

Statistical bulletin

# Deaths involving COVID-19 by local area and socioeconomic deprivation: deaths occurring between 1 March and 31 May 2020

Provisional counts of the number of deaths and age-standardised mortality rates involving the coronavirus (COVID-19) between 1 March and 31 May 2020 in England and Wales. Figures are provided by age, sex, geographies down to local authority level and deprivation indices.

Contact:  
Sarah Caul  
Health.Data@ons.gov.uk  
+44 (0)1633 456490

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# 1 . Main points

- There were 46,687 deaths occurring in England and Wales between 1 March and 31 May 2020 and registered by 6 June 2020 that involved the coronavirus (COVID-19); this represented a quarter (25.9%) of all deaths occurring over this period (180,586 deaths).
- Taking into account the size and age structure of the population, there were 81.2 deaths involving COVID-19 per 100,000 people in England and Wales over the period; this was 81.9 per 100,000 persons in England compared with 67.6 per 100,000 persons in Wales.
- Between March and May, London had the highest age-standardised mortality rate with 137.6 deaths involving COVID-19 per 100,000 persons; this was [statistically significantly](#) higher than any other region in England and more than a third higher than the region with the next highest rate.
- All English regions and Wales recorded an increase in age-standardised mortality rate involving COVID-19 between March and April, followed by a decrease in May; the mortality rate fell by more than a half in all but two regions between April and May and the greatest decrease was in London where the mortality rate fell by 83.3%.
- Nine of the ten local authorities with the highest age-standardised mortality rates for deaths involving COVID-19 over this period were London Boroughs; Brent had the highest overall age-standardised rate with 210.9 deaths per 100,000 population, followed by Newham (196.8 deaths per 100,000 population) and Hackney (182.9 deaths per 100,000 population).
- All local authorities in England and Wales recorded an increase in age-standardised mortality rates involving COVID-19 between March and April, followed by a decrease for most areas in May; the mortality rate fell by more than a half between April and May in two-thirds of local authorities and the greatest decrease was in Tower Hamlets where the rate fell by 92.5%.
- In England, the age-standardised mortality rate of deaths involving COVID-19 in the most deprived areas was 128.3 deaths per 100,000 population; this was more than double the mortality rate in the least deprived areas (58.8 deaths per 100,000).
- The most deprived areas in Wales had a mortality rate for deaths involving COVID-19 of 109.5 deaths per 100,000 population, nearly twice as high as in the least deprived areas (57.5 deaths per 100,000 population).

Rates used in this release have not been adjusted to take into account the period observed and therefore may differ to other rates published. More information can be found in the Measuring the Data section.

## Statistician's comment

“Although London had some of the highest COVID-19 mortality rates in the country during March and April, it is now experiencing lower mortality rates compared with most areas. During May, the region with the highest age-adjusted COVID-19 mortality rate was the North East, where the rate was double that of London. The South West region continued to have the lowest mortality rate overall and during each of the last three months.

“Meanwhile, people living in more deprived areas have continued to experience COVID-19 mortality rates more than double those living in less deprived areas. General mortality rates are normally higher in more deprived areas, but COVID-19 appears to be increasing this effect.”

Sarah Caul, Head of Mortality Analysis, Office for National Statistics

## 2 . Introduction

This bulletin contains analysis of all deaths that occurred in England and Wales between 1 March and 31 May 2020, registered up to 6 June 2020, where the coronavirus (COVID-19) was involved, focusing on differences between local areas. For this analysis, we use the term “involving COVID-19” when referring to deaths that had COVID-19 mentioned anywhere on the death certificate, whether an underlying cause or not.

The information used to produce these statistics is based on details collected when certified deaths are registered with the local registration office. In England and Wales, deaths should be registered within five days of the death occurring, but there are some situations (such as referral to a coroner) that result in later registration. Therefore, there are likely to be some deaths involving COVID-19 that occurred in the period 1 March to 31 May 2020 that are yet to be registered, meaning they will not be included in this analysis.

Figures on deaths published by the Office for National Statistics (ONS) differ from those produced by the Department of Health and Social Care (DHSC) and the UK's public health agencies for two main reasons: the time between death and reporting of the death and the ONS's wider inclusion criteria. The statement [The different uses of figures on deaths from COVID-19 published by DHSC and the ONS](#) helps to explain the differences.

Deaths involving COVID-19 are reported for each week in our [Deaths registered weekly in England and Wales provisional](#) release. The weekly numbers reported as "occurring" change over time, as more deaths are registered that happened in past weeks. Unlike most ONS publications on deaths, this bulletin is based on occurrence (date of death), not date of registration.

The following analysis looks at the number and age-standardised rates by different geographies and level of deprivation. There may be some interaction between geographies and level of deprivation, but this will need further investigation.

## 3 . Country and region

The numbers of deaths by country and region are published each week in our [Deaths registered weekly in England and Wales provisional](#) release.

The analysis in this report looks at deaths that occurred between 1 March and 31 May 2020 and uses age-standardised mortality rates to take into account the population and age structure of each area.

Between 1 March and 31 May 2020, there were 180,586 deaths occurring in England and Wales that were registered by 6 June; of these, 46,687 deaths involved COVID-19. When adjusting for size and age structure of the population, there were 81.2 deaths involving COVID-19 per 100,000 people in England and Wales in the time period; 81.9 deaths per 100,000 people in England and 67.6 deaths per 100,000 people in Wales.

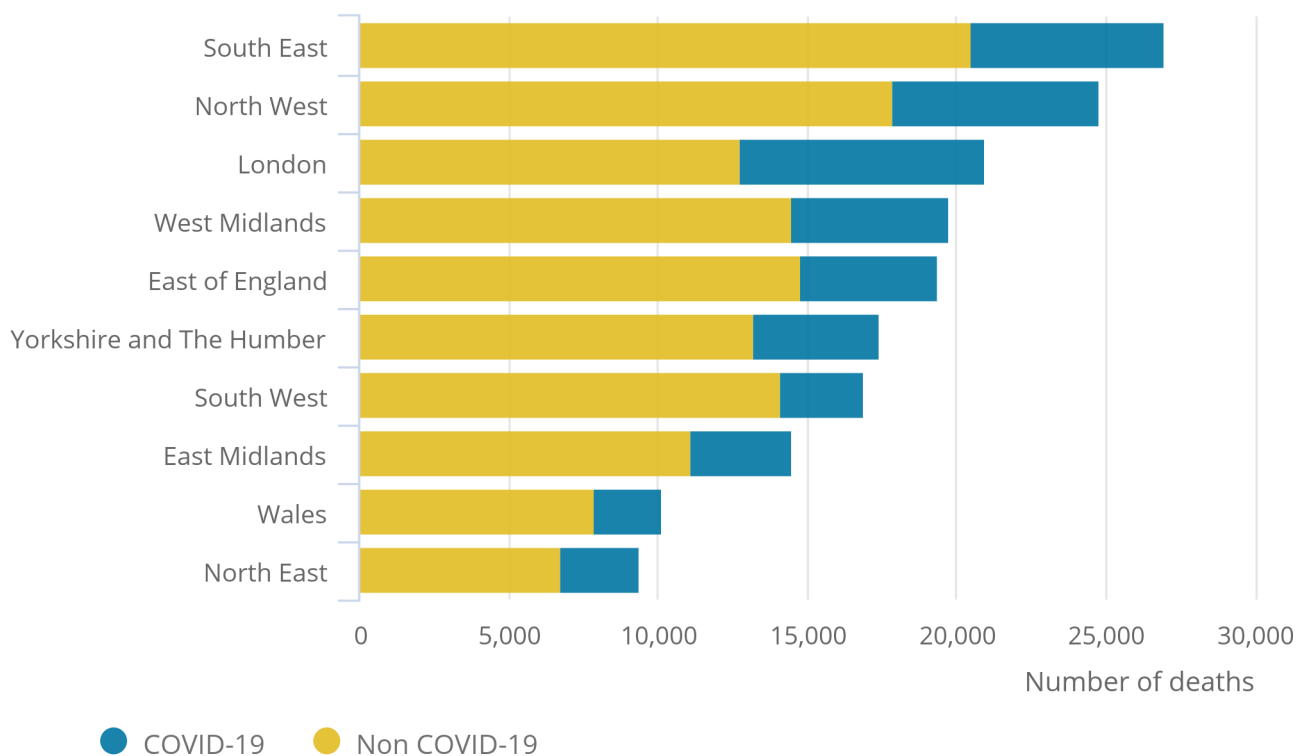
The age-standardised rate in England and Wales was 8.2 deaths involving COVID-19 per 100,000 population in March, 53.0 deaths per 100,000 population in April and 20.0 deaths per 100,000 population in May. As more deaths are registered the age-standardised rate is likely to increase, especially in May.

**Figure 1: London had the highest proportion of deaths involving the coronavirus (COVID-19) between March and May**

Number of deaths involving and not involving the coronavirus (COVID-19), Wales and regions of England, deaths occurring between 1 March and 31 May 2020

Figure 1: London had the highest proportion of deaths involving the coronavirus (COVID-19) between March and May

Number of deaths involving and not involving the coronavirus (COVID-19), Wales and regions of England, deaths occurring between 1 March and 31 May 2020



Source: Office for National Statistics – Deaths involving COVID-19

Notes:

1. Deaths occurring between 1 March 2020 and 31 May 2020 and registered by 6 June 2020.
2. Figures exclude death of non-residents and are based on May 2020 boundaries.
3. Coronavirus (COVID-19) was the underlying cause or was mentioned on the death certificate as a contributory factor (ICD-10 codes U07.1 and U07.2).
4. Figures are provisional.

Over this three-month period, the English region with the highest number of deaths occurring was the South East with 27,021 deaths; of these, 6,511 deaths involved COVID-19 (24.1% of deaths). The lowest number of deaths was in the North East with 9,388 deaths, of which 2,587 involved COVID-19 (27.6% of deaths).

The region with the highest proportion of deaths involving COVID-19 was London with 8,188, making up 39.1% of the 20,948 total deaths. The lowest proportion of deaths involving COVID-19 was in the South West with 2,718, making up 16.1% of the 16,885 total deaths.

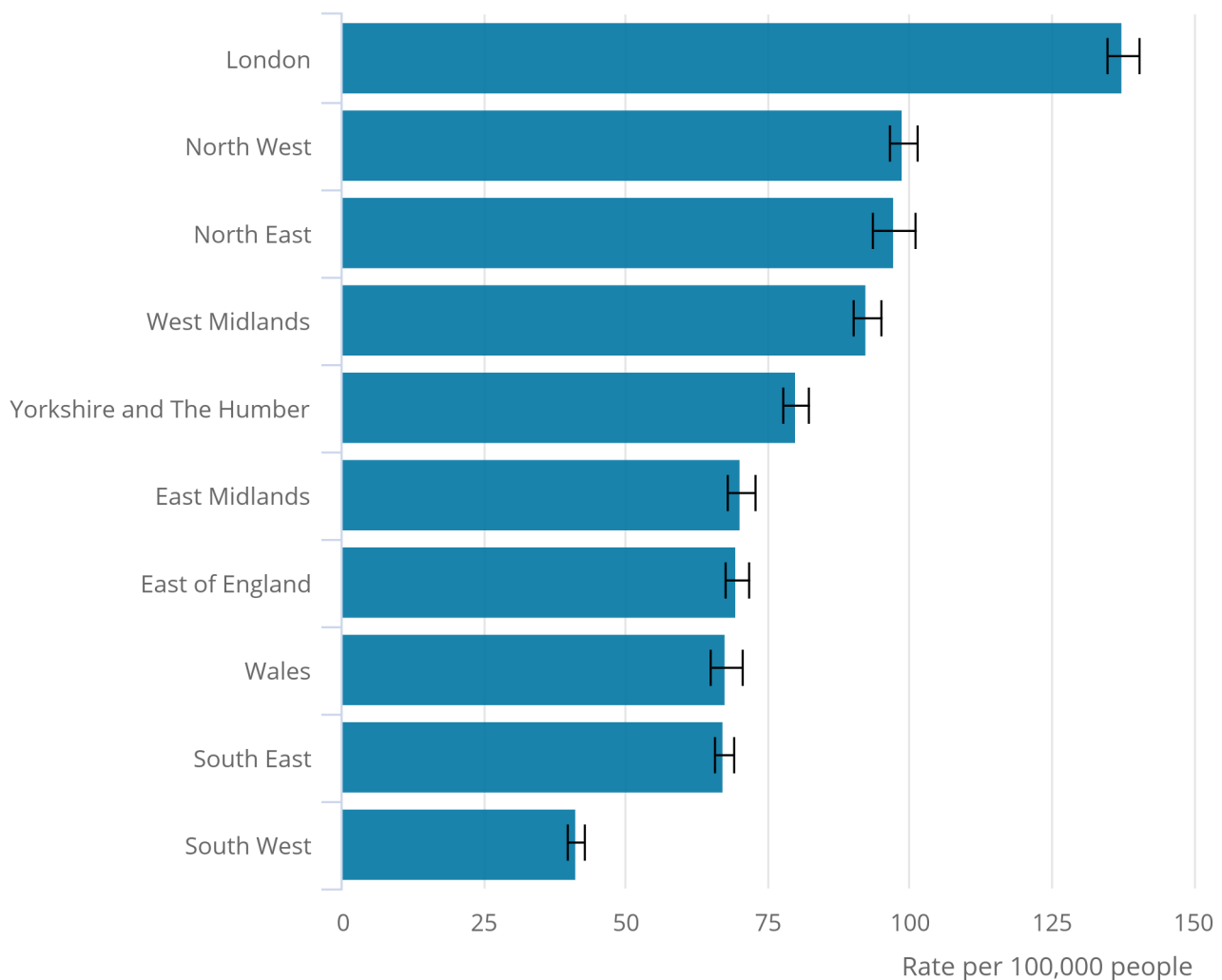
However, the lowest number of COVID-19 deaths was in Wales with 2,257 deaths, making up 22.2% of all deaths.

**Figure 2: London had the highest age-standardised mortality rate of deaths involving the coronavirus (COVID-19) between March and May**

Age-standardised mortality rates for deaths involving the coronavirus (COVID-19), per 100,000 population, English regions and Wales, deaths occurring between 1 March and 31 May 2020

Figure 2: London had the highest age-standardised mortality rate of deaths involving the coronavirus (COVID-19) between March and May

Age-standardised mortality rates for deaths involving the coronavirus (COVID-19), per 100,000 population, English regions and Wales, deaths occurring between 1 March and 31 May 2020



Notes:

1. Deaths occurring between 1 March 2020 and 31 May 2020 and registered by 6 June 2020.
2. Figures exclude death of non-residents and are based on May 2020 boundaries.
3. Coronavirus (COVID-19) was the underlying cause or was mentioned on the death certificate as a contributory factor (ICD-10 codes U07.1 and U07.2).
4. Rates have been standardised using European Standard Population 2013 (ESP 2013) and are expressed per 100,000 people.
5. Rates have not been adjusted to take into account the period of interest. They use the annual population as a base and may differ from rates presented in other publications.
6. Figures are provisional.

Between March and May 2020, London had the highest age-standardised mortality rate, with 137.6 deaths per 100,000 persons involving COVID-19. This was [statistically significantly](#) higher than any other English region or Wales, while the next highest rate of 98.9 deaths per 100,000 population was found in the North West. Conversely, the South West saw the lowest age-standardised mortality rate of 41.2 deaths per 100,000 population. This was [statistically significantly](#) lower than any other English region or Wales.

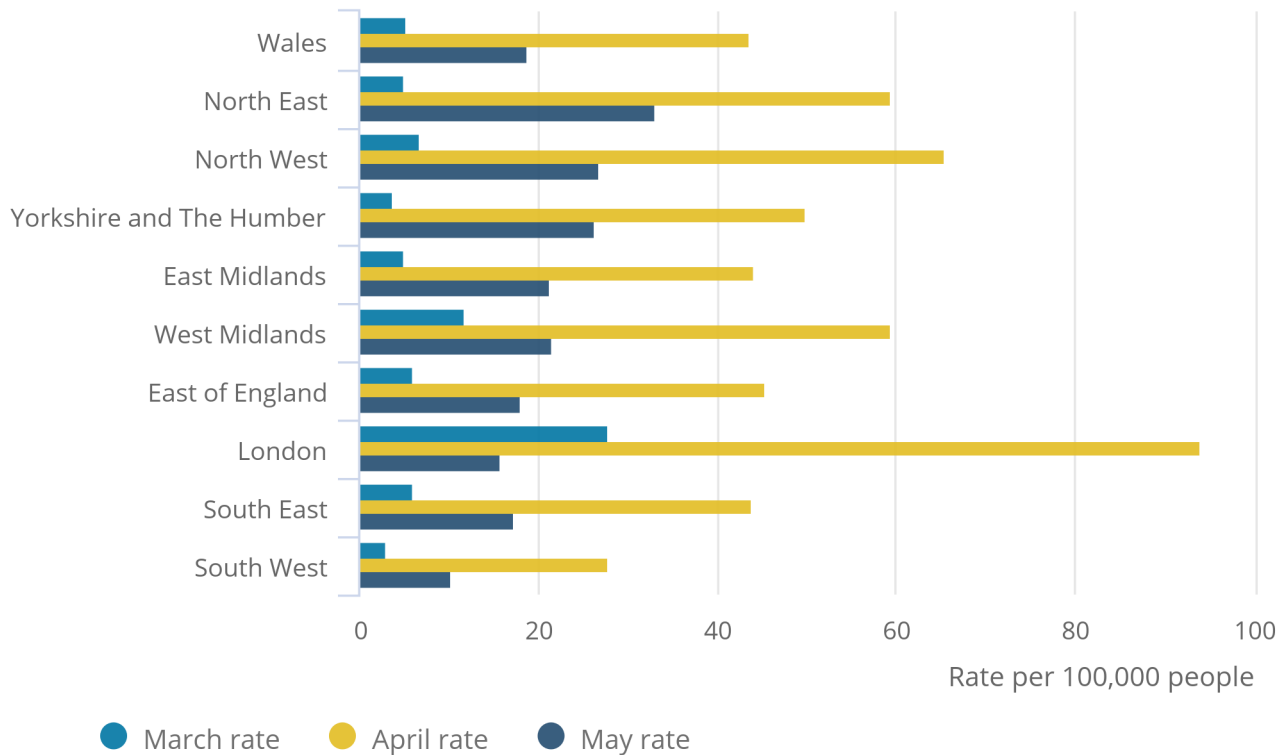
For all areas, males had a significantly higher mortality rate than females, except for the North East region in May. More information can be found in the [accompanying datasets](#).

**Figure 3: The age-standardised mortality rate of deaths involving the coronavirus (COVID-19) was highest in April for all English regions and Wales**

Age-standardised mortality rates for deaths involving the coronavirus (COVID-19), per 100,000 population, English regions and Wales, deaths occurring in March, April and May 2020

Figure 3: The age-standardised mortality rate of deaths involving the coronavirus (COVID-19) was highest in April for all English regions and Wales

Age-standardised mortality rates for deaths involving the coronavirus (COVID-19), per 100,000 population, English regions and Wales, deaths occurring in March, April and May 2020



Source: Office for National Statistics – Deaths involving COVID-19

Notes:

1. Deaths occurring in March, April and May 2020 and registered by 6 June 2020.
2. Figures exclude death of non-residents and are based on May 2020 boundaries.
3. Coronavirus (COVID-19) was the underlying cause or was mentioned on the death certificate as a contributory factor (ICD-10 codes U07.1 and U07.2).
4. Rates have been standardised using European Standard Population 2013 (ESP 2013) and are expressed per 100,000 people.
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6. Figures are provisional.

Looking at the age-standardised mortality rate for the individual months of March, April and May 2020, all regions in England, and Wales had the highest mortality rate in April. Except in London, the mortality rate in May was still higher than in March. Age-standardised rates will increase as more deaths are registered, especially in the more recent months of April and May.

## 4 . Local authorities

Along with our weekly provisional release for England and Wales, we publish [number of deaths by local authority and health board](#) by week and place of occurrence (hospital, home, care home, hospice, other communal establishment and elsewhere). The following analysis looks at age-standardised mortality rates of local authorities in England and Wales.

### **Figure 4: Age-standardised mortality rates for deaths from all causes and deaths involving the coronavirus (COVID-19), local authorities in England and Wales, deaths occurring between 1 March and 31 May 2020**

#### **Notes:**

1. Deaths occurring in between 1 March 2020 and 31 May 2020 and registered by 6 June 2020.
2. Figures exclude death of non-residents and are based on May 2020 boundaries.
3. Coronavirus (COVID-19) was the underlying cause or was mentioned on the death certificate as a contributory factor (ICD-10 codes U07.1 and U07.2).
4. Rates have been standardised using European Standard Population 2013 (ESP 2013) and are expressed per 100,000 people.
5. Rates have not been adjusted to take into account the period of interest. They use the annual population as a base and may differ from rates presented in other publications.
6. Figures are provisional.

[Download the data](#)

Figure 4 is a map of local authorities in England and Wales, showing age-standardised mortality rates for deaths involving the coronavirus (COVID-19) and all causes between March to May 2020.

Of the 33 London Boroughs, 26 had a [statistically significantly](#) higher age-standardised mortality rate than the England and Wales average. Nine out of the ten local authorities in England and Wales with the highest age-standardised mortality rates were all London Boroughs. The area with the highest overall age-standardised mortality rate involving COVID-19 in England and Wales was Brent, with a rate of 210.9 deaths per 100,000 population, followed by Newham with a rate of 196.8 deaths per 100,000 population and Hackney with a rate of 182.9 deaths per 100,000 population.

The non-London local authorities with the highest age-standardised mortality rates included Middlesbrough with an age-standardised mortality rate of 169.2 deaths per 100,000 population, Hertsmere with a rate of 161.6 deaths per 100,000 population and Salford with a rate of 159.9 deaths per 1000,000 population. These mortality rates were also [statistically significantly](#) higher than the England and Wales average.



The [accompanying datasets](#) provide a gender breakdown. For males, the areas with the highest mortality rates involving COVID-19 over this period were Brent, Newham and Haringey, and 17 of the 20 local authorities with the highest rates were also London Boroughs. For females, Brent, Middlesbrough and Hertsmere had the highest rates and 13 of the 20 highest local authority mortality rates were in London Boroughs.

Looking at age-standardised mortality rates each month during this period, many of the highest mortality rates in March and April were in London Boroughs. In May, however, areas in London ceased to have the highest mortality rates; the London Borough with the highest mortality rate in May ranked only 96th among all local authorities in England and Wales.

The local authority with the highest mortality rate involving COVID-19 in May was Preston with a rate of 51.1 deaths per 100,000 people.

## **5 . Local Health Boards in Wales**

As well as local authorities, Wales also has seven Local Health Boards.

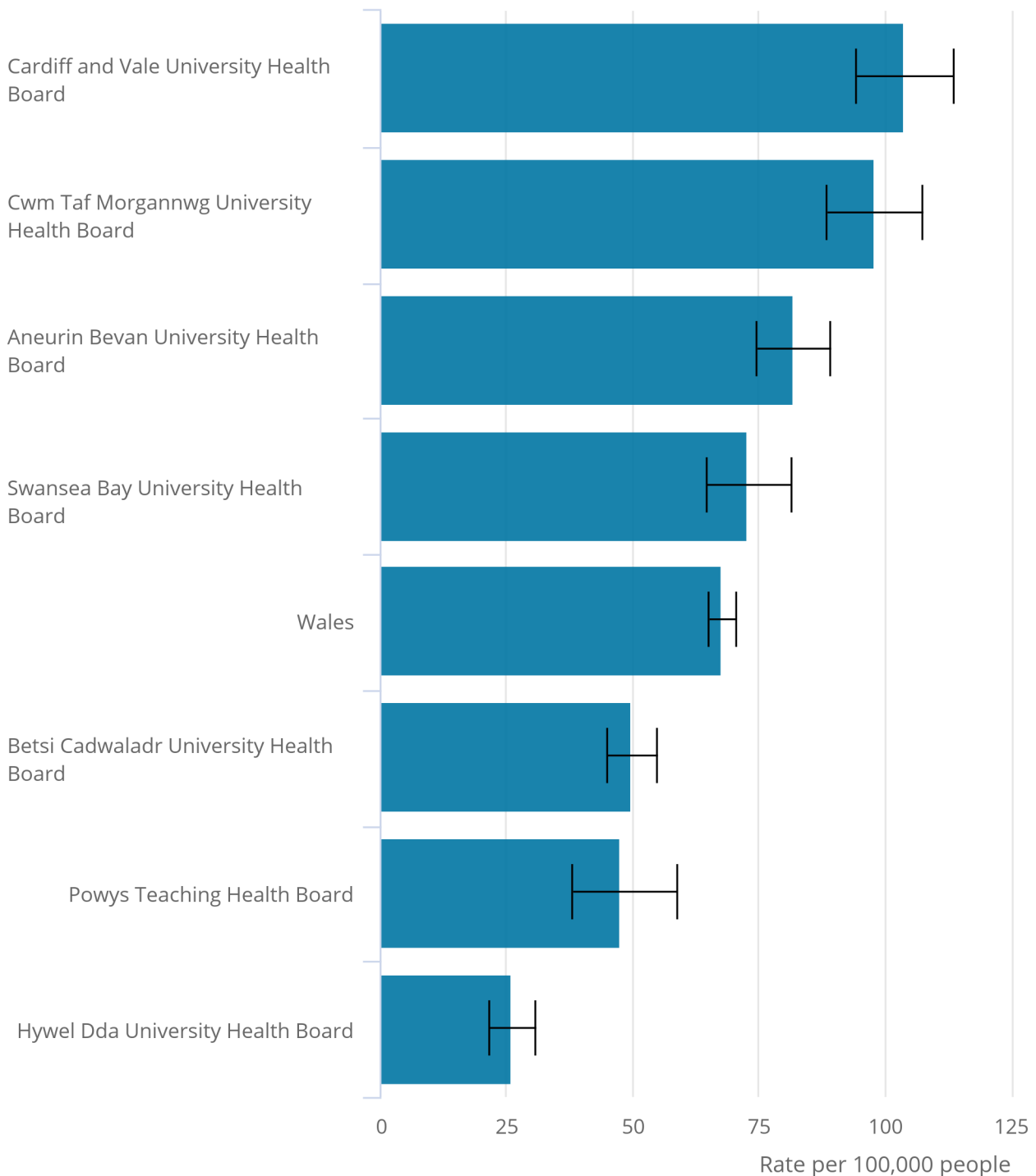


**Figure 5: Hywel Dda University Health Board had the lowest age-standardised mortality rate of deaths involving the coronavirus (COVID-19) in Wales**

Age-standardised mortality rates of deaths involving the coronavirus (COVID-19), Health Boards in Wales, deaths occurring between 1 March and 31 May 2020

# Figure 5: Hywel Dda University Health Board had the lowest age-standardised mortality rate of deaths involving the coronavirus (COVID-19) in Wales

Age-standardised mortality rates of deaths involving the coronavirus (COVID-19), Health Boards in Wales, deaths occurring between 1 March and 31 May 2020



Notes:

1. Deaths occurring between 1 March 2020 and 31 May 2020 and registered by 6 June 2020.
2. Figures exclude death of non-residents and are based on May 2020 boundaries.
3. Coronavirus (COVID-19) was the underlying cause or was mentioned on the death certificate as a contributory factor (ICD-10 codes U07.1 and U07.2).
4. Rates have been standardised using European Standard Population 2013 (ESP 2013) and are expressed per 100,000 people.
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6. Figures are provisional.

The three highest age-standardised mortality rates of deaths involving the coronavirus (COVID-19) were all [statistically significantly](#) higher than the overall Wales rate (67.6 deaths per 100,000 population). They were Cardiff and Vale University Health Board with 103.8 deaths per 100,000 population; Cwm Taf Morgannwg University Health Board with 97.8 deaths per 100,000 population; and Aneurin Bevan University Health Board with 81.8 deaths per 100,000 population.

The lowest age-standardised mortality rate for deaths involving COVID-19 was in Hywel Dda University Health Board with 25.9 deaths per 100,000 population, which was statistically significantly lower than the overall Wales rate and all local health boards.

## 6 . Middle Layer Super Output Areas

Super Output Areas are a small area statistical geography covering England and Wales. Each area has a similarly sized population and remains stable over time. For this analysis, Middle Layer Super Output Areas have been used. The [accompanying datasets](#) show the number of all deaths as well as deaths involving the coronavirus (COVID-19).

The following interactive map allows you to see the cumulative number of monthly deaths involving COVID-19 in each area.

**Figure 6: Number of deaths involving COVID-19 in Middle Layer Super Output Areas, England and Wales, deaths occurring between 1 March and 31 May 2020**

## 7 . Rural and urban areas

The [Rural Urban Classification for England and Wales](#) is used to distinguish rural and urban areas of different housing sparsity and location for analytical and policy purposes. Areas with 10,000 resident population or more are defined as urban; urban areas are split into major conurbations, minor conurbations, and city and town categories. Rural areas are split between town and fringe, village, and hamlets and isolated dwellings.

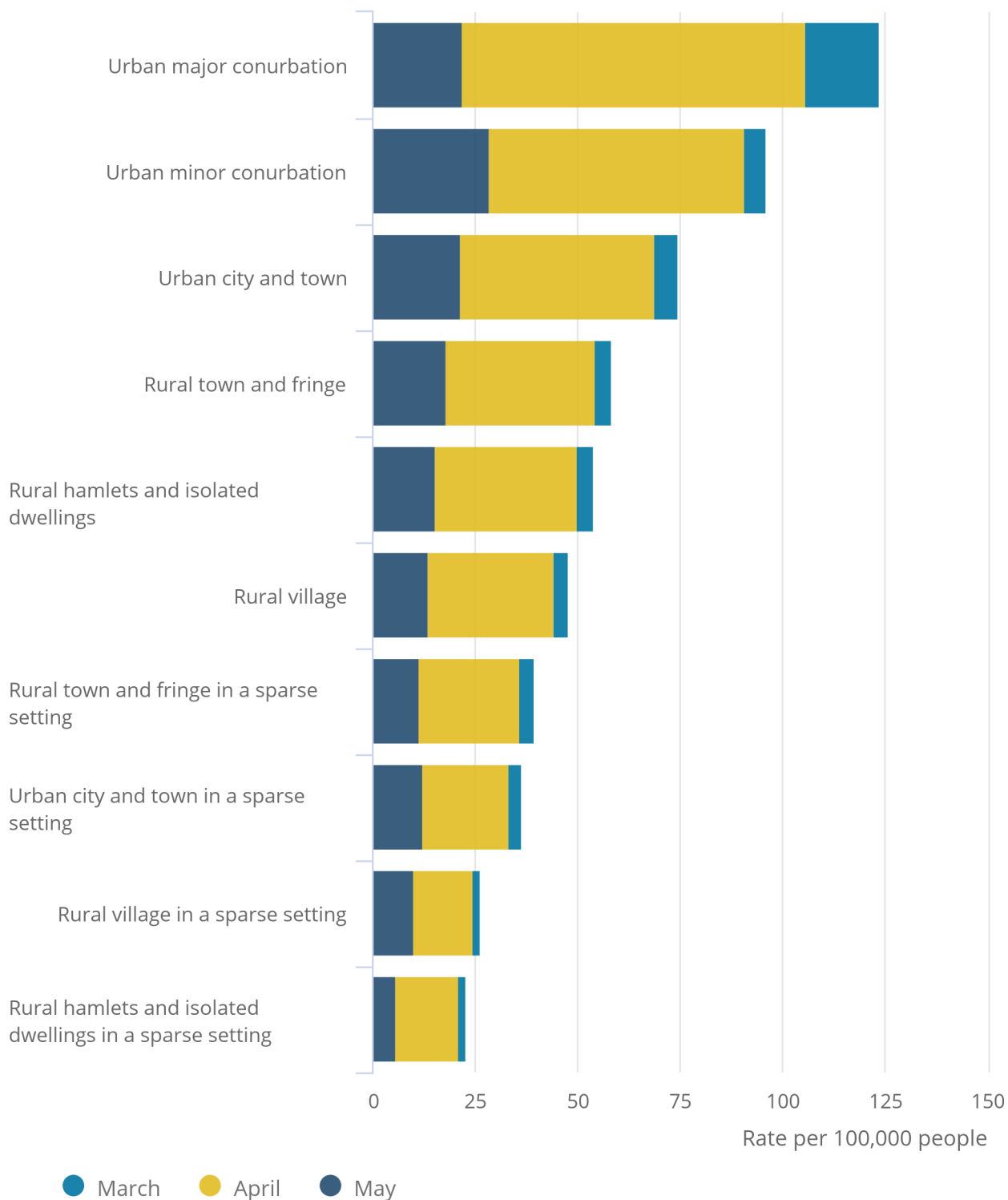


**Figure 7: Urban major conurbation had a significantly higher age-standardised mortality rate of deaths involving the coronavirus (COVID-19) than any other Rural Urban Classification**

Age-standardised mortality rate of deaths involving the coronavirus (COVID-19), Urban Rural Classification, deaths occurring between 1 March and 31 May 2020

Figure 7: Urban major conurbation had a significantly higher age-standardised mortality rate of deaths involving the coronavirus (COVID-19) than any other Rural Urban Classification

Age-standardised mortality rate of deaths involving the coronavirus (COVID-19), Urban Rural Classification, deaths occurring between 1 March and 31 May 2020





Notes:

1. Deaths occurring between 1 March 2020 and 31 May 2020 and registered by 6 June 2020.
2. Figures exclude death of non-residents and are based on May 2020 boundaries.
3. Coronavirus (COVID-19) was the underlying cause or was mentioned on the death certificate as a contributory factor (ICD-10 codes U07.1 and U07.2).
4. Rates have been standardised using European Standard Population 2013 (ESP 2013) and are expressed per 100,000 people.
5. Rates have not been adjusted to take into account the period of interest. They use the annual population as a base and may differ from rates presented in other publications.
6. Figures are provisional.

The highest age-standardised mortality rate involving the coronavirus (COVID-19) was in urban major conurbations, with 123.5 deaths per 100,000 population, [statistically significantly](#) higher than all other categories. The next two highest rates were also [statistically significantly](#) different to all other categories: urban minor conurbations had 96.1 deaths per 100,000 population, and urban cities and towns had 74.4 deaths per 100,000 population. The lowest rates were all found in sparse settings; rural hamlets and isolated dwellings in a sparse setting had the lowest age-standardised mortality rate at 22.2 deaths per 100,000 population.

For all areas, the age-standardised mortality rate involving the coronavirus (COVID-19) decreased in May compared with April. The largest decrease was seen in urban major conurbations which fell by 73.9% from 84.0 deaths per 100,000 population in April to 21.9 deaths per 100,000 population in May.

"Major towns and cities" is a statistical geography created to provide comparable definitions of the major towns and cities in England and Wales, excluding London. This definition has been developed specifically for the production and analysis of statistics. The aim is to provide a precise definition, with a focus on the "core" built-up area of a town or city rather than its surrounding area. It should be noted that in this geography, the boundaries do not follow administrative areas; instead, they are defined to cover the built-up area of each town or city.

Of the 111 major towns and cities (excluding London), the highest age-standardised mortality rate of deaths involving COVID-19 was in Salford, with a rate of 199.6 deaths per 100,000 population. The lowest rate was 8.9 deaths per 100,000 population in Hastings.

## 8 . Travel To Work Areas

Travel To Work Areas (TTWAs) are a geography created to approximate labour market areas. In other words, they are derived to reflect self-contained areas in which most people both live and work. TTWAs have been developed so that relatively few commuters cross a TTWA boundary on their way to work. As such, TTWAs are based on statistical analysis rather than administrative boundaries.

Similar to previous geography breakdowns discussed in this report, London has the highest rate of deaths involving COVID-19 in March (26.8 deaths per 100,000 population) but has a comparatively low age-standardised rate in May (16.1 deaths per 100,000 population). The highest age-standardised mortality rates involving COVID-19 for May occurred in Hartlepool (49.9 deaths per 100,000 population), Durham and Bishop Auckland (45.0 deaths per 100,000) and Bridlington (43.4 deaths per 100,000); in March, these three areas were in the middle of the TTWAs ranking.

Information on all 173 TTWAs can be found in our [accompanying datasets](#).

## 9 . English Index of Multiple Deprivation

The Index of Multiple Deprivation (IMD) is an overall measure of deprivation based on factors such as income, employment, health, education, crime, the living environment and access to housing within an area. There are different measurements for England and Wales, which are not directly comparable.

### **Figure 8: The coronavirus (COVID-19) has had a proportionally higher impact on the most deprived areas of England**

Age-standardised mortality rates, all deaths and deaths involving the coronavirus (COVID-19), Index of Multiple Deprivation, England, deaths occurring between 1 March and 31 May 2020

#### **Notes:**

1. Deaths occurring between 1 March 2020 and 31 May 2020 and registered by 6 June 2020.
2. Figures exclude death of non-residents and are based on May 2020 boundaries.
3. Coronavirus (COVID-19) was the underlying cause or was mentioned on the death certificate as a contributory factor (ICD-10 codes U07.1 and U07.2).
4. Rates have been standardised using European Standard Population 2013 (ESP 2013) and are expressed per 100,000 people.
5. Deprivation quintiles are based on the English Index of Multiple Deprivation, version 2019.
6. Figures are provisional.

[Download the data](#)

Looking at deaths involving the coronavirus (COVID-19), in England, the rate for the least deprived area (Decile 10) was 58.8 deaths per 100,000 population and the rate in the most deprived area (Decile 1) was 128.3 deaths per 100,000 population; this is 118% higher than the least deprived area. In the least deprived area, the age-standardised mortality rate for all deaths was 242.6 deaths per 100,000 population. In the most deprived area, the age-standardised mortality rate for all deaths was 92.2% higher than that of the least deprived, at 466.2 deaths per 100,000 population.

Figure 8 shows how much higher the age-standardised mortality rate is for each decile compared with the least deprived decile for all deaths and deaths involving COVID-19. For Deciles 4 to 9, the percentage increase in age-standardised mortality rate of deaths involving COVID-19 is similar to that of overall deaths. However, the percentage increases for the most deprived Deciles (1 to 3) are proportionally worse for deaths involving COVID-19 than for overall deaths.

Looking across geographies and the IMD, Figure 7 shows that Urban Conurbations areas have a higher mortality rate involving COVID-19 compared with other rural or urban classifications, these urban conurbations areas also make up a larger proportion of the most deprived area compared to other classifications.

## **10 . Welsh Index of Multiple Deprivation**

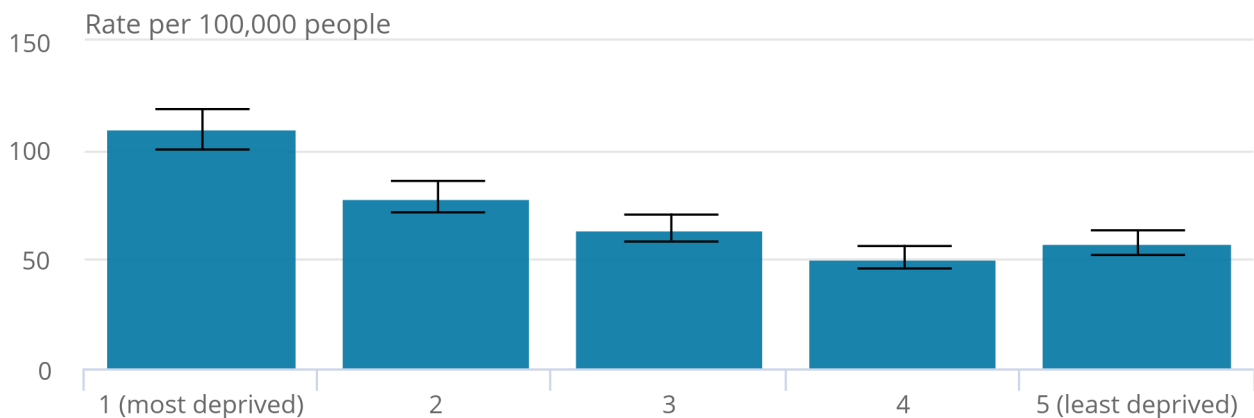
The Index of Multiple Deprivation (IMD) is an overall measure of deprivation based on factors such as income, employment, health, education, crime, the living environment and access to housing within an area. There are different measurements for England and Wales, which are not directly comparable.

**Figure 9: The age-standardised COVID-19 mortality rate in the most deprived areas was nearly twice as high as that in the least deprived areas**

Age-standardised mortality rates, all deaths and deaths involving the coronavirus (COVID-19), Index of Multiple Deprivation, Wales, deaths occurring between 1 March and 31 May 2020

Figure 9: The age-standardised COVID-19 mortality rate in the most deprived areas was nearly twice as high as that in the least deprived areas

Age-standardised mortality rates, all deaths and deaths involving the coronavirus (COVID-19), Index of Multiple Deprivation, Wales, deaths occurring between 1 March and 31 May 2020



Source: Office for National Statistics – Deaths involving COVID-19

Notes:

1. Deaths occurring between 1 March 2020 and 31 May 2020 and registered by 6 June 2020.
2. Figures exclude death of non-residents and are based on May 2020 boundaries.
3. Coronavirus (COVID-19) was the underlying cause or was mentioned on the death certificate as a contributory factor (ICD-10 codes U07.1 and U07.2).
4. Rates have been standardised using European Standard Population 2013 (ESP 2013) and are expressed per 100,000 people.
5. Deprivation quintiles are based on the Welsh Index of Multiple Deprivation, version 2019 (WIMD 2019).
6. Rates have not been adjusted to take into account the period of interest. They use the annual population as a base and may differ from rates presented in other publications.
7. Figures are provisional.

The most deprived fifth of areas (quintile) in Wales had a rate of 109.5 deaths involving the coronavirus (COVID-19) per 100,000 population; this was nearly twice as high as the least deprived areas (57.5 deaths per 100,000 population) and over twice as high as the lowest mortality rate in Quintile 4 (50.5 deaths per 100,000 population).

The increase in mortality rate in Quintile 5 compared with Quintile 4 is not found when looking at overall mortality (this is provided in the [datasets](#)). Care should be taken when comparing this increase because of the wide [confidence intervals](#).

## 11 . Analysis of deaths involving COVID-19 data

[Deaths involving COVID-19 by local area and deprivation](#)

Dataset | Released 12 June 2020

Provisional counts of the number of deaths and age-standardised mortality rates involving the coronavirus (COVID-19) between 1 March and 31 May 2020 in England and Wales. Figures are provided by age, sex, geographies down to local authority level and deprivation indices.

## 12 . Glossary

### Age-standardised mortality rates

Age-standardised mortality rates are used to allow comparisons between populations that may contain different proportions of people of different ages. The 2013 European Standard Population is used to standardise rates.

### Coronaviruses

The World Health Organization (WHO) defines [coronaviruses](#) as "a large family of viruses that are known to cause illness ranging from the common cold to more severe diseases such as Middle East Respiratory Syndrome (MERS) and Severe Acute Respiratory Syndrome (SARS)". Between 2001 and 2018, there were 12 deaths in England and Wales due to a coronavirus infection, with a further 13 deaths mentioning the virus as a contributory factor on the death certificate.

### Coronavirus (COVID-19)

COVID-19 refers to the "coronavirus disease 2019" and is a disease that can affect the lungs and airways. It is caused by a type of coronavirus. [Further information](#) is available from the WHO.

### Statistical significance

The term "significant" refers to statistically significant changes or differences. Significance has been determined using the 95% confidence intervals, where instances of non-overlapping confidence intervals between estimates indicate the difference is unlikely to have arisen from random fluctuation. In some circumstances, significance has also been tested using z scores. More information about this z test is available in Appendix 1 of the [Sullivan guide](#).

## 95% confidence intervals

A confidence interval is a measure of the uncertainty around a specific estimate. If a confidence interval is 95%, it is expected that the interval will contain the true value on 95 occasions if repeated 100 times. As intervals around estimates widen, the level of uncertainty about where the true value lies increases. The size of the interval around the estimate is strongly related to the number of deaths, prevalence of health states and size of the underlying population. At a national level, the overall level of error will be small compared with the error associated with a local area or a specific age and sex breakdown. Therefore, the widths of the confidence intervals reported in this release will have sizable differences.

## 13 . Measuring the data

More quality and methodology information on strengths, limitations, appropriate uses, and how the data were created is available in the [Mortality statistics in England and Wales QMI](#).

To meet user needs, we are providing more information alongside our usual [Deaths registered monthly in England and Wales](#) dataset. This information is presented by sex and age group. We are also providing age-standardised mortality rates and age-specific mortality rates for recent time periods and breakdowns of deaths involving the coronavirus (COVID-19) by associated pre-existing health conditions.

Rates calculated in this report use the annual population as a base. This will differ from other publications such as [Deaths involving COVID-19, England and Wales](#) which adjusts the populations to take into account the length of time observed and therefore produces a higher rate as the rate is effectively annualised. As population projections and 2019 Mid-year population estimates are not available for Lower Super Output Areas (which are needed to aggregate to Index of Multiple Deprivation and some other geographic areas presented in this report) we are unable to annualise the rates. We have therefore used 2018 mid-year population estimates throughout, except for the calculation of rates at country, region and local authority level where we have used 2019 Mid-year population estimates.

These figures are different from the daily surveillance figures on COVID-19 deaths published by the Department of Health and Social Care (DHSC) on the [GOV.UK](#) website for the UK as a whole and its constituent countries. Figures in this report are derived from the formal process of death registration and may include cases where the doctor completing the death certificate diagnosed possible cases of COVID-19, for example, where this was based on relevant symptoms but no test for the virus was conducted. Our figures also include any deaths that occur outside hospital.

In contrast to the GOV.UK figures, we include only deaths registered in England and Wales, which is the legal remit of the Office for National Statistics (ONS). Table 1 provides an overview of the differences in definitions between sources.

Table 1: Definitions of coronavirus (COVID-19) deaths between different sources

	<b>DHSC COVID-19</b>	<b>ONS COVID-19</b>	<b>ONS COVID-19</b>	<b>NHS England</b>
	(as published on GOV.UK)	deaths registered	death occurrence (actual date of death)	
<b>Coverage</b>	UK (however, we only include England and Wales breakdowns for comparable coverage with ONS data)	Registrations in England and Wales	Registrations in England and Wales	England
		In discussions with devolved nations to create UK estimates in the near future	In discussions with devolved nations to create UK estimates in the near future	
<b>Inclusion</b>	Deaths in hospitals	Any place of death, including nursing homes	Any place of death, including nursing homes	Deaths in hospitals
	Deaths where patient has been tested for COVID-19	Deaths where COVID-19 has been mentioned on the death certificate	Deaths where COVID-19 has been mentioned on the death certificate	Deaths where patient has been tested for COVID-19
<b>Timeliness</b>	Provided daily but not officially registered. Data are provided to NHS-E directly by hospitals	Weekly registrations are 11 days behind because of the time taken to register, process and publish	Weekly registrations are 11 days behind because of the time taken to register, process and publish	Updated daily for each date of death

Source: Office for National Statistics – Deaths involving COVID-19

There is usually a delay of at least five days between occurrence and registration. More information on this issue can be found in our [impact of registration delays release](#).

Our [User guide to mortality statistics](#) provides further information on data quality, legislation and procedures relating to mortality and includes a [glossary of terms](#).

## 14 . Strengths and limitations

Figures are based on the date the death occurred, not when it was registered. There is usually a delay of at least five days between occurrence and registration, so there may be some deaths that occurred in March that are not yet registered. More information on this issue can be found in our [impact of registration delays release](#).

## 15 . Related links

### [Deaths registered in England and Wales: 2018](#)

Bulletin | Released 6 August 2019

Registered deaths by age, sex, selected underlying causes of death and the leading causes of death. Contains death rates and death registrations by area of residence and single year of age.

### [Coronavirus \(COVID-19\) product page](#)

Product page | Updated when new data are available

Brings together the latest data and analysis on the coronavirus (COVID-19) pandemic in the UK and its effect on the economy and society.

### [Deaths registered weekly in England and Wales, provisional: week ending 29 May 2020](#)

Bulletin | Released 2 June 2020

Provisional counts of the number of deaths registered in England and Wales, including deaths involving COVID-19, by age, sex and region, in the latest weeks for which data are available.

### [Where to find statistics on UK deaths involving the coronavirus \(COVID-19\) and infection rates by country](#)

Article | Released 19 May 2020

Links to statistics on coronavirus (COVID-19) deaths and infection rates published by the different constituent countries of the UK.