



# Coronavirus (COVID-19) Infection Survey

## Results for Northern Ireland

13<sup>th</sup> January 2023

## 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 31<sup>st</sup> December 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.

The Covid-19 Infection Survey has moved from collecting data and samples through home visits by a study worker to a more flexible approach for participants. An online questionnaire has been introduced and swab and blood samples are returned through the post (or by courier for some participants). Further information on what these changes mean and how the survey will continue to be valuable can be found in the recent ONS [blog post](#) and further information on the effects of the change in data collection method can be found in the ONS [Quality Report: August 2022](#) and [Quality Report: December 2022](#).

To note, the Office for National Statistics (ONS) is running a small pilot to find out whether the Coronavirus (COVID-19) Infection Survey could be used as an early warning system for Influenza (flu) and another respiratory virus called respiratory syncytial virus (RSV) in the community. More information and findings can be found in the recent ONS blog post, [The Bigger Picture: Using the COVID-19 Infection Survey to track other infections](#) and [accompanying dataset](#).

## Proportion of people in Northern Ireland who had COVID-19

During the most recent week of the study (25 December – 31 December 2022), it is estimated that 129,100 people in Northern Ireland had COVID-19 (95% credible interval: 109,800 to 151,200). This equates to 7.04% of the population (95% credible interval: 5.99% to 8.24%) or around 1 in 14 people (95% credible interval: 1 in 17 to 1 in 12). This is based on statistical modelling of the trend in rates of positive nose and throat swab results.

Modelling suggests the trend in the percentage of people testing positive increased in the two weeks up to 31 December 2022 in Northern Ireland but the trend was uncertain in the most recent week.

*Please note that the reference day for Northern Ireland is earlier this week due to lower numbers of test results received than usual.*

*Results presented in this publication for the most recent reference week are based on a lower than usual number of returned swab results because of the Christmas holiday period. Results may have more uncertainty and be subject to change as more test results are received for this period.*

### Notes:

- The results in this report are provisional and subject to revision.
- The positivity rate is the percentage of people who would have tested positive for COVID-19 on a polymerase chain reaction (PCR) test 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.
- As this is a household survey, the statistics refer to infections within the population living in private residential households. The figures exclude infections 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.
- Ratios do not represent a person's risk of becoming infected, since risk of infection depends on a number of factors including contact with others or vaccination status. The ratios presented are rounded to the nearest 100 if over 1,000, to the nearest 10 if under 1,000, to the nearest 5 if under 100 and to 1 if under 20. This may result in credible intervals that appear to be similar to the estimated average ratio.

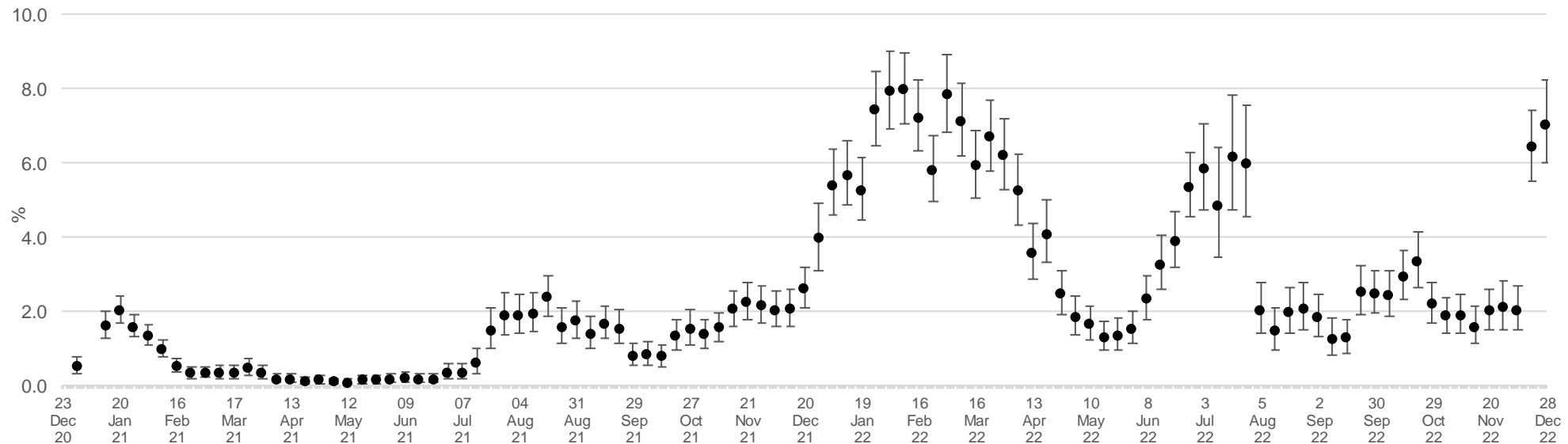
## Positivity over time in Northern Ireland

*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 trend in the percentage of people testing positive increased in the two weeks up to 31 December 2022 in Northern Ireland but the trend was uncertain in the most recent week. 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**

### Official Estimates

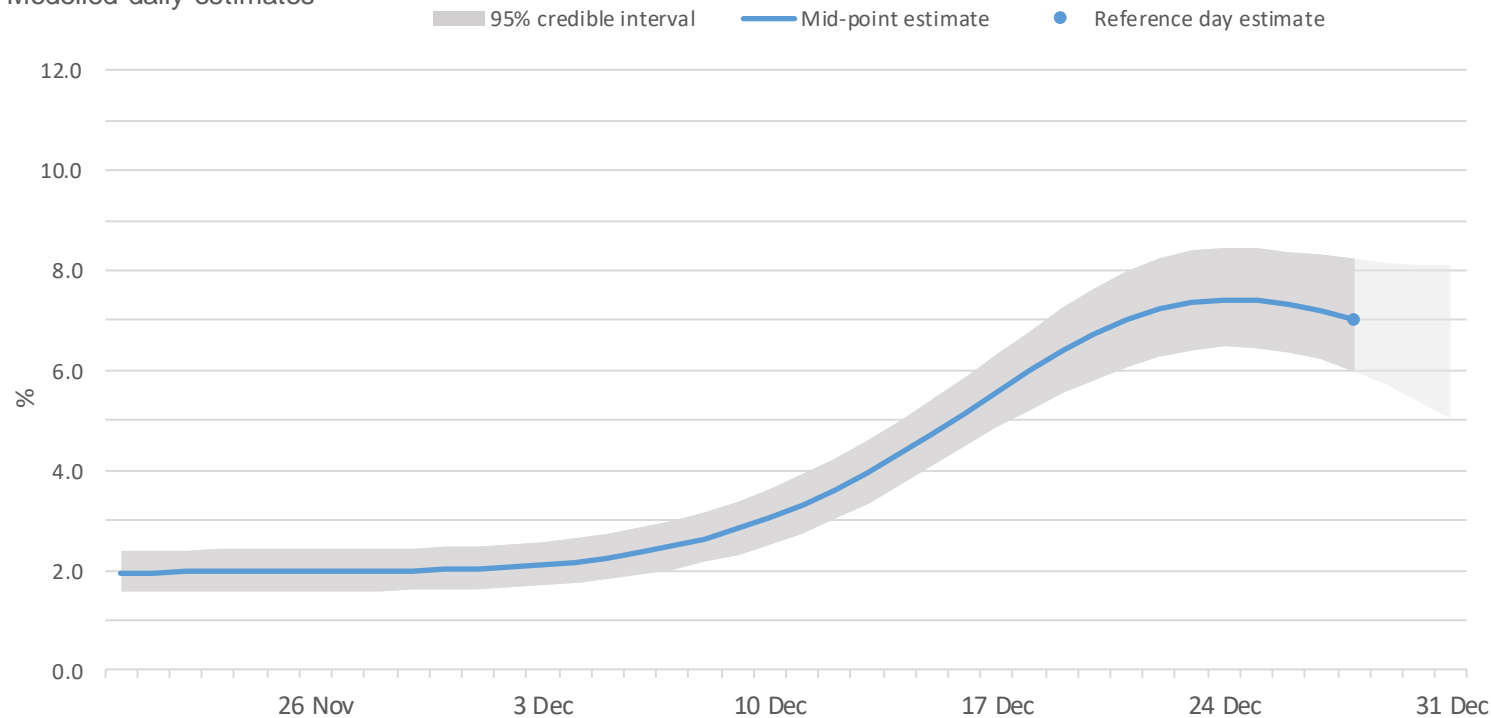


The point estimates and error bars indicated on the chart represent the official estimates reported in previous weeks based on the best information and methods at each point in time.

## 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 2022 to 31 December 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. A wider interval indicates more uncertainty in the estimate. Overlapping credible intervals indicate that there may not be a true difference between two estimates.
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

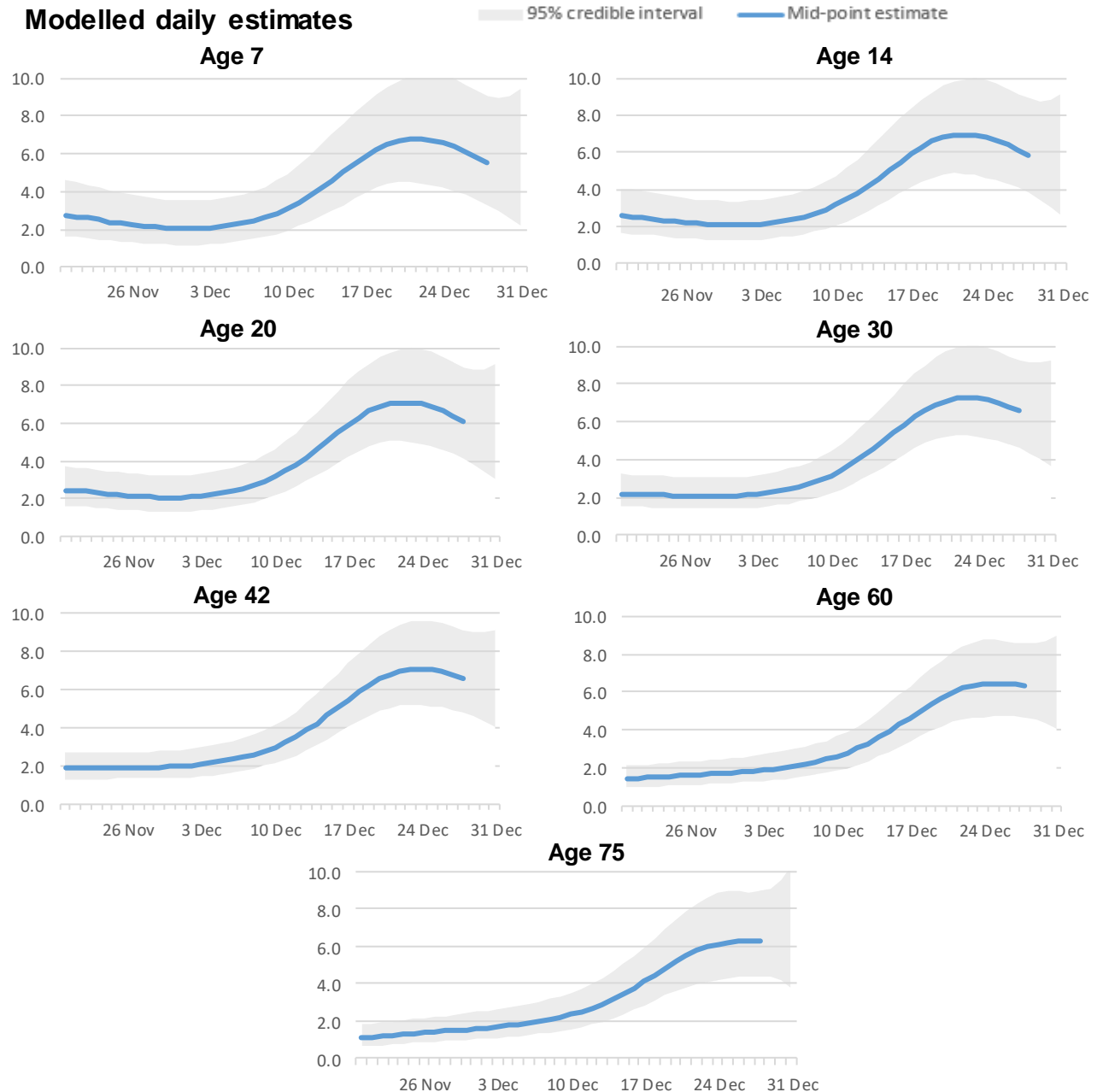
These charts present modelled positivity estimates for selected single years of age in Northern Ireland over the past 6 weeks.

In Northern Ireland, the percentage of people testing positive for COVID-19 generally increased in children in recent weeks, however the trend was uncertain over the most recent week. The percentage of people testing positive for COVID-19 increased in young adults and the older ages in recent weeks.

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.

**Age analysis:** We have moved to updating the analysis by single year of age from weekly to monthly however during times when we might expect to see changes by age related events such as the return to schools, this analysis will be included as required.

**Figure 2 – Percentage of people testing positive for COVID-19 for reference ages in Northern Ireland** (Data from 20 November 2022 to 31 December 2022)



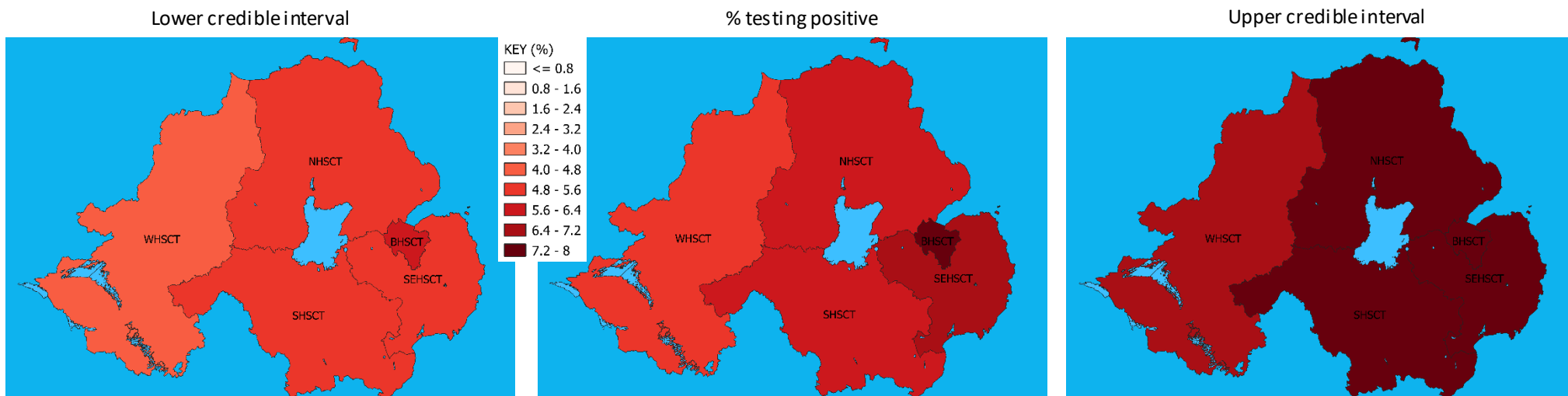
## Sub-regional analysis

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. **Sub-regional analysis will be updated on a monthly basis.**

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

Health & Social Care Trust 25 December – 31 December 2022	% testing positive	95% Lower Credible Interval	95% Upper Credible Interval
Northern Health and Social Care Trust	6.19	5.11	7.51
Western Health and Social Care Trust	5.52	4.25	7.08
Belfast Health and Social Care Trust	7.35	5.93	9.10
South Eastern Health and Social Care Trust	6.54	5.36	7.95
Southern Health and Social Care Trust	6.30	5.09	7.77

*It should be noted that there is a higher degree of uncertainty in the sub-regional estimates because of a smaller sample size in each sub-region, relative to their respective national sample. This is shown by wider credible intervals and results should be interpreted with caution.*



*Please note that the colour scale used in creating the Trust maps above may not be consistent with that used previously 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 above may not reflect the change we are seeing in our headline estimates.



## Positivity in the UK

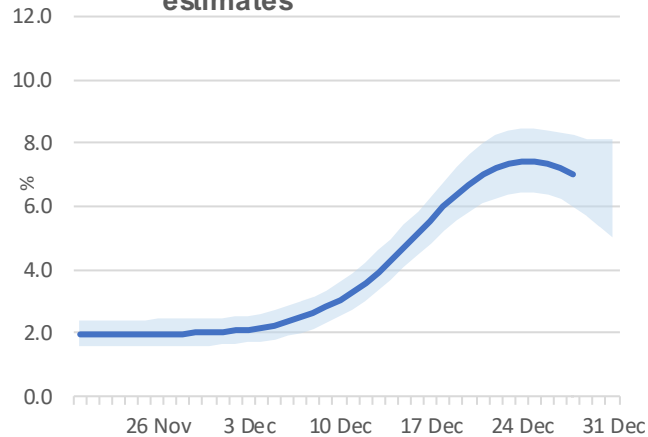
During the most recent week of the study\*, based on statistical modelling of the trend in rates of positive nose and throat swab results, 7.04% of the NI population (95% credible interval: 5.99% to 8.24%) had COVID-19. It is estimated that for the same period 4.02% (95% credible interval: 3.84% to 4.19%) of the population in England had COVID-19. It was estimated that 5.16% (95% credible interval: 4.49% to 5.93%) of the population in Wales and 4.17% (95% credible interval: 3.60% to 4.78%) of people in Scotland had COVID-19.

In the week ending 3 January 2023, the percentage of people testing positive for COVID-19 decreased in England and Wales, however rates remained high in both nations. In the week ending 31 December 2022, the percentage of people testing positive continued to increase in Scotland. In Northern Ireland, the percentage of people testing positive increased in the two weeks up to 31 December 2022 but the trend was uncertain in the most recent week.

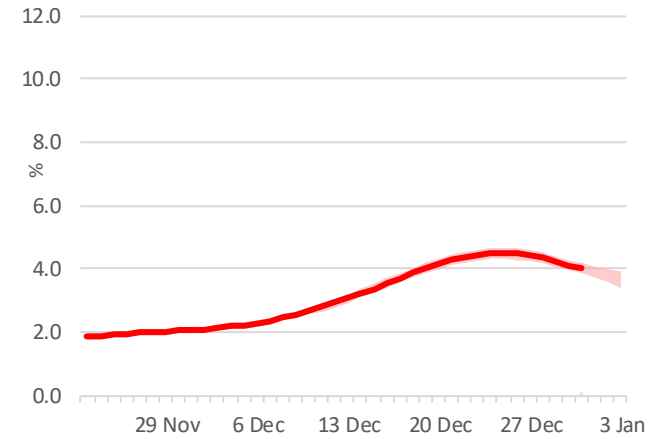
*\*The reference week is 25 to 31 December 2022, and the reference day is 28 December 2022 for Northern Ireland and Scotland. For England and Wales, the reference week is 28 December 2022 to 3 January 2023, and the reference day is 31 December 2022.*

**Figure 4: Modelled daily estimate of percentage of the population testing positive for the COVID-19 across the UK**

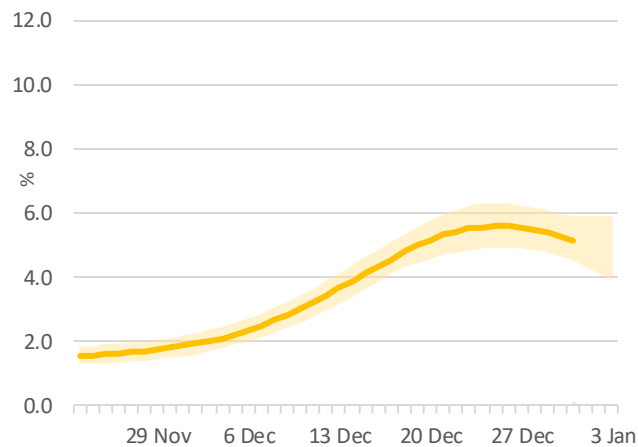
**Northern Ireland modelled daily estimates**



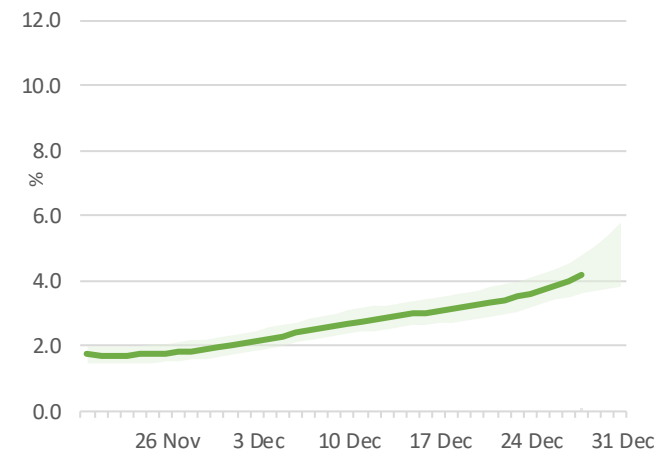
**England modelled daily estimates**



**Wales modelled daily estimates**



**Scotland modelled daily estimates**



*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

Currently, the variants under surveillance in the UK are:

- Omicron, including sub-lineages BA.2, BA.4 and BA.5, and their sub-lineages.

The [cycle threshold \(Ct\)](#) value reflects the quantity of virus (also known as viral load) found in a swab test. A lower Ct value indicates a higher viral load. The latest Ct values of coronavirus (COVID-19) positive tests, as well as analysis of the genetic lineages of COVID-19 seen in the samples that are sequenced, are provided in the [Coronavirus \(COVID-19\) Infection Survey: technical dataset](#).

Since the end of June 2022, most COVID-19 infections in the UK have been Omicron variant BA.5 or its sub-lineages. One of these BA.5 sub-lineages, BQ.1, has been increasing in recent months. In the week ending 25 December 2022, BQ.1 comprised 55.1%, and other BA.5 variants (and sub-lineages, excluding BQ.1) comprised 9.7% of all sequenced COVID-19 infections. The variant BA.2.75 and its sub-lineages (that include XBB and its sub-lineages, and CH.1.1 and its sub-lineages) comprised 33.6%, with the sub-lineage CH.1.1 and its sub-lineages comprising 19.1%, and the sub-lineage XBB and its sub-lineages comprising 7.1% of sequenced infections in the week ending 25 December 2022. In the same week, BA.4 and its sub-lineages comprised 0.6% of sequenced infections.

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 the [Coronavirus \(COVID-19\) Infection Survey methods article](#).

***We last published our main variant analysis in our [COVID-19 Infection Survey, Northern Ireland: Weekly Report 8<sup>th</sup> July 2022](#). This showed a very high proportion of infections compatible with the BA.4 and BA.5 variants, so we have not included a breakdown of infections by variants in this release. Infections by variant will continued to be monitored and analysis will be reintroduced when considered helpful.***

## Methodology

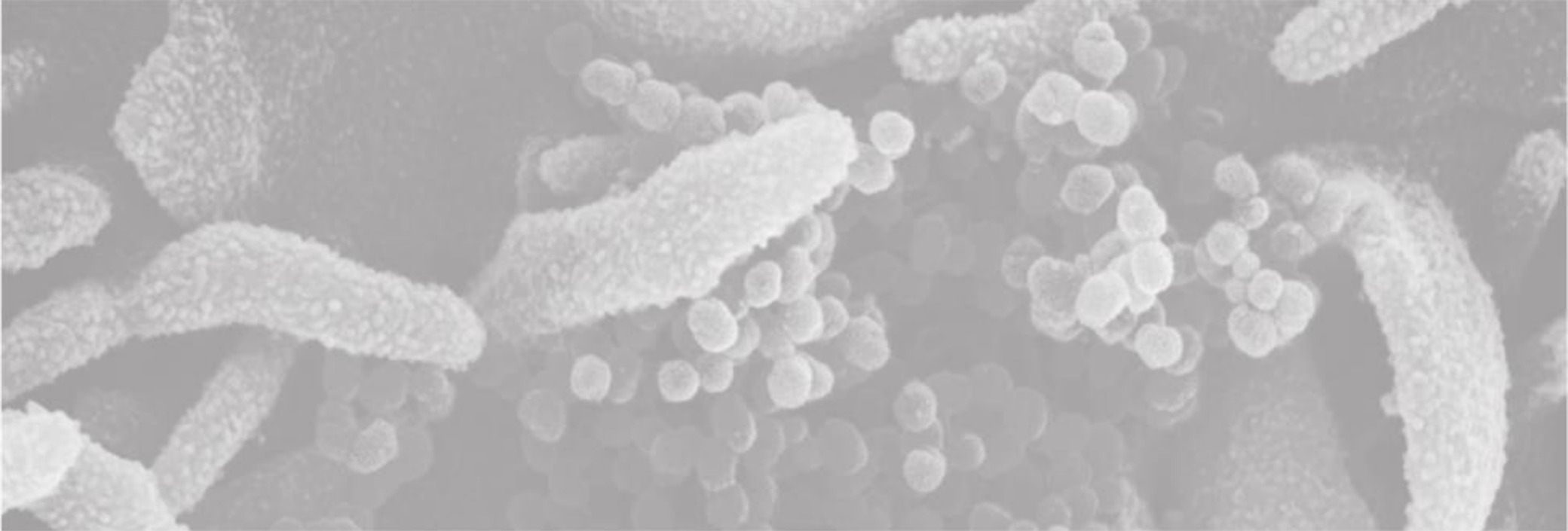
The results are based on nose and throat swabs provided by participants to the study. As well as looking at incidence overall, the survey will be used to examine the characteristics of those testing positive for COVID-19 and the extent to which those infected experience symptoms.

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 27<sup>th</sup> 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 (including information on sample size) for Northern Ireland is available in the ONS [Coronavirus \(COVID-19\) Infection Survey datasets](#).

Further information about quality and methodology can be found on the [ONS website](#).



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