Statistical bulletin

Coronavirus (COVID-19) Infection Survey, characteristics of people testing positive for COVID-19, UK: 13 April 2022

Characteristicsof people testing positive for COVID-19 from the Coronavirus (COVID-19) Infection Survey. This survey is being delivered in partnership with University of Oxford, University of Manchester, UK Health Security Agency andWellcomeTrust.This study is jointly led by the ONS and the Department for Health and Social Care (DHSC) working with the University of Oxford and Lighthouse Laboratory to collect and test samples.

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Release date:
13 April 2022

Next release:
27 April 2022

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1 . Main points

- Most people who reported having been vaccinated continued to be less likely to test positive for coronavirus (COVID-19) than those who reported not being vaccinated, in the fortnight up to 26 March 2022.

- People previously infected with COVID-19 continued to be less likely to test positive than those who had not experienced a prior infection, in the fortnight up to 26 March 2022.

- People who reported that they had travelled abroad in the last 28 days continued to be more likely to test positive for COVID-19 than those who had not, in the fortnight up to 26 March 2022.

- People who reported working outside the home two, three or four days per week were more likely to test positive than those who reported not working outside the home, in the fortnight up to 26 March 2022.

- The percentage of people testing positive who reported loss of taste or smell remained at low levels in March 2022, after decreasing sharply between December 2021 and January 2022 (during the time when the Omicron variants became most common).

About this bulletin

In this bulletin, we present the latest analysis of the characteristics associated with testing positive for SARS-CoV-2, the coronavirus causing the COVID-19 disease in the UK. We also present analysis on the symptoms reported by strong positive cases, and on socially distanced and physical contacts with others. This is part of our series of [analysis on the characteristics of people testing positive for COVID-19](#).

In this bulletin, we refer to the number of current COVID-19 infections within the population living in private residential households. We exclude those in hospitals, care homes and/or other communal establishments.

We include current COVID-19 infections, which we define as testing positive for SARS-CoV-2, with or without having symptoms, on a swab taken from the nose and throat.

More about coronavirus

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

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 weekly bulletin](#). Our [methodology article](#) provides more information on the methods used for our models.

2 . Characteristics associated with testing positive, UK

This analysis was first presented in our [Analysis of populations in the UK by risk of testing positive for coronavirus (COVID-19)](#) September 2021 publication, which provides a more detailed explanation of the methods used. We present findings for the most recent fortnight in this section, but a longer data time series covering 10 October 2021 to 26 March 2022 is available in the [accompanying dataset](#).

Estimates of the likelihood of some specific characteristics affecting an individual testing positive can fluctuate from one fortnight to another, meaning that findings that are statistically significant in one period may not necessarily be statistically significant in another period. This may be because the effect of a characteristic is genuinely changing, or because we do not have sufficient individuals with that characteristic in a particular fortnight to exclude any differences we find being down to chance.

Our latest data for the fortnight ending 26 March 2022 shows similar conclusions to our last publication, specifically that:

- people who received a third vaccine 15 to 90 days ago, a second AstraZeneca or Moderna vaccine more than 180 days ago, a second Pfizer vaccine 15 to 90 days ago or more than 180 days ago, one vaccine 15 to 180 days ago, or any vaccine up to 14 days ago, were less likely to test positive than those who reported not being vaccinated

- people who had previously been infected [note 1] with COVID-19 continued to be less likely to test positive than those who had not been previously infected

- people who were previously infected with COVID-19 during the period when the Delta variant was most common (May to December 2021) continued to be even less likely to test positive than those infected prior to this period

- females continued to be less likely to test positive than males

- people from ethnic minority groups continued to be less likely to test positive than those reporting White ethnicity

- people who had contact with hospitals continued to be less likely to test positive compared with those living in households where no one had contact with hospitals

- people who were impacted "a lot" by a disability were less likely to test positive than those who were not impacted by a disability

- people living in multigenerational households continued to be less likely to test positive than those that do not

- people living in larger households were more likely to test positive in some parts of the UK, but not in others

- people who reported that they travelled abroad in the last 28 days continued to be more likely to test positive than those who had not

- people who reported regularly using lateral flow tests continued to be more likely to test positive compared with those who did not; this is likely related to those at a higher risk of infection being encouraged to take regular lateral flow tests

In the same fortnight:

- children aged around 10 years and under and people in their 30s were more likely to test positive in Scotland, Wales, and some regions of England, but this effect was less pronounced in other parts of the UK

- people who lived in less deprived areas were more likely to test positive than those who lived in more deprived areas

- People living in rural villages, rural towns, or urban cities and towns were more likely to test positive than those living in major urban areas, which are the [most densely populated urban areas](#) (PDF, 656KB) of the UK

- people who reported working outside the home two, three or four days per week were more likely to test positive than those who reported not working outside the home

Figure 1: People previously infected with COVID-19 and those vaccinated were generally less likely to test positive in the fortnight ending 26 March 2022

Estimated likelihood of testing positive for coronavirus on nose and throat swabs by vaccination status and previous infection, UK, 13 to 26 March 2022

Notes:

1. The core demographic variables, sex, ethnicity, age, geographical region, urban or rural classification of address, deprivation percentile, household size, and whether the household was multigenerational are included to adjust for these factors when comparing characteristics. When we report on the effect of these core demographic variables only, they are from a separate model that includes only them.

2. An odds ratio indicates the likelihood of an individual testing positive for COVID-19 given a particular characteristic or variable. See [Glossary](#) for full definition.

3. Figures 1 and 2 present results from the same model. We have presented the results separately to make the graphs more accessible.

4. The "pre-Alpha variant period" is defined as before 16 November 2020, the "Alpha variant period" is defined as 16 November 2020 to 16 May 2021, and the "Delta variant period" is defined as from 17 May 2021 onwards.

5. When identifying previous infection, we use all previous positive COVID-19 swab tests, either from the COVID-19 Infection Survey or from Test and Trace data in England, or a self-reported positive swab test, to classify an infection as a previous infection if it occurred 120 days or more previously with a prior negative test from the survey, or after four consecutive negative survey test results. Therefore previous infection data does not currently cover the Omicron variants period.

[Download the data](#)

Figure 2: People who reported travelling abroad in the last 28 days continued to be more likely to test positive for COVID-19 in the fortnight ending 26 March 2022

Estimated likelihood of testing positive for coronavirus on nose and throat swabs by work and living arrangements, UK, 13 to 26 March 2022

Notes:

1. The core demographic variables, sex, ethnicity, age, geographical region, urban or rural classification of address, deprivation percentile, household size, and whether the household was multigenerational are included to adjust for these factors when comparing characteristics. When we report on the effect of these core demographic variables only, they are from a separate model that includes only them.

2. An odds ratio indicates the likelihood of an individual testing positive for COVID-19 given a particular characteristic or variable. See Glossary for full definition.

3. Figures 1 and 2 present results from the same model. We have presented the results separately to make the graphs more accessible.

Download the data

An additional model examines the effect of behavioural characteristics on the likelihood of testing positive, while controlling for the core demographic variables and significant other characteristics shown earlier in this section. This means that we can identify which behavioural characteristics are associated with testing positive while taking other differences between people reporting different behaviours into account.

Our findings suggest that in the fortnight ending 26 March 2022:

- adults aged over 16 years who reported that they did not need to wear a face covering at school or work were less likely to test positive than those who reported that they always wore a face covering

- people who reported having any socially distanced contact with those aged under 18 years were more likely to test positive than people who had no socially distanced contact with those aged under 18 years

- people who reported having 11 or more socially distanced contacts with people aged 18 to 69 years were more likely to test positive than those who had no socially distanced contact with people aged 18 to 69 years

- people who reported spending more time socialising outside their home continued to be more likely to test positive

- people who reported spending more time in other people's homes were more likely to test positive

We analyse the effect of socially distanced and physical contacts separately. This means that people who reported having no socially distanced contact, which is the reference group for the socially distanced contact analysis, may have reported having physical contact over the same time period.

Figure 3: People who spent more time socialising outside their home were more likely to test positive for COVID-19 in the fortnight ending 26 March 2022

Estimated likelihood of testing positive for coronavirus on nose and throat swabs by behavioural characteristics, UK, 13 to 26 March 2022

Notes:

1. The core demographic variables and other characteristic variables presented in Figures 1 and 2 are included to adjust for these factors. Conclusions about the core demographic variables and screened characteristic variables are taken from separate, different models.

2. An odds ratio indicates the likelihood of an individual testing positive for COVID-19 given a particular characteristic or variable. See Glossary for full definition.

3. For "time spent socialising outside the home" and "time in others' homes", the odds ratio is per additional occasion spent socialising with people outside of the participant's household or spent in another person's home, respectively, in the last seven days.

Notes for: Characteristics associated with testing positive, UK

1. We use all previous positive COVID-19 swab tests, either from the COVID-19 infection survey or from Test and Trace data, or a self-reported positive swab test, to classify an infection as a previous infection if it occurred 120 days or more previously with a prior negative test from the survey, or after four consecutive negative survey test results. Therefore, previous infection data does not currently cover the Omicron variants period.

Download the data

3 . Symptoms' profile of strong positive cases, UK

This section presents analysis based on people who tested positive for coronavirus (COVID-19) with a strong positive test (Cycle threshold (Ct) value less than 30). It considers what percentage of these people reported individual and groups of symptoms [note 1] within 35 days of the first positive test. We present this analysis for the whole of the UK split by month, which covers 1 December 2020 to 27 March 2022, and for the period from 1 December 2021 to 27 March 2022 split by UK country. We have updated our symptoms analysis by country to focus on the most recent time period. All of our symptoms analysis can be found in Tables 6a to 6f in the Coronavirus (COVID-19) Infection Survey, characteristics of people testing positive for COVID-19, UK dataset.

The average viral load of the people testing positive for COVID-19 also affects whether they are likely to report symptoms. We have seen that the viral load of strong positive results increased during January 2022, as measured by decreases in the average Ct value (see Glossary, for more information on Ct values). This will also affect the prevalence of symptoms within these strong positive cases.

People testing positive who reported loss of taste or smell remained at low levels in March 2022

In March 2022, 66% (95% confidence interval: 66% to 67%) of people testing positive for COVID-19 in the UK with a strong positive test reported any specific symptoms [note 1].

The percentage of people testing positive who reported "any" and "classic" symptoms increased from January to March 2022. The percentage of people testing positive who reported loss of taste or smell decreased sharply between December 2021 and January 2022 and remains at a lower level in March 2022. These changes coincide with increasing infections with the Omicron variants of COVID-19. The percentage of people testing positive who reported gastrointestinal symptoms decreased slightly in December 2021 and has remained unchanged since then.

The percentages of people testing positive who reported each group of symptoms are similar for each country between 1 December 2021 and 27 March 2022. However, the percentage of people testing positive who reported "any" symptoms and "classic" symptoms were higher for Scotland compared with the other UK countries.

Because of smaller sample sizes in Wales, Northern Ireland and Scotland in comparison with England, the confidence intervals are wider indicating higher uncertainty.

Figure 4: The percentage of people testing positive for COVID-19 who reported loss of taste or smell remained at low levels in March 2022

Unweighted percentage of people testing positive for coronavirus with symptoms, including only those who have strong positive tests (cycle threshold (Ct) value less than 30) by month, UK, 1 December 2020 to 27 March 2022

Notes:

1. All results are provisional and subject to revision.

2. These statistics refer to infections reported in private households.

3. Symptoms are self-reported and were not professionally diagnosed.

4. The data presented are unweighted percentages of people with any positive test result that had a Ct value less than 30.

In the UK, the most commonly reported symptoms have consistently been cough, fatigue and headache. The least commonly reported symptoms have consistently been abdominal pain, diarrhoea, and nausea or vomiting. The percentage of people reporting a sore throat, cough or fatigue increased between January and March 2022, and the percentage reporting myalgia increased between February and March 2022. However, these are symptoms that can occur with a number of other infections circulating at the same time, such as the common cold or flu. The percentage of people reporting loss of taste or loss of smell, fatigue and headache decreased sharply in December 2022, when the Omicron variants of COVID-19 became most common.

Notes for: Symptoms' profile of strong positive cases, UK

1. The symptoms respondents were asked to report are: fever, muscle ache (myalgia), fatigue (weakness or tiredness), sore throat, cough, shortness of breath, headache, nausea or vomiting, abdominal pain, diarrhoea, loss of taste or loss of smell. Symptoms are self-reported and were not professionally diagnosed.

Download the data

4 . Number and age of people with whom individuals had contact

We report on recent trends in this section, but the full data time series for this analysis, which covers the period between 20 July 2020 and 27 March 2022 for England, and 28 September 2020 to 27 March 2022 for Wales, Northern Ireland and Scotland, is available in the accompanying dataset. The analysis for Wales, Northern Ireland and Scotland starts at a later date because data collection started later in these countries. Our estimates have been weighted to be representative of the total population in each of the four UK countries.

Across all four UK countries, the number of socially distanced contacts adults reported has increased since January 2022

The number of socially distanced contacts adults reported with all ages has increased since January 2022 in all four UK countries.

In all four UK countries, the number of physical contacts adults reported with all ages increased temporarily over Christmas but fell back down to previous levels in January 2022, likely because of decreased mixing following Christmas. However, the number of physical contacts has increased slightly since January 2022 in England and Wales.

School term dates, and coronavirus (COVID-19)-related school policies vary by nation and this is reflected in the data. Information on the schedule for school re-openings can be viewed for England, Wales, Northern Ireland and Scotland. Information on lockdown easing can be viewed for England, Wales, Northern Ireland and Scotland.

Our findings are generally similar to findings on socially distanced and physical contact reported in the Opinions and Lifestyle Survey (OPN), which examines the impact of the coronavirus pandemic on people, households and communities in Great Britain.

5 . Characteristics of people testing positive for COVID-19 data

Coronavirus (COVID-19) Infection Survey, characteristics of people testing positive for COVID-19, UK
Dataset | Released 13 April 2022
Characteristics of people testing positive for coronavirus (COVID-19) taken from the COVID-19 Infection Survey.

6 . 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, UK Health Security Agency and Wellcome Trust. Of particular note are:

- Sarah Walker - The University of Oxford, Nuffield Department for Medicine: Professor of Medical Statistics and Epidemiology and Study Chief Investigator

- Koen Pouwels - The University of Oxford, Health Economics Research Centre, Nuffield Department of Population Health: Senior Researcher in Biostatistics and Health Economics

- Thomas House - The University of Manchester, Department of Mathematics: Reader in mathematical statistics

- Anna Seale - University of Warwick, Warwick Medical School: Professor of Public Health; UK Health Security Agency, Data, Analytics and Surveillance: Scientific Advisor

7 . 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.

Cycle threshold (Ct) values

The strength of a positive coronavirus (COVID-19) test is determined by how quickly the virus is detected, measured by a cycle threshold (Ct) value. The lower the Ct value, the higher the viral load and stronger the positive test. Positive results with a high Ct value can be seen in the early stages of infection when virus levels are rising, or late in the infection, when the risk of transmission is low.

Deprivation

Deprivation is based on an [index of multiple deprivation (IMD)](#) (PDF, 2.18MB) score or equivalent scoring method for the devolved administrations, from 1, which represents most deprived up to 100, which represents least deprived. The hazard or odds ratio shows how a 10-unit increase in deprivation score, which is equivalent to 10 percentiles or 1 decile, affects the likelihood of testing positive for COVID-19.

Multigenerational household

A household was classed as multigenerational if it included individual(s) aged school Year 11 or younger and individual(s) aged school Year 12 to those aged 49 years and individual(s) aged 50 years and over.

Odds ratio

An odds ratio indicates the likelihood of an individual testing positive for COVID-19 given a particular characteristic or variable. When a characteristic or variable has an odds ratio of one, this means there is neither an increase nor a decrease in the likelihood of testing positive for COVID-19 compared with the reference category. An odds ratio greater than one indicates an increased likelihood of testing positive for COVID-19 compared with the reference category. An odds ratio less than one indicates a decreased likelihood of testing positive for COVID-19 compared with the reference category.

For more information, see our [methodology page on statistical uncertainty](#).

8 . 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.

Characteristics associated with testing positive analysis

All estimates of the likelihood of testing positive for COVID-19 by characteristic in Section 2 are unweighted. The sample for this analysis includes only those who have tested positive for COVID-19 on a swab test, and so there was no known population of which weighted estimates could be representative.

The analysis is based on statistical models at the UK level and include all participants aged two years and over. Demographic variables included in all models are age, region, sex, ethnicity, deprivation, household size, multigenerational household, and urban or rural classification. Additional variables are included only if found to be significant in the two weeks presented in the bulletin. More information on the methods used in this analysis can be found in our [Coronavirus (COVID-19) Infection Survey technical article: analysis of populations in the UK by risk of testing positive for COVID-19, September 2021.](#)

Symptoms analysis

The analysis in Section 3 looks at each person who tested positive for COVID-19 and had a strong positive test in the UK. The strength of the test is determined by how quickly the virus is detected, measured by a cycle threshold (Ct) value. The lower the Ct value, the higher the viral load and stronger the positive test.

Participants who only have positive tests with high Ct values (see Glossary) within a positive episode are excluded from this analysis to exclude the possibility that symptoms are not identified because we pick up individuals either very early or later on in their infection.

The analysis considers all symptoms reported at survey visits within 35 days of the first positive test in the episode. At each survey visit individuals are asked whether they had experienced a range of possible symptoms [note 1] in the seven days before they were tested, and also separately whether they felt that they had symptoms compatible with a COVID-19 infection in the last seven days. This includes symptoms reported even when there is a negative test result within this timeframe or a positive test result with a higher Ct value. Positive episodes are defined as "a new positive test 120 days or more after an initial first positive test and following a previous negative test, or, if within 120 days, a subsequent positive test following four consecutive negative tests". We now take 120 days as a cut-off point, whereas originally, we used 90 days.

Notes for: Measuring the data

1. The symptoms respondents were asked to report are: fever, muscle ache (myalgia), fatigue (weakness or tiredness), sore throat, cough, shortness of breath, headache, nausea or vomiting, abdominal pain, diarrhoea, loss of taste or loss of smell.

9 . Strengths and limitations

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

10 . Related links

Coronavirus (COVID-19) Infection Survey, UK
Bulletin | Updated weekly
Estimates for England, Wales, Northern Ireland and Scotland.

Coronavirus (COVID-19) Infection Survey: antibody and vaccination data for the UK
Bulletin | Updated fortnightly
Antibody and vaccination data by UK country and regions in England from the Coronavirus (COVID-19)
Infection Survey.

Coronavirus (COVID-19) Infection Survey technical article: predictors of positivity across countries of the
UK, 28 October 2021
Technical article | Released 28 October 2021
Analysis of predictors of positivity across countries of the UK for coronavirus (COVID-19) from the COVID-
19 Infection Survey.

Coronavirus (COVID-19) Infection Survey technical article: analysis of re-infections of COVID-19: June 2021
Technical article | Released 29 June 2021
Data about re-infections from the Coronavirus (COVID-19) Infection Survey.

COVID-19 Infection Survey: methods and further information
Methodology article | Updated 7 February 2022
Information on the methods used to collect the data, process it, and calculate the statistics produced from
the COVID-19 Infection Survey.

The Coronavirus (COVID-19) Infection Survey QMI
Methodology article | Updated 16 July 2021
Quality and Methodology Information for the Coronavirus (COVID-19) Infection Survey (CIS), detailing the
strengths and limitations of the data, methods used, and data uses and users.