

# COVID-19 in Northern Ireland

## Vaccination Status of Deaths and Hospitalisations

Weeks 49 to 52 (6<sup>th</sup> December 2021 to 2<sup>nd</sup> January 2022)

# Summary

- The COVID-19 vaccination program for Northern Ireland began in December 2020. By December 2021 approximately 2.6 million first and second doses of the vaccine have been administered, with 90% of adults receiving their first dose and 87% receiving their second dose.
- The rollout of the booster vaccinations began in September 2021. By December 2021, approximately 0.84 million booster or third doses have been administered.
- Ongoing monitoring of vaccine performance is necessary to support Public Health policy as the vaccination program progresses.
- This report presents results for Northern Ireland on the vaccination status of patients who have been hospitalised from COVID-19 and of those who have died from COVID-19 for weeks 49 to 52 (6<sup>th</sup> December 2021 to 2<sup>nd</sup> January 2022).
- In this report the vaccination status now includes hospitalised patients who have received their booster or third primary dose. There were 140 patients in the '50 & Over' age group who had received their booster or third dose at least 14 days before their admission date. 75 of these patients were admitted in the last week of 2021.
- There is currently insufficient data to assess the booster vaccination status of patients who have died from COVID-19. During this 4 week period there were 88 deaths, 10 (11%) of which had received a booster or third dose.
- With the recent acceleration of the booster vaccination programme, the number of individuals in the '50 & Over' age group who have received their booster or third dose increased from approximately 460,000 to 530,000 during this 4 week reporting period.
- When calculating the rate per 100,000, small changes in either the number of patients (numerator) or the vaccinated population (denominator) will have a significant effect. In this report the vaccinated population is estimated as the average number of people who had received their booster or third dose in weeks 47 to 50, i.e. 14 days before this reporting period. As the acceleration of the booster programme continues, rates per 100,000 should be interpreted with additional caution.

# Summary

## Hospital Admissions

- 60% of adult COVID-19 inpatients aged under 50 are unvaccinated. 30% of COVID-19 inpatients aged 50 and over are unvaccinated.
- Unvaccinated individuals aged 50 and over are almost **10 times** as likely to be admitted to hospital with COVID-19 than individuals vaccinated with at least two doses.
- For adults under 50, whilst the numbers admitted to hospital are lower, an unvaccinated individual is more than **8 times** as likely to need hospitalisation from COVID-19.

## Deaths

- Unvaccinated individuals aged 50 and over are almost **11 times** as likely to die than individuals vaccinated with at least two doses.

## Note

- These results should be interpreted in the context of vaccine coverage in the Northern Ireland population (**Figures 1 to 3**). The success of the vaccination programme has resulted in a very small percentage of unvaccinated individuals, particularly for the older age cohorts. When there is a very high vaccine coverage in the population, even with a highly effective vaccine, it is expected that a large proportion of cases, hospitalisations and deaths would occur in vaccinated individuals. This is simply because a larger proportion of the population are vaccinated than unvaccinated and no vaccine is 100% effective. This is especially true because vaccination has been prioritised in individuals who are more susceptible or more at risk of severe disease. Individuals in risk groups may also be more at risk of hospitalisation or death due to non-COVID-19 causes, and thus may be hospitalised or die with COVID-19 rather than because of COVID-19. Death and admissions rates per 100,000 should therefore be interpreted with caution.

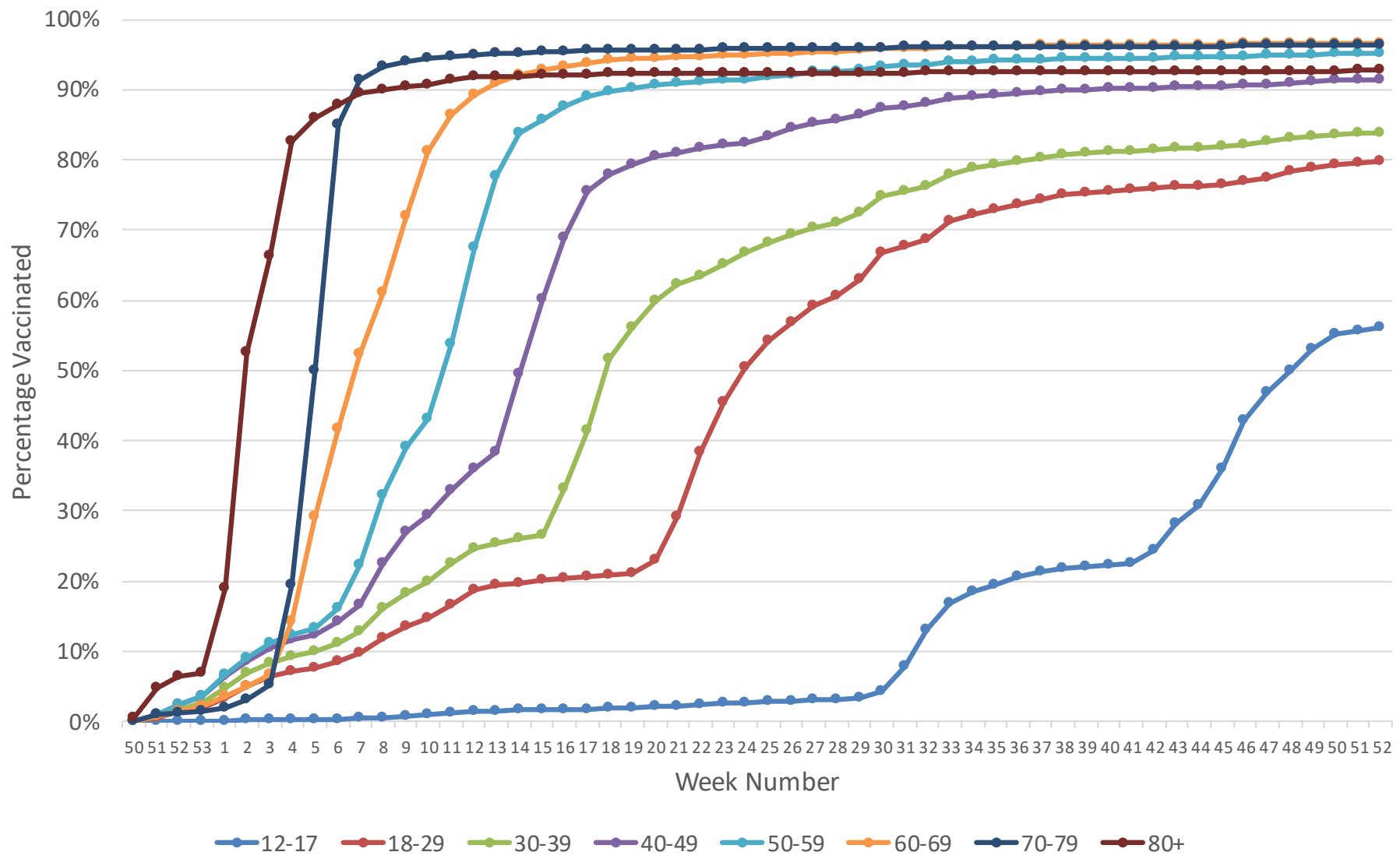
# Vaccination Status

## Methods

- Patients admitted to hospital with COVID-19 are identified using specific Method of Admission Codes. Patients are allocated to an age cohort based on their age at date of admission. Patient records are continually updated by HSC Trusts and thus historical data is subject to revision. Further technical guidance on COVID-19 admissions is [appended](#).
- The number of deaths is as reported to the Public Health Agency where the deceased has had a positive test for COVID-19 and dies within 28 days, whether or not COVID-19 was the cause of death. Patients are allocated to an age cohort based on their age at date of death.
- Further details on the definition of admissions and deaths is provided on the Department of Health COVID-19 [dashboard](#).
- The vaccination status of each patient is determined by matching the admission and deaths cases with the vaccination status of the Patient as recorded on the Northern Ireland Vaccine Management System (VMS). If it is not possible to match an admission or death against the vaccination status of the patient on the VMS then the individual is recorded as 'Missing'.
- A person is deemed vaccinated if the date of vaccination is greater than or equal to 14 days before date of admission, or for deaths, if the date of vaccination is greater than or equal to 14 days before date of specimen. In the charts and tables below, 'Partially Vaccinated' refers to those individuals who have received one dose, 'Fully Vaccinated' refers to those individuals who have received two doses. 'Fully Vaccinated + Booster or Dose 3' refers to those individuals who have received two primary doses plus the booster vaccine or third primary dose.
- The number of vaccinated individuals in the population is taken from the VMS with age cohorts calculated at date of vaccination.
- The calculation of the number of unvaccinated individuals in the population requires an estimate of the total population in each age cohort. This was provided by NISRA based on their 2021 [mid year population projections](#).

# Vaccine Coverage

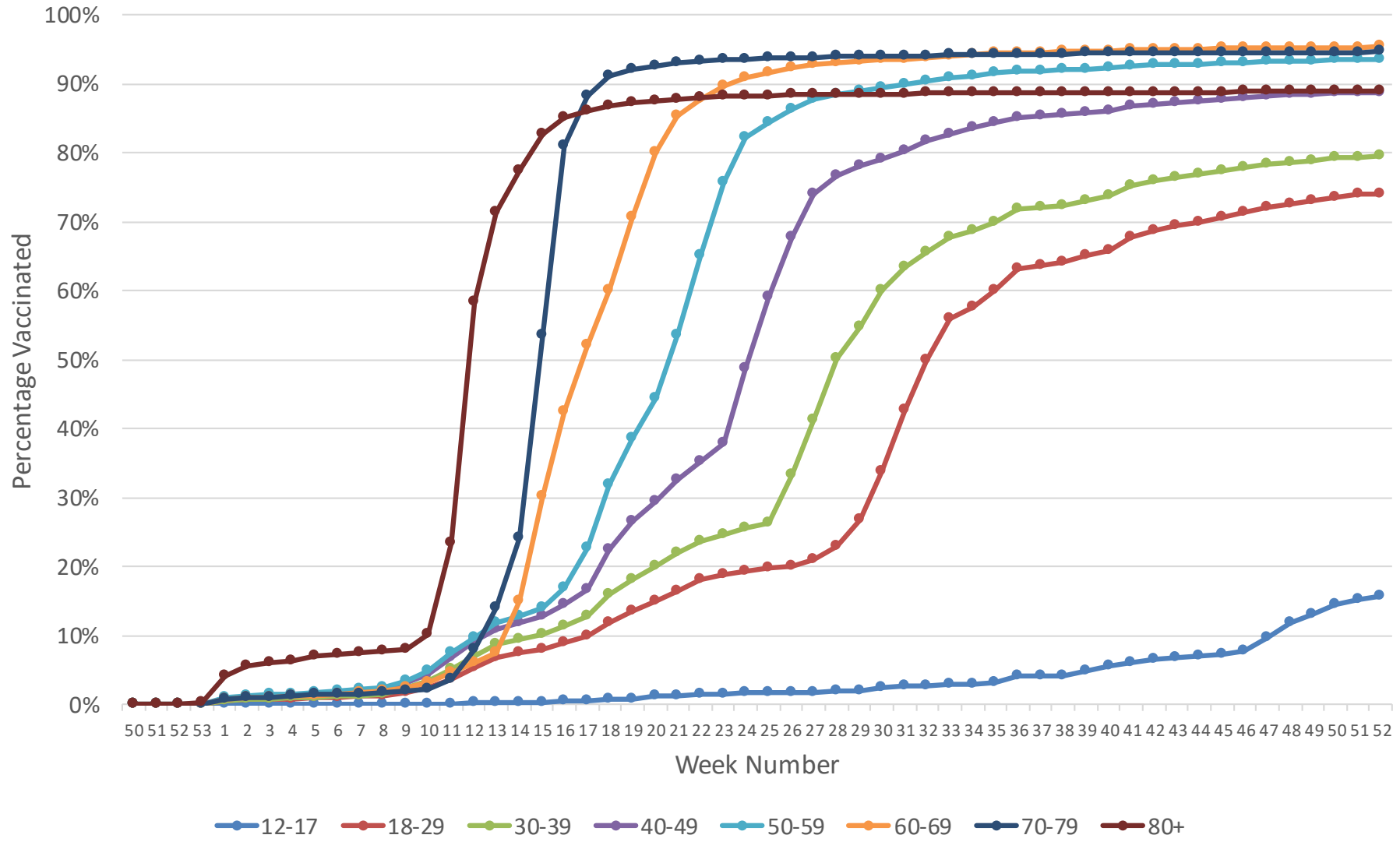
Figure 1: First dose cumulative vaccine uptake by week number and age group (December 2020 to 2<sup>nd</sup> January 2022)



The percentage vaccinated is calculated using the 2021 mid-year population projections

# Vaccine Coverage

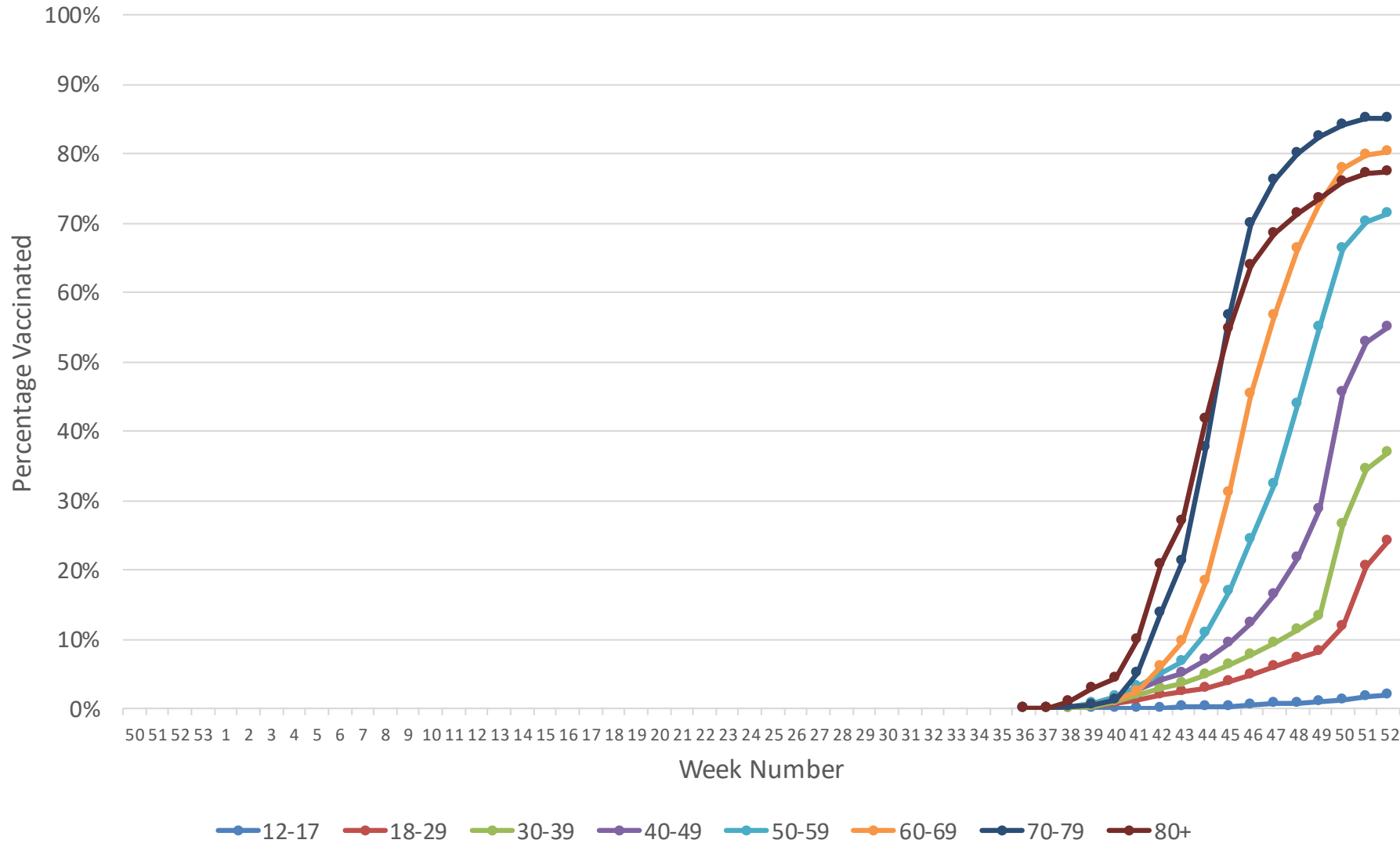
Figure 2: Second dose cumulative vaccine uptake by week number and age group (December 2020 to 2<sup>nd</sup> January 2022)



The percentage vaccinated is calculated using the 2021 mid-year population projections

# Vaccine Coverage

**Figure 3: Booster or third dose cumulative vaccine uptake by week number and age group (December 2020 to 2<sup>nd</sup> January 2022)**



The percentage vaccinated is calculated using the 2021 mid-year population projections

# Vaccination Status – Hospital Admissions

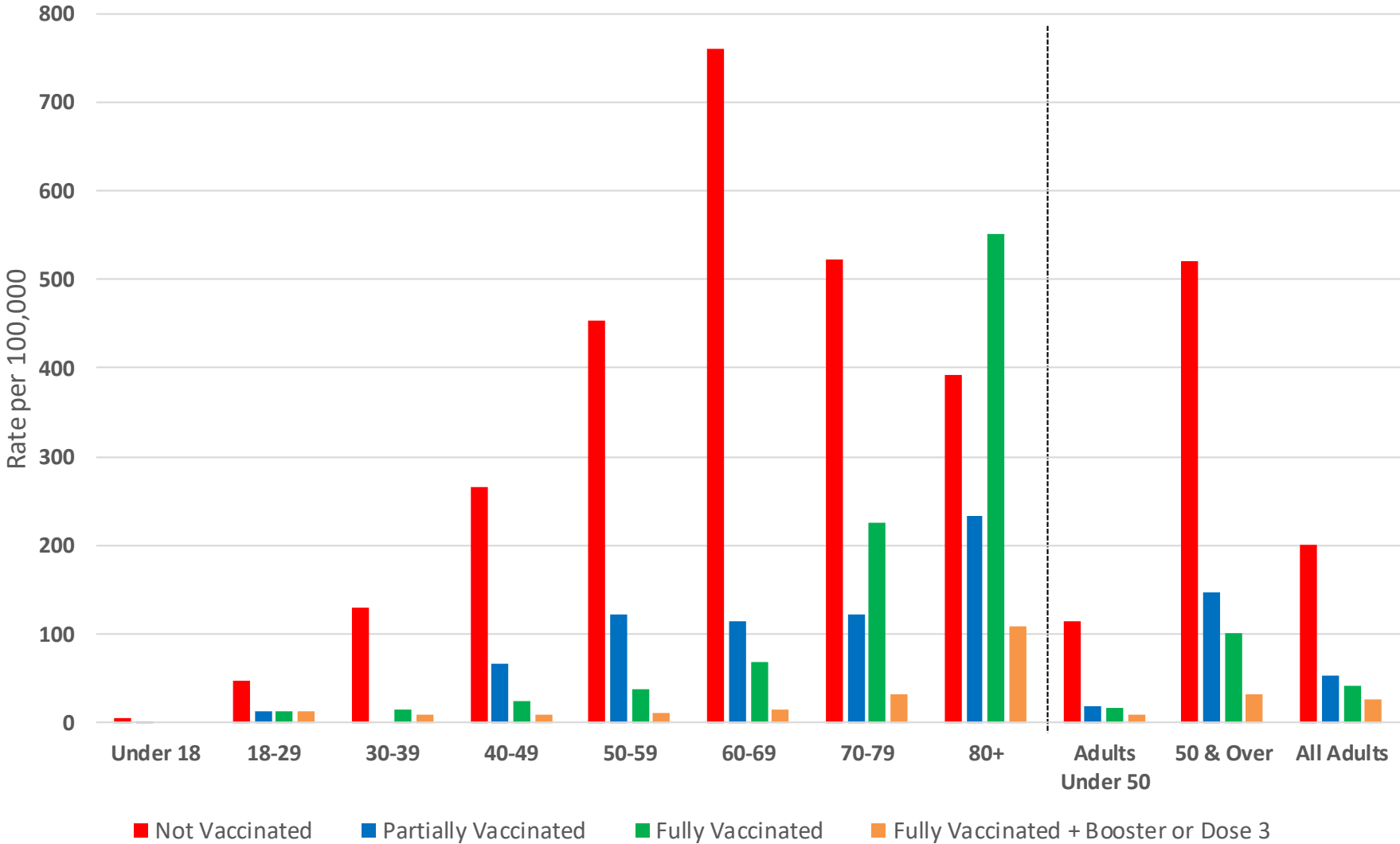
Table 1: COVID-19 cases admitted to hospital between 6<sup>th</sup> December 2021 and 2<sup>nd</sup> January 2022

| Age Cohort      | Not Vaccinated | Missing | Partially Vaccinated | Fully Vaccinated (2 doses) | Fully Vaccinated + Booster or Dose 3 | Total Admissions | Rates Admitted to Hospital per 100,000 |                      |                            |                                      |
|-----------------|----------------|---------|----------------------|----------------------------|--------------------------------------|------------------|--|----------------------|----------------------------|--------------------------------------|
|                 |                |         |                      |                            |                                      |                  | Not Vaccinated                         | Partially Vaccinated | Fully Vaccinated (2 doses) | Fully Vaccinated + Booster or Dose 3 |
| Under 18        | 18             | 0       | 1                    | 0                          | 0                                    | 19               | 5.0                                    | 1.7                  | 0.0                        | 0.0                                  |
| 18-29           | 27             | 0       | 2                    | 22                         | 3                                    | 54               | 47.5                                   | 12.9                 | 12.2                       | 13.1                                 |
| 30-39           | 53             | 0       | 0                    | 22                         | 3                                    | 78               | 128.7                                  | 0.0                  | 13.6                       | 7.8                                  |
| 40-49           | 56             | 0       | 4                    | 35                         | 6                                    | 101              | 266.2                                  | 65.4                 | 24.0                       | 8.8                                  |
| 50-59           | 58             | 1       | 5                    | 42                         | 14                                   | 120              | 454.0                                  | 121.3                | 36.8                       | 10.9                                 |
| 60-69           | 52             | 3       | 3                    | 38                         | 21                                   | 119              | 759.5                                  | 113.5                | 69.0                       | 14.9                                 |
| 70-79           | 29             | 3       | 3                    | 47                         | 39                                   | 122              | 523.5                                  | 121.1                | 225.4                      | 32.2                                 |
| 80+             | 25             | 1       | 7                    | 77                         | 66                                   | 176              | 392.3                                  | 232.4                | 550.7                      | 107.9                                |
| Adults Under 50 | 136            | 0       | 6                    | 79                         | 12                                   | 233              | 114.3                                  | 18.4                 | 16.2                       | 9.3                                  |
| 50 & Over       | 164            | 8       | 18                   | 204                        | 140                                  | 537              | 521.3                                  | 146.3                | 100.0                      | 31.0                                 |
| All Adults      | 300            | 8       | 24                   | 283                        | 152                                  | 770              | 199.7                                  | 53.4                 | 40.9                       | 26.2                                 |



# Vaccination Status – Hospital Admissions per 100,000

Figure 4: COVID-19 cases admitted to hospital between 6<sup>th</sup> December 2021 and 2<sup>nd</sup> January 2022



# Vaccination Status – Deaths

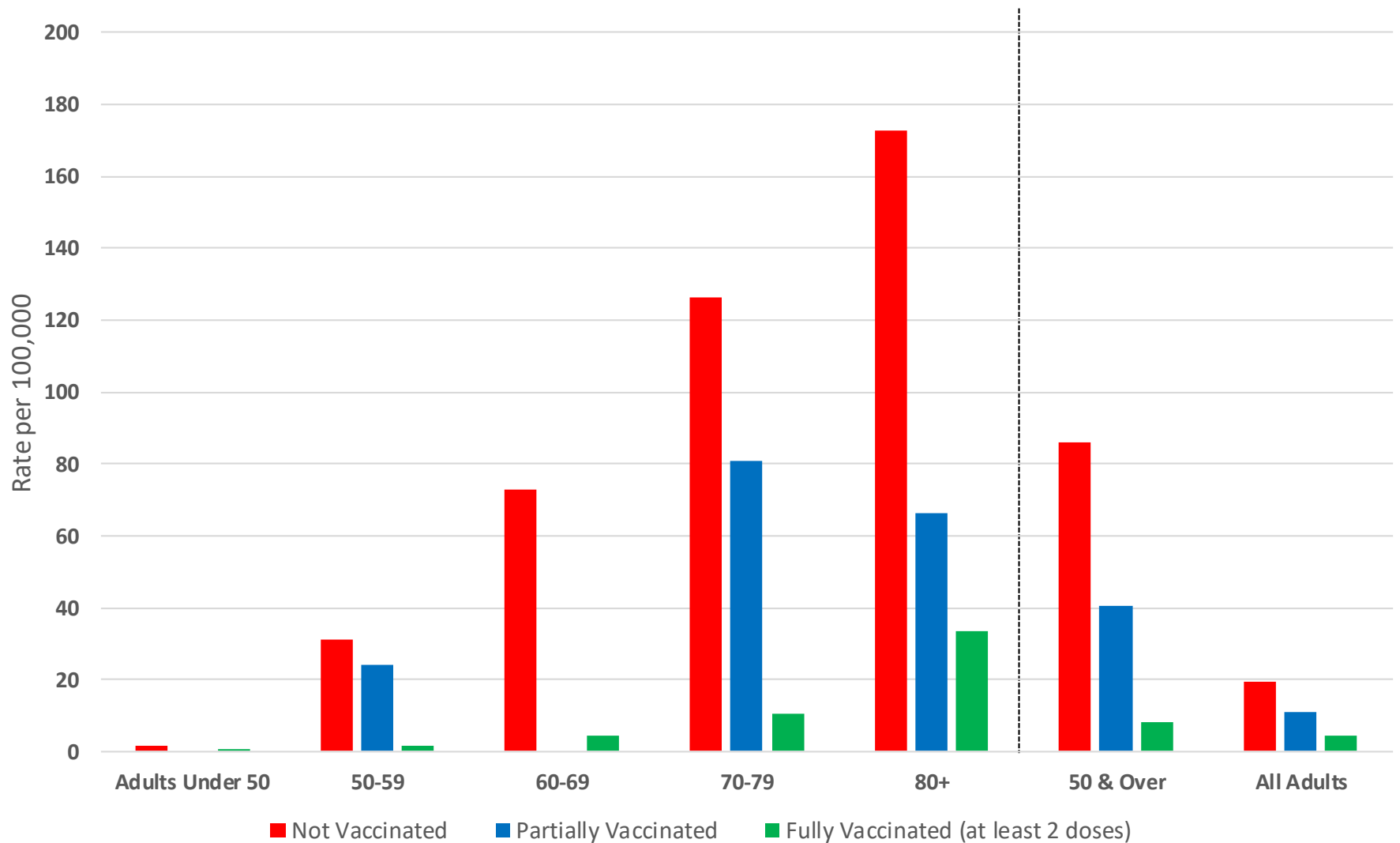
**Table 2: COVID-19 deaths within 28 days of a positive test between 6<sup>th</sup> December 2021 and 2<sup>nd</sup> January 2022**

| Age Cohort      | Not Vaccinated | Missing | Partially Vaccinated | Fully Vaccinated (at least 2 doses) | Total Deaths | Death Rates per 100,000 |                      |                                     |
|-----------------|----------------|---------|----------------------|-------------------------------------|--------------|-------------------------|----------------------|-------------------------------------|
|                 |                |         |                      |                                     |              | Not Vaccinated          | Partially Vaccinated | Fully Vaccinated (at least 2 doses) |
| Adults Under 50 | 2              | 0       | 0                    | 1                                   | 3            | 1.7                     | 0.0                  | 0.2                                 |
| 50-59           | 4              | 0       | 1                    | 4                                   | 9            | 31.3                    | 24.3                 | 1.7                                 |
| 60-69           | 5              | 0       | 0                    | 9                                   | 14           | 73.0                    | 0.0                  | 4.6                                 |
| 70-79           | 7              | 0       | 2                    | 15                                  | 24           | 126.4                   | 80.7                 | 10.6                                |
| 80+             | 11             | 0       | 2                    | 25                                  | 38           | 172.6                   | 66.4                 | 33.3                                |
| 50 & Over       | 27             | 0       | 5                    | 53                                  | 85           | 85.8                    | 40.6                 | 8.1                                 |
| All Adults      | 29             | 0       | 5                    | 54                                  | 88           | 19.3                    | 11.1                 | 4.2                                 |

\* Age cohorts below 50 are not provided to avoid potential disclosure of individual details.

# Vaccination Status – Deaths per 100,000

Figure 5: COVID-19 deaths within 28 days of a positive test between 6<sup>th</sup> December 2021 and 2<sup>nd</sup> January 2022



# Vaccination Status

## Comparison of Rates per 100,000 Over Recent Reporting Periods

Figure 6: COVID-19 cases admitted to hospital between 30<sup>th</sup> August 2021 and 2<sup>nd</sup> January 2022

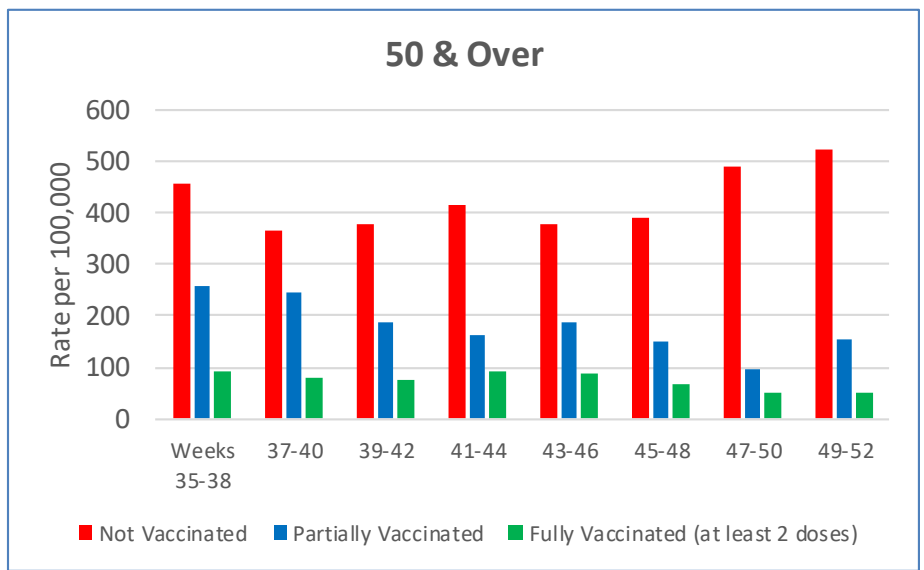
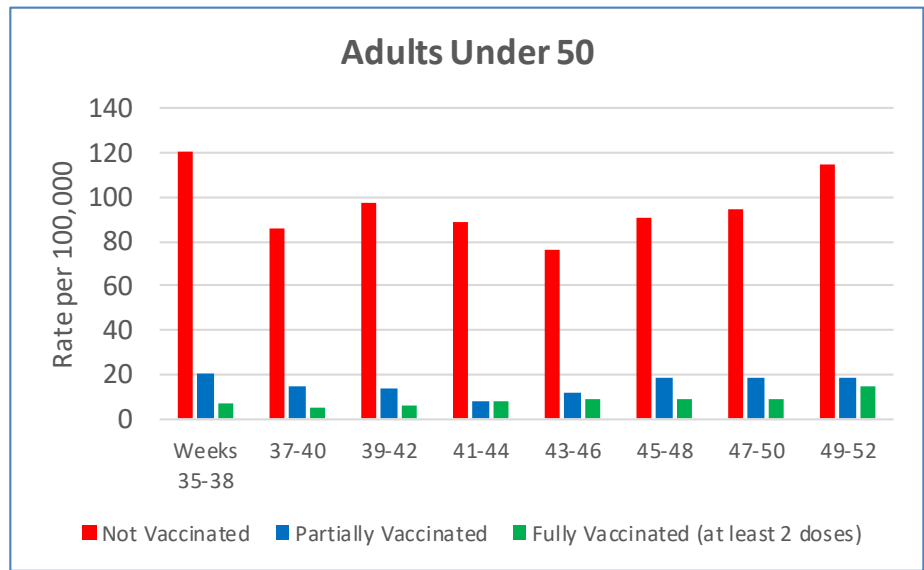
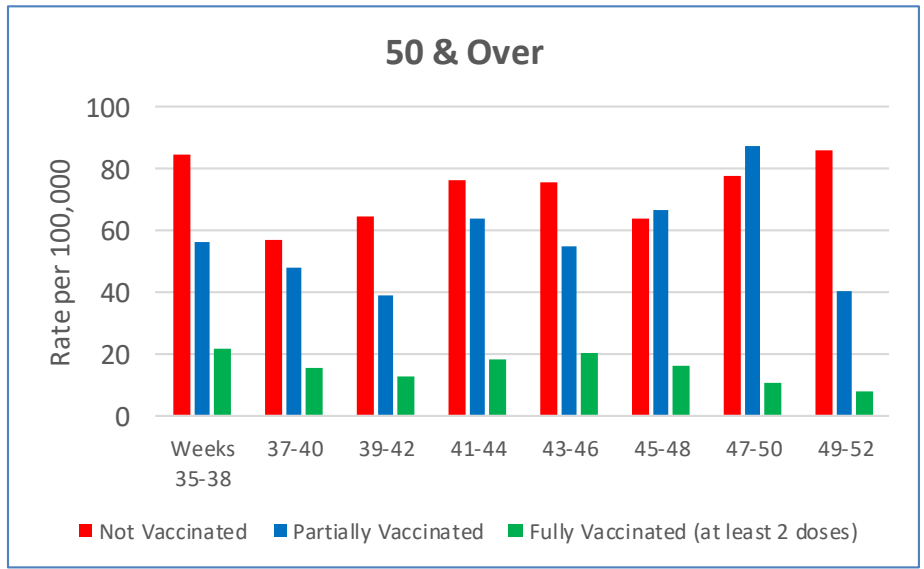
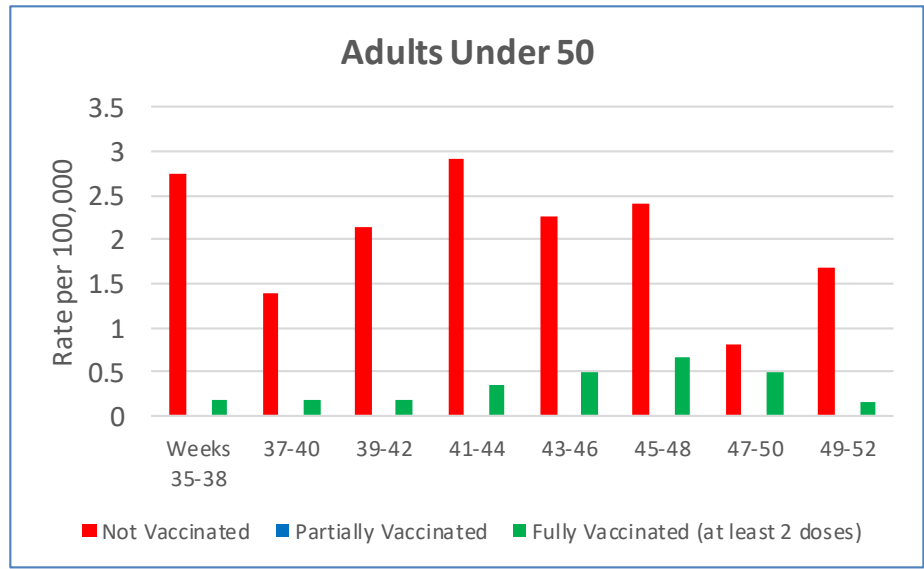


Figure 7: COVID-19 deaths within 28 days of a positive test between 30<sup>th</sup> August 2021 and 2<sup>nd</sup> January 2022



# Appendix

## Technical Guidance on COVID-19 Admissions (1)

- The Patient Administrative System (PAS) is a patient level administrative data source that provides information on patient care delivered by health and social care hospitals in Northern Ireland. Data from PAS are routinely uploaded to the Regional Data Warehouse, which is managed by the Business Service Organisation (BSO).

### Data Quality

- The Department sources data on COVID-19 admissions and inpatients from the Regional Data Warehouse. Up to the 1st December 2020, a daily download was taken at 08:30 from the Admissions & Discharges universe of the Regional Data Warehouse reflecting admissions as of midnight prior to the download date. From 2nd December 2020 two additional daily downloads are taken from; (i) Recent Admissions & Discharges universe which includes data for the two most recent days, and (ii) Admissions & Discharges Specialty universe which is used to identify a number of inpatients in the Belfast HSC Trust. Data from each of these sources are merged and duplicate records are removed from the data.
- Patients admitted with confirmed COVID-19 are identified using the specific Method of Admission Codes (CC, CE or CS) or Specialty Code (COVC). These codes are used for any patient admitted to hospital with confirmed COVID-19. If an inpatient tests positive for COVID-19 the Method of Admission code is revised to one of the confirmed coronavirus codes above. If an inpatient tests positive for COVID-19 and then subsequently tests negative the Method of Admission code remains as one of the confirmed coronavirus codes above.
- Information is constantly being revised as records are updated by HSC Trusts and therefore figures for historical dates may change. When technical issues arise or errors in the data are discovered, the HSCB email to inform DOH.

# Appendix

## Technical Guidance on COVID-19 Admissions (2)

### Admissions / Discharges

- A patient may be admitted more than once, for example:
  - Admitted on two or more separate occasions
  - Admitted to hospital A within one HSC Trust and later transferred and admitted to hospital B in a different HSC Trust. The admission to hospital B will be recorded as a new admission. Consequently, patients may also be discharged more than once and these discharges will be included in the discharge total.

### Internal Transfers

- If a patient confirmed COVID-19 is transferred between hospitals within the same HSC Trust they are admitted using the CC, CE or CS Method of Admission Codes. The Method of Discharge is recorded as ID – Internal Discharge.
- The Belfast Trust identifies confirmed COVID-19 patients by using the specialty code (COVC). Any internal transfers will be admitted using the IA Method of Admission Code.
- Internal transfers are not counted as new admissions and only the first admission record will be counted for these patients.



INFORMATION  
ANALYSIS  
DIRECTORATE



E-mail: [statistics@health-ni.gov.uk](mailto:statistics@health-ni.gov.uk)



Department of  
**Health**

An Roinn Sláinte

Mánnystrie O Poustie

[www.health-ni.gov.uk](http://www.health-ni.gov.uk)