Office for National Statistics

Statistical bulletin

Coronavirus (COVID-19) Infection Survey, UK: 26 March 2021

Estimates for England, Wales, Northern Ireland and Scotland. This survey is being delivered in partnership with University of Oxford, University of Manchester, Public Health England and Wellcome Trust.

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1 . Main points

- In England, the percentage of people testing positive for the coronavirus (COVID-19) is likely to have levelled off in the week ending 20 March 2021; we estimate that 162,500 people within the community population in England had COVID-19 (95% credible interval: 143,200 to 183,100), equating to around 1 in 340 people.
- In Wales, the percentage of people testing positive appeared level in the week ending 20 March 2021, although there is high uncertainty; we estimate that 6,700 people in Wales had COVID-19 (95% credible interval: 3,900 to 10,400), equating to around 1 in 450 people.
- In Northern Ireland, the percentage of people testing positive appeared to have remained level in the week ending 20 March 2021, although there is high uncertainty; we estimate that 5,800 people in Northern Ireland had COVID-19 (95% credible interval: 3,100 to 9,500), equating to around 1 in 320 people.
- In Scotland, the percentage of people testing positive increased over the two weeks up to 20 March 2021; we estimate that 21,500 people in Scotland had COVID-19 (95% credible interval: 15,600 to 28,500) equating to around 1 in 240 people.

About this bulletin

In this bulletin, we refer to the number of current 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.

The positivity rate is the percentage of people who have tested positive for COVID-19 at a point in time. We use current COVID-19 infections to mean testing positive for SARS-CoV-2, with or without having symptoms, on a swab taken from the nose and throat. This is different to the incidence rate, which is a measure of only the new PCR-positive cases in a given time period.

All analysis was produced with our research partners at the University of Oxford.

Early management information from the Coronavirus (COVID-19) Infection Survey is made available to government decision-makers to inform their response to COVID-19. Occasionally we may publish figures early if it is considered in the public interest. We will ensure that we pre-announce any ad-hoc or early publications as soon as possible. These will include supporting information where possible to aid user understanding. This is consistent with guidance from the Office for Statistics Regulation.

Have you been asked to take part in our survey?

- For more information, please visit the CIS participant guidance page.
- If you have any further questions, please email the CIS operations team: COVID-19@ons.gov.uk.

How the data in this bulletin can be used

The data can be used for:

- estimating the number of current positive cases in the community, including cases where people do not report having any symptoms
- identifying differences in numbers of positive cases between different regions
- estimating the number of new cases and change over time in positive cases

The data cannot be used for:

- measuring the number of cases and infections in care homes, hospitals and/or other institutional settings
- providing information about recovery time of those infected

2 . Number of people who had COVID-19 in England, Wales, Northern Ireland and Scotland

During the most recent week of the study[1], we estimate that 162,500 people in England had the coronavirus (COVID-19) (95% credible interval: 143,200 to 183,100). This equates to 0.30% (95% credible interval: 0.26% to 0.34%) of the community population in England or around 1 in 340 people (95% credible interval: 1 in 380 to 1 in 300). Our modelling suggests that the percentage of people testing positive in England is likely to have levelled off in the week ending 20 March 2021.

In Wales, we estimate that 6,700 people had COVID-19 over the same period (95% credible interval: 3,900 to 10,400). This equates to 0.22% (95% credible interval: 0.13% to 0.34%) of the community population in Wales or around 1 in 450 people (95% credible interval: 1 in 780 to 1 in 290). Our modelling suggests that the percentage of those testing positive in Wales appeared level in the week ending 20 March 2021, although there is high uncertainty.

In Northern Ireland, we estimate that 5,800 people had COVID-19 (95% credible interval: 3,100 to 9,500). This equates to 0.32% (95% credible interval: 0.17% to 0.52%) of the population in Northern Ireland or around 1 in 320 people (95% credible interval: 1 in 590 to 1 in 190). Our modelling suggests that the percentage of people testing positive in Northern Ireland appeared to have remained level in the week ending 20 March 2021, although there is high uncertainty.

In Scotland, we estimate that 21,500 people had COVID-19 (95% credible interval: 15,600 to 28,500). This equates to 0.41% (95% credible interval: 0.30% to 0.54%) of the population in Scotland or around 1 in 240 people (95% credible interval: 1 in 340 to 1 in 180). Our modelling suggests that the percentage testing positive in Scotland increased over the two weeks up to 20 March 2021.

Figure 1: The trend of the percentage of people testing positive was varied across the four countries of the UK in the week ending 20 March 2021

Estimated percentage of the population testing positive for the coronavirus (COVID-19) on nose and throat swabs from 3 May 2020

Download the data

Notes:

1. All estimates are subject to uncertainty, given that a sample is only part of the wider population. The model used to provide these estimates is a Bayesian model: these provide 95% credible intervals. 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.

2. Official reported estimates are plotted at a reference point believed to be most representative of the given week.

3. The official estimate presents the best estimate at that point in time. Modelled estimates are used to calculate the official reported estimate. The model smooths the series to understand the trend and is revised each week to incorporate new test results, providing the best indication of trend over time.

4. Survey fieldwork for the pilot study began in England on 26 April 2020. In Wales, fieldwork began on 29 June 2020, in Northern Ireland fieldwork began on 26 July 2020 and in Scotland fieldwork began on 21 September 2020.

About this data

These estimates are based on statistical modelling of the trend in rates of positive nose and throat swab results. The ratios presented are rounded to the nearest five.

Because of the relatively small number of tests and a low number of positives in Wales and Northern Ireland in our sample, credible intervals are wide and therefore results should be interpreted with caution. These wide credible intervals mean that differences between the central estimates within and between nations may appear smaller or more exaggerated than they really are.

As this is a household survey, our figures do not include people staying in hospitals, care homes and/or other institutional settings. In these settings, rates of COVID-19 infection are likely to be different. More information about rates of COVID-19 in care homes can be found in Impact of coronavirus in care homes in England: 26 May to 19 June 2020.

About our estimates

Our headline estimates of the percentage of people testing positive in England, Wales, Northern Ireland and Scotland are the latest official estimates. We include different measures to support our estimation and this section outlines the appropriate uses of all of the approaches.

Official estimates should be used to understand the positivity rate for a single point in time. This is based on the modelled estimate for the latest week and is our best and most stable estimate and is used in all previous outputs. The modelled estimate is more suited to understand the recent trend. This is because the model is regularly updated to include new test results and smooths the trend over time. These modelled estimates can be found in the dataset that accompanies this bulletin.

The estimates for non-overlapping 14-day periods (which underpin our modelled official estimates) and the unweighted sample counts are included in the dataset that accompanies this bulletin. These estimates are produced using a different method of weighting to the model and are available for people who wish to compare infection levels over time in this way.

Information about how the modelled and 14-day non-overlapping estimates are calculated can be found in our methods article.

We are continuously refining and looking to improve our modelling and presentations. We would welcome any feedback via email: infection.survey.analysis@ons.gov.uk.

For information about the potential impact of false-positive and false-negative test results, see our methods article.

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.

Notes for: Number of people in the UK who had COVID-19

1. This is based on model estimates from the reference point of the most recent week (14 to 20 March 2021), Wednesday 17 March 2021. More information on reference dates can be found in Section 11: Measuring the data.

3 . Sub-national analysis of the number of people who had COVID-19

The overall national picture for England, which shows a level trend, is a result of different trends across regions. During the week ending 20 March 2021, the highest percentage of people testing positive is observed in Yorkshire and The Humber.

In the data used to produce these estimates, the number of people sampled in each region who tested positive for the coronavirus (COVID-19) was low relative to England overall. This means there is a higher degree of uncertainty in the regional estimates for this period, as indicated by larger credible intervals.

In the week ending 20 March 2021, the percentage of people testing positive increased in the North West, and there were possible signs of an increase in Yorkshire and The Humber. In the same week, the percentage of people testing positive decreased in the South East and the East of England. The percentage of people testing positive declined more slowly in London, the West Midlands, and the South West over the two weeks up to 20 March 2021. The trend was uncertain for the East Midlands and the North East. Caution should be taken in over-interpreting any small movements in the latest trend.

Figure 2: The percentage of people testing positive increased in the North West, and there were possible signs of an increase in Yorkshire and The Humber in the week ending 20 March 2021

Estimated percentage of the population testing positive for the coronavirus (COVID-19) on nose and throat swabs, daily, by region since 7 February 2021, England

Download the data

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.

The percentage of people testing positive by region was calculated using a similar modelling approach to the national daily estimates in Section 2: Number of people in England, Wales, Northern Ireland and Scotland who had COVID-19.

The analysis is conducted over a six-week period, which means specific positive cases move into and then out of the sample. This causes variability between estimates over time, which is expected given the lower number of positive tests within each region, compared with England as a whole.

Estimates for non-overlapping 14-day periods (which underpin our modelled estimates) for regions in England are available in our dataset and provide an alternative measure over time for context.

Sub-regional analysis for the UK

The percentage testing positive varies across sub-regions of the UK. In Figure 3, we have presented modelled estimates from 8 November 2020 to 20 March 2021 for sub-regions in England and modelled estimates from 6 February to 20 March 2021 for sub-regions in Wales, Northern Ireland and Scotland.

As the percentage of people testing positive decreases, sub-regional estimates are subject to increased uncertainty as captured in the credible intervals. We will continue to monitor this over the coming weeks.

Sub-regional estimates are based on a different model to our headline estimates and should not be compared. In the data used to produce these estimates, the number of people sampled in each sub-regional area who tested positive was lower relative to their respective overall national samples. This means there is a higher degree of uncertainty in these estimates and caution should be taken when interpreting or ranking them.

Figure 3: The percentage testing positive varies across sub-regions of the UK

Estimated percentage of the population testing positive for the coronavirus (COVID-19) on nose and throat swabs, by sub-regional geography, UK, since 8 November 2020

Download the data

Notes:

1. These results are provisional and subject to revision.

2. All estimates are subject to uncertainty, given that a sample is only part of the wider population. The model used to provide these estimates is a Bayesian model: these provide 95% credible intervals. 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. The credible intervals can be found in the dataset that accompanies this bulletin.

3. Sub-regional estimates are based on a different model to our headline estimates. Our sub-regional estimates are calculated as an average over a seven-day period and should not be compared to our headline positivity estimates which are for a single reference date. Therefore the subregional figures may differ from the headline estimates because they are averaged over a longer time period. If a trend is changing, the figures shown in Figure 3 may not reflect the change we are seeing in our headline estimates.

4. Since 12 February 2021 estimates are provided based on modelling the most recent seven-day period. Before this date estimates were based on a six-day period and were aggregated from two three-day models.

5. Sub-regional estimates for England were first provided on 20 November 2020. Sub-regional estimates for Wales, Northern Ireland and Scotland were first provided on 19 February 2021.

4 . Age analysis of the number of people who had COVID-19

Age analysis by category for England

Our age categories separate children and young people by school age:

- "age 2 years to school Year 6" includes those children in primary school and below
- "school Year 7 to school Year 11" includes those children in secondary school
- "school Year 12 to age 24 years" includes those young adults who may be in further or higher education

This means that 11- to 12-year-olds have been split between the youngest age categories depending on whether they are in school Year 6 or 7 (birthday before or after 1 September).

Similarly, 16- to 17-year-olds are split depending on whether they are in school Years 11 or 12 (birthday before or after 1 September).

In the data used to produce these estimates, the number of people sampled in the different ages who tested positive for COVID-19 was lower relative to England overall. This means there is a higher degree of uncertainty in estimates for individual age groups over this period, as indicated by larger credible intervals. The credible intervals can be found in the dataset that accompanies this bulletin.

The percentage of people testing positive in England increased in those in school Years 7 to 11 in the week ending 20 March 2021. In the same week, the percentage of people testing positive continued to decrease in those in school Years 12 to age 34 years and in those aged 50 to 69 years. Trends are uncertain in all other age groups. Caution should be taken in over-interpreting small movements in the latest trend.

Figure 4: The percentage testing positive in England increased in school Years 7 to 11 in the week ending 20 March 2021

Estimated percentage of the population testing positive for the coronavirus (COVID-19) on nose and throat swabs, daily, by age group since 7 February 2021, England

Download the data

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.

We are unable to produce the same grouped analysis as presented in Figure 4 for the devolved administrations because of smaller sample sizes within each age group. We are able to produce analysis on positivity by single year of age for Wales, Northern Ireland and Scotland using a different model, these can be found in the dataset that accompanies this bulletin. This uses a different method to the grouped age analysis presented previously for England and are therefore not comparable.

Estimates for non-overlapping 14-day periods (which underpin our modelled estimates) by age group are available in our dataset, and are provided as an alternative measure over time for context.

An interactive chart showing the percentage testing positive by single year of age over time for England, Wales, Scotland and Northern Ireland is published fortnightly and will be included in our next bulletin.

Further analysis on age for Wales, Northern Ireland and Scotland is produced by their respective statistical agencies, analysis for Wales is published in English and Welsh.

5 . Number of new COVID-19 infections in England, Wales, Northern Ireland and Scotland

This week we are re-introducing estimates of incidence of polymerase chain reaction (PCR)-positive cases using a new method based on our positivity estimate. This gives the rate at which new positives occur, and subsequently become detectable, within the population. Our incidence estimates for 13 July to 28 November 2020 considered new infections identified by new positive tests during the study compared with the number of days participants were "at risk". This new method accounts for the increasing proportion of survey participants providing monthly (rather than weekly) swabs.

The new incidence method uses an estimate of the length of time for which an individual will test positive, based on modelling the time from first positive to first subsequent negative test in the survey. This estimate is used alongside the positivity model to produce an estimate. This method is robust to participants having monthly swabs. For more information on the new method of incidence please see our updated methods article.

The reference date used for our official estimates of incidence of PCR-positive cases is 10 days prior to the end of the positivity reference week. This is necessary as estimates later than this date are more likely to change as we receive additional data.

Estimates are included for England, Wales, Northern Ireland and Scotland.

In England, during the week ending 13 March 2021, we estimate that there were 2.00 new PCR-positive coronavirus (COVID-19) cases per 10,000 people per day (95% credible interval: 1.47 to 2.45). This equates to 10,900 new positive cases in England per day (95% credible interval: 8,000 to 13,300). Incidence appears to have been relatively level in recent weeks in England.

For the first time we are able to present estimates of incidence for Wales, Northern Ireland and Scotland. Credible intervals are wide because of relatively small sample sizes, and care should be taken in interpreting results. In particular, when prevalence is very low it may not be possible to produce a reliable estimate. In this scenario we will still provide the upper bound of the credible interval.

In Wales, during the week ending 13 March 2021, we estimate that there were 1.29 new PCR-positive coronavirus cases per 10,000 people per day (95% credible interval: 0.05 to 2.70). This equates to 390 new positive cases in Wales per day (95% credible interval: 20 to 820). Incidence appears to have been level in recent weeks in Wales, although credible intervals are wide because of the smaller sample size.

In Northern Ireland, during the week ending 13 March 2021, we estimate that there were 2.36 new PCR-positive coronavirus cases per 10,000 people per day (95% credible interval: 0.61 to 4.76). This equates to 430 new positive cases in Northern Ireland per day (95% credible interval: 110 to 870). Incidence appears to have been level in recent weeks in Northern Ireland, although credible intervals are wide because of the smaller sample size.

In Scotland, during the week ending 13 March 2021, we estimate that there were 4.13 new PCR-positive coronavirus cases per 10,000 people per day (95% credible interval: 2.58 to 5.87). This equates to 2,200 new positive cases in Scotland per day (95% credible interval: 1,400 to 3,100). Incidence increased in the week ending 13 March 2021 in Scotland, although credible intervals are wide.

Figure 5 presents the official incidence estimates for England, Wales, Northern Ireland and Scotland for the week ending 13 March 2021. Modelled estimates for the most recent five weeks are also provided for each of the four countries.

For England, estimates between 28 November 2020 and the latest estimate have also been provided as indicative estimates. For Wales, Northern Ireland and Scotland indicative estimates are provided back to 25 October 2020. These indicative estimates are based on our new model and are presented on the official estimates chart. Figure 5 also shows previously published official estimates of incidence for England using our old model.

Figure 5: The incidence rate appears to have been level in recent weeks in England, Wales and Northern Ireland

Estimated numbers of new PCR-positive COVID-19 cases in the UK, based on nose and throat swabs with modelled estimates from 7 February 2021

Download the data

Notes:

1. All results are provisional and subject to revision.

2. Official reported estimates are plotted at a reference point believed to be most representative of the given week. The reference date is 10 March 2021. Estimates following this point are more likely to be revised when additional data are available, and therefore should be treated with caution.

3. The official estimate presents the best estimate at that point in time. Modelled estimates are used to calculate the official reported estimate. The model smooths the series to understand the trend and is revised each week to incorporate new test results, providing the best indication of trend over time.

4. For England, indicative estimates are provided between 29 November 2020 and 6 March 2021. For Wales, Northern Ireland and Scotland indicative estimates are provided between 25 October 2020 and 6 March 2021. These indicative estimates were produced using our new positivity based incidence method, and are presented on the official estimates charts, but were not previously published.

The incidence rate measures the occurrence of new PCR-positive cases of COVID-19, and the calculation of this is defined in Section 10: Glossary. The incidence rate is not the same as the reproduction rate (R), which is the average number of secondary infections produced by one infected person.

To calculate the estimated average number of people becoming PCR-positive per day, we multiply the daily incidence rate by the community population (see Coverage in Section 13: Measuring the data). We use the unrounded incidence rate to do this, so results will differ if calculated using the rounded estimates from the dataset.

Notes for: Number of new COVID-19 infections in England, Wales, Northern Ireland and Scotland

1. This is based on model estimates from the reference point of the most recent week (7 to 13 March 2021), Wednesday 10 March 2021. More information on reference dates can be found in Section 13: Measuring the data.

6 . Percentage of those testing positive compatible with the UK variant

A new variant of the coronavirus (COVID-19) was identified in the UK in mid-November 2020. The UK variant of COVID-19 has changes in one of the three genes which coronavirus swab tests detect, known as the S-gene. This means in cases compatible with the UK variant, the S-gene is not detected by the current test. When there is a high viral load (for example, when a person is most infectious) absence of the S-gene in combination with the presence of the other two genes (ORF1ab and N genes) is a reliable indicator of the UK variant in COVID-19. However, as the viral load decreases (for example, if someone is near the end of their recovery from the infection), the absence of the S-gene is a less reliable indicator of the UK variant.

In contrast, the South African and Brazilian variants have an S-gene that is detectable with the current test and will therefore be included in the "not compatible with UK variant" group of COVID-19 where the virus level is high enough to identify this. Which of these types of COVID-19 are compatible with these variants cannot be identified from the swab polymerase chain reaction (PCR) test alone. You can read more about the UK variant in our recent blog.

Since 24 December 2020, we have reported on the percentage of people testing positive compatible with the UK variant that was identified in mid-November. The percentage of people testing positive compatible with the UK variant by UK country and regions of England are provided in the accompanying dataset.

We will continue to monitor the trends in different variants over the coming weeks and will reintroduce charts into the bulletin if there is a variant that we can identify using our test that appears to be affecting the trends in the percentage of people testing positive for COVID-19.

The percentage testing positive compatible with the UK variant has likely levelled off in England in the week ending 20 March 2021. In Wales and Northern Ireland, the trend in the percentage testing positive compatible with the UK variant is uncertain. The percentage testing positive compatible with the UK variant has likely increased in Scotland in the week ending 20 March 2021.

Each test goes through a number of cycles before a positive result is detectable. If there is a high quantity of the virus present, a positive result will be identified after a low number of cycles. However, if there is only a small amount of the virus present, then it will take more cycles to detect it. The number of cycles is measured as a "Cycle threshold", known as a Ct value. These values are used as a proxy for the quantity of the virus, also known as the viral load. The higher the viral load, the lower the Ct value. These values are helpful for monitoring the strength of the virus and for identifying patterns that could suggest changes in the way the virus is transmitting. The Ct values of COVID-19 positive tests are provided in the dataset that accompanies this bulletin.

7 . Test sensitivity and specificity

The estimates provided in Sections 2 to 6 are for the percentage of the private-residential population testing positive for the coronavirus (COVID-19), otherwise known as the positivity rate. We do not report the prevalence rate. To calculate the prevalence rate, we would need an accurate understanding of the swab test's sensitivity (true-positive rate) and specificity (true-negative rate).

While we do not know the true sensitivity and specificity of the test, our data and related studies provide an indication of what these are likely to be. In particular, the data suggest that the false-positive rate is very low, under 0.005%. We do not know the sensitivity of the swab test. However, other studies suggest that sensitivity (the rate of true-positive test results) may be somewhere between 85% and 98%.

You can find more information on sensitivity and specificity in our methods article. You can find more information on the data suggesting that our test's false-positive rate is very low in a paper written by academic partners at the University of Oxford.

8 . COVID-19 Infection Survey data

Coronavirus (COVID-19) Infection Survey
Dataset | Released 26 March 2021
Findings from the Coronavirus (COVID-19) Infection Survey, UK.

9 . Collaboration

The Coronavirus (COVID-19) Infection Survey analysis was produced by the Office for National Statistics (ONS) in collaboration with our research partners at the University of Oxford, the University of Manchester, Public Health England (PHE) 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

10 . Glossary

Community

In 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 and/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. 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.

False-positives and false-negatives

A false-positive result occurs when the tests suggest a person has COVID-19 when in fact they do not. By contrast, a false-negative result occurs when the tests suggest a person does not have COVID-19 when in fact they do. For more information on false-positives and false-negatives, see our methods article.

Incidence rate

The estimates of incidence of PCR-positive cases use a new method based on our positivity estimate. This gives the rate at which new positives occur, and subsequently become detectable, within the population. The new incidence method uses an estimate of the length of time for which an individual will test positive, based on modelling the time from first positive to first subsequent negative test in the survey. This estimate is used alongside the positivity model to produce an incidence estimate. For more information on this method of incidence please see our methods article.

11 . 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 helps track the current extent of infection and transmission of COVID-19 among the population as a whole. This section of the bulletin provides a short summary of the study data and data collection methods. 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.

Analysing the data

All 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.

We continue to develop our analysis methods, and these quality enhancements may lead to minor changes in estimates, for example, the positive test counts across the study period.

Reference dates

We aim to provide the estimates of positivity rate (the percentage of those who test positive) and incidence that are most timely and most representative of each week. We decide the most recent week we can report on based on the availability of test results for visits that have already happened, accounting for the fact that swabs have to be couriered to the labs, tested and results returned. On most occasions, the reference data align perfectly, but sometimes this is not feasible. This week, the reference week is 14 to 20 March 2021.

Within the most recent week, we provide an official estimate for positivity rate based on a reference point from the modelled trends. For positivity rates, we can include all swab test results, even from the most recent visits. Therefore, although we are still expecting further swab test results from the labs, there was sufficient data for the official estimate for infection to be based on a reference point after the start of the reference week. To improve stability in our modelling while maintaining relative timeliness of our estimates, we are reporting our official estimates based on the midpoint of the reference week. This week, the reference day for positivity rates is Wednesday 17 March 2021.

The reference date used for our official estimates of incidence of polymerase chain reaction (PCR)-positive cases is 10 days prior to the end of the positivity reference week. This is necessary as estimates later than this date are more likely to change as we receive additional data. This week, the reference week for incidence is 7 to 13 March 2021 and the reference day is Wednesday 10 March 2021.

Response rates

At the beginning of the survey, our sample was largely made up of people in England who have taken part in previous Office for National Statistics (ONS) surveys and had agreed to future contact regarding research. The likelihood of enrolment decreases over time and response rate information for those initially asked to take part in these first two phases can be considered as relatively final. In England, we expanded our sampling at the end of July to invite a random sample of households from a list of addresses. Response rates for the expansion period cannot be regarded as final response rates to the survey since those who are invited are not given a time limit in which to respond; and should not be compared with response rates for those that have taken part in a previous survey, as this is a different mode of sampling.

Fieldwork began in Wales on 29 June, and the initial sample was made up of people who had taken part in previous ONS surveys and had agreed to future contact regarding research. At the beginning of October, the survey in Wales was expanded to invite a random sample of households from a list of addresses. Fieldwork began in Northern Ireland on 26 July, and the initial sample was made up of people who had taken part in previous ONS and NISRA surveys and had agreed to future contact regarding research. In Scotland, fieldwork began on 21 September and the initial sample was taken from a random sample of households from a list of addresses.

Response rates for Wales, Northern Ireland and Scotland cannot be regarded as final response rates to the survey since those who are invited are not given a time limit in which to respond; and different modes of sampling are not comparable.

Response rates for each nation are found in the dataset that accompanies this bulletin. We provide response rates separately for the different sampling phases of the study.

Sub-regional geographies

We have presented modelled estimates for the most recent week of data at the sub-regional level. To balance the granularity with the statistical power, we have grouped together groups of local authorities into COVID-19 Infection Survey sub-regions. The geographies are a rules-based composition of local authorities, and local authorities with a population over 200,000 have been retained where possible.

The boundaries for these COVID-19 Infection Survey sub-regions can be found on the Open Geography Portal.

Other Coronavirus Infection Survey (CIS) analysis

Our recent release, Coronavirus (COVID-19) Infection Survey: antibody data for the UK, includes analysis on the likelihood of testing positive for COVID-19 antibodies in England, Wales, Northern Ireland and Scotland.

We have also provided more detailed analysis on the characteristics and behaviours of those with COVID-19 in our recent article, Coronavirus (COVID-19) Infection Survey: characteristics of people testing positive for COVID-19 in England, including those testing positive by patient facing or non-patient facing roles and the number of socially distanced contacts.

Laboratory confirmed cases in the UK

Public Health England (PHE) presents data on the total number of laboratory-confirmed cases in the UK, which capture the cumulative number of people in the UK who have tested positive for COVID-19. These statistics present all known cases of COVID-19, both current and historical, for the UK, and by nation, by regions of England, and because of the large sample size, by local authority. Further information can be found on the Coronavirus Dashboard. A summary for each nation: England, Wales, Northern Ireland and Scotland is also available.

Testing and tracing systems

Each nation of the UK has a testing and tracing system: for England, Wales, Northern Ireland and Scotland. These ensure that anyone who develops symptoms of COVID-19 can quickly be tested to find out if they have the virus. Some nations also include targeted asymptomatic testing of NHS and social care staff and care home residents. Additionally, it helps trace close recent contacts of anyone who tests positive for COVID-19 and, if necessary, notify them that they must self-isolate. We have recently published an article that compares the methods used in the COVID-19 Infection Survey and NHS Test and Trace in England.

In comparison with Public Health data and Testing and Tracing data, the statistics presented in this bulletin take a representative sample of the community population (those in private residential households), including people who are not otherwise prioritised for testing. This means that we can estimate the number of people in the community population with COVID-19 who do not report any evidence of symptoms.

Other studies

This study is one of a number of studies that look to provide information around the coronavirus pandemic within the UK.

COVID Symptom Study (ZOE app and King's College London), UK

The COVID Symptom Study app allows users to log their health each day, including whether or not they have symptoms of COVID-19. The study aims to predict which combination of symptoms indicate that someone is likely to test positive for COVID-19. The app was developed by the health science company ZOE with data analysis conducted by King's College London. Anyone over the age of 18 years can download the app and take part in the study. Respondents can report symptoms of children.

The study estimates the total number of people with symptomatic COVID-19 and the daily number of new cases of COVID-19 based on app data and swab tests taken in conjunction with the Department of Health and Social Care (DHSC). The study investigates the "predictive power of symptoms", and so the data do not capture people who are infected with COVID-19 but who do not display symptoms.

Unlike the data presented in this bulletin, the COVID Symptom Study is not a representative sample of the population. It is reliant on app users and so captures only some cases in hospitals, care homes and other communities where few people use the app. To account for this, the model adjusts for age and deprivation when producing UK estimates. The larger sample size allows for detailed geographic breakdown.

Real-time Assessment of Community Transmission-1 and -2 (REACT-1 and -2), England

Like our study, the Real-time Assessment of Community Transmission-1 REACT-1 survey, led by Imperial College London, involves taking swab samples to test for COVID-19 antigens to estimate the prevalence and transmission of the virus that causes COVID-19 in the community. Each round of the study currently involves around 160,000 participants aged five years and over, selected from a random cross-section sample of the general public from GP registration data. Trends in infection by characteristics, such as age, sex, ethnicity, symptoms and key worker status, are also possible through the study. Here are the latest REACT findings from 4 March 2021 (PDF, 2.81MB).

One of the main differences from our COVID-19 Infection Survey is that the REACT surveys do not require follow-up visits, as the study is interested primarily in prevalence at a given time point. Consequently, the incidence rate cannot be calculated from the REACT studies.

In addition, the REACT-2 study uses antibody finger-prick tests to track past infections and monitor the progress of the pandemic. Estimates in this bulletin and the REACT study use different tests and different methods, for example, the REACT estimates are based on self-administered and self-read finger-prick tests, whereas tests in this survey are carried out by a trained nurse, phlebotomist or healthcare assistant.

Public Health England (PHE) surveillance

PHE 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, while blood samples in our survey are tested for antibodies by research staff at the University of Oxford using a novel ELISA. For more information about the antibody test used in this bulletin, see the COVID-19 Infection Survey protocol.

12 . 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.

The estimates presented in this bulletin contain uncertainty. There are many sources of uncertainty, including uncertainty in the test, in the estimates and in the quality of data collected in the questionnaire. Information on the main sources of uncertainty are presented in our methodology article.

13 . Related links

COVID-19 Infection Survey: methods and further information
Methodology article | Updated 26 March 2021
Information on the methods used to collect the data, process it, and calculate the statistics produced from the Coronavirus (COVID-19) Infection Survey.

Coronavirus (COVID-19) Infection Survey: characteristics of people testing positive for COVID-19 in England
Article | Updated fortnightly
Characteristics of people testing positive for COVID-19 from the COVID-19 Infection Survey, including antibody data by UK country, and region and occupation for England.

Coronavirus (COVID-19) Infection Survey: antibody data for the UK
Article | Updated fortnightly
Antibody data by UK country and English regions from the Coronavirus (COVID-19) Infection Survey. This survey is being delivered in partnership with University of Oxford, University of Manchester, Public Health England and Wellcome Trust.

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) latest data and analysis
Web page | Updated as and when data become available
Latest data and analysis on the coronavirus pandemic in the UK and its effect on the economy and society.

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.

Deaths registered weekly in England and Wales, provisional
Bulletin | Updated weekly
Provisional counts of the number of deaths registered in England and Wales, including deaths involving COVID-19, by age, sex and region, in the latest weeks for which data are available.

Comparing methods used in the Coronavirus (COVID-19) Infection Survey and NHS Test and Trace, England: October 2020
Article | Released 6 October 2020
The methods used in the COVID-19 Infection Survey and NHS Test and Trace in England and why the data cannot be directly compared.

COVID-19 Schools Infection Survey Round 2, England: December 2020
Bulletin | 1 March 2021
Initial estimates of staff and pupils testing positive for coronavirus (COVID-19) from the COVID-19 Schools Infection Survey across a sample of schools, within selected local authority areas in England.

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 Office for National Statistics (ONS), in partnership with the Universities of Oxford and Manchester, Public Health England (PHE), 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 COVID-19 estimates.

COVID-19 Infection Survey
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 higher education students: England
Bulletin | Updated weekly
Experimental statistics from a pilot of the Student COVID-19 Insights Survey in England. Includes information on the behaviours, plans, opinions and well-being of higher education students in the context of guidance on the coronavirus (COVID-19) pandemic.

[The prevalence of long COVID symptoms and COVID-19 complications]
Article | Released 16 December 2020
The Office for National Statistics (ONS) has announced plans for estimating the prevalence of, and risk factors for, "long COVID" symptoms and health complications following coronavirus (COVID-19) infection. An initial set of early experimental results has also been released.