

Article

# Coronavirus (COVID-19) Infection Survey, antibody data for the UK: 16 February 2021

Antibody data by UK country and regions in England 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.

Contact:

Kara Steel and Eleanor Fordham  
infection.survey.analysis@ons.

gov.uk

+44 (0) 1633 651689

Release date:

16 February 2021

Next release:

To be announced

## Table of contents

1. [Main points](#)
2. [Overview](#)
3. [Likelihood of testing positive for COVID-19 antibodies in England, Wales, Northern Ireland and Scotland](#)
4. [Regional analysis of the likelihood of testing positive for COVID-19 antibodies in England](#)
5. [Age analysis of the likelihood of testing positive for COVID-19 antibodies in England, Wales, Northern Ireland and Scotland](#)
6. [Coronavirus \(COVID-19\) Infection Survey data](#)
7. [Collaboration](#)
8. [Glossary](#)
9. [Related links](#)

# 1 . Main points

- In England, an estimated 1 in 5 people (95% confidence interval: 1 in 6 to 1 in 5) would have tested positive for antibodies against SARS-CoV-2 on a blood test in the 28 days up to 1 February 2021, suggesting they had the infection in the past or have been vaccinated.
- In Wales, an estimated 1 in 7 people (95% confidence interval: 1 in 8 to 1 in 6) would have tested positive for antibodies against SARS-CoV-2 on a blood test in the 28 days up to 1 February 2021, suggesting they had the infection in the past or have been vaccinated.
- In Northern Ireland, an estimated 1 in 7 people (95% confidence interval: 1 in 10 to 1 in 6) would have tested positive for antibodies against SARS-CoV-2 on a blood test in the 28 days up to 1 February 2021, suggesting they had the infection in the past or have been vaccinated.
- In Scotland, an estimated 1 in 9 people (95% confidence interval: 1 in 10 to 1 in 8) would have tested positive for antibodies against SARS-CoV-2 on a blood test in the 28 days up to 1 February 2021, suggesting they had the infection in the past or have been vaccinated.
- The highest percentages of people testing positive for antibodies were those aged 80 years and over in England, those aged 16 to 24 years in Wales and Scotland, and those aged 25 to 34 years in Northern Ireland, in the 28 days up to 1 February 2021.

## 2 . Overview

In this article, we refer to the presence of antibodies to the coronavirus (COVID-19) 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.

This article presents analysis on past infection and/or vaccination – which we define as testing positive for antibodies to SARS-CoV-2 for England, Wales, Northern Ireland and Scotland – based on findings from the COVID-19 Infection Survey in the UK. SARS-CoV-2 is the scientific name given to the specific virus that causes COVID-19. More information on our headline estimates of the overall number of positive cases in England, Wales, Northern Ireland and Scotland are available in our [latest bulletin](#).

Previous antibodies data were published in [Coronavirus \(COVID-19\) Infection Survey: antibody data for the UK, January 2021](#) on 19 January 2021 as part of a [series of articles](#) on the characteristics of those testing positive for COVID-19. To make the antibodies data and analysis easier to find, all releases from 3 February 2021 onwards are published in this [Coronavirus \(COVID-19\) Infection Survey: antibody data for the UK](#) article series.

Our [methodology article](#) provides further information around the survey design, how we process data, and how data are analysed. The [study protocol](#) specifies the research for the study. Further information on what the analysis covers is provided at the start of each section.

### About this analysis

The analysis in this article is based on blood test results taken from a randomly selected subsample of individuals aged 16 years and over, which are used to test for antibodies against SARS-CoV-2. This can be used to identify individuals who have had the infection in the past or have developed antibodies as a result of vaccination.

It takes between two and three weeks after infection or vaccination for the body to make enough antibodies to fight the infection. Antibodies remain in the blood at low levels, although these levels can decline over time to the point that tests can no longer detect them. Having antibodies can help to prevent individuals from getting the same infection again.

We measure the presence of antibodies to understand who has had coronavirus (COVID-19) in the past and the impact of vaccinations. Once infected or vaccinated, the length of time antibodies remain at detectable levels in the blood is not fully known. It is also not yet known how having detectable antibodies, now or at some time in the past, affects the chance of getting COVID-19 again.

We have changed the way we report our antibody estimates and are now presenting weighted estimates for 28-day periods of antibody positivity for England, Wales, Northern Ireland and Scotland, rather than monthly estimates. This approach will allow us to provide more frequent updates on antibody data. We also present the weighted estimates of antibody positivity for regions of England and broken down by age for each of the UK countries. Please note that these 28-day estimates cannot be directly compared with monthly antibody estimates published before 3 February 2021. The 28-day periods presented in this article are updated to work backwards from the most recent 28-day period available. This means the time periods overlap with those presented in our previous article.

We plan to publish antibody statistics fortnightly.

#### More about coronavirus

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

### 3 . Likelihood of testing positive for COVID-19 antibodies in England, Wales, Northern Ireland and Scotland

An estimated 18.5% (95% confidence interval: 17.9% to 19.1%) of the population in England would have tested positive for antibodies to SARS-CoV-2 from a blood sample in the 28 days up to 1 February 2021. The estimate is weighted to be representative of the overall population and suggests that an average of 8.3 million people aged 16 years and over in England would have tested positive for antibodies to SARS-CoV-2 during this time (95% confidence interval: 8 million to 8.6 million). This equates to 1 in 5 people aged 16 years and over (95% confidence interval: 1 in 6 to 1 in 5). The estimates suggest there has been an increase in antibody positivity in England in the most recent 28-day period.

In Wales, an estimated 14.4% of the population would have tested positive for antibodies to SARS-CoV-2 from a blood sample (95% confidence interval: 12.1% to 17.0%) in the 28 days up to 1 February 2021. It is estimated that an average of 365,000 people aged 16 years and over in Wales would have tested positive for antibodies during this time (95% confidence interval: 306,000 to 431,000). This equates to 1 in 7 people aged 16 years and over (95% confidence interval: 1 in 8 to 1 in 6).

In Northern Ireland, an estimated 13.6% of the population would have tested positive for SARS-CoV-2 from a blood sample (95% confidence interval: 10.5% to 17.1%) in the 28 days up to 1 February 2021. It is estimated that an average of 201,000 people aged 16 years and over in Northern Ireland would have tested positive for antibodies during this time (95% confidence interval: 156,000 to 254,000). This equates to 1 in 7 people aged 16 years and over (95% confidence interval: 1 in 10 to 1 in 6).

In Scotland, an estimated 11.7% of the population would have tested positive for antibodies to SARS-CoV-2 from a blood sample (95% confidence interval: 10.3% to 13.2%) in the 28 days up to 1 February 2021. It is estimated that an average of 521,000 people aged 16 years and over in Scotland would have tested positive for antibodies during this time (95% confidence interval: 459,000 to 587,000). This equates to 1 in 9 people aged 16 years and over (95% confidence interval: 1 in 10 to 1 in 8).

Weighted estimates of the percentage of people testing positive for SARS-CoV-2 antibodies for 28-day periods in England, Wales, Northern Ireland and Scotland are presented in Figure 1.

In the data used to produce estimates for Wales, Northern Ireland and Scotland, the number of people sampled who tested positive for antibodies to SARS-CoV-2 is low compared with England. This means there is a higher degree of uncertainty in estimates for these nations, as indicated by larger confidence intervals.

### **Figure 1: In the 28 days up to 1 February 2021, the percentage of people with antibodies against COVID-19 was highest in England and lowest in Scotland**

**Estimated percentage of people testing positive for antibodies to SARS-CoV-2 from a blood sample, by 28-day periods, 28 April 2020 to 1 February 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. Survey fieldwork for the pilot study began in England on 26 April 2020. In Wales, fieldwork began on 29 June, in Northern Ireland fieldwork began on 26 July and in Scotland fieldwork began on 21 September.

[Download the data](#)

## **4 . Regional analysis of the likelihood of testing positive for COVID-19 antibodies in England**

The analysis in this section uses data taken from the 28 days up to 1 February 2021 to produce weighted antibodies estimates. There was substantial variation in antibody positivity between regions, from 24.8% (95% confidence interval: 23.2% to 26.4%) in London compared with 11.6% (95% confidence interval: 10.2% to 13.2%) in the South West.

Confidence intervals are large for some regions indicating high uncertainty in those estimates but there is still evidence of differences in the percentage of people testing positive for antibodies between regions.

### **Figure 2: Antibody positivity was above the national average in London, the North West, the West Midlands and Yorkshire and The Humber in the 28 days up to 1 February 2021**

**Estimated percentage of people testing positive for antibodies to SARS-CoV-2 from a blood sample in the 28 days up to 1 February 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.

[Download the data](#)

## 5 . Age analysis of the likelihood of testing positive for COVID-19 antibodies in England, Wales, Northern Ireland and Scotland

The analysis in this section uses data taken from the 28 days up to 1 February 2021 to produce weighted antibody estimates by age in England, Wales, Northern Ireland and Scotland.

In England, the highest percentage of people testing positive for antibodies was for those aged 80 years and over at 40.9% (95% confidence interval: 37.9% to 44.0%), most likely due to the high vaccination rate in this group. This was followed by people aged 16 to 24 years, where the percentage testing positive for antibodies was 25.9% (95% confidence interval: 23.5% to 28.5%). The lowest percentage of people testing positive for antibodies was in those aged 70 to 74 years at 10.5% (95% confidence interval: 9.3% to 11.8%) and those aged 75 to 79 years at 12.4% (95% confidence interval: 10.8% to 14.2%).

While there were 40.9% of people aged 80 years and over testing positive for antibodies in England, this figure relates to the community population who live in private households. Therefore, people in this age group who live in establishments such as care homes are not included in this survey. Since this group was the priority for receiving vaccinations, the true figure among those aged 80 years and over in the population may be different. An estimated [90% of people aged 80 years and over live in private households](#) and 10% live in other establishments such as care homes.

In Wales, the percentage of people aged 80 years and over testing positive for antibodies was 12.7% (95% confidence interval: 4.5% to 26.4%). The highest percentage of people testing positive for antibodies was those aged 16 to 24 years at 32.6% (95% confidence interval: 21.6% to 45.2%). The lowest number of people testing positive for antibodies was in those aged 70 to 74 years at 5.9% (95% confidence interval: 2.5% to 11.5%).

In Northern Ireland, the percentage of people aged 70 years and over testing positive for antibodies was 9.1% (95% confidence interval: 4.0% to 17.2%). Because of small sample sizes, this analysis uses different age groups to England and other Devolved Administration antibodies analysis, with everyone over the age of 70 years included in the same age group. The highest percentage of people testing positive for antibodies was those aged 25 to 34 years at 21.6% (95% confidence interval: 10.7% to 36.5%). The lowest number of people testing positive for antibodies was in those aged 16 to 24 years at 7.6% (95% confidence interval: 1.5% to 21.1%).

In Scotland, the percentage of people aged 80 years and over testing positive for antibodies was 11.6% (95% confidence interval: 5.6% to 20.6%). The highest percentage of people testing positive for antibodies was those aged 16 to 24 years at 15.5% (95% confidence interval: 9.9% to 22.5%). The lowest number of people testing positive for antibodies was in those aged 75 to 79 years at 7.7% (95% confidence interval: 4.0% to 13.2%).

In the data used to produce estimates for Wales, Northern Ireland and Scotland, the number of people sampled who tested positive for antibodies to SARS-CoV-2 is low compared with England. This means there is a higher degree of uncertainty in estimates for these nations, as indicated by larger confidence intervals.

The percentage of people testing positive for antibodies in the oldest age groups varies considerably between nations. This could be explained by the varying approaches to vaccine distribution in different nations. This survey does not include those that live in care homes, one of the priority groups identified by the [Joint Committee on Vaccination and Immunisation \(JCVI\)](#). Daily and weekly counts of vaccine doses administered by nation can be seen in the [Public Health England \(PHE\) dashboard](#).

**Figure 3: The highest percentages testing positive for antibodies were for those aged 80 years and over in England, those aged 16 to 24 years in Wales and Scotland, and those aged 25 to 34 years in Northern Ireland, in the 28 days up to 1 February 2021**

**Estimated percentage of people testing positive for antibodies to SARS-CoV-2 from a blood sample, by age, 5 January to 1 February 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. In Northern Ireland, the number of people sampled who tested positive for antibodies to SARS-CoV-2 is low compared with England, Wales and Scotland; therefore people over the age of 70 years are included in the same age group.

[Download the data](#)

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

[Coronavirus \(COVID-19\) antibody data for the UK](#)

Dataset | Released 16 February 2021

Antibody data for the UK taken from the Coronavirus (COVID-19) Infection Survey

## 7 . Collaboration

The Coronavirus (COVID-19) Infection Survey analysis was produced by the Office for National Statistics (ONS) in partnership with the University of Oxford, the University of Manchester, Public Health England 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

## 8 . Glossary

### Confidence intervals

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](#).

## 9 . Related links

### [Coronavirus \(COVID-19\) Infection Survey, UK](#)

Bulletin | Updated weekly

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.

### [Coronavirus \(COVID-19\) Infection Survey: antibody data for the UK, January 2021](#)

Article | 19 January 2021

Antibody 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 \(COVID-19\) Infection Survey: characteristics of people testing positive for COVID-19 in England, 9 February 2021](#)

Article | 9 February 2021

Characteristics of people testing positive for COVID-19 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 \(COVID-19\) weekly insights: latest health indicators in England](#)

Article | Updated weekly

Brings together data about the coronavirus (COVID-19) pandemic in England and explores how these measures interact with each other can improve understanding of the severity and spread of the pandemic.

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

Methods article | Updated 21 September 2020

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

### [COVID-19 Infection Survey \(CIS\)](#)

Article | Updated 14 May 2020

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 \(COVID-19\) 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.

### [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.