Office for National Statistics

Article

Coronavirus (COVID-19) Infection Survey: characteristics of people testing positive for COVID-19 in England: October 2020

Data about the characteristics of people testing positive for COVID-19 from the COVID-19 Infection Survey. This survey is being delivered in partnership with University of Oxford, University of Manchester, Public Health England and Wellcome Trust.

Table of contents

1 . Main points

- Latest estimates show that coronavirus (COVID-19) infections have continued to increase in recent weeks; in this article we provide more analysis on the characteristics and behaviours of those testing positive.

- From 28 September to 11 October 2020, around a third of those who tested positive for COVID-19 reported any evidence of symptoms at the time of their test.

- From 25 September to 08 October 2020, 17- to 24-year-olds have higher positivity rates in both the higher and lower rate regions, however the difference from other age groups is much greater in the higher rate regions.

- Urban areas in England have higher positivity rates than rural areas, with 0.70% of the community population in these areas testing positive for COVID-19 between 27 September and 10 October 2020 (95% confidence interval: 0.56% to 0.88%) while in rural areas 0.47% tested positive in the same period (95% confidence interval: 0.35% to 0.62%).

- In the most recent fortnight (25 September to 08 October 2020) we no longer see a difference in positivity rates depending on travel abroad.

2 . What this analysis covers

In this article, we refer to the number of coronavirus (COVID-19) infections within the community population; community in this instance refers to private residential households, and it excludes those in hospitals, care homes and/or other institutional settings in England.

This article presents analysis on the characteristics of those testing positive for SARS-CoV-2 – the coronavirus causing the COVID-19 disease – based on findings from the COVID-19 Infection Survey in England. 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 information on our headline estimates of the overall number of positive cases in England, Wales, Scotland and Northern Ireland are available in our latest bulletin. It should be noted that the analysis on the characteristics and behaviours of those testing positive in this article is for an older time period than the headline figures presented in the most recent bulletin. The reference periods for the various analyses are clearly stated at the start of each section.

Further information on what the analysis covers is provided at the start of each section.

3 . Analysis of symptoms among those testing positive for COVID-19

About this analysis

The analysis in this section considers only those who have tested positive for the coronavirus (COVID-19). It looks at the percentage of COVID-positive cases who report symptoms at or around the time of their test. This analysis is presented in non-overlapping fortnightly periods from 26 April to 11 October 2020.

Individuals taking part in the COVID-19 Infection Survey were asked whether they had experienced a range of possible symptoms[1] on the day when they were tested[2] and separately whether they felt that they had symptoms compatible with COVID-19 infection. In this analysis, we compare these factors at each positive swab test in the study. It is important to note that participants were not professionally diagnosed and symptoms were self-assessed and self-reported.

In the most recent fortnight, 34% of those who tested positive for COVID-19 reported any evidence of symptoms at the time of their test

Figure 1 shows the proportion of those who test positive that reported experiencing symptoms at the time of their positive test. From 28 September to 11 October 2020, 34% of those who tested positive for COVID-19 reported any evidence of symptoms at the time of the test. 24% of those who tested positive reported experiencing cough, fever or anosmia (loss of taste or smell) at the time of the test.

Overall, during late June to late July very few people reported any evidence of symptoms at the time of their positive test (as low as 0%), compared with up to 38% at other times. Similar patterns were seen for people specifically reporting cough, fever or anosmia at the time of the test.

Figure 1: A higher percentage of people who have tested positive in recent weeks report symptoms at the time of their test from a low point in the summer months

Percentage of people who test positive for the coronavirus (COVID-19) who report symptoms at the time of their test, by non-overlapping 14-day periods between 26 April and 11 October 2020

Source: Office for National Statistics – Coronavirus (COVID-19) Infection Survey

Notes:

1. All results are provisional and subject to revision.

2. 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.

A similar pattern can be observed for the proportion of those who test positive that reported experiencing symptoms around the time of their positive test (defined as at the positive test or at the visits either side of the positive test), with very few people reporting any evidence of symptoms between late June and late July.

From 28 September to 11 October 2020, 45% of those who tested positive for COVID-19 reported any evidence of symptoms around the time of the test. Of those who tested positive, 33% reported experiencing cough, fever or anosmia (loss of taste or smell) around the time of the test.

Figure 2: Almost half of people who have tested positive for COVID-19 in the most recent fortnight have reported symptoms around the time of their test

Percentage of people who test positive for the coronavirus (COVID-19) who report symptoms around the time of their test, by non-overlapping 14-day periods between 26 April and 11 October

Source: Office for National Statistics – Coronavirus (COVID-19) Infection Survey

Notes:

1. All results are provisional and subject to revision.

2. 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.

Notes for: Analysis of symptoms among those testing positive for COVID-19

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 (anosmia).

2. Here, we compare symptoms at each positive test.

4 . Characteristics of people testing positive for COVID-19

About this analysis

The analysis in this section includes estimates of positivity by age and high or low rate regions. This is the estimated percentage testing positive for the coronavirus (COVID-19) in the 14-day period from 25 September to 08 October 2020 and fits a multivariable logistic regression model to control for multiple confounding factors at the same time. For simplicity, we have presented only two of the nine English regions (East Midlands to represent the six regions with lower rates and Yorkshire and The Humber for the three regions that have a higher rate). These regions were representative of the higher and lower rate regions at the time of the analysis. While overall levels of positivity are likely to differ between each of the nine regions, the patterns of positivity by age will be the same among the higher rate regions, and among the lower rate regions as we have controlled for this in our model.

Analysis on positivity rates by urban and rural areas in the 14-day period from 27 September to 10 October 2020 is presented in this section. The analysis is based on a multivariable logistic regression model to control for multiple confounding factors at the same time.

This section also includes analysis on the estimated percentage testing positive for COVID-19 on nose and throat swabs by travel behaviour in the last 30 days. The analysis is presented as non-overlapping unweighted fortnightly estimates from 31 July to 08 October 2020 and does not control for other factors.

17- to 24-year olds have higher positivity rates in both the higher and lower rate regions

Figure 3 shows the estimated positivity rate by age, split by high and low rate regions from 25 September to 08 October 2020. 17- to 24-year-olds have higher positivity rates in both the higher and lower rate regions, however the difference is much greater in the higher rate regions.

Figure 3: 17- to 24-year-olds have higher positivity rates in both the higher and lower rate regions

Estimated percentage testing positive for the coronavirus (COVID-19) on nose and throat swabs, daily, by age and region, between 25 September and 08 October 2020, England

Notes:

1. All results are provisional and subject to revision.

2. 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.

3. The data presented are based on a logistic regression model controlling for age, region, ethnicity, social contact, travel, Index of Multiple Deprivation and sex.

4. Higher rate regions include the North West, Yorkshire and The Humber and the North East. The reference region for the higher rate regions is Yorkshire and The Humber. Lower rate regions include the West Midlands, East Midlands, London, South West, East of England and the South East. The reference region for the lower rate regions is the East Midlands.

Download the data

Urban areas have higher positivity rates than rural areas in most regions

Urban areas in England are estimated to have higher positivity rates than rural areas with 0.70% of the community population in these areas testing positive for COVID-19 between 27 September and 10 October 2020 (95% confidence interval: 0.56% to 0.88%). In rural areas 0.47% tested positive in the same period (95% confidence interval: 0.35% to 0.62%).

There is a general trend of higher positivity in urban areas compared with rural areas, although credible intervals overlap in all regions. There appear to be larger differences between positivity in urban and rural areas in regions with the highest rates.

Figure 4: There is a general trend of higher positivity in urban areas compared with rural areas

Modelled percentage testing positive for the coronavirus (COVID-19) on nose and throat swabs, daily, by rural or urban and region, between 27 September and 10 October 2020, England

Notes:

1. All results are provisional and subject to revision.

2. 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.

3. The data presented is based on a logistic regression model controlling for age, sex, ethnicity and Index of Multiple Deprivation, using data for the 14-day period from 27 September to 10 October 2020.

Download the data

In the most recent fortnight, we no longer see a difference in positivity rates between those who have and have not travelled abroad

This analysis presents trends in positivity rates comparing those who travelled abroad in the 30 days prior to the swab test with those who did not travel abroad.

Previously we found there was a difference in positivity rates among those who have travelled abroad compared with those who have not, with higher positivity rates in those who had travelled abroad. However, in the most recent fortnight we no longer see a difference in positivity depending on travel abroad.

The proportion of the sample who reported travelling abroad in the 30 days prior to their test was highest in late August to early September (5% of the sample), but this has since decreased (3% of the sample in the latest fortnight).

Figure 5: In the most recent fortnight there has been no difference in positivity rates between those who have and have not travelled abroad

Estimated percentage testing positive for the coronavirus (COVID-19) on nose and throat swabs, daily, by travel behaviour in the last 30 days, between 31 July and 08 October 2020, England

Source: Office for National Statistics – Coronavirus (COVID-19) Infection Survey

Notes:

1. All results are provisional and subject to revision.

2. The estimates provided are unadjusted.

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.

Notes for: Characteristics of people testing positive for COVID-19:

1. Participants reported travelling abroad to the following countries: Austria, Belgium, Croatia, Czech Republic, Finland, France, Germany, Greece, Hong Kong, Ireland, Italy, Malta, Poland, Portugal, Russia, South Africa, Spain, The Canaries and Turkey.

5 . Coronavirus (COVID-19) Infection Survey data

[Coronavirus (COVID-19) infections in the community in England](#)
Dataset | Released 27 October 2020
Characteristics of people testing positive for the coronavirus (COVID-19) in England taken from the COVID-19 Infection Survey.

6 . COVID-19 Infection Survey methodology

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

Acknowledgements

Methodology

The analysis presented in Section 3: Proportion of people in England who had COVID-19 over time by characteristics is based on regression modelling similar to our national trend modelling. More information about the methods used in the model is available in our methodology article. The analysis in Section 3 uses nose and throat swab test results from the start of the study (26 April 2020), or for analysis related to newer questions, from when the question was introduced on 23 July 2020, to model the trend in COVID-19 infections. In this article, we present the trend from 23 July 2020 for all characteristics.

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.

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.

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. 95% credible intervals are calculated so that there is a 95% probability of the true value lying in the interval.

8 . Related links

Coronavirus (COVID-19) Infection Survey
Statistical bulletin | Updated weekly
Data from the COVID-19 Infection Survey. This survey is being delivered in partnership with IQVIA, Oxford University and UK Biocentre.

COVID-19 Infection Survey (Pilot): methods and further information
Methods article | Updated 21 September 2020
Information on the methods used to collect the data, process it, and calculate the statistics produced from the COVID-19 Infection Survey pilot.

COVID-19 Infection Survey (CIS)
Article | Updated 14 May 2020
Whether you have been invited to take part, or are just curious, find out more about our COVID-19 Infection Survey and what is involved.

Coronavirus (COVID-19) roundup
Blog | 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.