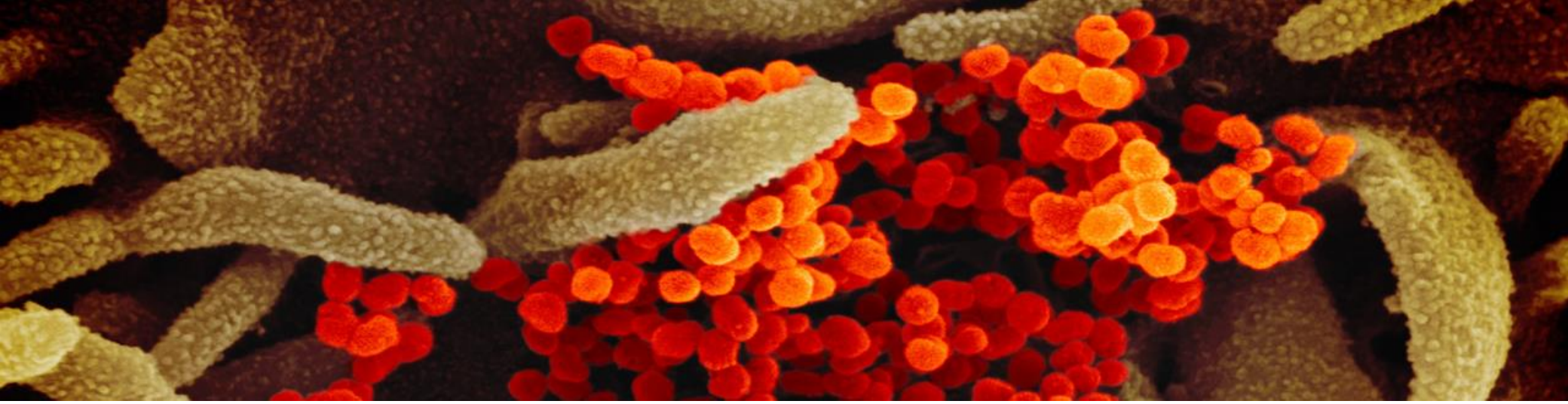


Coronavirus (COVID-19) Infection Survey

Results for Northern Ireland

4th February 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 29th January 2022. 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.

To ensure our latest estimates are available at the earliest opportunity during this period of high infections of coronavirus (COVID-19), we published our headline results on Wednesday. The analysis in this bulletin provides further breakdowns of these results for the same period and a longer data time series.

Proportion of people in Northern Ireland who had COVID-19

During the most recent week of the study (23 January – 29 January), it is estimated that 136,300 people in Northern Ireland had COVID-19 (95% credible interval: 118,200 to 155,200). This equates to 7.43% of the population (95% credible interval: 6.44% to 8.46%) or around 1 in 15 people (95% credible interval: 1 in 15 to 1 in 10). 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 increased in the week ending 29 January in Northern Ireland. In the latest six-week period, there were 15,167 swab tests taken in total from 11,565 participants. Of these, 682 participants tested positive from 520 different households. In the latest two-week period, of the 5,472 participants in the study, 301 tested positive from 225 households.

The reported headline positivity estimates contain Omicron (BA.1), Omicron (BA.2) 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 other 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, which are not included in the analysis. Some swabs are test failures, which are also not included in the analysis. The impact of excluding inconclusive results on the estimates of positive infections is likely to be very small and unlikely to affect the trend.

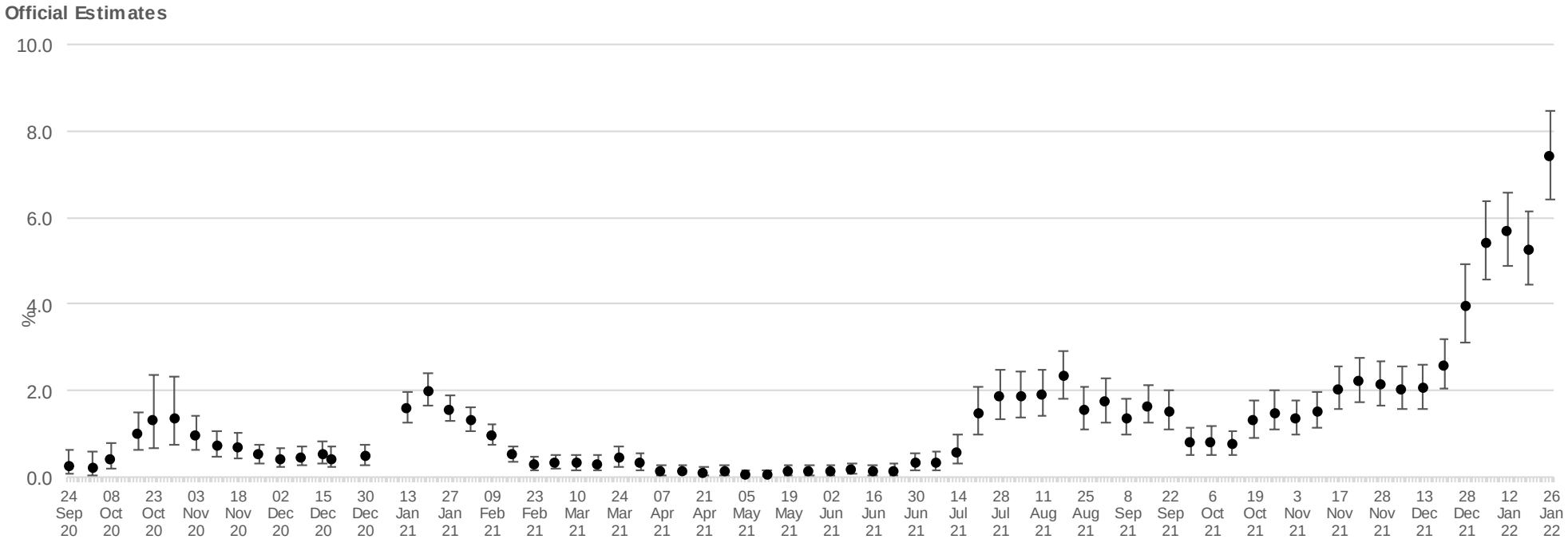
Please note the ratios do not represent a person's risk of becoming infected, since risk of infection depends on a number of factors such as contact with others or whether a person has been vaccinated.

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 increased in the week ending 29 January 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

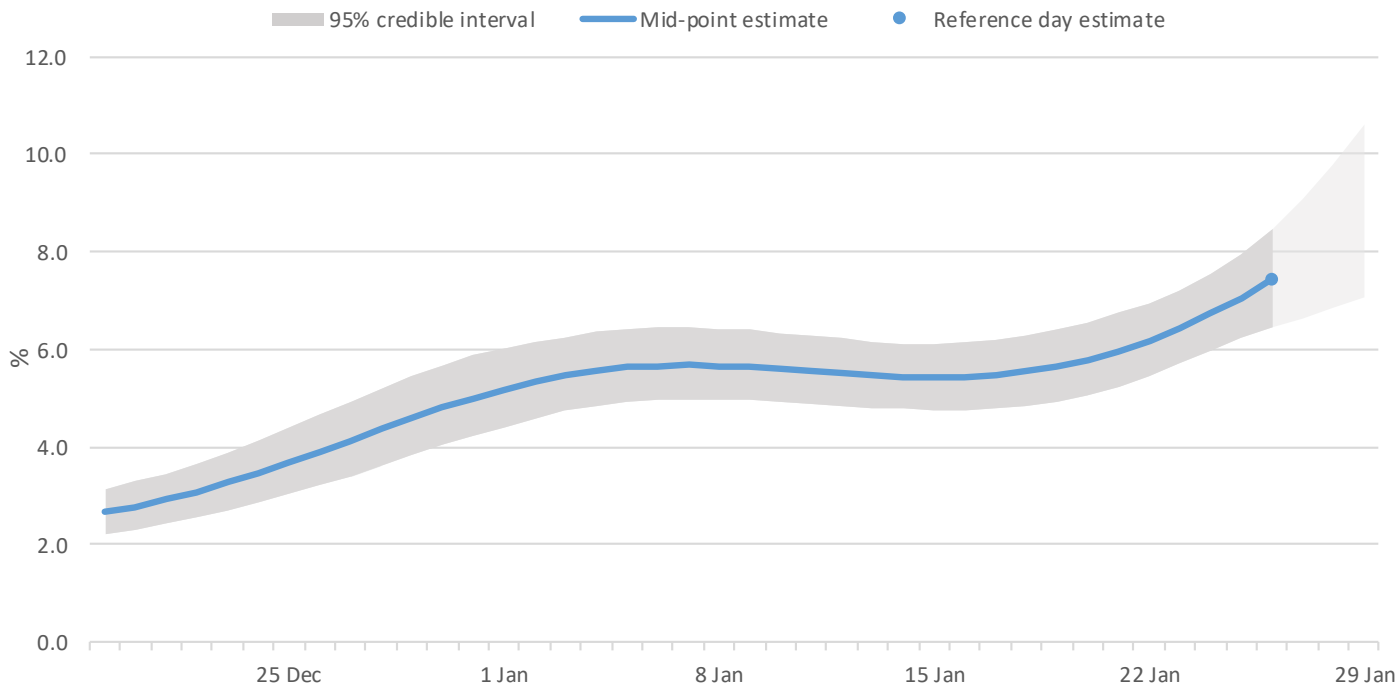


Source: Office for National Statistics – Coronavirus (COVID-19) Infection Survey

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 19 December 2021 to 29 January 2022

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

Notes:

1. Modelled 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. Therefore, caution should be taken in over-interpreting any small movements in the latest trends. 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. The 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

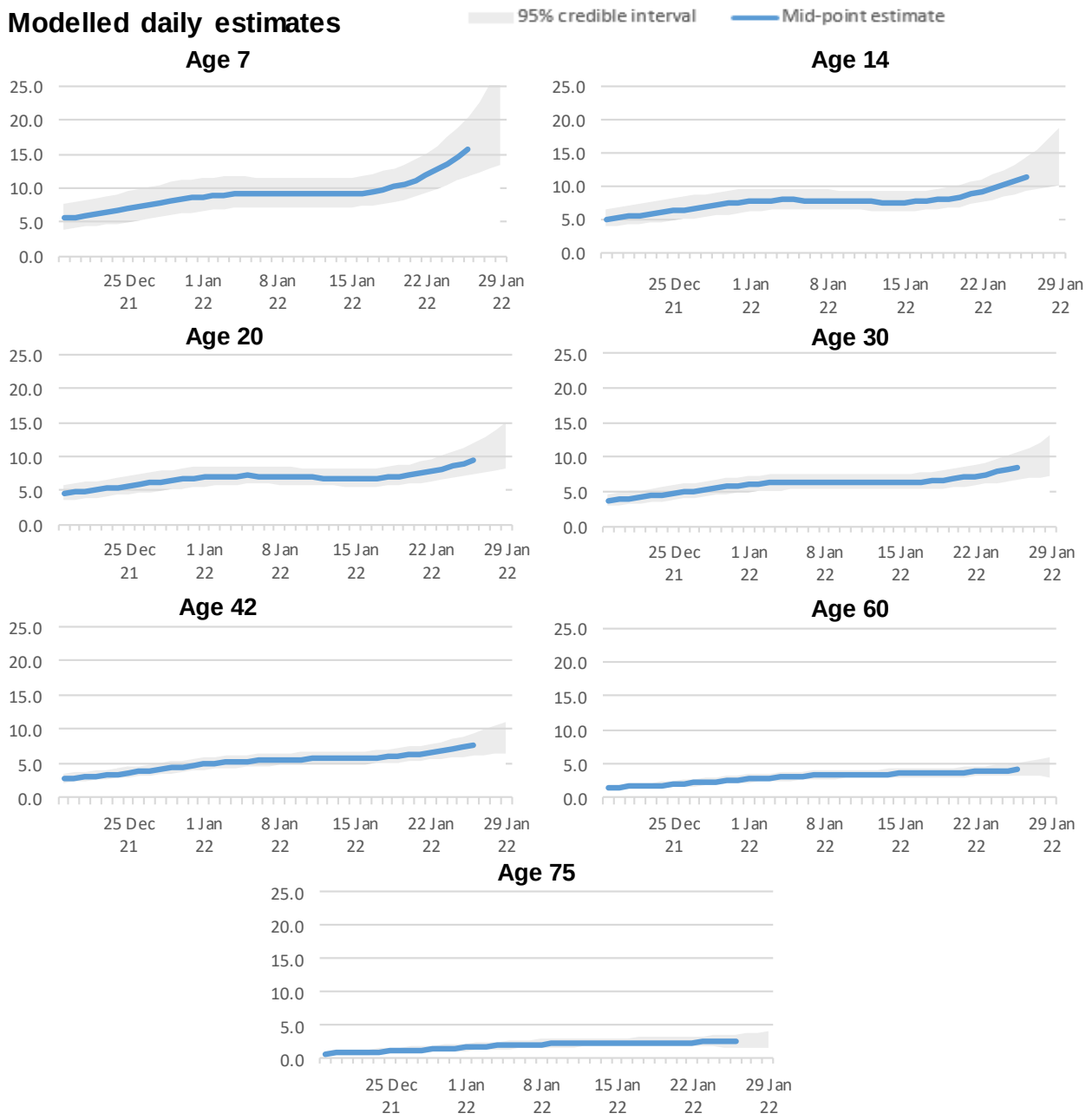
These charts present modelled positivity estimates for selected single years of age in Northern Ireland over the past 6 weeks.

The percentage testing positive increased across all ages in Northern Ireland.

It should be noted that there is 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 19 December 2021 to 29 January 2022)*



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 overall NI estimate.

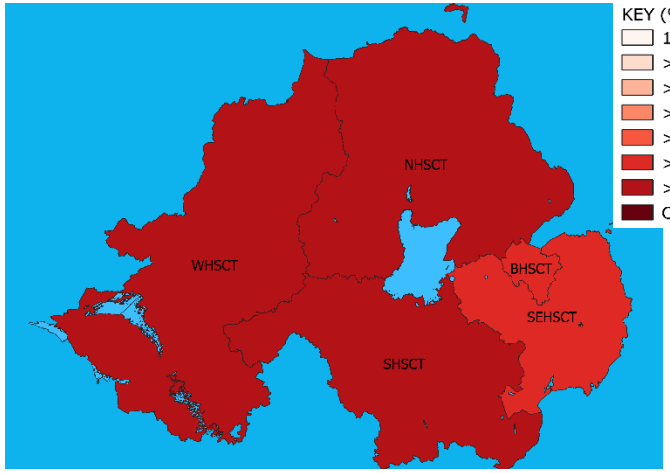
Table 1 & Figure 3: Percentage of people testing positive for the COVID-19 by CIS sub-region, Northern Ireland (modelled)

23 January 2022 to 29 January 2022

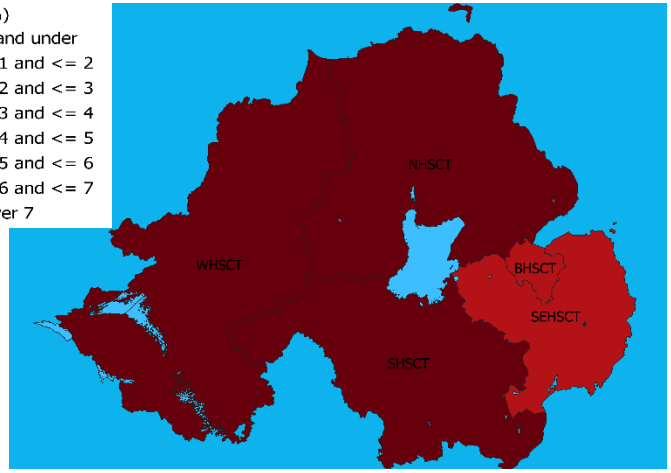
Health & Social Care Trust	% testing positive	95% Lower Credible Interval	95% Upper Credible Interval
Southern Health and Social Care Trust	8.13%	6.78%	9.67%
South Eastern Health and Social Care Trust	6.61%	5.54%	7.82%
Belfast Health and Social Care Trust	6.57%	5.39%	7.91%
Western Health and Social Care Trust	7.82%	6.46%	9.41%
Northern Health and Social Care Trust	7.22%	6.08%	8.48%

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 more uncertainty in the sub-regional estimates and caution should be taken when interpreting or ranking them.

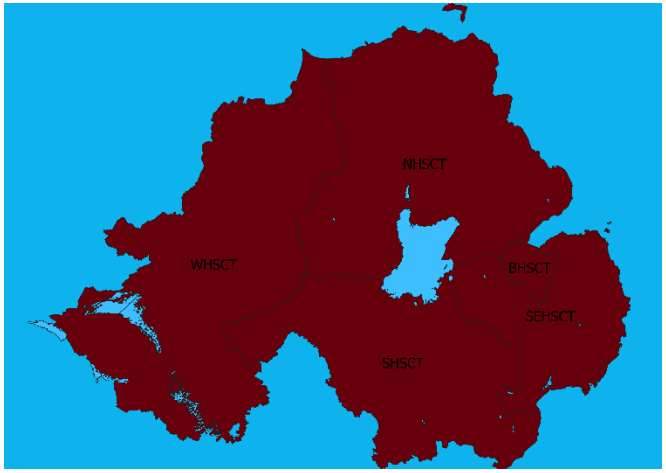
Lower credible interval



% testing positive



Upper credible interval



Please note that the colour scale used in creating the Trust maps above may not be consistent with that used previously to accommodate increased levels of infections in the analysis and therefore cannot be directly compared with the previously published sub-regional maps.

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 quickly, the figures shown above may not reflect the change we are seeing in our headline estimates.

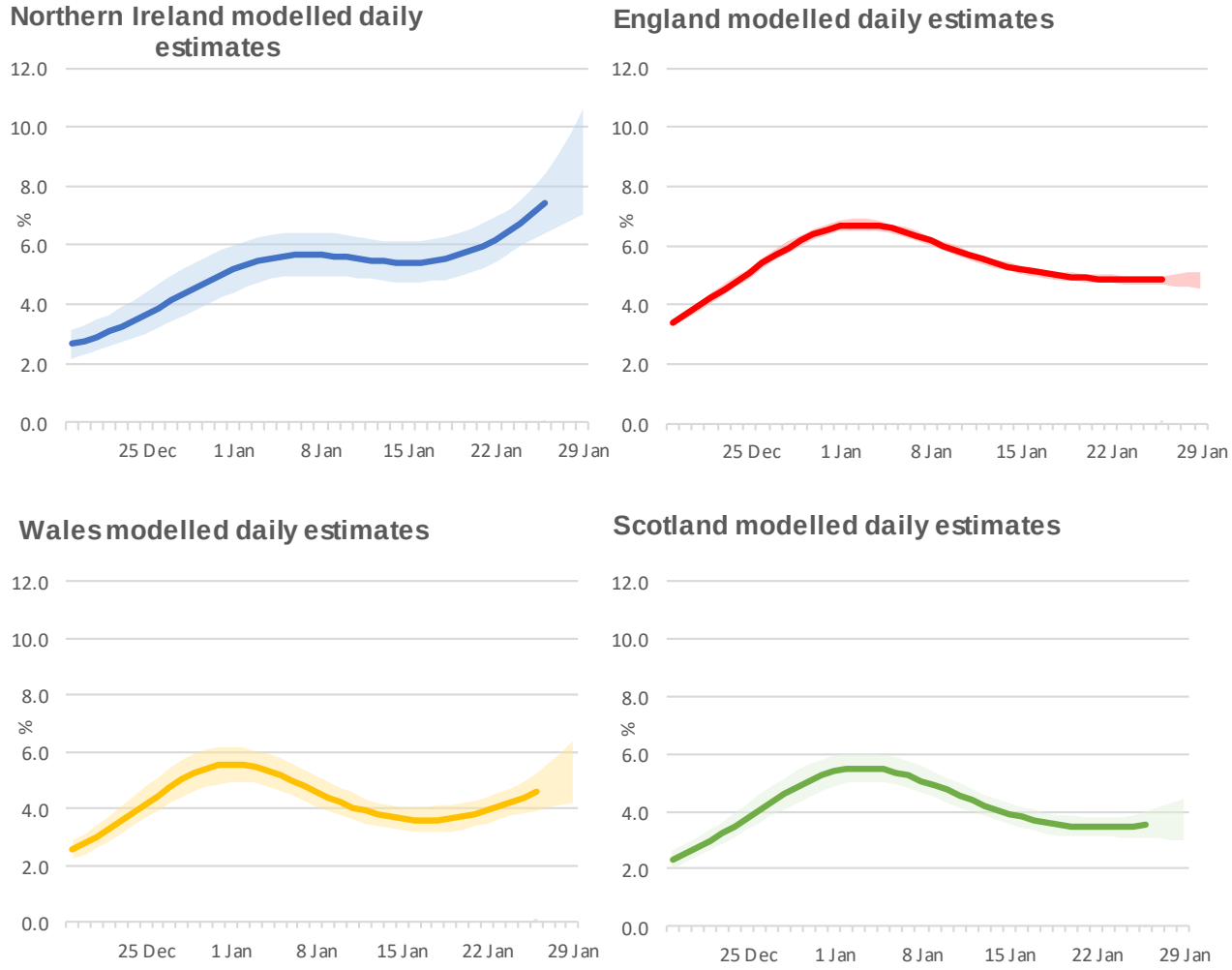
Positivity in the UK

During the most recent week of the study, based on statistical modelling of the trend in rates of positive nose and throat swab results, 7.43% of the NI population (95% credible interval: 6.44% to 8.46%) had COVID-19. It is estimated that for the same period 4.83% (95% credible interval: 4.67% to 5.00%) of the population in England had COVID-19. It was estimated that 4.57% (95% credible interval: 3.94% to 5.24%) of the population in Wales and 3.52% (95% credible interval: 3.08% to 4.00%) of people in Scotland had COVID-19.

In England, the percentage of people testing positive for coronavirus (COVID-19) remained high in the week ending 29 January 2022. In Wales and Northern Ireland, the percentage of people testing positive for COVID-19 increased in the same week. In Scotland, the percentage of people testing positive for COVID-19 decreased in the two weeks up to 29 January 2022, but the trend was uncertain in the most recent week.

The reported headline positivity estimates contain Omicron (BA.1), Omicron (BA.2) 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



Due to the relatively smaller number of tests in Northern Ireland, Wales and Scotland in the sample, credible intervals are wider and therefore results should be interpreted with caution. 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 currently dominant in the UK is BA.1. This variant has changes in one of the three genes that the coronavirus swab used in the survey tests detects, known as the S-gene. This means 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 this Omicron variant (BA.1). 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 this Omicron variant. The sub-variant Omicron BA1.1 also mostly has gene pattern ORF1ab + N. Therefore, gene pattern matching used in the main variant analysis cannot distinguish between Omicron BA.1 and Omicron BA1.1.

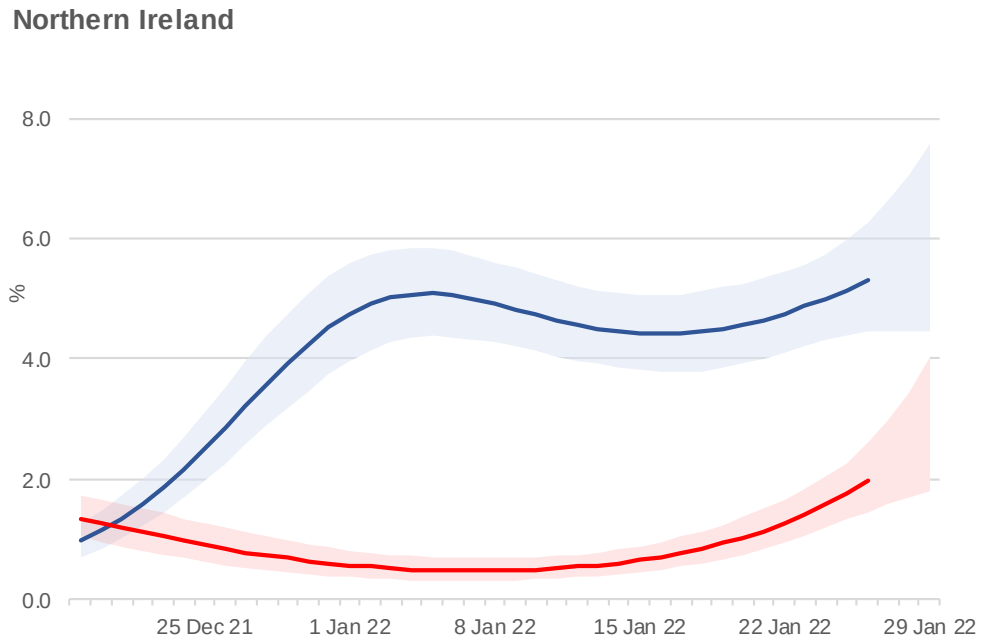
In contrast, the Omicron sub-variant BA.2 does not have changes in the S gene, and therefore the detection of all three genes, or the S-gene and either ORF1ab or N is usually a reliable indicator of this sub-variant of Omicron. Delta also does not have changes in the S-gene, and therefore has identical gene patterns to Omicron BA.2. This means that gene pattern matching cannot distinguish between Omicron BA.2 cases and Delta cases. For this reason, cases with gene patterns ORF1ab + N + S, ORF1ab + S and N + S are labelled as ‘not compatible with Omicron BA.1’ in the main variant analysis. The genome sequencing analysis suggests that a clear majority of cases with these gene patterns are now Omicron BA.2, with relatively few being Delta. For this reason, 'not compatible with Omicron BA.1' estimates are now likely to mostly reflect trends in BA.2, although Delta may still be having a very small impact.

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

Since the end of December, infections compatible with the Omicron BA.1 variant have been the most common in all four UK countries. The main variant analysis shows that in Northern Ireland, there was a notable increase in the percentage of people testing positive not compatible with Omicron BA.1 in the week ending 29 January 2022; there was also a small increase in England and early signs of an increase in Wales. In the same week, the trend in the percentage of people testing positive not compatible with Omicron BA.1 was uncertain in Scotland. This group of positives will include Omicron BA.2 and Delta cases; although the majority of recent cases will be Omicron BA.2 based on genetic sequencing.

Figure 5: Modelled percentage of positive cases compatible with Omicron BA.1 and not compatible with Omicron BA.1



Omicron BA.1 variant-compatible = gene pattern ORF1ab + N.

Not compatible with Omicron BA.1 variant = gene pattern S + ORF1ab + N, S + ORF1ab and S + N.

Data should be treated with caution. In particular, there are small numbers of positives detected in Northern Ireland leading to considerable uncertainty surrounding these estimates. In addition, there are several variants with gene pattern ORF1ab+N, and many with pattern S+ORF1ab+N. We label these as Omicron BA.1 compatible and not compatible with Omicron BA.1 respectively. At present, Omicron sublineage BA.1 is the dominant variant in the UK. Therefore, whilst the majority of cases with pattern ORF1ab+N will be the Omicron BA.1 variant or its sub-variants, some portion of cases with this pattern may be other variants with the same gene pattern or where the S gene was not detected for other reasons. The majority of cases with gene pattern S+ORF1ab+N will be either Delta variant cases or Omicron BA.2 cases, and based on the genetic sequencing, most recent cases will be Omicron BA.2.

Further detail on variant analysis by country can be found in the ONS Coronavirus (COVID-19) Infection Survey: technical dataset.

Number of new COVID-19 infections in the UK

The incidence rate is a measure of new polymerase chain reaction (PCR)-positive cases per day per 10,000 people in a given time period.

In the week ending 15 January 2022, the number of new PCR-positive COVID-19 cases per day continued to decrease in England, Wales and Scotland, while the trend was uncertain in Northern Ireland.

Table 2: Official reported estimates of COVID-19 incidence rate per 10,000 people per day, 09 January 2022 – 15 January 2022

Country	Estimated COVID-19 incidence rate per 10,000 people per day	95% Lower credible interval	95% Upper credible interval
England	37.3	34.4	40.2
Wales	22.0	13.1	30.9
Scotland	25.8	18.1	33.4
Northern Ireland	**52.5**	**40.6**	**64.8**

Please note that these estimates are only available up to the week ending 15 January 2022 and are therefore not directly comparable with the most recent positivity estimates which are more up-to-date.

The reference date used for the official estimates of incidence of PCR-positive cases is 14 days before 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.

Credible intervals are wider for Wales, Northern Ireland and Scotland because of relatively smaller sample sizes, and care should be taken in interpreting results.

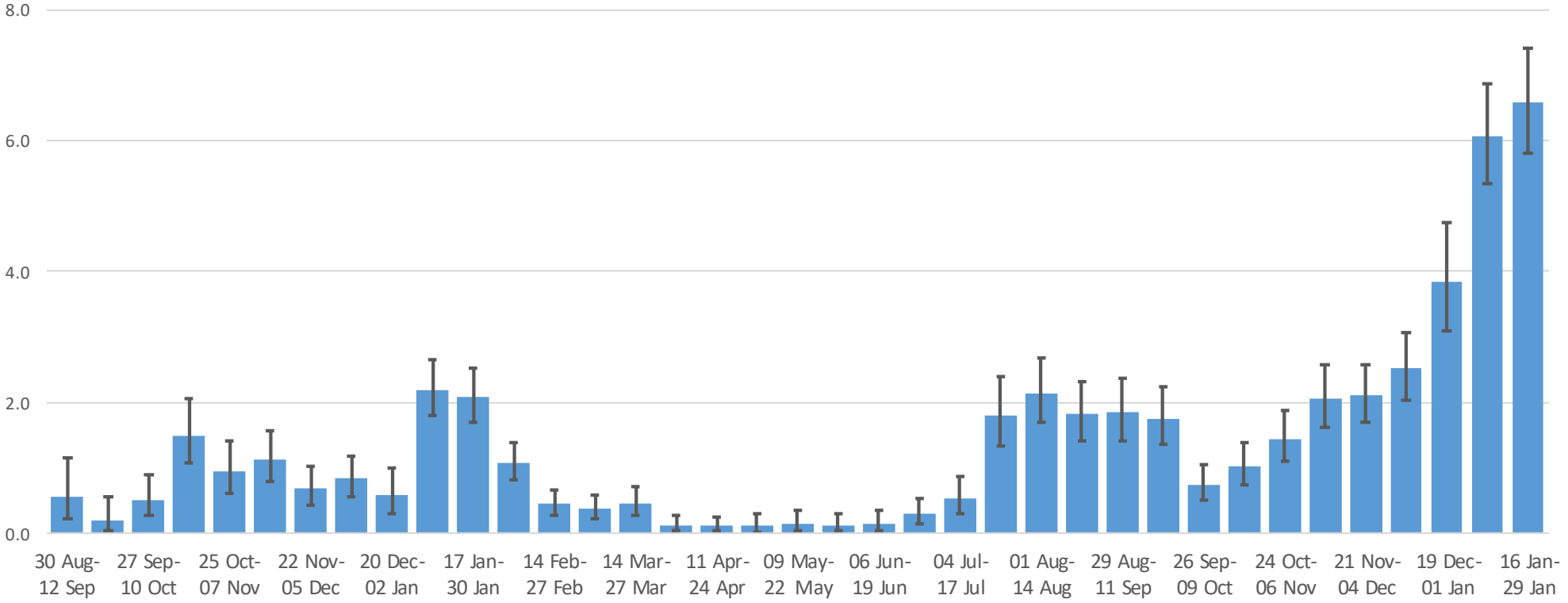
While the incidence estimates are useful, they can be volatile and subject to change as more data become available. For more information on how estimates of incidence are calculated please see COVID-19 Infection Survey: methods and further information.

A chart outlining incidence estimates for Northern Ireland can be found in Appendix 2.

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 (16th January 2022 to 29th January 2022) was 6.57% (95% confidence interval: 5.80% to 7.40%) or around 1 in 15 people (95% confidence interval 1 in 15 to 1 in 15).

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 29 January 2022



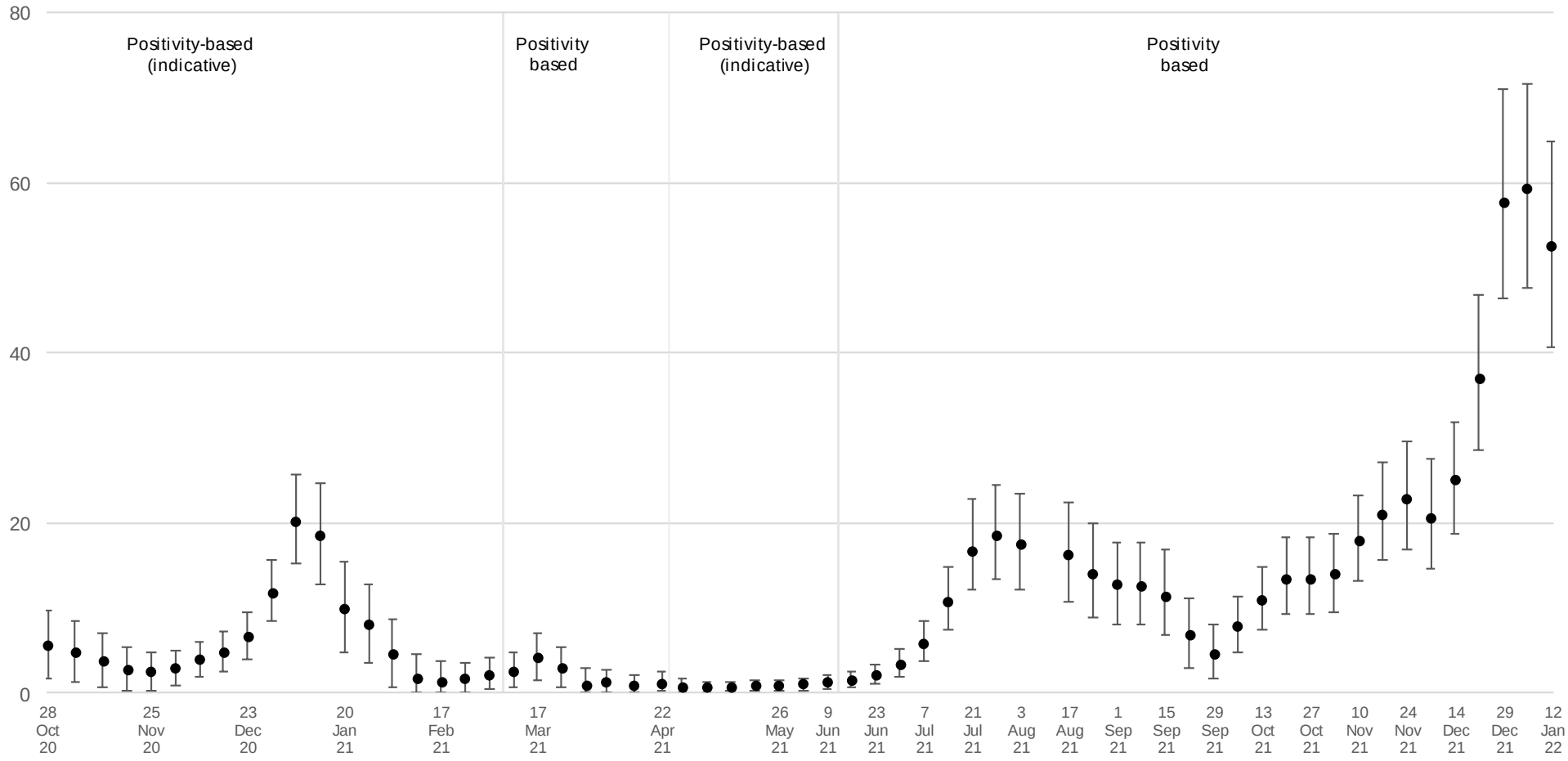
Source: Office for National Statistics – Coronavirus (COVID-19) Infection Survey, Department of Health Information Analysis Directorate

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 15 January 2022

Methodology

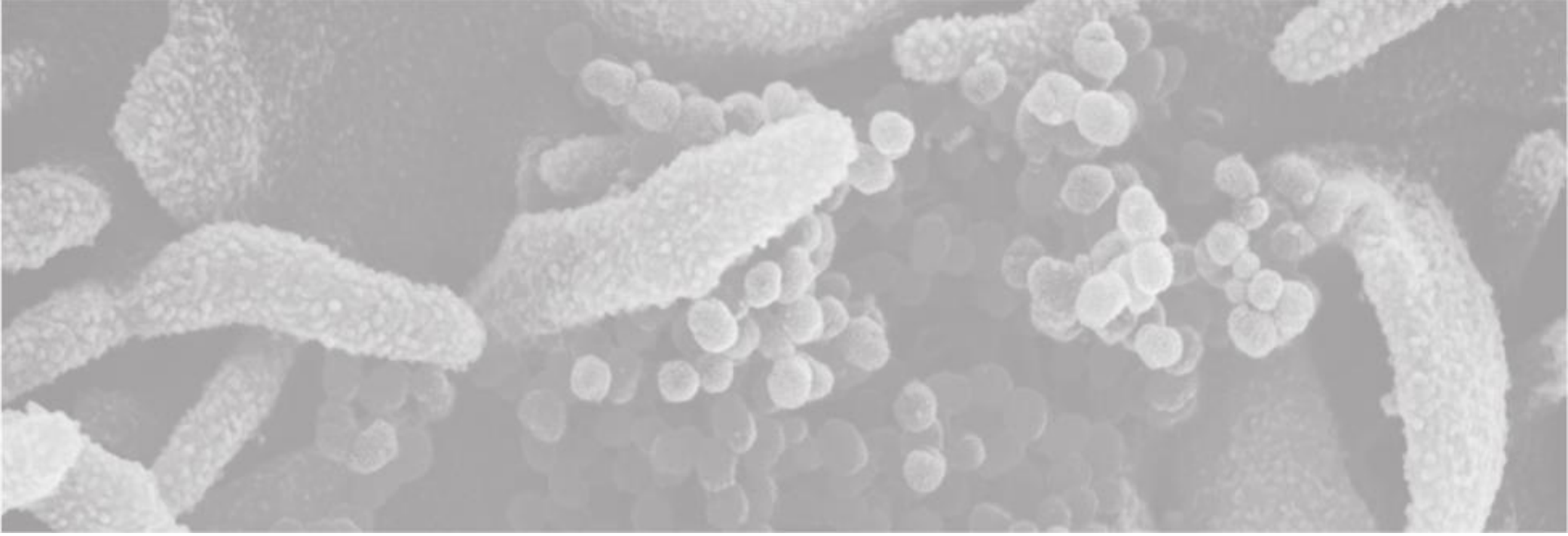
The results are based on nose and throat swabs provided by participants to the study. As well as looking at incidence overall, the survey will be used to examine the characteristics of those testing positive for COVID-19 and the extent to which those infected experience symptoms.

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 and/or other communal establishments.

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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