



COVID-19 Infection Survey

Antibody and vaccination data for Northern Ireland

14th April 2021

Likelihood of testing positive for COVID-19 antibodies in Northern Ireland

About this analysis

This analysis is based on blood test results taken from a randomly selected subsample of individuals aged 16 years and over, which are used to test for antibodies against SARS-CoV-2. This can be used to identify individuals who have had the infection in the past or have developed antibodies as a result of vaccination. These statistics refer to the presence of antibodies to the Coronavirus (COVID-19) within the community population, by which we mean private residential households. These figures exclude those in hospitals, care homes and/or other institutional settings.

It takes between two and three weeks after infection or vaccination for the body to make enough antibodies to fight the infection. Antibodies remain in the blood at low levels, although these levels can decline over time to the point that tests can no longer detect them. Having antibodies can help to prevent individuals from getting the same infection again. The presence of antibodies is measured to understand who has had coronavirus (COVID-19) in the past and the impact of vaccinations. Once infected or vaccinated, the length of time antibodies remain at detectable levels in the blood is not fully known. It is also not yet known how having detectable antibodies, now or at some time in the past, affects the chance of getting COVID-19 again, since other parts of the immune system (T cell response) will offer protection.

Antibody positivity is defined by a fixed amount of antibodies in the blood. A negative test result will occur if there are no antibodies or if antibody levels are too low to reach this threshold. It is important to draw the distinction between testing positive for antibodies and having immunity. Following infection or vaccination, antibody levels can vary and sometimes increase but are still below the level identified as “positive” in our test, and other tests. This does not mean that a person has no protection against COVID-19 since a immune response does not rely on the presence of antibodies alone. It is also not yet known exactly how much antibodies need to rise to give protection. A person’s ‘T cell’ response will provide protection but it is not detected by blood tests for antibodies. A person’s immune response is affected by a number of factors, including health conditions and age.

There has been a change in the way estimates of antibody positivity have been produced. Previously, weighted estimates for 28-day periods of antibody positivity were published every fortnight. Antibody estimates are now reported using modelled estimates. This new modelling approach allows the provision of more timely weekly estimates given the rapid vaccination rollout whilst still adjusting to make the estimates representative of the population. The data is modelled on standardised Monday-Sunday surveillance weeks and data since 7th December 2020 has been presented.

Further information on the new method to model antibodies can be found in the updated [methods article](#) from ONS.

Figures on the proportion of people who have received at least one dose of a vaccine against COVID-19 are now also included.

The estimates of the percentage of people vaccinated are based on modelling of the people visited in the COVID-19 Infection Survey in the community in a particular time period. These estimates are then adjusted (post-stratified) using population estimates to be representative. However, these estimates may differ from other figures given through administrative data due to a difference in the population denominator (the survey does not include people who live in communal establishments, such as care homes which are a priority group for the vaccine rollout) or any biases that are adjusted for in the sample.

To note, National Immunisation Management System (NIMS) administrative data is used to validate COVID-19 Infection Survey self-reported records of vaccination for England. The equivalent of this is currently not included for other countries, meaning the estimates for Wales, Northern Ireland and Scotland are produced only from COVID-19 Infection Survey self-reported records of vaccination.

As analysis develops, the survey-based estimates will enable possible future analysis of people who have received a vaccine with other characteristics collected in the survey.

Antibody data are a week behind vaccination data as there is a time lag on when antibody data are received, whereas vaccine data are self-reported and more readily available.

Modelled estimates of antibody positivity and vaccination estimates are presented for Northern Ireland along with the headline estimates for England, Wales and Scotland.

This antibody and vaccination publication will be produced fortnightly and the information contained in it will be published simultaneously by the Office for National Statistics in a UK antibody report on their own website [Coronavirus \(COVID-19\) Infection Survey antibody data for the UK](#).

Antibody data for Northern Ireland

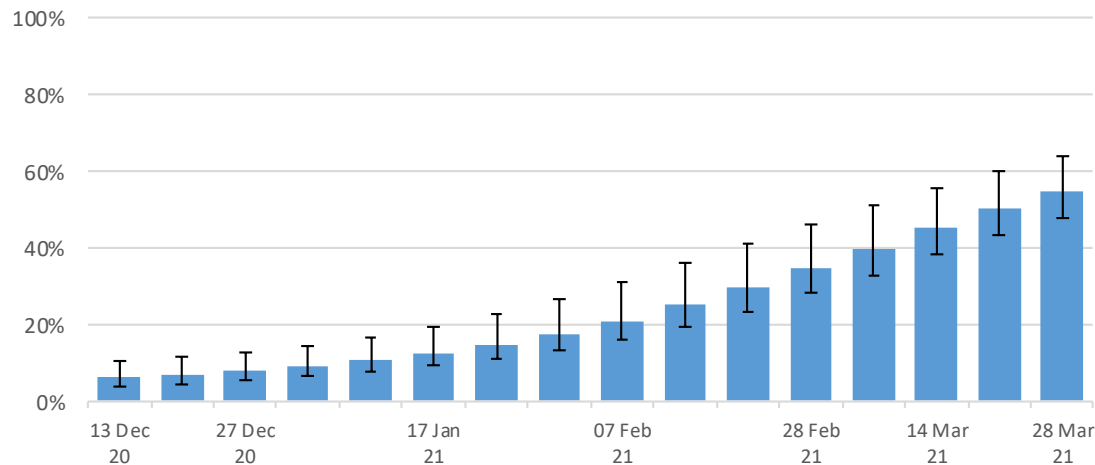
In Northern Ireland, an estimated 1 in 2 people, or 54.5% of the population (95% credible interval: 47.8% to 64.0%) would have tested positive for antibodies against SARS-CoV-2 on a blood test in the week ending 28 March 2021, suggesting they had the infection in the past or have been vaccinated.

In the data used to produce these estimates, the number of people sampled in Northern Ireland who tested positive for antibodies to SARS-CoV-2 is low compared with England. This means there is a higher degree of uncertainty in estimates for Northern Ireland, as indicated by larger credible intervals.

Figure 1: Modelled percentage of people testing positive for COVID-19 antibodies from a blood sample in Northern Ireland

07 December 2020 to 28 March 2021

Modelled estimates



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

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. All estimates are subject to uncertainty, given that a sample is only part of the wider population. 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. The Northern Ireland population used in this analysis is 1,483,320 and relates to the community population aged 16 years and over. It is not the same as the total population of NI which is reported in the official mid-year population estimates.

Weekly period		Modelled % testing positive for COVID-19 antibodies	95% credible interval	
From	To		Lower	Upper
07 Dec 2020	13 Dec 2020	6.1%	3.6%	10.6%
14 Dec 2020	20 Dec 2020	6.8%	4.3%	11.5%
21 Dec 2020	27 Dec 2020	7.8%	5.2%	12.7%
28 Dec 2020	03 Jan 2021	9.0%	6.3%	14.3%
04 Jan 2021	10 Jan 2021	10.4%	7.6%	16.4%
11 Jan 2021	17 Jan 2021	12.3%	9.2%	19.1%
18 Jan 2021	24 Jan 2021	14.6%	11.0%	22.4%
25 Jan 2021	31 Jan 2021	17.4%	13.3%	26.4%
01 Feb 2021	07 Feb 2021	20.8%	16.1%	30.9%
08 Feb 2021	14 Feb 2021	24.9%	19.5%	35.9%
15 Feb 2021	21 Feb 2021	29.5%	23.4%	41.1%
22 Feb 2021	28 Feb 2021	34.6%	28.0%	46.1%
01 Mar 2021	07 Mar 2021	39.9%	32.9%	51.1%
08 Mar 2021	14 Mar 2021	45.0%	38.0%	55.7%
15 Mar 2021	21 Mar 2021	50.0%	43.2%	60.1%
22 Mar 2021	28 Mar 2021	54.5%	47.8%	64.0%

Antibody data by age for Northern Ireland

The analysis in this section uses data taken from weekly modelled estimates up to 28th March 2021 by age in Northern Ireland.

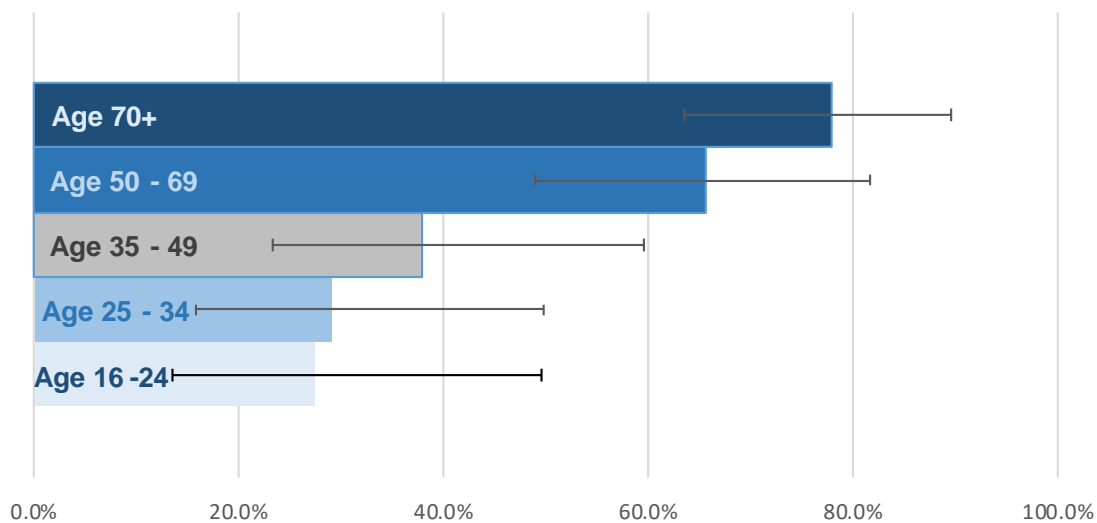
In Northern Ireland, in the week ending 28th March 2021, the percentage of people aged 70 years and over testing positive for antibodies was 78.0% (95% credible interval: 63.6% to 89.7%). Due to relatively low numbers of people sampled who tested positive for antibodies to SARS-CoV-2 in NI, everyone over the age of 70 is included in the same age group while those aged 50 to 69 years are also grouped together. The percentage of people testing positive for antibodies in the other age groups ranged from 27.4% to 65.6%. Antibody positivity is lowest in the younger age groups where vaccination rates are lower due to older age group prioritisation. Modelled daily estimates over time are set out in Appendix 1.

Credible intervals are wide and the sample sizes relatively small, meaning there is greater uncertainty in these figures.

Figure 2: Modelled percentage of people testing positive for COVID-19 antibodies by age in Northern Ireland

22 March 2021 to 28 March 2021

Modelled estimates



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

Age band	% testing positive for COVID-19 antibodies	95% credible interval	
		Lower	Upper
Age 16 - Age 24	27.4%	13.5%	49.5%
Age 25 - Age 34	29.1%	15.8%	49.7%
Age 35 - Age 49	38.0%	23.3%	59.6%
Age 50 - Age 69	65.6%	49.0%	81.8%
Age 70+	78.0%	63.6%	89.7%

Please note that this survey does not include those that live in care homes, one of the priority groups identified by the Joint Committee on Vaccination and Immunisation (JCVI). As such, the true figure amongst the older age groups in the population may be different.

Likelihood of testing positive for COVID-19 antibodies in the rest of the UK

- In England, an estimated 1 in 2 people, or 54.9% of the population (95% credible interval: 49.5% to 60.0%) would have tested positive for antibodies against SARS-CoV-2 on a blood test in the week ending 28th March, suggesting they had the infection in the past or have been vaccinated.
- In Wales, an estimated 1 in 2 people, or 49.1% of the population (95% credible interval: 43.2% to 54.9%) would have tested positive for antibodies against SARS-CoV-2 on a blood test in the week ending 28th March 2021, suggesting they had the infection in the past or have been vaccinated.
- In Scotland, an estimated 1 in 2 people, or 46.0% of the population (95% credible interval: 40.3% to 51.6%) would have tested positive for antibodies against SARS-CoV-2 on a blood test in the week ending 28th March 2021, suggesting they had the infection in the past or have been vaccinated.

Weekly data show a reduction in antibody positivity rates across the UK among older individuals in recent weeks, likely because the data do not yet show the impact of second doses of COVID-19 vaccinations. Daily modelled antibody estimates by single year of age also show this decline; however, the detection of antibodies alone is not a precise measure of the immunity protection acquired from vaccination.

Vaccination data for Northern Ireland

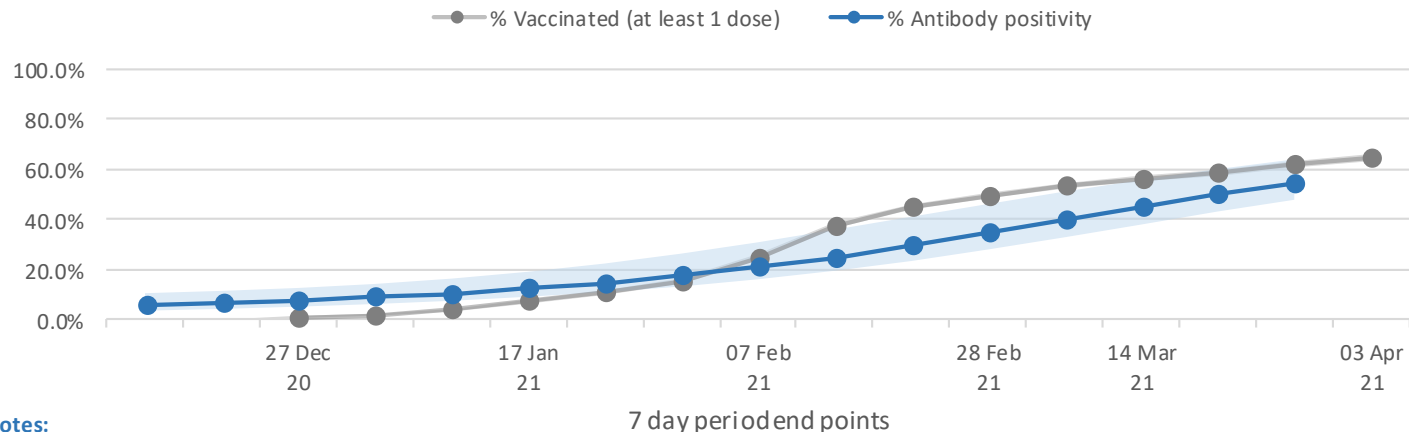
This section contains estimates based on self-reported vaccines from the COVID-19 Infection Survey, which does not include people living in communal establishments, such as care homes (which have been a priority for vaccination). These estimates are not the same as the official published figures on recorded vaccinations and there may be differences between the modelled estimates and the official figures, which are updated more regularly. The estimates produced from the survey are helpful to compare with other characteristics such as testing positive for antibodies. Analysis will be further developed as more data becomes available.

The survey shows that in Northern Ireland, an estimated 64.6% (95% credible interval: 63.2% to 66.1%) of the population have been vaccinated (i.e. who have received at least one dose) against SARS-CoV-2 in the week ending 3rd April 2021. The modelled estimates suggest there has been an increase in the number of people who have been vaccinated in the week ending 28th March 2021.

Figure 3: Modelled percentage of people that have been vaccinated and the percentage of people testing positive for COVID-19 antibodies in NI

Modelled % of people that have received one or more doses of a COVID-19 vaccine, from 21 Dec 2020 to 3 Apr 2021, UK, and of people testing positive for antibodies to SARS-CoV-2, from 7 Dec 2020 to 28 Mar 2021

Vaccination (at least 1 dose) and antibody positivity - Northern Ireland



Notes:

1. All results are provisional and subject to revision.
2. These statistics refer to vaccinations in individuals living in the community i.e. private households. These figures exclude individuals in hospitals, care homes and/or other institutional settings.
3. All estimates are subject to uncertainty, given that a sample is only part of the wider population. 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. The denominators used for vaccinations are the total people in the sample at that particular time point, then it is poststratified by the mid-year population estimate.

Vaccination data by age for Northern Ireland

The analysis in this section uses data taken from weekly modelled estimates up to 20th March 2021 by age in Northern Ireland.

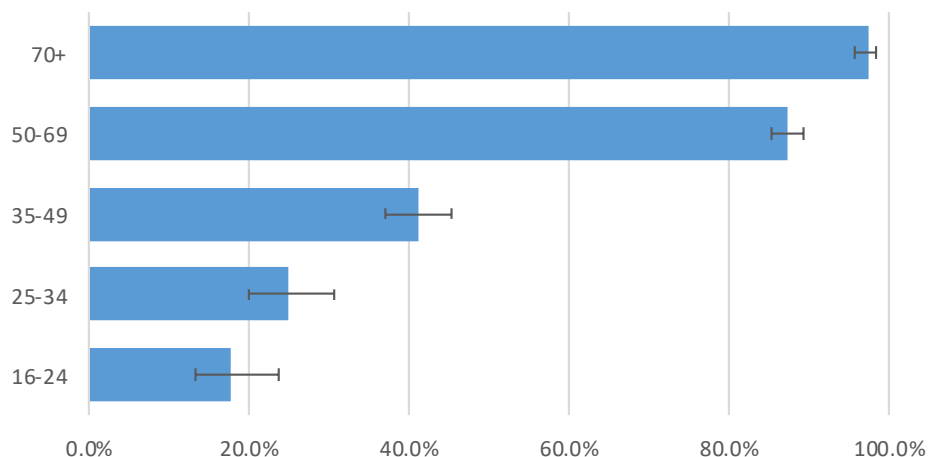
In Northern Ireland, in the week ending 3rd April 2021, the percentage of people who have been vaccinated against SARS-CoV-2 for those aged 70 years and over was 97.4% (95% credible interval: 95.9% to 98.3%). Due to relatively low numbers of people sampled in NI, everyone over the age of 70 is included in the same age group while those aged 50 to 69 years are also grouped together. The percentage of people in the other age groups ranged from 17.8% to 87.4%. A range of charts are presented in Appendix 2 showing vaccinations in each age band over time.

Credible intervals are wide and the sample sizes relatively small, meaning there is greater uncertainty in these figures.

Figure 4: Modelled percentage of people that have received one or more doses of a COVID-19 vaccine by age in Northern Ireland

29 March 2021 to 3 April 2021

Vaccination (at least 1 dose) - Northern Ireland
Modelled estimates



Age band	% that have received one or more doses of a COVID-19 vaccine	95% credible interval	
		Lower	Upper
Age 16 - Age 24	17.8%	13.1%	23.6%
Age 25 - Age 34	24.9%	19.9%	30.7%
Age 35 - Age 49	41.1%	37.1%	45.3%
Age 50 - Age 69	87.4%	85.3%	89.2%
Age 70+	97.4%	95.9%	98.3%

Please note that this survey does not include those that live in care homes, one of the priority groups identified by the Joint Committee on Vaccination and Immunisation (JCVI). As such, the true figure amongst the older age groups in the population may be different.

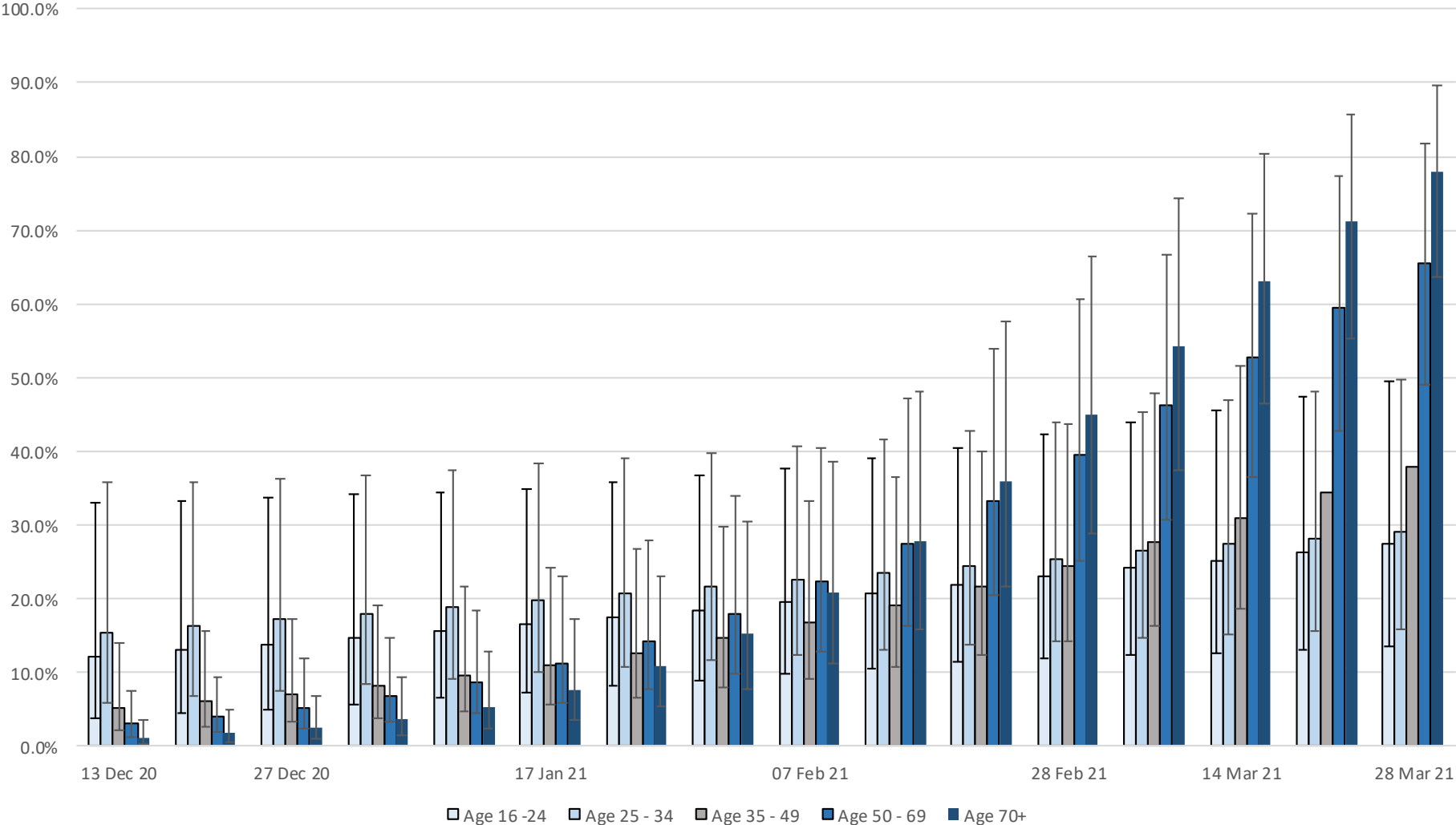
Self-reported vaccination estimates in the rest of the UK

- In England, an estimated 65.0% (95% credible interval: 62.9% to 66.8%) of the population have been vaccinated against SARS-CoV-2 in the week ending 3rd April 2021.
- In Wales, an estimated 58.2% (95% credible interval: 55.0% to 62.3%) of the population have been vaccinated against SARS-CoV-2 in the week ending 3rd April 2021.
- In Scotland, an estimated 54.9% (95% credible interval: 51.7% to 58.6%) of the population have been vaccinated against SARS-CoV-2 in the week ending 3rd April 2021.

In the week ending 3 April 2021, the percentage of people who have received at least one dose of a COVID-19 vaccination continued to increase with 54.9% to 65.0% of people across the UK having received at least one dose. More than 97% of people across the UK aged 70 years and over have received at least one dose of a COVID-19 vaccination. Across all four countries of the UK there is a clear pattern between vaccination and testing positive for COVID-19 antibodies however, the detection of antibodies alone is not a precise measure of the immunity protection acquired from vaccination.

Appendix 1 - Age over time analysis on the likelihood of testing positive for COVID-19 antibodies

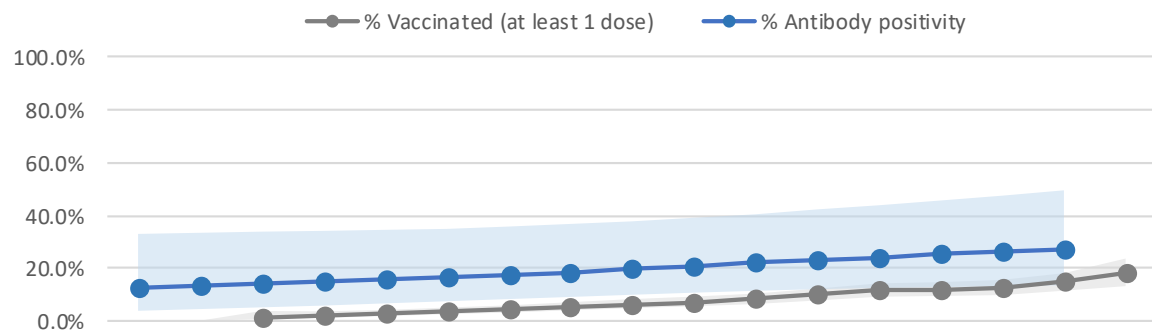
% of the NI population testing positive for antibodies against SARS Covid-19 by age
Modelled estimates



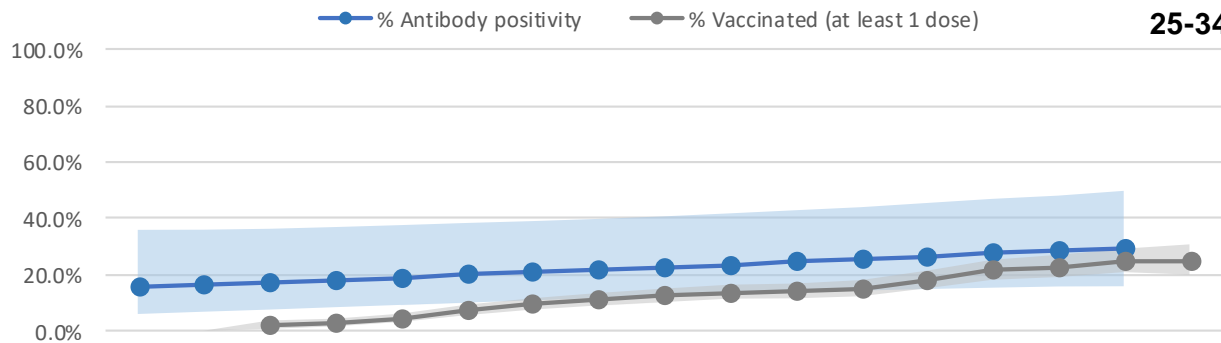
Appendix 2 - Age over time analysis on vaccination and antibody positivity

Vaccination (at least 1 dose) and antibody positivity - Northern Ireland

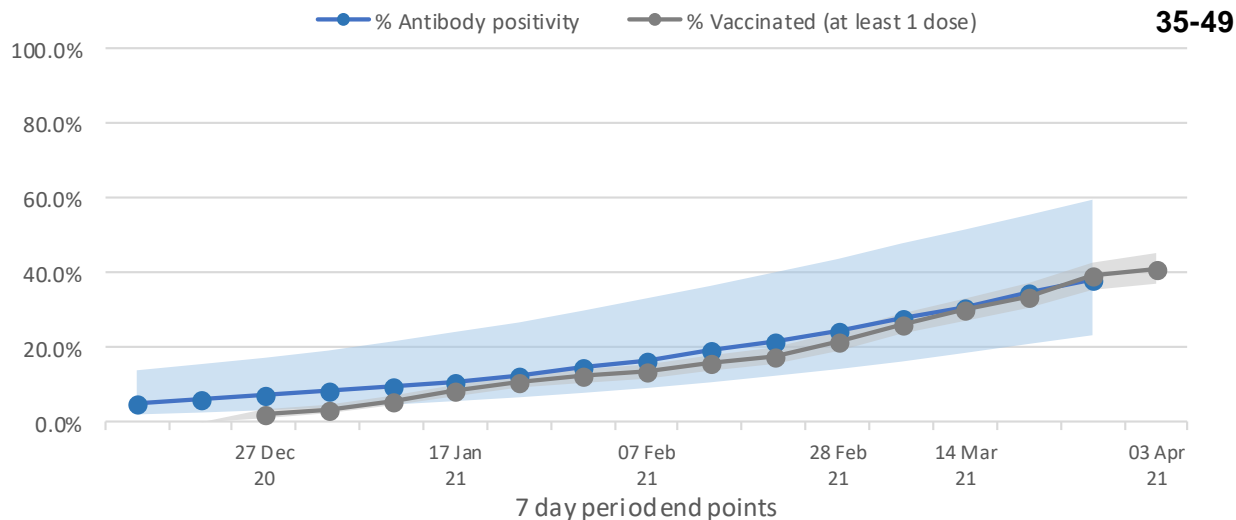
16-24



25-34



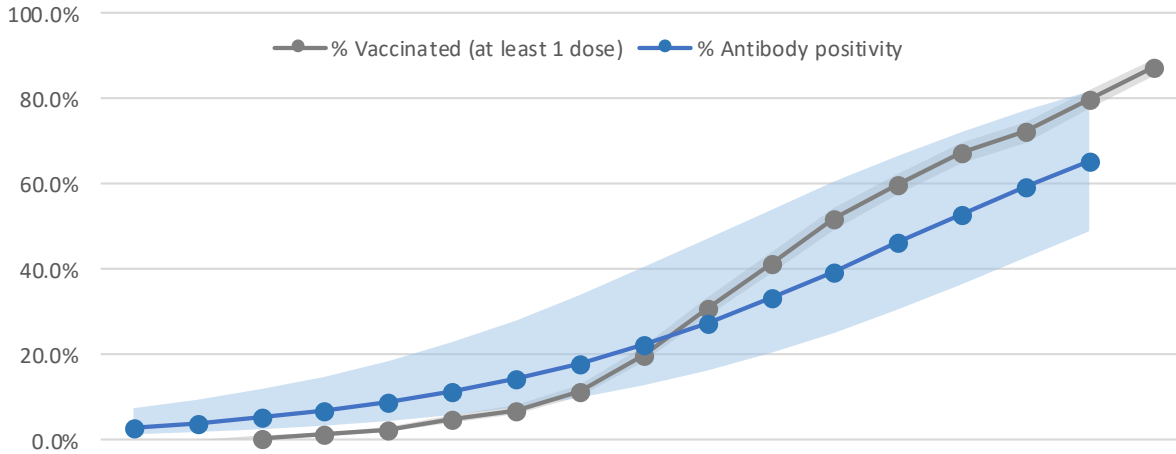
35-49



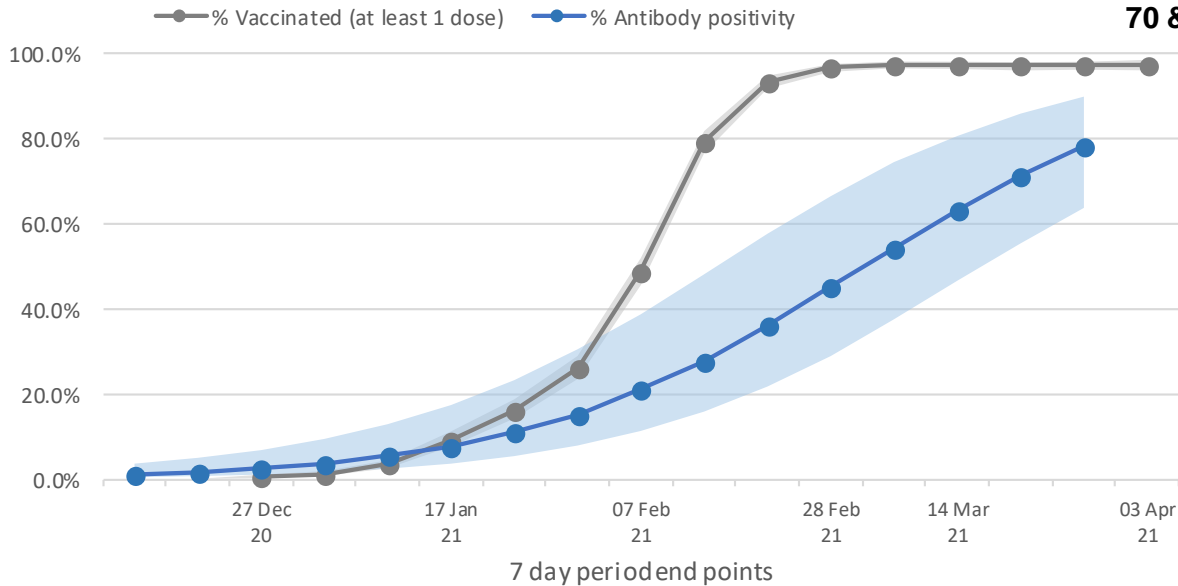
Appendix 2 - Age over time analysis on vaccination and antibody positivity (continued)

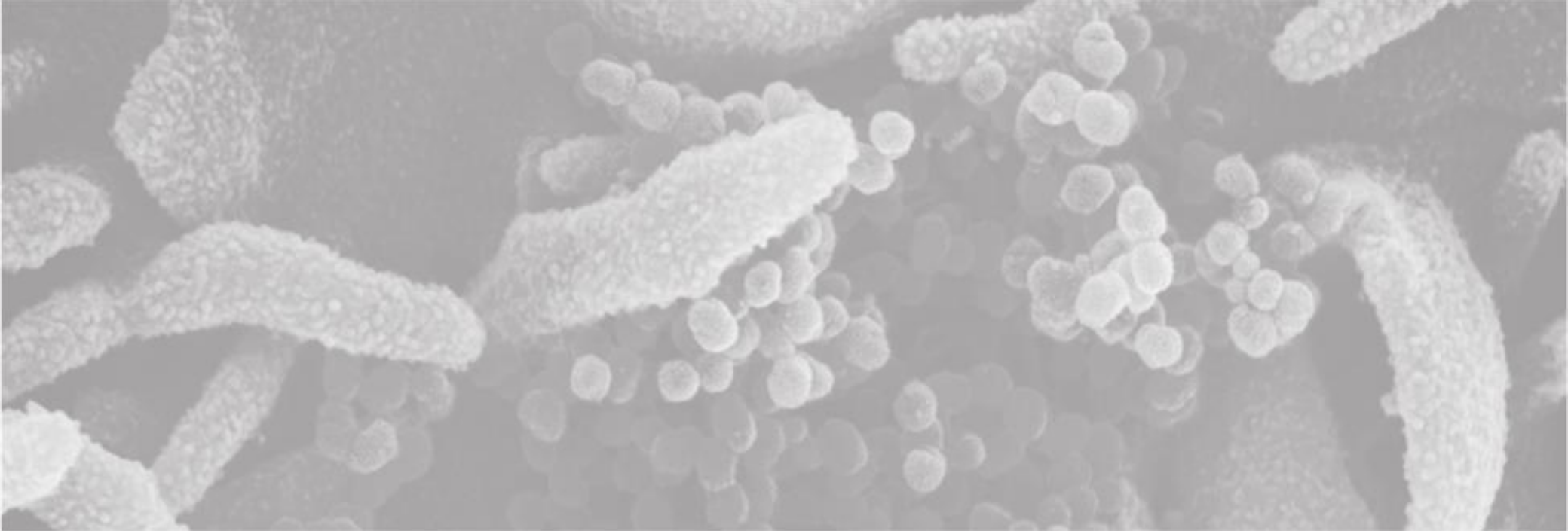
Vaccination (at least 1 dose) and antibody positivity - Northern Ireland

50-69



70 & over





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