COVID-19 in Northern Ireland

Daily Dashboard Charts & Graphs: 16th June 2020

INFORMATION ANALYSIS DIRECTORATE

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HISTORY OF PANDEMICS

PAN·DEM·IC (of a disease) prevalent over a whole country or the world.

THROUGHOUT HISTORY, as humans spread across the world, infectious diseases have been a constant companion. Even in this modern era, outbreaks are nearly constant.

Here are some of history's most deadly pandemics, from the Antonine Plague to COVID-19.

Death toll

Antonine Plague 165–180 **5M**
Plague of Justinian 541-542 **30-50M**
Japanese Smallpox Epidemic 735-737 **1M**

Black Death (Bubonic Plague) 200M
1347-1351

Throughout the 17th and 18th centuries, a series of "Great Plagues" routinely ravaged cities across Europe.

Smallpox 56M
1520

17th Century Great Plagues 3M
1600

18th Century Great Plagues 600K
1700

Cholera 6 outbreak 1M
1817-1923

The Third Plague 12M
1855

Yellow Fever 100-150K
LATE 1800s

Spanish Flu 40-50M
1918-1919

Russian Flu 1M
1889-1890

HIV/AIDS 25-35M
1981-PRESENT

Asian Flu 1.1M
1957-1958

Hong Kong Flu 1M
1968-1970

SARS 770
2002-2003

MERS 850
2012-PRESENT

Ebola 11.3K
2014-2016

Swine Flu 200K
2009-2010

COVID-19 271.7K*
2019-9:32AM PT, MAY 8, 2020 [ONGOING]

Contents

INTRODUCTION

The difficulties in controlling COVID-19 are due to several factors:

- Its incubation period is relatively long, some five to six days and longer for some.
- Those who are infected become infectious, and infect others, before they display any symptoms or become aware of the disease.
- A significant fraction of cases remain asymptomatic - they never develop symptoms, but they still infect others.

Certain parameters characterise the virus itself, these include:

- **Incubation period** - the time between contracting the infection and the appearance of symptoms
- **Virulence** - the severity of its health effects.
- **Reproduction number** (infectiousness) - the number of new infections each case typically generates, and
- **Case fatality** - the number of infected people that die from the infection

UNDERSTANDING MEASURES TO 'FLATTEN THE CURVE'

COVID-19 infections, like many other viruses, grow exponentially. Fixed rate exponential growth means that the number of cases doubles in a defined amount of time. The doubling time is dynamic and informs us of the impact (or lack of impact) of interventions on epidemic growth. When we talk about '***flattening the curve***', we mean lengthening the doubling period. Flattening the curve, or slowing the rate of growth of new infections, is crucial to the maintenance of capacity in the health sector.

A failure to moderate growth of infections rapidly overwhelms any nation's health systems, hence the need for radical social policy interventions. Flattening the curve, or increasing the doubling period, is achieved through official policies and social behaviours. These range from simple but effective practices such as:

- Washing hands correctly
- Social distancing practices (as recently introduced in many countries including Northern Ireland)
- Cessation of all non-essential activities, and stay-at-home policies (as seen in China & Italy).

All of these policies are designed to reduce the opportunity for transmission of infections – in effect aiming to slow the growth rate. The doubling period therefore is an important barometer of the effects of national policies and behaviours on the impact of the virus. Changes in the doubling period in effect, reflect policy effectiveness.

THE DOUBLING PERIOD

The effect of **doubling period** is best illustrate by comparing for example numbers between Japan and Italy. On 23rd February, Italy reported 132 cases, and Japan reported 144: virtually the same. Japan's doubling period was close to eight days, Italy's was initially less than one day. Infections in Italy were therefore doubling at many times the rate of those in Japan. Eight days later, Italy reported 1,700 cases whilst Japan reported 254. One month later (23rd March), Italy reports more than 50 times the number of cases in Japan, at nearly 60,000 cases to Japan's 1,089.

While it is informative to know both the number of cases and deaths, it is their **growth rate** that matters most. The trajectory is what is most important. This shows the rise in confirmed cases and deaths since the outbreak began. South Korea spread slowed from initial pace and in fact has now plateaued. Northern Ireland Trajectory seems to be tracking similar to that of South Korea albeit with significantly fewer cases and deaths.

The **population of countries** differ significantly but we don't need to adjust for this. If for example we were to adjust for population size and to express confirmed cases or deaths as per million all that would happen is that we would just make larger countries look like their outbreaks aren't quite as bad, and smaller countries look like theirs are much worse. Since the virus spreads exponentially the population is not a limiting factor. Its spread will be determined by the behaviour of individuals and how they mix in their communities. It will tend to spread as the people in cities across the world interact with each other in a similar manner and at a similar rate.

HOW DO WE TREAT CASES AND MANAGE TESTING?

There is the view that the number of **confirmed cases** in a country is a function of the number of tests it conducts. It is important to note despite the focus on testing large numbers of the population we do not actually know the number of people who have coronavirus in the population.

There may be a great many who are symptom free but nevertheless have the virus but just not ever been tested. It is for this reason that we plot laboratory confirmed cases and not simply refer to cases, the true number of which we do not know.
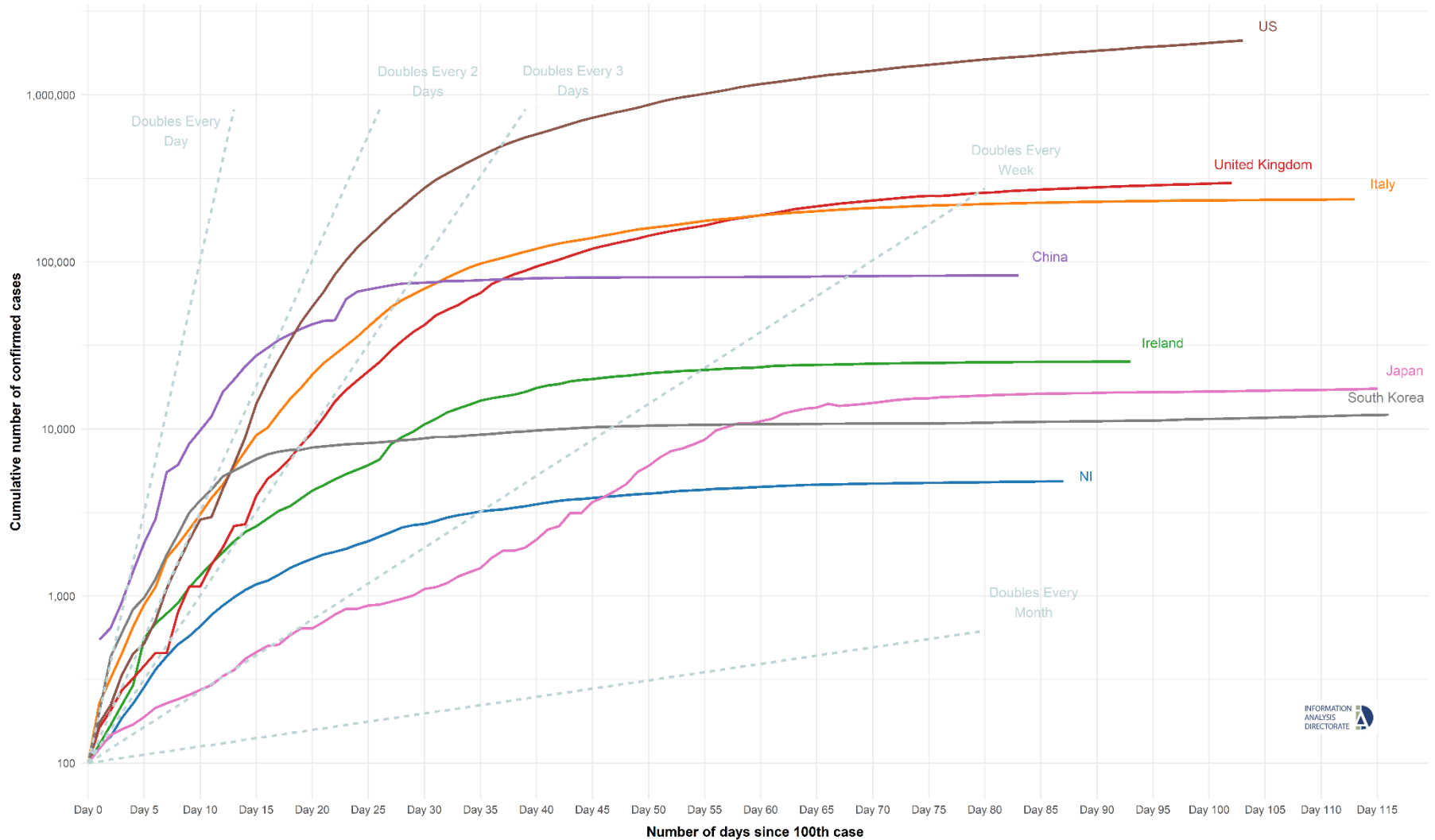
Figure 1: Cumulative number of individuals with a laboratory confirmed test for COVID-19 after the 100th case.
The 100th case for all countries are aligned by calculating the first time the cumulative number of positive cases was greater than or equal to 100 and rounding down to exactly 100. Data is not available for China before their 500th case.
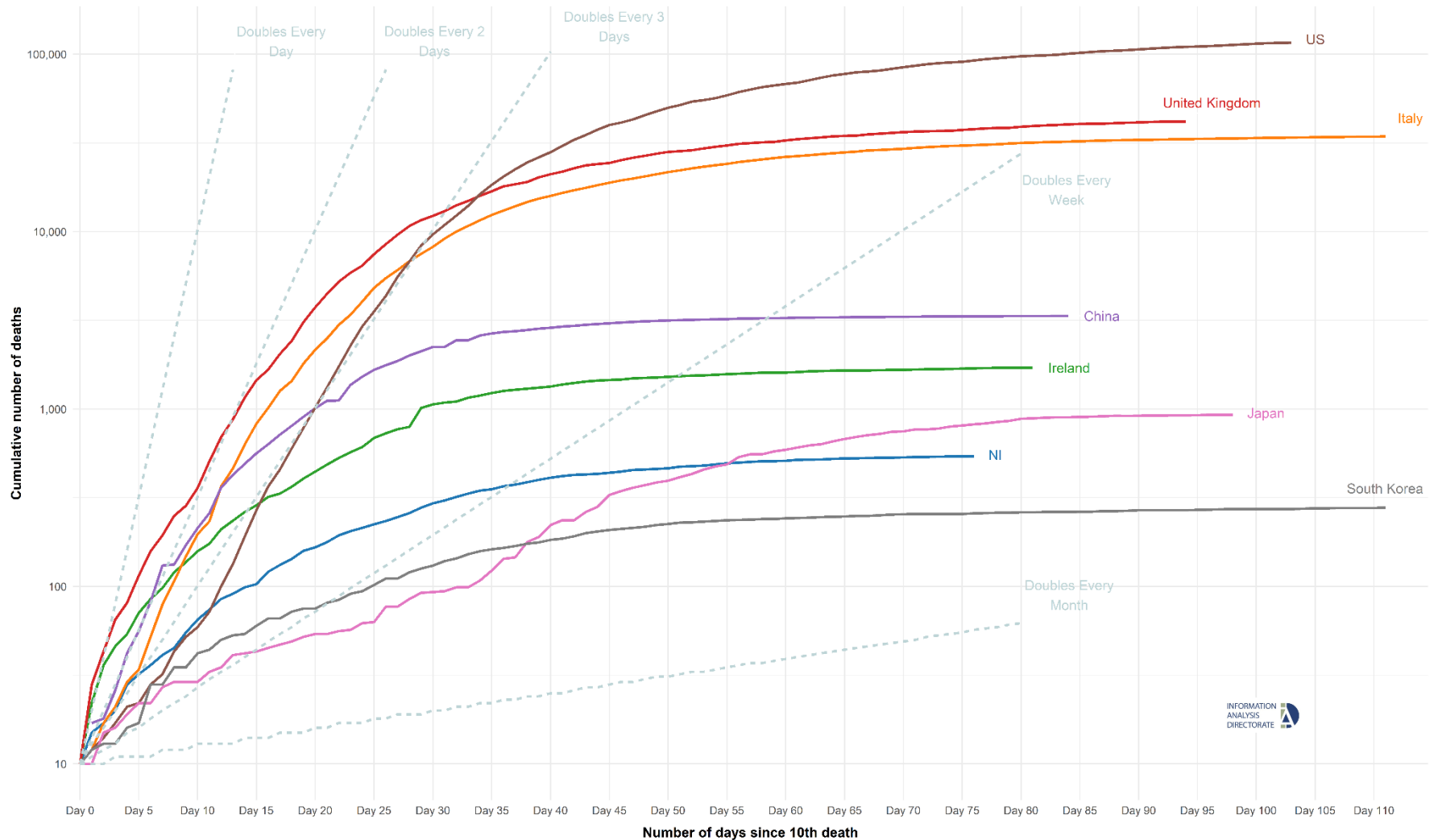
Figure 2: Cumulative number of deaths after the 10th death, where the deceased has had a positive test for COVID-19 and died within 28 days, whether or not COVID-19 was the cause of death. The 10th death for all countries are aligned by calculating the first time the number of deaths was greater than or equal to 10 and rounding down to exactly 10.
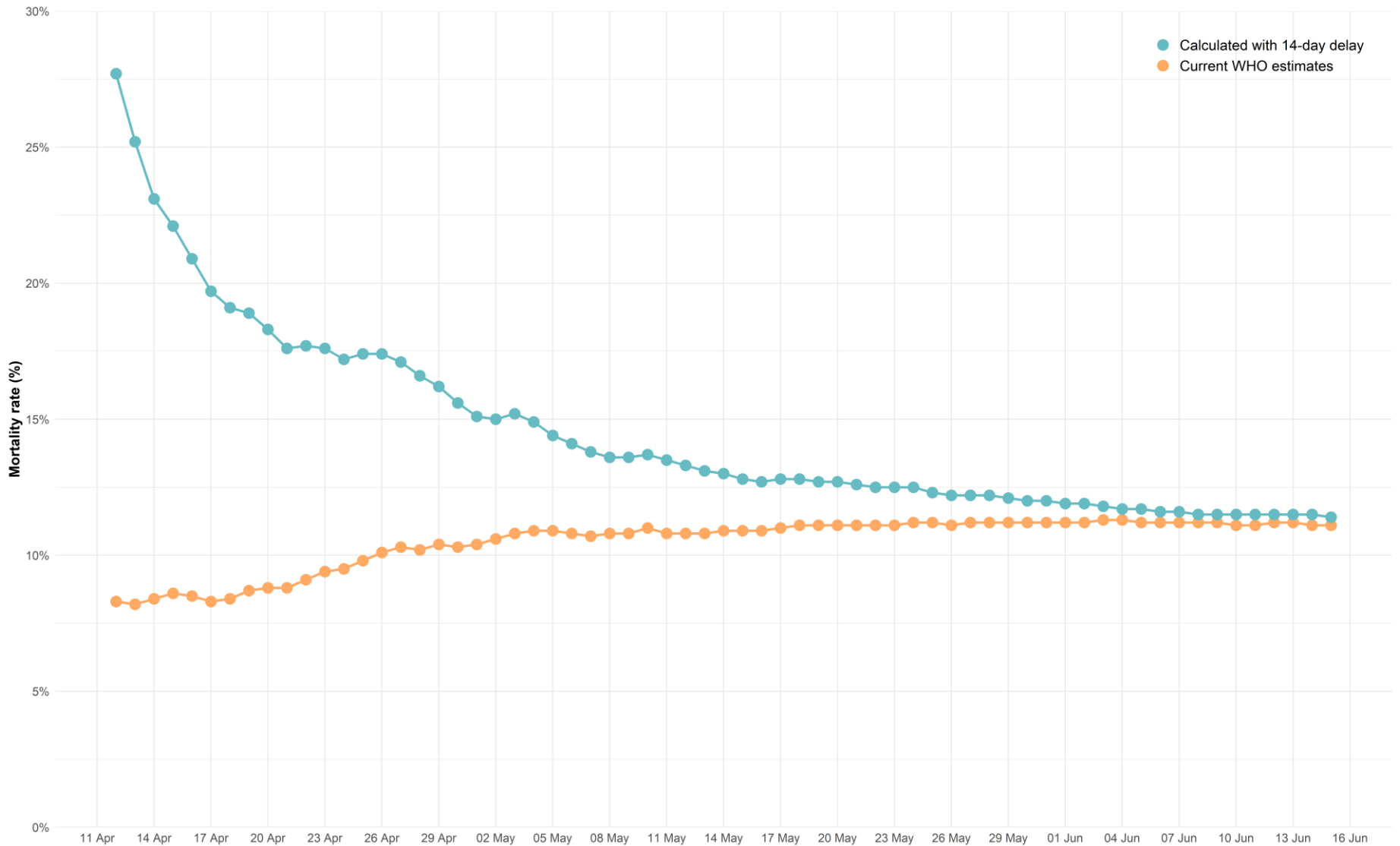
Figure 3: Mortality rate estimates are often based on the number of deaths relative to the number of confirmed cases, however, this isn't representative of the actual death rate, as patients who die on any particular day were infected much earlier. In other words, current deaths belong to the same group of patients that were infected in the past. The maximum incubation period for COVID-19 is assumed to be up to 14 days, therefore the chart below recalculates mortality by dividing the number of cumulative deaths at a specific date by the number of confirmed COVID-19 cases 14 days before.

Doubling Time in the Last 5 Days and Confirmed Cases

Country	Doubling Time (in Days)			Confirmed Cases		
	Last 5 Days	5 Days Before That	Change	Last 5 Days	5 Days Before That	Change
Northern Ireland	599.1	346.7	↑ 252.4	28	48	↓ -20
Ireland	973.3	1284.2	↓ -310.9	90	68	↑ 22
United Kingdom	152.0	145.7	↑ 6.3	6,727	6,854	↓ -127
Italy	536.8	661.5	↓ -124.7	1,527	1,232	↑ 295
China	1757.9	10665.3	↓ -8907.4	164	27	↑ 137
Japan	204.5	314.3	↓ -109.8	293	188	↑ 105
United States	62.9	69.8	↓ -6.9	113,324	96,848	↑ 16,476
Germany	559.0	402.8	↑ 156.2	1,160	1,598	↓ -438
France	299.3	350.8	↓ -51.5	2,237	1,888	↑ 349
Spain	460.8	643.2	↓ -182.4	1,829	1,302	↑ 527
South Korea	200.8	179.9	↑ 20.9	208	228	↓ -20

Source: Information & Analysis Directorate | Department of Health | Johns Hopkins CSSE
Data updated: [1] Tuesday 16 June 2020
Please note: [a] United Kingdom data includes Northern Ireland

Table 1: Comparison of doubling times of confirmed cases in the last five days with the doubling time in the five days before; as well as the number of confirmed cases in the last five days with the number of confirmed cases in the five days before that. The 'change' column compares whether cases doubled faster or slower or remained about the same; or if countries reported more or less or about the same number of cases. The number of confirmed cases in Northern Ireland is doubling at a slower rate (599.1 days) over the last 5 days compared with the doubling rate in the 5 days before that (346.7 days).

COVID-19 Testing overview: Laboratory Completed Positive Test by Local Government District and Number of Persons who have had samples/swabs taken at National Testing Centres

85,961
Total Lab Completed Tests

66,703
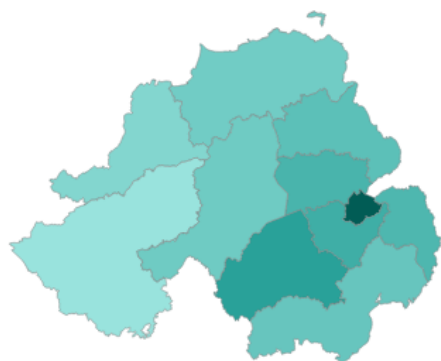Individuals Lab Completed Tests

4,854
Individuals Positive Lab Test

258
Positive Tests per 100,000-pop

Individuals with a Laboratory Completed Positive Test for SARS-COV2 Virus by Local Government District

Breakdown of Individuals with a Laboratory Completed Test by Local Government District

Local Government District	Individuals Tested	Individuals Tested Positive	Individuals Tested Negative	Indeterminate Tests	Positive Tests per 100k pop
Antrim and Newtownabbey	4,730	410	4,319	1	287
Ards and North Down	5,570	389	5,177	4	242
Armagh City, Banbridge and Craigavon	7,682	541	7,137	4	253
Belfast	13,634	1,322	12,304	8	387
Causeway Coast and Glens	4,086	248	3,834	4	172
Derry City and Strabane	4,414	177	4,233	4	117
Fermanagh and Omagh	3,061	86	2,973	2	74
Lisburn and Castlereagh	5,464	453	5,007	4	312
Mid and East Antrim	4,090	332	3,758	0	240
Mid Ulster	4,493	256	4,237	0	174
Newry, Mourne and Down	5,862	291	5,569	2	161
Not Known	3,617	349	3,258	10	
Total	**66,703**	**4,854**	**61,806**	**43**	**258**

Note 1: Local Government Districts assigned as 'Not Known' refer to individuals with insufficient address / postcode details.

Testing for the SARS-COV2 Virus in NI is currently being carried out by (i) **HSC Trust Labs** and (ii) **National Testing Centres**; although, information on the outcome of completed laboratory tests is ONLY available for HSC Trust Labs at this time. *Refer to notes for further detail.*

i. HSC Trust Labs - Cumulative Number of Completed Laboratory Tests

14 June 2020

85,009	66,053	4,852
Total Lab Tests	Individuals Tested	Individuals Tested Positive

15 June 2020

85,961	66,703	4,854
Total Lab Tests	Individuals Tested	Individuals Tested Positive

Daily Change

952	650	2
Total Lab Tests	Individuals Tested	Individuals Tested Positive

ii. National Testing Centres - Cumulative Number of Samples Taken (Date Sample Taken)

14 June 2020

28,949
Samples Taken

15 June 2020

29,325
Samples Taken

Daily Change

376
Samples Taken

IMPORTANT NOTE:
Data from National Testing Centres refers only to the number of persons who have had samples / swabs taken at the SSE Arena, City of Derry Rugby Club, Craigavon Test Centre, St. Angelo Airfield Enniskillen and the mobile testing unit . These sample are sent to the laboratories for analysis and will be reported as a laboratory completed test in due course. They should NOT be added to the **Completed** laboratory results presented above.

Cumulative Total of Laboratory Completed Tests by Date & Individual with a confirmed Laboratory completed test for SARS-COV2 by Age group and Gender.

The information below shows the total number of laboratory completed tests for SARS-COV2 Virus at 9am on the date presented. The total number of tests will include each laboratory completed test, i.e. if an individual had more than one test for the SARS-COV2 Virus, each laboratory completed test will be included.

Cumulative Total of Laboratory Completed Tests by Date of Laboratory Test
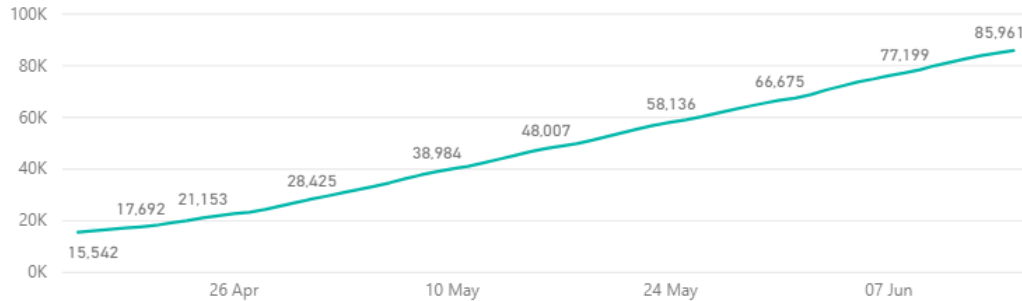
The cumulative number of individuals with a laboratory completed test is presented below by the date on which the specimen (sample / swab) had been taken at a testing location, and not the date the labortory test was completed. If an individual has been tested more than once, only the first laboratory completed positive result will be counted, with all other laboratory completed test results excluded, regardless of when the test took place.

Cumulative Individuals with Laboratory Completed Test for SARS-COV2 Virus by Date of Specimen

● Individuals Tested ● Individuals Tested Positive
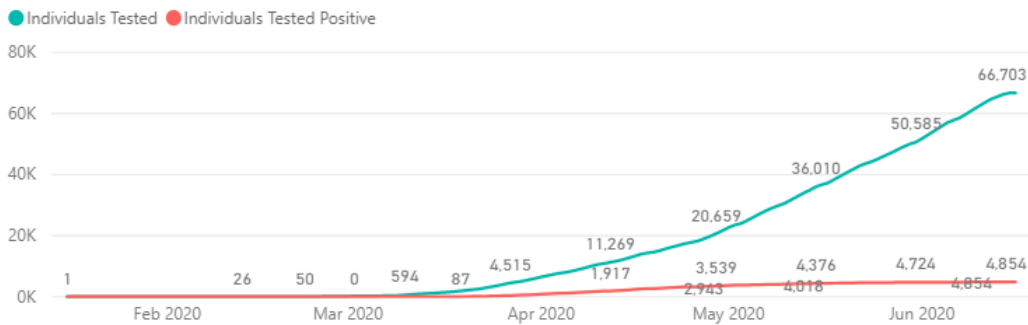
Individuals with a Laboratory Completed Test for SARS-COV2 Virus by Age Group

● Individuals Tested Positive ● Individuals Tested Negative

43
Indeterminate Tests
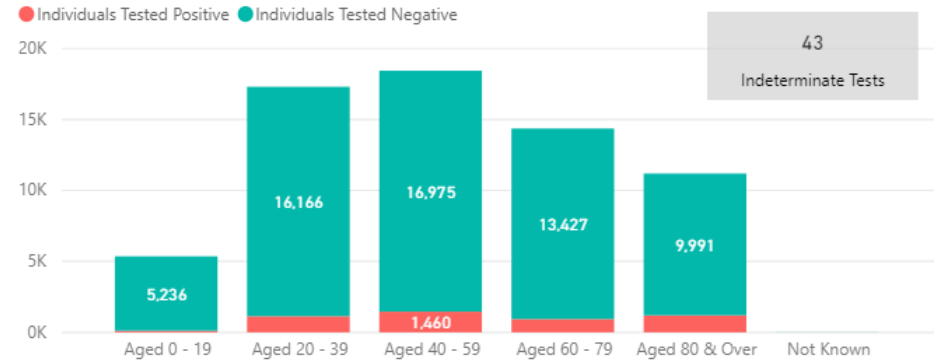
Individuals with a Laboratory Completed Test for SARS-COV2 Virus by Gender

● Individuals Testing Positive ● Individuals Testing Negative

107
Indeterminate Tests/Gender Not Known
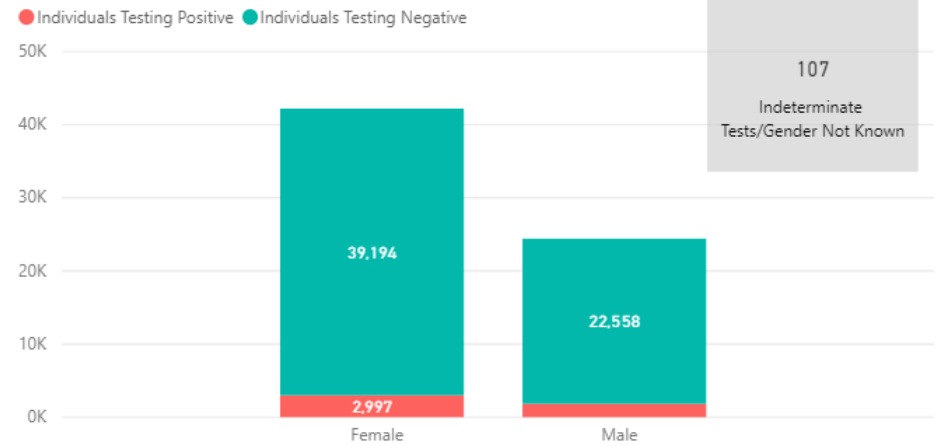
# Testing Trend Analysis of Individuals with a confirmed Laboratory completed test for SARS-COV2

Information below refers to the number of laboratory completed tests by the date on which the specimen (sample / swab) had been taken at a testing location, and not the date the labortory test was completed. Whilst this gives the most accurate analysis of how cases progress over time it does mean that the latest days' figures are usually incomplete, so it shouldn't be seen as a sudden large drop in cases.

Laboratory Completed Tests by Date of Specimen
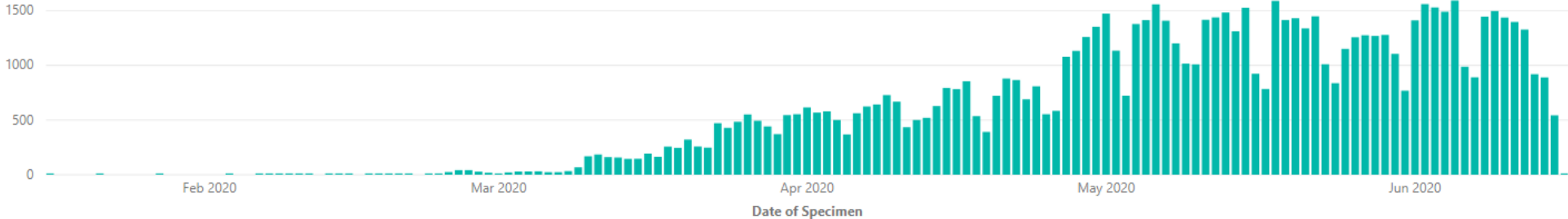
Information below shows the percentage of laboratory completed tests which were identfiied as positive by the date on which the specimen (sample / swab) had been taken at a testing location.

Proportion of Laboratory Completed Tests Identified as Positive by Date of Specimen
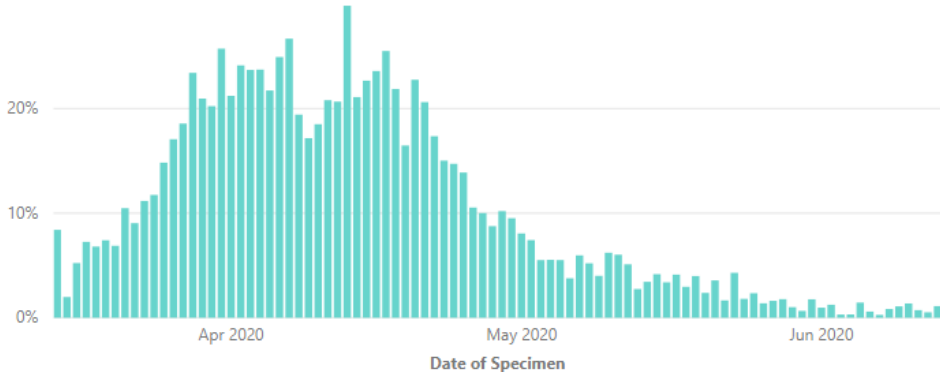
Information is presented below on the 7-day rolling average of individuals with a positive laboratory completed test, by the date on which the specimen (sample / swab) had been taken at a testing location.

7 Day Rolling Average (mean) of Individuals with Positive Laboratory Completed Tests by Date of Specimen
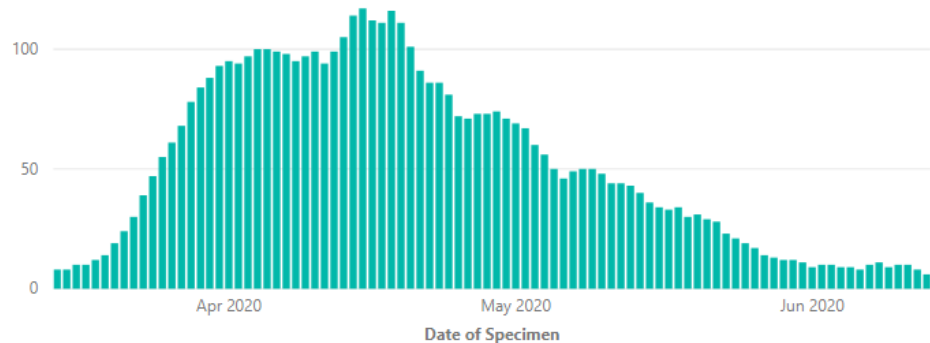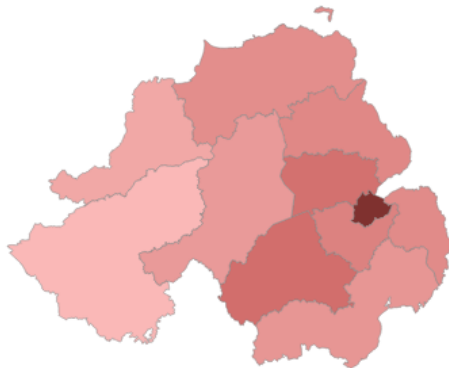
Cumulative COVID-19 Deaths and By Local Government District by Age, Gender and Previously Report Deaths and Deaths in Current Reporting Period by Date of Death
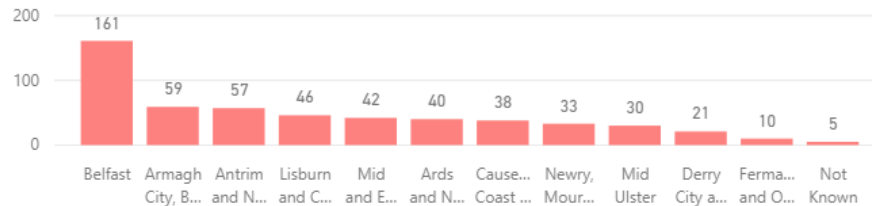
Breakdown of Deaths During Current Reporting Period

542
Cumulative COVID-19 Deaths reported up to 10:00am on 16 June 2020

=

541
Deaths previously reported up to 10:00am on 15 June 2020

+

1
Deaths reported and occuring within current reporting period

+

0
Deaths reported, but not occuring within current reporting period

COVID-19 Deaths by Gender

Not Known 1 (0%)
Female 259 (48%)
Male 282 (52%)

COVID-19 Deaths by Local Government District

COVID-19 Deaths by Age Group

- Aged 20 - 39 | 1
- Aged 40 - 59 | 23
- Aged 60 - 79 | 156
- Aged 80 & Over | 361
- Not Known | 1

(axis: 0, 200, 400)

COVID-19 Deaths by Local Government District

Belfast	161
Armagh City, B...	59
Antrim and N...	57
Lisburn and C...	46
Mid and E...	42
Ards and N...	40
Cause... Coast ...	38
Newry, Mour...	33
Mid Ulster	30
Derry City a...	21
Ferma... and O...	10
Not Known	5

Cumulative COVID-19 Deaths by Date of Death

Values: 1, 36, 121, 234, 367, 444, 499, 528, 542
(axis: Apr 2020, May 2020, Jun 2020)

Previously Reported Deaths and Deaths in Current Reporting Period by Date of Death

● Previously Reported Deaths   ● Deaths Reported in Current Reporting Period   ● Rolling 7 Day Avg.Deaths
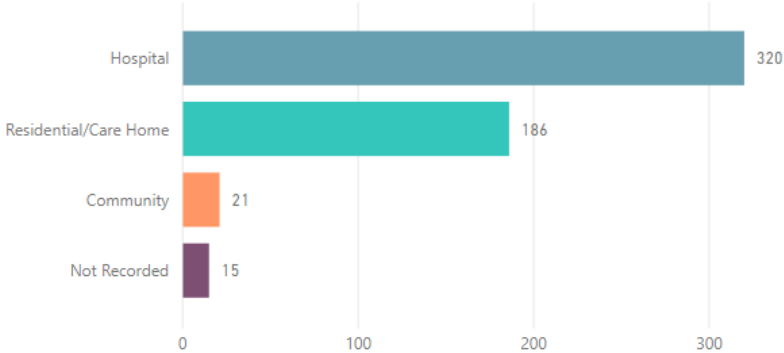
(axis: Apr 2020, May 2020, Jun 2020)
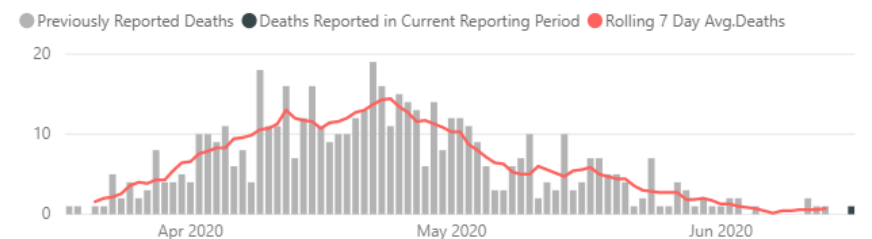
Note 1: Deaths in current reporting period include deaths which will have occured in that period, along with deaths which have only been reported within that period. For example, A death may occur on Thursday 30th April but not be reported until Saturday 2nd May
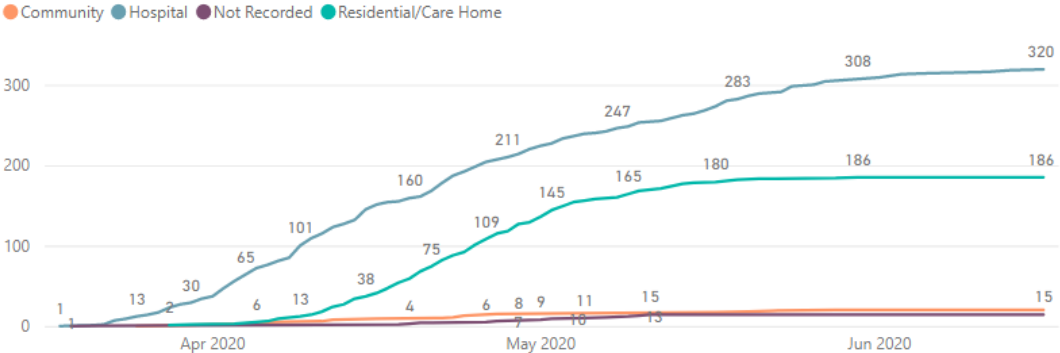
Note 2: Current Reporting Period = 10:00 on 15 June 2020 - 10:00 on 16 June 2020
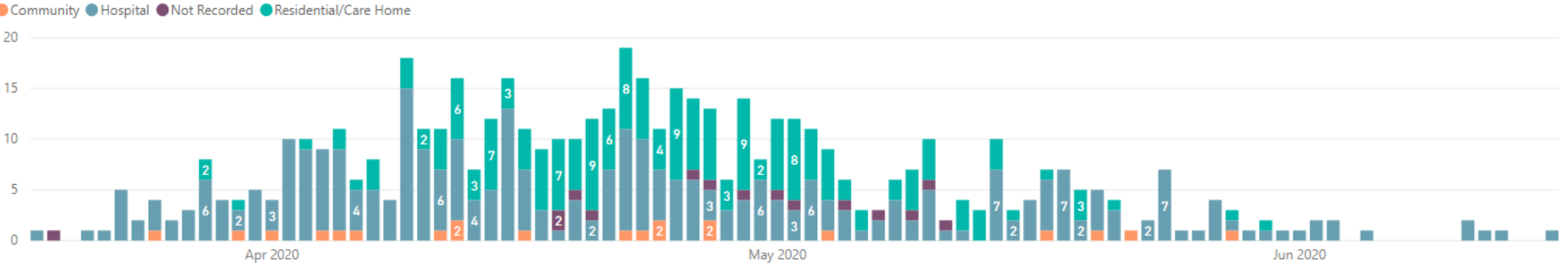
Cumulative COVID-19 Deaths by Death Setting

COVID-19 Deaths by Setting

Setting	Deaths
Hospital	320
Residential/Care Home	186
Community	21
Not Recorded	15

Cumulative COVID-19 Deaths by Date of Death and Setting

● Community ● Hospital ● Not Recorded ● Residential/Care Home

Hospital cumulative values: 1, 13, 30, 65, 101, 160, 211, 247, 283, 308, 320

Residential/Care Home cumulative values: 2, 6, 13, 38, 75, 109, 145, 165, 180, 186, 186

Not Recorded / Community: 1, 6, 8, 9, 11, 15, 15, 7, 10, 13

COVID-19 Daily Deaths by Date of Death and Setting

● Community ● Hospital ● Not Recorded ● Residential/Care Home

Note: The Community setting includes deaths recorded as occuring in Community, Hospice and Other settings. Information displayed reflects deaths reported to the PHA up to the end of the current reporting period, and includes individuals who have had a positive test for COVID-19 and died within 28 days, whether or not COVID-19 was the cause of death. A broader picture on COVID-19 fatalities is provided in the weekly NISRA bulletin which details deaths across hospital and community settings. NISRA figures are derived from the formal process of death registration and may include cases where the doctor completing the death certificate diagnosed suspected cases of COVID-19.

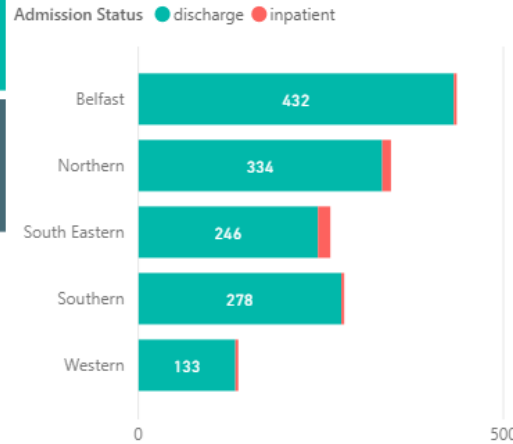# Confirmed COVID-19 Admissions by HSC Trust, Age Group & Patient Status:
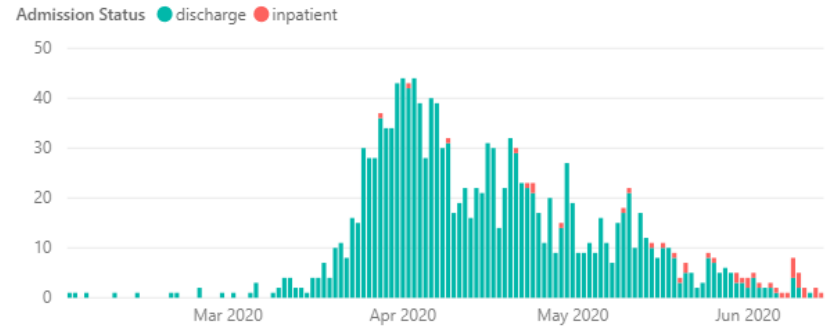# Covid-19 Admissions by Admission Date & Occupancy by Date
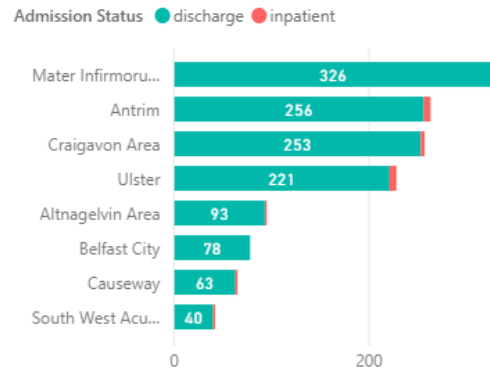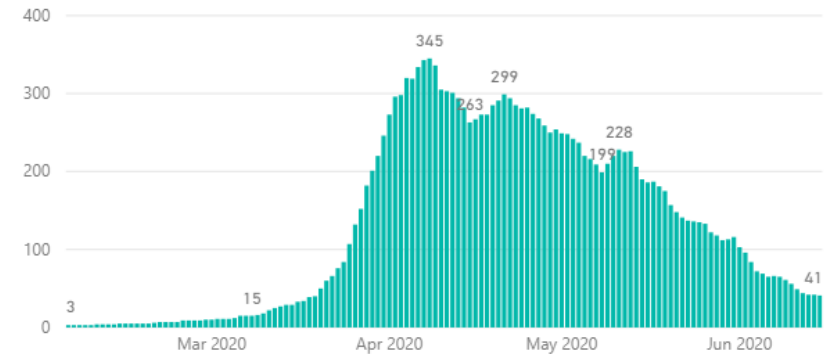
COVID-19 Inpatients by HSC Trust: Confirmed COVID-19
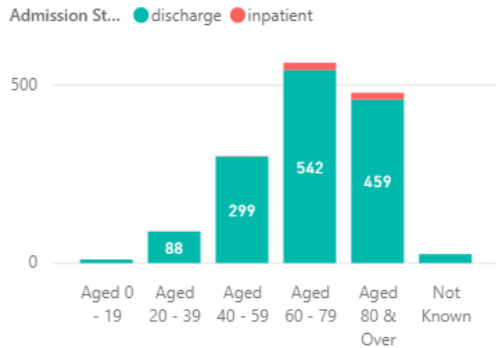
Confirmed COVID-19 patients (All Trusts)

Confirmed COVID-19 patients (Belfast Trust)

Confirmed COVID-19 patients (Northern Trust)

Confirmed COVID-19 patients (South Eastern Trust)

Confirmed COVID-19 patients (Southern Trust)

Confirmed COVID-19 patients (Western Trust)
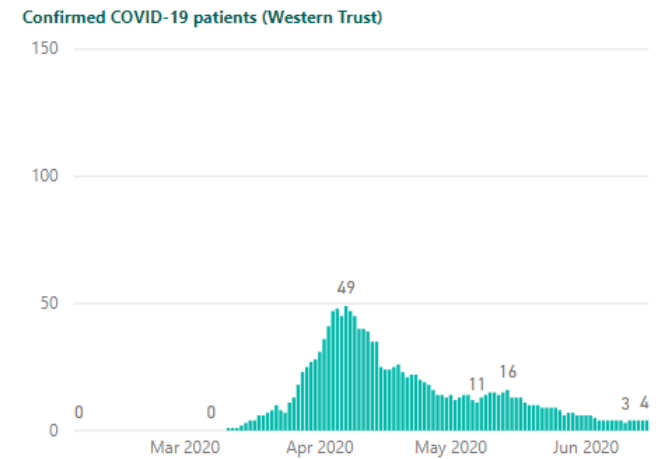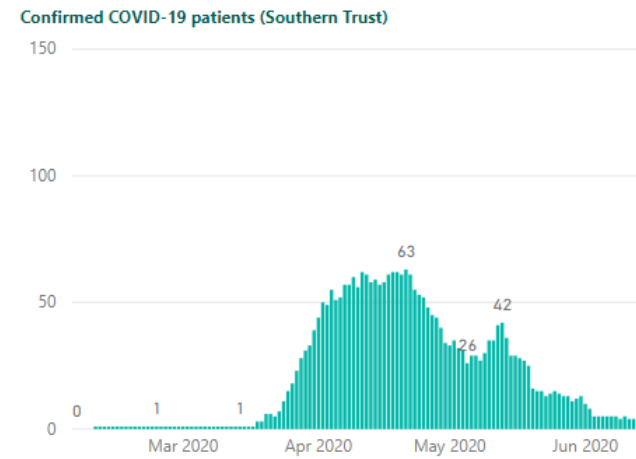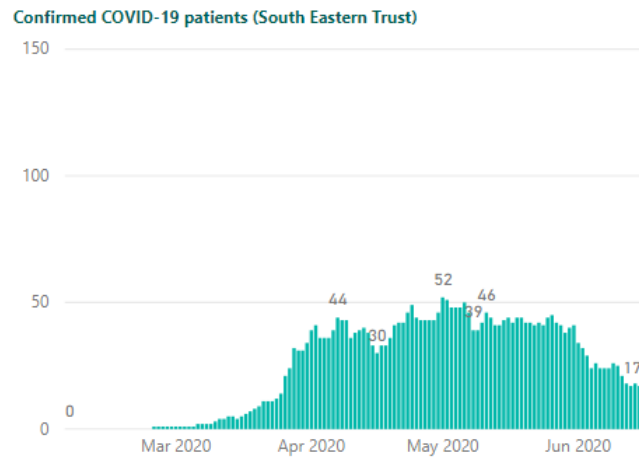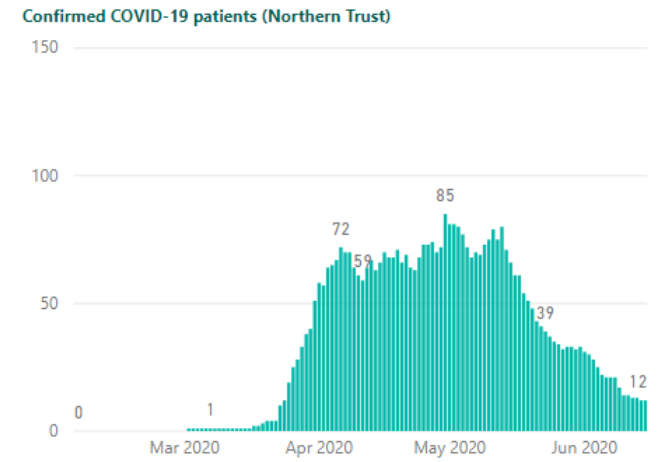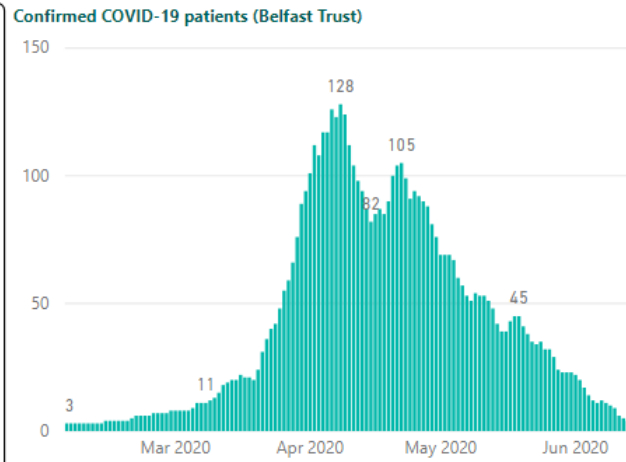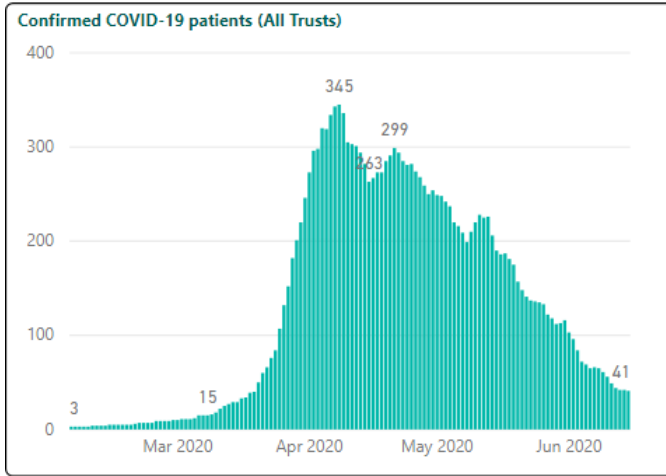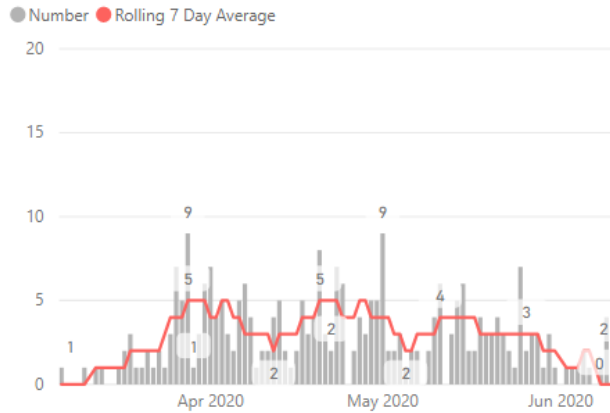
Confirmed COVID-19 Daily Admissions by HSC Trust
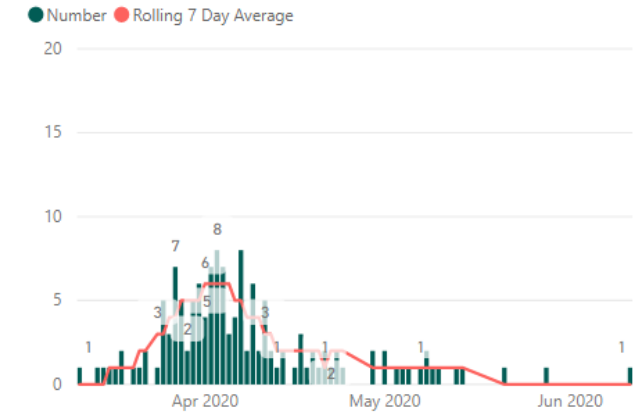
ICU Bed Capacity: ICU COVID-19 suspected and positive, ICU Other and ICU Beds Available, ICU 5-day Rolling Average and Ventilator Use in ICU.

106 Total ICU Beds

4 Covid-19 Occupied

62 Other ICU Occupied

40 Unoccupied Beds

39 Total Ventilated Patients

4 Covid-19 Ventilated

35 Non Covid-19 Ventilated

% of ICU Beds Covid-19 Occupied, Other Occupied and Unoccupied
- Covid-19 Occupied
- Other ICU Occupied
- Unoccupied Beds

Number of ICU Beds Covid-19 Occupied, Other Occupied and Unoccupied
- Covid-19 Occupied
- Other ICU Occupied
- Unoccupied Beds

Covid-19 ICU Bed Occupancy : 5 Day Rolling Average
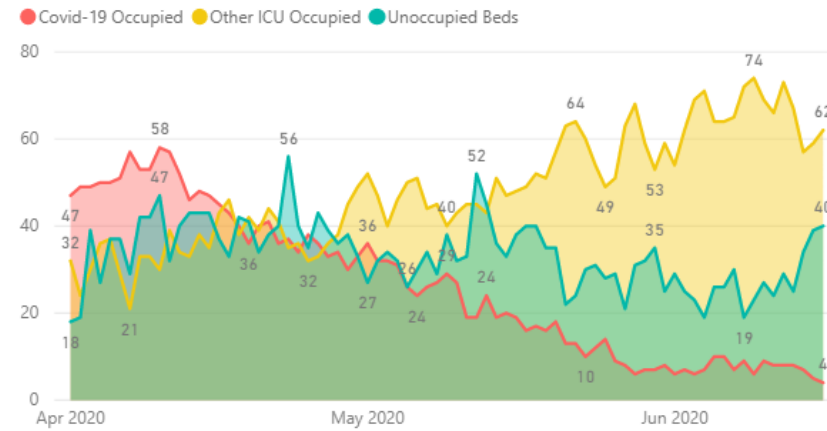
Covid-19 Ventilated Patients and Other Ventilated Patients
- Covid-19 Ventilated Patients
- Other Ventilated Patients
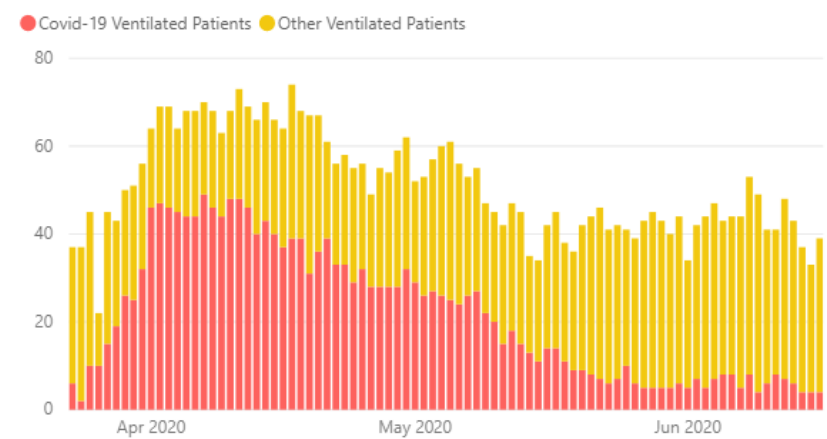
General Bed Capacity: Available & Occupied Beds and COVID-19 Bed Occupancy

3,457
Total Beds Available

81%
% Beds Occupied

2,813
Total Occupied Beds

322
Covid-19 Occupied Beds

2,491
Other Occupied Beds

644
Unoccupied Beds

General Bed Occupancy - % Occupied and Unoccupied

● Total Occupied Beds ● Unoccupied Beds
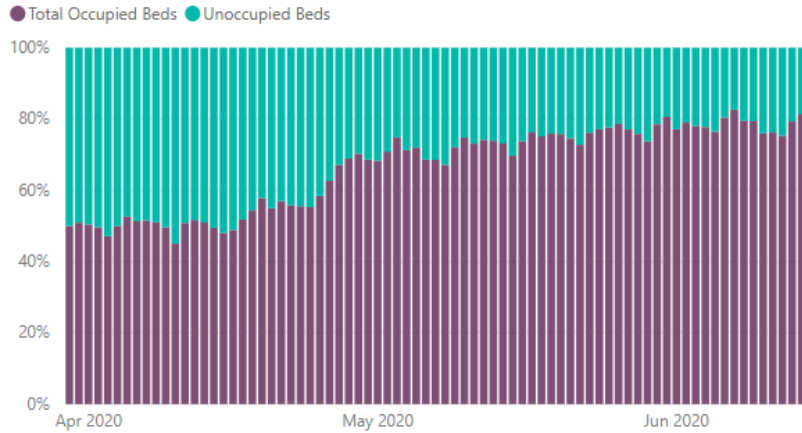
Covid-19 General Bed Occupancy : 5 Day Rolling Average by Date
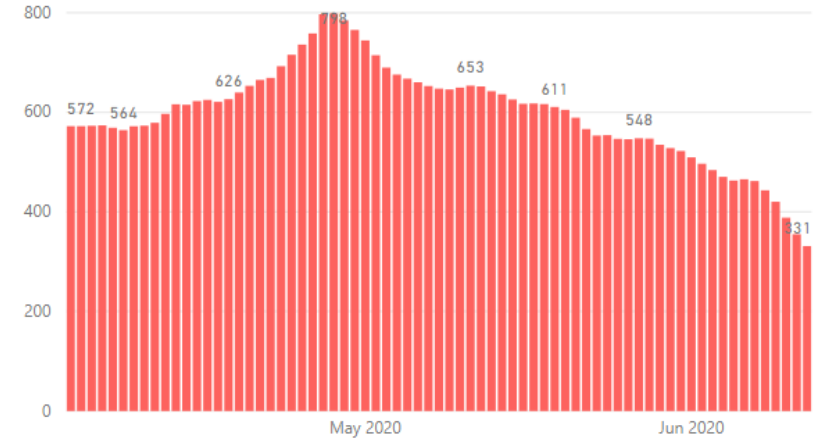
General Bed Occupancy - Covid-19 Occupied, Non Covid-19 Occupied and Unoccupied Beds

● Covid-19 Occupied Beds ● Other Occupied Beds ● Unoccupied Beds
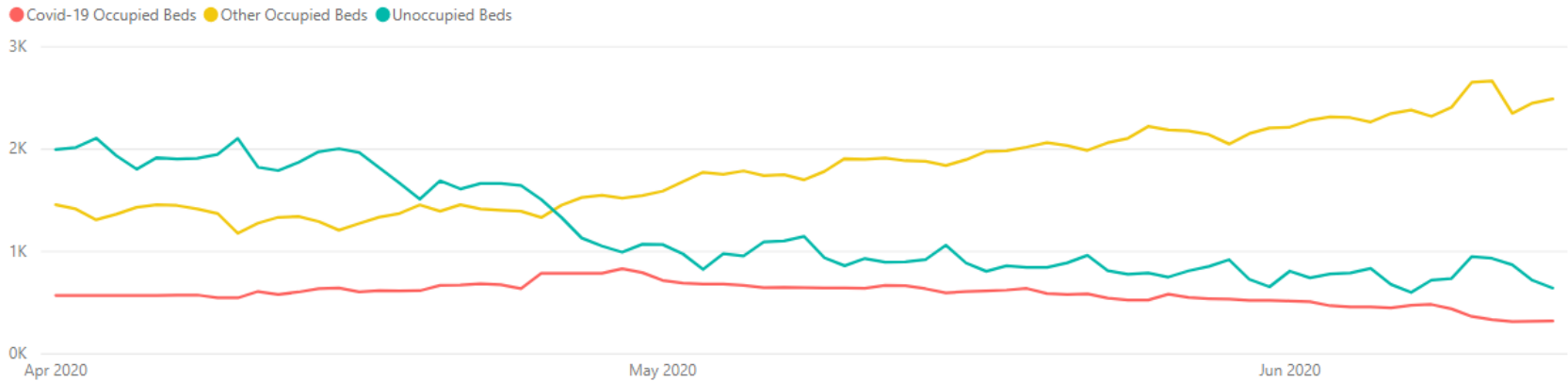
COVID-19 Care Home Total Acute Respiratory Outbreaks:
Active Cases Confirmed COVID-19, Suspected COVID-19 and Closed Outbreaks.

172
Total Acute Respiratory Outbreaks

51
Confirmed COVID-19

26
Suspected COVID-19

95
Closed COVID-19 Outbreaks

Confirmed COVID-19, Suspected COVID-19 and Closed COVID-19 Outbreaks by Reporting Date

🔴 Confirmed COVID-19 🟡 Suspected COVID-19 🔵 Closed COVID-19 Outbreaks
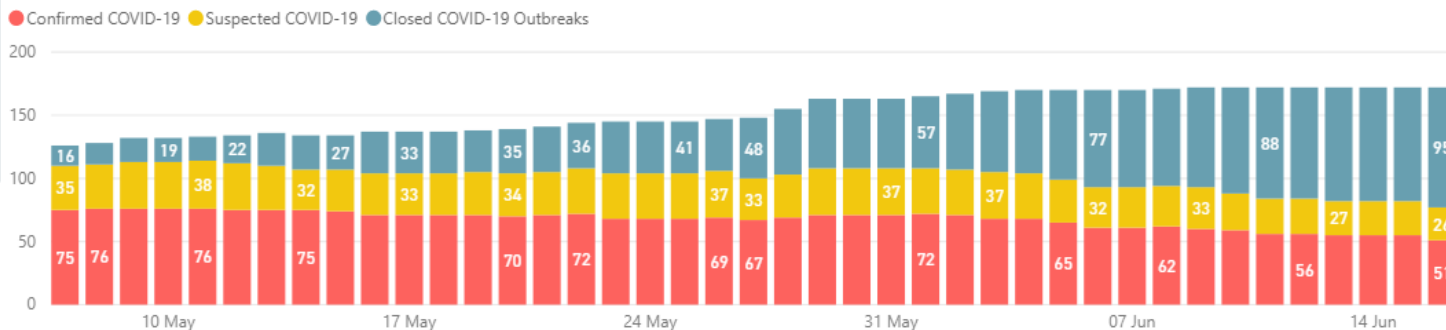
Key Definitions

Suspected case of COVID-19*

Any resident (or staff) with symptoms of COVID-19 (high temperature or new continuous cough), or new onset of influenza like illness or worsening shortness of breath.

*Symptoms may be more nuanced in older people with co-morbidities in care homes who may present with Flu Like Illness (FLI), respiratory illness, new onset confusion, reduced alertness, reduced mobility, or diarrhoea and sometimes do not develop fever. This may be true for COVID-19, so such changes should alert staff to the possibility of new COVID infection

Confirmed case of COVID-19

Any resident (or staff) with laboratory confirmed diagnosis of COVID-19.

Outbreak definition

Two or more cases in a facility which meet the case definition of a possible or confirmed case of COVID-19, within a 14-day period among either residents or staff in the care home **Note:** In a situation where a care home is reporting one possible case, the duty room in PHA will arrange for a swab to be undertaken for the symptomatic patient. If the test results for the single case is positive or any additional cases are reported during the monitoring period than further testing is advised for all staff and residents in line with the new guidance for testing.

Declaring the End of an Outbreak/outbreak closed

An outbreak can be declared over when there are no new cases for 14 days after symptom onset of most recent case.

TECHNICAL NOTES: COVID-19 TESTING (1)

COVID-19 cases are identified by taking specimens from people at testing centres across Northern Ireland and sending these specimens to laboratories to be tested. If the test is positive, this is a referred to as a Laboratory Completed Test. The information currently reported by DoH refers ONLY to the number of laboratory completed tests for the SARS-COV2 virus at 9am each day for the 4 HSC Trust laboratories listed below.

- Regional Virus Laboratory (Belfast);
- Antrim Testing Laboratory (commenced 23/03/2020);
- Craigavon Area Testing Laboratory (commenced 28/03/2020); and,
- Altnagelvin Area Testing Laboratory (commenced 03/04/2020).

Prior to testing commencing at Antrim, Craigavon Area and Altnagelvin, all laboratory completed tests for the SARS-COV2 virus in Northern Ireland were carried out by the Regional Virus Laboratory in Belfast.

National Testing Centres

Alongside testing by HSC Trust laboratories, there is a programme of testing for the SARS-COV2 virus being carried out at National Testing Centres (mainly for Health Care / Key Workers) by appointment only; although, information on the outcome of samples (swabs) taken at these National Testing Centres is not presented in this dashboard. Samples taken at National Testing Centres will be sent to laboratories for analysis and will be reported as a laboratory completed test in due course. They should NOT be added to the **Completed** laboratory results presented above.

Currently, the National Testing Centres in NI are located at the following sites: the SSE Arena, City of Derry Rugby Club and Craigavon Test Centre.

DATA PROVISION

Daily extracts based on laboratory completed tests completed and authorised by each HSC laboratory are provided to the DoH at 9am, and refer to the position at the end of the previous working day. Data on authorised completed laboratory results for the Regional Virus Laboratory are provided via a secure data link at 12 midday and 18:30pm each day, whilst data on authorised completed laboratory results for the remaining laboratories (Altnagelvin, Craigavon Area and Antrim) are available to download from the Regional Data Warehouse at 4am each day.

TECHNICAL NOTES: COVID-19 TESTING (2)

DATA QUALITY

Data is currently provided by the 4 HSC laboratories in two separate ways; (i) a data extract from RVL Belfast, and (ii) a data extract for Antrim, Craigavon Area and Altnagelvin laboratories via the Regional Data Warehouse.

Quality assurance of this data is undertaken by the DoH using a combination of automated and semi-automated programmes, with manual checking both before and post processing. Data from each source are merged and duplicate reports are generated to identify any duplicate test records based on 'Specimen Number' (RVL) or 'Ascension Number' for other laboratories. Duplicate tests are then removed from the data at this stage.

Data quality issues around completeness of Health Care Number, Date of Birth, and Postcode have limited our ability to identify both duplicate tests and individuals tested. However, this has improved over recent weeks and the information from the start of February 2020 is refreshed each day to take account of this.

It is also important to note that the information being reported by the DoH are derived from data extracts of LIVE Laboratory systems, and may therefore be revised or updated in subsequent data extracts. These revisions may improve issues around the completeness of the recording of the key variables above, but they may also provide information on additional tests for an individual that produced a positive laboratory
completed result, having previously tested negative. For these cases, the positive result will now be included and any previous negative results excluded from the report on individuals tested.

DATA REPORTING

Information provided by each HSC Trust Laboratory enables the DoH to report on the following:

- Number of individuals with a laboratory completed test for SARS-COV2 Virus;
- Number of individuals with a laboratory completed positive test for SARS-COV2 Virus;
- Number of individuals with a laboratory completed negative test for SARS-COV2 Virus; and,
- Total number of laboratory completed tests for SARS-COV2 Virus.

Data Presented by Date of Specimen
The data items listed above are presented by the date the specimen (swab) was taken from the individual being tested, rather than the date the laboratory tested, completed and authorised the result. Whilst this gives the most accurate analysis of how cases progress over time it does mean that the latest days' figures are usually incomplete, so it shouldn't be seen as a sudden large drop in cases.

It is also important to note that most testing to date has been offered to those in hospital with a medical need as well as HSC key workers, rather than the general population, many with mild symptoms. So completed cases represent the typical population of people with severe disease, rather than all of those who get infected.

TECHNICAL NOTES: COVID-19 TESTING

Local Government District (LGD)

Laboratory completed tests are aggregated to Local Government Districts, though a number of cases cannot be matched to this geographical are due to missing / incorrect postcodes. For this reason the LGD count will not add up to the total number of individuals tested for Northern Ireland.

KEY TERMS USED

Individuals Tested

Refers to the number of individuals who have had a laboratory completed test for the SARS-COV2 Virus since February 2020. If an individual has had more than one test for the SARS-COV2 Virus, only the first laboratory completed positive test result will be recorded, with all other results of laboratory completed tests excluded, regardless of when the test took place.

Cumulative Individuals Tested

Refers to the total number of individuals who have had a laboratory completed test for the SARS-COV2 Virus since February 2020. This information is presented by the date the specimen (sample / swab) had been taken at a testing location, and does not refer to the date on which the laboratory completed and authorised the result of the test.

Total Tests

Refers to the total number of laboratory completed tests for the SARS-COV2 Virus. If an individual has had more than one laboratory completed test, each result will be counted.

Cumulative Total Tests

Refers to the total number of completed authorised laboratory tests for the SARS-COV2 Virus since February 2020. This information is presented by the date the specimen (sample / swab) had been taken at a testing location, and does not refer to the date on which the laboratory completed and authorised the result of the test.

TECHNICAL NOTES: COVID-19 TESTING

Laboratory Completed Test

Refers to the final stage of the testing process, whereby a specimen / sample (swab) has been taken at a testing location, the specimen / sample has been booked and processed by a laboratory, and a result been completed and authorised by a laboratory technician.

Laboratory completed results for each of the HSC Trust Laboratories will be listed as one of the following; with only positive, negative and indeterminate results being included in individuals tested and total tests.

- Positive;
- Negative;
- Indeterminate;
- Not Tested (not included in individuals tested and total tests); or,
- Invalid (not included in individuals tested and total tests).

TECHNICAL NOTES: DEATHS

Death extracts are provided daily to the DOH detailing the count of deaths reported to the PHA where the deceased has had a positive test for COVID-19 and died within 28 days, whether or not COVID-19 was the cause of death. PHA sources include reports by healthcare workers (e.g. HSC Trusts, GPs) and information from local laboratory reports. Local Government Districts are defined by the deceased's residential setting. Interpretation of the figures should take into account that totals by date of death, particularly for recent prior days, are likely to be updated in future releases.

DATA QUALITY

Data is refreshed each day to include any deaths that have been reported during the current reporting period (from 09:30 am one day previous until 09:30 am on the day of reporting). Deaths submitted by HSC Trusts after 9:30am will be reported in the Daily COVID report for the following day. There may also be deaths reported to the PHA a number of days after the death occurred. Data will be refreshed and revisions to previous reported figures by date of death will be provided in the latest report. Updates are available for access by DoH via secure file transfer by 10.45am each day.

DATA REPORTED

Data is reported in the following ways:

- Total number of deaths reported up to the end of the current reporting period
- Total number of deaths reported in the current reporting period
- Total number of deaths reported up to the end of the current reporting period, split by Local Government District (LGD)
- Total number of deaths reported up to the end of the current reporting period, split by Gender
- Total number of deaths reported up to the end of the current reporting period, split by Age Group
- Daily updated counts of deaths reported split by date of death

TECHNICAL NOTES: ADMISSIONS

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

A daily download is taken at 08:30 from the Admissions and Discharges universe of the Regional Data Warehouse reflecting admissions as of midnight prior to the download date. Patients admitted with suspected or confirmed COVID-19 are identified using specific Method of Admission Codes (CR or CC) and Specialty Codes (COVS or COVC). Method of Admission codes are only used for non-elective patients only.

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.

Admission / 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 with suspected or confirmed COVID-19 is transferred between hospitals within the same HSC Trust they are admitted using a CR/CC Method of Admission Code. The Method of Discharge is recorded as ID – Internal Discharge.

The Belfast Trust identifies confirmed /suspect COVID-19 patients by using the specialty codes (COVC or COVS). Any internal transfers will be admitted using the IA Method of Admission Code.

Internal transfers are not counted as new admissions and only the final admission record will be counted for these patients.

TECHNICAL NOTES: ADMISSIONS

Inpatients / Hospitalisations

Number of people currently in hospital with confirmed or suspected COVID-19 at midnight, taking into account new admissions and subtracting deaths and discharges.

Discharges + Inpatients ≠ Admissions

Inpatients are counted according to the hospital the patient is physically present in, this can lead to the total inpatient figure and the total discharge figure not summing to the total admissions figure. For example,
a patient is admitted to hospital A and later discharged from hospital A and transferred to hospital B within the same HSC Trust. This is an internal transfer, therefore an admission and discharge would be counted for hospital A but no admission or discharge would be counted for hospital B. The patient may however be counted as an inpatient at hospital B. Consequently the admissions total for hospital B will not be equal to the sum of discharges and inpatients for hospital B.

The alternative to this would be to count all internal admissions but this double counts patients if / when they are tranferred between hospitals and would provide an inflated figure for admissions and discharges.

Definitions

Admission: Any person admitted to hospital with suspected or confirmed COVID-19, excluding internal admissions.

Inpatient / Hospitalisation: Any person admitted to hospital with suspected or confirmed COVID-19 that has not been discharged or died.

Discharge: Any person admitted to hospital with suspected or confirmed COVID-19 that has subsequently been discharged or died., excluding internal transfers.

Date/Time Stamp: Midnight

Specialty: COVS or COVC

Method of Admission: CR: Suspected COVID-19 or CC: Confirmed COVID-19

TECHNICAL NOTES: BED OCCUPANCY

The Department sources data on Intensive Care Units from the CCANI network each day. A conference call is held between CCANI staff and Trust staff to gather this information at 9.30am each morning.

CCaNNI provide the data to the Department as excel spreadsheets, providing the ICU and ventilation position for each Intensive Care Unit as of the morning of reporting. The ICU capacity presented includes additional surge capacity available on the day of reporting. The spreadsheets includes for each Unit (including Paediatric and Cardiac ICU):

- the number of available ICU beds;
- the number of beds occupied by Covid-19 confirmed patients;
- the number of beds occupied by Covid-19 suspected patients; and
- the total number of beds occupied.

The Department sources data on General Beds Occupancy from the Health and Social Care Board (HSCB) each day. Trusts are required to submit information on the number of beds occupied, available and closed within each of their hospital sites to the HSCB at 10.30am each morning to reflect data from the previous day. Within this return, Trusts provide the total bed complement of the hospital site, the number of beds closed, the number occupied by Covid-19 patients, the total number occupied and the number still available.

DATA QUALITY

Quality assurance of this data is undertaken by the DoH using a combination of automated and semi-automated programmes, with manual checking both before and post processing. When occupancy data is received into the Department, a member of staff checks that the figures presented in both files appear complete. Any discrepancies are raised with the data supplier to seek clarification or revision. Data files are then appended to relevant 'master' files which contain a record of previous returns. Sense checks are undertaken to ensure internal consistency and clarification is sought from the supplier if data looks missing or erroneous. Data for ICU is reported based on the date that the CCaNNI network collated the information and data for general beds is based on the occupancy position on the day prior to reporting.

Given that the information is collated from teams in each Trust responsible for the management of ICU beds, it is believed to be an accurate reflection of ICU capacity on any given day. It presents a static picture at a point in time and is not revised retrospectively unless an error is discovered in the data or a change to the methodology used to produce the information is required. Any such changes will be alerted to users.
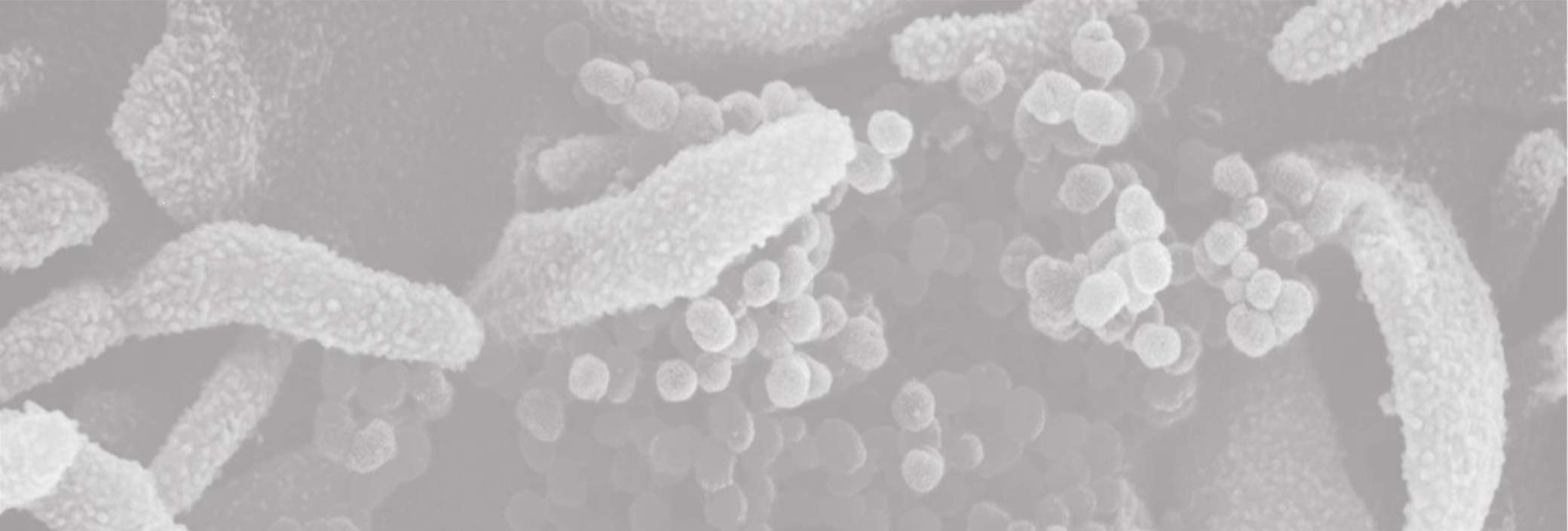
TECHNICAL NOTES: BED OCCUPANCY

General beds occupancy is derived from a live Patient Administration System and is subject to revision as patient records are updated. Data provided by HSCB is re-run for three consecutive days for each day of reporting to capture any updates to the Patient Administration System, however the data presented within this Dashboard is based on the initial run date of the data and therefore doesn't include updates made to PAS on subsequent days.

Both data sources are considered to be management information and are therefore provisional and subject to revision.

DATA REPORTING

Information provided by the CCaNNI network and HSCB enables the Department to report on the number of patients occupying ICU and general beds each day, how many of these patients have suspected or confirmed Covid-19 and how many beds are still available across the region. Charts are presented to show the daily occupancy levels as well as 5 day rolling averages which help to smooth the variations in daily data.