

Statistical bulletin

Coronavirus (COVID-19) Infection Survey pilot: England, 10 May 2020

Estimates of people testing positive for the coronavirus (COVID-19) in England. Results from COVID-19 Infection Survey pilot.

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Table of contents

1. [Main points](#)
2. [Collaboration](#)
3. [COVID-19 Infection Survey](#)
4. [Strengths and limitations](#)
5. [Next steps](#)
6. [Glossary](#)
7. [Related links](#)

1 . Main points

- As of 9 May 2020, the Office for National Statistics (ONS) had received the results of swab tests collected from 7,087 individual participants in the coronavirus (COVID-19) Infection Survey in England between 26 April and 8 May 2020.
- It is estimated that 0.24% of the population in England tested positive for COVID-19 (95% confidence interval: 0.14% to 0.40%).
- It is estimated 136,000 people in England were currently infected with COVID-19 (95% confidence interval: 76,000 to 225,000).

These are early estimates, so care needs to be taken when interpreting them. More information is available in the “Strengths and limitations” section.

2 . Collaboration

These results from the coronavirus (COVID-19) Infection Survey were produced by the Office for National Statistics (ONS), in partnership with the [University of Oxford](#), the [University of Manchester](#) and [Public Health England](#).

3 . COVID-19 Infection Survey

Working with the University of Oxford, [IQVIA](#) and [UK Biocentre Milton Keynes](#), we are initially conducting a pilot survey with 10,000 households in England. The survey is currently ramping up to this level. All individuals aged two years and over in sampled households were invited to provide samples for testing. This means approximately 25,000 people will be involved in the pilot study.

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

This study addresses an important clinical priority – finding out how many people in the UK have the coronavirus (COVID-19) infection at a given point in time, 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 enable 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 providing self-administered throat and nose swabs, to test whether they currently have the virus. Participants are asked to take tests every week for the first five weeks and monthly for a period of 12 months in total.

Adults from 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.

Each participant is also asked a short set of questions 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.

More information on what data are collected and how they are available in the [COVID-19 Infection Survey Protocol \(PDF\)](#) and our [COVID-19 Infection Survey study guide](#).

Analysing the data

We calculate the estimated percentage of the population testing positive for COVID-19 by using the most recent test result for all individuals.

The estimates are adjusted (weighted) to ensure they are representative of the population in England. While the pilot is based on a nationally representative survey sample, some individuals in the original sample will have dropped out, while others will not have responded to the pilot. To address this, we apply weighting to ensure the sample is representative of the population in terms of age (grouped) by sex, region, tenure and household size.

Other studies

While this study looks to identify the percentage 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 in the UK.

Some of the main studies identified include Public Health England data on the [total number of lab-confirmed cases in England](#), which capture the cumulative number of people in England testing positive for COVID-19. Equivalent data for [Wales](#), [Scotland](#) and [Northern Ireland](#) are also available. These statistics only test specific groups of people, 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.

4 . Strengths and limitations

Uncertainty in these 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)

We do not know the false-positive and false-negative rate of the current swab test for the virus. False-positives 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. Some may have had the coronavirus (COVID-19) in the past but still test positive.

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. We have illustrated this uncertainty using confidence intervals constructed so we are 95% sure that the interval contains the true value. The confidence intervals presented in this bulletin are considered to be relatively narrow, given the size of the estimate of the population that tested positive for COVID-19.

Estimates in this first release are based on a small sample, but this will increase in the future

Initial estimates are based on a small subset of the pilot sample and so should be treated as provisional and subject to revision as more data for this period are processed. This small sample is reflected in the confidence intervals presented with the data. As the sample size increases over the coming weeks, this uncertainty will reduce and the confidence intervals will narrow.

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. We are also working with data collectors to improve question clarity and data recording.

5 . Next steps

The first regular release of survey results will be on 14 May 2020.

6 . Glossary

Confidence interval

A confidence interval gives an indication of the degree of uncertainty of an estimate and helps to decide how precise a sample estimate is. Confidence intervals give a range of values between which we are 95% certain that the true value lies. A wider interval indicated more uncertainty in the estimate. For more information, see [our latest methodology article on statistical uncertainty](#).

False-positives and false-negatives

A false-positive result occurs when the test suggests an individual has the coronavirus (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.

7 . Related links

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

Web page | Updated as and when data become available

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

[Deaths registered weekly in England and Wales, provisional: week ending 24 April 2020](#)

Bulletin | Released 5 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.