Coronavirus (COVID-19) Infection Survey, characteristics of people testing positive for COVID-19, UK: 2 March 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.

Notice

9 March 2022

The release scheduled for 16 March 2022 is a data only release, which can be found in the accompanying dataset from Wednesday 16 March 2022 at 9.30am onwards.

We will publish a full bulletin Wednesday 30 March 2022.

Table of contents

1 . Main points

- Most people who reported receiving vaccines continued to be less likely to test positive for coronavirus (COVID-19) than those who reported not being vaccinated in the fortnight up to 12 February 2022.

- People previously infected with COVID-19 continued to be less likely to test positive than those who have not experienced a prior infection in the fortnight up to 12 February 2022.

- People who reported that they 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 12 February 2022.

- People who reported working in the education sector continued to be more likely to test positive in comparison with other working adults in the fortnight up to 12 February 2022; this is likely because of the recent high infections among school children.

- The percentage of people testing positive who reported loss of taste or smell continued to decrease between December 2021 and January 2022.

- The number of contacts people have with others, both physical and socially distanced, returned to pre-Christmas levels in the fortnight up to 12 February 2022.

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 profile of 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. In communal establishments, rates of COVID-19 infection are likely to be different.

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 from the ONS and other sources.
- All ONS analysis, summarised in our coronavirus latest insights.
- 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 29 August 2021 to 12 February 2022 is available in the [Coronavirus (COVID-19) Infection Survey, characteristics of people testing positive for COVID-19, UK 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 were significant in one period may not necessarily be 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 12 February 2022 show similar conclusions to our last publication, namely:

- people who reported receiving a third COVID-19 vaccine 15 or more days ago, a second AstraZeneca vaccine more than 180 days ago, or a second Pfizer vaccine 15 to 90 days ago or more than 180 days ago, were less likely to test positive than those who reported not being vaccinated; there was no statistical evidence that having one vaccine 15 or more days ago, a second Moderna, AstraZeneca or Pfizer vaccine 91 to 180 days ago affected a person's likelihood of testing positive

- people previously infected with COVID-19 continued to be less likely to test positive than those who have not experienced a prior infection

- people who reported contact with a hospital continued to be less likely to test positive, in comparison with those living in households where no one had contact

- people who reported working in the education sector continued to be more likely to test positive in comparison with other working adults; this is likely because of the recent high infections among school children

- 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 living in multiple occupancy households continued to be more likely to test positive than people living alone

- people aged under 70 years who reported living with someone aged 70 years or over continued to be less likely to test positive than people who do not live with anyone in this older age group

- people living in rural villages continued to be less likely to test positive than those living in major urban areas

- most people living in more deprived areas continued to be more likely to test positive than those living in less deprived areas

- people who reported regularly using lateral flow tests continued to be more likely to test positive compared with those who do 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:

- people who reported contact with a care home were less likely to test positive, in comparison with those who did not

- people living in rural towns were less likely to test positive than those living in major urban areas

Figure 1: People previously infected with COVID-19, and those who reported receiving their third vaccination continued to be less likely to test positive in the fortnight ending 12 February 2022

Estimated likelihood of testing positive for coronavirus on nose and throat swabs by vaccination status and previous infection, UK, 30 January to 12 February 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 these core demographic variables.

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, the "Delta variant period" is defined as 17 May to 19 December 2021 and the "Omicron variant period" is defined as from 20 December 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 – variant period.

6. The effect of 'Any number of vaccines, 21 days or less before the last vaccine' is not included in this figure, but is presented in Table 2a of the Coronavirus (COVID-19) Infection Survey, characteristics of people testing positive for COVID-19, UK dataset. This is because people testing positive before a planned vaccination are advised to postpone their vaccination.

Download the data

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Figure 2: People who reported that they 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 ending 12 February 2022

Estimated likelihood of testing positive for coronavirus on nose and throat swabs by work and living arrangements, UK, 30 January to 12 February 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 these core demographic variables.

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

.xlsx

People who reported they had 1 to 10 physical contacts with those aged under 18 years were more likely to test positive for COVID-19 than those who had no physical contact with this age group

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 12 February 2022:

- people who reported they had 1 to 10 physical contacts with those aged under 18 years continued to be more likely to test positive than people who had no physical contact with those aged under 18 years

- adults who reported finding it very difficult to socially distance at work were more likely to test positive than those who work from home

- people who reported that they spent more time socialising outside their home and people who reported spending more time with others who had visited their home were more likely to test positive

- adults who reported never wearing a face covering in enclosed spaces were more likely to test positive than adults who reported always wearing a face covering

Figure 3: Adults who reported that they never wear a face covering in enclosed spaces were more likely to test positive for COVID-19 than people who always wear a face covering in enclosed spaces, in the fortnight ending 12 February 2022

Estimated likelihood of testing positive for coronavirus on nose and throat swabs by behavioural characteristics, UK, 30 January to 12 February 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", the odds ratio is per additional occasion spent socialising with people outside of the participant's household in the last seven days. For "time spent with others in your home", the odds ratio is per additional occasion spent with others visiting their home in the last seven days.

4. "School age" refers to those aged two years to school Year 11, and "Adults" refers to those in school Year 12 and older.

5. The outcome for the ability to socially distance at work has been taken from the behavioural model because of evidence of reverse causality in the main model shown in Figures 1 and 2, that is, people reported working from home because they have tested positive.

Download the data

.xlsx

Notes for: Characteristics associated with testing positive, UK

1. 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, the "Delta variant period" is defined as 17 May to 19 December 2021 and the Omicron variant period is defined as from 20 December 2021 onwards.

2. 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 dominant period.

3 . Symptoms profile of strong positive cases, UK

This section presents analysis based on all individuals who tested positive for coronavirus (COVID-19) with a strong positive test (Cycle threshold (Ct) value less than 30) between 1 December 2020 and 31 January 2022 in the UK. The analysis considers what percentage of these individuals reported symptoms[1] within 35 days of the first positive test. We present grouped and individual symptoms analysis for the whole of the UK split by month, and for the whole time period split by UK country, all of which 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 continued to decrease between December 2021 and January 2022

In January 2022, 61% (95% confidence interval: 60% to 61%) of people testing positive for COVID-19 in the UK with a strong positive test reported any specific symptoms[1]. This was similar to December 2021, where 60% (95% confidence interval: 59% to 61%) of people testing positive reported symptoms.

The percentage of people testing positive who reported "loss of taste or smell" continued to decrease between December 2021 and January 2022. These changes appear to be driven by the Omicron variant of COVID-19. The percentage of people testing positive who reported "any", "classic" or "gastrointestinal" symptoms were similar between December 2021 and January 2022.

The percentages of people testing positive who reported each group of symptoms are similar for each country, although slightly lower in Northern Ireland. Our sampling method for Northern Ireland is different to the other nations, inviting only people who have previously participated in a Northern Ireland Statistics and Research Agency (NISRA) survey, which may affect this.

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 continued to decrease between December 2021 and January 2022

Unweighted percentage of people testing positive for coronavirus with symptoms, including only those who have strong positive tests (Ct less than 30) by month, UK, 1 December 2020 to 31 January 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.

Download the data

.xlsx

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. However, the percentage of people testing positive for COVID-19 who reported loss of taste or loss of smell decreased in January 2022 compared with December 2021. The percentage of people reporting a sore throat increased from December 2021 to January 2022. However, the percentage of people reporting a sore throat who tested negative for COVID-19 also increased during this period. This means that the higher percentage of people reporting a sore throat may be due to other infections common in the winter months, such as the common cold or flu.

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.

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 18 July 2020 and 12 February 2022 for England, and 27 September 2020 to 12 February 2022 for Wales, Northern Ireland and Scotland, is available in the [Coronavirus (COVID-19) Infection Survey, characteristics of people testing positive for COVID-19, UK 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.

The number of contacts, both physical and socially distanced, has returned to pre-Christmas levels up to 12 February 2022

In the six weeks up to 12 February 2022, children reported more physical and socially distanced contacts with those aged under 18 years across all UK countries, likely because of schools re-opening after the Christmas holidays. In January 2022, adults reported fewer physical contacts with all age groups across all UK countries, likely because of decreased mixing following Christmas.

From mid-January 2022 up to 12 February 2022, adults reported more socially distanced contacts with all age groups in Wales, Northern Ireland and Scotland. In the same period, adults reported more socially distanced contacts with other adults in England.

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 2 March 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 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.

Education sector

Work sectors are self-reported and cover a wide variety of occupations; for example, someone working in the education sector could be a teacher at a primary school or could be a chef at a college.

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[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 reinfections of COVID-19: June 2021
Technical article | Released 29 June 2021
Data about reinfections 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.