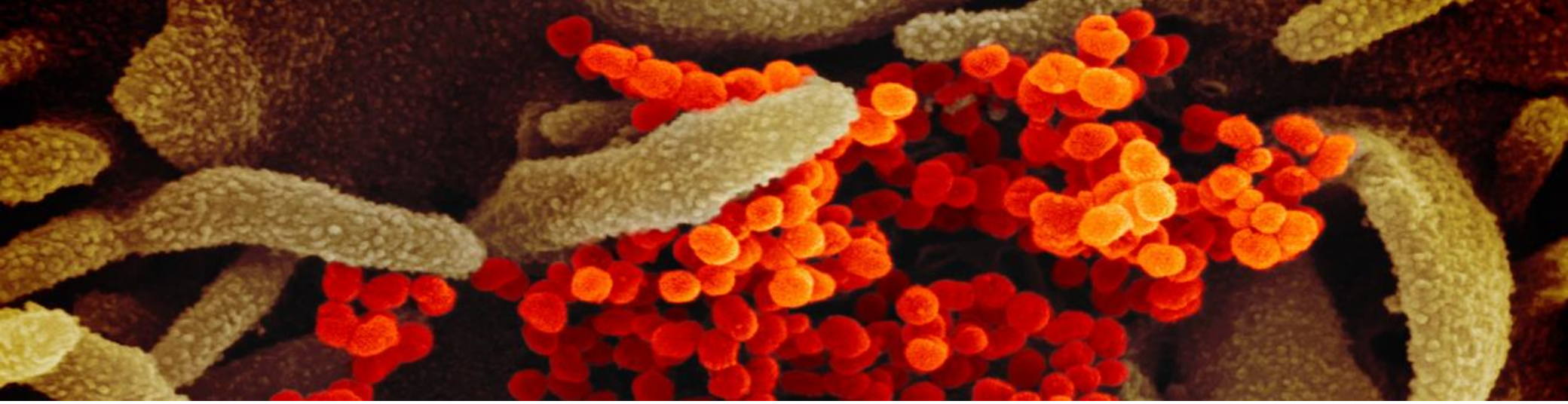


Coronavirus (COVID-19) Infection Survey

Results for Northern Ireland

1st April 2021

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 the 27th March 2021. Further analyses will be added to subsequent reports over the coming weeks. 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 in the community population (those in private residences). 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.

Proportion of people in Northern Ireland who had COVID-19

During the most recent week of the study (21st March - 27th March), it is estimated that 8,200 people in Northern Ireland had COVID-19 (95% credible interval: 4,600 to 12,900). This equates to 0.45% of the population (95% credible interval: 0.25% to 0.70%) or around 1 in 220 people (95% credible interval 1 in 400 to 1 in 140). This is based on statistical modelling of the trend in rates of positive nose and throat swab results.

Modelling suggests that in the most recent week, there are early signs of an increase in the percentage of people testing positive in Northern Ireland. In the latest six-week period, there were 19,057 swab tests taken in total from 11,204 participants. Of these, 63 participants tested positive from 51 different households. In the latest two-week period, of the 4,856 participants in the study, 20 tested positive from 16 households.

As this is a household survey, the figures do not include people staying in hospitals, care homes, students in halls of residence or other institutional settings. In these settings, rates of COVID-19 infection are likely to be different.

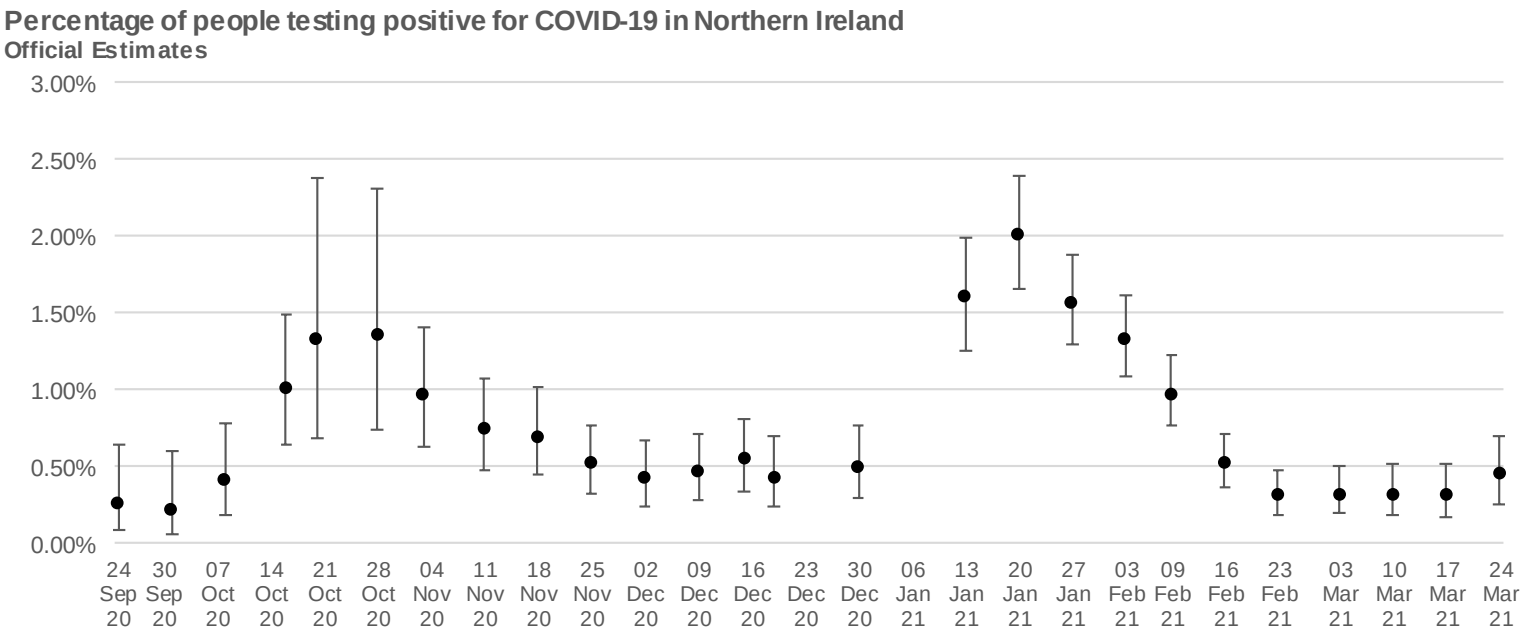
Positivity over time in Northern Ireland

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 that in the most recent week, there are early signs of an increase in the percentage of people testing positive 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.

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

Figure 1a:

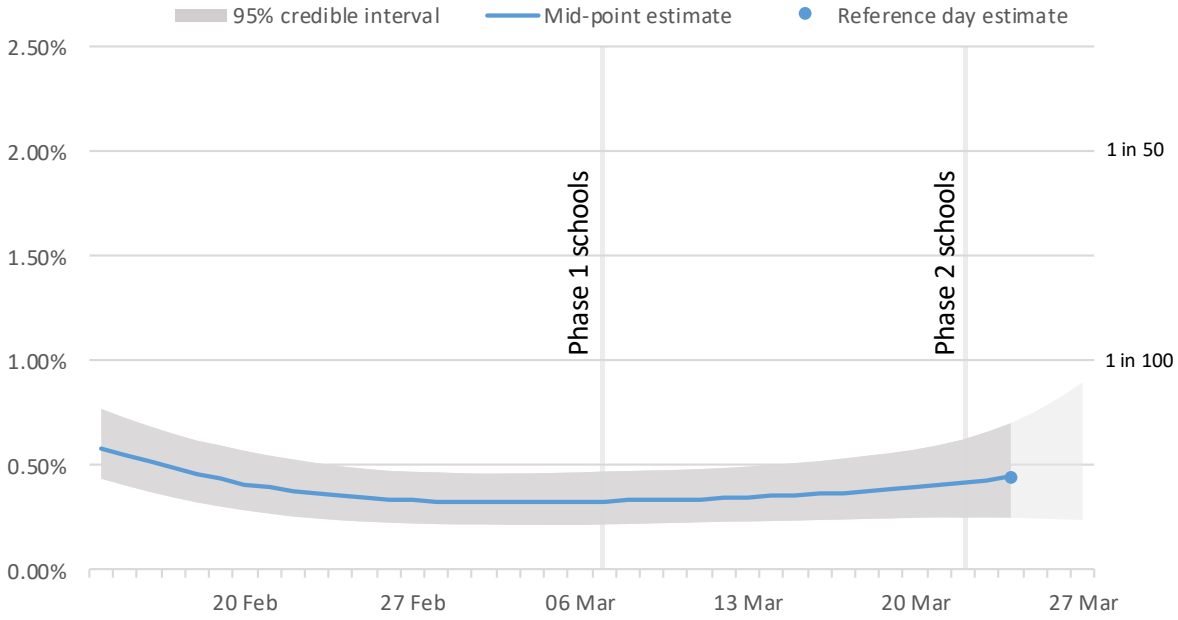


The point estimates and error bars indicated on the chart represent the official estimates reported in previous weeks based on the best information and methods at each point in time.

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

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 14 February 2021 to 27 March 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

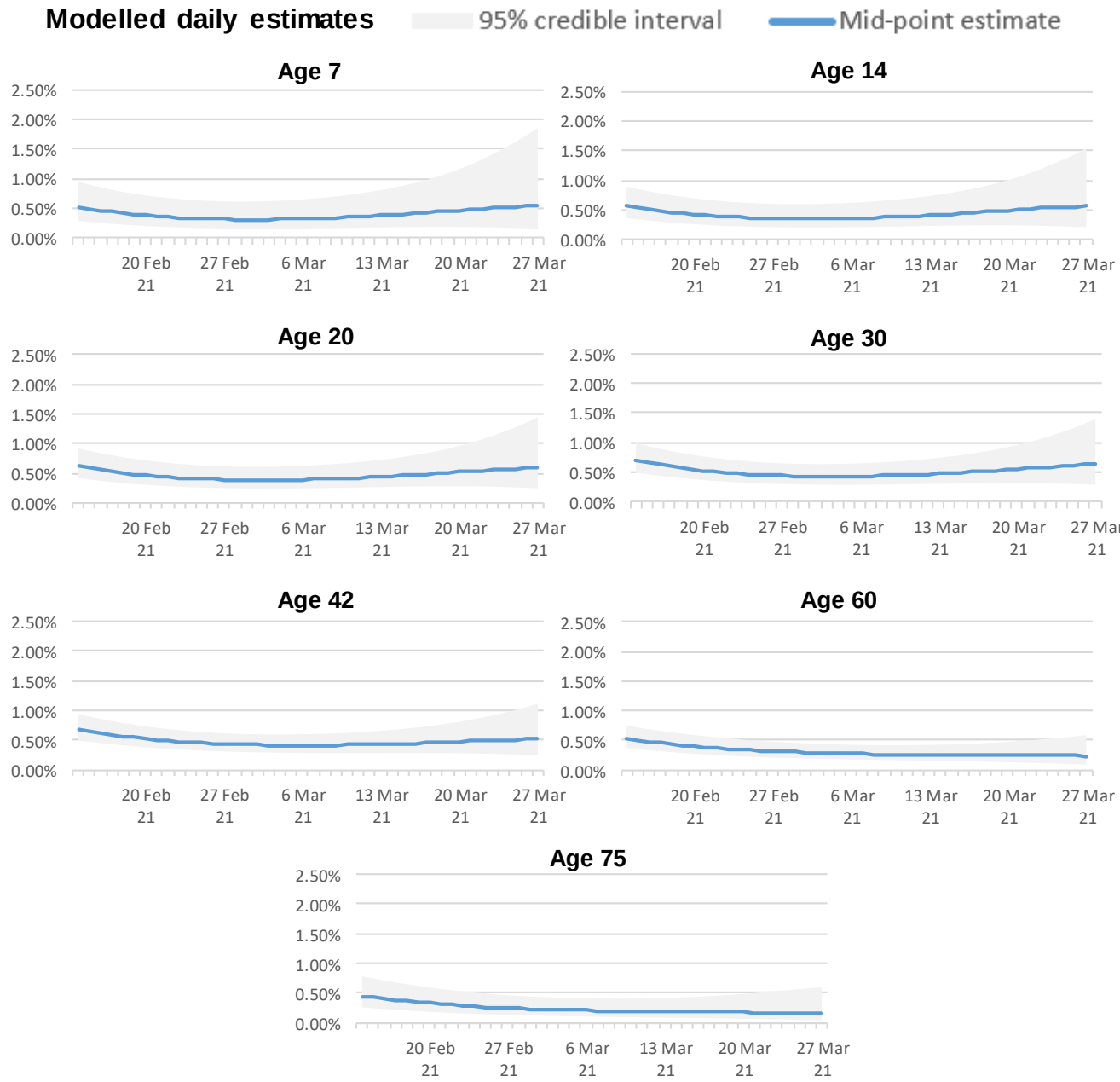
These charts present modelled positivity estimates for selected single years of age in Northern Ireland over the past 6 weeks.

Whilst credible intervals are wide in all age groups, meaning uncertainty is high, rates may be increasing slightly in younger age groups.

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

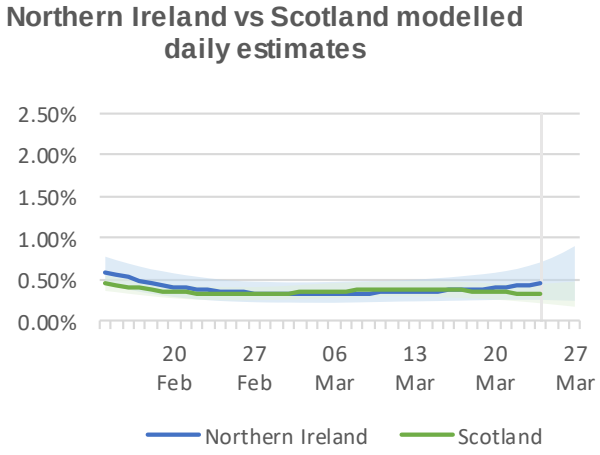


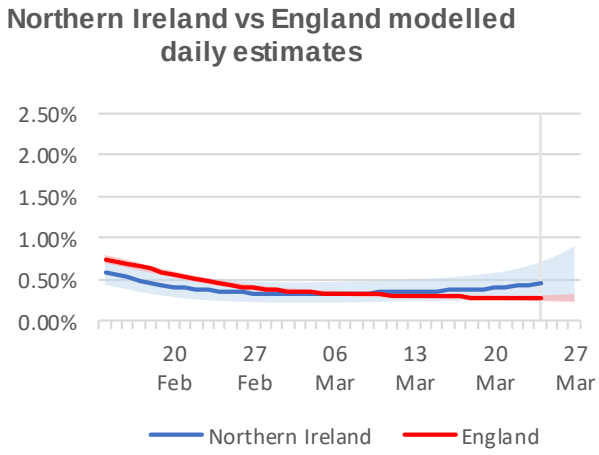
Positivity in the UK

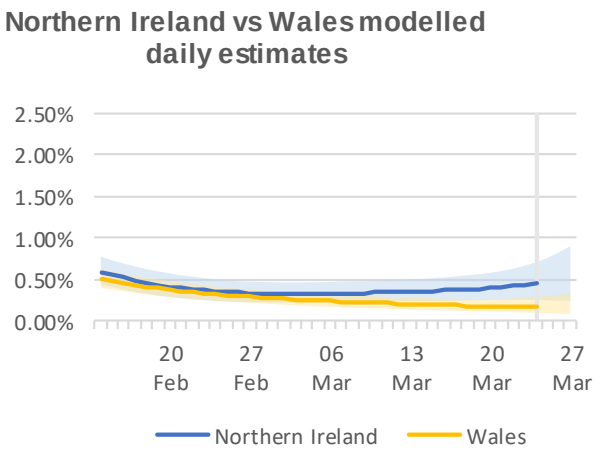
During the most recent week of the study, based on statistical modelling of the trend in rates of positive nose and throat swab results, 0.45% of the NI population (95% credible interval: 0.25% to 0.70%) had COVID-19. It is estimated that for the same period 0.27% (95% credible interval: 0.24% to 0.31%) of the population in England had the coronavirus (COVID-19). It was estimated that 0.18% (95% credible interval: 0.09% to 0.29%) of the population in Wales and 0.32% (95% credible interval: 0.21% to 0.45%) of people in Scotland had the coronavirus.

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 Wales and 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 app ear smaller or more exaggerated than what they really are.

Figure 3a, 3b, 3c: Modelled daily estimate of percentage of the population testing positive for the COVID-19 across the UK







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

Number of new COVID-19 infections

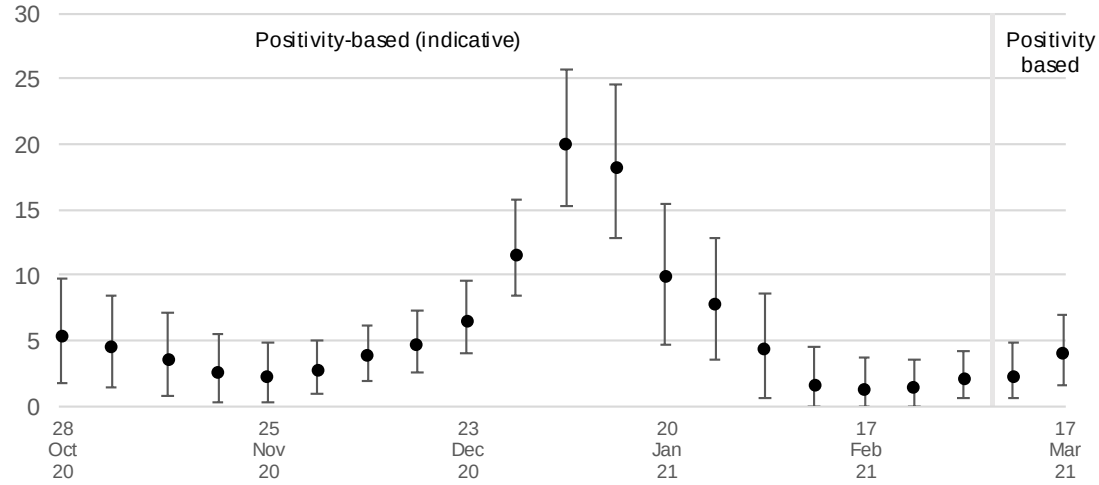
ONS have introduced a new methodology for estimating incidence of PCR-positive cases based on positivity estimates. This gives the rate at which new positives occur, and subsequently become detectable, within the population. This new method uses an estimate of the length of time for which an individual 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. For more information on the new method of incidence please see the updated methods article from ONS.

In Northern Ireland, during the week ending 20 March 2021, it is estimated that there were 4.02 new PCR-positive coronavirus (COVID-19) cases per 10,000 people per day (95% credible interval: 1.60 to 7.03). This equates to 740 new positive cases in Northern Ireland per day (95% credible interval: 290 to 1,300).

Incidence of new PCR positive COVID-19 cases appears to be increasing in the fortnight up to 20 March 2021 in Northern Ireland, although credible intervals are wide because of the smaller sample size.

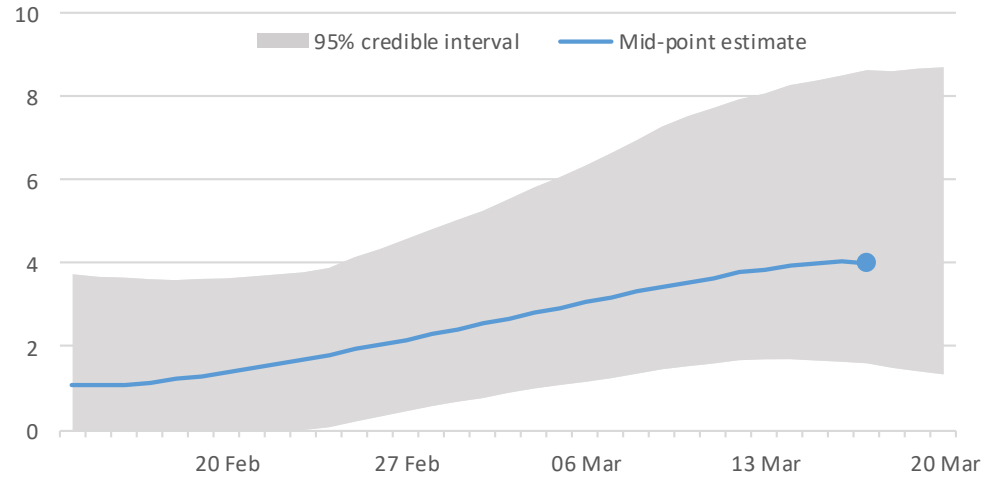
The reference date used for the official estimates of incidence of PCR-positive cases is 10 days prior to the end of the positivity reference week. This is necessary as estimates later than this date are more likely to change as additional data is received.

Figure 4a 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.

Incidence rate per 10,000 people per day in Northern Ireland
Modelled daily estimates



Data from 14 February 2021 to 20 March 2021

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

Variant Analysis

An analysis was produced by Sarah Walker at the University of Oxford to look at the prevalence of the new variant of the virus across the UK. 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 UK variant of Sars-Cov-2 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 variation from mid-November. Prior to that, the data should not be read as being an indicator of the variant.

In contrast the South African and Brazilian variants have an S gene which is detectable with the current test and will therefore be included in the other types of COVID-19. Which of the other types of COVID-19 are compatible with the South African variant cannot be identified from the swab PCR test alone.

ONS have published a blog where more can be read about the UK variant.

It should be noted that there is considerable uncertainty around these estimates due to the small numbers of new variant compatible positives detected in Northern Ireland and also given that not all cases that are positive on the ORF1ab and N-genes will be the new variant.

Variant Analysis (continued)

The reporting of infections by different gene combinations within CIS has improved. This analysis looks at the percentage of people in the population testing positive for COVID-19 that are compatible with the UK variant, those that test positive but are not compatible with the UK variant and those that test positive but where the virus is too low to be identifiable as either the new or existing variants of COVID-19.

The percentage testing positive compatible with the UK variant has likely increased in Northern Ireland in the week ending 27 March 2021.

Northern Ireland - new variant compatible, not compatible with new variant and not identifiable

Date	% testing positive UK variant compatible *	% testing positive not compatible with UK variant **	% testing positive, virus too low for variant to be identifiable ***
14th Feb – 20th Feb 2021	0.30%	0.02%	0.18%
21st Feb – 27th Feb 2021	0.24%	0.02%	0.12%
28th Feb – 6th Mar 2021	0.21%	0.02%	0.11%
7th Mar – 13th Mar 2021	0.20%	0.02%	0.12%
14th Mar – 20th Mar 2021	0.23%	0.02%	0.12%
21st Mar – 27th Mar 2021	0.28%	0.03%	0.14%

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

** Positives that are not compatible with the UK variant are defined as those that are positive on the S-gene, N-gene and ORF1ab-gene.

*** Positives where the virus is too low for the variant to be identifiable are defined as those that are positive with all other gene patterns.

These definitions are regardless of cycle threshold (Ct) value.

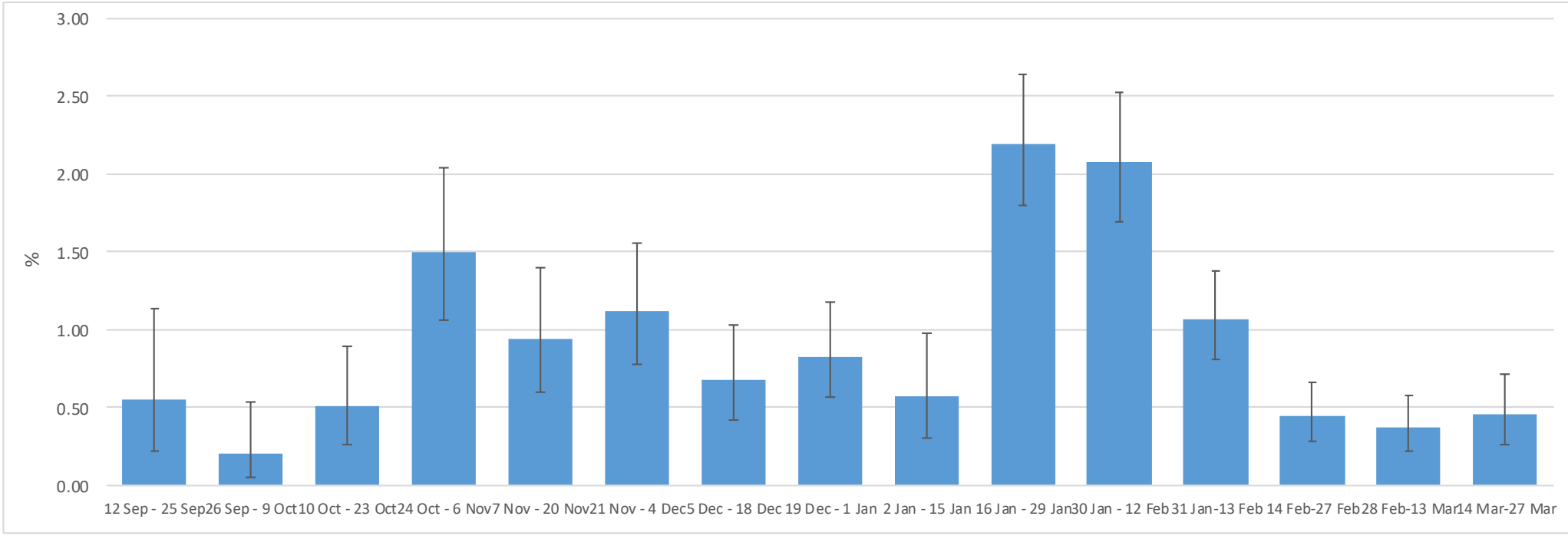
Source: Office for National Statistics – Coronavirus (COVID-19) Infection Survey

It should be noted that there is considerable uncertainty around these estimates due to the small numbers of new variant compatible positives detected in Northern Ireland and also given that not all cases that are positive on the ORF1ab and N-genes will be the new variant.

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 (14th March to 27th March 2021) was 0.45% (95% confidence interval: 0.27% to 0.72%) or around 1 in 220 people (95% credible interval 1 in 380 to 1 in 140).

Figure 5: Estimated percentage of the population in Northern Ireland testing positive for the coronavirus (COVID-19) by non-overlapping 14-day periods up to 27 March 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 in the community, by which we mean 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.

Methodology

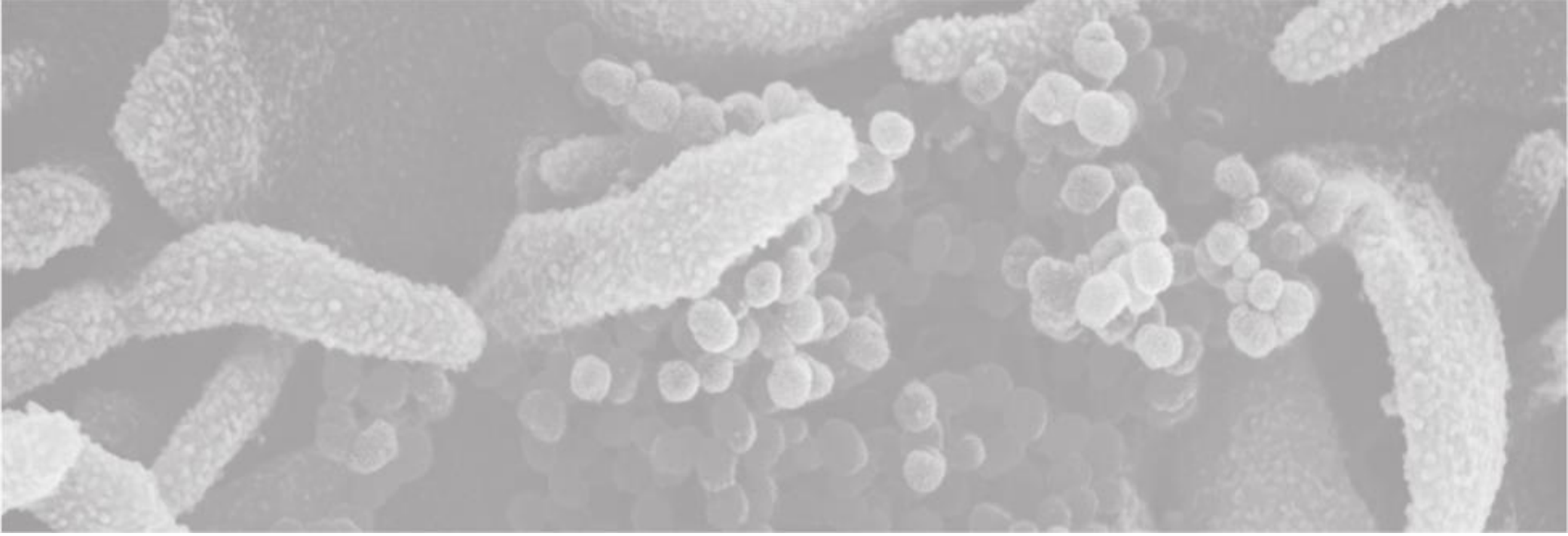
The results are based on nose and throat swabs provided by participants to the study. As well as looking at incidence overall, the survey will be used to examine the characteristics of those testing positive for COVID-19 and the extent to which those infected experience symptoms.

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



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