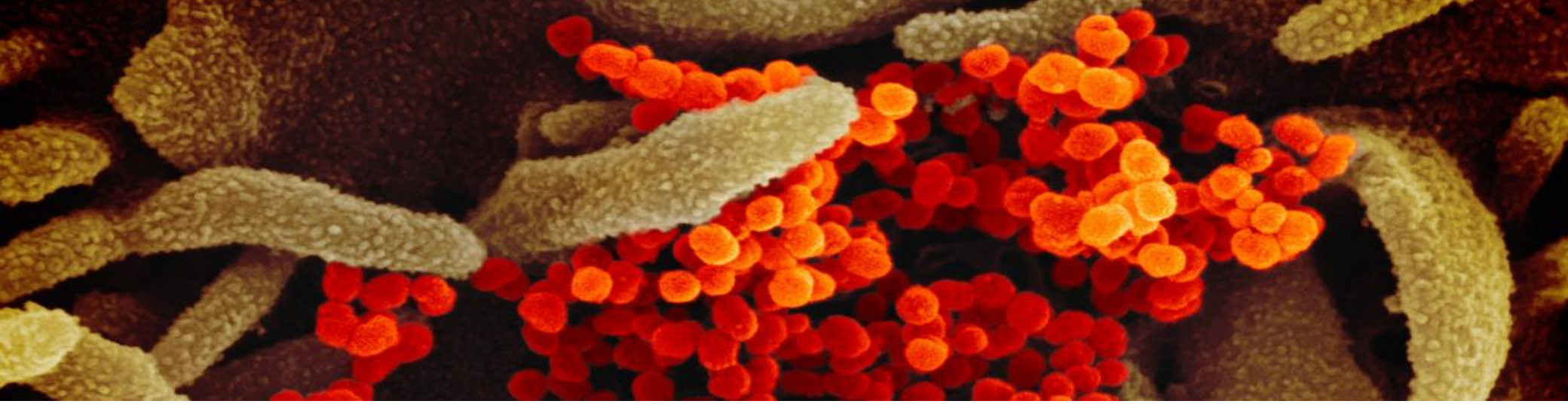


Coronavirus (COVID-19) Infection Survey

Results for Northern Ireland

7th January 2022

INFORMATION ANALYSIS DIRECTORATE

Department of Health
An Roinn Sláinte
Männystrie O Poustie
www.health-ni.gov.uk

Introduction

This report is the latest in a series of weekly publications which will detail findings for Northern Ireland from the Coronavirus (COVID-19) Infection Survey (CIS). The findings set out in this report relate to the most recent week of the study up to 31st December 2021. CIS aims to estimate how many people have the infection and the number of new cases that occur over a given time as well as estimating how many people have developed antibodies to COVID-19.

The survey over time will help track the extent of infection and transmission of COVID-19 among people living in private households. The sample includes people who would not necessarily have otherwise been tested, and is intended to estimate the number of current positive cases in the community in Northern Ireland, including cases where people do not report to having any symptoms.

It is important to note that these statistics are based on a survey sample and differ from those reported in the Department of Health Daily Dashboard which are based on all laboratory confirmed tests for COVID-19 completed in Northern Ireland.

To ensure our latest estimates on positivity are available at the earliest opportunity during this period of high infections, we published our headline results on Wednesday. The analysis in this bulletin provides further breakdowns for the same period and a longer time series.

Proportion of people in Northern Ireland who had COVID-19

During the most recent week of the study (25th December – 31st December), it is estimated that 72,900 people in Northern Ireland had COVID-19 (95% credible interval: 56,800 to 90,100). This equates to 3.97% of the population (95% credible interval: 3.10% to 4.91%) or around 1 in 25 people (95% credible interval: 1 in 30 to 1 in 20). This is based on statistical modelling of the trend in rates of positive nose and throat swab results.

Modelling suggests the percentage of people testing positive continued to increase in the week ending 31st December in Northern Ireland. In the latest six-week period, there were 15,350 swab tests taken in total from 11,707 participants. Of these, 327 participants tested positive from 256 different households. In the latest two-week period, of the 3,866 participants in the study, 112 tested positive from 92 households.

The reported headline positivity estimates contain Omicron (B.1.1.529) and all other variants.

As this is a household survey, the statistics refer to infections occurring in private households. The figures exclude infections reported in hospitals, care homes and/or communal establishments. In these settings, rates of COVID-19 infection are likely to be different.

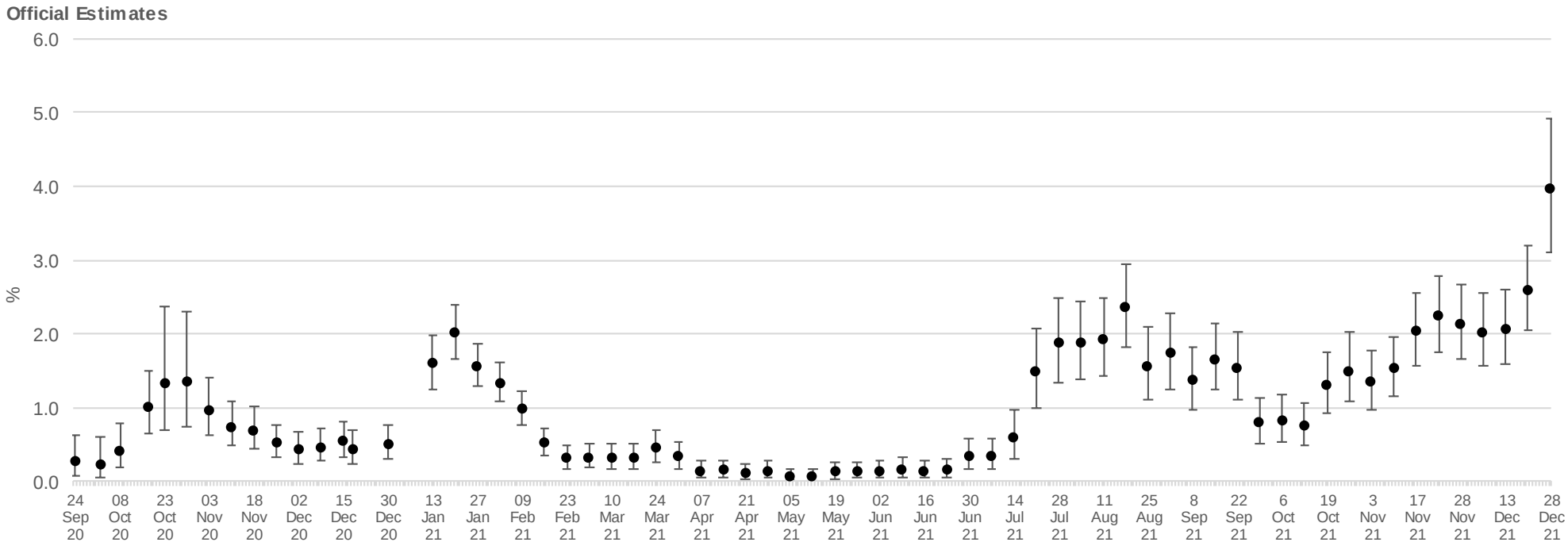
The estimates are based on confirmed positive test results. The remaining swabs are either negative which are included in the analysis or are inconclusive or test failures which are not included in the analysis. Work is ongoing with the laboratories to understand consistency in the identification of inconclusive results, that could be weak positive results. The impact of this on the estimates of positive infections is likely to be very small and unlikely to affect the trend.

Positivity over time in Northern Ireland

Due to relatively small number of tests and low number of positives within the sample, credible intervals are wide and therefore results should be interpreted with caution.

Modelling suggests the percentage of people testing positive continued to increase in the week ending 31st December in Northern Ireland. The official estimates of the percentage of people in NI previously testing positive for COVID-19 are set out in figure 1a while the modelled trends over time in the overall population for testing positive for COVID-19, including 95% credible intervals, are shown in figure 1b (overleaf). These estimates are calculated using a regression model which adjusts the survey results to be more representative of the overall population in terms of age, sex, and region.

Figure 1a: Estimated percentage of the population in Northern Ireland testing positive for the coronavirus (COVID-19) on nose and throat swabs since 24 September 2020

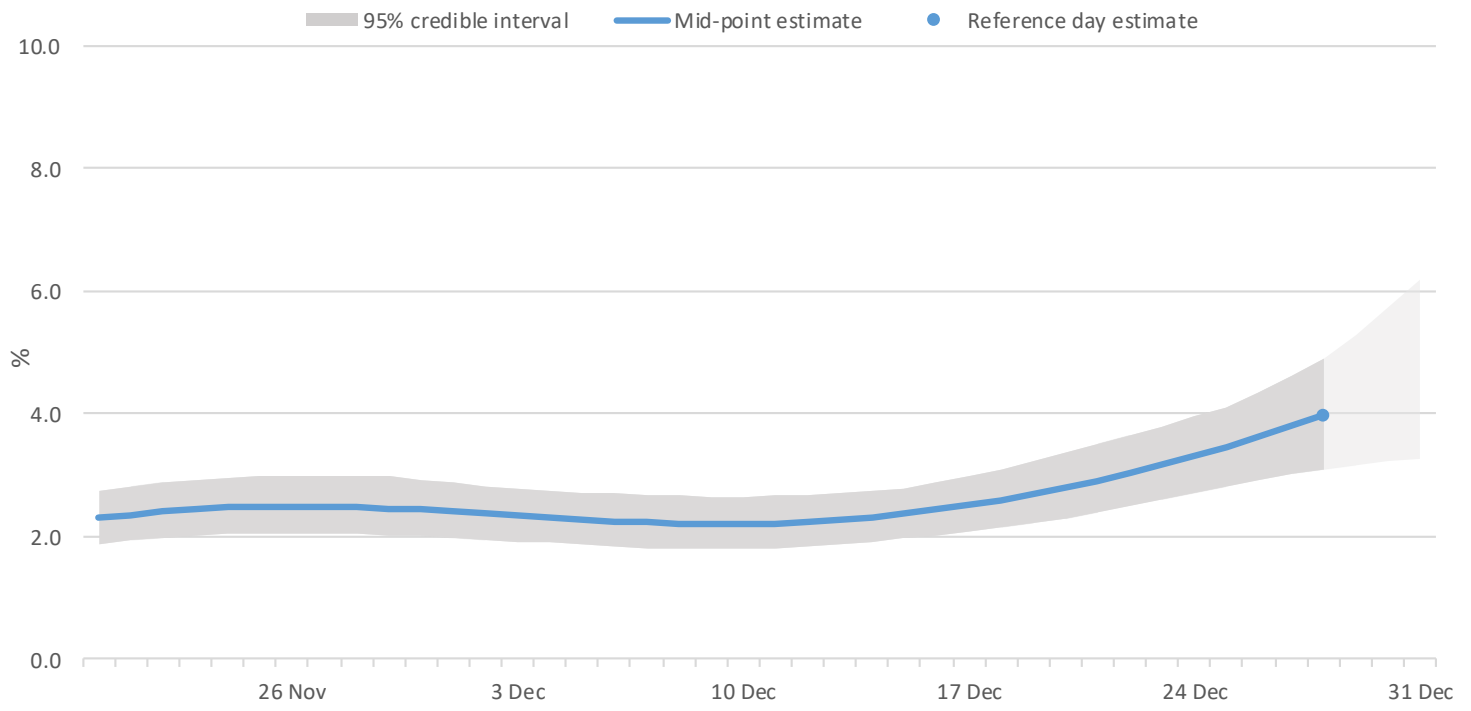


Source: Office for National Statistics – Coronavirus (COVID-19) Infection Survey

The point estimates and error bars indicated on the chart represent the official estimates reported in previous weeks based on the best information and methods at each point in time.

Figure 1b:

Percentage of people testing positive for COVID-19 in Northern Ireland
Modelled daily estimates



The area marked with light grey has a lower level of certainty due to lab results still being processed for this period
Data from 20 November 2021 to 31 December 2021

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

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.
3. Official reported estimates are plotted at a reference point believed to be most representative of the given week. To improve stability in the modelling while maintaining relative timeliness of estimates, the official estimates that are reported here are based on the midpoint of the reference week.
4. Official estimates (Figure 1a) 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 the best and most stable estimate and is used in all previous outputs. The modelled estimate (Figure 1b) 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.

Positivity by age over time

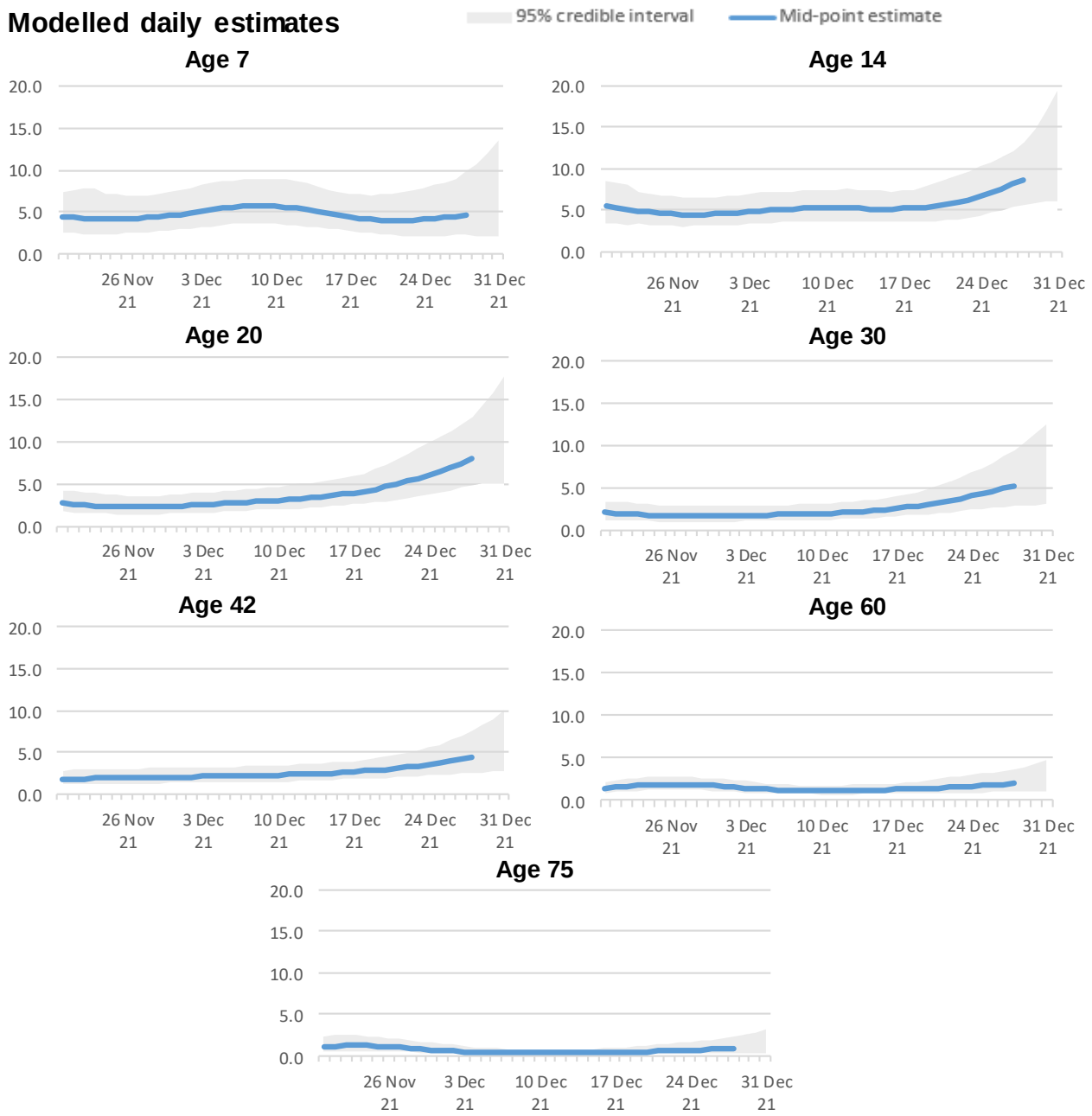
These charts present modelled positivity estimates for selected single years of age in Northern Ireland over the past 6 weeks.

In Northern Ireland, the percentage testing positive increased for those of secondary school age, young adults and those aged under 40, but the trend was uncertain for other ages.

It should be noted that there is very high uncertainty around these trends due to the relatively smaller number of people included in this analysis, so caution should be taken in interpreting the results. In addition, caution should be taken in over-interpreting any small movements in the latest trend.

Estimates in the most recent week have a lower level of certainty due to lab results still being processed for this period.

Figure 2 – Percentage of people testing positive for COVID-19 for reference ages in Northern Ireland *(Data from 20th November to 31st December 2021)*



Sub-regional analysis

The table and maps below show the modelled estimates by Health & Social Care Trust. As the sub-regional estimates are modelled separately, they may not be directly comparable with the NI estimate.

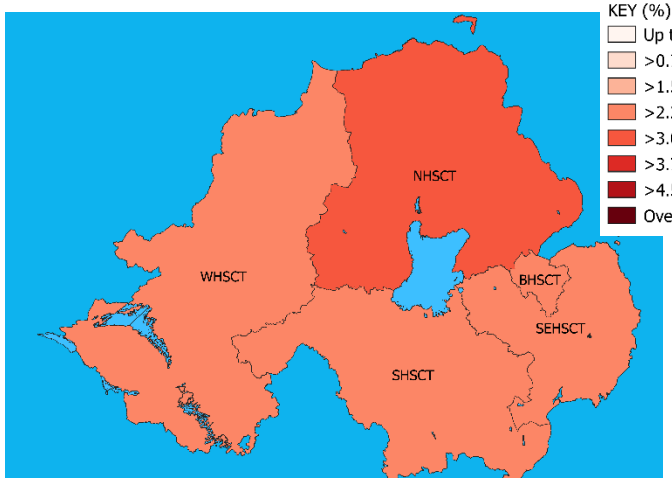
Figure 3: Percentage of people testing positive for the COVID-19 by CIS sub-region, Northern Ireland (modelled)

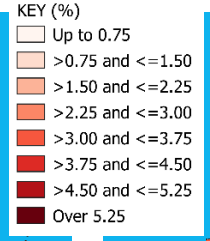
25 December 2021 to 31 December 2021

Health & Social Care Trust	% testing positive	95% Lower Credible Interval	95% Upper Credible Interval
Southern Health and Social Care Trust	4.00%	3.00%	5.39%
South Eastern Health and Social Care Trust	3.43%	2.56%	4.54%
Belfast Health and Social Care Trust	3.41%	2.47%	4.59%
Western Health and Social Care Trust	3.30%	2.33%	4.53%
Northern Health and Social Care Trust	3.97%	3.01%	5.27%

It should be noted that the number of people sampled in each sub-regional area who tested positive is lower compared with the number testing positive in their respective national samples. This means there is a higher degree of uncertainty in the sub-regional estimates and caution should be taken when interpreting or ranking them.

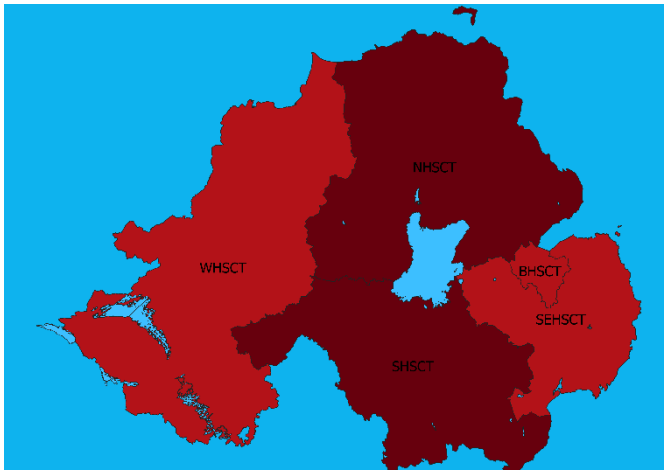
Lower credible interval





% testing positive

Upper credible interval



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

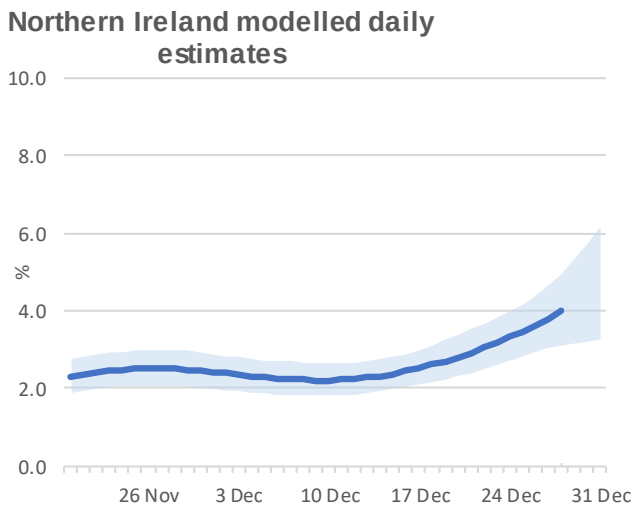
Positivity in the UK

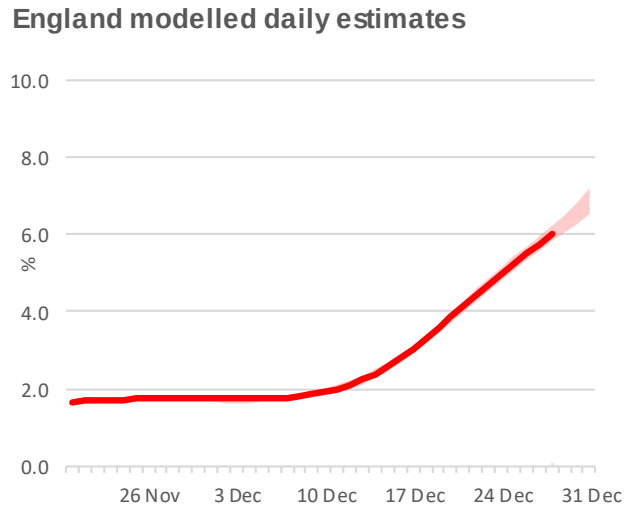
During the most recent week of the study, based on statistical modelling of the trend in rates of positive nose and throat swab results, 3.97% of the NI population (95% credible interval: 3.10% to 4.91%) had COVID-19. It is estimated that for the same period 6.00% (95% credible interval: 5.80% to 6.19%) of the population in England had COVID-19. It was estimated that 5.20% (95% credible interval: 4.57% to 5.91%) of the population in Wales and 4.52% (95% credible interval: 3.98% to 5.09%) of people in Scotland had COVID-19.

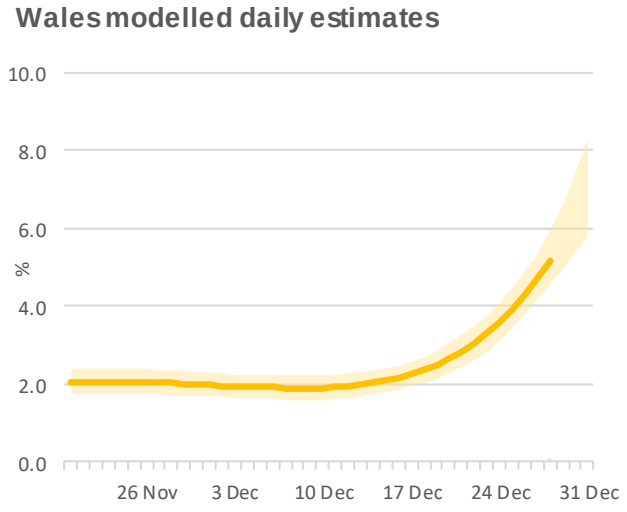
In England, Wales, Northern Ireland and Scotland the percentage of people testing positive for coronavirus (COVID-19) continued to increase in the week ending 31 December 2021.

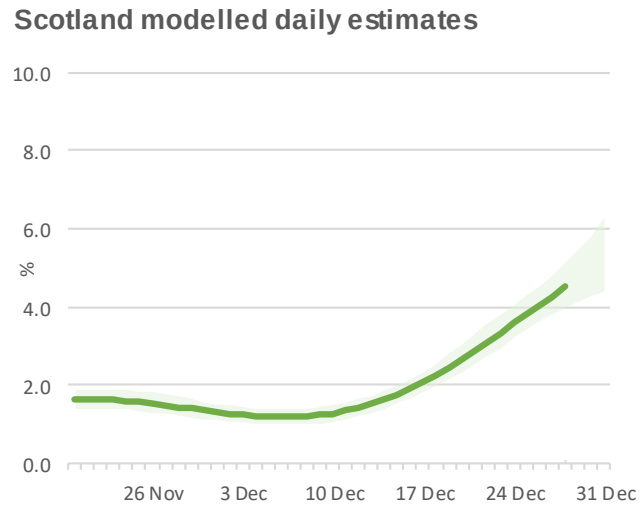
The reported headline positivity estimates contain Omicron (B.1.1.529) and all other variants.

Figure 4a, 4b,4c, 4d: Modelled daily estimate of percentage of the population testing positive for the COVID-19 across the UK









It should be noted that there is some uncertainty around the individual point estimates for the nations. Due to the relatively small number of tests and a low number of positives in Northern Ireland in the 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 what they really are.

Variant Analysis

The World Health Organization (WHO) have defined names for Variants of Concern. These are variants that the UK government has under surveillance. You can find out more in the SARS-CoV-2 variants of concern and variants under investigation in England briefing document (PDF, 2.51MB).

UK Variants of Concern:

- Alpha: B.1.1.7
- Beta: B.1.351
- Gamma: P.1
- Delta: B.1.617.2 and its genetic descendants
- Omicron: B.1.1.529 (which includes sublineages BA.1, BA.2 and BA.3)

The Omicron variant (B.1.1.529) of COVID-19 has changes in one of the three genes that coronavirus swab tests detect, known as the S-gene. This means in cases compatible with the Omicron variant, the S-gene is no longer 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 Omicron variant (B.1.1.529). 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 Omicron variant.

More information on how variants from positive tests on the survey are measured can be found in the ONS Understanding COVID-19 Variants blog and in the methodology article.

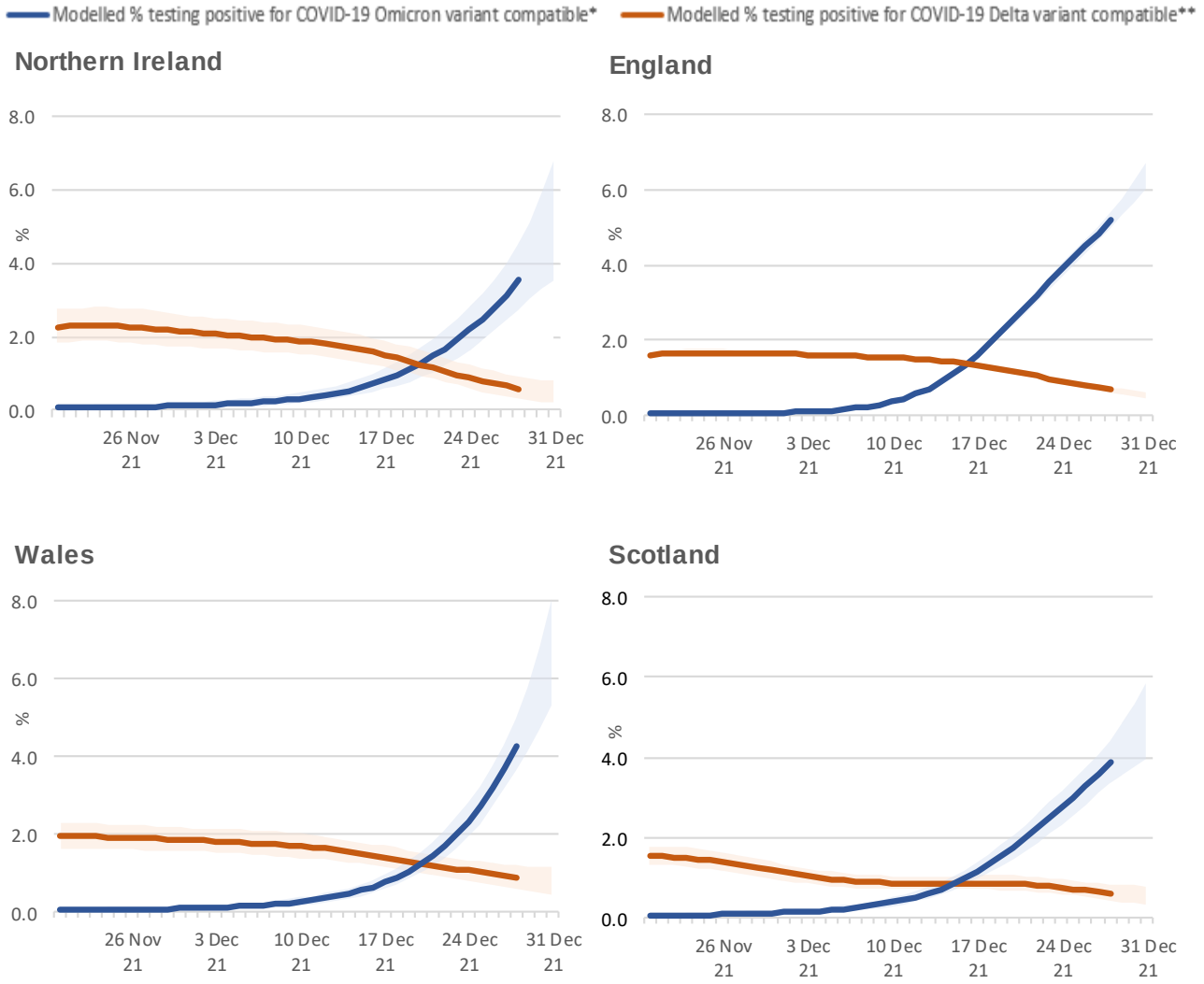
Variant analysis across the UK

In the week ending 31 December 2021, the percentage of cases compatible with the Omicron variant (B.1.1.529) continued to increase rapidly in England, Wales, Northern Ireland and Scotland. In the same week, the percentage of cases compatible with the Delta variant (B.1. 617.2 and its genetic descendants) continued to decrease across all four UK countries. Cases compatible with the Omicron variant are now the most common across the UK.

Data should be treated with caution. In particular, there are small numbers of positives detected in Wales, Northern Ireland and Scotland leading to considerable uncertainty surrounding these estimates. There are further uncertainties given that not all cases that are positive only on the ORF1ab and N-genes (denoted Omicron-compatible) will be the Omicron variant.

During periods of change in COVID-19 variants we will include a breakdown of estimated infections by variant to illustrate how the estimated percentage of people infected in the population is changing by variant. When nearly all infections are compatible with a dominant variant, we will no longer include this breakdown.

Figure 5a, 5b, 5c, 5d: Modelled percentage of positive cases compatible with the Delta variant and compatible with the Omicron variant across the UK



** Omicron variant compatible positives are defined as those that are positive on the ORF1ab-gene and N-gene, but not the S-gene.*

*** Delta variant compatible positives will mostly have a gene pattern ORF1ab+N+S (or occasionally S+ORF1ab and S+N), and so in this analysis are defined as those that are positive on the ORF1ab, N-gene and S-gene, or positive on the S-gene and either ORF1ab or the N-gene.*

Number of new COVID-19 infections

The incidence rate is a measure of new polymerase chain reaction (PCR)-positive cases in a given time period.

In the week ending 17 December 2021, the number of new PCR-positive COVID-19 cases per day increased sharply in England, and also increased in Wales, Scotland and Northern Ireland.

Credible intervals are very wide because of relatively small sample sizes, and care should be taken in interpreting results.

The reference date used for the official estimates of incidence of PCR-positive cases is 14 days prior to the positivity reference day, meaning that there is a two-week lag between the incidence estimate and the positivity estimate. This is necessary as estimates later than this date are more likely to change as additional data is received.

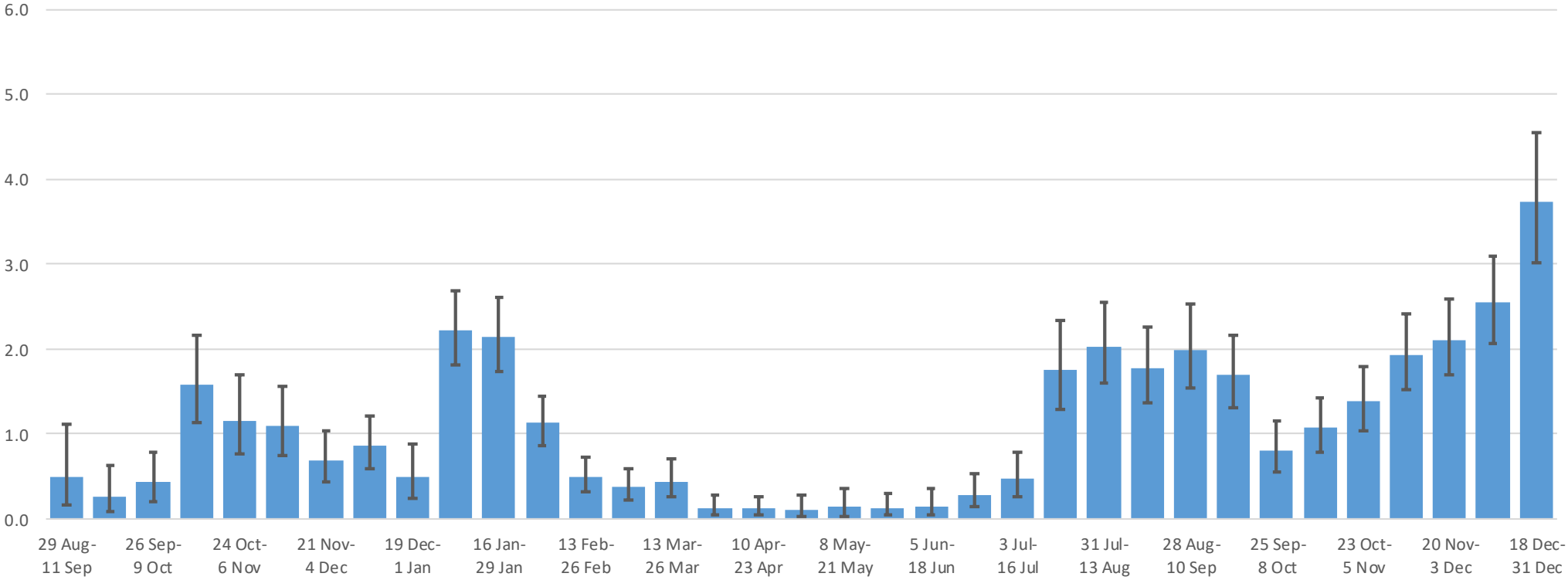
While the incidence estimates are useful, they can be volatile and subject to change as more data become available. For more information on how estimates of incidence are calculated please see COVID-19 Infection Survey: methods and further information.

A chart outlining incidence estimates for Northern Ireland can be found in Appendix 2. Please note that these estimates are only available up to the week ending 17th December and are therefore not directly comparable with the most recent positivity estimates which are more up-to-date.

Appendix 1 – Non-overlapping 14 day weighted positivity estimates in Northern Ireland

The estimates for non-overlapping 14-day periods (which underpin the modelled official estimates) are presented in the chart below and are provided for context. These 14-day estimates are different from and cannot be directly compared with the modelled estimates presented earlier in this report. The weighted percentage testing positive in NI in the latest 14-day period (18th December to 31st December 2021) was 3.73% (95% confidence interval: 3.01% to 4.56%) or around 1 in 25 people (95% confidence interval 1 in 35 to 1 in 20).

Figure 6: Estimated percentage of the population in Northern Ireland testing positive for the coronavirus (COVID-19) by non-overlapping 14-day periods up to 31 December 2021



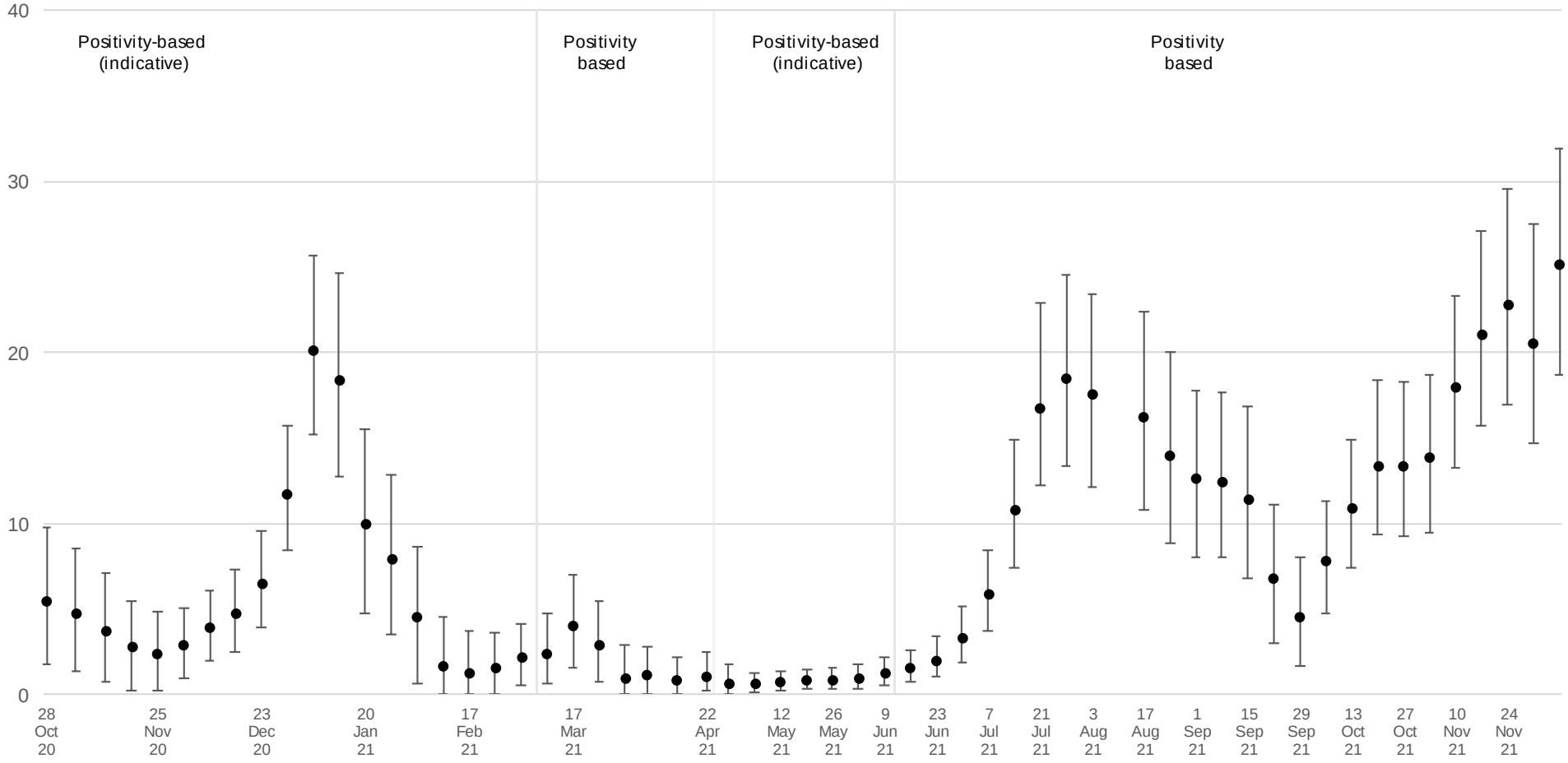
Source: Office for National Statistics – Coronavirus (COVID-19) Infection Survey, Department of Health Information Analysis Directorate

Notes:

1. All results are provisional and subject to revision.
2. These statistics refer to infections reported among the population living in private households. These figures exclude infections reported in hospitals, care homes and/or other institutional settings.
3. It should be noted that averaging positivity rates over the past 14-day period can mask changes in the positivity rates that have occurred in the most recent week.

Appendix 2 – Number of new COVID-19 infections in Northern Ireland

Figure 7: Incidence rate per 10,000 persons per day in Northern Ireland
Official Estimates



The point estimates and error bars indicated on the chart represent the official estimates and respective credible intervals reported for each week
Data from 25 October 2020 to 17 December 2021

Methodology

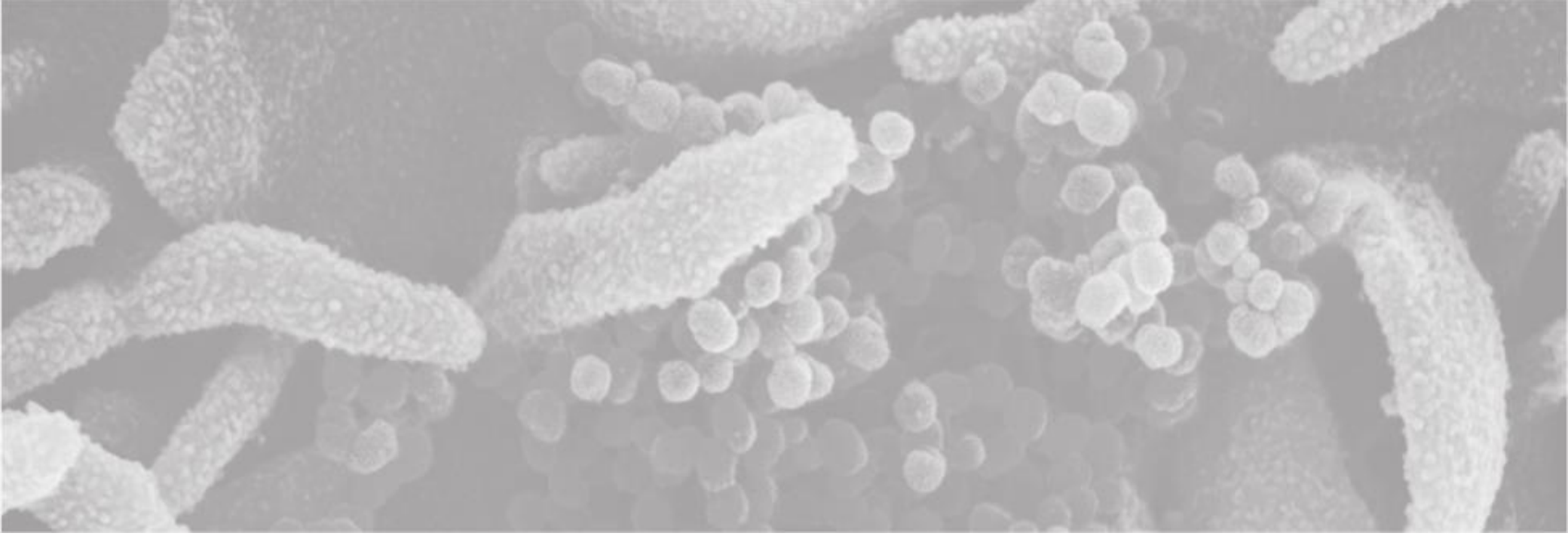
The results are based on nose and throat swabs provided by participants to the study. As well as looking at incidence overall, the survey will be used to examine the characteristics of those testing positive for COVID-19 and the extent to which those infected experience symptoms.

Extending the COVID-19 Infection Survey to Northern Ireland has been achieved by a collaboration between the Department of Health, Public Health Agency (PHA), Northern Ireland Statistics and Research Agency (NISRA) and the Office for National Statistics (ONS) and its various survey partners. Fieldwork commenced in Northern Ireland on 27th July 2020. It is important to note that there is a significant degree of uncertainty with the estimates. This is because, despite a large sample of participants, the number of positive cases identified is small. Estimates are provided with 95% confidence intervals to indicate the range within which we may be confident the true figure lies.

The results are for private households only and do not apply to those in hospitals, care homes or other institutional settings.

The Office for National Statistics (ONS) publishes **weekly statistical bulletins and references tables, including results for England, Wales, Scotland and Northern Ireland** on its website. Further detail for Northern Ireland is available in the ONS **data tables**.

Further information about quality and methodology can be found on the **ONS website**.



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