – deaths under 7 days.

   Perinatal – stillbirths and early neonatal deaths.

   Neonatal – deaths under 28 days.

   Postneonatal – deaths between 28 days and 1 year.

   Infant – deaths under 1 year.

   Childhood – deaths between 1 and 15 years of age.

   Stillbirths and perinatal mortality rates are reported per 1,000 total births (live and stillbirths).

   Early neonatal, neonatal, postneonatal and infant mortality rates are reported per 1,000 live births.

   Childhood mortality rates are reported per 100,000 population of the same age.
5. The National Statistics Socio-economic Classification (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’.

6. On 1 October 1992, the legal definition of a stillbirth was changed from a baby born dead after 28 or more weeks completed gestation to one born dead after 24 or more weeks completed gestation. This means that perinatal and stillbirth data for 2010 can only be compared with data from 1993 onwards.

7. 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 can be found on the ONS website.

8. The Tenth Revision of the *International Statistical Classification of Diseases and Related Health Problems (ICD–10)* has been used to classify cause of death at age 28 days and above.

9. A hierarchical classification in ICD–10 has also been developed by ONS for statistics relating to stillbirths and neonatal deaths. These are derived from a special death certificate (instead of the standard death certificate), introduced by ONS in 1986. More information on neonatal and stillbirth cause of death certificates can be found in section 2.9 of Child mortality statistics metadata (163.2 Kb Pdf).

10. A list of the names of those given pre-publication access to the statistics and written commentary is available in pre-release access - Child Mortality Statistics (33.7 Kb Pdf). The rules and principles which govern pre-release access are featured within the Pre-release Access to Official Statistics Order 2008.
11. Special extracts and tabulations of child mortality data for England and Wales are available to order for a charge (subject to legal frameworks, disclosure control, resources and agreements of costs, where appropriate). Such enquiries should be made to:

Vital Statistics Outputs Branch
Health and Life Events Division
Office for National Statistics
Segensworth Road
Titchfield
 Fareham
Hampshire
PO15 5RR

Tel: +44 (0)1329 444 110
E-mail: vsob@ons.gsi.gov.uk

12. We would welcome feedback on the content, format and relevance of this release. The Health and Life Events user engagement strategy is available to download from the ONS website. Please send feedback to the postal or email address above.

13. National Statistics are produced to high professional standards set out in the Code of Practice for Official Statistics. They undergo regular quality assurance reviews to ensure that they meet customer needs. They are produced free from any political interference.

14. Follow ONS on Twitter and Facebook.

15. Next publication date: March/April 2013

16. Details of the policy governing the release of new data are available by visiting www.statisticsauthority.gov.uk/assessment/code-of-practice/index.html or from the Media Relations Office email: media.relations@ons.gsi.gov.uk

Copyright

© Crown copyright 2012

You may use or re-use this information (not including logos) free of charge in any format or medium, under the terms of the Open Government Licence. To view this licence, visit www.nationalarchives.gov.uk/doc/open-government-licence/ or write to the Information Policy Team, The National Archives, Kew, London TW9 4DU, or email: psi@nationalarchives.gsi.gov.uk.
This document is also available on our website at www.ons.gov.uk.

**Statistical contacts**

<table>
<thead>
<tr>
<th>Name</th>
<th>Phone</th>
<th>Department</th>
<th>Email</th>
</tr>
</thead>
<tbody>
<tr>
<td>Elizabeth McLaren</td>
<td>+44 (0)1329 444110</td>
<td>Vital Statistics Outputs Branch</td>
<td><a href="mailto:vsob@ons.gsi.gov.uk">vsob@ons.gsi.gov.uk</a></td>
</tr>
</tbody>
</table>

**Issuing Body:**
Office for National Statistics

**Media Contact Details:**
Telephone: 0845 604 1858 (8.30am-5.30pm Weekdays)

Emergency out of hours (limited service): 07867 906553

Email: media.relations@ons.gsi.gov.uk