Introduction

COVID-19 is an illness that can affect your lungs and airways. It is caused by a type of virus called SARS-CoV-2 (coronavirus). This bulletin aims to provide a weekly update on the current situation relating to the virus in Northern Ireland. It presents high level data on key areas currently being used to monitor COVID-19 activity and highlights current issues and public health messages.

The data presented complements the current range of existing data available from other sources including the PHA Monthly Epidemiological bulletin, Department of Health COVID-19 Daily Dashboard and NISRA Deaths Registered Dashboard. It should be noted that the data included may be subject to change as systems are updated and comparisons with existing data sources may not be possible, for example, due to variations in data extraction and processing.

Key messages

Again this week we are seeing increased activity in the number of COVID-19 cases and clusters. This increase indicates that the virus is on the advance again in Northern Ireland. We are at a crucial stage and cannot afford to become complacent. That's why following the public health advice remains important. We all have a responsibility to take steps to keep ourselves and each other safe from coronavirus by maintaining social distance, washing or sanitising hands regularly and wearing face coverings on public transport and in shops, particularly where social distancing cannot be maintained.
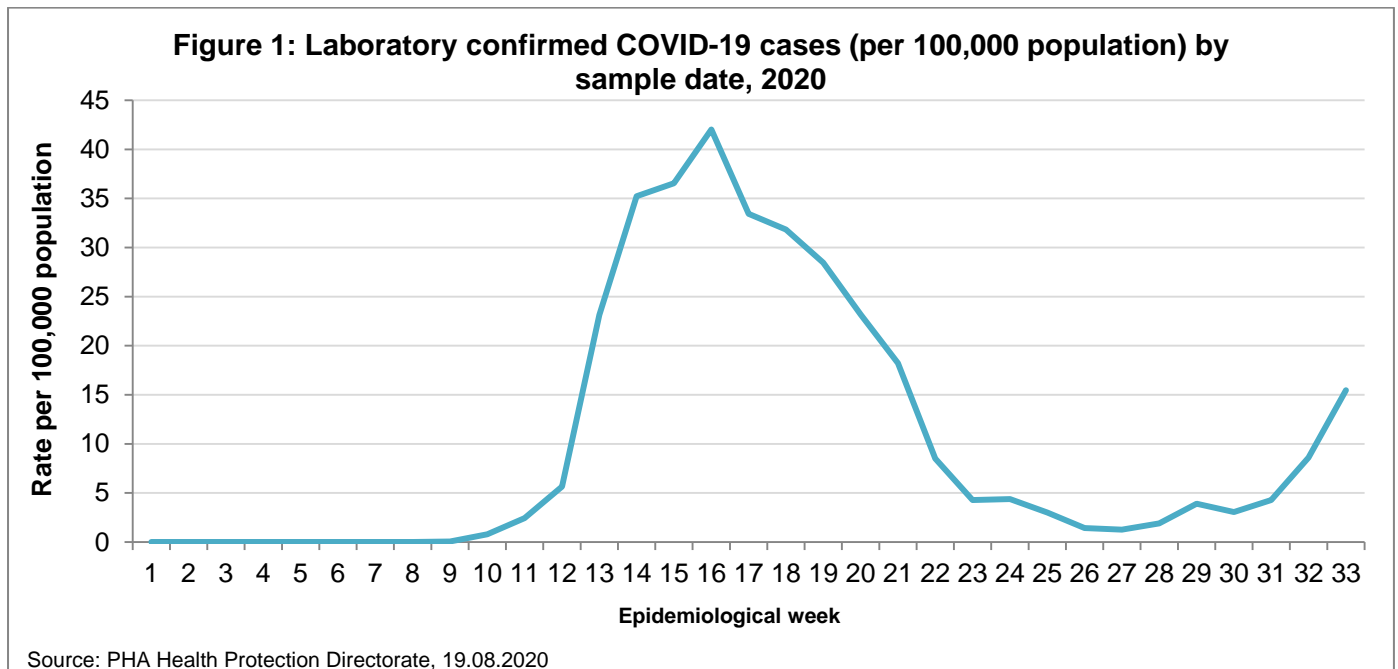
We should all act on the basis that COVID-19 may be circulating in the area where we live and take steps to help protect ourselves and others. We can spread the virus even if we don't have symptoms, so these steps will help to prevent cases and reduce the number of clusters.

It is vital that individuals self-isolate from when they **first** develop symptoms (a high temperature, a new continuous cough or a loss/change in sense of smell or taste) and arrange to be tested.

Further information and advice is regularly updated and available from the PHA website.

Incidence[1]

During the course of the pandemic the rate of confirmed laboratory cases of COVID-19 rose steeply from March, reaching a peak of 42 per 100,000 population in mid-April (week ending 19 April). Following implementation of the stay at home advice, infections declined to a low of 1.3 per 100,000 population (week ending 5 July). However, in recent weeks there has been an increasing trend in the number of new cases.

Figure 1: Laboratory confirmed COVID-19 cases (per 100,000 population) by sample date, 2020

Source: PHA Health Protection Directorate, 19.08.2020

Estimated incidence (number of new cases in the seven days up to 16 August 2020)

The current incidence of positive laboratory cases is 15 per 100,000 of the Northern Ireland population[2]. However, if we assume that there are 1.3 infected individuals for every laboratory confirmed case we know about, the estimated weekly incidence is 36 per 100,000 population (or 1 in 2,810 people)[3].

Estimated prevalence

The prevalence of active cases, as of 16 August 2020, is estimated to be 31 per 100,000 population (1 in 3,232), assuming that 50% of cases experience no symptoms[4]; 18 per 100,000 (1 in 5,489) if only 15%experience no symptoms[5]; and 77 per 100,000 (1 in 1,293) if 80% experience no symptoms[6,7,8].

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[1] Epidemiological week is a standardised method of counting weeks [Monday–Sunday] to allow for the comparison of data from year to year.
[2] Rates calculated using 2019 Mid-Year Population Estimates for Northern Ireland https://www.nisra.gov.uk/publications/2019-mid-year-population-estimates-northern-ireland
[3] Bohning D, Maruotti A, Rocchetti I, and Holling H. (2020). Estimating the undetected infections in the Covid-19 outbreak by harnessing capture-recapture methods. International Journal of Infectious Diseases.
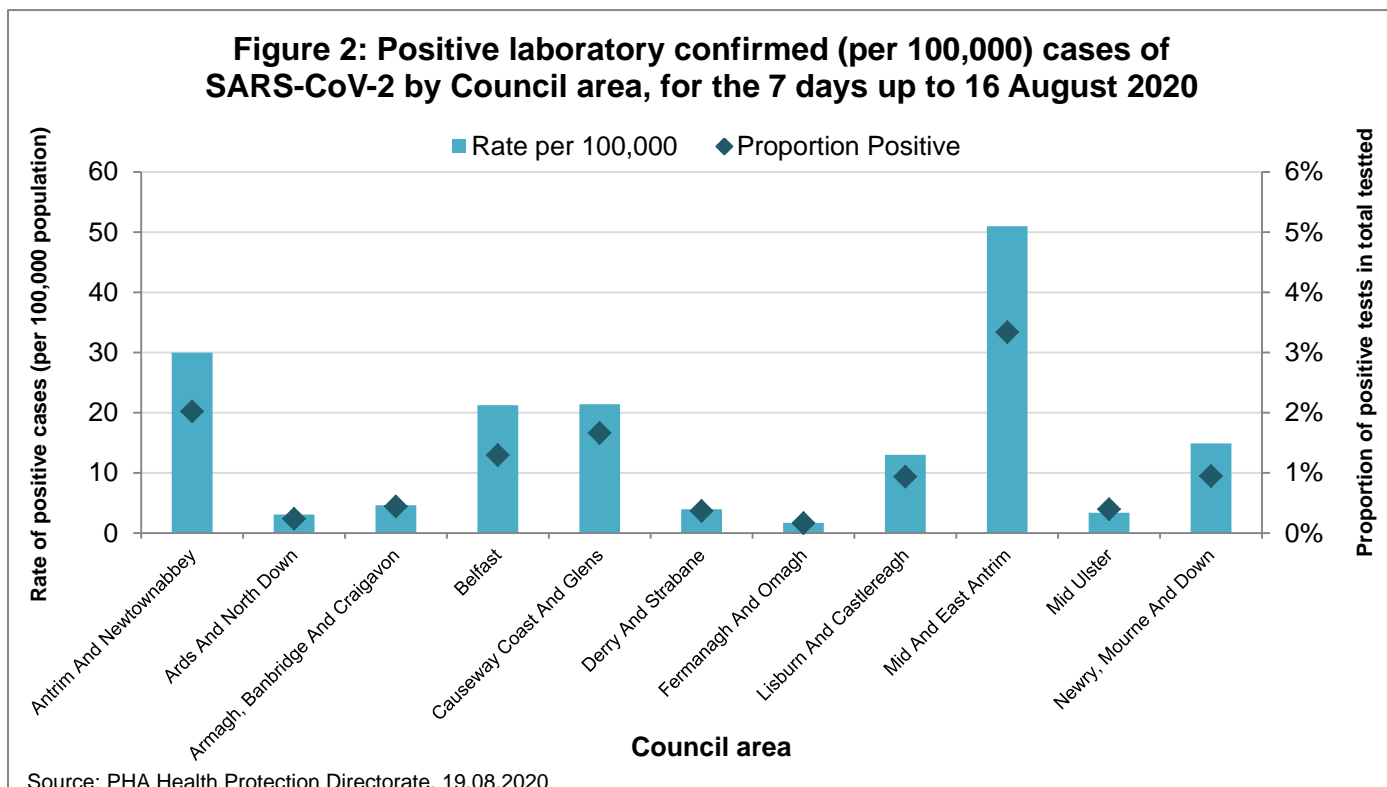[4] https://hub.jhu.edu/2020/05/12/gigi-gronvall-asymptomatic-spread-covid-19-immunity-passports/
[5] Mizumoto K, Kagaya K, Zarebski A, Chowell G. Estimating the asymptomatic proportion of coronavirus disease 2019 (COVID-19) cases on board the Diamond Princess cruise ship, Yokohama, Japan, 2020. Eurosurveillance. 2020;25(10):2000180.
[6] Lavezzo E, Franchin E, Ciavarella C, Cuomo-Dannenburg G, Barzon L, Del Vecchio C, Rossi L, Manganelli R, Loregian A, Navarin N, Abate D. Suppression of a SARS-CoV-2 outbreak in the Italian municipality of Vo'. Nature. 2020;30:1-5.
[7] Day M. Covid-19: four fifths of cases are asymptomatic, China figures indicate. BMJ, 2020.
[8] Ing AJ, Cocks C, Green JP. COVID-19: in the footsteps of Ernest Shackleton. BMJ Thorax. 2020.

COVID-19 testing by council area

Figure 2: Positive laboratory confirmed (per 100,000) cases of SARS-CoV-2 by Council area, for the 7 days up to 16 August 2020

Source: PHA Health Protection Directorate, 19.08.2020

Comment: In the seven days up to 16 August 2020 the rate of positive cases across Northern Ireland was 15 per 100,000 population. Rates varied by council area from 2 per 100,000 population in Fermanagh and Omagh council area, up to around 51 per 100,000 population in Mid and East Antrim council area. The proportion of positive tests for Northern Ireland was 1.2%, ranging from 0.2% in Ards and North Down and Fermanagh and Omagh council arears in to 3.3% in Mid and East Antrim.

Figure 3: Density map of confirmed COVID-19 cases for the week ending 16 August 2020
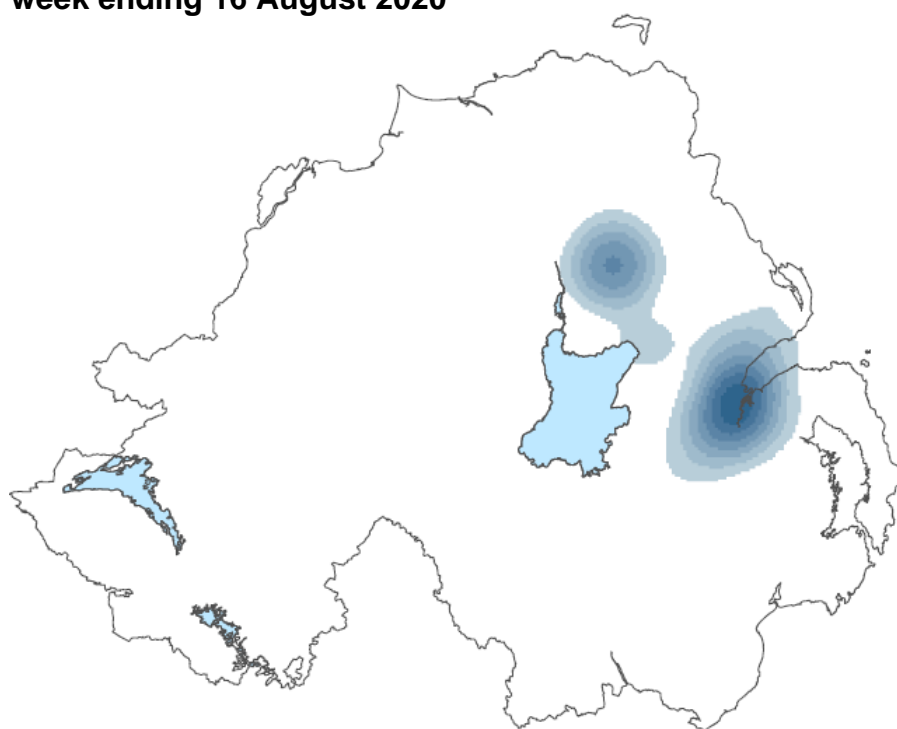

Figure 3 shows a contour density map based on the number of confirmed COVID-19 cases in the week ending 16 August 2020. The contour lines on the map indicate increasing density of cases, with the darkest shade of blue indicating where there is the greatest density of cases of COVID-19.
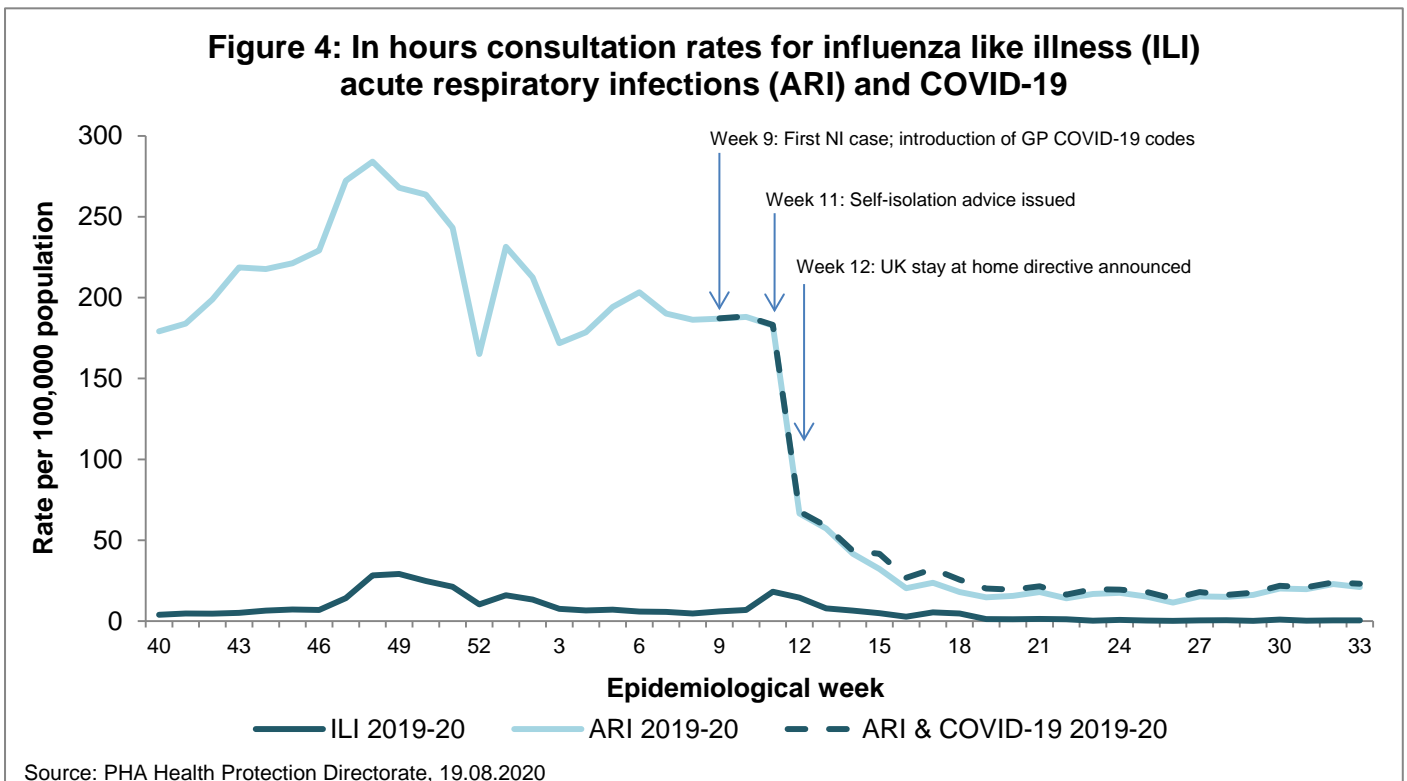
The advantage of this type of map over the rates by council area, provided in Figure 2, is that it removes administrative boundaries and reflects the true geographical pattern of disease.

Clusters

Definition: A cluster is currently defined as two or more laboratory confirmed cases of COVID-19 among individuals associated with a key setting, who have illness onset dates within a 14 day period. Key settings in which clusters have occurred in recent weeks include: workplaces, retail and hospitality premises, house parties and sporting settings[9].

Comment: There have been seven new clusters in the seven days up to 19 August 2020. In total, up to 19 August 2020, a total of 11 clusters with greater than five people have been identified in the following council areas; Newry, Mourne and Down (n=4), Mid and East Antrim (n=3), Antrim and Newtownabbey (n=1), Ards and North Down (n=1), Armagh City, Banbridge and Craigavon (n=1) and Causeway Coast and Glens (n=1). In addition, there have been 27 clusters across Northern Ireland with fewer than five people.

Primary Care[10]

Figure 4: In hours consultation rates for influenza like illness (ILI) acute respiratory infections (ARI) and COVID-19

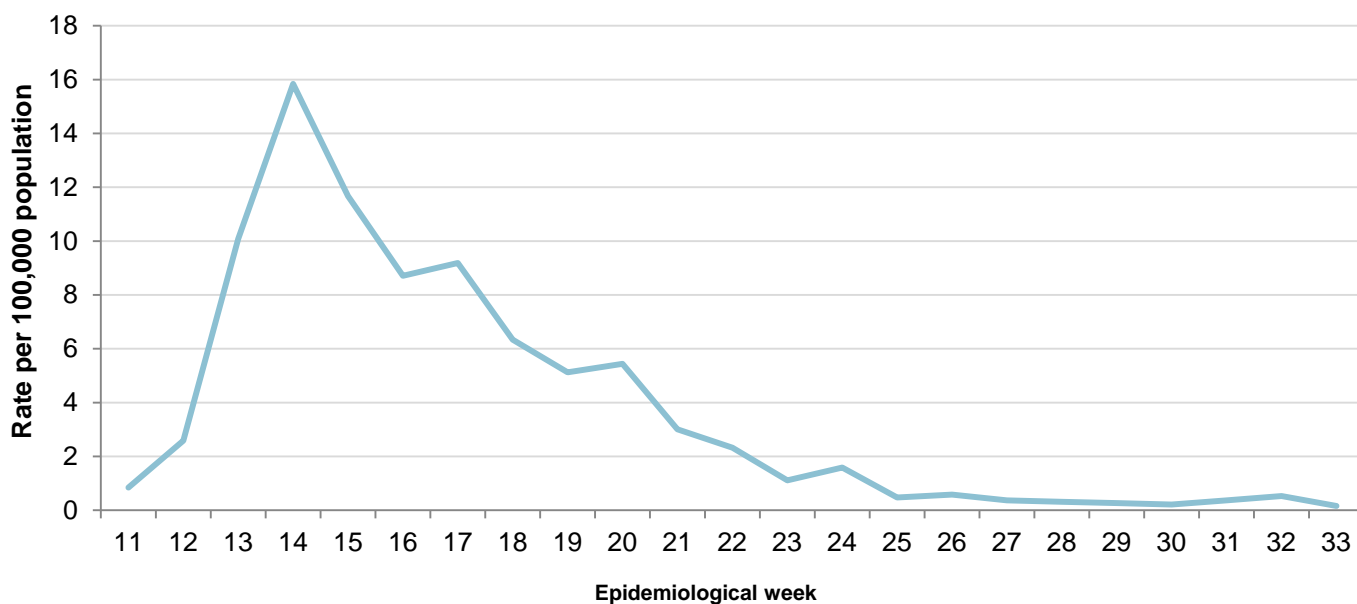Source: PHA Health Protection Directorate, 19.08.2020

Comment on the trend: Acute Respiratory Infection (ARI) consultation rates fell from 183 per 100,000 population in week 11 to 67 per 100,000 population in week 12, coinciding with the introduction of self-isolation advice and a change to primary care delivery in managing COVID-19 cases. ARI consultation rates continued to decline until week 26 when the rate was 11 per 100,000 population. While there has been an increasing trend in the rates from week 26, the rate of ARI consultations at week 33 (up to the 16 August 2020) was 21 per 100,000 population, a slight decrease on the previous week.

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[9] COVID-19 transmission is most common in in household settings. The number of affected households is not reported.
[10] GP coding for COVID-19 data was not available before week 14 of 2020.
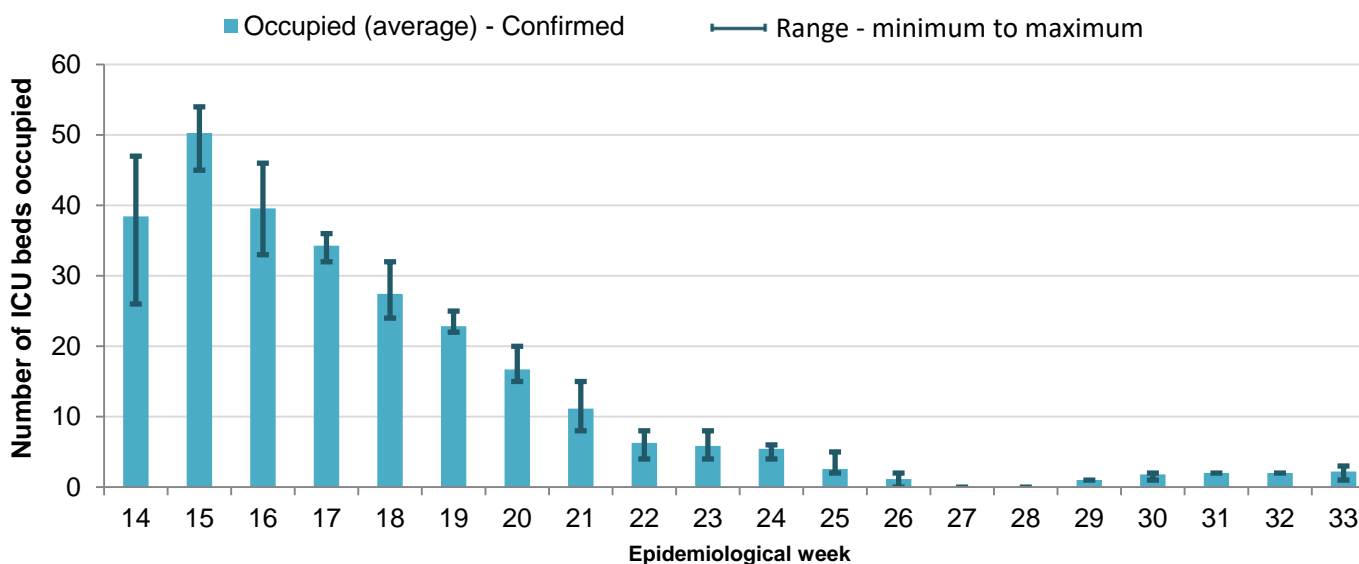
Secondary Care

Figure 5: Rate of hospital admissions due to COVID-19 (Confirmed only)

Source: Health and Social Care Board, Performance Management and Service Improvement, Information Team 19.08.2020

Comment on the trend: The rate of confirmed hospital admissions for COVID-19 peaked in week 14 at 16 per 100,000 population declining to 0.2 per 100,000 in week 30. A rate of 0.2 per 100,000 population was observed in week 33 (ending 16 August 2020).

Figure 6: ICU occupancy of COVID-19 cases (Confirmed) - weekly average from 30 March 2020

Source: Critical Care Network Northern Ireland (CCaNNI) daily returns, Health and Social Care Board, Performance Management and Service Improvement, Information Team, 19.08.2020
Note: The recording and reporting of occupancy at weekends ceased from the 4 July 2020.

Comment on the trend: ICU occupancy for COVID-19 confirmed cases reached a peak in week 15 (ending 12 April 2020) and following this declined to zero in weeks 27 and 28. In week 33 (ending 16 August 2020), the average ICU bed occupancy was 2 (range of 1 to 3).
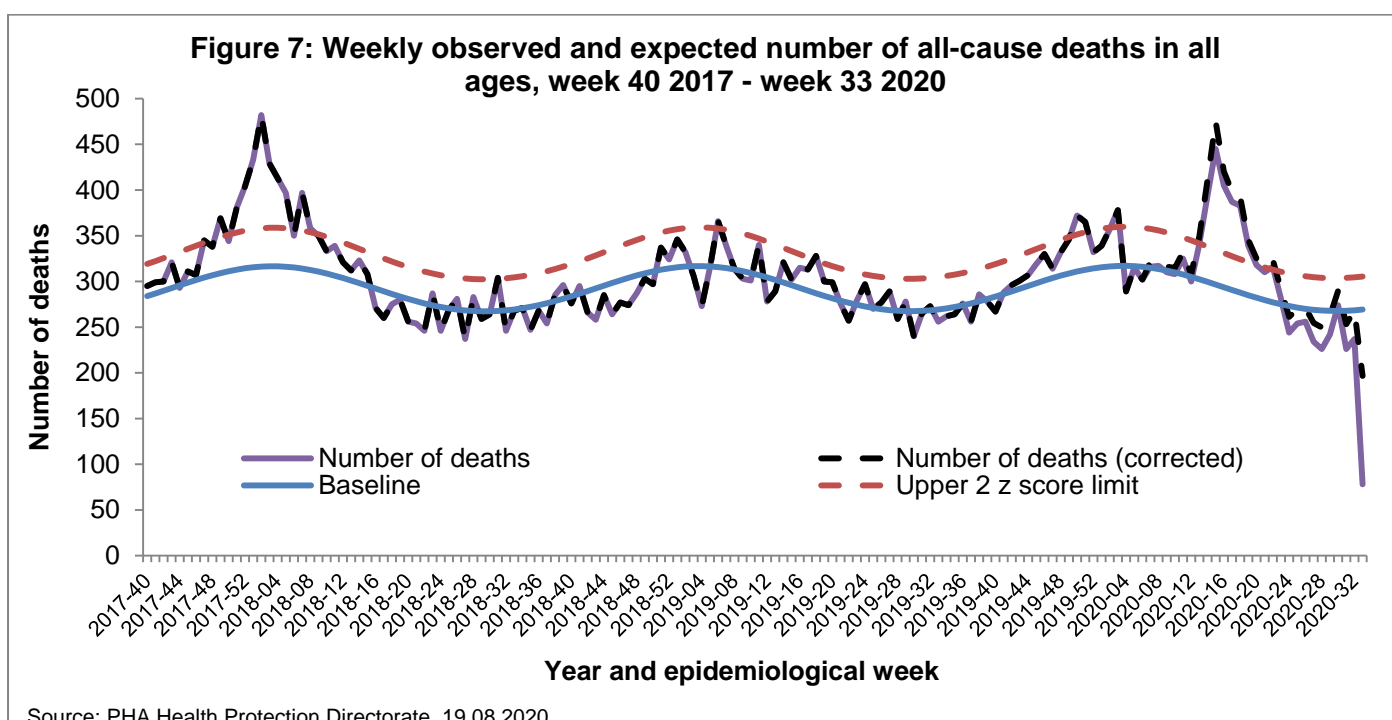
Mortality surveillance

Medical Certificate of Cause of Death for confirmed / suspected COVID-19

The Northern Ireland Statistics and Research Agency (NISRA) provide a weekly update on the number of **registered respiratory and COVID-19 associated deaths each Friday**. In the week ending 7 August 2020, five COVID-19 deaths were registered. From the beginning of 2020 to the week ending 7 August 2020 the proportion of COVID-19 deaths registered was 8% of the total number of registered deaths.

All-cause excess deaths

EuroMOMO is a European mortality monitoring activity, aiming to detect and measure excess deaths related to seasonal influenza, pandemics and other public health threats.

Figure 7: Weekly observed and expected number of all-cause deaths in all ages, week 40 2017 - week 33 2020

Source: PHA Health Protection Directorate, 19.08.2020

Comment on the trend: In 2020, excess all-cause deaths were reported in epidemiological weeks 13 to 22. This increase in deaths happened outside the influenza season and at a time when flu rates in Northern Ireland were low. Excess deaths were mainly in those over 65 years, which is in line with the age profile of COVID-19 deaths.

Despite delay correction, reported mortality data is still provisional due to the time delay in registration and observations which can vary from week to week.

Focus on registered deaths and COVID-19

Figure 8: Northern Ireland registered deaths^, including COVID-19 associated deaths, up to 7 August 2020

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
COVID-19 death certificate, Part 1	0	0	0	0	0	0	0	0	0	0	0	8	50	75	100	123	120	75	65	45	35	18	15	14	11	10	7	0	6	1	4
COVID-19 death certificate, Part 2	0	0	0	0	0	0	0	0	0	0	0	1	1	5	1	1	5	4	9	9	8	14	2	6	3	1	1	2	2	1	0	1
Non-COVID-19 deaths	395	411	347	323	332	306	297	347	312	324	270	278	379	359	323	342	303	252	322	272	267	284	271	273	283	278	266	238	300	272	275
Average deaths (previous 5 years 2015-2019P)	402	391	383	374	346	340	317	343	356	343	297	320	298	295	290	284	320	274	295	290	279	271	293	286	270	288	255	264	265	282	276
Total deaths (2020P)	395	411	347	323	332	306	297	347	312	324	271	287	434	435	424	470	427	336	396	325	316	304	292	290	295	289	275	240	307	273	280

Registration week (ending Friday)

Source: NISRA; Figures relate to all deaths registered up to 7 August 2020 with a mention of COVID-19 on the death certificate; P Weekly published data are provisional; ^1 This data is based on registrations of deaths, not occurrences. The majority of deaths are registered within five days in Northern Ireland.

Comment: Figure 8 highlights the total weekly number of deaths registered[11] in Northern Ireland from the beginning of 2020 and compares these to the average number of deaths registered in the corresponding week for the five year period 2015-2019[12]. It also highlights the weekly breakdown of registered deaths that were non-COVID-19 related and those associated with COVID-19.

From week 11 (ending 20 March 2020), when the first COVID-19 death was registered, to week 31 (ending 7 August 2020), 976 'excess deaths' (ie deaths above the average for the corresponding weeks in previous years) have been registered in Northern Ireland. In the year to date (week 1 to week 31 ending 7 August 2020) there were 776 excess deaths registered, with the number of deaths registered between weeks 1 to 10 less than the average for the same period in the previous 5 years.

COVID-19 deaths include any death where coronavirus or COVID-19 (suspected or confirmed) was mentioned anywhere on the death certificate (Part 1 or Part 2).[13] Part 1 includes the diseases or conditions that led directly to death while Part 2 includes other conditions that were not part of the main cause of death but may have contributed in hastening death. The number of death registrations mentioning COVID-19 on the death certificate increased from one in week 11 to 128 in week 16, then fell for six consecutive weeks to 20 (week 22). In week 31, five COVID-19 deaths were registered. To date (week 11 to week 31 ending 7 August 2020) there have been 859 deaths associated with COVID-19. Variation in the proportion of COVID-19 associated deaths relative to excess deaths suggests that COVID-19 associated deaths may not account for all excess deaths during the period.

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[11] P Weekly published data are provisional and subject to change.

[12] The 5-year average is not a whole number so comparisons with 2020 week-on-week can vary by up to one death due to rounding.

[13] Please note: Where COVID is mentioned in part 1 it may not be the underlying cause of death. NISRA quarterly statistics provide detail of underlying cause following coding to ICD-10 rules; figures are available up to Q1 at https://www.nisra.gov.uk/statistics/registrar-general-quarterly-report/registrar-general-quarterly-tables and Q2 will be published on 17th September.

Appendix

Incidence and prevalence
Data provided jointly with the Department of Health COVID-19 Modelling Group.

COVID-19 testing by council area
Data are sourced from the PHA Health Protection Directorate laboratory surveillance system. The system collates SARS-CoV-2 laboratory data on all tests from HSC Trust laboratories and data from the National Testing Programme in Northern Ireland. Further detail on collation and analysis of this data is available from the PHA Monthly Epidemiological bulletin

Primary Care
GP in-hours respiratory syndromic surveillance data is extracted from the Apollo GP Flu Surveillance System (Wellbeing Software) and is sourced by the PHA Health Protection Surveillance team. Data are analysed to produce trends of ARI, ILI and COVID-19 consultation rates. Further details on collation and analysis of this data is available from the PHA Monthly Epidemiological bulletin

Admissions
Data are sourced from the Patient Administration System through the Health and Social Care Board, Performance Management and Service Improvement, Information Team.

ICU Occupancy
Data are sourced from daily Critical Care Network Northern Ireland (CCaNNI) report and provided by the Health and Social Care Board, Performance Management and Service Improvement, Information Team. Data are included from 30 March 2020; includes Adults, Paediatrics and Cardiac Intensive Care Units.

All-cause excess deaths
The PHA Health Protection Directorate reports the weekly number of excess deaths from any cause for Northern Ireland using the Mortality Monitoring in Europe (EuroMOMO) model. Further information is available here. Based on mortality data supplied by NISRA, EuroMOMO produces the number of expected and observed deaths every week, corrected for reporting delay and standardised for the population by age group and region. Excess mortality is reported if the number of observed deaths exceeds the number of expected deaths, and is defined as a statistically significant increase in the number of deaths reported over the expected number for a given point in time. Further details on collation and analysis of this data are available from the PHA Monthly Epidemiological bulletin

This bulletin is produced by the Health Intelligence Team on behalf of the Director of Public Health.

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