

Statistical bulletin

Coronavirus (COVID-19) Infection Survey pilot: 28 May 2020

This release provides initial data from the COVID-19 Infection Survey. This survey is being delivered in partnership with IQVIA, Oxford University and UK Biocentre.

Contact:
Heather Bovill
infection.survey.analysis@ons.
gov.uk
+44 (0)203 973 4761

Release date:
28 May 2020

Next release:
4 June 2020

Correction

2 June 2020 12:54

A correction has been made to Coronavirus (COVID-19) Infection Survey pilot: England, 28 May 2020. We have corrected a wording error in Section 5 of the bulletin. This relates to the analysis of those not experiencing symptoms who tested positive for COVID-19. The corrected text now reads "By comparison 0.35% (95% confidence interval: 0.28% to 0.45%) of people who were not experiencing any symptoms of COVID-19 at the time of the test tested positive". Before the correction, this text incorrectly referenced 0.35% to those who had experienced symptoms. So, we have corrected the text to make clear this estimate relates to those without symptoms. Note, Figure 6 and Table 8 of the data tables are unchanged as they were correct in the original publication.

We apologise for any inconvenience.

Table of contents

1. [Main points](#)
2. [Number of people in England who had COVID-19](#)
3. [Number of new COVID-19 cases in England](#)
4. [Antibody tests for COVID-19](#)
5. [Characteristics of people testing positive for COVID-19](#)
6. [COVID-19 Infection Survey data](#)
7. [Collaboration](#)
8. [Measuring the data](#)
9. [Strengths and limitations](#)
10. [Next steps](#)
11. [Glossary](#)
12. [Related links](#)

1 . Main points

- Within this bulletin, we refer to the number of coronavirus (COVID-19) infections within the community population; community in this instance refers to private households, and it excludes those in hospitals, care homes or other institutional settings.
- At any given time between 11 May and 24 May 2020, we estimated that an average of 0.24% of the community population had COVID-19 (95% confidence interval: 0.11% to 0.46%).
- This equates to an average of 133,000 people in England (95% confidence interval: 62,000 to 250,000); a similar level to the previous estimate indicating that the number of people with COVID-19 is relatively stable.
- Patient-facing healthcare workers and resident-facing social care workers show higher rates of positive tests than people not working in these roles.
- Individuals working outside the home show higher rates of positive tests than those who work from home.
- While those who have symptoms are more likely to test positive than those without symptoms, out of those within our study who have ever tested positive for COVID-19, 21% reported any symptoms on the day of testing.
- There were an estimated 54,000 new COVID-19 infections per week in England (95% confidence interval: 34,000 to 86,000), a similar level to the previous estimate indicating that the number of new COVID-19 infections is relatively stable; this equates to an incidence rate per week of 0.10 new cases per 100 people.
- Of those individuals providing blood samples, 6.78% (unweighted) tested positive for antibodies to COVID-19 (95% confidence interval: 5.21% to 8.64%); this equates to around 1 in 15 people.

2 . Number of people in England who had COVID-19

Based on tests conducted between 11 May and 24 May 2020, we estimate 133,000 people in England had COVID-19

Our latest estimates indicate that at any given time during the two weeks from 11 May to 24 May 2020, an average of 133,000 people in England had the coronavirus (COVID-19) (95% confidence interval: 62,000 to 250,000). This equates to 0.24% (95% confidence interval: 0.11% to 0.46%) of the population in England. This estimate is based on tests performed on 18,913 people in 8,799 households.

When comparing the estimated number of people in England that had COVID-19 in this publication against the results published in the [previous publication](#), it should be noted that the change is relatively small and it should be interpreted that the number of people in England that have COVID-19 is relatively stable.

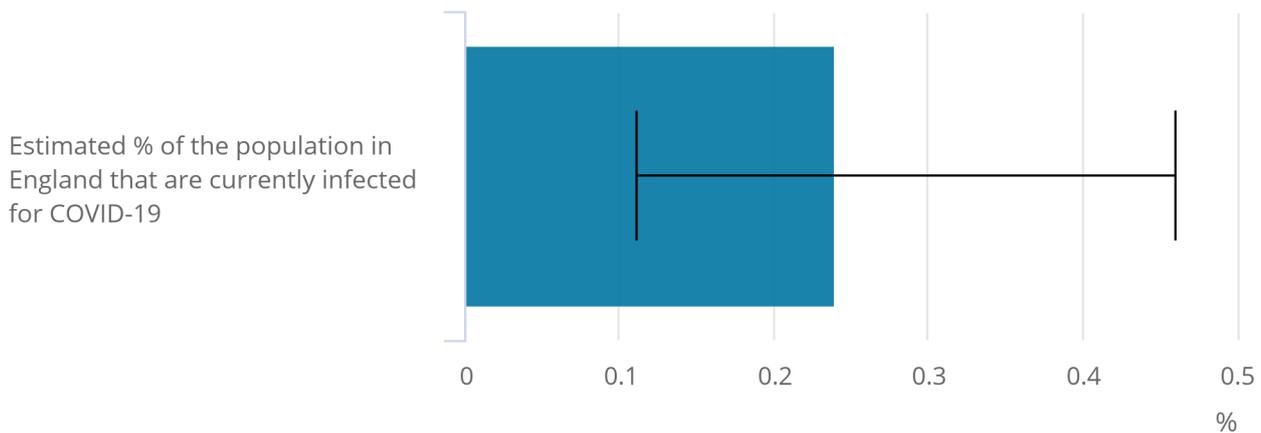
Out of the 18,913 participants' swab tests included in this analysis, 36 individuals in 27 households tested positive for COVID-19. As a household survey, our figures do not include people staying in hospital or care homes. In these settings, rates of COVID-19 infection are likely to be higher.

Figure 1: An estimated 0.24% of the community population in England would test positive for COVID-19

Estimated percentage of the population in England who had the coronavirus (COVID-19), based on tests conducted between 11 May to 24 May 2020

Figure 1: An estimated 0.24% of the community population in England would test positive for COVID-19

Estimated percentage of the population in England who had the coronavirus (COVID-19), based on tests conducted between 11 May to 24 May 2020



Source: Office for National Statistics - COVID-19 Infection Survey

Notes:

1. 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.

All estimates are subject to [uncertainty](#), given that a sample is only part of the wider population. The 95% confidence intervals are calculated so that, if we were to repeat this study many times, with many different samples of households, then 95% of the time the confidence intervals would contain the true value that we are seeking to estimate.

More information on how our estimates compare with other sources is available in [Section 8: Measuring the data](#).

3 . Number of new COVID-19 cases in England

There were an estimated average of 54,000 new COVID-19 infections per week in England

Based on results of people tested throughout the study period, which began on 26 April 2020, we estimate that there were 0.10 new infections per 100 people followed for one week (95% confidence interval: 0.06 to 0.16). This would represent an average of 54,000 new infections per week for people living in private-residential households in the community in England since the study began (95% confidence interval: 34,000 to 86,000).

When comparing the estimated number of people in England that had COVID-19 in this publication against the results published in the [previous publication](#), it should be noted that the change is relatively small and it should be interpreted that the number of new infections in England is relatively stable.

The rate is known as the incidence rate and measures the occurrence of new cases of COVID-19. Incidence refers to the number of individuals who have a positive test in the study divided by the time from joining the study to their last test. Individuals who are positive when they join the study are not included in this calculation. This is not the same as the reproduction rate (R). R is described in the next section.

As of 24 May 2020, 14,540 individuals who were negative on their first test in the study have had one or more follow-up swab tests. The median time between tests was 13 days.

Unlike the analysis in [Section 2](#) of this bulletin, these estimates have not been weighted to be representative of the target population in England. This is because of the relatively small numbers of positive cases in the sample but analysis suggests that weighting would not significantly change the results. We will do more work on the potential to weight these estimates in future publications.

The reproduction rate (R) is being published by the Scientific Advisory Group for Emergencies (SAGE)

The reproduction number (R) is the average number of secondary infections produced by one infected person. The Scientific Pandemic Influenza Group on Modelling (SPI-M), a sub-group of the Scientific Advisory Group for Emergencies (SAGE), has built a consensus on the value of R based on expert scientific advice from multiple academic groups. As of 22 May 2020, [the latest estimate of R](#) was between 0.7 and 1.0.

4 . Antibody tests for COVID-19

Around 6.78% of people who provided blood samples tested positive for antibodies to COVID-19

As of 24 May 2020, 6.78% (95% confidence interval: 5.21% to 8.64%) of individuals from whom blood samples were taken tested positive for antibodies to the coronavirus (COVID-19). This is based on blood test results from 885 individuals since the start of the study on 26 April 2020.

One way the body fights infections like COVID-19 is by producing small particles in the blood called antibodies. It takes between two and three weeks for the body to make enough antibodies to fight the infection, but once a person recovers, antibodies remain in the blood at low levels. This is what helps to prevent individuals from getting the same infection again. We try to measure the presence of antibodies in order to work out who has had COVID-19 in the past.

More information on how our estimates compare with other sources that present results of antibody tests is available in [Section 8: Measuring the data](#).

5 . Characteristics of people testing positive for COVID-19

This section includes all individuals who have ever been tested for the coronavirus (COVID-19) as part of the study. It looks at the potential risk factors associated with those who have ever tested positive for COVID-19 at any point in the study, even if they now test negative. Previous editions of this bulletin have focused on people who tested positive over the most recent 14-day period. Given our estimates for the percentage of people testing positive for COVID-19 are stable and low, including all those who ever tested positive gives a larger dataset enabling more accurate analysis of risk factors.

Over the whole study period, an estimated 0.43% (95% confidence interval: 0.35% to 0.53%) of people have ever tested positive for COVID-19. This estimate is unweighted and therefore not necessarily representative of the wider community population in England. It cannot be compared with our estimate for the average percentage of the community population in England that had COVID-19 in a 14-day period. This is because they use different time periods and one is a weighted estimate, while the other is unweighted.

The following breakdowns estimate the percentage of people in different groups that have ever tested positive for COVID-19 within our sample. These new estimates should not be compared with equivalent estimates from our [previous publication](#) (21 May), or with the overall estimate of the national percentage testing positive, as the new estimates include everyone who has ever tested positive (including many who have now recovered), and this will always be higher than the proportion testing positive in the last 14 days of the study.

Sex and age groups

Based on test results from those who have ever tested positive over the study period (26 April to 24 May 2020), there is no evidence of differences in the proportions of men or women testing positive for COVID-19.

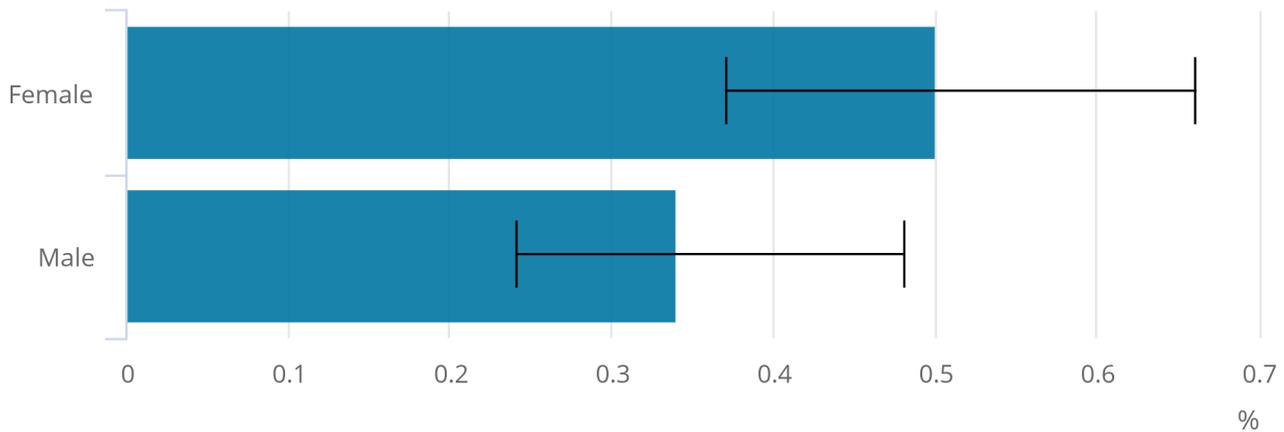
The black lines on Figure 2 show the confidence interval for the estimated percentage of men and women within the study that have ever been infected with COVID-19. Given the range of values overlap substantially, this indicates that there is no evidence of different infection rates between men and women.

Figure 2: There is no evidence of differences in the percentage of men and women testing positive for COVID-19

Estimated percentage testing positive for the coronavirus (COVID-19), by sex, England, 26 April to 24 May 2020

Figure 2: There is no evidence of differences in the percentage of men and women testing positive for COVID-19

Estimated percentage testing positive for the coronavirus (COVID-19), by sex, England, 26 April to 24 May 2020



Source: Office for National Statistics - COVID-19 Infection Survey

Notes:

1. 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.

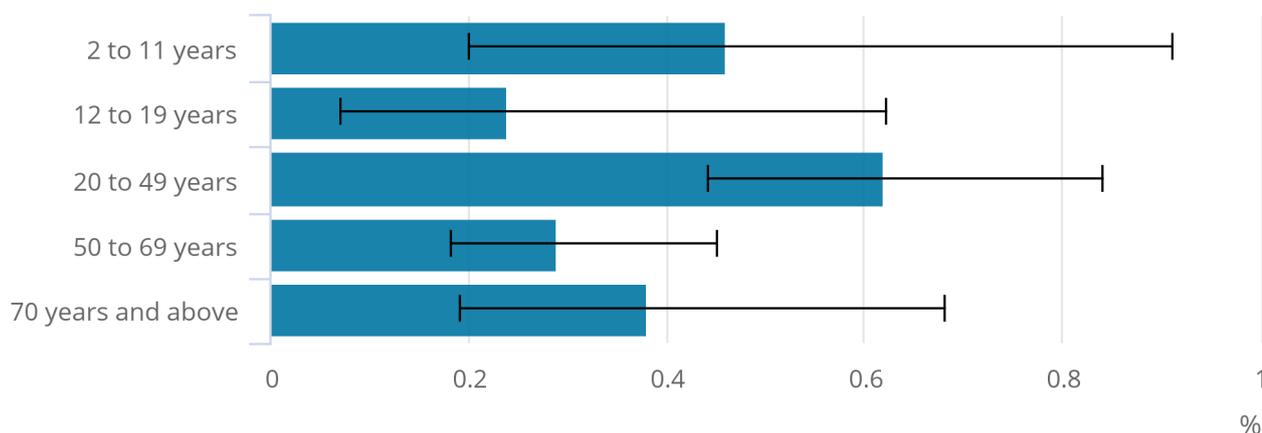
The range of values for the black lines on Figure 3 are large and overlap across age groups. However, there is only a small overlap between the 20- to 49-year-old age group and the 50 to 69 years age group, providing some evidence that the 20- to 49-year-olds in the community may have a slightly higher rate of positive testing than 50- to 69-year-olds in the community.

Figure 3: There is some evidence of differences in the proportions of individuals testing positive for COVID-19 for people between the age groups of 20 and 49 and 50 to 69 years

Estimated percentage of those ever testing positive for the coronavirus (COVID-19) in the study, by age bands, England, 26 April to 24 May 2020

Figure 3: There is some evidence of differences in the proportions of individuals testing positive for COVID-19 for people between the age groups of 20 and 49 and 50 to 69 years

Estimated percentage of those ever testing positive for the coronavirus (COVID-19) in the study, by age bands, England, 26 April to 24 May 2020



Source: Office for National Statistics - COVID-19 Infection Survey

Notes:

1. 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.

Patient-facing healthcare or resident-facing social care workers

Of those in our study who reported working in patient-facing healthcare or resident-facing social care roles ¹, 1.73% tested positive for COVID-19 (95% confidence interval: 0.92% to 2.94%). This includes NHS professionals, such as nurses and doctors, as well as social care workers, such as nursing home or home care workers.

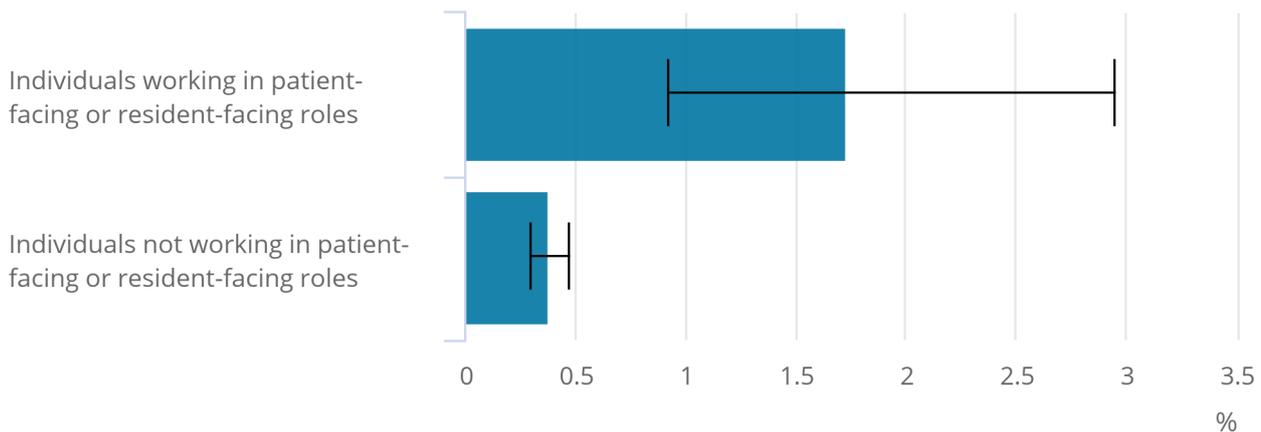
By comparison, the percentage of people reporting not working in these types of roles testing positive for COVID-19 was lower at 0.38% (95% confidence interval: 0.29% to 0.47%).

Figure 4: A higher percentage of individuals who report working in patient-facing roles in health or social care tested positive for COVID-19

Estimated percentage of those ever testing positive for the coronavirus (COVID-19) in the study, by health and social care workers and other individuals, England, 26 April to 24 May 2020

Figure 4: A higher percentage of individuals who report working in patient-facing roles in health or social care tested positive for COVID-19

Estimated percentage of those ever testing positive for the coronavirus (COVID-19) in the study, by health and social care workers and other individuals, England, 26 April to 24 May 2020



Source: Office for National Statistics - COVID-19 Infection Survey

Notes:

1. 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.
2. We asked individuals to self-report whether they worked in patient-facing healthcare or resident-facing social care, where that information was missing or uncertain, we used the other information they gave us about their occupation to inform this coding.

Working location

Individuals taking part in our study were asked where they are currently working. Rates of infection for COVID-19 appear higher for individuals who work outside the home compared with those who work from home. An estimated 0.71% (95% confidence interval: 0.46% to 1.04%) of individuals who reported working outside of the home tested positive for COVID-19, compared with 0.23% (95% confidence interval: 0.10% to 0.43%) of individuals who reported working at home.

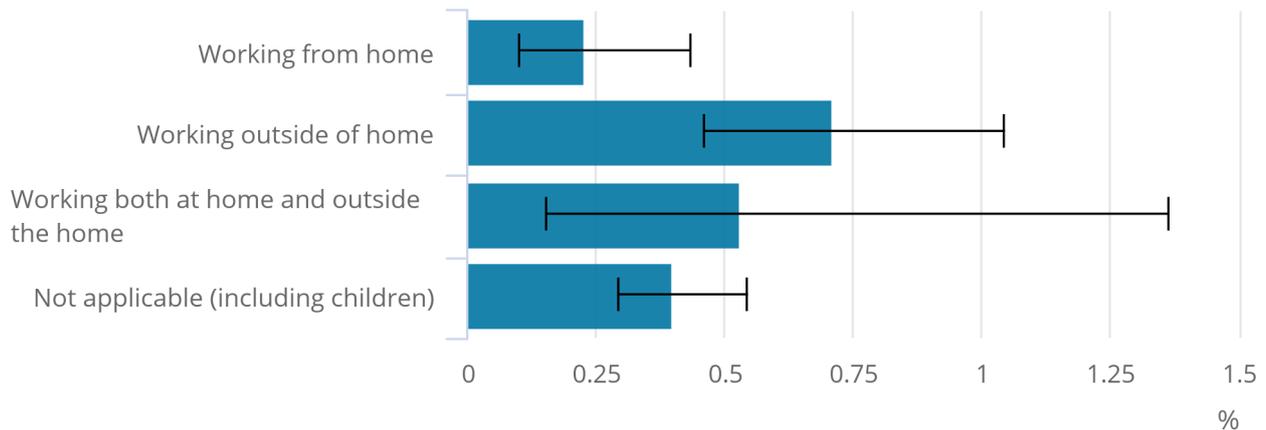
Some individuals reported working both in the home and outside the home. The confidence interval for this group of individuals is large indicating high uncertainty in these estimates.

Figure 5: Rates of positive tests for COVID-19 appear higher for individuals who work outside the home compared with those who work from home

Estimated percentage of those ever testing positive for the coronavirus (COVID-19) in the study, by working location, England, 26 April to 24 May 2020

Figure 5: Rates of positive tests for COVID-19 appear higher for individuals who work outside the home compared with those who work from home

Estimated percentage of those ever testing positive for the coronavirus (COVID-19) in the study, by working location, England, 26 April to 24 May 2020



Source: Office for National Statistics - COVID-19 Infection Survey

Notes:

1. 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.
2. The 'not applicable' category applied to over half the respondents, and includes children, as well as some people who are retired, furloughed, or not working for another reason.

Symptoms experienced

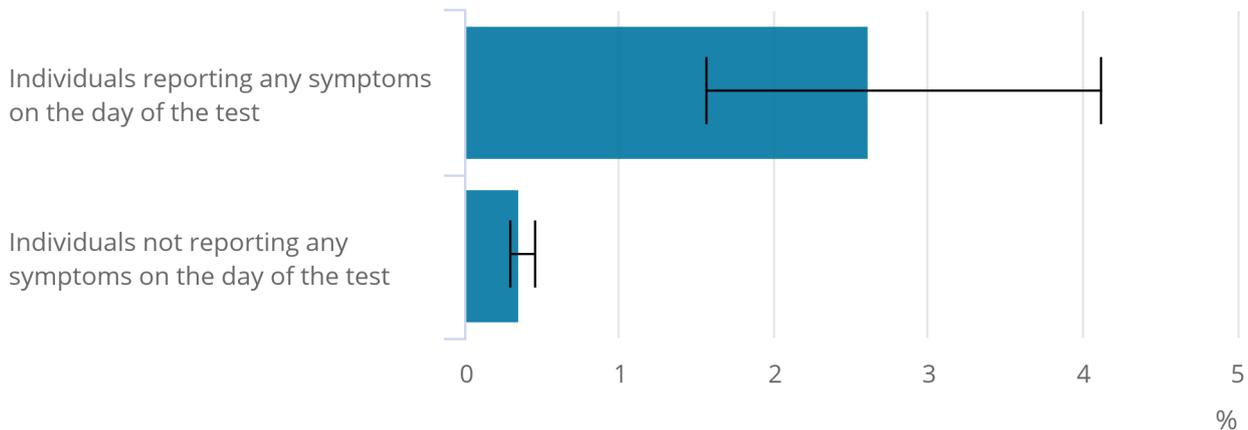
Individuals taking part in the COVID-19 Infection Survey were asked whether they had experienced a range of possible symptoms on the day that they were tested. Over the course of the study period, 2.62% (95% confidence interval: 1.56% to 4.11%) of people who experienced one or more symptoms of COVID-19 also tested positive. By comparison 0.35% (95% confidence interval: 0.28% to 0.45%) of people who were not experiencing any symptoms of COVID-19 at the time of the test tested positive.

Figure 6: A higher percentage of people exhibiting one or more symptoms of COVID-19 at the time of the test tested positive compared with those reporting no symptoms

Estimated percentage of those ever testing positive for the coronavirus (COVID-19) in the study, by symptoms on the day of the test, England, 26 April to 24 May 2020

Figure 6: A higher percentage of people exhibiting one or more symptoms of COVID-19 at the time of the test tested positive compared with those reporting no symptoms

Estimated percentage of those ever testing positive for the coronavirus (COVID-19) in the study, by symptoms on the day of the test, England, 26 April to 24 May 2020



Source: Office for National Statistics - COVID-19 Infection Survey

Notes:

1. 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.

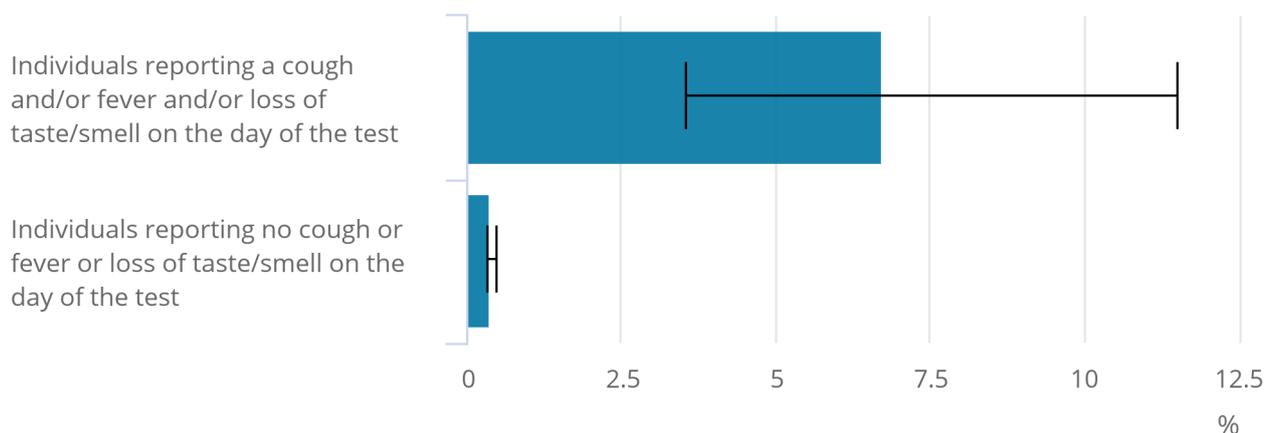
The percentage of people testing positive for COVID-19 was higher for those who reported specifically having a cough or fever, or loss of taste or smell on the day of testing than for any symptoms in general. Of those reporting these specific symptoms, 6.74% (95% confidence interval: 3.53% to 11.48%) also tested positive for COVID-19. This compares with an estimate of 0.38% of those who did not have a cough or fever, or loss of taste or smell (95% confidence interval: 0.30% to 0.47%).

Figure 7: The percentage of people testing positive for COVID-19 when reporting having a cough, fever, loss of taste or smell was higher than for those not reporting those symptoms

Estimated percentage of those ever testing positive for the coronavirus (COVID-19) in the study, by cough, fever, or loss of taste or smell on the day of the test, England, 26 April to 24 May 2020

Figure 7: The percentage of people testing positive for COVID-19 when reporting having a cough, fever, loss of taste or smell was higher than for those not reporting those symptoms

Estimated percentage of those ever testing positive for the coronavirus (COVID-19) in the study, by cough, fever, or loss of taste or smell on the day of the test, England, 26 April to 24 May 2020



Source: Office for National Statistics - COVID-19 Infection Survey

Notes:

1. 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.

Additional analysis we have considered looks at whether people who tested positive also reported symptoms. While those with symptoms are more likely to test positive for COVID-19 than those without symptoms, this analysis shows that out of those who have ever tested positive, the percentage who reported having symptoms at the time of the test was relatively low.

Out of those people that tested positive for COVID-19 over the study period, only 21% (95% confidence interval: 13% to 31%) reported experiencing one or more of the various symptoms at the time of their test. Out of those who reported testing positive, 30% (95% confidence interval: 20% to 43%) reported experiencing symptoms at any point over the course of the study period. This could be reported at any visit, before or after testing positive for COVID-19.

This analysis is based on 87 individuals in the sample who tested positive for COVID-19. This is a very small denominator, meaning the confidence intervals are wide. Additionally, with such a small number of cases included in this analysis, if any of these are false-positives this would have a large effect on the results.

Notes for Characteristics of people testing positive for COVID-19

1. We asked individuals to self-report whether they worked in patient-facing healthcare or resident-facing social care; where that information was missing or uncertain, we used the other information they gave us about their occupation.

6 . COVID-19 Infection Survey data

[COVID-19 Infection Survey data tables](#)

Dataset | Released 28 May 2020

Findings from the first wave of the pilot phase of the COVID-19 Infection Survey. For completeness, these data tables also present the first study estimates provided to the Scientific Advisory Group for Emergencies (SAGE) as management information on 3 May. These were provided to aid operational planning decisions in advance of [our first published estimates on 10 May](#).

7 . 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.

8 . Measuring the data

Data presented in this bulletin come from the Coronavirus (COVID-19) Infection Survey, which looks to identify the percentage of the population testing positive for COVID-19 and whether they have symptoms or not. The survey will help track the current extent of infection and transmission of COVID-19 among the population as a whole.

COVID-19 Infection Survey

We are initially conducting a pilot survey of households in England, working with the University of Oxford, IQVIA and UK Biocentre Milton Keynes to collect and analyse the samples. All individuals aged two years and over in sampled households were invited to provide samples for testing.

At the start of the pilot study, 20,000 households were invited to take part, with the aim of collecting data from around 10,000 households. To take part, invited households opted in to the survey by contacting a company called IQVIA, working on behalf of the ONS, to arrange a visit. Table 1 provides information regarding responses to our survey as at 26 May 2020. The fieldwork is still ongoing and these cannot be regarded as final response rates to the survey.

Table 1: Current responses to the COVID-19 Infection Survey

	Households	Individuals
	% of Total	% of Total
Households invited to take part (total)	20,275	100%
Households enrolled	9,904	49%
Completed households (provided at least one swab)	9,492	47%
Eligible individuals in responding households (total)		20,941 100%
Individuals who provided first swab		20,207 96%
Individuals who agreed to continue		17,176 82%

Source: Office for National Statistics

Notes

1. The set sample for this study is based on the achieved sample from previous social survey who agreed to take part in future studies. [Back to table](#)
2. The management information above is taken on the 26 May and the figures in the publication are from the households and individuals figure as at 24 May. This means the management information includes a slightly larger sample than reported in the publication. [Back to table](#)

We will provide a final response rate once we have completed the enrolment of the pilot phase, which is scheduled for completion by 31 May.

Following completion of the pilot survey, we intend the full survey to expand the size of the sample over the next 12 months and look to cover people across all four UK nations.

This study addresses an important clinical priority: finding out how many people across the UK have a COVID-19 infection at a given point in time, or at least test positive for it, either with or without symptoms; how many new cases have occurred in a given time period; and how many people are ever likely to have had the infection. It will also contribute to the Scientific Advisory Group for Emergencies (SAGE) estimates of the rate of transmission of the infection, often referred to as "R".

More about coronavirus

- Find the latest on [coronavirus \(COVID-19\) in the UK](#).
- All ONS analysis, summarised in our [coronavirus roundup](#).
- View [all coronavirus data](#).
- Find out how our studies and surveys are [serving public need](#).

The data being collected

The survey involves all participants over the age of two years. We test whether they currently have the virus using self-administered throat and nose swabs, where parents or carers take swabs from younger children. Every participant is swabbed once; participants are also invited to have repeat tests every week for the first five weeks as well as monthly for a period of 12 months in total.

Adults over 15 years of age from around 2,000 households will also provide a blood sample taken by a trained nurse, phlebotomist or healthcare assistant. These tests, the results of which are not yet available, will help determine what proportion of the population has developed antibodies to COVID-19.

We collect information from each participant, including those under 16 years of age, concerning socio-demographic characteristics, symptoms, whether self-isolating or shielding, and whether the participant has come into contact with a suspected carrier of COVID-19.

The sample for this initial survey has been drawn from households in which someone has already participated in an Office for National Statistics (ONS) survey and has consented to be approached for future research. Households cannot request to be part of the survey; this ensures the sample is representative of the wider population.

More information on what data are collected and how is available within the [COVID -19 Infection Survey protocol \(PDF, 1.14MB\)](#) and our [COVID-19 Infection Survey study guide](#).

Coverage

Only England is included in this pilot phase of the study. Discussions are underway with the devolved administrations in Scotland, Wales and Northern Ireland to include the whole of the UK in the main study. Only private households, otherwise known as the target population in this bulletin, are included in the sample. People in care homes, other communal establishments and hospitals are not included.

Analysing the data

We calculate the estimated proportion of the population testing positive for COVID-19 based on the results of swab tests performed between 11 May and 24 May 2020. Where individuals have had more than one swab test during this time, we have included only the latest test for each individual.

The incidence analysis in [Section 3](#) includes all swab results from 26 April onwards. It is important to note that the estimates presented in this bulletin are provisional results. As swabs are not necessarily analysed in date order by the laboratory, we have not yet received test results for all swabs taken on the dates included in this analysis. Estimates may therefore be revised as more test results are included.

Blood samples used to test for antibodies have been collected from 885 individuals so far, since the survey began on 26 April, to estimate the percentage of the adult population in the UK that has previously been infected with COVID-19. Samples are collected by a trained healthcare professional and tested by research staff at the University of Oxford for antibodies using a novel Enzyme-Linked Immunosorbent Assay (ELISA) that tests for immunoglobulins IgG and IgM, based on tagged and purified recombinant SARS-CoV-2 trimeric spike protein. Residual blood sera will be stored at the University of Oxford. More information on our antibody testing is available in the [COVID -19 Infection Survey protocol \(PDF, 1.14MB\)](#).

The estimates provided in this analysis are for the percentage of the private-residential population testing positive for COVID-19, otherwise known as the positivity rate. We do not report on the prevalence rate within the analysis sections of this bulletin. To calculate the prevalence rate we would need to know the rates of false-positive and false-negative test results. Our initial analysis of modelling different false-positive and false-negative rates indicate only slight increases to uncertainty in the estimates. As we complete more sensitivity analysis, we will present these results in a future release.

The estimates of the number of people who have COVID-19 in [Section 2](#) are based on weighted data to ensure they are representative of the target population in England. While the pilot is based on a nationally representative survey sample, some individuals in the original ONS survey samples will have dropped out, while others will not have responded to the pilot. To address this, we apply weighting to ensure the responding sample is representative of the population in terms of age (grouped), sex, region, housing tenure and household size. Analysis in [Section 3](#), [Section 4](#) and [Section 5](#) of this bulletin is unweighted.

Confidence intervals are calculated using the Korn-Graubard method to take into account the expected small number of positive cases and the complex survey design. The confidence intervals are calculated so that if we were to repeat the survey many times on the same occasion and in the same conditions, in 95% of these surveys the true population value would be contained within the 95% confidence intervals.

Other studies

While this study looks to identify the proportion of the population testing positive for COVID-19, it is one of a number of studies that look to provide information around the COVID-19 pandemic within the UK.

People testing positive for COVID-19: Public Health England present data on the [total number of laboratory-confirmed cases in England](#), which capture the cumulative number of people in England who have tested positive for COVID-19. Equivalent data for [Wales](#), [Scotland](#) and [Northern Ireland](#) are also available. These statistics present all known cases of COVID-19, both current and historical. They also only test people eligible for testing according to particular rules, for example, people in hospital with symptoms and certain at-risk groups of key workers. By comparison, the statistics presented in this bulletin take a representative sample of the whole population in England, including people who are not otherwise prioritised for testing, something that is currently missing from other studies.

Prevalence of antibodies

Public Health England also publish [an estimate](#) of the prevalence of antibodies in the blood in England using blood samples from healthy adult blood donors. PHE provide estimates by region and currently do not scale up to England. Estimates in this bulletin and those published by PHE are based on different tests, PHE estimates are based on testing using the Euroimmun assay method whilst blood samples in this survey are tested by research staff at the University of Oxford for antibodies using a novel Enzyme-Linked Immunosorbent Assay (ELISA). For more information about the antibody test used in this bulletin see the protocol.

9 . Strengths and limitations

These statistics have been produced quickly in response to developing world events. The Office for Statistics Regulation, on behalf of the UK Statistics Authority, has [reviewed them](#) against several important aspects of the [Code of Practice for Statistics](#) and regards them as consistent with the Code's pillars of [trustworthiness](#), [quality](#) and [value](#).

Timeliness

The results presented on the number of people in England infected with COVID-19 in [Section 2](#) of this bulletin are based on the results of swab tests performed between 11 May and 24 May 2020, providing users with the most timely estimates for the percentage of the target population in England testing positive for the coronavirus (COVID-19).

Uncertainty in this data

The estimates presented in this bulletin contain [uncertainty](#). There are many sources of uncertainty, but the main sources in the information presented include each of the following.

Uncertainty in the test (false-positives, false-negatives and timing of the infection)

These results are directly from the test, and no test is perfect. There will be false-positives and false-negatives from the test, and false-negatives could also come from the fact that participants in this study are self-swabbing. We also do not know if all individuals testing positive are still infectious; it is possible some may have had COVID-19 in the past but still test positive.

We do not know the exact false-positive or false-negative rate of the current swab test for the virus. However, based on the very low number of positives in the results so far, we know the false-positive rate is very low. We do not have information on the false-negative rate.

The data are based on a sample of people, so there is some uncertainty in the estimates

Any estimate based on a random sample contains some uncertainty. If we were to repeat the whole process many times, we would expect the true value to lie in the 95% confidence interval on 95% of occasions. A wider interval indicates more uncertainty in the estimate.

Quality of data collected in the questionnaire

As in any survey, some data can be incorrect or missing. For example, participants and interviewers sometimes misinterpret questions or skip them by accident. To minimise the impact of this, we clean the data, editing or removing things that are clearly incorrect. In these initial data, we identified some specific quality issues with the healthcare and social care worker question responses and have therefore applied some data editing (cleaning) to improve the quality. Cleaning will continue to take place to further improve the quality of the data on healthcare and social care workers, which may lead to small revisions in future releases.

10 . Next steps

As the study progresses, we will continue to provide greater detail into the extent of the coronavirus (COVID-19) infection, for example, by providing regional breakdowns.

The information on spread of infection will form an important component for estimating the rate of transmission, often referred to as "R", which is central to planning for easing of lockdown conditions. There are different approaches for estimating R, and the agreement of the most appropriate estimate for any period is the responsibility of the Scientific Advisory Group for Emergencies (SAGE). They will use information from our study in their deliberations.

11 . Glossary

Community

Within this bulletin, we refer to the number of coronavirus (COVID-19) infections within the community. Community in this instance refers to private households, and it excludes those in hospitals, care homes or other institutional settings.

Confidence interval

A confidence interval gives an indication of the degree of uncertainty of an estimate, showing the precision of a sample estimate. 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. For more information, see [our methodology page on statistical uncertainty](#).

False-positives and false-negatives

A false-positive result occurs when the test suggests an individual has COVID-19 when in fact they do not. By contrast, a false-negative result occurs when the tests suggest an individual does not have COVID-19 when in fact they do.

Incidence rate

Incidence is the rate of occurrence of new cases of the disease over a given period of time. Incidence refers to the number of individuals who have a positive test in the study divided by the time from joining the study to their last test. Individuals who are positive when they join the study are not included in this calculation.

12 . Related links

[Coronavirus \(COVID-19\) latest data and analysis](#)

Web page | Updated as and when data become available

data and analysis on the coronavirus (COVID-19) in the UK and its effect on the economy and society.

[Coronavirus \(COVID-19\) round-up](#)

Article | Updated as and when data become available

Catch up on the latest data and analysis related to the coronavirus (COVID-19) pandemic and its impact on our economy and society.

[Deaths registered weekly in England and Wales, provisional: week ending 15 May 2020](#)

Bulletin | Released 26 May 2020

Provisional counts of the number of deaths registered in England and Wales, including deaths involving the coronavirus (COVID-19), by age, sex and region, in the latest weeks for which data are available.

[New survey results provide first snapshot of the current number of COVID-19 infections in England](#)

Blog | Released 14 May 2020

A large study jointly led by the ONS, in partnership with the Universities of Oxford and Manchester, Public Health England and Wellcome Trust, is tracking infections within a representative sample of people of all ages across England. This blog explains what these mean, why they are important and how to compare this survey with other coronavirus (COVID-19) estimates.

[Coronavirus \(COVID-19\) Infection Survey pilot: England, 10 May 2020](#)

Bulletin | Released 10 May 2020

Estimates of people testing positive for the coronavirus (COVID-19) in England. Provisional results from 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.