

Statistical bulletin

Childhood mortality in England and Wales: 2015

Stillbirths, infant and childhood deaths occurring annually in England and Wales, and associated risk factors.



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1 . Main points

- There were 2,578 infant deaths (deaths under 1 year) in England and Wales in 2015, compared with 2,517 in 2014 and 6,141 in 1985.
- In 2015, the infant mortality rate increased to 3.7 deaths per 1,000 live births, compared with the lowest recorded rate of 3.6 in 2014.
- The perinatal mortality rate (stillbirths and deaths under 7 days) decreased to 6.5 deaths per 1,000 total births in 2015, compared with 6.6 in 2014.
- The lowest infant mortality rate for babies born in 2014 with a known gestation was to babies in the White Other ethnic group at 2.1 deaths per 1,000 live births.

2 . Statistician's comment

"2015 saw the first increase in the infant mortality rate in England and Wales since 2006. The rate rose to 3.7 deaths per 1,000 births from the record low of 3.6 in 2014, but it remains low in historical terms. There are many risk factors contributing to infant mortality such as birthweight, mother's age at birth of child, and the parents' socio-economic status."

Vasita Patel, Vital Statistics Outputs Branch, Office for National Statistics

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3 . Things you need to know about this release

Important information for interpreting these birth and childhood mortality statistics:

- birth and death statistics are compiled from information supplied when deaths are certified and registered as part of civil registration, a legal requirement
- figures represent births and deaths that occurred in England and Wales, these include the births and deaths of individuals whose usual residence was outside England and Wales
- figures in the [child mortality tables](#) (death cohort) contain figures on deaths that occurred in the calendar year 2015, linked to their corresponding birth registration (sections 4 to 7)
- figures in the [birth cohort tables](#) (birth cohort) for infant deaths are for babies born in the calendar year 2014 that died before their first birthday, linked to their corresponding death registration (section 8)
- figures in the [pregnancy and ethnic factors influencing birth and infant mortality tables](#) (birth cohort) represent the number of births that occurred in the calendar year 2014 where the baby died before their first birthday, either in the same reference year or the following year, which are then linked to their corresponding birth notification and their corresponding death registration (sections 9 to 11)
- for babies born in 2014, almost all, 99.9% were successfully linked to their birth notification; 99.6% of infant death records were successfully linked to their corresponding birth record (sections 9 to 11)
- the infant death numbers and rates published in [childhood mortality](#), [birth cohort tables for infant deaths](#) and [pregnancy and ethnic factors influencing births and infant mortality](#) will not match due to the differences in the timings of the extracts used for the birth and death cohorts
- the definitions for main terms used in this release can be found in the Quality and methodology section

4 . Infant mortality rates increase for the first time since 2006

There were 2,578 infant deaths in England and Wales in 2015. The infant mortality rate was 3.7 deaths per 1,000 live births, an increase from the lowest rate ever recorded in England and Wales, at 3.6 deaths per 1,000 live births in 2014. The increased infant mortality rate can be attributed to the 2.4% increase in the number of infant deaths in 2015 compared with 2014, while the number of live births remained stable.

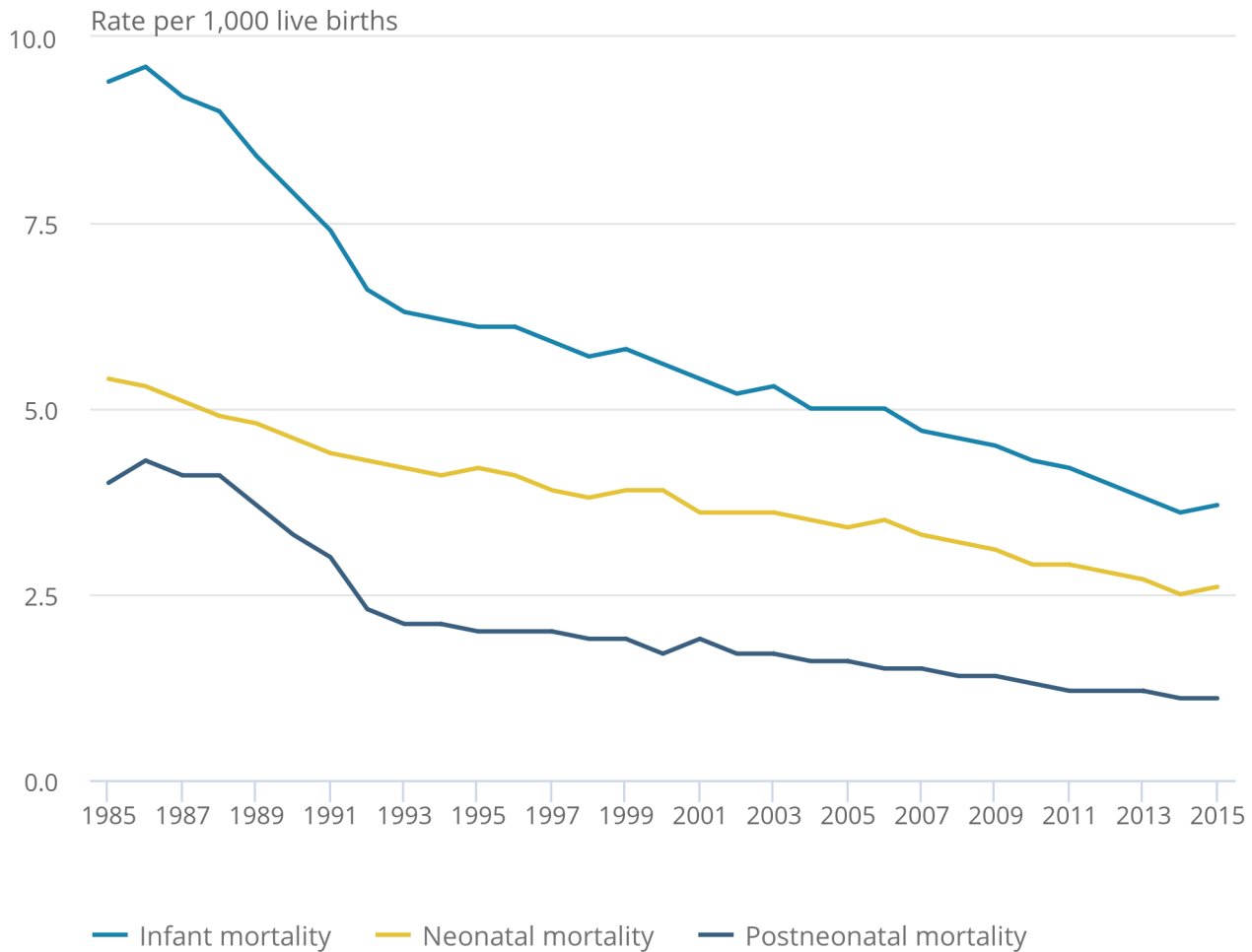
Infant mortality rates have been decreasing in England and Wales since the early 1900s, partially due to general improvements in healthcare and more specific improvements in midwifery and neonatal intensive care. However, over the past 30 years the rate of decline has varied, with the decrease between 1995 and 2005 being half as much as was recorded between 1985 and 1995. In contrast, the decrease in the past 10 years was higher than that of the decade before (Figure 1). Since 1985, when the rate was 9.4 deaths per 1,000 live births, there has been a 61% fall in the infant mortality rate in England and Wales. For the first time since 2006, neonatal, and infant mortality rates increased in 2015.

Figure 1: Infant, neonatal and postneonatal mortality rates, 1985 to 2015

England and Wales

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England and Wales



Source: Office for National Statistics

Source: Office for National Statistics

Notes:

1. Deaths occurring in a calendar year
2. Neonatal – deaths under 28 days.
3. Postneonatal – deaths between 28 days and 1 year.
4. Infant – deaths under 1 year.

Several different factors are associated with increased risk of infant death and these vary according to age at death. Despite the downward trend in the infant mortality rate, evidence in the [Marmot Review: Fair Society, Healthy Lives](#) noted that factors, including births outside marriage, maternal age under 20 years and deprivation, were independently associated with an increased risk of infant mortality. The review went on to say that, “low birthweight in particular is associated with poorer long-term health outcomes and the evidence also suggests that maternal health is related to socio-economic status”.

In 2015, there were 3,147 stillbirths and 1,436 deaths at age under 7 days. The number of stillbirths decreased from 3,254 in 2014 but deaths at age under 7 days increased from 1,376 in 2014, resulting in a perinatal mortality rate of 6.5 deaths per 1,000 total births, compared with 6.6 in the previous year. Since 1993 (following a change to the stillbirth definition), the rate has fallen by just over a quarter.

5 . Immaturity related conditions remains most common cause of infant deaths

Table 1: Percentage of neonatal, postneonatal and infant deaths caused by congenital anomalies and immaturity related conditions, England and Wales, 2014 and 2015

	Neonatal		Postneonatal		Infant	
	2014	2015	2014	2015	2014	2015
Immaturity related conditions	50.8	49.3	18.6	18.3	41.2	40.5
Congenital anomalies	29.4	30.9	40.0	41.4	32.6	33.9

Source: Office for National Statistics

ONS cause groups show that immaturity related conditions such as respiratory and cardiovascular disorders remain the most common cause of infant deaths in 2015 (Table 1). Congenital anomalies follows as the second most common cause of infant death and continues to account for the largest percentage of postneonatal deaths.

More information about the ONS cause groups can be found in a [User guide to Child mortality statistics](#).

6 . Increased infant mortality rates for low and very low birthweight babies

Low birthweight is one of the known risk factors for infant deaths. In 2015, the infant mortality rates for very low birthweight babies (under 1,500 grams) and low birthweight babies (under 2,500 grams) increased by 2.3% from 2014, to 159.6 and 31.6 deaths per 1,000 live births respectively. This is much higher than the rate for babies of normal birthweight (over 2,500 grams), which remained at 1.1 from 2014.

Table 2: Infant mortality rates for low birthweight babies by age of mother, England and Wales, 2014 and 2015

Birthweight (grams)	Mother's age	Infant mortality rate		Change (%)
		2014	2015	
<2500	All	30.9	31.6	2.3
	<20	35.9	42.1	17.3
	20 to 24	29.5	34.0	15.3
	25 to 29	29.7	30.2	1.7
	30 to 34	30.9	29.8	-3.6
	35 to 39	34.8	32.0	-8.0
	40 and over	23.8	32.2	35.3

Source: Office for National Statistics

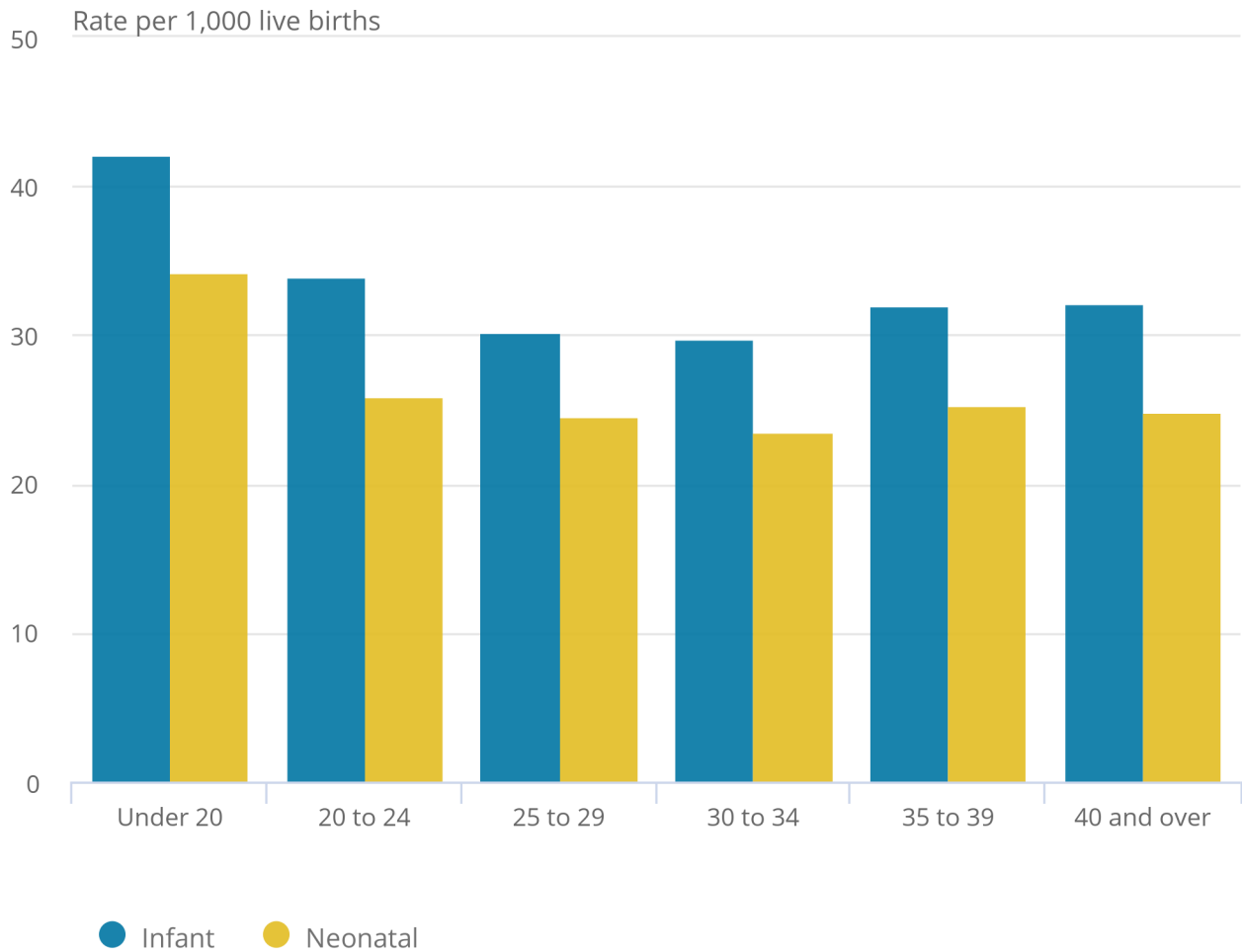
For babies of low birthweight (less than 2,500 grams), the infant mortality rate increased for mothers of all ages, with the exception of those aged 30 to 34 and 35 to 39, where the infant mortality rates decreased (Table 2). The most noticeable increase of 35.3% was seen in mothers aged 40 and over. The infant mortality rate remained highest among mothers aged under 20 years and was lowest among mothers aged 30 to 34 (42.1 and 29.8 deaths per 1,000 live births respectively) (Figure 2).

Figure 2: Infant and neonatal mortality rates for low birthweight babies: by age of mother, 2015

England and Wales

Figure 2: Infant and neonatal mortality rates for low birthweight babies: by age of mother, 2015

England and Wales



Source: Office for National Statistics

Source: Office for National Statistics

Notes:

1. Linked infant deaths (occurred in 2015).
2. Babies weighing less than 2,500 grams.
3. Infant - deaths under 1 year.
4. Neonatal - deaths under 28 days.

7 . Cancers remain the most common cause of death for children aged 1 to 15 years

In 2015, cancers, followed by diseases of the nervous system, remained the most common causes of death for children aged 1 to 15 years (Table 3). Child mortality rates from respiratory and circulatory diseases in England and Wales have been falling over the last 30 years, as they have for the whole population, reflecting advances in medical care and preventative measures as well as the [reduction in the emission of air pollutants](#).

Table 3: Percentage of childhood deaths by underlying cause, England and Wales, 2015

ICD-10 code	Underlying cause group	%
C00-D48	Neoplasms (cancers)	21.0
G00-G99	Diseases of the nervous system	14.2
U509, V01-Y89	External causes of morbidity and mortality	14.2
J00-J99	Diseases of the respiratory system	11.1
Q00-Q99	Congenital malformations, deformations and chromosomal abnormalities	9.6

Source: Office for National Statistics

8 . Increased infant mortality rates for multiple births using the 2014 birth cohort tables

Infant mortality rates for multiple births using the 2014 birth cohort have continued to increase since 2013, leaving infant mortality rates for multiple births nearly five times higher than for singletons (Table 4).

Table 4: Infant mortality rates for singleton and multiple births, 2013 and 2014 birth cohort, England and Wales

	2013	2014
Singletons	3.5	3.3
All multiple births	14.7	16.0

Source: Office for National Statistics

The infant mortality rate for singletons born in 2014 remains highest for mothers aged under 20 at 5.8 per 1,000 live births in 2014, in comparison with 5.5 per 1,000 live births in 2013.

9 . Just over half of all infant deaths of babies born in 2014 were born under 32 weeks gestation

For babies born in 2014, 75% of live births with a known gestation were pre-term (under 37 weeks). Of the pre-term live births, 4.3% were extremely pre-term (24 to 27 weeks) and 10.6% were very pre-term (28 to 31 weeks) (Table 5).

Table 5: Percentage of pre-term live births and stillbirths, England and Wales, 2014

	Extremely pre-term (24 to 27 weeks)	Very pre-term (28 to 31 weeks)	Moderately pre-term (32 to 36 weeks)
Live births	4.3	10.6	85.1
Stillbirths	39.5	24.8	35.7

Source: Office for National Statistics

Notes:

1. Total births with known gestation

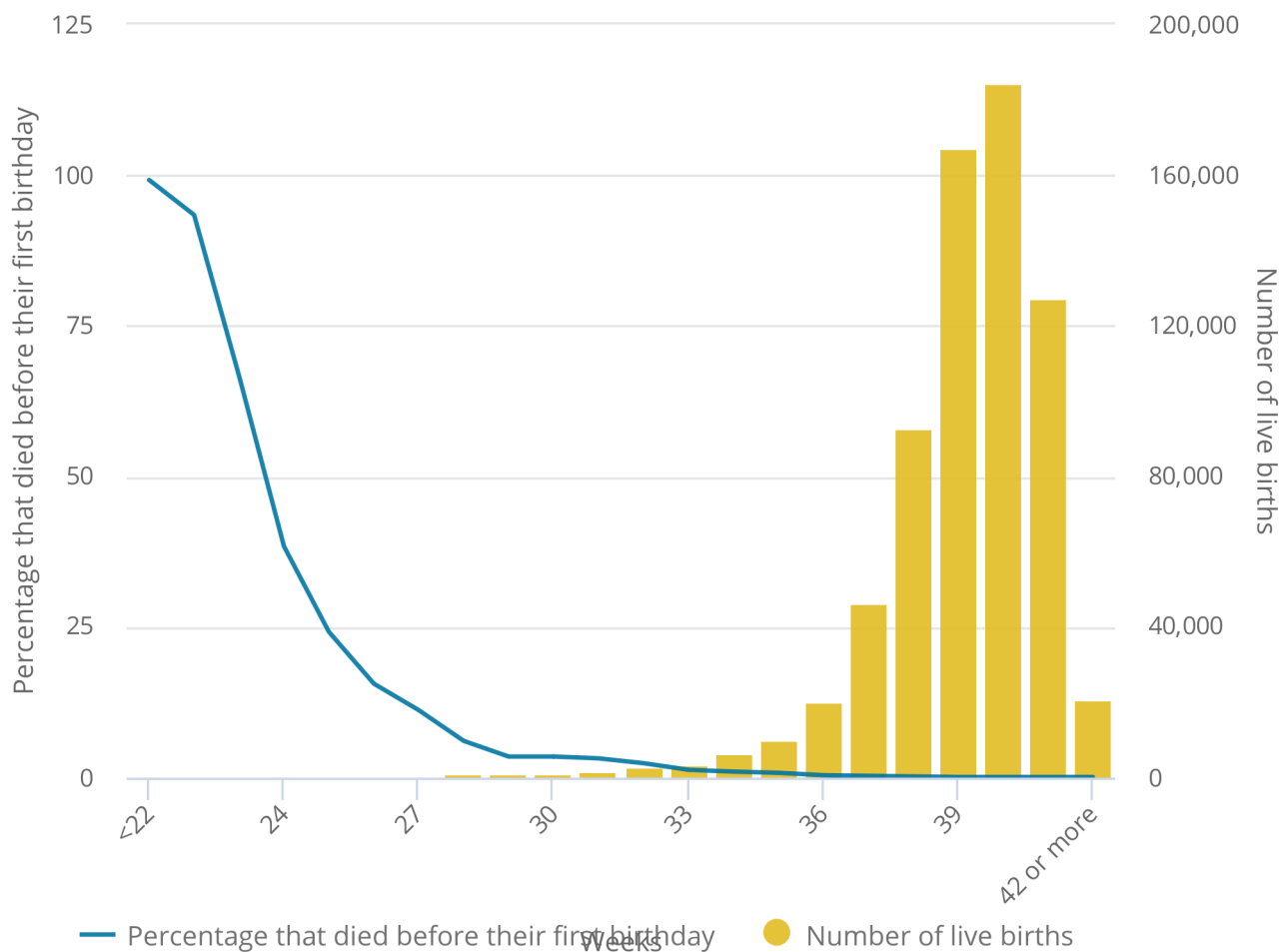
Of those live births that occurred at under 32 weeks gestation, 14.9% resulted in an infant death, which makes up just over half of all infant deaths with a known gestation (Figure 3).

Figure 3: Percentage of infant deaths and number of live births by gestation week, babies born in 2014

England and Wales

Figure 3: Percentage of infant deaths and number of live births by gestation week, babies born in 2014

England and Wales



Source: Office for National Statistics

Source: Office for National Statistics

Notes:

1. Extremely pre-term: 24 to 27 weeks
2. Very pre-term: 28 to 31 weeks
3. Moderately pre-term: 32 to 36 weeks
4. Term: 37 to 41 weeks
5. Post term: 42 week or more
6. Under 22 weeks gestational age and birthweight 1,000 grams or over.

The infant mortality rate for babies born pre-term has decreased since 2013 from 21.1 to 19.6 deaths per 1,000 live births in 2014. A similar decrease across the same period can be seen in the infant mortality rates for babies born term and post-term in 2014, to 1.3 and 0.6 deaths per 1,000 live births respectively.

10 . Lowest infant mortality rate for babies born in 2014 was to babies born in the White Other ethnic group

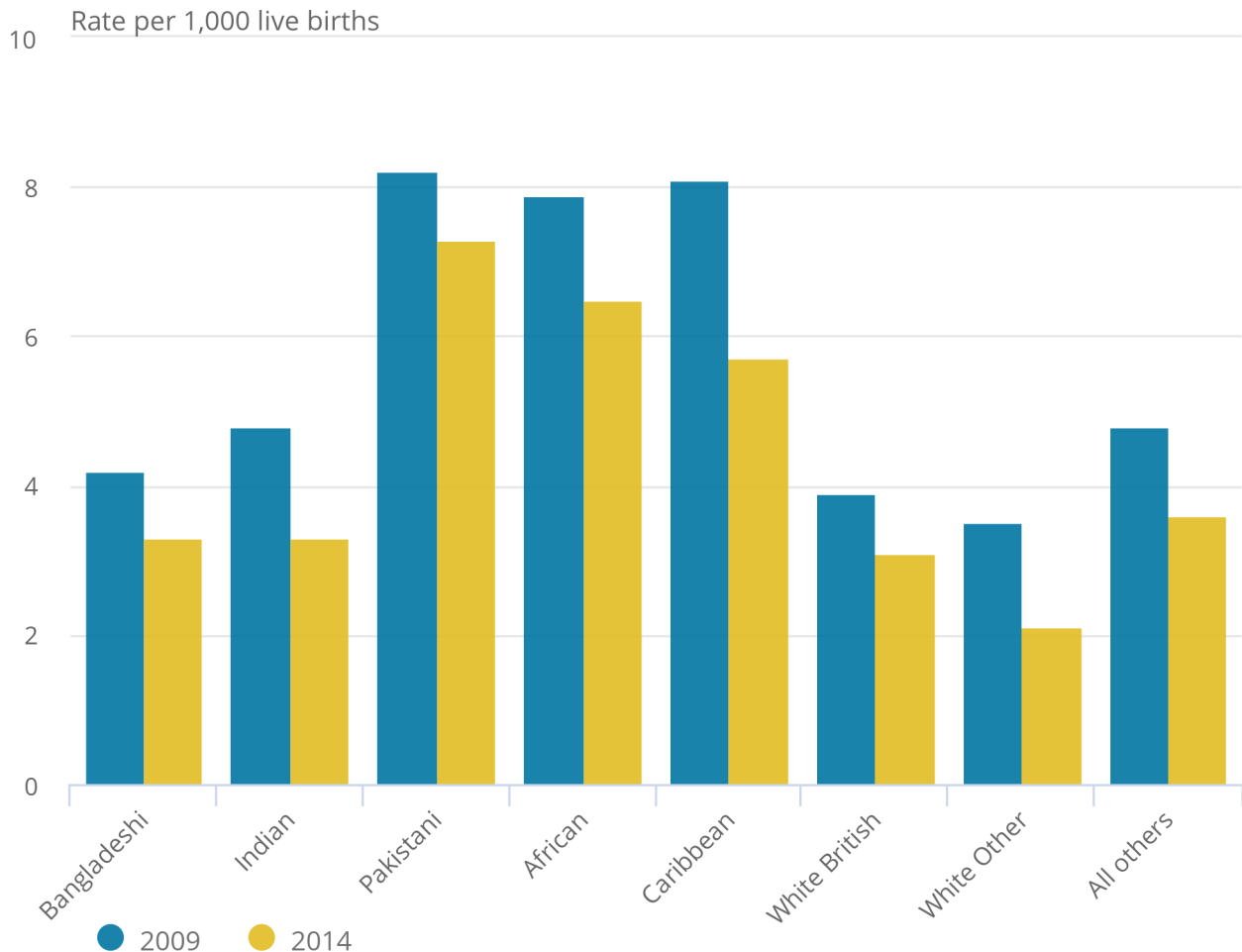
In 2014, of babies with known gestational age, babies born in the White Other ethnic group (White Irish and any other White background) had the lowest infant mortality rate at 2.1 deaths per 1,000 live births. In contrast, Pakistani and Black African babies had the highest infant mortality rates of 7.3 and 6.5 deaths per 1,000 live births respectively.

Figure 4: Infant mortality rates, by ethnicity, babies born in 2009 and 2014

England and Wales

Figure 4: Infant mortality rates, by ethnicity, babies born in 2009 and 2014

England and Wales



Source: Office for National Statistics

Source: Office for National Statistics

Notes:

1. Known gestation only.
2. Excludes those with low gestational age inconsistent with birthweight, or gestational age not stated.

This pattern is similar to that seen in 2009 (Figure 4) where babies born in the White Other ethnic group had the lowest infant mortality rate of 3.5 deaths per 1,000 live births and infant mortality was highest for Pakistani babies (8.2 deaths per 1,000 live births) and Black Caribbean babies (8.1 deaths per 1,000 live births).

11 . Most common cause of death for Asian babies born in 2014 was congenital anomalies

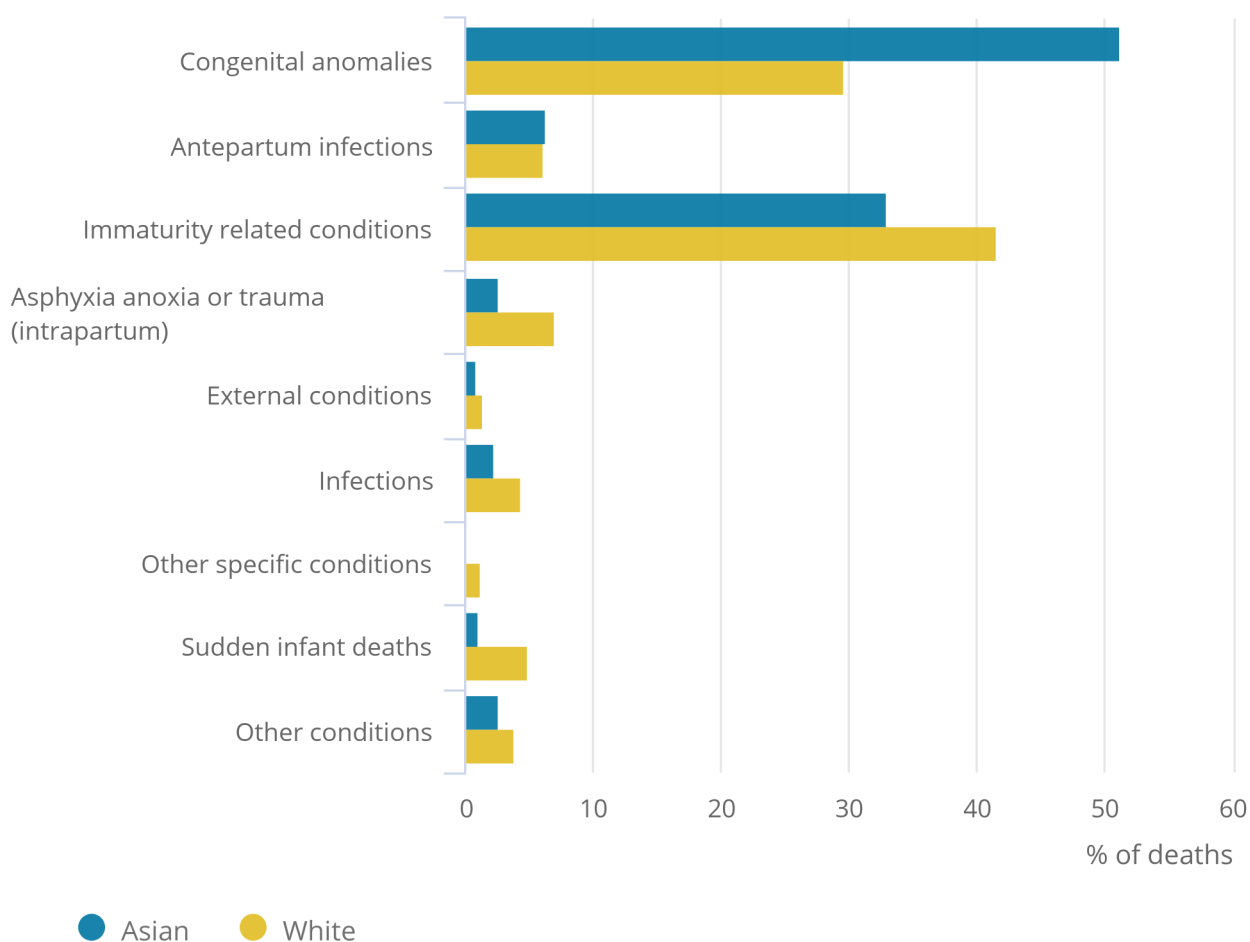
Using combined ethnic groups, the most common cause of death for White babies was immaturity related conditions, accounting for 41.5% of deaths. Babies born to mothers of Pakistani origin have [higher risk of congenital anomalies](#) such as [congenital heart defects](#). This is reflected in 2014, where congenital anomalies accounted for 51.2% of deaths of Asian babies, making it the most common cause of death (Figure 5).

Figure 5: Percentage of infant deaths to White and Asian babies by ONS cause groups, babies born in 2014

England and Wales

Figure 5: Percentage of infant deaths to White and Asian babies by ONS cause groups, babies born in 2014

England and Wales



Source: Office for National Statistics

Source: Office for National Statistics

Notes:

1. Baby's ethnicity as stated by the mother.
2. Please see the [User guide to child mortality statistics](#) for more information on ONS cause groups.

12 . Proposed changes to annual infant mortality statistics

We currently publish annual infant mortality statistics for England and Wales in a number of main outputs:

- [Childhood mortality in England and Wales](#) (includes some UK figures)
- [Birth cohort tables for infant deaths, England and Wales](#)
- [Pregnancy and ethnic factors influencing births and infant mortality, England and Wales, England \(only\) and Wales \(only\)](#)
- [Unexplained deaths in infancy, England and Wales](#)
- [Deaths registration summary tables for England and Wales](#)
- [Deaths registered in England and Wales \(Series DR\)](#)

The release of these outputs varies depending on timing of the extracts used and the availability of final data from Scotland and Northern Ireland to compile UK data.

To ensure the publication of more timely and fit for purpose final figures, we are proposing to change the extracts used in the creation of the publications; this will streamline the outputs and ensure users have the most suitable cross-tabulations available to them.

Consideration also needs to be given to the content of the future releases to ensure they meet user needs, are in line with disclosure control guidance and provide a sufficient level of information to inform decisions. Your feedback is encouraged.

For more information on the proposal please see the [consultation document](#).

The consultation ends on Thursday 29 June 2017.

13 . Links to related statistics

More data on [child mortality in England and Wales](#) 2015, [birth cohort tables for infant deaths England and Wales](#) 2014 and [pregnancy and ethnic factors influencing births and infant mortality \(previously called Gestation-specific infant mortality\)](#) 2014 are available on our website.

[Unexplained deaths in infancy](#) includes both sudden infant deaths and deaths for which the cause remained unknown or unascertained.

More data on [births](#) and [deaths](#) (based on deaths registered in a calendar year) in England and Wales in 2015 are available on our website.

For infant mortality data for other UK countries (based on registrations) please see [the latest infant death statistics for Northern Ireland](#) and the [latest infant death statistics for Scotland](#).

The number of infant deaths and rates (based on deaths registered in a calendar year) for the UK and constituent countries can be found in the [Vital Statistics: Population and Health Reference Tables](#).

14 . Quality and methodology

1. 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
2. This is the first time that annual child and infant mortality figures based on deaths that occurred in the reference year have been published for 2015. We also publish infant mortality statistics according to the year in which the death was registered, which may differ to those based on the year the death occurred. Figures based on date of registration provide more timely infant mortality statistics.
3. 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.
4. The [Child mortality Quality and Methodology Information](#) document contains important information on:
 - the strengths and limitations of the data
 - the quality of the output: including the accuracy of the data and how it compares with related data
 - uses and users
 - how the output was created
5. Our [User Guide to Child Mortality Statistics](#) provides further information on data quality, legislation and procedures relating to mortality and includes a glossary of terms.
6. Linking infant deaths to their corresponding birth registration improves our understanding of the main characteristics of the baby and the baby's parents (these include the baby's birthweight; mother's age; mother's country of birth; parent's socio-economic classification; and the number of previous children). In 2015, there were 98.2% of infant deaths in England and Wales successfully linked to their birth registration record. The linkage rate has remained consistent since the linking exercise began. The main reasons for an infant death not being linked are either; a birth registration record cannot be found, or the birth was registered outside England and Wales.
7. Deaths are cause-coded using the World Health Organization's (WHO) International Classification of Diseases (ICD). Deaths are coded to ICD-10 using [IRIS](#) software (version 2013). Cause of death reported here represents the final underlying cause of death for ages 28 days and over. This takes account of additional information received from medical practitioners or coroners after the death has been registered. In England and Wales, stillbirths and neonatal deaths are registered using a special death certificate, which enables reporting of relevant diseases or conditions in both the infant and the mother. ONS have developed a hierarchical classification system in ICD-10 to produce broad cause groups that enable direct comparison of neonatal and postneonatal deaths. More information on neonatal cause of death certificates can be found in the [User Guide to Child Mortality Statistics](#).

8. The data extract for the [pregnancy and ethnic factors influencing births and infant deaths](#) tables was taken on 14 July 2016. We take the extract at this (late) date to ensure we have information on as many deaths occurring within the 2014 birth cohort as possible. There is a small risk that some deaths will not be registered at this time. These tables are based on birth registration data for births occurring in 2014. The electronic NHS birth notification system comprises a small set of data recorded at the time of birth, including gestational age and ethnicity. Birth registration records are linked to birth notifications records using a unique sequence number where possible, and by probabilistic matching for a small number of cases. This is the first time that annual birth cohort linked to birth notifications and death registrations have been published for 2014.