Office for National Statistics

Statistical bulletin

Coronavirus (COVID-19) Infection Survey, characteristics of people testing positive for COVID-19, UK: 22 September 2021

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, Public Health England 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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1 . Main points

- Across the UK, people testing positive for COVID-19 with a strong positive test were more likely to report "classic" symptoms than gastrointestinal or loss of taste or smell only.
- In the UK, the most commonly reported symptoms continue to be cough, fatigue and headache.
- The number of socially distanced and physical contacts that adults and school-age children reported with people outside their household has continued to increase across the UK since March 2021.
- There is no statistical evidence of a difference in the percentage of people testing positive between adults working in patient-facing healthcare roles and all other adults in the latest period up to 3 September 2021.

About this bulletin

This fortnightly bulletin series presents the latest analysis on the characteristics of people testing positive for SARS-CoV-2, the coronavirus causing the COVID-19 disease in the UK. Our analysis on the characteristics of people testing positive for COVID-19 is still available.

In this bulletin, we refer to the number of COVID-19 infections within the community population; this refers to private residential households, and excludes those in hospitals, care homes and/or other institutional settings in the UK. 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 roundup.
- 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.

Analysis in this bulletin is for a different time period to the headline figures presented in the weekly COVID-19 Infection Survey bulletin. Reference periods are clearly stated at the start of each section, with more detail on what the analysis covers.

2 . Symptoms profile of strong positive cases, UK

This section presents analysis that considers individuals with any strong positive test (including repeated positive tests) that had high viral loads (a Ct value less than 30) between 1 December 2020 and 31 August 2021 in the UK. We first present analysis for the whole of the UK split by month, and then for the whole time period split by UK country.

The analysis looks at any specific self-reported symptom, including cough, fever, shortness of breath, loss of taste, loss of smell, myalgia, fatigue, sore throat, headache, abdominal pain, diarrhoea, nausea or vomiting, or any symptom compatible with coronavirus (COVID-19). Symptoms are self-reported and were not professionally diagnosed.

To date, 99% of strong positive cases in August and July 2021, 92% in June 2021 and 46% in May 2021 were compatible with the Delta variant. Prior to this very few positive cases were identified as compatible with the Delta variant. This means that any change from May onwards when compared with previous months may be because the Delta variant has a different symptoms profile to the Alpha variant. However, other changes between May and June may also affect this analysis.

In addition, when the percentage of the population testing positive for COVID-19 is increasing, as it has been recently, the survey is likely to identify more people closer to the start of their infection with higher viral loads (lower Ct values). We have seen that the viral load of strong positive results increased during June and July 2021, as measured by decreases in the average Cycle Threshold (Ct) value (see Section 7: Glossary, for more information on Ct values). This will also affect the prevalence of symptoms within these strong positive cases.

Across the UK, people testing positive for COVID-19 with a strong positive test were more likely to report "classic" symptoms than gastrointestinal or loss of taste or smell only.

This analysis is based on all individuals who test positive for COVID-19 with a strong positive test (Ct <30) and considers what percentage of these individuals reported symptoms within 35 days of the first positive test.

In August, 58% (95% confidence interval: 56% to 60%) of people testing positive for COVID-19 in the UK with a strong positive test reported any specific symptoms[1]. The percentage appears to have decreased since July, where 62% (95% confidence interval: 60% to 64%) of people with a strong positive test reported any specific symptoms. The percentage of people reporting symptoms was lower in the period between March and May 2021. During this period, the positivity rate was also lower in comparison to other months, and there was a lower average viral load during this time. This could potentially explain the lower percentage of people reporting symptoms between March and May 2021.

Symptoms reported were more likely to be "classic" symptoms than gastrointestinal or loss of taste or smell only. The prevalence of “classic”, “loss of taste or smell” and any symptoms was generally lower between March and May 2021 compared with other months, where prevalence was higher. This is consistent with lower average viral load between March and May 2020.

Figure 1: In the UK, people testing positive for COVID-19 with a strong positive test were more likely to report "classic" symptoms than gastrointestinal or loss of taste or smell only

Unweighted percentage of people with symptoms, including only those who have strong positive tests (Ct less than 30) by month, UK, 1 December 2020 to 31 August 2021

Notes:

1. All results are provisional and subject to revision.

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

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

4. “Classic symptoms” include any of the following: cough, fever, shortness of breath, loss of taste, loss of smell.

5. “Gastrointestinal (GI) symptoms” include any of the following: abdominal pain, nausea or vomiting, diarrhoea.

6. These statistics refer to infections reported in the community, by which we mean private households. These figures exclude infections reported in hospitals, care homes or other institutional settings.

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. The prevalence of loss of smell, loss of taste, fever, cough, fatigue, headache, myalgia, diarrhoea, and nausea and vomiting was lower in the period between March and May 2021 when positivity was lower in comparison to other months. However, confidence intervals are wide and overlap with previous months’ estimates.

Data on the percentage of people reporting specific symptoms by month for the UK, and by country for the total time period studied can be found in the accompanying dataset.

The percentage of strong positive cases where any symptoms were reported appears to be slightly lower in Northern Ireland, although confidence intervals overlap with other countries. This may be driven by slightly fewer people reporting loss of taste and smell (which is a classic symptom) compared with England, Wales and Scotland. In addition, 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 could result in a sample of individuals who are less likely to report symptoms.

Patterns of the prevalence of specific symptoms are similar for each UK country, and align with data for the whole of the UK.

Because of a smaller number of tests in Wales, Northern Ireland and Scotland in comparison to England in our sample, the confidence intervals are wider indicating higher uncertainty.

Figure 2: Patterns of the prevalence of symptoms are similar for each UK country

Unweighted percentage of people with symptoms, including only those who have strong positive tests (Ct less than 30) by country, UK, 1 December 2020 to 31 August 2021

Notes:

1. All results are provisional and subject to revision.

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

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

4. “Classic symptoms” include any of the following: cough, fever, shortness of breath, loss of taste, loss of smell.

5. “Gastrointestinal (GI) symptoms” include any of the following: abdominal pain, nausea or vomiting, diarrhoea.

6. These statistics refer to infections reported in the community, by which we mean private households. These figures exclude infections reported in hospitals, care homes or other institutional settings.

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About this analysis

This analysis considers all symptoms reported at survey visits within 35 days of the first positive test of the episode, and at each survey visit we ask about symptoms 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. 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. We look at strong positive test results with a Ct of less than 30 to exclude the possibility that symptoms are not identified because we pick up individuals very early or later on in their infection. More details on this analysis can be found in Section 8.

Individuals taking part in the survey were asked at each visit 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 coronavirus (COVID-19) infection in the last seven days.

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.

3 . Number and age of people with whom individuals had contact, in England, Wales, Northern Ireland and Scotland

This section looks at how often individuals are reporting social contact (either socially distanced or physical contact) with other people outside their own household, regardless of whether they have tested positive for coronavirus (COVID-19). We asked school-age children (aged 2 years to School Year 11) and adults (School Year 12 and over) how many people aged 17 years and under, 18 to 69 years, and 70 years and over they have had contact with outside their household up to seven days prior to each survey visit. "Contact" refers to either of the following:

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

We report on recent trends in this section, but the full time series for this analysis, which covers the period between 11 July 2020 and 3 September 2021 for England, and 19 September 2020 to 3 September 2021 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.

Number of reported socially distanced and physical contacts with people outside the household continued to increase across the UK

The trends in socially distanced and physical contacts are very similar for England, Wales, Northern Ireland and Scotland, and are broadly unchanged since our last bulletin.

Across all four UK nations, the number of socially distanced and physical contacts that adults and school-age children reported with people of all ages outside their household has been increasing since March 2021. Adults appear to consistently have more socially distanced and physical contacts with those aged 18 to 69 years than with those aged under 18 years or aged 70 years and over. School-age children appear to have had more socially distanced and physical contacts with those aged under 18 years.

School term dates, and COVID-19 related school policies vary by nation and this is reflected in the data. For example, following the trend shown by Northern Ireland and Scotland reported in our previous bulletin, in the 14-day period up to 3 September 2021, school-age children in those countries reported more contacts with those aged under 18 years. This corresponds to schools in Northern Ireland and Scotland returning after the summer holidays, which is not yet seen in England and Wales.

Further 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 those reported in the Opinions and Lifestyle Survey (OPN), which examines the impact of the coronavirus pandemic on people, households and communities in Great Britain. The most recent OPN bulletin reported that among 3,400 adult respondents in Great Britain, from 27 August to 5 September 2021:

- the proportion of adults who always or often maintain social distancing was similar to the last wave (46% this wave, 45% last wave).

4 . Percentage testing positive for COVID-19 by adults in patient-facing healthcare job roles and all other adults, UK

This section provides estimates on positivity rates by adults who work in patient-facing health care roles, and all other adults who do not work in patient-facing healthcare roles (including those who are not working) for the UK. The two groups are split by those aged under 35 years and those aged 35 years and over. In this analysis we include only swab test results from individuals aged 16 to 74 years. This analysis covers the period from 21 September 2020 to 3 September 2021.

Patient-facing healthcare job roles include working in healthcare establishments such as hospitals, and do not include job roles in social care or care homes. People who are not working are included within the group “all other adults”.

Since late June, the percentage testing positive for coronavirus (COVID-19) has increased for adults working in patient-facing healthcare roles and all other adults. There is no statistical evidence of a difference in the percentage of people testing positive between adults working in patient-facing healthcare roles and all other adults in the latest period up to 3 September 2021. The percentage of people testing positive was higher for those aged under 35 years, in both those working and not working (all other adults) in patient-facing healthcare roles.

Figure 3: There is no statistical evidence of a difference in the percentage of people testing positive between adults working in patient-facing healthcare roles and all other adults in the latest period

Estimated percentage of the adult population testing positive for COVID-19 on nose and throat swabs by adults in patient-facing healthcare job roles and all other adults, by age group, UK, 21 September 2020 to 3 September 2021

Notes:

1. All results are provisional and subject to revision.
2. There are fewer people in patient-facing healthcare job roles in our sample than those in the 'all other adults' category (which includes those not working). Therefore, the estimates for adults in patient-facing healthcare job roles have a larger degree of uncertainty, represented by wider credible intervals.
3. These statistics refer to infections reported in the community, by which we mean private households. These figures exclude infections reported in hospitals, care homes and/or other institutional settings.

Download the data

.xlsx

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 22 September 2021
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, Public Health England 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

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.

Credible interval

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.

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.

For more information, see our methodology page on statistical uncertainty.

8 . Measuring the data

Additional information on strengths, limitations, appropriate uses, and how the data were created is available in the Coronavirus (COVID-19) Infection Survey Quality Methodology Information (QMI). Our methodology article provides further information around the survey design, how we process data and how data are analysed.

Symptoms analysis

The analysis in Section 2 looks at each person who tested positive for coronavirus (COVID-19) and had a strong positive test in the UK. Participants who only have positive tests with high Ct values (please see glossary term: Cycle threshold (Ct) values) 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. You can find more information on Ct values in a paper written by academic partners at the University of Oxford.

The analysis on the symptoms profile of strong positive cases in the UK considers individuals with any positive test (including repeated positive tests) that had a Ct value less than 30 between 1 December 2020 and 31 August 2021. Positive episodes are now being 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 we take 120 days as a cut-off point, whereas previously we used 90 days.

9 . Strengths and limitations

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

Further information on test accuracy can be found in our blog: Accuracy and confidence: why we trust the data from the COVID-19 infection survey.

10 . 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 the University of Oxford, the University of Manchester, Public Health England and Wellcome Trust. This study is jointly led by the Office for National Statistics (ONS) and the Department for Health and Social Care (DHSC) working with the University of Oxford and Lighthouse Laboratory to collect and test samples.

Coronavirus (COVID-19) Infection Survey: antibody and vaccination data for the UK
Article | Updated fortnightly
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 the University of Oxford, the 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 Lighthouse Laboratory to collect and test samples.

COVID-19 Infection Survey: methods and further information
Methods article | Updated 24 August 2021
Information on the methods used to collect the data, process it, and calculate the statistics produced from the COVID-19 Infection Survey pilot.

Coronavirus (COVID-19) latest insights
Interactive tool | Updated as and when data become available
Explore the latest data and trends about the coronavirus (COVID-19) pandemic from the ONS and other official sources.

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.

COVID-19 Infection Survey (CIS)
Article | Updated regularly
Whether you have been invited to take part or are just curious, find out more about our COVID-19 Infection Survey and what is involved.

Coronavirus and vaccination rates in people aged 70 years and over by socio-demographic characteristic, England
Article | Released 7 June 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.

Prevalence of ongoing symptoms following coronavirus (COVID-19) infection in the UK: 2 September 2021
Article | Released 2 September 2021
Estimates of the prevalence of self-reported "long COVID" and associated activity limitation, using UK Coronavirus (COVID-19) Infection Survey data.

Delta Variant and vaccine effectiveness; what can the CIS tell us?
Blog | Released 19 August 2021
Sarah Crofts presents the main findings from academic research on vaccine effectiveness and symptoms conducted by our survey partners from Oxford University led by Professor Sarah Walker.

Symptoms and SARS-CoV-2 positivity in the general population in the UK
Preprint article | Released 19 August 2021
Using data and samples collected by the COVID-19 Infection Survey at regular visits to representative households across the UK, researchers from the University of Oxford compared symptoms in new PCR-positives and comparator test-negative controls.

COVID Symptom Study - what are the new top 5 COVID symptoms?
Web page | Updated 23 June 2021
Daily reports on the ZOE COVID Study app used to identify the current top five symptoms that have emerged in recent weeks, which differ depending on if you've been vaccinated, and how many doses you've had.