

Statistical bulletin

# Coronavirus (COVID-19) Infection Survey, UK: 23 July 2021

Estimates for England, Wales, Northern Ireland and Scotland. This survey is being delivered in partnership with University of Oxford, University of Manchester, Public Health England and Wellcome Trust. This study is jointly led by the ONS and the Department for Health and Social Care (DHSC) working with the University of Oxford and UK Biocentre to collect and test samples.

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Release date:  
23 July 2021

Next release:  
30 July 2021

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# 1 . Main points

- In England, the percentage of people testing positive for coronavirus (COVID-19) continued to increase in the week ending 17 July 2021; we estimate that 741,700 people within the community population in England had COVID-19 (95% credible interval: 689,600 to 797,800), equating to around 1 in 75 people.
- In Wales, the percentage of people testing positive increased in the week ending 17 July 2021; we estimate that 14,400 people in Wales had COVID-19 (95% credible interval: 9,500 to 20,500), equating to around 1 in 210 people.
- In Northern Ireland, the percentage of people testing positive increased in the week ending 17 July 2021; we estimate that 10,900 people in Northern Ireland had COVID-19 (95% credible interval: 5,700 to 17,900), equating to around 1 in 170 people.
- In Scotland, the percentage of people testing positive has increased in the most recent two weeks ending 17 July 2021; however, the trend is uncertain in the week ending 17 July 2021, we estimate that 65,100 people in Scotland had COVID-19 (95% credible interval: 51,600 to 80,500) equating to around 1 in 80 people.

## About this bulletin

In this bulletin, we refer to the number of current COVID-19 infections within the community population; community in this instance refers to private residential households and it excludes those in hospitals, care homes and/or other institutional settings. In institutional settings, rates of COVID-19 infection are likely to be different. More information about the coronavirus pandemic from the Office for National Statistics (ONS) and other sources can be found in our [latest insights](#).

The positivity rate is the percentage of people who have tested positive for COVID-19 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 polymerase chain reaction (PCR)-positive cases in a given time period.

All analysis was produced with our research partners at the University of Oxford.

### More information on COVID-19 and taking part in our survey

- For more information, please visit the [CIS participant guidance](#) page.
- If you have any further questions, please email the CIS operations team: [COVID-19@ons.gov.uk](mailto:COVID-19@ons.gov.uk).
- Find the latest on [coronavirus \(COVID-19\) in the UK](#).
- [Explore the latest coronavirus data](#) from the ONS and other sources.
- View all [coronavirus data](#).
- Find out how we are [working safely in our studies and surveys](#).

[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).

## How the data in this bulletin can be used

The data can be used for:

- estimating the number of current positive cases in the community, including cases where people do not report having any symptoms
- identifying differences in numbers of positive cases between different regions
- estimating the number of new cases and change over time in positive cases

The data cannot be used for:

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

## 2 . Percentage of people who had COVID-19 in England, Wales, Northern Ireland and Scotland

In the week ending 17 July 2021, the percentage of people testing positive continued to increase in England and increased in Wales and Northern Ireland. In Scotland, the percentage testing positive increased in the two weeks up to 17 July 2021, however, the trend is uncertain in the week ending 17 July 2021.

These estimates are based on statistical modelling of the trend in rates of positive nose and throat swab results. The ratios presented are rounded to the nearest 100 if over 1,000, to the nearest 10 if under 1,000 and to the nearest 5 if under 100. All our estimates are subject to uncertainty given that a sample is only part of the wider population. Therefore, caution should be taken in over-interpreting any small movements in the latest trends.

Table 1: Official reported estimates of the percentage of the population testing positive for COVID-19, UK countries

Estimated percentage of the population testing positive for the coronavirus (COVID-19) on nose and throat swabs, week ending 17 July 2021, UK

Country	Estimated average % of the population that had COVID-19	95% credible interval		Estimated average number of people testing positive for COVID-19	95% credible interval		Estimated average ratio of the population that had COVID-19	95% credible interval	
		Lower	Upper		Lower	Upper		Lower	Upper
England	1.36	1.26	1.46	741,700	689,600	797,800	1 in 75	1 in 80	1 in 70
Wales	0.47	0.31	0.67	14,400	9,500	20,500	1 in 210	1 in 320	1 in 150
Northern Ireland	0.59	0.31	0.98	10,900	5,700	17,900	1 in 170	1 in 320	1 in 100
Scotland	1.24	0.98	1.53	65,100	51,600	80,500	1 in 80	1 in 100	1 in 65

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

#### Notes

1. All estimates are subject to uncertainty given that a sample is only part of the wider population. The model used to provide these estimates is a Bayesian model: these provide 95% credible intervals. 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.
2. Official reported estimates are plotted at a reference point believed to be most representative of the given week.
3. These ratios do not represent a person's risk of becoming infected, since risk of infection depends on a number of factors such as contact with others or whether a person has been vaccinated.

Because of the relatively small number of tests in Wales, Northern Ireland and Scotland in our sample, credible intervals are wide and therefore results should be interpreted with caution. These wide credible intervals mean that differences between the central estimates within and between nations may appear smaller or more exaggerated than they really are.

### Figure 1: The percentage of people testing positive continued to increase in England and increased in Wales and Northern Ireland in the week ending 17 July 2021

Estimated percentage of the population testing positive for coronavirus (COVID-19) on nose and throat swabs from 27 April 2020 to 17 July 2021, countries of the UK

#### Notes:

1. All estimates are subject to uncertainty, given that a sample is only part of the wider population. The model used to provide these estimates is a Bayesian model: these provide 95% credible intervals. 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.
2. Official reported estimates are plotted at a reference point believed to be most representative of the given week.
3. The official estimate presents 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.
4. 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.

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## 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 appropriate uses of all the approaches.

Official estimates should be used to understand the positivity rate for a single point in time. This is based on the modelled estimate for the latest week and is our best and most stable estimate, used in all previous outputs. The modelled estimate is 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. These modelled estimates can be found in the [accompanying datasets](#).

The estimates for non-overlapping 14-day periods (which underpin our modelled official estimates) and the unweighted sample counts are included in the [accompanying datasets](#). These estimates are produced using a different method of weighting to the model and are available for people who wish to compare infection levels over time in this way. For more information on our methods and quality surrounding the estimates please see our [methods article](#) and [Quality and Methodology Information report](#).

All estimates presented in this bulletin are provisional results. 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. Estimates may therefore be revised as more test results are included.

## 3 . Sub-national analysis of the number of people who had COVID-19

The overall national picture for England is a result of the trends across regions. During the week ending 17 July 2021, the highest percentages of people testing positive for coronavirus (COVID-19) were observed in the North East and North West.

In the data used to produce these estimates, the number of people sampled in each region who tested positive for the coronavirus (COVID-19) was low relative to England overall. This means there is a higher degree of uncertainty in the regional estimates for this period, as indicated by larger credible intervals.

In the week ending 17 July 2021, the percentage of people testing positive continued to increase in all regions of England, except the North East and North West. The percentage testing positive increased in the North East and North West in the most recent two weeks up to 17 July 2021, however, the trend is uncertain in the week ending 17 July 2021. Caution should be taken in over-interpreting any small movements in the latest trend, particularly in the North East where the credible intervals are wider and therefore uncertainty is higher.

## **Figure 2: The percentage of people testing positive continued to increase in all regions of England except the North East and North West in the week ending 17 July 2021**

**Estimated percentage of the population testing positive for coronavirus (COVID-19) on nose and throat swabs, daily, by region from 6 June to 17 July 2021, England**

### **Notes:**

1. All results are provisional and subject to revision.
2. These statistics refer to infections reported in the community, by which we mean private households. These figures exclude infections reported in hospitals, care homes and/or other institutional settings.
3. The percentage of people testing positive by region was calculated using a similar modelling approach to the national daily estimates in [Section 2: Percentage of people who had COVID-19 in England, Wales, Northern Ireland and Scotland](#).
4. The analysis is conducted over a six-week period, which means specific positive cases move into and then out of the sample. This causes variability between estimates over time, which is expected given the lower number of positive tests within each region, compared with England as a whole.
5. The credible intervals widen slightly at the end as there is a delay between the swab being taken and reporting of results.

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## **Sub-regional analysis for the UK**

When the percentage of people testing positive is low, sub-regional estimates are subject to increased uncertainty as captured in the credible intervals.

Sub-regional estimates are based on a different model to our headline estimates and should not be compared. In the data used to produce these estimates, the number of people sampled in each sub-regional area who tested positive was lower relative to their respective overall national samples. This means there is a higher degree of uncertainty in the sub-regional estimates and caution should be taken when interpreting or ranking them.

The percentage testing positive varies across sub-regions of the UK. In Figure 3, we have presented modelled estimates from 11 to 17 July 2021 for sub-regions in England, Northern Ireland and Scotland. This week we have not included sub-regional estimates for Wales because further quality assurance is required.

## **Figure 3: The percentage testing positive varies across sub-regions of England, Northern Ireland and Scotland in the week ending 17 July 2021**

## Estimated percentage of the population testing positive for coronavirus (COVID-19) on nose and throat swabs, by sub-regional geography, England, Northern Ireland and Scotland, from 11 to 17 July 2021

### Notes:

1. All results are provisional and subject to revision.
2. These statistics refer to infections reported in the community, by which we mean private households. These figures exclude infections reported in hospitals, care homes and/or other institutional settings.
3. All estimates are subject to uncertainty, given that a sample is only part of the wider population. The model used to provide these estimates is a Bayesian model: these provide 95% credible intervals. 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. The credible intervals can be found in the [datasets](#) that accompany this bulletin.
4. 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 to our headline positivity estimates which are for a single reference date. Therefore the subregional figures may differ from the headline estimates because they are averaged over a longer time period. If a trend is changing, the figures shown in Figure 3 may not reflect the change we are seeing in our headline estimates.

### Download this chart

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## 4 . Age analysis of the number of people who had COVID-19

### Age analysis by category for England

Our age categories separate children and young people by school age:

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

This means that 11- to 12-year-olds and 16- to 17-year-olds have been split between different age categories depending on whether their birthday is before or after 1 September.

Estimates are based on smaller sample sizes within each age group relative to England overall. There is a higher degree of uncertainty as indicated by larger credible intervals. These can be found in the [accompanying dataset](#).

In the week ending 17 July 2021, the percentage of people testing positive has increased in all age groups except for those in school Year 7 to school Year 11. The percentage testing positive has increased for those in school Year 7 to school Year 11 in the most recent two weeks up to 17 July 2021; however, the trend is uncertain in the most recent week ending 17 July 2021.

## Figure 4: The percentage of people testing positive increased in all age groups except for those in school Year 7 to school Year 11 in the week ending 17 July 2021 in England

Trends of the population testing positive for coronavirus (COVID-19) on nose and throat swabs, daily, by age group from 6 June to 17 July 2021, England

### Notes:

1. All results are provisional and subject to revision.
2. These statistics refer to infections reported in the community, by which we mean private households. These figures exclude infections reported in hospitals, care homes and/or other institutional settings.
3. To produce this chart, we select an 'average' region in terms of infection rates and population, which is the East Midlands. Therefore, while the trends reflect the national level changes in positive infections by age group, the percentages shown are based on the East Midlands and are indicative of England level figures.

### Download this chart

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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. We are able to produce analysis on positivity by single year of age for Wales, Northern Ireland and Scotland using a different model and these can be found in the following section and datasets that accompany this bulletin.

Estimates for non-overlapping 14-day periods (which underpin our modelled estimates) by age group are available in our [accompanying dataset](#) and are provided as an alternative measure over time for context.

## 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 for all four UK countries: England, Wales, Northern Ireland and Scotland from 6 June to 17 July 2021. These estimates use a different method to the grouped age analysis presented previously and are therefore not comparable.

Estimates are based on smaller sample sizes within each age group relative to England overall. There is a higher degree of uncertainty as indicated by larger confidence intervals. These can be found in the [accompanying dataset](#).

Further analysis on age for [Wales](#), [Northern Ireland](#) and [Scotland](#) is published by their respective statistical agencies. Analysis for Wales is published in [English](#) and [Welsh](#).

Figure 5 shows the percentage of people testing positive for COVID-19 by single year of age from 6 June to 17 July 2021, for each of the four UK countries. Because of lower positivity rates during some of this period, caution should be taken in over-interpreting small movements in positivity day to day.

## Figure 5: The percentage of people testing positive for COVID-19 by single year of age over time for the four UK countries

## Estimated percentage of the population testing positive for coronavirus (COVID-19) on nose and throat swabs, daily, by single year of age from 6 June to 17 July 2021, UK

### Notes:

1. All results are provisional and subject to revision.
2. These statistics refer to infections reported in the community, by which we mean private households. These figures exclude infections reported in hospitals, care homes and/or other institutional settings.
3. These estimates use a different method to previous modelled daily estimates of the percentage testing positive by age group for England and are therefore not comparable.

### Download this chart

[.XLSX](#)

## 5 . Number of new COVID-19 infections in England, Wales, Northern Ireland and Scotland

The incidence rate is a measure of new polymerase chain reaction (PCR)-positive cases in a given time period. We regularly review our methods and survey design as part of our ongoing quality assurance process. We have recently completed our review and are now including estimates of the incidence rate in our [accompanying datasets](#).

Our incidence method uses several weeks' data to provide the latest estimate of new infections. Following our review, we have changed the reference date used for our official estimates of incidence of PCR-positive cases to 14 days prior to the end of the positivity reference date, with credible intervals provided until 7 days after the incidence reference date. Previously the incidence reference date was 10 days prior to the end of the positivity reference date. This change was necessary as estimates later than this date are more likely to change as we receive additional data. Estimates of incidence are therefore not the latest figure as there is a time lag of two weeks between the incidence estimate and the positivity estimate.

While we believe that the estimates are useful, they can be volatile and subject to change as more data become available. This is particularly the case with the most recent estimates so it is important to be cautious when using them. When incidence is low, it may not be possible to produce a reliable estimate. In these instances we recommend focusing on the upper credible interval, which gives an upper bound to the incidence of new infections. For more information on how we calculate estimates of incidence please see [COVID-19 Infection Survey: methods and further information](#).

Credible intervals are very wide because of relatively small sample sizes, and care should be taken in interpreting results. In the week ending 3 July 2021, the number of new PCR-positive COVID-19 increased in England, Wales and Northern Ireland. In Scotland, the trend is uncertain in the week ending 3 July 2021.

## 6 . Number of people testing positive for COVID-19 by variant

The World Health Organization (WHO) have suggested new names for [Variants of Concern and Variants of Interest](#).

## **Variants of concern**

### **Alpha**

Variant B.1.1.7, first identified in the UK.

### **Beta**

Variant B.1.351, first identified in South Africa.

### **Gamma**

Variant P.1, first identified in Brazil.

### **Delta**

Variant B.1.617.2, first identified in India.

## **Variants of interest**

### **Eta**

Variant B.1.525, first identified in Nigeria.

The Alpha variant (B.1.1.7) of coronavirus (COVID-19) identified in the UK in mid-November 2020 has changes in one of the three genes that COVID-19 swab tests detect, known as the S-gene. This means that in cases compatible with this variant, the S-gene is not detected by the current test. Therefore Alpha (B.1.1.7) has the pattern ORF1ab+N (S-gene negative) in our main variant analysis.

Other variants - including both Delta (B.1.617.2) and Beta (B.1.351) - are positive on all three genes, with the pattern ORF1ab+S+N. Almost all ORF1ab+S+N cases in the UK will now be the Delta variant, so this group is labelled "compatible with the Delta variant".

Our main variant analysis can differentiate between these two groups of variants (ORF1ab+N positive or ORF1ab+S+N positive) but cannot differentiate between variants that have the same gene pattern for the three genes that COVID-19 swab tests detect. As Delta has been the main variant in the UK for several weeks it is possible that some Delta variant infections do not test positive on the three genes, particularly if there is a low viral load. We expect these numbers to be small, but it is possible that some Delta cases may be categorised as Alpha compatible. More information on individual variants and where they were first detected is available on the [government variant dashboard](#).

Other variants, including Eta (B.1.525), also have the same pattern of gene positivity as Alpha (B.1.1.7). At present these are rare in the UK so we describe this group as compatible with the Alpha variant, but we will continue to keep this under review. The percentage of people testing positive by different variants are provided in the [accompanying technical dataset](#).

Since the end of May, infections compatible with the Delta variant have been the most common in England and in recent weeks all four UK countries. In the week ending 17 July 2021, the percentage of people testing positive whose results are compatible with the Delta variant (B.1.617.2) continued to increase in England and increased in Northern Ireland and Wales. In Scotland, the percentage increased in the two weeks up to 17 July 2021, but the trend is uncertain in the week ending 17 July 2021. Because of this high proportion of a single variant, we have not included charts showing breakdown by variant in this bulletin. We will continue to monitor infections by variant and will reintroduce the charts when considered helpful.

Each test goes through a number of cycles before a positive result is detectable. If there is a high quantity of the virus present, a positive result will be identified after a low number of cycles. However, if there is only a small amount of the virus present, then it will take more cycles to detect it.

The number of cycles is measured as a "cycle threshold", known as a Ct value. These values are used as a proxy for the quantity of the virus, also known as the viral load. The higher the viral load, the lower the Ct value. These values are helpful for monitoring the strength of the virus and for identifying patterns that could suggest changes in the way the virus is transmitting. The Ct values of COVID-19 positive tests are provided in the technical dataset that accompanies this bulletin.

We try to read all letters of the virus' genetic material for every positive nose and throat swab with sufficient virus to do so (Ct less than 30). This is called whole genome sequencing. Positive samples are hand-picked at the testing centre and shipped to a sequencing lab, after which they are sequenced and the genetic data processed. Sequencing is not successful on all these samples, or only part of the genome is sequenced. This is especially so for the higher Ct values, which are common in our data as we often catch people early or late in infection when viral loads tend to be lower (and hence Ct values are higher).

Where we successfully sequence over half of the genome, we use the sequence data to work out which type of variant is present in each virus. This method can tell us which variant might be responsible for any potential increase in cases which are either "compatible with the Delta variant" or "compatible with the Alpha variant". However, because we cannot get a sequence from every positive result, there is more uncertainty in these estimates.

These data are provided in the [accompanying technical dataset](#) using the international standard labels.

Genome sequencing takes longer to produce results, so the genome sequencing results relate to an earlier time period than our most recent positivity data. Our most recent results from genome sequencing show that in the four weeks up to the week ending 11 July 2021, the majority (98%) of sequences obtained were Delta (B.1.617.2) with Alpha (B.1.1.7) comprising most of the remainder (2%) of sequences.

We also provide information on viruses where we have found a particular genetic change (mutation) called E484K. This mutation is always seen in Beta (B.1.351).

Laboratory data suggest that this mutation might make it easier for a virus to infect someone again, or to infect someone who has been vaccinated, but the importance of this mutation in terms of its effect in transmitting the virus is still uncertain.

This analysis was produced by research partners at the University of Oxford. Of particular note are Dr Katrina Lythgoe, Dr David Bonsall, Dr Tanya Golubchik, and Dr Helen Fryer.

More information on how we measure variants from positive tests on the survey can be found in our [blog](#).

## 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 [methods article](#) and our recent [blog](#). 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 23 July 2021

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

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

Dataset | Released 23 July 2021

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

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

Dataset | Released 23 July 2021

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

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

Dataset | Released 23 July 2021

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

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

Dataset | Released 23 July 2021

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, Public Health England (PHE) 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

## 10 . Glossary

### Community

In this bulletin, we refer to the number of coronavirus (COVID-19) infections within the community. Community in this instance refers to private households, and it excludes those in hospitals, care homes and/or other institutional settings.

### 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 [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.

### 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 our [methods article](#) and our recent [blog](#).

## 11 . Measuring the data

### 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 is 11 to 17 July 2021.

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 was 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 Wednesday 14 July 2021.

The reference date used for our official estimates of incidence of polymerase chain reaction (PCR)-positive cases is 14 days prior to the end of the positivity reference week. 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 27 June to 3 July 2021 and the reference day is Wednesday 30 June 2021.

## Response rates

Response rates for England, Wales, Northern Ireland and Scotland cannot be regarded as final response rates to the survey since those who are invited are not given a time limit in which to respond, and different modes of sampling are not comparable. Response rates for each nation are found in the [accompanying 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 [methods article](#).

## Sub-regional geographies

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

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

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

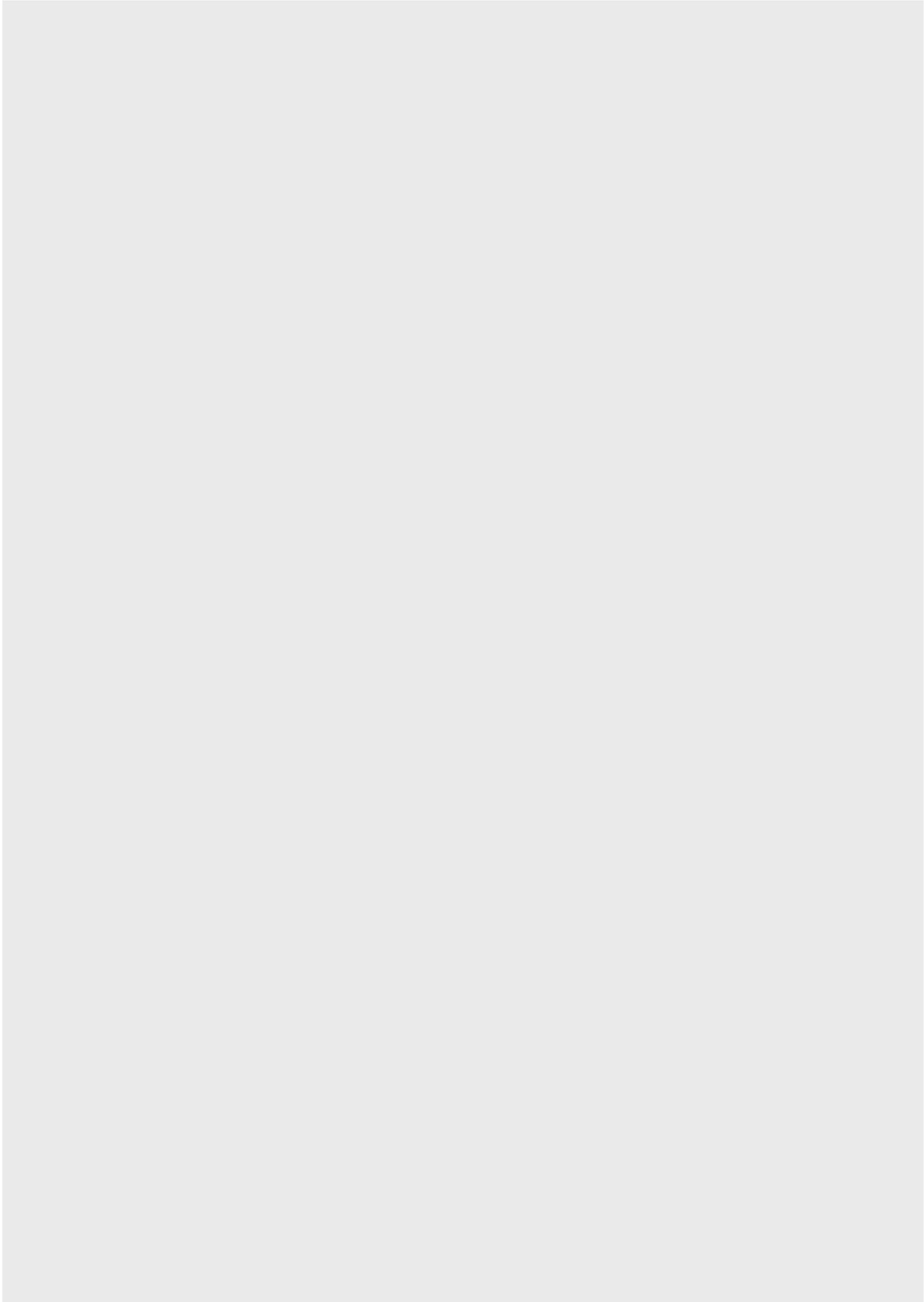
This study is one of a number of studies that look to provide information around the coronavirus pandemic within the UK. For information on other studies see [Section 11: Measuring the data](#) in our previous bulletin dated 30 April 2021.

## 12 . Strengths and limitations

These statistics have been produced quickly in response to developing world events. The [Office for Statistics Regulation](#), on behalf of the UK Statistics Authority, has [reviewed them](#) 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 are presented in [our methodology article](#) and our [blog](#).

## 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, Public Health England and Wellcome Trust.

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

Article | 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, Public Health England and Wellcome Trust.

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

Interactive tool | Updated as and when data become available

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

[Coronavirus \(COVID-19\) latest data and analysis](#)

Web page | Updated as and when data become available

Latest data and analysis on the coronavirus pandemic in the UK and its effect on the economy and society.

[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.

[COVID-19 Infection Survey](#)

Article | Updated regularly

Whether you have been invited to take part, or are just curious, find out more about our COVID-19 Infection Survey and what is involved.

[Coronavirus \(COVID-19\) Infection Survey technical article: analysis of reinfections of COVID-19: June 2021](#)

Technical article | Released on 29 June 2021

This release provides data about reinfections of COVID-19 from the COVID-19 Infection Survey. This analysis has been produced in partnership with the University of Oxford.

[Coronavirus \(COVID-19\) Infection Survey technical article: waves and lags of COVID-19 in England, June 2021](#)

Technical article | Released on 29 June 2021

An analysis of published data on the waves and lags of coronavirus (COVID-19) from the Coronavirus (COVID-19) Infection Survey, the Scientific Advisory Group for Emergencies (SAGE) and Public Health England (PHE). This analysis has been produced in partnership with the University of Oxford.

[Coronavirus \(COVID-19\) Infection Survey technical article: analysis of positivity after vaccination, June 2021](#)

Technical article | Released 17 June 2021

This release provides data about positivity after vaccination from the Coronavirus (COVID-19) Infection Survey. This analysis has been produced in partnership with the University of Oxford.

[COVID-19 Schools Infection Survey, England: Round 5, England: May 2021](#)

Bulletin | Released on 1 July 2021

Initial estimates of staff and pupils testing positive for coronavirus (COVID-19) from the COVID-19 Schools Infection Survey across a sample of schools, within selected local authority areas in England. This Schools Infection Survey (SIS) is jointly led by the London School of Hygiene & Tropical Medicine, Public Health England and the Office for National Statistics.

[Coronavirus and self-isolation after testing positive in England: 7 June to 12 June 2021](#)

Bulletin | Released on 28 June 2021

Behaviour of individuals required to self-isolate after testing positive for COVID-19, from the COVID Test and Trace Cases Insights Survey. Includes information on the impact of self-isolation on well-being and finances. Experimental Statistics.

### [Coronavirus and higher education students: England](#)

Bulletin | Released 17 June 2021

Experimental Statistics from a pilot of the Student COVID-19 Insights Survey in England. Includes information on the behaviours, plans, opinions and well-being of higher education students in the context of guidance on the coronavirus (COVID-19) pandemic.

### [The prevalence of long COVID symptoms and COVID-19 complications](#)

Article | Released 1 July 2021

Estimates of the prevalence of self-reported "long COVID", and the duration of ongoing symptoms following confirmed coronavirus infection, using UK Coronavirus (COVID-19) Infection Survey data to 6 June 2021.

### [COVID-19 Infection Survey: methods and further information](#)

Methodology article | Updated 26 March 2021

Information on the methods used to collect the data, process it, and calculate the statistics produced from the Coronavirus (COVID-19) Infection Survey.

### [The Coronavirus \(COVID-19\) Infection Survey QMI](#)

Methodology article | Updated 16 July 2021

Quality and Methodology Information for the Coronavirus (COVID-19) Infection Survey (CIS), detailing the strengths and limitations of the data, methods used, and data uses and users.