

Article

Coronavirus (COVID-19) Infection Survey, antibody and vaccination data for the UK: 30 March 2021

Antibody and vaccination 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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Release date:
30 March 2021

Next release:
14 April 2021

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1 . Main points

- In England, an estimated 1 in 2 people, or 54.7% of the population (95% credible interval: 49.3% to 60.5%) would have tested positive for antibodies against the coronavirus – SARS-CoV-2 – on a blood test in the week ending 14 March 2021, suggesting they had the infection in the past or have been vaccinated.
- In Wales, an estimated 1 in 2 people, or 50.5% of the population (95% credible interval: 44.2% to 57.2%) would have tested positive for antibodies against SARS-CoV-2 on a blood test in the week ending 14 March 2021, suggesting they had the infection in the past or have been vaccinated.
- In Northern Ireland, an estimated 1 in 2 people, or 49.3% of the population (95% credible interval: 41.8% to 59.7%) would have tested positive for antibodies against SARS-CoV-2 on a blood test in the week ending 14 March 2021, suggesting they had the infection in the past or have been vaccinated.
- In Scotland, an estimated 2 in 5 people, or 42.6% of the population (95% credible interval: 37.1% to 48.6%) would have tested positive for antibodies against SARS-CoV-2 on a blood test in the week ending 14 March 2021, suggesting they had the infection in the past or have been vaccinated.
- The data show a reduction in antibody positivity rates among older individuals during the most recent days in the period analysed; this is likely because of people in these prioritised age groups having received their first vaccine dose but not yet their second dose; this does not necessarily mean they have no immunity protection against coronavirus (COVID-19).
- For the first time, we have included modelled estimates of the number of people who have received at least one dose of a vaccine; across all four countries of the UK there is a clear pattern between vaccination and testing positive for COVID-19 antibodies.

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.

It is important to draw the distinction between testing positive for antibodies and having immunity. Following infection or vaccination, antibody levels can vary and sometimes increase but are still below the level identified as "positive" in our test, and other tests. This does not mean that a person has no protection against coronavirus (COVID-19) since an immune response does not rely on the presence of antibodies alone. We also do not yet know exactly how much antibodies need to rise to give protection. A person's "T cell" response [will provide protection](#) but is not detected by blood tests for antibodies.

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. For the first time, we have also included figures on the proportion of people who have received at least one dose of a vaccine against SARS-CoV-2.

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 of COVID-19 in England, Wales, Northern Ireland and Scotland are available in our [latest bulletin](#).

Our last publication of antibodies data was [16 March 2021](#) for the 28-day period up to 3 March 2021. Earlier antibodies data are available 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 on antibodies 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, since other parts of the immune system (T cell response) will offer protection.

In this article we have changed the way we produce our estimates of antibody positivity. Previously we presented weighted estimates for 28-day periods of antibody positivity for England, Wales, Northern Ireland and Scotland, with fortnightly updates on antibody data.

Estimates are now based on a model where England, Wales and Scotland are included together in a spatial-temporal model with Northern Ireland being modelled separately. This reflects the geography of the four countries with Northern Ireland not sharing a land border with Great Britain. The geo-spatial model incorporates physical land distance between regions. This new modelling approach means we are able to provide more timely weekly estimates given the rapid vaccination rollout whilst still adjusting to make the estimates representative of the population. The data are modelled on standardised Monday to Sunday surveillance weeks and we present data beginning 7 December 2020. The final week's modelled estimate is subject to more uncertainty as it is an incomplete week of data and therefore more likely to change when more data become available. Further information on our new method to model antibodies can be found in our updated [methods article](#).

We are presenting weekly modelled estimates by country, by grouped age, and by single year of age for England, Wales, Northern Ireland and Scotland, as well as by regions in England.

In this publication we also present data on the percentage of people who have received one or more doses of a COVID-19 vaccination since 14 December 2020. Vaccination rates were too low to model any earlier. The estimates of the percentage of people vaccinated are based on modelling of the people visited in the COVID-19 Infection Survey in the community in a particular time period. These estimates are then adjusted (post-stratified) using population estimates to be representative. However, these estimates may differ from other figures given through administrative data because of a difference in the population denominator (our survey does not include people who live in communal establishments, such as care homes, which are a priority group for the vaccine rollout) or any biases that are adjusted for in our sample (such as vaccine rollout approaches).

National Immunisation Management System (NIMS) administrative data is used to validate COVID-19 Infection Survey self-reported records of vaccination for England. The equivalent of this is currently not included for other countries, meaning the estimates for Wales, Northern Ireland and Scotland are produced only from COVID-19 Infection Survey self-reported records of vaccination. The [UK coronavirus dashboard](#) includes daily data for the UK and each constituent country on the actual number of people who have received a COVID-19 vaccination. This is based on individual vaccination records (administrative data held by each nation) and should be used to understand progress of the vaccination programme across the UK. As our analysis develops, our survey-based estimates will enable possible future analysis of people who have received a vaccine with other characteristics collected in the survey.

Antibody data are a week behind vaccination data as there is a time lag on when antibody data are received, whereas vaccine data are self-reported and more readily available.

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

In England, an estimated 54.7% (95% credible interval: 49.3% to 60.5%) of the population would have tested positive for antibodies to SARS-CoV-2 from a blood sample in the week ending 14 March 2021.

In Wales, an estimated 50.5% (95% credible interval: 44.2% to 57.2%) of the population would have tested positive for antibodies to SARS-CoV-2 from a blood sample in the week ending 14 March 2021.

In Northern Ireland, an estimated 49.3% (95% credible interval: 41.8% to 59.7%) of the population would have tested positive for antibodies to SARS-CoV-2 from a blood sample in the week ending 14 March 2021.

In Scotland, an estimated 42.6% (95% credible interval: 37.1% to 48.6%) of the population would have tested positive for antibodies to SARS-CoV-2 from a blood sample in the week ending 14 March 2021.

Modelled estimates of the percentage of people testing positive for SARS-CoV-2 antibodies for weekly periods in England, Wales, Northern Ireland and Scotland are presented in Figure 1. Across all four UK countries, the modelled estimates suggest there has been an increase in antibody positivity in the week ending 14 March 2021.

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 credible intervals.

Figure 1: The percentage of people testing positive for COVID-19 antibodies increased across all four UK countries in the week ending 14 March 2021

Modelled percentage of people testing positive for antibodies to SARS-CoV-2 from a blood sample, from 7 December 2020 to 14 March 2021, UK

Notes:

1. All results are provisional and subject to revision.
2. These statistics refer to antibody tests in the community, by which we mean private households. These figures exclude individuals 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. 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.

[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 8 to 14 March 2021 to produce modelled antibody estimates. Modelled antibody estimates for previous weeks can be found in the accompanying [dataset](#). [Section 8](#) shows regional antibody positivity alongside vaccinations over time.

There is some variation in antibody positivity between regions, from 60.0% (95% credible interval: 54.2% to 65.8%) in the North West compared with 50.3% (95% credible interval: 44.7% to 56.5%) in the South East.

Figure 2: COVID-19 antibody positivity varies across regions in England

Modelled percentage of people testing positive for antibodies to SARS-CoV-2 from a blood sample, from 8 to 14 March 2021, England

Notes:

1. All results are provisional and subject to revision.
2. These statistics refer to antibody tests reported in the community, by which we mean private households. These figures exclude individuals 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. 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.

[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 8 to 14 March 2021 to produce modelled antibody estimates by age in England, Wales and Scotland, and Northern Ireland separately. Modelled antibody estimates for previous weeks can be found in the accompanying [dataset](#).

In England in the week ending 14 March 2021, the percentage of people testing positive for antibodies:

- for those aged 80 years and over was 86.0% (95% credible interval: 79.0% to 90.5%)
- aged 75 to 79 years was 88.5% (95% credible interval: 83.9% to 92.1%)
- aged 70 to 74 years was 91.3% (95% credible interval: 87.6% to 94.0%)
- aged 65 to 69 years was 89.0% (95% credible interval: 84.8% to 92.5%)

The percentage of people testing positive for antibodies in those aged 16 to 64 years ranged from 40.9% to 57.6%.

While there were 86.0% 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 in the week ending 14 March 2021, the percentage of people testing positive for antibodies:

- for those aged 80 years and over was 79.2% (95% credible intervals: 68.4% to 86.4%)
- aged 75 to 79 years was 84.6% (95% credible interval: 77.5% to 89.8%)
- aged 70 to 74 years was 88.7% (95% credible interval: 83.4% to 92.5%)
- aged 65 to 69 years was 86.5% (95% credible interval: 80.7% to 91.1%).

The percentage of people testing positive for antibodies for those aged 16 to 64 years ranged from 33.7% to 50.7%.

In Northern Ireland in the week ending 14 March 2021, the percentage of people testing positive for antibodies for those aged 70 years and over was 76.4% (95% credible interval: 59.8% to 90.6%). 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 percentage of people testing positive for antibodies for those aged 16 to 69 years ranged from 22.5% to 54.5%.

In Scotland in the week ending 14 March 2021, the percentage of people testing positive for antibodies:

- for those aged 80 years and over was 74.0% (95% credible interval: 62.8% to 82.2%)
- aged 75 to 79 years was 77.6% (95% credible interval: 68.8% to 84.4%)
- aged 70 to 74 years was 85.3% (95% credible interval: 79.1% to 90.0%)
- aged 65 to 69 years was 85.6% (95% credible interval: 79.9% to 90.3%)

The percentage of people testing positive for antibodies for those aged 16 to 64 years ranged from 26.3% to 40.6%.

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 credible intervals.

The higher levels of antibodies observed in older age groups reflect the high vaccination rate in older people. However, the percentage of people testing positive for antibodies varies by age group between nations. This could be explained by the varying approaches to vaccine distribution in different nations as well as past infections. 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: More than 76% of people aged 70 years and over have tested positive for COVID-19 antibodies in England, Wales, Northern Ireland and Scotland

Modelled percentage of people testing positive for antibodies to SARS-CoV-2 from a blood sample, by age, in the week ending 14 March 2021, UK

Notes:

1. All results are provisional and subject to revision.
2. These statistics refer to antibody tests reported in the community, by which we mean private households. These figures exclude individuals 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.
4. All estimates are subject to uncertainty, given that a sample is only part of the wider population. 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.

[Download the data](#)

6 . Age over time analysis of 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 and Scotland, and Northern Ireland separately. The modelled data are produced using a different method to the weekly modelled estimates presented in [Section 5](#) and so they cannot be compared. Figure 4 shows the percentages testing positive for coronavirus (COVID-19) antibodies by single year of age from 21 January to 14 March 2021 for each of the four UK countries. Each data point represents a modelled estimate of antibody positivity for a particular day.

Antibody positivity is defined by a fixed amount of antibodies in the blood. A negative test result will occur if there are no antibodies or if antibody levels are too low to be detected. It is important to draw the distinction between testing positive for antibodies and having immunity. Following infection or vaccination, antibody levels can vary and sometimes increase but are still below the level identified as "positive" in our test, and other tests. This does not mean that a person has no protection against COVID-19 since an [immune response](#) does not rely on the presence of antibodies alone. We also do not yet know exactly how much antibodies need to rise to give protection. A person's "T cell" response will provide protection but is not detected by blood tests for antibodies. A person's immune response is [affected by a number of factors](#), including health conditions and age.

Figure 4 shows a decrease in the estimated percentage of people testing positive for antibodies in the oldest ages. This is likely to reflect the vaccine rollout that initially prioritised people in these oldest age groups. Antibodies may have been at detectable levels within a few weeks of their first vaccination, but levels have since decreased and are no longer detected in the test. There are still many people who have received their first vaccine, but have not yet received their second dose, so we will regularly monitor antibody positivity as the vaccination programmes continue.

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

Modelled percentage of people testing positive for antibodies to SARS-CoV-2 from a blood sample, by single year of age, from 21 January to 14 March 2021, UK

Notes:

1. All results are provisional and subject to revision.
2. These statistics refer to antibody tests reported in the community, by which we mean private households. These figures exclude individuals in hospitals, care homes and/or other institutional settings.
3. The method used to generate the data differs from the modelled weekly estimates of antibody positivity by age and so is not comparable.

[Download the data](#)

It is unclear if antibody waning means that protection is decreasing. Further work to understand this is being undertaken.

7 . Number of people who have received one or more doses of a COVID-19 vaccination in England, Wales, Northern Ireland and Scotland

This section contains estimates based on self-reported vaccines from our infection survey, which does not include people living in communal establishments, such as care homes (which have been a priority for vaccination). These estimates are not the same as the published [government figures on recorded vaccinations](#) and there may be differences between our modelled estimates and these official figures, which are updated more regularly. The estimates produced from our survey are helpful to compare with other characteristics, such as testing positive for antibodies. We will develop our analysis further as more data become available.

Our survey shows that in the week ending 20 March 2021:

- in England, an estimated 56.1% (95% credible interval: 52.9% to 58.8%) of the population have been vaccinated against SARS-CoV-2
- in Wales, an estimated 48.6% (95% credible interval: 44.2% to 54.3%) of the population have been vaccinated against SARS-CoV-2
- in Northern Ireland, an estimated 58.7% (95% credible interval: 55.2% to 63.2%) of the population have been vaccinated against SARS-CoV-2
- in Scotland, an estimated 43.8% (95% credible interval: 39.7% to 49.5%) of the population have been vaccinated against SARS-CoV-2

Modelled estimates of the percentage of people who have been vaccinated against SARS-CoV-2 for weekly periods in England, Wales, Northern Ireland and Scotland are presented in Figure 5. Across all four UK countries, the modelled estimates suggest there has been an increase in the number of people who have been vaccinated in the week ending 20 March 2021.

In the data used to produce estimates for Wales, Northern Ireland and Scotland, the number of people sampled who have been vaccinated is low compared with England. This means there is a higher degree of uncertainty in estimates for these nations, as indicated by larger credible intervals.

Figure 5: The percentage of people who have been vaccinated and the percentage of people testing positive for COVID-19 antibodies in England, Wales, Northern Ireland and Scotland

Modelled percentage of people who have received one or more doses of a COVID-19 vaccine, 14 December 2020 to 20 March 2021, UK, and modelled percentage of people testing positive for antibodies to SARS-CoV-2, 7 December 2020 to 14 March 2021, UK

Notes:

1. All results are provisional and subject to revision.
2. These statistics refer to vaccinations in individuals living in the community, by which we mean private households. These figures exclude individuals 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. 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.
4. The denominators used for vaccinations are the total people in the sample at that particular time point, then it is post-stratified by the mid-year population estimate.

[Download the data](#)

8 . Regional analysis of the number of people who have received one or more doses of a COVID-19 vaccination in England

There is some variation in the number of people who have been vaccinated between regions, from 59.4% (95% credible interval: 53.5% to 64.9%) in the West Midlands compared with 50.1% (95% credible interval: 43.5% to 56.4%) in London.

Figure 6: The percentage of people who have been vaccinated varies across regions in England

Modelled percentage of people who have received one or more doses of a COVID-19 vaccine, by England regions, from 14 December 2020 to 20 March 2021, and modelled percentage of people testing positive for antibodies to SARS-CoV-2, by England regions, from 7 December 2020 to 14 March 2021

Notes:

1. All results are provisional and subject to revision.
2. These statistics refer to vaccinations in individuals living in the community, by which we mean private households. These figures exclude individuals 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. 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.
4. The denominators used for vaccinations are the total people in the sample at that particular time point, then it is post-stratified by the mid-year population estimate.

[Download the data](#)

9 . Age analysis of the number of people who have received one or more doses of a COVID-19 vaccination in England, Wales, Northern Ireland and Scotland

The analysis in this section uses data taken from 15 to 20 March 2021 to produce modelled vaccination estimates by age in England, Wales and Scotland, and Northern Ireland separately. Modelled vaccination estimates for previous weeks can be found in the accompanying [dataset](#).

In England in the week ending 20 March 2021, the percentage of people who have been vaccinated against SARS-CoV-2:

- for those aged 80 years and over was 99.4% (95% credible interval: 99.0% to 99.6%)
- aged 70 to 79 years was 99.7% (95% credible interval: 99.5% to 99.8%)
- aged 65 to 69 years was 98.8% (95% credible interval: 98.4% to 99.2%)
- aged 60 to 64 years was 92.0% (95% credible interval: 89.5% to 93.9%)

The percentage of people testing positive for antibodies in those aged 16 to 59 years ranged from 16.9% to 64.8%.

In Wales in the week ending 20 March 2021, the percentage of people who have been vaccinated against SARS-CoV-2:

- for those aged 80 years and over was 98.3% (95% credible interval: 97.1% to 99.1%)
- aged 75 to 79 years was 99.2% (95% credible interval: 98.5% to 99.5%)
- aged 70 to 74 years was 99.4% (95% credible interval: 98.9% to 99.6%)
- aged 65 to 69 years was 97.7% (95% credible interval: 96.3% to 98.7%)
- aged 60 to 64 years was 85.6% (95% credible interval: 78.4% to 90.9%)

The percentage of people testing positive for antibodies in those aged 16 to 59 years ranged from 8.9% to 48.2%.

In Northern Ireland in the week ending 20 March 2021, the percentage of people who have been vaccinated against SARS-CoV-2 for those aged 70 years and over was 96.5% (95% credible interval: 94.3% to 97.9%). 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 percentage of people testing positive for antibodies for those aged 16 to 69 years ranged from 12.5% to 73.0%.

In Scotland in the week ending 20 March 2021, the percentage of people who have been vaccinated against SARS-CoV-2:

- for those aged 80 years and over was 98.6% (95% credible interval: 97.5% to 99.2%)
- aged 75 to 79 years was 99.2% (95% credible interval: 98.6% to 99.5%)
- aged 70 to 74 years was 99.3% (95% credible interval: 98.7% to 99.6%)
- aged 65 to 69 years was 97.2% (95% credible interval: 95.4% to 98.3%)

The percentage of people testing positive for antibodies for those aged 16 to 64 years ranged from 7.4% to 82.6%.

In the data used to produce estimates for Wales, Northern Ireland and Scotland, the number of people sampled who have been vaccinated is low compared with England. This means there is a higher degree of uncertainty in estimates for these nations, as indicated by larger credible intervals.

Figure 7: More than 96% of people aged 70 years and over have been vaccinated in England, Wales, Northern Ireland and Scotland

Modelled percentage of people who have received one or more doses of a COVID-19 vaccine, by age, from 15 to 20 March 2021, UK

Notes:

1. All results are provisional and subject to revision.
2. These statistics refer to vaccinations in individuals living in the community, by which we mean private households. These figures exclude individuals 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.
4. All estimates are subject to uncertainty, given that a sample is only part of the wider population. 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.
5. The denominators used for vaccinations are the total people in the sample at that particular time point, then it is post-stratified by the mid-year population estimate.

[Download the data](#)

10 . Coronavirus (COVID-19) Infection Survey data

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

Dataset | Released 30 March 2021

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

11 . 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

12 . 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.

13 . Data sources and quality

More information on [measuring the data](#) and its [strengths and limitations](#) is available in the Coronavirus (COVID-19) Infection Survey statistical bulletin.

Our [methodology article](#) provides further information around the survey design, how we process data and how data are analysed.

14 . 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: methods and further information](#)

Methods article | Updated 26 March 2021

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.