

Statistical bulletin

Coronavirus (COVID-19) Infection Survey, UK: 14 May 2021

Estimates for England, Wales, Northern Ireland and Scotland. This analysis has been produced 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.

Contact:
Kara Steel and Trudy Hill
infection.survey.analysis@ons.
gov.uk
+44 (0)1633 65 1689

Release date:
14 May 2021

Next release:
21 May 2021

Table of contents

1. [Main points](#)
2. [Number of people who had COVID-19 in England, Wales, Northern Ireland and Scotland](#)
3. [Sub-national analysis of the number of people who had COVID-19](#)
4. [Age analysis of the number of people who had COVID-19](#)
5. [Number of new COVID-19 infections in England, Wales, Northern Ireland and Scotland](#)
6. [Percentage of those testing positive compatible with the UK and other variants](#)
7. [Test sensitivity and specificity](#)
8. [COVID-19 Infection Survey data](#)
9. [Collaboration](#)
10. [Glossary](#)
11. [Measuring the data](#)
12. [Strengths and limitations](#)
13. [Related links](#)

1 . Main points

- In England, the percentage of people testing positive for the coronavirus (COVID-19) has continued to decrease in the week ending 8 May 2021; we estimate that 40,800 people within the community population in England had COVID-19 (95% credible interval: 31,900 to 50,900), equating to around 1 in 1,340 people.
- In Wales, the percentage of people testing positive appears to have decreased in the week ending 8 May 2021; we estimate that 700 people in Wales had COVID-19 (95% credible interval: 100 to 1,900), equating to around 1 in 4,230 people; the positivity estimate for Wales is currently very low.
- In Northern Ireland, the percentage of people testing positive has decreased in the two weeks up to 8 May 2021; we estimate that 1,300 people in Northern Ireland had COVID-19 (95% credible interval: 300 to 3,000), equating to around 1 in 1,430 people.
- In Scotland, the percentage of people testing positive has continued to decrease in the week ending 8 May 2021; we estimate that 4,200 people in Scotland had COVID-19 (95% credible interval: 1,900 to 7,700) equating to around 1 in 1,250 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 rates of COVID-19 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.

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 possible. These will include supporting information where possible to aid user understanding. This is consistent with guidance from the Office for Statistics Regulation.

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

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

In the week ending 8 May 2021, the number of people testing positive continued to decrease in England and Scotland and appears to have decreased in Wales. Positivity rates are currently very low in Wales, which means that it is difficult to identify trends since they are affected more easily by small changes in the number of people testing positive from week to week. The number of people testing positive in Northern Ireland decreased in the two weeks to 8 May 2021, but the trend for the most recent week is uncertain.

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 10. Because of lower positivity rates caution should be taken in over-interpreting any small movements in the latest trends.

Table 1: Official reported estimates of percentage testing positive, UK countries
 Estimated percentage of the population testing positive for the coronavirus (COVID-19) on nose and throat
 swabs, week ending 8 May 2021, UK

Country	Estimated average % of the population that had COVID-19	95% Credible Interval		Estimate of the 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	0.07%	0.06%	0.09%	40,800	31,900	50,900	1 in 1,340	1 in 1,710	1 in 1,070
Wales	0.02%	0.00%	0.06%	700	100	1,900	1 in 4,230	1 in 22,280	1 in 1,580
Northern Ireland	0.07%	0.02%	0.16%	1,300	300	3,000	1 in 1,430	1 in 5,360	1 in 610
Scotland	0.08%	0.04%	0.15%	4,200	1,900	7,700	1 in 1,250	1 in 2,730	1 in 690

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. 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. Please note, 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 and a low number of positives 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 decreased in England, Wales and Scotland in the week ending 8 May 2021 and decreased in Northern Ireland in the 2 weeks up to 8 May 2021

Estimated percentage of the population testing positive for the coronavirus (COVID-19) on nose and throat swabs from 3 May 2020

[Download the data](#)

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. 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.
5. Positivity rates are currently very low in Wales which means that it is difficult to identify trends since they are affected more easily by small changes in the number of people testing positive from week to week.

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 understand 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. Information about how the modelled and 14-day non-overlapping estimates are calculated can be found in our [methods article](#).

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.

Notes for: Number of people in the UK who had COVID-19

1. This is based on modelled estimates from the reference point of the most recent week (2 May 2021 to 8 May 2021), Wednesday 5 May 2021. More information on reference dates can be found in [Section 11: Measuring the data](#).

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

Regional analysis for England

The overall national picture for England is a result of the trends across regions. During the week ending 8 May 2021, the highest percentage of people testing positive was observed in Yorkshire and The Humber, although rates were low in all regions and credible intervals are wide.

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 8 May 2021, the percentage of people testing positive decreased in Yorkshire and The Humber. The trend is uncertain in the week ending 8 May 2021 in the North West, East Midlands and the South East, but rates appear to have decreased in the two weeks up to 8 May 2021 in these regions. The trend is uncertain in the North East, London, East of England, West Midlands and the South West. In many regions positivity rates are very low so trends will be difficult to identify since they are affected by small changes in the number of people testing positive from week to week.

Figure 2: The percentage of people testing positive decreased in Yorkshire and The Humber in the week ending 8 May 2021

Estimated percentage of the population testing positive for the coronavirus (COVID-19) on nose and throat swabs, daily, by region since 28 March 2021, England

[Download the data](#)

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: Number of people in England, Wales, Northern Ireland and Scotland who had COVID-19](#).
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 percentages shown here have been rounded to 1 decimal place and 0.0% does not mean that there have been no positive cases in these regions.

Sub-regional analysis for the UK

When infections are low, it becomes more difficult to break the estimates down into smaller geographic areas. Because of this low positivity, we are not providing sub-regional positivity estimates for the four countries.

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 8 May 2021, the percentage of people testing positive decreased in those aged 35 to 49 years. In the two weeks up to 8 May 2021, rates have decreased for those aged 2 years to school Year 11, however, the trend is uncertain in the most recent week. In the week ending 8 May 2021, the trend is uncertain for all other age groups. The percentage testing positive for those aged 70 years and over is very low. Because of lower positivity rates, caution should be taken in over-interpreting small movements in the latest trends.

Figure 3: The percentage testing positive in England decreased in people aged 35 to 49 years, in the week ending 8 May 2021

Estimated percentage of the population testing positive for the coronavirus (COVID-19) on nose and throat swabs, daily, by age group since 28 March 2021, England

[Download the data](#)

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 percentages shown here have been rounded to 1 decimal place and 0.0% does not mean that there have been no positive cases in these age bands.

We are unable to produce the same grouped analysis as presented in Figure 3 for the devolved administrations because of smaller sample sizes within each age group.

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

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.

Because of lower positivity rates, we are carrying out some additional checks on our estimates of incidence ([last published 7 May 2021](#)). Therefore, we will not be updating our incidence estimates in this publication. For more information on how we calculate estimates of incidence please see [COVID-19 Infection Survey: methods and further information](#).

6 . Percentage of those testing positive compatible with the UK and other variants

A new variant of the coronavirus (COVID-19) was identified in the UK in mid-November 2020. The UK variant (B.1.1.7) of COVID-19 has changes in one of the three genes that coronavirus swab tests detect, known as the S-gene. This means in cases compatible with the UK variant, the S-gene is not detected by the current test.

Other variants, including B.1.525 (first identified in Nigeria), also have this same pattern of gene positivity. At present these are [rare in the UK](#) so we continue to describe this group as compatible with the UK variant, but we will continue to keep this under review. You can [read more about the UK variant](#) in our blog. The percentage of people testing positive compatible with the UK variant by UK country and regions of England are provided in the accompanying [technical dataset](#).

The trend in the percentage of people testing positive that are compatible with the UK variant decreased in England and Scotland in the week ending 8 May 2021. In the same week, the trend for both Wales and Northern Ireland was uncertain.

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's 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 Office for National Statistics (ONS) 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 virus is which type of variant.

These data are provided in the [accompanying technical dataset](#) using the international standard labels. For example, the UK variant is B.1.1.7, and the South African variant is B.1.351. We have not seen any of the Manaus variant to date (P.1). We also provide information on viruses where we have found a particular genetic change (mutation) called E484K. This mutation is always seen in the South African variant (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 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.

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 the 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 . COVID-19 Infection Survey data

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

Dataset | Released 14 May 2021

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

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

Dataset | Released 14 May 2021

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

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

Dataset | Released 14 May 2021

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

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

Dataset | Released 14 May 2021

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

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

Dataset | Released 14 May 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 our [methodology page on statistical uncertainty](#).

Credible interval

A credible interval gives an indication of the uncertainty of an estimate from data analysis. 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 2 May to 8 May 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 5 May 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](#).

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 30th 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 recent [blog](#).

13 . Related links

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

Article | Updated fortnightly

The characteristics of people testing positive for the 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 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 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.

[Coronavirus \(COVID-19\) roundup](#)

Web page | Updated as and when data become available

Catch up on the latest data and analysis related to the coronavirus pandemic and its impact on our 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 and higher education students: England](#)

Bulletin | Released 7 April 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 April 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 March 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.