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.
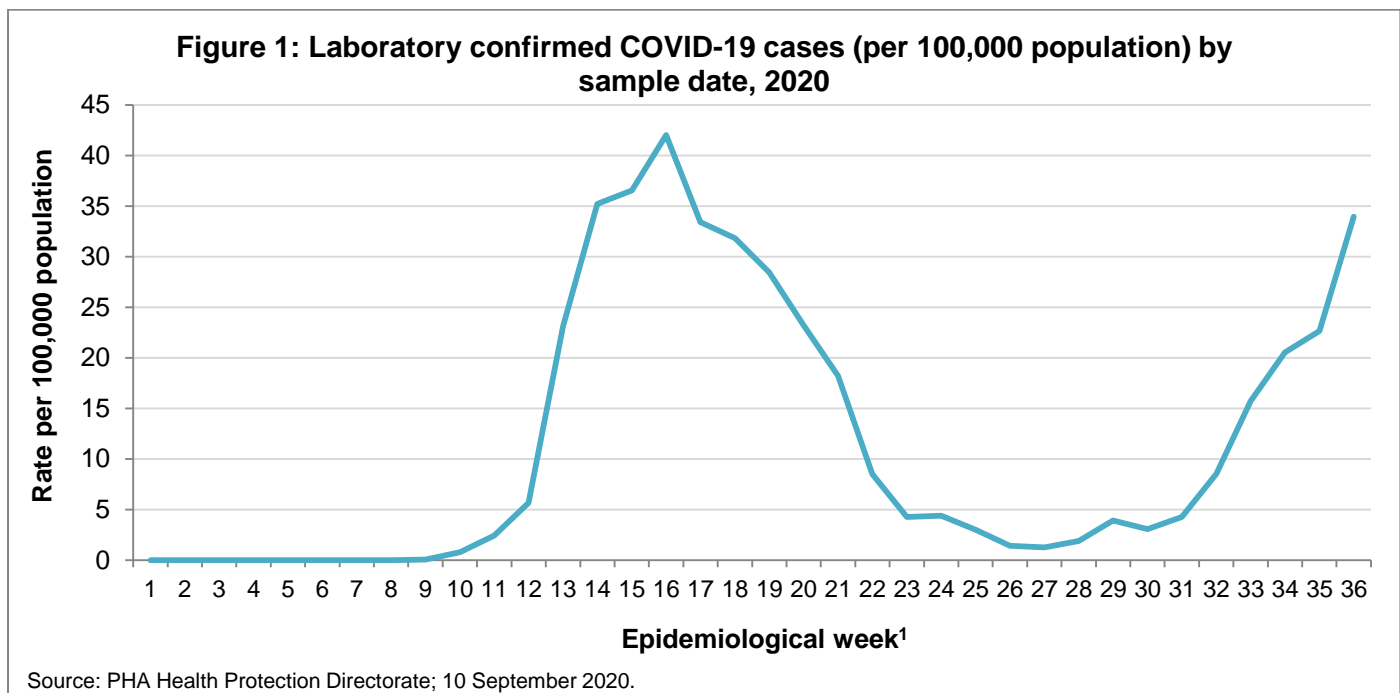
Key messages

This week has seen an increasing trend in the number of new confirmed COVID-19 cases and clusters, but particularly in younger age groups.

While those in younger age groups may be at less risk of severe consequences from the disease, they have an important role in helping to prevent spread of the virus. That's why following the public health advice remains important: taking steps to avoid gatherings where there is little social distancing, washing and sanitising hands regularly and wearing face coverings will help to protect not only ourselves but those we care about.

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

Incidence and prevalence

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

Source: PHA Health Protection Directorate; 10 September 2020.

Comment: There is a continued increasing trend in the number of new COVID-19 cases.

Estimated incidence (number of new cases in the seven days up to 6 September 2020)

The current incidence of positive laboratory cases is 34 per 100,000 of the Northern Ireland population (or 1 in 2,945 people)[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 78 per 100,000 population (1 in 1,280)[3].

Estimated prevalence

The prevalence of active cases, as of 6 September 2020, is estimated to be 68 per 100,000 population (1 in 1,473), assuming that 50% of cases experience no symptoms[4]; 40 per 100,000 population (1 in 2,503) if only 15% experience no symptoms[5]; and 170 per 100,000 (1 in 589) 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.
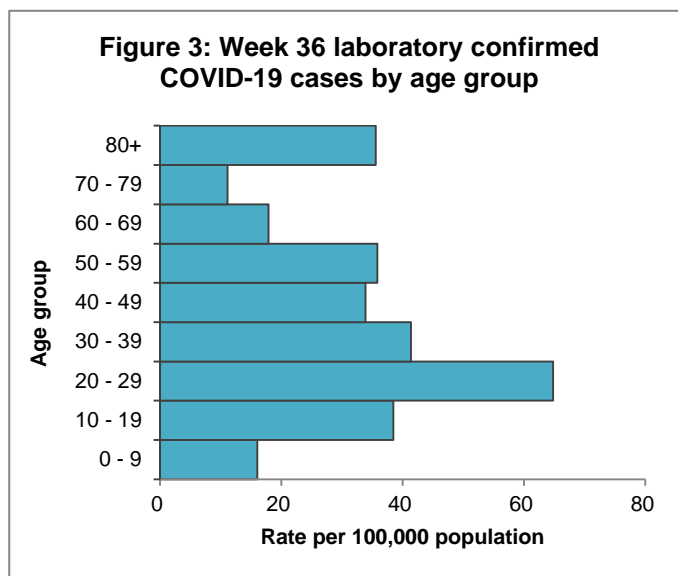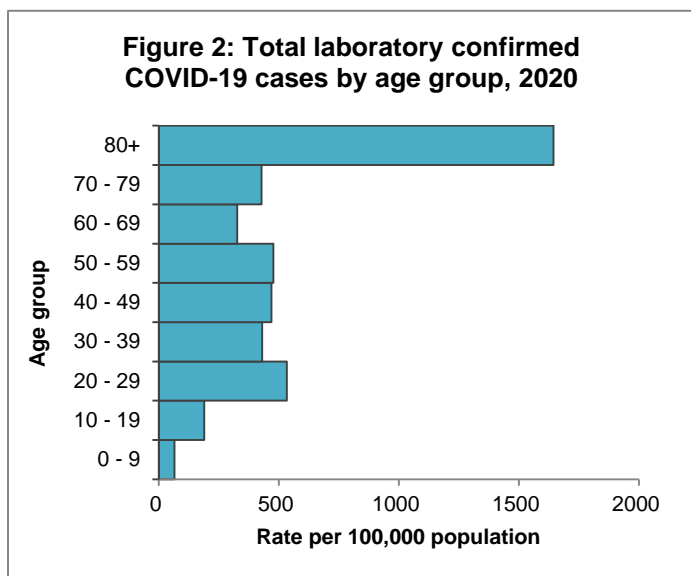[6] Lavezzo E, Franchin E, Ciavarella C, Cuomo-Dannenburg G, Barzon L, Del Vecchio C, Rossi L, Manganelli R, Loregian A, Navarin N, Abate D. Suppression of a SARS-CoV-2 outbreak in the Italian municipality of Vo'. Nature. 2020;30:1-5.
[7] Day M. Covid-19: four fifths of cases are asymptomatic, China 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 age group

Figures 2 and 3 show the rates (per 100,000 population) of laboratory confirmed COVID-19 cases by age group for the year 2020 (cumulative) and for week 36 (ending 6 September 2020) respectively, highlighting the variation in the age profile of cases for each time period.

Figure 2: Total laboratory confirmed COVID-19 cases by age group, 2020

Figure 3: Week 36 laboratory confirmed COVID-19 cases by age group

Source: PHA Health Protection Directorate; 10 September 2020; includes all testing data (HSC Laboratory and the National Testing Programme).

Figure 4: Laboratoratory confirmed COVID-19 cases by age group, week 36 (ending 6 September 2020)
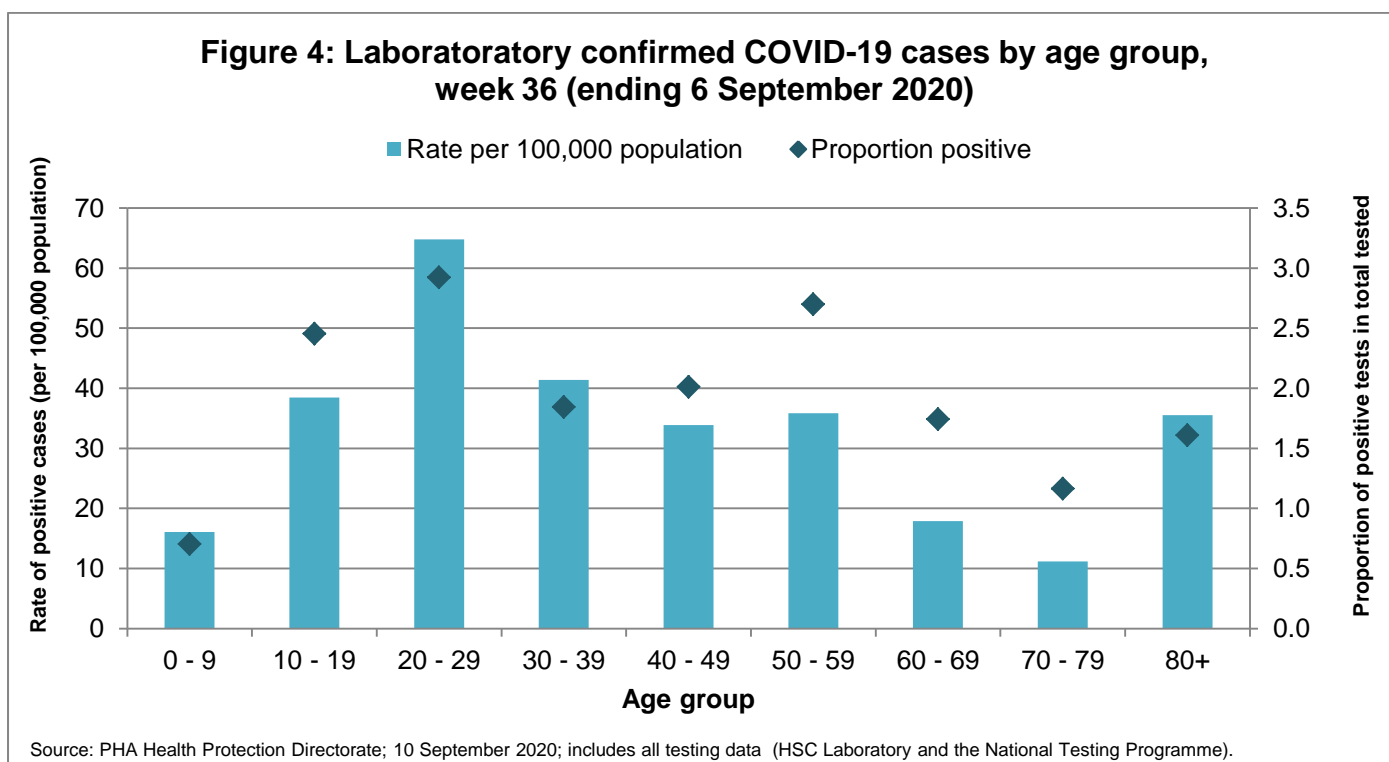
Source: PHA Health Protection Directorate; 10 September 2020; includes all testing data (HSC Laboratory and the National Testing Programme).

Comment: In week 36 the highest rate of new COVID-19 cases was seen in the 20-29 year age group, followed by the 30-39 and 10-19 year age groups.
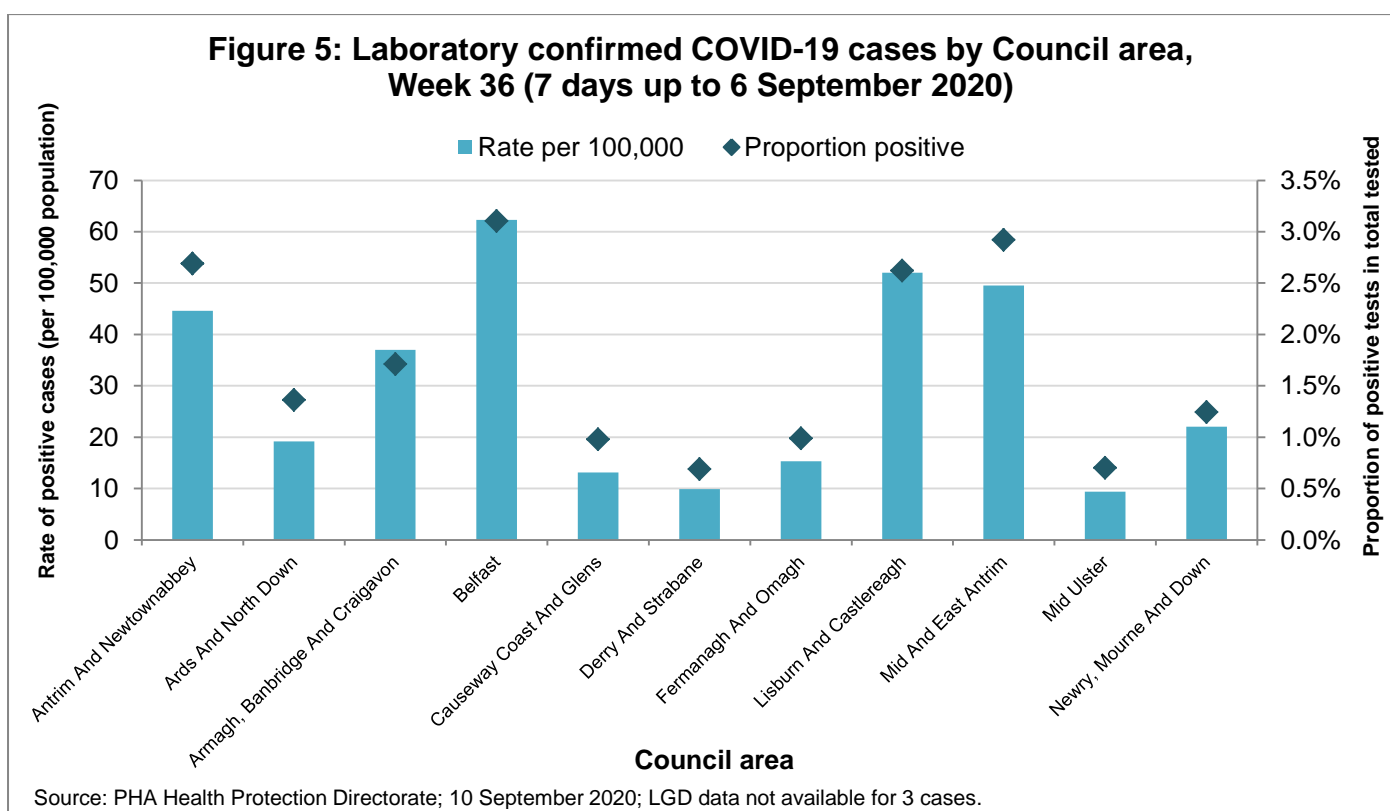
Compared to week 35, the rates of new COVID-19 cases in week 36 (ending 6 September 2020) decreased in the 60-69 year age group and remained stable in the 70-79 year age group. Rates increased in 0-9, 10-19, 20-29, 30-39, 40-49, 50-59 and 80+ year age groups with the greatest

increase in rates of new cases in the 20-29 year age group followed by 30-39 and 10-19 year age groups.

In the early part of pandemic, the highest infection rate was in those aged 80 years and over. In the last week, the highest rates of infection are in younger age groups, who are much less likely to develop complications of infection. However, there is some risk that the rise in rates in those aged 10 to 59 years may result in transmission to more vulnerable individuals, particularly those aged 80 years and over.

The proportion of positive tests in week 36 for Northern Ireland was 2%, with a range of 0.7% to 2.9% across all age groups.
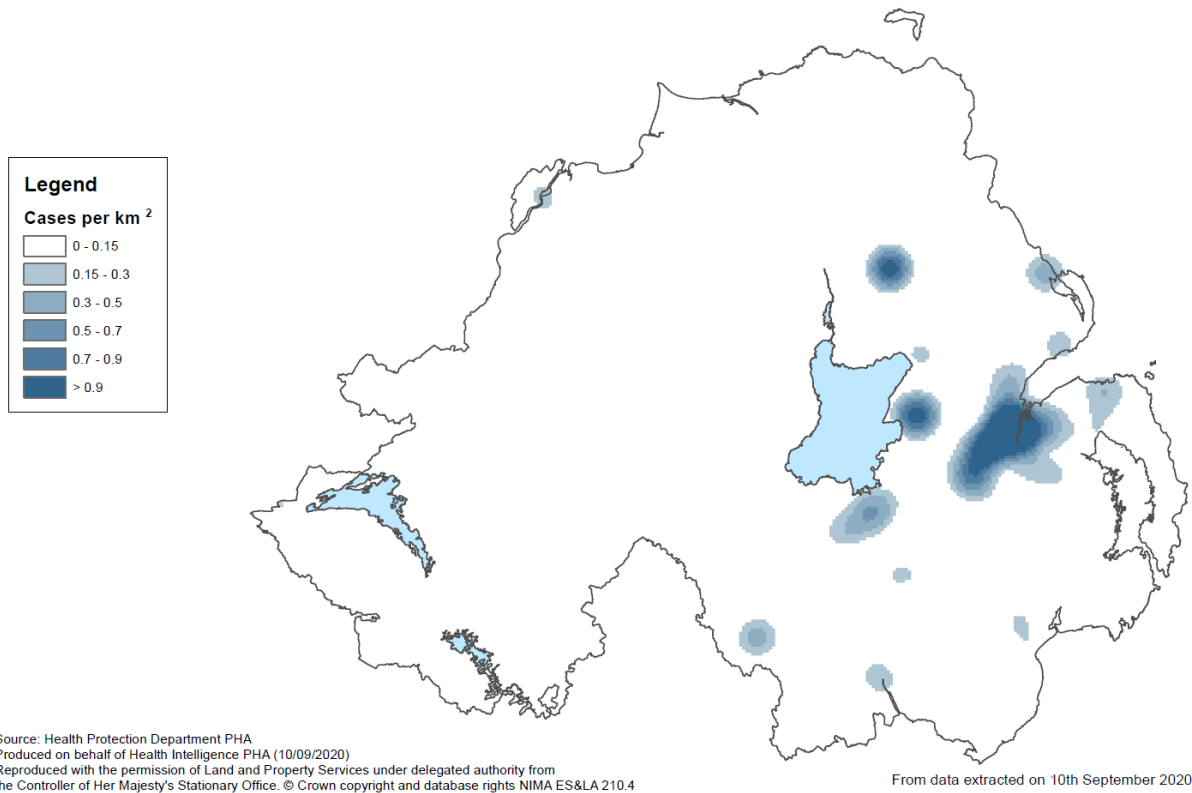
COVID-19 testing by council area

Figure 5: Laboratory confirmed COVID-19 cases by Council area, Week 36 (7 days up to 6 September 2020)

Source: PHA Health Protection Directorate; 10 September 2020; LGD data not available for 3 cases.

Comment: In week 36 (ending 6 September 2020) the rates of new COVID-19 cases varied from 9 per 100,000 population in Mid Ulster council area, up to around 62 per 100,000 population in Belfast council area. The proportion of positive tests ranged from 0.7% in Derry and Strabane and Mid Ulster council areas in to 3.1% in Belfast council area.

Figure 6 shows a contour density map based on the number of confirmed COVID-19 cases in week 36 (ending 6 September 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. The map removes administrative boundaries and reflects the true geographical pattern of disease.

Figure 6: Density map of confirmed COVID-19 cases for the week ending 6 September 2020

Legend
Cases per km²
0 - 0.15
0.15 - 0.3
0.3 - 0.5
0.5 - 0.7
0.7 - 0.9
> 0.9

Source: Health Protection Department PHA
Produced on behalf of Health Intelligence PHA (10/09/2020)
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From data extracted on 10th September 2020

Comment: The map indicates that there are three areas with a density of COVID-19 over 0.9 per square kilometre. However, such information should be interpreted with caution, as some other areas with higher than average rates may not have been identified. Identified rates are based on testing, which continues to evolve based on need, for example in response to localised clusters, and is not evenly spread across the region.

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, hospitality and leisure premises as well as educational settings[9].

Comment: Since 1 September 2020 there have been twenty new clusters recorded (up to 5.00pm on 8 September 2020).[10,11,12]

In all, up to 8 September 2020, a total of 15 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), Belfast (n=3), Antrim and Newtownabbey (n=2), 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 53 clusters across Northern Ireland with fewer than five people.
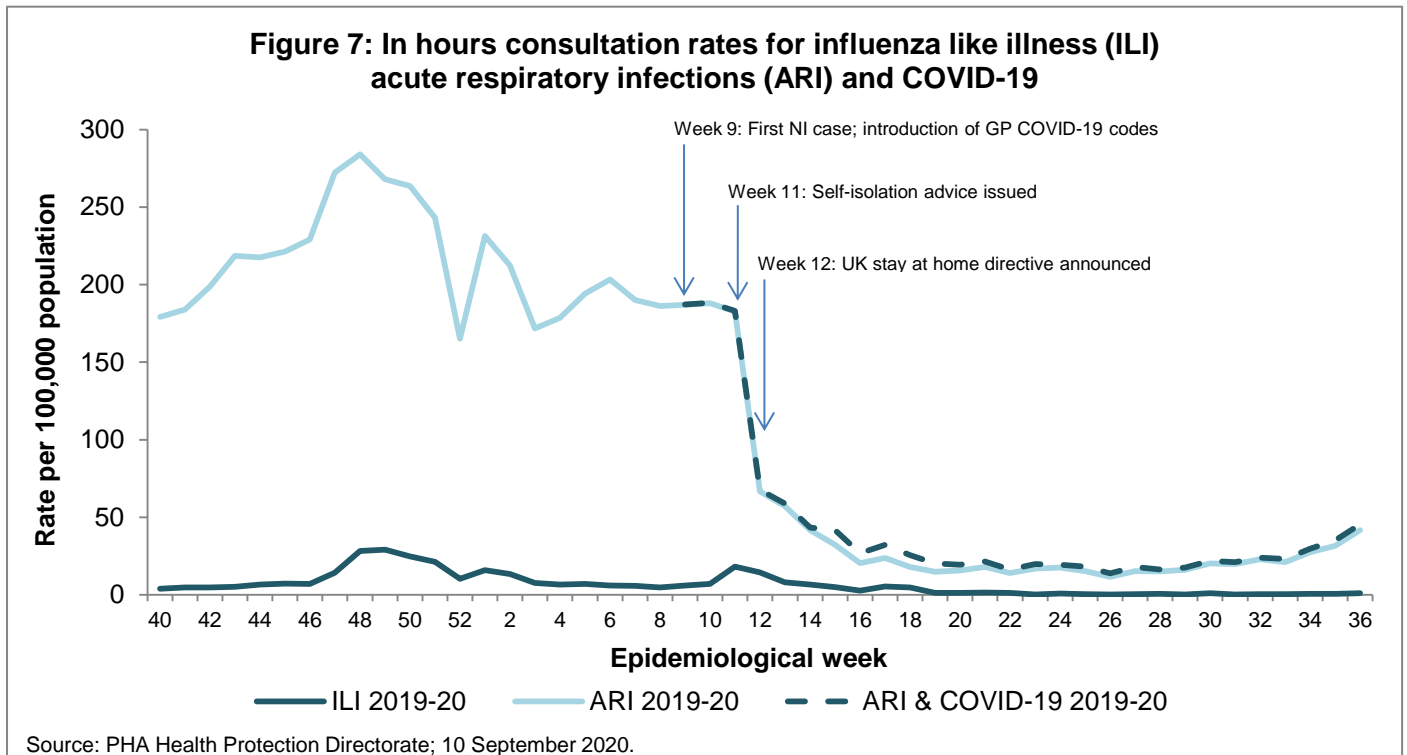
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[9] COVID-19 transmission is most common in household settings. The number of affected households is not reported.

[10] The reporting period for cluster information has changed and information will now be reported weekly up to 5.00pm on Tuesday.

[11] Number of all clusters (open and closed) that have been recorded by the contact tracing service up to 5.00pm Tuesday 1 September 2020. Note: the reporting period for cluster data is slightly different to the remainder of the report in order to provide the most up to date cluster information at the time of the bulletin. Some clusters may overlap (larger clusters may contain or overlap with several smaller clusters).
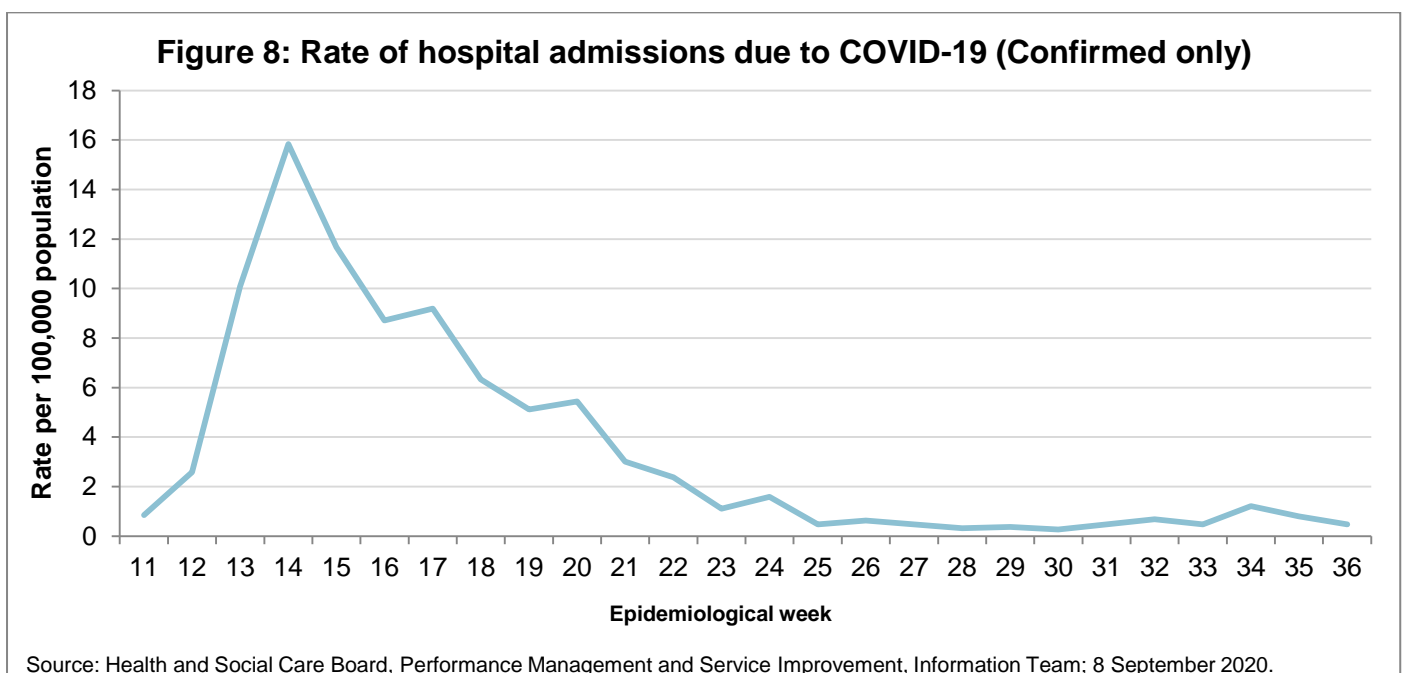
[12] From week to week the number of clusters may change due to ongoing updates to the source information following detailed risk assessments. For this reason, we would discourage making direct comparisons between the cumulative number of clusters reported each week, with the number reported in the current week the most accurate at the time of the report.

Primary Care[13]

Figure 7: In hours consultation rates for influenza like illness (ILI) acute respiratory infections (ARI) and COVID-19

Week 9: First NI case; introduction of GP COVID-19 codes

Week 11: Self-isolation advice issued

Week 12: UK stay at home directive announced

ILI 2019-20   ARI 2019-20   ARI & COVID-19 2019-20

Source: PHA Health Protection Directorate; 10 September 2020.

Comment on the trend: The increasing trend in Acute Respiratory Infection (ARI) consultation rates continues to be observed; at week 36 (ending 6 September 2020) the rate of consultations for ARI & COVID-19 was 45 per 100,000 population, an increase from 35 per 100,000 population in week 35.

Secondary Care

Figure 8: Rate of hospital admissions due to COVID-19 (Confirmed only)

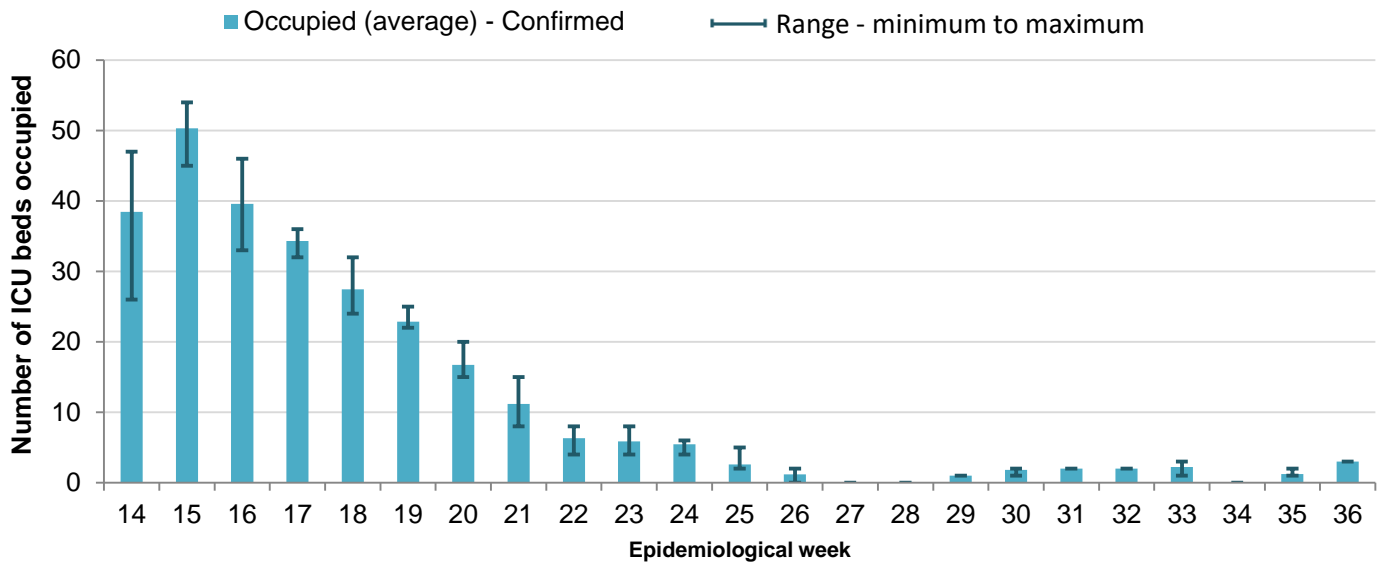Source: Health and Social Care Board, Performance Management and Service Improvement, Information Team; 8 September 2020.

Comment on the trend: In week 36 (ending 6 September 2020) the rate of confirmed hospital admissions for COVID-19 was 0.5 per 100,000 population, a slight decrease from week 35.

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[13] GP coding for COVID-19 data was not available before week 14 of 2020.

Figure 9: 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; 8 September 2020.
Note: The recording and reporting of occupancy at weekends ceased from the 4 July 2020.

Comment on the trend: During the four day period 1-4 September 2020 (week 36) there were three confirmed COVID-19 cases in ICU, an increase from week 35. The rate of occupancy by COVID-19 cases in ICU remains very low.

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**.
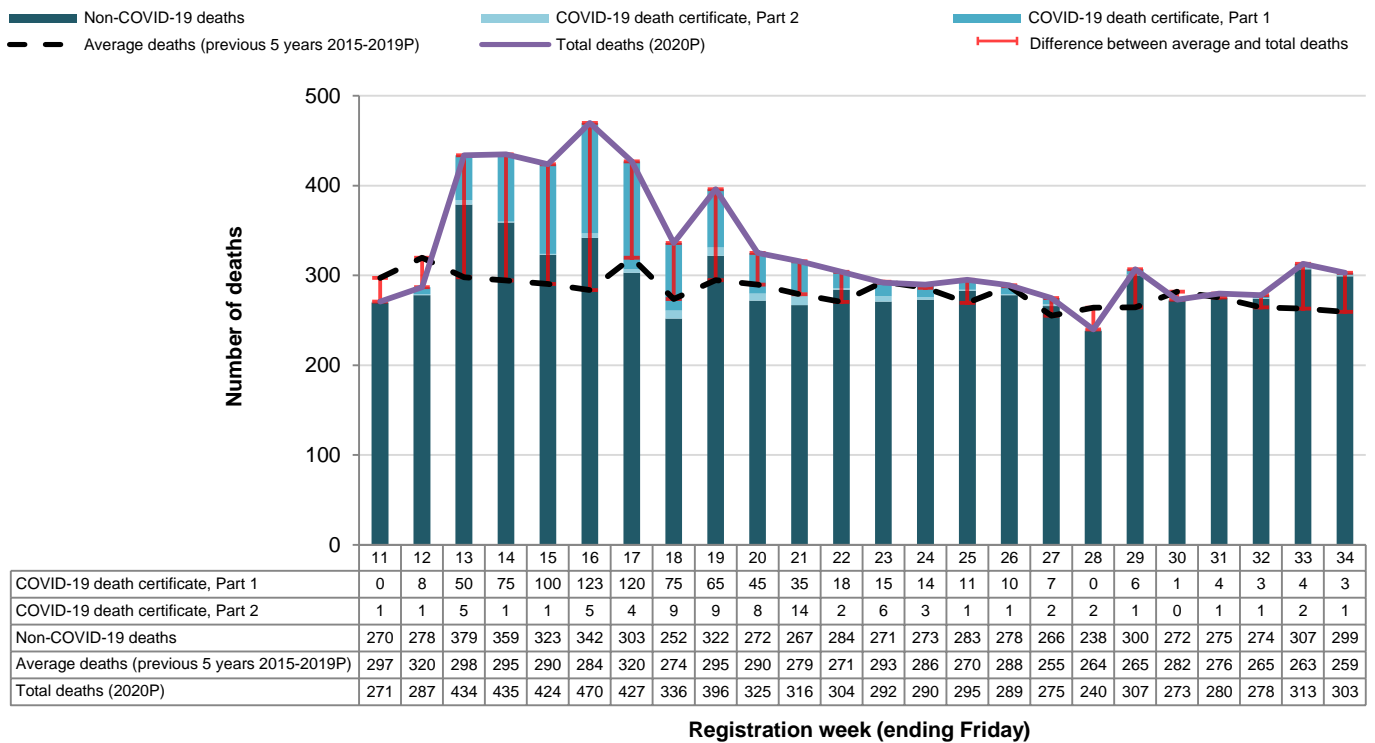
Figure 10 highlights the total weekly number of deaths registered[14] in Northern Ireland from week 11 (ending 20 March 2020) and compares these to the average number of deaths registered in the corresponding week for the five year period 2015-2019[15]. It also highlights the weekly breakdown of registered deaths that were non-COVID-19 related and those associated with COVID-19.[16]

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

[15] 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.

[16] 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). 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.

Figure 10: Northern Ireland registered deaths^, including COVID-19 associated deaths, week 11 (ending 20 March 2020) to week 34 (ending 28 August 2020)

	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34
COVID-19 death certificate, Part 1	0	8	50	75	100	123	120	75	65	45	35	18	15	14	11	10	7	0	6	1	4	3	4	3
COVID-19 death certificate, Part 2	1	1	5	1	1	5	4	9	9	8	14	2	6	3	1	1	2	2	1	0	1	1	2	1
Non-COVID-19 deaths	270	278	379	359	323	342	303	252	322	272	267	284	271	273	283	278	266	238	300	272	275	274	307	299
Average deaths (previous 5 years 2015-2019P)	297	320	298	295	290	284	320	274	295	290	279	271	293	286	270	288	255	264	265	282	276	265	263	259
Total deaths (2020P)	271	287	434	435	424	470	427	336	396	325	316	304	292	290	295	289	275	240	307	273	280	278	313	303

Registration week (ending Friday)

Source: NISRA; Figures relate to all deaths registered up to 28 August 2020 with a mention of COVID on the death certificate; P Weekly published data are provisional;
^ This data is based on registrations of deaths, not occurrences. The majority of deaths are registered within five days in Northern Ireland. 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.

Comment: In week 34 (ending 28 August 2020), four COVID-19 related deaths were registered, a decrease of two from the previous week. From week 11 (ending 20 March 2020) to week 34 there have been 873 deaths associated with COVID-19. Over the same period, 1083 'excess deaths' (ie deaths above the average for the corresponding weeks in previous years) have been registered in Northern Ireland.

In week 34, the number of deaths in Northern Ireland where COVID-19 is registered as the primary cause of death remains very low as a proportion of all deaths registered in the week (1%, 3/303). This figure may be expected to rise over the coming weeks, as a result of the increasing rate of infections. However, given the current age profile of infections, it may rise at a lower rate than at the beginning of the pandemic as younger age groups are at less risk of death. The lower death rate, compared to earlier in the pandemic, is encouraging but should not be seen as a cause for complacency.

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.

Appendix

Incidence and prevalence
Data provided jointly with the Department of Health COVID-19 Modelling Group. Estimates presented are based on data sourced from the PHA Health Protection Directorate laboratory surveillance system.

COVID-19 testing by age group and 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

Clusters
Data are sourced from the Contact Tracing Service / PHA Health Protection Service.

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. The recording and reporting of occupancy at weekends ceased from 4 July 2020 and the average occupancy presented is an average for the five day period Monday to Friday of the epidemiological week.

Mortality surveillance
Medical Certificate of Cause of Death for confirmed / suspected COVID-19
Data are sourced from the Northern Ireland Statistics and Research Agency (NISRA).
NISRA provide a weekly update on the number of registered respiratory and COVID-19 associated deaths each Friday.

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

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