Office for National Statistics

Statistical bulletin

# Coronavirus (COVID-19) Infection Survey, antibody and vaccination data for the UK: 26 May 2021

Antibody and vaccination data by UK country and regions in England from the Coronavirus (COVID-19) Infection Survey. 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.

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# 1 . Main points

- In England, an estimated 3 in 4 adults, or 75.9% of the adult population (95% credible interval: 72.6% to 79.6%) would have tested positive for antibodies against the coronavirus – SARS-CoV-2 – on a blood test in the week beginning 3 May 2021, suggesting they had the infection in the past or have been vaccinated.

- In Wales, an estimated 3 in 4 adults, or 76.6% of the adult population (95% credible interval: 72.8% to 80.7%) would have tested positive for antibodies against SARS-CoV-2 on a blood test in the week beginning 3 May 2021, suggesting they had the infection in the past or have been vaccinated.

- In Northern Ireland, an estimated 3 in 4 adults, or 75.0% of the adult population (95% credible interval: 70.3% to 80.5%) would have tested positive for antibodies against SARS-CoV-2 on a blood test in the week beginning 3 May 2021, suggesting they had the infection in the past or have been vaccinated.

- In Scotland, an estimated 7 in 10 adults, or 68.6% of the adult population (95% credible interval: 64.8% to 73.1%) would have tested positive for antibodies against SARS-CoV-2 on a blood test in the week beginning 3 May 2021, suggesting they had the infection in the past or have been vaccinated.

- Across all four countries of the UK, there is a clear pattern between vaccination and testing positive for COVID-19 antibodies but the detection of antibodies alone is not a precise measure of the immunity protection given by vaccination.

## About this bulletin

We have changed from presenting antibody and vaccination data in a fortnightly article to a fortnightly bulletin series. Our previous articles presenting antibody and vaccination data are still available.

In this bulletin, we refer to the following:

### Antibodies

We measure the presence of antibodies in the community population to understand who has had the coronavirus (COVID-19) in the past, and the impact of vaccinations. It takes between two and three weeks after infection or vaccination for the body to make enough antibodies to fight the infection. Having antibodies can help to prevent individuals from getting the same infection again. Once infected or vaccinated, antibodies remain in the blood at low levels and can decline over time. The length of time antibodies remain at detectable levels in the blood is not fully known.

### Community population

In this instance community population refers to private residential households, and excludes those in hospitals, care homes and/or other institutional settings.

### SARS-CoV-2

This is the scientific name given to the specific virus that causes COVID-19.

It is not yet known how having detectable antibodies, now or at some time in the past, affects the chance of getting COVID-19 again as other parts of the immune system (T cell response) will offer protection. 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 reach this threshold. 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, as 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. Additional information on the link between antibodies and immunity and the vaccine programme can be found in our latest blog.

This bulletin 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. We have also included estimates from our survey on the percentage of people who reported they have received at least one dose of a vaccine against SARS-CoV-2, as well as those who have been fully vaccinated against SARS-CoV-2.

While the daily official government figures provide the recorded actual numbers of vaccines against SARS-CoV-2 issued, our vaccination estimates are likely to be different from the official figures. This is because they are estimates based on a sample survey of reported vaccine status and are provided for context alongside our antibodies estimates. Importantly, our survey collects information from the population living in private households and does not include people living in communal establishments such as care homes, hospitals or prisons. The value of showing our estimates of vaccines alongside our estimates of people testing positive for antibodies is to illustrate the relationship between the two.

Differences between official figures and the estimates from this survey differ in scale across each of the four nations (some survey estimates are closer to the official reported figures than others) because of differences in reporting dates and the inclusion of National Immunisation Management System (NIMS)[1] data for England. This should be taken into consideration if comparing vaccine estimates across the four nations. In addition, 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. Our recently published blog provides more information on what the Office for National Statistics (ONS) can tell you about the COVID-19 vaccine programme.

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.

## Data in this bulletin

The analysis on antibodies in this bulletin 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.

We also present data on the percentage of people aged 16 years and over who report they have received one or more doses of a COVID-19 vaccine since 14 December 2020, and the percentage of people aged 16 years and over who are fully vaccinated since 15 February 2021.

The estimates of the percentage of people vaccinated are based on modelling of the people visited in the Coronavirus (COVID-19) Infection Survey in the community. Further information on our method to model antibodies and vaccinations can be found in our methods article.

We are presenting weekly modelled antibody estimates for adults by country, grouped age and single year of age for England, Wales, Northern Ireland and Scotland, as well as by regions in England. We present the same analysis for vaccine estimates of adults who reported they have received one or more doses of a COVID-19 vaccine, and for adults who report they are fully vaccinated. In Sections 2, 3 and 4, we report on modelled antibody and vaccination estimates for the most recent time period available, which is the week beginning 3 May 2021[2]. Estimates for previous weeks can be found in the accompanying dataset.

Modelled vaccine estimates are produced to provide context alongside our antibodies estimates and do not replace the official government figures on vaccines, which are a more precise count of total vaccines issued. While we would expect the overall trend of our estimated number of people who have received vaccines to increase, it is possible that in some weeks, the estimate may remain the same or decrease as a result of sampling variability (for example, we may have a lower number of participants recording a vaccination in the latest week compared with an earlier week).

In this bulletin we are also presenting data on behavioural changes following vaccination including the number of socially distanced and physical contacts people report before and after vaccination, among people aged 50 years and over across UK countries.

**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.

### Notes for: Main points

1. National Immunisation Management System (NIMS) administrative data are used to validate Coronavirus (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 Coronavirus (COVID-19) Infection Survey self-reported records of vaccination.

2. We produce weekly modelled estimates using standard calendar weeks starting Monday. To provide the most timely and accurate estimates possible for antibody positivity, the model will include data for the first four to seven days of the week, depending on the availability of test results. The antibody estimate for the most recent week in this publication includes data from 3 to 8 May 2021.

# 2 . Percentage of adults testing positive for COVID-19 antibodies and percentage of adults vaccinated against COVID-19 in England, Wales, Northern Ireland and Scotland

The percentage of adults who would have tested positive for Coronavirus (COVID-19) antibodies continues to increase across the UK.

Table 1: Estimated percentage of adults who would have tested positive for COVID-19 antibodies, UK countries
Estimated percentage of adults who would have tested positive for SARS-CoV-2 antibodies from a blood sample, week beginning 3 May 2021, UK

| Country | Estimated % of adults who would have tested positive for COVID-19 antibodies | 95% credible interval | |
| --- | --- | --- | --- |
| | | Lower | Upper |
| England | 75.9 | 72.6 | 79.6 |
| Wales | 76.6 | 72.8 | 80.7 |
| Northern Ireland | 75.0 | 70.3 | 80.5 |
| Scotland | 68.6 | 64.8 | 73.1 |

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.

In the same week, our estimates suggest the percentage of adults who reported they had received at least one dose of a COVID-19 vaccine continued to increase – estimates ranged from 65.9% to 78.7% of adults across the UK. The estimated percentage of adults who are fully vaccinated against COVID-19 varied between 32.2% and 46.7% across the UK in the week beginning 3 May 2021. These vaccination estimates for the community population will differ from official figures.

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 or 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 1: The percentage of adults testing positive for COVID-19 antibodies and the percentage of adults who reported being vaccinated in England, Wales, Northern Ireland and Scotland

**Modelled percentage of adults testing positive for antibodies to SARS-CoV-2, 7 December 2020 to 8 May 2021; adults who have received one or more doses of a COVID-19 vaccine; and fully vaccinated adults, 14 December 2020 to 9 May 2021, UK country**

**Notes:**

1. All results are provisional and subject to revision.

2. These statistics refer to antibody tests and 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.

5. Vaccination data for Northern Ireland starts later than the other countries, from 21 December 2021.

6. Our estimates of vaccination are provided for context alongside our antibodies estimates, but are likely to be different from the official figures. The daily official government figures provide the recorded actual numbers of vaccines against SARS-CoV-2 issued.

**Download the data**

.xlsx

**Notes for: Percentage of adults testing positive for COVID-19 antibodies and percentage of adults vaccinated against COVID-19 in England, Wales, Northern Ireland and Scotland**

1. We produce weekly modelled estimates using standard calendar weeks starting Monday. To provide the most timely and accurate estimates possible for antibody positivity, the model will include data for the first four to seven days of the week, depending on the availability of test results. The antibody estimate for the most recent week in this publication includes data from 3 to 8 May 2021.

# 3 . Percentage of adults testing positive for COVID-19 antibodies and percentage of adults vaccinated against COVID-19 by regions in England

Antibody positivity was similar across regions in the week beginning 3 May 2021[1], with estimates ranging from 71.2% in the South West to 75.9% in the East Midlands.

The estimated percentage of adults who have received one or more doses of a coronavirus (COVID-19) vaccine continued to increase in the week beginning 3 May 2021, ranging from 63.1% in London to 73.8% in the East of England.

The estimated percentage of adults who are fully vaccinated continued to increase in the week beginning 3 May 2021, ranging from 34.9% in London to 41.2% in the East of England.

Regional antibody positivity levels are a result of regional COVID-19 infection rates and regional vaccination rollout and uptake.

**Figure 2: COVID-19 antibody positivity and the estimated percentage of adults who have been vaccinated across regions in England**

**Modelled percentages of adults testing positive for antibodies to SARS-CoV-2, 7 December 2020 to 8 May 2021; adults who have received one or more doses of a COVID-19 vaccine; and fully vaccinated adults, 14 December 2020 to 9 May 2021, regions in England**

**Notes:**

1. All results are provisional and subject to revision.

2. These statistics refer to antibody tests and 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 post-stratified by the mid-year population estimate.

5. Our estimates of vaccination are provided for context alongside our antibodies estimates, but are likely to be different from the official figures. The daily official government figures provide the recorded actual numbers of vaccines against SARS-CoV-2 issued.

**Download the data**

.xlsx

**Notes for: Percentage of adults testing positive for COVID-19 antibodies and percentage of adults vaccinated against COVID-19 by regions in England**

1. We produce weekly modelled estimates using standard calendar weeks starting Monday. To provide the most timely and accurate estimates possible for antibody positivity, the model will include data for the first four to seven days of the week, depending on the availability of test results. The antibody estimate for the most recent week in this publication includes data from 3 to 8 May 2021.

# 4 . Percentage of adults testing positive for COVID-19 antibodies and percentage of adults vaccinated against COVID-19 by grouped age in England, Wales, Northern Ireland and Scotland

Our survey shows that in the week beginning 3 May 2021[1]:

- in England, the percentage of adults aged 16 to 49 years testing positive for antibodies ranged from 48.5% to 63.8%; in those aged 50 to 64 years, from 90.5% to 92.1%; in those aged 65 years and over, from 91.0% to 97.0%; the highest percentage of people testing positive for antibodies was in those aged 75 to 79 years at 97.0% (95% credible interval: 95.2% to 98.1%)

- in Wales, the percentage of adults aged 16 to 49 years testing positive for antibodies ranged from 48.2% to 69.4%; in those aged 50 to 64 years, from 91.2% to 92.3%; in those aged 65 years and over, from 92.6% to 97.4%; the highest percentage of people testing positive for antibodies was in those aged 70 to 79 years at 97.4% (95% credible interval: 95.9% to 98.4%)

- in Northern Ireland, the percentage of adults aged 16 to 49 years testing positive for antibodies ranged from 34.6% to 73.0%; in those aged 50 to 69 years it was 91.3% (95% credible interval: 83.6% to 95.6%); and was similarly high for those aged 70 years and over at 91.1% (95% credible interval: 82.9% to 95.8%) (because of small sample sizes, this analysis uses different age groups to antibody analysis to England, Wales and Scotland, with everyone over the age of 70 years included in the same age group)

- in Scotland, the percentage of adults aged 16 to 49 years testing positive for antibodies ranged from 35.6% to 56.2%; in those aged 50 to 64 years, from 87.1% to 89.2%; in those aged 65 years and over, from 91.7% to 95.7%; the highest percentage of people testing positive for antibodies was in those aged 70 to 74 years at 95.7% (95% credible interval: 93.6% to 97.0%)

Antibody positivity increases with age, with the highest percentage testing positive for antibodies in the older age groups and lowest among the youngest groups across the four UK countries; this reflects the age prioritisation in vaccination programmes in place across the UK. The percentage of adults who have received at least one dose of a coronavirus (COVID-19) vaccine is lowest in the younger age groups but is increasing.

Based on our estimates, more than 99% of people aged 70 years and over have received at least one dose of a COVID-19 vaccine across the UK. Of those who have been fully vaccinated, the highest percentages are found in the oldest age groups and lowest among the younger age groups. The trend in the estimated percentage of adults in the community population who are fully vaccinated varies between the four countries of the UK. This is different to the official figures for the entire UK population.

When antibodies are measured over time by age, it is possible to see the impact of the vaccination programme between first and second doses. In March 2021, antibody positivity decreased among people aged 80 years and over and has since increased as a result of second doses. A similar decrease and subsequent increase was seen in those in their 70s at the end of March 2021 and those in their 60s in April 2021.

The percentage of adults testing positive for antibodies varies by age group between the four nations of the UK. This could be explained by different historical trends in COVID-19 infection rates and the approaches to vaccine distribution in different nations. This survey does not include people who 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.

Modelled antibody estimates and modelled vaccine estimates relate to the adult community population (aged 16 years and over) who live in private households. The true figure among the older age groups in the population may be different. In England, 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 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 or 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 3: Percentage of adults testing positive for COVID-19 antibodies and percentage of adults who have been vaccinated by grouped age in England, Wales, Northern Ireland and Scotland

**Modelled percentage of: adults testing positive for antibodies to SARS-CoV-2, 7 December 2020 to 8 May 2021; adults who have received one or more doses of a COVID-19 vaccine; and fully vaccinated adults, 14 December to 9 May 2021, by grouped age, UK**

**Notes:**

1.  All results are provisional and subject to revision.

2.  These statistics refer to antibody tests and vaccinations 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 or reported receiving a COVID-19 vaccination is low compared with England, Wales and Scotland; therefore, people aged 50 to 69 years are included in the same age group, and those aged 70 years and over 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 post-stratified by the mid-year population estimate.

6.  Our estimates of vaccination are provided for context alongside our antibodies estimates, but are likely to be different from the official figures. The daily official government figures provide the recorded actual numbers of vaccines against SARS-CoV-2 issued.

**Download the data**

.xlsx

**Notes for: Percentage of adults testing positive for COVID-19 antibodies and percentage of adults vaccinated against COVID-19 by age in England, Wales, Northern Ireland and Scotland**

1.  We produce weekly modelled estimates using standard calendar weeks starting Monday. To provide the most timely and accurate estimates possible for antibody positivity, the model will include data for the first four to seven days of the week, depending on the availability of test results. The antibody estimate for the most recent week in this publication includes data from 3 to 8 May 2021.

# 5 . Percentage of adults testing positive for COVID-19 antibodies by single year of age 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, Scotland and Northern Ireland separately, between 14 March and 8 May 2021. The modelled data in this section are produced using a different method to the weekly modelled estimates presented in Section 4 and so cannot be compared. Each data point represents a modelled estimate of antibody positivity for a particular day.

Figure 4 shows in March 2021, antibody positivity decreased among people aged 80 years and over. A similar decrease and subsequent increase was seen in those in their 70s at the end of March and those in their 60s in April. Antibody positivity has since risen and continues to rise in the older ages. This is likely to reflect the increase in individuals receiving the second dose of a Coronavirus (COVID-19) vaccine.

**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 adults testing positive for antibodies to SARS-CoV-2, by single year of age, 14 March to 8 May 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**

.xlsx

# 6 . Behavioural changes following vaccination in the UK

The analysis presented in this section examines behavioural changes following vaccination, among people aged 50 years and over, from 5 January 2021 to 15 May 2021 across all four UK countries. This age group has been chosen since it aligns more closely with the priority age groups for the vaccination programmes during the period of analysis.

The analysis considers the number of reported socially distanced and physical contacts within seven days prior to each visit in those aged 50 years and over, before and after receiving the first dose of a Coronavirus (COVID-19) vaccine.

We asked individuals how many people aged 17 years and under, 18 to 69 years, and 70 years and over, outside their household, they have had contact with up to seven days prior to each visit. "Contact" refers to either of the following:

- socially distanced contact – direct contact with social distancing only

- physical contact – physical contact, such as a handshake or personal care, including wearing personal protective equipment (PPE)

We report the number of contacts in the following groups:

- 0 (no reported contact)

- 1 to 5 (reported contacts)

- 6 to 10 (reported contacts)

- 11 to 20 (reported contacts)

- 21 or more (reported contacts)

Vaccination status is divided into three categories:

- before vaccination

- within seven days after first vaccine dose

- more than seven days after first vaccine dose

By dividing the time following vaccination into within seven days and more than seven days we were able to separate those who are likely to report contacts as part of getting vaccinated that would affect the analysis. In Figure 5, we present the differences between before vaccination and each of the two after-vaccination categories.

Figure 5 shows the percentage point change in the number of physical contacts with individuals aged 18 to 69 years old, and the percentage point change in the number of socially distanced contacts with individuals aged 18 to 69 years, zero to seven days after vaccination, and more than seven days after vaccination.

Physical contacts with those aged 18 to 69 increased after vaccination, both within the first seven days and after. The majority of this increase is among those reporting 1 to 5 contacts. There is a much greater increase within the first seven days (9.6 percentage points), than after seven days (2.3 percentage points). This is consistent with the idea that people report contacts they make in the course of getting their vaccine.

There is no evidence of a pronounced difference in the number of socially distanced contacts with any age group after vaccination, or in physical contacts with those under 18 years or 70 years and over after vaccination.

It is important to note that strict lockdown measures including bans on indoor socialising and restrictions on socialising outside the home were in effect up until 12 April 2021 throughout the UK. However, this analysis includes data up to 15 May 2021, but no changes were observed since the previous analysis published on 28 April 2021.

## Figure 5: After receiving one dose of a COVID-19 vaccine, adults reported an increase in physical contact with 1 to 5 people aged 18 to 69 years

**Reported difference in socially distanced and physical contact with individuals aged 18 to 69 years, between pre-vaccination status and post-vaccination status, 5 January 2021 to 15 May 2021, UK**

**Notes:**

1. These results are provisional and subject to change.

2. These statistics refer to vaccinations reported in the community, by which we mean private households. These figures exclude individuals in hospitals, care homes and/or other institutional settings.

3. This analysis is based on a pre-post regression model, comparing the contact numbers for the three vaccination categories. This model only compares the categories and does not measure changes over time within these categories.

4. The data are not weighted to reflect UK demographics, but we do control for the effect of time. We also control for key characteristics that may confound behaviour.

**Download the data**

.xlsx

Two further analyses were carried out, considering the number of instances of shopping or socialising outdoors, and the number of times the respondent spent an hour or more in another person's home, or in their own home with someone not in their household in the previous seven days prior to the visit. These analyses also compared behaviour before vaccination with after vaccination and divided the after-vaccination category as previously described. The data are presented in our accompanying dataset.

There is no evidence of pronounced changes in either the number of interactions in the home with someone who is not a member of the household, the number of interactions in another person's home, or in the number of trips outside the home for socialising or shopping.

This means that we do not find evidence that the increased numbers of contacts reported after vaccination are the result of more social visits to other households or more shopping trips. However, it may suggest some changes in behaviour during social events such as physical contact with others.

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

Coronavirus (COVID-19) antibody data for the UK
Dataset | Released 26 May 2021
Antibody data for the UK taken from the Coronavirus (COVID-19) Infection Survey.

# 8 . 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

# 9 . 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.

# 10 . Measuring the data

More information on [measuring the data](#) 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.

# 11 . Strengths and limitations

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

# 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 Coronavirus (COVID-19) Infection Survey, including antibody data by UK country, and region and occupation for England. Antibodies data published before 3 February 2021 are available in this series.

[Coronavirus (COVID-19) Infection Survey: antibody and vaccination data for the UK](#)
Article | Updated 13 May 2021
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.

[Impact of vaccination on SARS-CoV-2 cases in the community: a population-based study using the UK's COVID-19 Infection Survey](#)
Academic article | 23 April 2021
Data from the Coronavirus (COVID-19) Infection Survey were used by academic partners from the University of Oxford to examine the effect that community vaccination has had on positivity by comparing the likelihood of testing positive between participants who have had at least one dose of a coronavirus (COVID-19) vaccine and those who have not been vaccinated.

[The impact of SARS-CoV-2 vaccines on antibody responses in the general population in the United Kingdom](#)
Academic article | 23 April 2021
Data from the Coronavirus (COVID-19) Infection Survey were used by academic partners from the University of Oxford to examine the impact of SARS-CoV-2 vaccines on antibody responses in the general population in the UK.

[Coronavirus and vaccination rates in people aged 70 years and over by socio-demographic characteristic, England](#)
Article | Released 29 March 2021
First dose COVID-19 vaccination rates among people aged 70 years and older who live in England, both in private households and communal establishments. Includes estimates for the population as a whole by age and sex, and for ethnic minorities, religious groups, those identified as disabled and by area deprivation.

[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 Schools Infection Survey Round 2, England: December 2020](#)
Article | Updated 1 March 2021
Initial estimates of staff and pupils testing positive for coronavirus (COVID-19) from the COVID-19 Schools Infection Survey across a sample of schools, within selected local authority areas in England. This Schools Infection Survey (SIS) is jointly led by the London School of Hygiene and Tropical Medicine, Public Health England and the Office for National Statistics.

[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 Office for National Statistics (ONS) and other official sources.