

Statistical bulletin

# Coronavirus (COVID-19) Infection Survey, UK: 10 June 2022

Percentage of people testing positive for coronavirus (COVID-19) in private residential households in England, Wales, Northern Ireland and Scotland, including regional and age breakdowns. This survey is delivered in partnership with University of Oxford, University of Manchester, UK Health Security Agency (UKHSA) and Wellcome Trust, working with the University of Oxford and partner laboratories to collect and test samples.

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Release date:  
10 June 2022

Next release:  
17 June 2022

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# 1 . Main points

The following points are for the week ending 2 June 2022.

- There were early signs of a possible increase in the percentage of people testing positive for coronavirus (COVID-19) in England and Northern Ireland likely caused by increases in infections compatible with Omicron variants BA.1, BA.4 and BA.5; the trends were uncertain in Wales and Scotland.
- In England, the estimated number of people testing positive for COVID-19 was 797,500 (95% credible interval: 745,900 to 851,700), equating to 1.46% of the population or around 1 in 70 people.
- In Wales, the estimated number of people testing positive for COVID-19 was 40,500 (95% credible interval: 30,000 to 52,600), equating to 1.33% of the population or around 1 in 75 people.
- In Northern Ireland, the estimated number of people testing positive for COVID-19 was 27,700 (95% credible interval: 20,400 to 36,200), equating to 1.51% of the population or around 1 in 65 people.
- In Scotland, the estimated number of people testing positive for COVID-19 was 124,100 (95% credible interval: 104,700 to 144,900), equating to 2.36% of the population or around 1 in 40 people.

## About this bulletin

The positivity rate is the percentage of people who have tested positive for COVID-19 on a polymerase chain reaction (PCR) test at a point in time. We use current COVID-19 infections to mean testing positive for SARS-CoV-2, with or without having symptoms, on a swab taken from the nose and throat. This is different to the incidence rate, which is a measure of only the new PCR positive cases in a given time period.

Data are based on confirmed positive COVID-19 test results of those living in private households, excluding those living in care homes or other communal establishments. All data are provisional and subject to revision. See [Section 11: Measuring the data](#) and [Section 12: Strengths and limitations](#) for more details.

[Early management information](#) from the Coronavirus (COVID-19) Infection Survey is made available to government decision-makers to inform their response to COVID-19. Occasionally we may publish figures early if it is considered in the public interest. We will ensure that we pre-announce any ad hoc or early publications as soon as we can. These will include supporting information where possible to aid user understanding. This is consistent with guidance from the [Office for Statistics Regulation \(OSR\)](#).

## 2 . COVID-19 by UK countries

In the week ending 2 June 2022, there were early signs of a possible increase in the percentage of people testing positive for coronavirus (COVID-19) in England and Northern Ireland, and the trend was uncertain in Wales and Scotland. Our estimates contain all variants of COVID-19.

Table 1: Estimated percentage of the population testing positive for coronavirus (COVID-19) by UK country  
Official estimates of the percentage of the population testing positive for COVID-19 on nose and throat swabs, 27 May 2022 to 2 June 2022

Country	Estimated average % of the population testing positive for COVID-19	95% credible interval		Estimated average number of people testing positive for COVID-19	95% credible interval		Estimated average ratio of the population testing positive for COVID-19	95% credible interval	
		Lower	Upper		Lower	Upper		Lower	Upper
<b>England</b>	1.46	1.37	1.56	797,500	745,900	851,700	1 in 70	1 in 75	1 in 65
<b>Wales</b>	1.33	0.99	1.73	40,500	30,000	52,600	1 in 75	1 in 100	1 in 60
<b>Northern Ireland</b>	1.51	1.11	1.97	27,700	20,400	36,200	1 in 65	1 in 90	1 in 50
<b>Scotland</b>	2.36	1.99	2.75	124,100	104,700	144,900	1 in 40	1 in 50	1 in 35

Source: Office for National Statistics – Coronavirus (COVID-19) Infection Survey

### Notes

1. The ratios presented are rounded to the nearest 100 if over 1000, to the nearest 10 if under 1000, to the nearest 5 if under 100 and to 1 if under 20. This may result in credible intervals, which appear to be similar to the estimated average ratio.
2. These ratios do not represent a person's risk of becoming infected, since risk of infection depends on a number of factors, including contact with others or vaccination status.

There is a higher degree of uncertainty in our estimates for Wales, Northern Ireland and Scotland, compared with England. This is shown by wider [credible intervals](#) and results should be interpreted with caution.

**Figure 1: There were early signs of a possible increase in the percentage of people testing positive for coronavirus (COVID-19) in England and Northern Ireland, and the trends were uncertain in Wales and Scotland**

Estimated percentage of the population testing positive for COVID-19 on nose and throat swabs, 6 June 2021 to 2 June 2022

### Notes:

1. Official reported estimates are plotted at a reference point believed to be most representative of the given week.
2. Official estimates present the best estimate at that point in time. Modelled estimates are used to calculate the official reported estimate. The model smooths the series to understand the trend and is revised each week to incorporate new test results, providing the best indication of trend over time.
3. Official estimates are displayed over a rolling year up to the most recent week. The full time series of our official estimates from 27 April 2020 onwards are available in our [Coronavirus \(COVID-19\) Infection Survey datasets](#).

#### Download the data

[.xlsx](#)

## About our estimates

Our headline estimates of the percentage of people testing positive in England, Wales, Northern Ireland and Scotland are the latest official estimates. We include different measures to support our estimation and this section outlines the approaches used.

Official estimates should be used to understand the positivity rate for a single point in time and are our best and most stable estimates, used in all previous outputs. They are based on [a reference day](#) from the statistical model of the trend in rates of positive nose and throat swab results for the latest week. All estimates are subject to uncertainty given that a sample is only part of the wider population.

The [modelled estimates](#) are more suited to understanding the recent trend. This is because the model is regularly updated to include new test results and smooths the trend over time. As swabs are not necessarily analysed in date order by the laboratory, we have not yet received test results for all swabs taken on the dates included in this analysis. Therefore, caution should be taken in over-interpreting small movements in the very latest trends. These modelled estimates can be found in [our Coronavirus \(COVID-19\) Infection Survey datasets](#).

#### More about coronavirus

- Find the latest on [coronavirus \(COVID-19\) in the UK](#).
- [Explore the latest coronavirus data and analysis](#) from the ONS and other sources.
- View [all coronavirus data](#).
- Find out how we are [working safely in our studies and surveys](#).

## 3 . COVID-19 by UK regions and sub-regions

In the week ending 2 June 2022, the trend in the percentage of people testing positive for coronavirus (COVID-19) varied across English regions. The percentage of people testing positive for COVID-19 increased in the North West, the South East and London and there were early signs of an increase in the East of England. The percentage of people testing positive for COVID-19 decreased in the West Midlands and the South West. The percentage of people testing positive also decreased in the East Midlands and Yorkshire and The Humber in the two weeks up to 2 June 2022, but the trend was uncertain in the most recent week. In the same week, the trend was uncertain in the North East.

There is a higher degree of uncertainty in our estimates for English regions compared with England overall. This is shown by wider [credible intervals](#) and results should be interpreted with caution.

### Figure 2: The trends in the percentage of people testing positive for coronavirus (COVID-19) varied across regions of England in the week ending 2 June 2022

Modelled daily percentage of the population testing positive for COVID-19 on nose and throat swabs by region, England, 22 April to 2 June 2022

## Notes:

1. [Credible intervals](#) widen slightly at the end as there is a delay between the swab being taken and reporting of results. We report latest figures based on the reference day for that week because of this greater uncertainty in the most recent days.
2. The percentage of people testing positive by region was calculated using a similar modelling approach to the national daily estimates in [Section 2: COVID-19 by UK countries](#).
3. The analysis is conducted over a six-week period, which means some positive cases move in and out of the sample. This causes variability between estimates over time, which is expected given the lower number of positive tests in each region, compared with England as a whole.
4. We describe trends by comparing the probability that the estimate for the reference day is higher or lower than the estimate for 7 and 14 days prior.

## Download the data

[.xlsx](#)

## Sub-regional analysis of the UK

There is a higher degree of uncertainty in our sub-regional estimates because of a smaller sample size in each sub-region, relative to their respective national sample. This is shown by wider [credible intervals](#) and results should be interpreted with caution.

The percentage of people testing positive for COVID-19 varied across sub-regions of the UK in the week ending 2 June 2022. Figure 3 presents the modelled estimates for sub-regions of all UK countries.

### Figure 3: The percentage testing positive for coronavirus (COVID-19) by UK sub-regions

**Modelled percentage of the population testing positive for COVID-19 on nose and throat swabs by sub-regional geography, 27 May to 2 June 2022**

## Notes:

1. Sub-regional estimates are based on a different model to our headline estimates. Our sub-regional estimates are calculated as an average over a seven-day period and should not be compared with our headline positivity estimates, which are for a single reference date. Therefore, the sub-regional figures may differ from the headline estimates because they are averaged over a longer time period. If a trend is changing quickly, the figures shown in Figure 3 may not reflect the change we are seeing in our headline estimates.
2. An adjusted colour scale was used in our publications from 7 January 2022 to 13 May 2022 to accommodate increased infection levels. Colour scales in sub-regional charts are therefore not comparable across bulletins.

## Download the data

[.xlsx](#)

## 4 . COVID-19 by age

## Age group analysis for England

Our [age groups](#) separate children and young people by school age.

In the week ending 2 June 2022, the percentage of people testing positive for coronavirus (COVID-19) increased in those aged 35 to 49 years, and there were early signs of an increase in those aged school Year 12 to those aged 24 years. In the same week, the trend was uncertain in those aged 2 years to school Year 6, school Year 7 to school Year 11, and those aged 25 to 34 years. The percentage of people testing positive for COVID-19 decreased in those aged 50 to 69 years and those aged 70 and over in the two weeks up 2 June 2022. However the trend was uncertain for those age groups in the most recent week.

There is a higher degree of uncertainty in our estimates for each age group in England compared with England overall. This is shown by wider [credible intervals](#) and results should be interpreted with caution.

### **Figure 4: The percentage testing positive for coronavirus (COVID-19) increased in those aged 35 to 49 years and there were early signs of an increase in those aged school Year 12 to 24 years in the week ending 2 June 2022**

**Modelled daily percentage of the population testing positive for COVID-19 on nose and throat swabs by age group, England, 22 April to 2 June 2022**

#### Notes:

1. [Credible intervals](#) widen slightly at the end as there can be a delay between the swab being taken and reporting of results. We report latest figures based on the reference day for that week because of this greater uncertainty in the most recent days.

#### Download the data

[.xlsx](#)

We are unable to produce the same grouped analysis as presented in Figure 4 for the devolved administrations because of smaller sample sizes within each age group. However, estimates of positivity by single year of age for Wales, Northern Ireland and Scotland using a different model are in the following section and [our accompanying datasets](#).

## Age analysis by single year of age over time by country

In this section, we present modelled daily estimates of the percentage testing positive for COVID-19 by single year of age over time from 22 April to 2 June 2022 for England, Wales, Northern Ireland and Scotland. They are produced using a different method to the grouped age analysis for England presented previously and are therefore not directly comparable.

Modelling by single year of age leads to a higher degree of uncertainty in comparison with overall models for each country, as shown by wider [confidence intervals](#).

The data in Figure 5 suggest that in the most recent week, the trend in the percentage of people testing positive for COVID-19 was uncertain for most ages in England, Wales and Northern Ireland. In Scotland, the trend in the percentage of people testing positive for COVID-19 was also uncertain for most ages, but there were possible signs of an increase in those aged around 30 to 40 years.

### **Figure 5: The percentage testing positive for coronavirus (COVID-19) over time by single year of age**

**Modelled daily percentage of the population testing positive for COVID-19 on nose and throat swabs by single year of age, UK, 22 April to 2 June 2022**

#### Notes:

1. Estimates use a different method to the modelled daily estimates of the percentage testing positive by age group for England and are not directly comparable.
2. There are no estimates for those aged 2 years in Wales on account of limited data for that age in the time period.

#### Download the data

[.xlsx](#)

Further information on age for Wales, Northern Ireland and Scotland is published by their respective statistical agencies. Please see:

- [Welsh Government's Coronavirus \(COVID-19\) Infection Survey findings published in English](#)
- [Welsh Government's Coronavirus \(COVID-19\) Infection Survey findings published in Welsh](#)
- [Northern Ireland Department for Health's Coronavirus \(COVID-19\) Infection Survey findings](#)
- [Scottish Government's Coronavirus \(COVID-19\) Infection Survey findings](#)

## 5 . New COVID-19 infections

The [incidence rate](#) is a measure of new polymerase chain reaction (PCR)-positive cases per day per 10,000 people in a given time period. In this section, we look at an earlier time period to our analysis of the percentage testing positive. We include estimates of the incidence rate in Table 2 and our [Coronavirus \(COVID-19\) Infection Survey datasets](#).

In the week ending 19 May 2022, the number of new PCR-positive COVID-19 cases per day continued to decrease in England and Wales, and the trend was uncertain in Northern Ireland and Scotland. [Credible intervals](#) are wider for Wales, Northern Ireland and Scotland because of relatively smaller sample sizes, and care should be taken in interpreting results.

Table 2: Official estimates of incidence of new PCR-positive cases by UK country  
Estimated COVID-19 incidence rate per 10,000 people per day, based on nose and throat swabs, 13 to 19 May 2022

Country	Estimated COVID-19 incidence rate per 10,000 people per day	95% Lower credible interval	95% Upper credible interval
England	15.1	13.6	16.6
Wales	13.8	8.2	20.1
Northern Ireland	14.8	9.5	21.1
Scotland	27.8	21.7	34.5

Source: Office for National Statistics – Coronavirus (COVID-19) Infection Survey

## 6 . Viral load and variants of COVID-19

The World Health Organization (WHO) have defined names for [variants of concern](#).

Currently, variants under surveillance in the UK are:

- Omicron, including sublineages BA.1, BA.2, BA.3, BA.4 and BA.5
- Delta: B.1.617.2 and its genetic descendants

We publish weekly breakdowns of infections by variant as determined by whole genome sequencing and [Cycle-threshold \(Ct\) values](#).

The Ct value reflects the quantity of virus (also known as viral load) found in a swab test. A lower Ct value indicates a higher viral load. The latest Ct values of coronavirus (COVID-19) positive tests are provided in our [Coronavirus \(COVID-19\) Infection Survey: technical dataset](#).

Our Coronavirus (COVID-19) Infection Survey: technical dataset includes analysis of the genetic lineages of coronavirus seen in the samples we sequence. Since March 2022, Omicron BA.2 infections have been the most common in all UK countries. Between 2 and 29 May 2022, 90.7% of all sequenced COVID-19 infections were Omicron BA.2 infections, 3.8% were Omicron BA.5 infections, 3.4% were Omicron BA.4 infections, and 0.5% were Omicron BA.1 (or its sub-lineages) infections.

In response to an increase in the COVID-19 Omicron variants BA.4 and BA.5, we have reintroduced our main variant analysis in this bulletin. The following main variant analysis is not based on genome sequencing, but is based on whether the S gene is detected in the swab tests. The Omicron variants BA.1, BA.4 and BA.5 have changes in one of the three genes that the coronavirus survey swab test detects, which means the S-gene is no longer detected. When there is a high viral load (for example, when a person is most infectious), not detecting the S-gene in combination with detecting the other two genes (ORF1ab and N-genes) is a reliable indicator of these variants. However, as the viral load decreases (for example, if someone is near the end of their recovery from the infection), not detecting the S-gene is a less reliable indicator of these Omicron variants. The Omicron variant BA.2 does not have changes in the S-gene. Therefore all three genes, or the S-gene and either ORF1ab or N, will usually be detected in infections with this variant.

Our main variant analysis is for a reference day, and therefore is not directly comparable with the sequence data. It measures the percentage of the population with a positive test compatible with the Omicron BA.1, BA.4 and BA.5 variants or BA.2 variant in England, Wales, Northern Ireland and Scotland, and the regions of England.

There is a higher degree of uncertainty in our estimates for Wales, Northern Ireland and Scotland in comparison with England, as shown by wider [confidence intervals](#). Not all cases that are positive on the ORF1ab and N-genes will be the Omicron BA.1, BA.4 or BA.5 variant, and not all cases that have a detectable S-gene will be the Omicron BA.2 variant

Across all four UK countries, the percentage of people testing positive for COVID-19 compatible with Omicron variants BA.1, BA.4 and BA.5 increased in the week ending 2 June 2022. In the same week, the percentage of people testing positive for COVID-19 compatible with the Omicron variant BA.2 decreased in England and Wales, and the trend was uncertain in Northern Ireland and Scotland. In England, the percentage of people testing positive for COVID-19 compatible with the Omicron variants BA.1, BA.4 and BA.5 increased across all regions in the week ending 2 June 2022. In the same week, the percentage of people testing positive for COVID-19 compatible with the Omicron variant BA.2 decreased in all regions, apart from the North West, East of England, and London, where the trend was uncertain. Our main variant analysis by UK country and by regions of England can be found in our [Coronavirus \(COVID-19\) Infection Survey: technical dataset](#).

### **Figure 6: The percentage of people testing positive for COVID-19 compatible with Omicron variants BA.1, BA.4 and BA.5 increased across the UK in the week ending 2 June 2022**

**Modelled daily percentage of the population testing positive for COVID-19 on nose and throat swabs compatible with Omicron BA.1, BA.4 and BA.5 variants and the Omicron BA.2 variant, UK, 22 April to 2 June 2022**

**Notes:**



1. Omicron BA.1, BA.4 and BA.5 variant-compatible positives are defined as those that are positive on the ORF1ab-gene and N-gene, but not the S-gene. This group includes Omicron BA.1.1.
2. Omicron BA.2 variant-compatible positives are defined as those that are positive on the S-gene, in addition to one or both the ORF1ab-gene and N-gene.
3. Data should be treated with caution. Not all infections positive on the S-gene will be the Omicron BA.2 variant, and some infections with pattern ORF1ab+N will also be the Omicron BA.2 variant where the S-gene was not detected for other reasons, such as low viral load.

### Download the data

[.xlsx](#)

More information on how we measure variants from positive tests on the survey can be found in our [Understanding COVID-19 variants blog](#). Our [Coronavirus \(COVID-19\) Infection Survey methods article](#) gives more detail about how we sequence the virus' genetic material.

The sequencing is produced by the Wellcome Trust Sanger Institute and analysis is produced by research partners at the University of Oxford. Of particular note are Dr Katrina Lythgoe, Dr Tanya Golubchik and Dr Helen Fryer. Genome sequencing is funded by the COVID-19 Genomics UK (COG-UK) consortium. COG-UK is supported by funding from the Medical Research Council (MRC) part of UK Research and Innovation (UKRI), the National Institute of Health Research (NIHR), and Genome Research Limited operating as the Wellcome Sanger Institute.

## 7 . Test sensitivity and specificity

The estimates provided in Sections 2 to 6 are for the percentage of the private-residential population testing positive for coronavirus (COVID-19), otherwise known as the positivity rate. We do not report the prevalence rate. To calculate the prevalence rate, we would need an accurate understanding of the swab test's sensitivity (true-positive rate) and specificity (true-negative rate).

While we do not know the true sensitivity and specificity of the test, our data and related studies provide an indication of what these are likely to be. In particular, the data suggest that the false-positive rate is very low - under 0.005%. We do not know the sensitivity of the swab test. However, other studies suggest that sensitivity (the rate of true-positive test results) may be somewhere between 85% and 98%.

You can find more information on sensitivity and specificity in [our Coronavirus \(COVID-19\) Infection Survey methods article](#) and [our blog that explains why we trust the data from the Coronavirus \(COVID-19\) Infection Survey](#). You can find more information on the data suggesting that our test's false-positive rate is very low in a [paper written by academic partners at the University of Oxford](#).

## 8 . Coronavirus (COVID-19) Infection Survey data

### [Coronavirus \(COVID-19\) Infection Survey: England](#)

Dataset | Released 10 June 2022

Findings from the Coronavirus (COVID-19) Infection Survey for England.

### [Coronavirus \(COVID-19\) Infection Survey: Northern Ireland](#)

Dataset | Released 10 June 2022

Findings from the Coronavirus (COVID-19) Infection Survey for Northern Ireland.

### [Coronavirus \(COVID-19\) Infection Survey: Scotland](#)

Dataset | Released 10 June 2022

Findings from the Coronavirus (COVID-19) Infection Survey for Scotland.

### [Coronavirus \(COVID-19\) Infection Survey: Wales](#)

Dataset | Released 10 June 2022

Findings from the Coronavirus (COVID-19) Infection Survey for Wales.

### [Coronavirus \(COVID-19\) Infection Survey: technical data](#)

Dataset | Released 10 June 2022

Technical and methodological data from the Coronavirus (COVID-19) Infection Survey, England, Wales, Northern Ireland and Scotland.

## 9 . Collaboration



The Coronavirus (COVID-19) Infection Survey analysis was produced by the Office for National Statistics (ONS) in collaboration with our research partners at the University of Oxford, the University of Manchester, UK Health Security Agency (UK HSA) and Wellcome Trust. Of particular note are:

- Sarah Walker - University of Oxford, Nuffield Department for Medicine: Professor of Medical Statistics and Epidemiology and Study Chief Investigator
- Koen Pouwels - University of Oxford, Health Economics Research Centre, Nuffield Department of Population Health: Senior Researcher in Biostatistics and Health Economics
- Thomas House - University of Manchester, Department of Mathematics: Reader in Mathematical Statistics
- Anna Seale - University of Warwick, Warwick Medical School: Professor of Public Health; UK Health Security Agency, Data, Analytics and Surveillance: Scientific Advisor

## 10 . Glossary

### Age groups for children and young people

- "Aged 2 years to school Year 6" includes children in primary school and below
- "school Year 7 to school Year 11" includes children in secondary school
- "school Year 12 to those aged 24 years" includes young adults who may be in further or higher education

Those aged 11 to 12 years and those aged 16 to 17 years have been split between different age categories depending on whether their birthday is before or after 1 September.

### Confidence interval

A confidence interval gives an indication of the degree of uncertainty of an estimate, showing the precision of a sample estimate. The 95% confidence intervals are calculated so that if we repeated the study many times, 95% of the time the true unknown value would lie between the lower and upper confidence limits. A wider interval indicates more uncertainty in the estimate. Overlapping confidence intervals indicate that there may not be a true difference between two estimates. For more information, see our methodology page on [statistical uncertainty](#).

### Credible interval

A credible interval gives an indication of the uncertainty of an estimate from data analysis. The 95% credible intervals are calculated so that there is a 95% probability of the true value lying in the interval. A wider interval indicates more uncertainty in the estimate. Overlapping credible intervals indicate that there may not be a true difference between two estimates. For more information, see our methodology page on [statistical uncertainty](#).

### Cycle threshold (Ct) values

The strength of a positive coronavirus (COVID-19) test is determined by how quickly the virus is detected, measured by a cycle threshold (Ct) value. The lower the Ct value, the higher the viral load and stronger the positive test. Positive results with a high Ct value can be seen in the early stages of infection when virus levels are rising, or late in the infection, when the risk of transmission is low.

### False-positives and false-negatives

A false-positive result occurs when the tests suggest a person has COVID-19 when in fact they do not. By contrast, a false-negative result occurs when the tests suggest a person does not have COVID-19 when in fact they do. For more information on false-positives and false-negatives, see [Section 12: Strengths and limitations](#).

### Incidence rate

The incidence rate is a measure of the estimated number of new polymerase chain reaction (PCR)-positive cases per day per 10,000 people at a given point in time. It is different to positivity, which is an estimate of all current PCR positive cases at a point in time, regardless of whether the infection is new or existing.

# 11 . Measuring the data

## Modelled estimates

Our modelled estimates by UK country, regions of England and age groups of England are underpinned by estimates for non-overlapping 14-day periods, which are produced using a different method of weighting to the model. These estimates and the unweighted sample counts by UK country that are used in this analysis can be found in [our coronavirus \(COVID-19\) datasets](#). For more information on our methods and quality surrounding the estimates please see [our Coronavirus \(COVID-19\) Infection Survey methods article](#) and [our Quality and Methodology Information \(QMI\) report](#).

## Reference dates

We aim to provide the estimates of positivity rate (the percentage of those who test positive) and incidence that are most timely and most representative of each week. We decide the most recent week we can report on based on the availability of test results for visits that have already happened, accounting for the fact that swabs have to be couriered to the labs, tested and results returned. On most occasions, the reference dates align perfectly, but sometimes this is not feasible. This week, the reference week for positivity is 27 May to 2 June 2022 for England, Wales, Northern Ireland and Scotland.

Within the most recent week, we provide an official estimate for positivity rate based on a reference point from the modelled trends. For positivity rates, we can include all swab test results, even from the most recent visits. Therefore, although we are still expecting further swab test results from the labs, there were sufficient data for the official estimate for infection to be based on a reference point after the start of the reference week. To improve stability in our modelling while maintaining relative timeliness of our estimates, we are reporting our official estimates based on the midpoint of the reference week. This week, the reference day for positivity rates is Monday 30 May 2022 for England, Wales, Northern Ireland and Scotland.

The reference date used for our official estimates of incidence of polymerase chain reaction (PCR)-positive cases is 14 days prior to the positivity reference day. This is necessary as estimates later than this date are more likely to change as we receive additional data. This week, the reference week for incidence is 13 to 19 May 2022 and the reference day is Monday 16 May 2022 for all UK countries.

## Gene patterns for variant analysis

The Omicron variants BA.1, BA.4 and BA.5 have changes in one of the three genes that the coronavirus survey swab test detects, which means the S-gene is no longer detected. When there is a high viral load (for example, when a person is most infectious), not detecting the S-gene in combination with detecting the other two genes (ORF1ab and N-genes) is a reliable indicator of the Omicron variants BA.1, BA.4 and BA.5. However, as the viral load decreases (for example, if someone is near the end of their recovery from the infection), not detecting the S-gene is a less reliable indicator of these Omicron variants.

The Omicron variant BA.2 does not have changes in the S-gene, and therefore all three genes, or the S-gene and either ORF1ab or N, will usually be detected in infections with this variant.

## Response rates

Enrolment for this wave of recruitment for the Coronavirus (COVID-19) Infection Survey ceased on 31 January 2022. Response rates for England, Wales, Northern Ireland and Scotland can be regarded as final response rates to the survey. Response rates for each nation are found in our [Coronavirus \(COVID-19\) Infection Survey: technical dataset](#). We provide response rates separately for the different sampling phases of the study. Additional information on response rates can be found in our [Coronavirus \(COVID-19\) Infection Survey methods article](#).

## Inconclusive and failed tests

Our estimates are based on confirmed positive test results. The remaining swabs are either negative and included in analysis, or inconclusive and not included in analysis. Some swabs are test failures, which also are not included in analysis. The impact of excluding inconclusive results from our estimates of positive infections is likely to be very small and unlikely to affect the trend.

## Survey fieldwork

Survey fieldwork for the pilot study began in England on 26 April 2020. In Wales, fieldwork began on 29 June 2020, in Northern Ireland fieldwork began on 26 July 2020 and in Scotland fieldwork began on 21 September 2020.

## Sub-regional geographies

We have presented modelled estimates for the most recent week of data at the sub-regional level. To balance granularity with statistical power, we have grouped together local authorities into Coronavirus (COVID-19) Infection Survey sub-regions. The geographies are a rules-based composition of local authorities. Local authorities with a population over 200,000 have been retained where possible.

The boundaries for these Coronavirus (COVID-19) Infection Survey sub-regions can be found on the [Open Geography Portal](#).

## Other Coronavirus Infection Survey (CIS) analysis and studies

This study provides the main measure of coronavirus infection in the UK. Other sources have provided data during previous stages of the pandemic. For information on other studies see [Section 5: Quality characteristics of the Coronavirus \(COVID-19\) Infection Survey](#) (coherence and comparability) of [the Coronavirus \(COVID-19\) Infection Survey QMI](#), revised 16 July 2021.

# 12 . Strengths and limitations

The data in this bulletin can be used for:

- estimating the number of positive cases among the population living in private households, including cases where people do not report having any symptoms
- identifying differences in numbers of positive cases between UK countries and different regions in England
- estimating the number of new cases and change in positive cases over time

The data cannot be used for:

- measuring the number of cases and infections in care homes, hospitals and/or other communal establishments
- providing information about recovery time of those infected

The results in this bulletin are:

- provisional and subject to revision
- based on infections occurring in private households
- subject to uncertainty; a [credible or confidence interval](#) gives an indication of the uncertainty of an estimate from data analysis

These statistics have been produced quickly in response to developing world events. The [Office for Statistics Regulation \(OSR\)](#), on behalf of the UK Statistics Authority, has reviewed them on [14 May 2020](#) and [17 March 2021](#) against several important aspects of the [Code of Practice for Statistics](#) and regards them as consistent with the Code's pillars of [trustworthiness](#), [quality](#) and [value](#).

The estimates presented in this bulletin contain [uncertainty](#). There are many sources of uncertainty, including uncertainty in the test, in the estimates and in the quality of data collected in the questionnaire. Information on the main sources of uncertainty is presented in [our Coronavirus \(COVID-19\) Infection Survey Quality and Methodology Information report](#), [our methodology article](#), and [our blog that explains why we trust the data from the Coronavirus \(COVID-19\) Infection Survey](#).

## 13 . Related links

### [Coronavirus \(COVID-19\) Infection Survey: characteristics of people testing positive for COVID-19 in countries of the UK](#)

Bulletin | Updated fortnightly

The characteristics of people testing positive for coronavirus (COVID-19) from the COVID-19 Infection Survey. This survey is being delivered in partnership with the University of Oxford, the University of Manchester, UK Health Security Agency and Wellcome Trust.

### [Coronavirus \(COVID-19\) Infection Survey: antibody and vaccination data for the UK](#)

Bulletin | Updated fortnightly

Antibody and vaccination data by UK country and English regions from the Coronavirus (COVID-19) Infection Survey. This survey is being delivered in partnership with the University of Oxford, University of Manchester, UK Health Security Agency and Wellcome Trust.

### [Coronavirus \(COVID-19\) latest insights](#)

Interactive tool | Updated as and when data become available

The latest data and trends about the coronavirus (COVID-19) pandemic from the Office for National Statistics (ONS) and other official sources.

### [Deaths registered weekly in England and Wales, provisional](#)

Bulletin | Updated weekly

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.

### [Coronavirus \(COVID-19\) Infection Survey technical article: Analysis of characteristics associated with third vaccination uptake](#)

Technical article | Released 21 April 2022

Analysis of populations in the UK by likelihood of having received a third vaccination against COVID-19 using the Coronavirus (COVID-19) Infection Survey. This survey is being delivered in partnership with University of Oxford, University of Manchester, UK Health Security Agency and Wellcome Trust.

### [Coronavirus \(COVID-19\) Infection Survey technical article: Cumulative incidence of the number of people who have tested positive for COVID-19, UK](#)

Technical article | Released 22 April 2022

Analysis of the number of people in the UK who have tested positive for COVID-19 using the Coronavirus (COVID-19) Infection Survey. This survey is being delivered in partnership with University of Oxford, University of Manchester, UK Health Security Agency and Wellcome Trust.

### [The relationship between COVID-19 infections and antibodies: What do the data show?](#)

Blog article | Released 6 April 2022

Information on how COVID-19 infections have recently reached their highest levels across many parts of the UK while antibody levels are high.