

# Impact of registration delays on mortality statistics: 2016

An analysis of the time taken to register deaths, by cause of death, by area of usual residence and for infant deaths.

Contact:  
Vasita Patel  
vsob@ons.gov.uk  
+44 (0)1329 444110

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# 1 . Main points

- Between 2011 and 2016 there has been a decrease in the timeliness of death registration; 2011 was the last registration year this analysis was carried out for.
- In 2016, 95.6% of deaths occurred in the same year that the death was registered, compared with 95.7% in 2011.
- In 2016, 61.2% of deaths were registered within five days of the death, compared with 77.7% in 2011.
- In 2016, 75.4% of deaths to cancers were registered within five days of the death, compared with 88.3% in 2011.
- In 2016, 7.1% of deaths to external causes of morbidity and mortality were registered within five days of the death, compared with 13.0% in 2011.
- In 2016, Wales had the highest percentage (71.9%) of deaths registered within five days, followed by the North West at 70.6%; the lowest percentage was in the East of England, at 51.9%.

## 2 . How are deaths registered and mortality statistics produced?

The information used to produce mortality statistics is based on details collected when certified deaths are registered by informants with their local registration service. In England and Wales, deaths should be registered within five days of the death occurring, but there are some situations that result in the registration of the death being delayed.

Deaths considered unexpected, accidental or suspicious will be referred to a coroner who may order a post mortem or carry out a full inquest to ascertain the reasons for the death. The coroner can only register the death once any investigation is concluded and they are satisfied that the death has been thoroughly investigated with a correctly certified cause of death. The time taken to investigate the circumstances of the death can often result in a death registration exceeding the five-day period. While registration delays are commonly only a few days, they can occasionally extend into years.

Mortality statistics are usually presented based on the number of deaths registered in a particular period, rather than the number of deaths that actually occurred in that period. This method is used because there is a requirement for timely data, despite the potential limitation in completeness caused by registration delays.

Details of deaths are received by Office for National Statistics (ONS) from register offices electronically. Where the deceased was aged 28 days and over, the cause of death is automatically coded for around 80% of records using the International Statistical Classification of Diseases and Related Health Problems (ICD-10). The remainder of the records are manually coded to ICD-10 by experienced coders. Deaths that have been certified after an inquest are also manually coded, as the software cannot interpret the free text format used by coroners.

The ICD-10 is used to translate diagnoses of diseases and other health problems from words into an alphanumeric code to permit easier storage, retrieval and analysis. Our [User guide to mortality statistics](#) provides information on data quality, legislation and procedures relating to deaths. It also provides details of the ONS short list of cause of death codes, using ICD-10.

This article provides an overview of the impact of registration delays on data quality.

### **3 . How timely was death registration in 2016 and how has this changed since 2011?**

In 2016, there were 525,048 deaths registered in England and Wales. Of these, 95.6% of deaths occurred in the same calendar year that the death was registered ([Table 1](#)). This compares with 95.7% in 2011. However, the percentage of deaths that were registered within five days of the death occurring has decreased by 16.5 percentage points, from 77.7% in 2011 to 61.2% in 2016 ([Table 2](#)). One month after death, the difference in percentages was less marked (92.5% in 2016 compared with 94.0% in 2011) and after three months the percentages were similar (95.2% in 2016 compared with 95.4% in 2011).

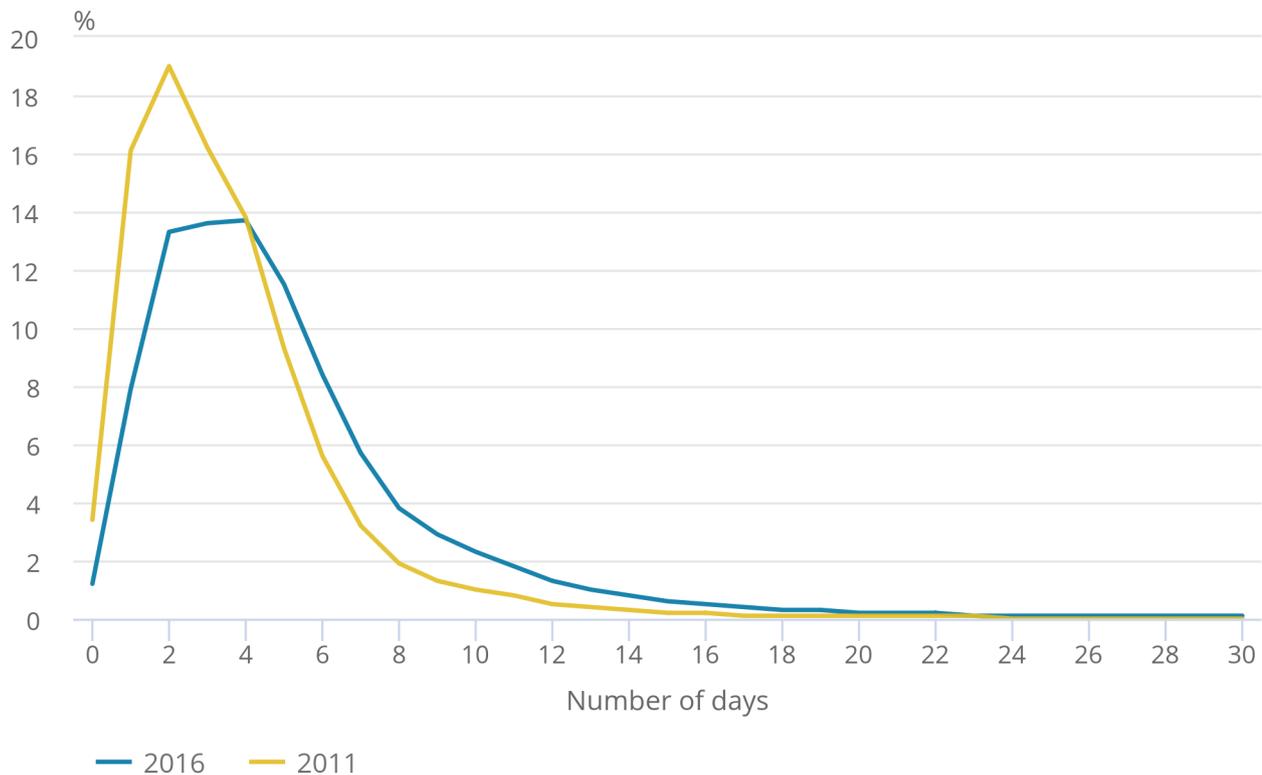
In England and Wales, deaths should be registered within five days. Figure 1 illustrates that the majority of deaths were registered within this five-day timeframe. But in 2016, days three and four were the most common days to register the death (13.6% and 13.7% respectively). Whereas in 2011, almost one-fifth (19.0%) of deaths were registered on the second day following the death.

**Figure 1: Percentage of deaths registered within the first month (30 days), 2011 and 2016**

England and Wales

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England and Wales



Source: Office for National Statistics

Notes:

1. Figures include deaths of non-residents.
2. Deaths that do not contain sufficient information to calculate the delay have been excluded from the analysis.

## 4 . How do registration delays differ by cause of death?

The length of the registration delay varies by the underlying cause of death, with 83.3% of deaths to diseases of the eye and adnexa (ICD-10 Chapter 7) and 75.4% of cancer deaths (ICD-10 Chapter 2) registered in 2016 being registered within five days. However, it should be noted that the number of deaths from diseases of the eye and adnexa is small when comparing percentages (12 deaths).

In comparison, only 9.1% of deaths caused by pregnancy, childbirth and the puerperium (ICD-10 Chapter 15), which also accounted for a small number of death registrations (44 deaths), and 7.1% of deaths caused by external causes of morbidity and mortality (ICD-10 Chapter 20) were registered within five days.

In 2011, 88.3% of cancer deaths (ICD-10 Chapter 2) were registered within five days, whereas for deaths caused by external causes of morbidity and mortality (ICD-10 Chapter 20), this was 13.0%.

For most causes of death, the majority of deaths were registered within five days. However, registration for a small minority of deaths was delayed for long periods after they occurred. These delays have a disproportionate effect on the mean registrations delay period. As a result, the median registration delay is presented. For the majority of causes of death, the median registration delay was five days or fewer for deaths registered in 2016. The median registration delay was longest for deaths caused by land transport accidents (211 days) and lowest for some forms of cancers (three days) ([Table 3](#)).

## 5 . How do registration delays differ by region?

Wales had the highest percentage (71.9%) of deaths registered within five days, compared with the national average (61.2%). Of the regions in England, the North West (70.6%), Yorkshire and The Humber (70.2%), North East (69.2%), and London (65.6%) all had rates above the national average. The national average is displayed as England, Wales and elsewhere in Figure 2.

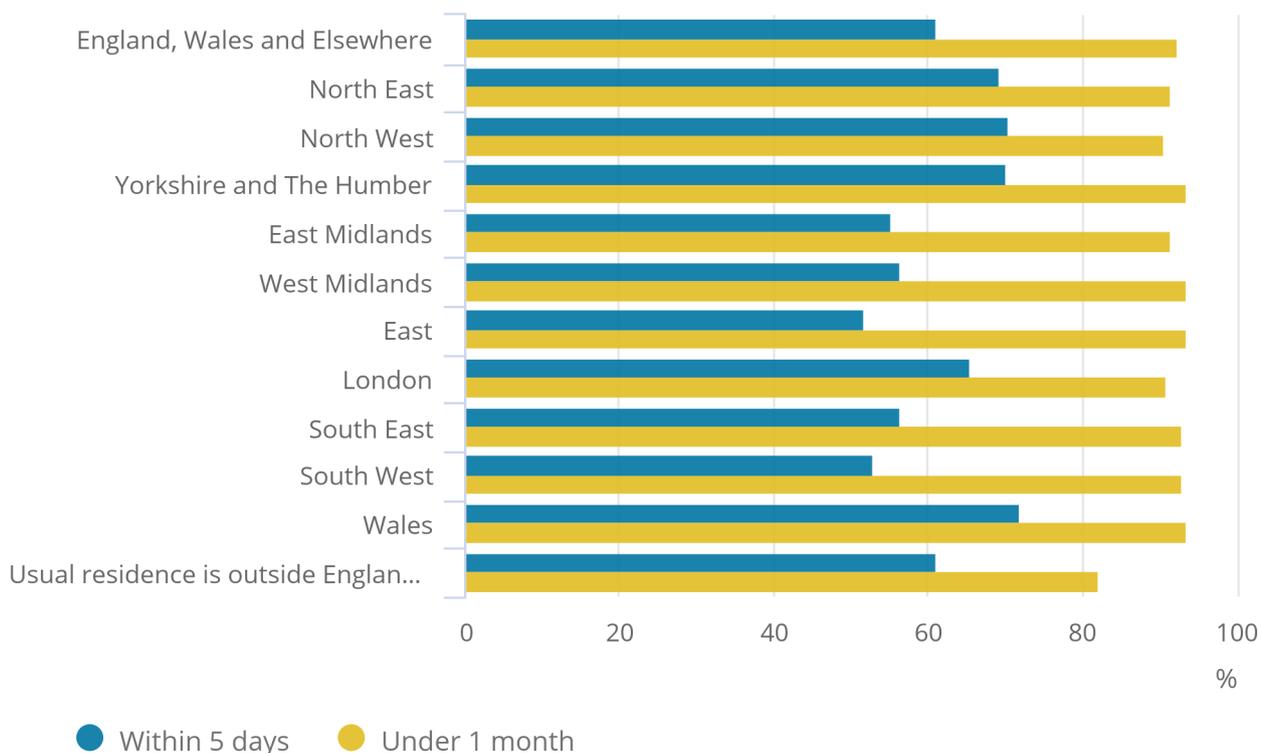
After one month, however, the West Midlands (93.7%), East (93.6%), Wales (93.5%), Yorkshire and The Humber (93.5%), South West (93.1%) and South East (93.0%) were above the national average (92.5%). A full list of delays by area of usual residence is published in [Table 5](#).

**Figure 2: Registration delay by area of usual residence, deaths registered in 2016**

England and Wales

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England and Wales



Source: Office for National Statistics

Notes:

1. Figures include deaths of non-residents.
2. Deaths that do not contain sufficient information to calculate the delay have been excluded from the analysis.

## 6 . How quickly are infant deaths registered?

In England and Wales, stillbirths and neonatal deaths (deaths under 28 days) are registered using a special [death certificate](#), which enables reporting of relevant diseases or conditions in both the mother and the infant.

In 2016, there were 1,929 registrations of neonatal deaths. Of these, 91.6% had occurred in 2016 ( [Table 5](#) ). The majority of deaths (53.2%) were registered within five days, with a further 32.5% being registered within the first month after death.

In 2016, there were 782 registrations of a postneonatal death (deaths between 28 days and 1 year). Of these, 76.2% had occurred in 2016. Less than half of the deaths (45.0%) were registered within five days, with a further 12.7% being registered within the first month after death. Many deaths were recorded some time after the death; 36.4% were recorded more than three months after the death had occurred and 5.9% of postneonatal deaths were recorded over one year after the death.

## **7 . What is the impact of registration delays on mortality statistics?**

The data presented in this article show that the majority of deaths in 2016 in England and Wales were registered within the required five-day registration period, with 92.5% being registered within one month of death.

Death statistics based on the registration year will provide an accurate and up-to-date picture of overall mortality trends and death occurrences. The same is true for specific causes of death, which have little or no registration delay. These are generally causes that rarely require an inquest, for example, cancers (ICD-10 Chapter 2).

But statistics and further research into specific causes or types of death, which typically show longer registration delays, should be interpreted more carefully. In particular, data on deaths from external causes are more likely to reflect a high proportion of delayed registrations. Analysing trends based on registration years for these causes will reflect instances of death registrations that occurred some time ago, and not include deaths that have occurred and are currently unregistered.

To account for this, we take an annual extract of death occurrences in the autumn following the data year, some seven months after the death registration extract is taken. This extra time allows for those deaths that have occurred but were not registered in that calendar year to be included for analysis. This dataset is used for seasonal analysis of mortality data and several infant mortality outputs. More information is available in Section 3 of the [User guide to mortality statistics](#).