

ONS Coronavirus (COVID-19) Infection Survey Results 8 January 2021

The COVID-19 Infection Survey aims to measure:

- how many people test positive for COVID-19 infection at a given point in time, regardless of whether they report experiencing coronavirus symptoms
- the average number of new infections per week over the course of the study
- the number of people who test positive for antibodies, to indicate how many people are ever likely to have had the infection

More detailed analysis will be available when samples from the survey are large enough.

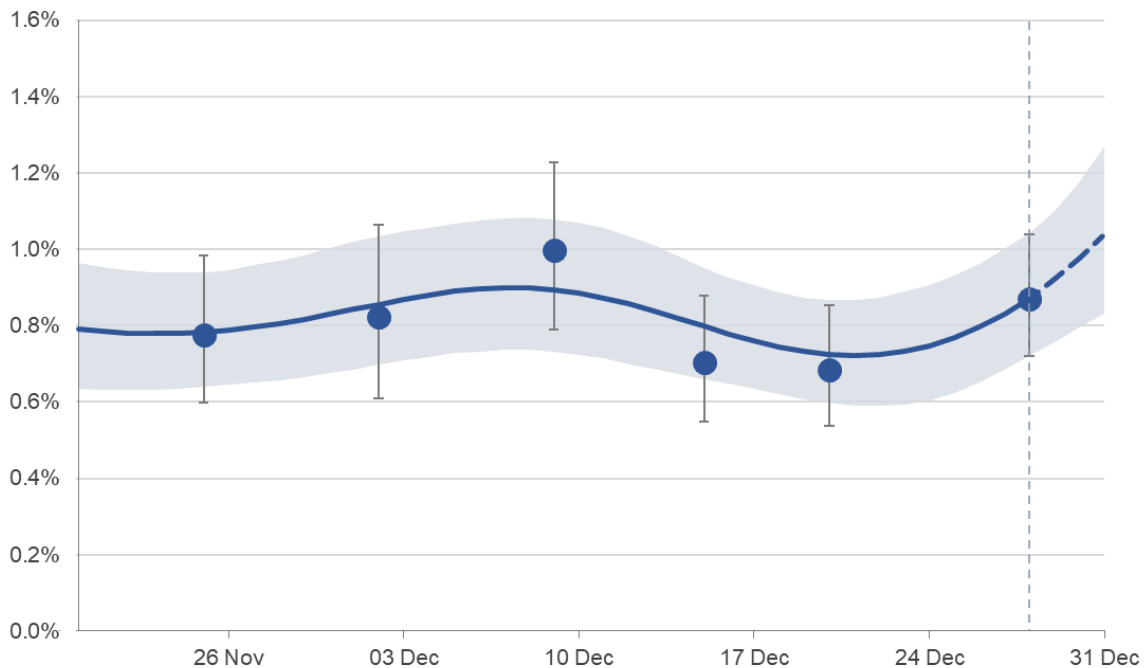
Modelled estimate of the proportion of the population in Scotland that had the coronavirus (COVID-19)

It is estimated that in the most recent week (25 to 31 December), the percentage of the population in Scotland that had the coronavirus (COVID-19) was 0.87%. A 95% credible interval for this figure is 0.72% to 1.04%.

In the same week, it is estimated that at any given time 45,900 people in Scotland had the coronavirus (COVID-19). A 95% credible interval for this figure is 37,900 to 54,900. This equates to around 1 in 115 people (95% credible interval: 1 in 140 to 1 in 95). The ratios presented are rounded to the nearest 5.

Modelled estimates suggest that the proportion of people that had the coronavirus (COVID-19) has increased over the most recent week, as shown in Figure 1.

Figure 1: Modelled estimates of the percentage of the population in Scotland testing positive for the coronavirus (COVID-19) between 20 November and 31 December 2020, including 95% credible intervals (see notes 1,2,3,4,5,6,12)



Estimate of the percentage of those testing positive for the coronavirus (COVID-19) whose test results were compatible with the new UK variant

The following data should be treated with caution. In particular, there are small numbers of positive test results detected, leading to considerable uncertainty surrounding these estimates. There are further uncertainties given that not all cases that are positive on the ORF1ab and N genes will be the new variant. Data analysis on the prevalence of the new UK variant of the virus across the UK was produced by Sarah Walker at the University of Oxford.

Swabs are tested for 3 genes present in the coronavirus: N protein, S protein and ORF1ab. Each swab can have any one, any two or all three genes detected. Positives are those where one or more of these genes is detected in the swab other than tests that are only positive on the S-gene, which is not considered a reliable indicator of the virus if found on its own.

The new UK variant of COVID-19 has genetic changes in the S gene. This means the S-gene is no longer detected in the current test, and cases that would have previously been positive on all three genes are now positive only on the ORF1ab and the N gene (not the S gene).

There are also other reasons why a swab may be positive for only these two genes, including lower viral load in the sample, which is why we have always seen a small percentage of this type of positive result.

Absence of the S-gene appears to have become a reliable indicator of the new UK variation in COVID-19 from mid-November, based on the higher levels of virus in these type of positives after this date. Prior to that, the data should not be read as being an indicator of the new UK variant.

There has recently been an increase in the percentage of positive cases where only the ORF1ab and N genes were found and a decrease in the percentage of cases with all three genes. This information can be used to approximate the growth of the new UK variant.

Figure 2 shows the estimated percentages of cases in Scotland that are positive and compatible with the new UK variant and other positive tests. Both the percentage testing positive that are compatible with the new UK variant and other positive cases have increased recently.

Figure 2: Estimated percentage of cases which are positive cases compatible with the new UK variant and other positive cases, based on all nose and throat swabs in Scotland between 20 November and 31 December 2020. There is considerable uncertainty around these estimates (see notes 1,4,6,8,12,13,14,15)

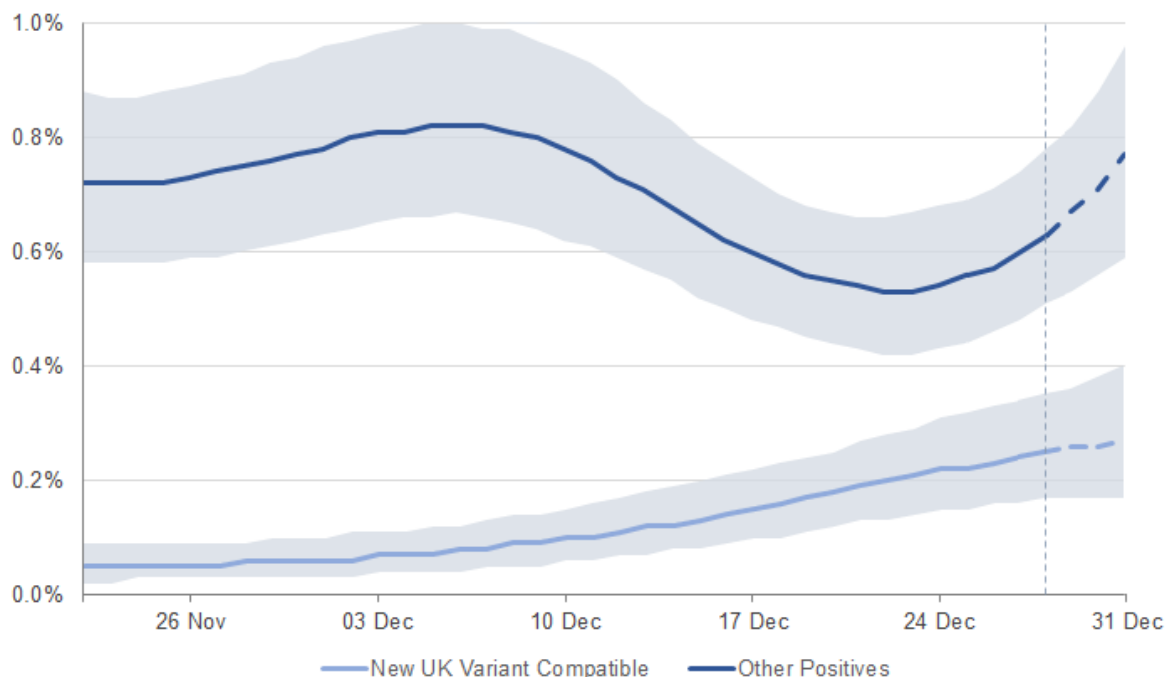
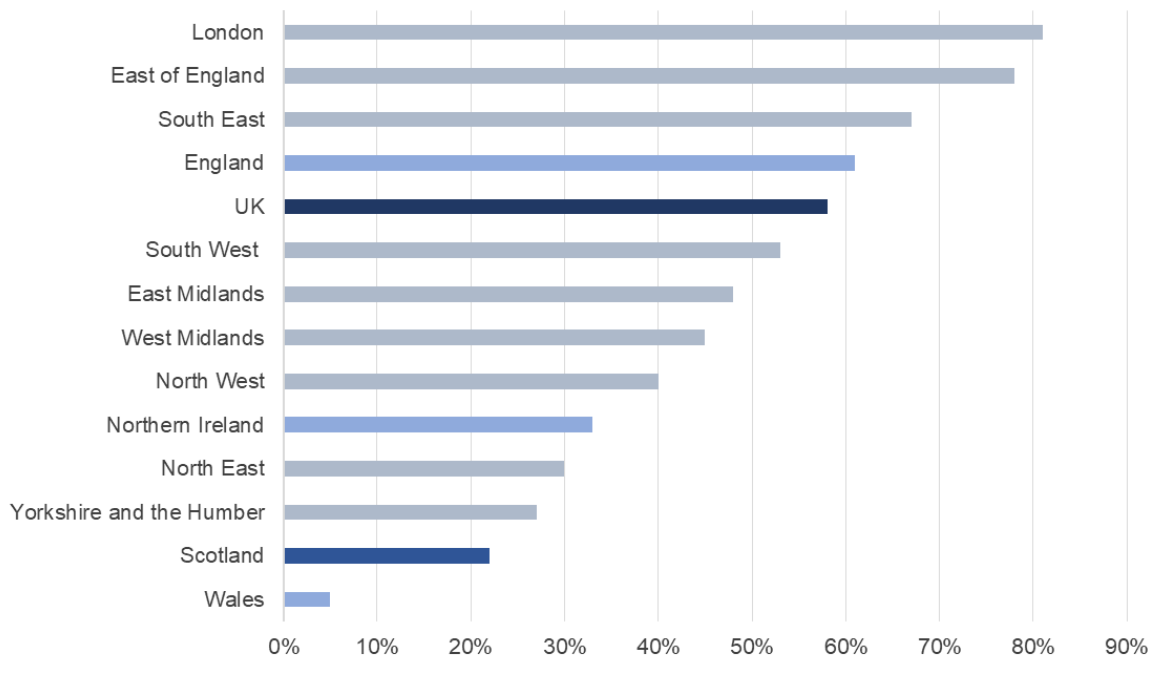


Figure 3 shows the percentage of positive cases in the week beginning 28 December that are compatible with the new UK variant. The highest percentages are seen in London, the East of England and the South East.

In the latest week, beginning 28 December, analysis indicates that tests that are compatible with the new UK variant of the virus comprise 22% of positive tests in Scotland (see note 14).

Figure 3: Estimated percentage of positive cases which are compatible with the new UK variant (ORF1ab & N gene positive) based on people who have tested positive for Coronavirus (COVID-19) on nose and throat swabs, across the UK, by country, and by region of England during the most recent week, beginning 28 December) (see notes 1, 12,13,14, 15, 16)



Modelled estimate of the proportion of the population testing positive for the coronavirus (COVID-19) in each of the four nations of the UK

Figure 4: Modelled estimates of the percentage of the population testing positive for the coronavirus (COVID-19) in each of the four nations of the UK, between 20 November 2020 and 2 January 2021 (See notes 1,4,5,6,7,8,12,15)

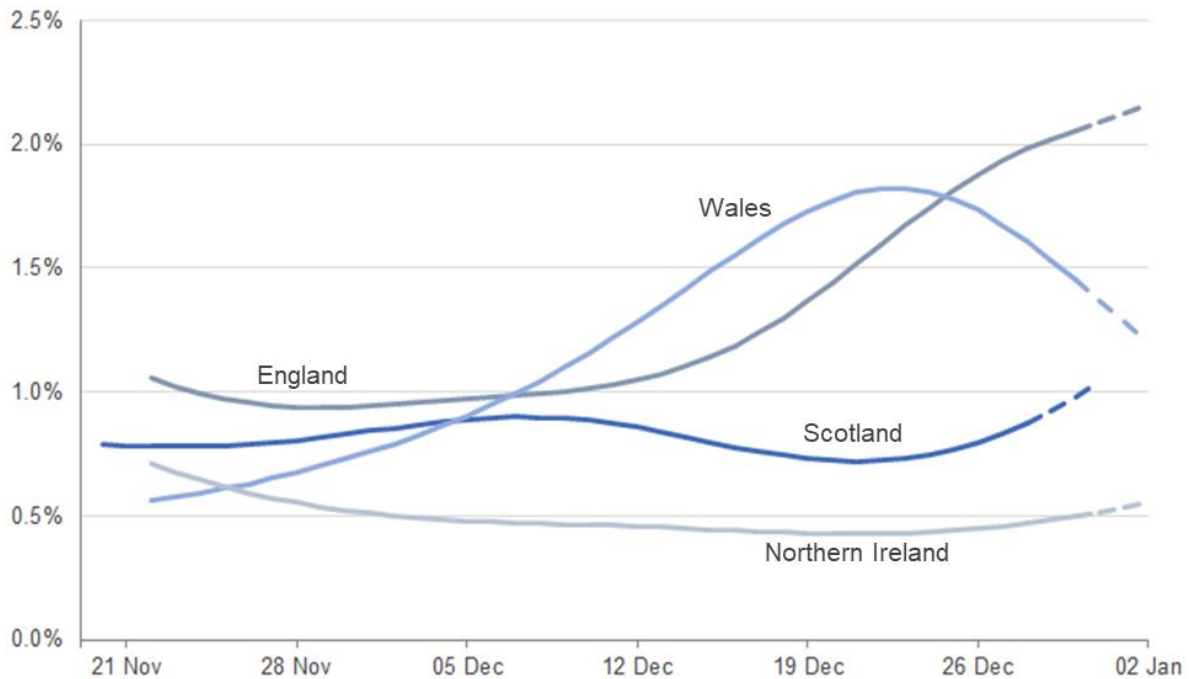


Table 1: Modelled estimates of the proportion of the population testing positive for coronavirus (COVID-19), and corresponding 95% credible intervals, for the most recent week (25 to 31 December for Scotland, 27 December 2020 to 02 January 2021 for England, Wales and Northern Ireland, see notes 15,16) for the four nations of the UK

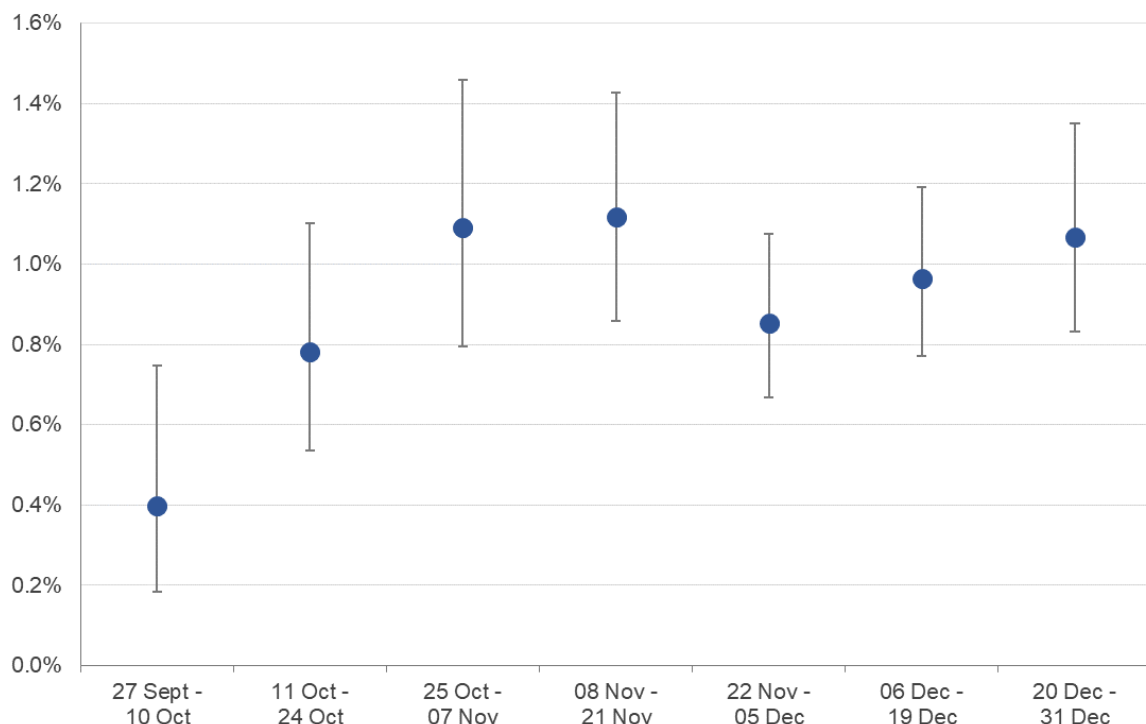
Nation	Estimated percentage of population that had COVID-19	Estimated number of people who had COVID-19	Estimated ratio of people who had COVID-19
England	2.06% (1.96% to 2.16%)	1,122,000 (1,070,600 to 1,175,700)	1 in 50 (1 in 50 to 1 in 45)
Northern Ireland	0.50% (0.29% to 0.77%)	9,100 (5,400 to 14,000)	1 in 200 (1 in 340 to 1 in 130)
Scotland	0.87% (0.72% to 1.04%)	45,900 (37,900 to 54,900)	1 in 115 (1 in 140 to 1 in 95)
Wales	1.45% (1.11% to 1.85%)	44,100 (33,700 to 56,300)	1 in 70 (1 in 90 to 1 in 55)

14-Day weighted estimates of the proportion of the population in Scotland that would have tested positive for the coronavirus (COVID-19)

Due to bank holidays, the weighted estimate in this publication is for a period of 12 days rather than 14 days (see note 17). It is estimated that in the most recent 12-day period (20 December to 31 December), the percentage of the population in Scotland that would have tested positive for the coronavirus (COVID-19) was 1.07%. A 95% confidence interval for this figure is 0.83% to 1.35%. Averaging estimates of the proportion of people in Scotland that would have tested positive for coronavirus (COVID-19) over the latest 12-day period can mask changes that have occurred in the most recent week.

In the same 12-day period, it is estimated that an average of 56,200 people in Scotland would have tested positive for the coronavirus (COVID-19) at any given time. A 95% confidence interval for this figure is 43,700 to 71,100. This equates to around 1 in 95 people (95% confidence interval: 1 in 120 to 1 in 75). The ratios presented are rounded to the nearest 5.

Figure 5: Weighted estimates of the percentage of the population in Scotland that would have tested positive for the coronavirus (COVID-19) by non-overlapping 14-day periods between 27 September and 31 December 2020, including 95% confidence intervals (see notes 1,5,9,10,11,12,17)



Quality and methodology information

Fieldwork in Scotland is being scaled up with the aim of testing 15,000 participants per fortnightly period. This will enable more detailed analysis, such as examining the characteristics of those testing positive for COVID-19 and establishing the average number of new infections per week.

An estimate of the proportion of people in Scotland who would have tested positive for COVID-19 antibodies in November was published on the 14 December on the Scottish Government and ONS website.

How this data 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

The data cannot be used for:

- measuring the number of cases and infections in care homes, hospitals and other institutional settings
- estimating the number of positive cases and new infections in smaller geographies, such as towns and cities
- providing information about recovery time of those infected
- producing a UK estimate; ONS now have estimates for England, Scotland, Wales and Northern Ireland, but these cannot be added up or averaged to understand the UK infection rate

Methodology

The results are based on nose and throat swabs provided by participants to the study, obtained from fieldwork which started in Scotland on 21 September 2020.

Estimates for Scotland do not include data for Orkney, Shetland or the Western Isles due to operational issues. We are working to resolve these issues as soon as possible.

The results are for private households only, and do not apply to those in hospitals, care homes or other institutional settings. The population used in this analysis relates to the community population aged two years and over.

In the latest six-week period, there were 49,492 swab tests, with a total of 396 positive tests in 306 people from 260 households. In the latest two-week period, there were 13,717 swab tests, and a total of 113 positive tests, in 100 people from 91 households.

The Infection Survey bulletins available on [the ONS website](#) also include results for England, Wales and Northern Ireland.

The Welsh Government and the Department of Health in Northern Ireland also publish results from the COVID-19 Infection Survey for Wales and Northern Ireland respectively:

- [Welsh Government](#)
- [Department of Health in Northern Ireland](#)

Further details on the methodology used can be found on [the ONS website](#).

Notes

1. Results are provisional and subject to revision.
2. The blue line and shading represent the modelled trend and credible intervals based on the latest data. The point estimates and error bars represent the official weekly estimates and their credible intervals, which are based on the modelled estimate for the midpoint of the week at the time of publication.
3. Because of the relatively small number of tests and a low number of positives in the sample, credible intervals are wide and therefore results should be interpreted with caution. 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.
4. There is more uncertainty around estimates after 28 December for Scotland, and after 30 December for England, Wales and Northern Ireland (as shown by the dashed lines), as lab results for this period are still being processed at the time of publication.
5. Modelled estimates are not directly comparable with the 14 day weighted estimates.
6. Additional swab tests that become available after this publication are included in subsequent models, meaning that modelled estimates can change as additional data are included.
7. The lines represent the modelled trends for each of the four nations based on the latest data.
8. Credible intervals have not been included in this chart.
9. Weighted estimates are provided with 95% confidence intervals to indicate the level of uncertainty around them. 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.
10. Estimates are weighted to be representative of the population in Scotland that live in private-residential households in terms of age (grouped), sex, and region.

11. The 14-day non-overlapping time periods presented in this publication are updated to work backwards from the most recent 14 days available. Time periods presented overlap with those presented in previous publications, therefore direct comparisons are not possible.
12. Estimates for Scotland do not include data for Orkney, Shetland or the Western Isles due to operational issues. We are working to resolve these issues as soon as possible.
13. Ad hoc data published by the Office for National Statistics on the modelled estimates of ORF1ab+N and other variants, Scotland, Wales and Northern Ireland can be found on their web page.
14. Small numbers of new UK variant compatible positives detected in Scotland are leading to considerable uncertainty surrounding these estimates.
15. Due to an additional public holiday on 02 January 2021 in Scotland, official estimates use available data to 31 December 2020 whereas official estimates for England, Wales and Northern Ireland use available data to 02 January 2021.
16. The reference date for the weekly modelled estimate for Scotland is 28 December rather than 30 December as for England, Wales and Northern Ireland due to the additional 02 January public holiday in Scotland.
17. The most recent weighted estimate includes data for only 12 days rather than the usual 14 days – from 20 December to 31 December 2020 due to the additional 02 January public holiday in Scotland.