Article

Coronavirus (COVID-19) Infection Survey antibody data for the UK: 2 March 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.

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1 . Main points

- In England, an estimated 1 in 4 people (95% confidence interval: 1 in 4 to 1 in 4) would have tested positive for antibodies against the coronavirus - SARS-CoV-2 - on a blood test in the 28 days up to 11 February 2021, suggesting they had the infection in the past or have been vaccinated.

- In Wales, an estimated 1 in 6 people (95% confidence interval: 1 in 7 to 1 in 5) would have tested positive for antibodies against SARS-CoV-2 on a blood test in the 28 days up to 11 February 2021, suggesting they had the infection in the past or have been vaccinated.

- In Northern Ireland, an estimated 1 in 6 people (95% confidence interval: 1 in 8 to 1 in 5) would have tested positive for antibodies against SARS-CoV-2 on a blood test in the 28 days up to 11 February 2021, suggesting they had the infection in the past or have been vaccinated.

- In Scotland, an estimated 1 in 8 people (95% confidence interval: 1 in 9 to 1 in 7) would have tested positive for antibodies against SARS-CoV-2 on a blood test in the 28 days up to 11 February 2021, suggesting they had the infection in the past or have been vaccinated.

- The highest percentage of people testing positive for antibodies was in those aged 80 years and over in England, in the 28 days up to 11 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 Coronavirus (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 the 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. For the first time we are also presenting estimates of antibody positivity by sex for each UK country, and by age and sex for England.

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

In England, an estimated 23.3% (95% confidence interval: 22.7% to 23.9%) of the population would have tested positive for antibodies to SARS-CoV-2 from a blood sample in the 28 days up to 11 February 2021. The estimate is weighted to be representative of the overall population and suggests that an average of 10.5 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: 10.2 million to 10.7 million). This equates to 1 in 4 people aged 16 years and over (95% confidence interval: 1 in 4 to 1 in 4). The estimates suggest there has been an increase in antibody positivity in England in the most recent 28-day period.

In Wales, an estimated 16.4% of the population would have tested positive for antibodies to SARS-CoV-2 from a blood sample (95% confidence interval: 14.0% to 19.0%) in the 28 days up to 11 February 2021. It is estimated that an average of 416,000 people aged 16 years and over in Wales would have tested positive for antibodies during this time (95% confidence interval: 356,000 to 482,000). This equates to 1 in 6 people aged 16 years and over (95% confidence interval: 1 in 7 to 1 in 5).

In Northern Ireland, an estimated 15.9% of the population would have tested positive for SARS-CoV-2 from a blood sample (95% confidence interval: 12.8% to 19.5%) in the 28 days up to 11 February 2021. It is estimated that an average of 236,000 people aged 16 years and over in Northern Ireland would have tested positive for antibodies during this time (95% confidence interval: 190,000 to 289,000). This equates to 1 in 6 people aged 16 years and over (95% confidence interval: 1 in 8 to 1 in 5).

In Scotland, an estimated 13.1% of the population would have tested positive for antibodies to SARS-CoV-2 from a blood sample (95% confidence interval: 11.6% to 14.7%) in the 28 days up to 11 February 2021. It is estimated that an average of 586,000 people aged 16 years and over in Scotland would have tested positive for antibodies during this time (95% confidence interval: 520,000 to 658,000). This equates to 1 in 8 people aged 16 years and over (95% confidence interval: 1 in 9 to 1 in 7).

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 11 February 2021, the percentage of people testing positive for COVID-19 antibodies 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, 8 May 2020 to 11 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 11 February 2021 to produce weighted antibodies estimates.

There was substantial variation in antibody positivity between regions, from 29.1% (95% confidence interval: 27.5% to 30.8%) in London compared with 16.3% (95% confidence interval: 14.7% to 18.0%) 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: COVID-19 antibody positivity was above the national average in London, the North West, the West Midlands, Yorkshire and The Humber, and the North East

Estimated percentage of people testing positive for antibodies to SARS-CoV-2 from a blood sample in the 28 days up to 11 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 on 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 11 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 56.4% (95% confidence interval: 53.3% to 59.4%), most likely because of 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 30.1% (95% confidence interval: 27.6% to 32.7%).

The lowest percentage of people testing positive for antibodies was for those aged 70 to 74 years at 16.6% (95% confidence interval: 15.1% to 18.1%). The percentage of people testing positive for antibodies for the other age groups ranged from 19.9% to 24.9%.

While there were 56.4% 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. Because 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 18.5% (95% confidence interval: 8.7% to 32.5%). For those aged 16 to 24 years, 27.1% (95% confidence interval: 16.6% to 39.9%) tested positive for antibodies. The percentage of people testing positive for antibodies for the other age groups ranged from 8.3% to 17.8%.

In Northern Ireland, the percentage of people aged 70 years and over testing positive for antibodies was 17.6% (95% confidence interval: 10.8% to 26.4%). 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. For those aged 25 to 34 years, 21.9% (95% confidence interval: 11.6% to 35.6%) tested positive for antibodies. The percentage of people testing positive for antibodies for the other age groups ranged from 9.4% to 16.4%.

In Scotland, 20.7% (95% confidence interval: 12.4% to 31.2%) of people aged 80 years and over tested positive for antibodies, most likely because of the high vaccination rate in this group. Between 5.6% and 16.7% of people in the other age groups tested positive for antibodies.

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 Heath England (PHE) dashboard](#).

Figure 3: The highest percentage testing positive for COVID-19 antibodies was for those aged 80 years and over in England

Estimated percentage of people testing positive for antibodies to SARS-CoV-2 from a blood sample, by age, in the 28 days up to 11 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 . Age over time analysis on the likelihood of testing positive for COVID-19 antibodies in England, Wales, Northern Ireland and Scotland

The analysis in this section presents modelled daily estimates of antibody positivity by single year of age for England, Wales, Northern Ireland and Scotland. The modelled data use a different method to the 28-day weighted estimates presented in [Section 5](#) and so they cannot be compared.

Figure 4 shows the percentages testing positive for COVID-19 antibodies by single year of age from 3 January to 11 February 2021 for each of the four UK countries.

Figure 4: The percentages testing positive for COVID-19 antibodies by single year of age in England, Wales, Northern Ireland and Scotland

Modelled estimated percentage of people testing positive for antibodies to SARS-CoV-2 from a blood sample, by single year of age, from 3 January to 11 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. The method used to generate the data differs from the 28-day weighted estimates of antibody positivity by age and so is not comparable.

Download the data

7 . Sex analysis on 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 11 February 2021 to produce weighted antibody estimates by sex in England, Wales, Northern Ireland and Scotland.

In England, the percentage of people testing positive for antibodies appeared to be higher for females at 24.6% (95% confidence interval: 23.7% to 25.5%) than males at 21.9% (95% confidence interval: 21.1% to 22.9%).

In Wales, the percentage of people testing positive for antibodies appeared to be higher for females at 20.3% (95% confidence interval: 16.7% to 24.4%) than males at 12.3% (95% confidence interval: 9.5% to 15.6%).

Differences between males and females in Northern Ireland and Scotland were less certain because of wide confidence intervals.

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 5: More women than men tested positive for COVID-19 antibodies in England and Wales

Estimated percentage of people testing positive for antibodies to SARS-CoV-2 from a blood sample, by sex, in the 28 days up to 11 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.

Download the data

8 . Age and sex analysis on 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 11 February 2021 to produce weighted antibody estimates by age and sex in England.

The percentage of people testing positive for antibodies in those aged 35 to 49 years was higher for females at 24.4% (95% confidence interval: 22.6% to 26.2%) than males at 19.1% (95% confidence interval: 17.4% to 20.9%).

Figure 6: The biggest difference in the percentage testing positive for COVID-19 antibodies between males and females was in those aged 35 to 49 years in England

Estimated percentage of people testing positive for antibodies to SARS-CoV-2 from a blood sample, by age and sex, in the 28 days up to 11 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

9 . Coronavirus (COVID-19) Infection Survey data

Coronavirus (COVID-19) antibody data for the UK
Dataset | Released 2 March 2021
Antibody data for the UK taken from the Coronavirus (COVID-19) Infection Survey.

10 . 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

11 . Glossary

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. A 95% credible interval is calculated so that there is a 95% probability of the true value lying in the interval.

12 . 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: characteristics of people testing positive for COVID-19 in England](#)
Article | Updated fortnightly
Characteristics of people testing positive for COVID-19 from the COVID-19 Infection Survey, including antibody data by UK country, and region and occupation for England.

[COVID-19 Infection Survey (Pilot): methods and further information](#)
Methods article | Updated 21 September 2020
Information on the methods used to collect and process the data, 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.