

Covid-19 related deaths and pre-existing conditions in Northern Ireland: March to November 2020

Key Points

March to November 2020

- There were 1,406 Covid-19 related deaths registered in Northern Ireland between 1st March and 30th November 2020;
- Covid-19 was reported in the causal chain of events for 1,263 deaths (89.8%); and
- For 114 Covid-19 related deaths (8.1%), there were no pre-existing conditions.

March to September 2020

- There were 902 Covid-19 related deaths registered in Northern Ireland between 1st March and 30th September 2020;
- Covid-19 was the underlying cause of death for 807 deaths (89.5% of Covid-19 related deaths);
- There were no pre-existing conditions for 77 deaths (8.5% of Covid-19 related deaths);
- The average number of pre-existing conditions was 2.32;
- Dementia and Alzheimer’s disease was the most common pre-existing condition, appearing in 327 deaths (36.3% of Covid-19 related deaths). The next most common pre-existing conditions were hypertensive diseases (180) and diabetes (165 deaths); and
- The main pre-existing condition – the one most likely to cause death in the absence of Covid-19 – was dementia and Alzheimer’s disease (297), followed by ischaemic heart diseases (81) and chronic lower respiratory diseases (67 deaths).

Contents

Background	2
Death registrations and cause of death coding	3
Covid-19 deaths: mentions vs. underlying cause	3
Presence of pre-existing conditions – March-November 2020.....	6
Number of pre-existing conditions – March-September 2020	7
Type of pre-existing conditions – March-September 2020	8
Main pre-existing condition – March-September 2020	9
Future analysis	10
Links to relevant publications	11
Contact Details	11
List of Tables	12
Annex A: Methodology: pre-existing conditions of Covid-19 related deaths	13

Background

The Northern Ireland Statistics & Research Agency (NISRA) publishes timely but provisional weekly counts of death registrations in Northern Ireland. To allow for registration and processing, these figures are published seven days after the week ends. From 3rd April 2020¹, the NISRA weekly deaths release was supplemented with deaths relating to Covid-19 (that is, where Covid-19 was mentioned anywhere on the death certificate, including in combination with other health conditions).

This bulletin contains analyses of Covid-19 related deaths that occurred in Northern Ireland from March to November 2020, as well as analysis of deaths due to Covid-19 (i.e. where Covid-19 was the underlying cause of death) based on data currently available from March to September. The report focuses on the presence, number and type of pre-existing conditions. Box 1 includes some definitions used throughout this report.

In producing this report, NISRA wish to acknowledge the guidance provided from the ONS Health Analysis and Life Events Division and officials within the Department of Health's Office of the Chief Medical Officer.

Box 1: Definitions	
<u>Covid-19 related death:</u>	Death with mention of Covid-19, corona virus, SARS-Cov-2, etc., anywhere on the Medical Certificate of Cause of Death (MCCD)
<u>Part 1 of MCCD:</u>	The recorded causal chain of events leading to death
<u>Part 2 of MCCD:</u>	Contributory cause(s) involved in a death
<u>Underlying cause of death:</u>	Disease or injury which initiated the train of morbid events leading directly to death
<u>Pre-existing condition of Covid-19:</u>	Any mention on the death certificate of a condition that pre-dated or was independent of Covid-19
<u>Main pre-existing condition:</u>	The one most likely to cause death in the absence of Covid-19, based on the recorded information on the death registration, and historical age/sex specific mortality by cause

This report is an Official Statistics publication and statistics are produced to the high professional standards as set out in the [Code of Practice for Official Statistics](#).

This analysis has been supported by the ADR-NI². The content of this bulletin will be kept under review and more detail may be presented in future bulletins.

¹ Publication date 3rd April reporting on deaths up to week ending 27 March 2020.

² <https://www.adruk.org/about-us/our-partnership/adr-northern-ireland/>

Death registrations and cause of death coding

This section briefly describes the processing of cause of death information. Death registrations in Northern Ireland are carried out by District Registrars, who record information provided by the informant, including the Medical Certificate of Cause of Death (MCCD)³, which has been signed off by a medical professional. The MCCD contains two parts: Part 1 gives the conditions leading directly to death. This could be either a single condition, or a sequence of conditions split over multiple lines in the MCCD (1a-1c). In principle, the lowest line of Part 1 should be the underlying cause of death. Part 2 contains conditions that contributed to the death but are not directly causal.

Cause of death coding to the ICD-10⁴ classification is carried out by the Office for National Statistics (ONS) on NISRA's behalf. The process uses the text fields from the MCCD and applies a series of complex rules to establish the underlying cause of death, which in some cases may be counter to the order in which they are recorded on the MCCD. This is done to preserve consistency of cause of death recording across all medical professionals, time and place.

Statistics reporting deaths according to underlying cause are available up to the third quarter of 2020 (end September 2020) at the time of writing⁵. Further detail is available in the document 'Quality and Methodology Information (QMI) for Northern Ireland death statistics' published on the NISRA website⁶.

Covid-19 deaths: mentions vs. underlying cause

NISRA's weekly deaths reports have defined *Covid-19 related deaths* as those where Covid-19 was mentioned anywhere on the death certificate. These figures have been released in a timely fashion, as they do not rely on causes of death being coded according to the ICD-10. Figure 1 compares the number of deaths each month where Covid-19 was mentioned on the death certificate (1,406 in total from March to November 2020), and where Covid-19 was subsequently confirmed to be the underlying cause of death (up to end September; 902 in total). Figure 1 also shows the number of deaths where Covid-19 was mentioned in Part 1 of the MCCD, i.e. the medical professional considered Covid-19 to be either the underlying cause of death or part of the chain of events leading to death. Covid-19 was reported in the causal chain of events for 1,263 of the 1,406 Covid-19 related deaths (89.8%) from March to November 2020.

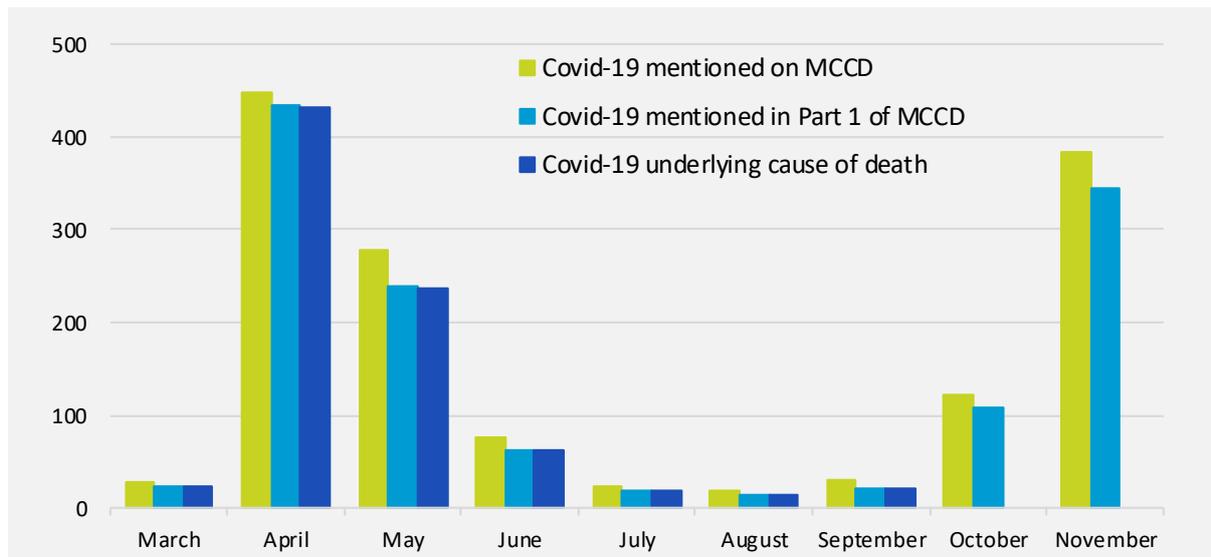
³ The Department of Health has published guidelines for completing a MCCD: <https://www.health-ni.gov.uk/publications/guidelines-death-certification-issuing-mccd-using-niecr>

⁴ 10th edition of the International Classification of Disease Codes (ICD-10 codes)

⁵ Registrar General Quarterly Tables 2020: <https://www.nisra.gov.uk/publications/registrars-general-quarterly-tables-2020>

⁶ Vital Statistics documentation: <https://www.nisra.gov.uk/publications/vital-statistics-documentation>

Figure 1: Number of (a) Covid-19 related deaths, (b) deaths where Covid-19 was mentioned in Part 1 of M CCD, and (c) deaths where Covid-19 was the underlying cause of death, by registration month, March to November 2020



The first Covid-19 related death in Northern Ireland occurred on 18th March, and numbers peaked in April before reducing in May and June. There were relatively few Covid-19 related deaths from July to September, however, deaths increased again in October and November.

Deaths where Covid-19 was mentioned in Part 1 of the M CCD follow the same pattern but at a lower level. By the end of November, these accounted for 89.8% of all Covid-19 related deaths. The ICD-10 coding of death registrations has been completed for registrations up to the third quarter of 2020. Up to 30th September, the number of deaths where Covid-19 was the underlying cause (807) is very close to the number of deaths with mentions in Part 1 (812) for the same period. Figure 2 shows both figures as a proportion of Covid-19 related deaths (all mentions) for each month from March to November 2020.

Figure 2: Proportion of Covid-19 related deaths that were (a) mentioned in Part 1 of MCCD certificate, and (b) the underlying cause of death, by month of registration, March to November 2020

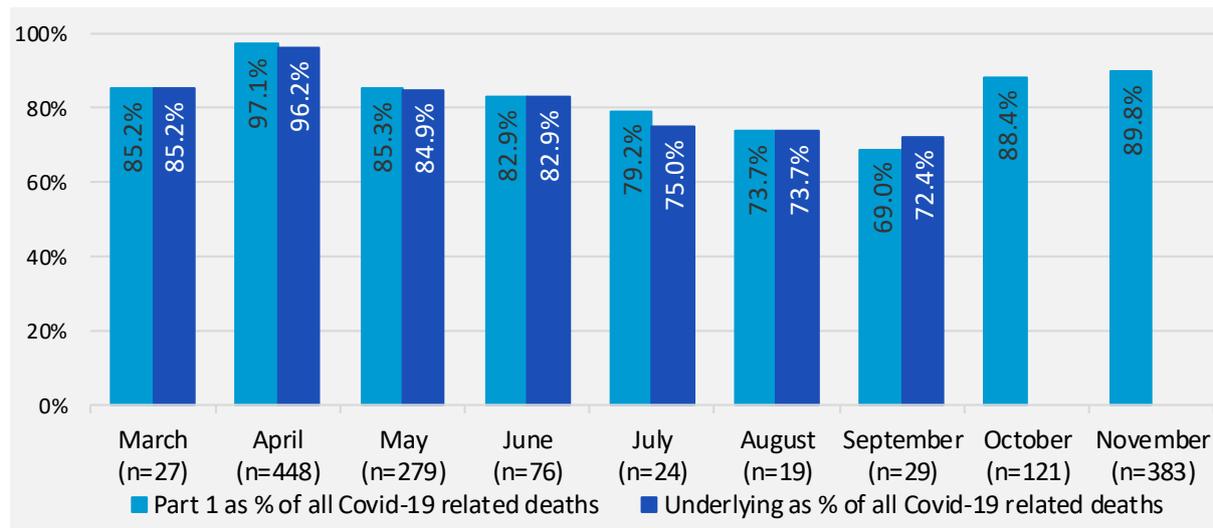
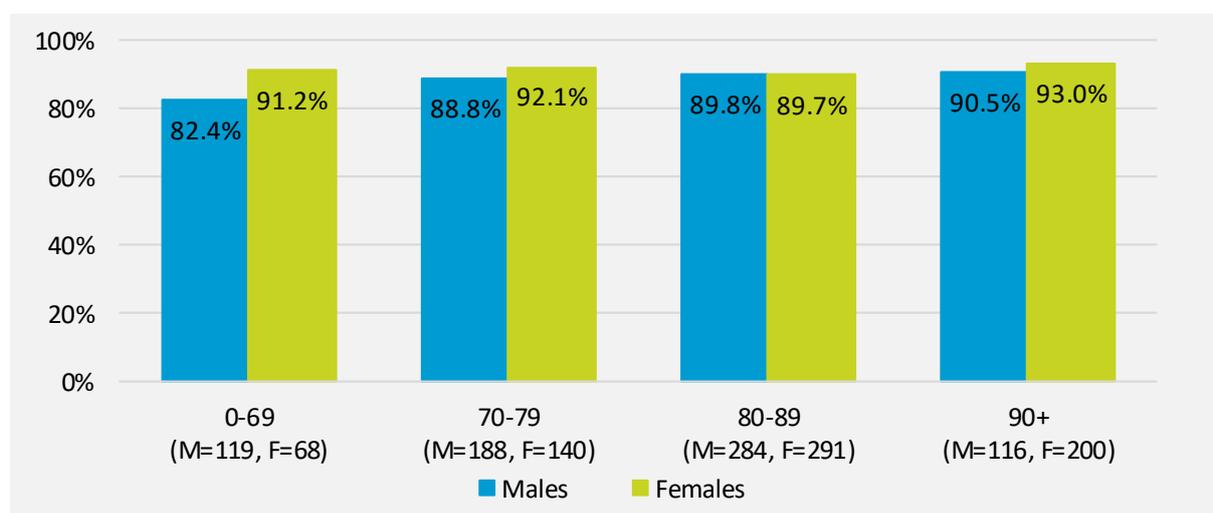


Figure 2 confirms that both series are closely aligned. It appears that these proportions were highest in April, and dropped in consecutive months before rising again in October. In other words, for one in every ten Covid-19 related deaths in the first three months (March-May), Covid-19 was a contributory rather than a causal factor to the death, whilst over the summer (July-September) this was the case for one in every four Covid-19 related deaths. Note that the number of Covid-19 related deaths from July to September was relatively small.

Looking at the proportion of mentions in Part 1 of the MCCD over the period March to November (Figure 3), there is a high level of consistency across sex and age groups. Only for males aged under 70 is this proportion lower at 82.4%, so this group tended to have Covid-19 mentioned in Part 2 more often.

Figure 3: Proportion of Covid-19 related deaths that were mentioned in Part 1 of MCCD, by age and sex, March to November 2020

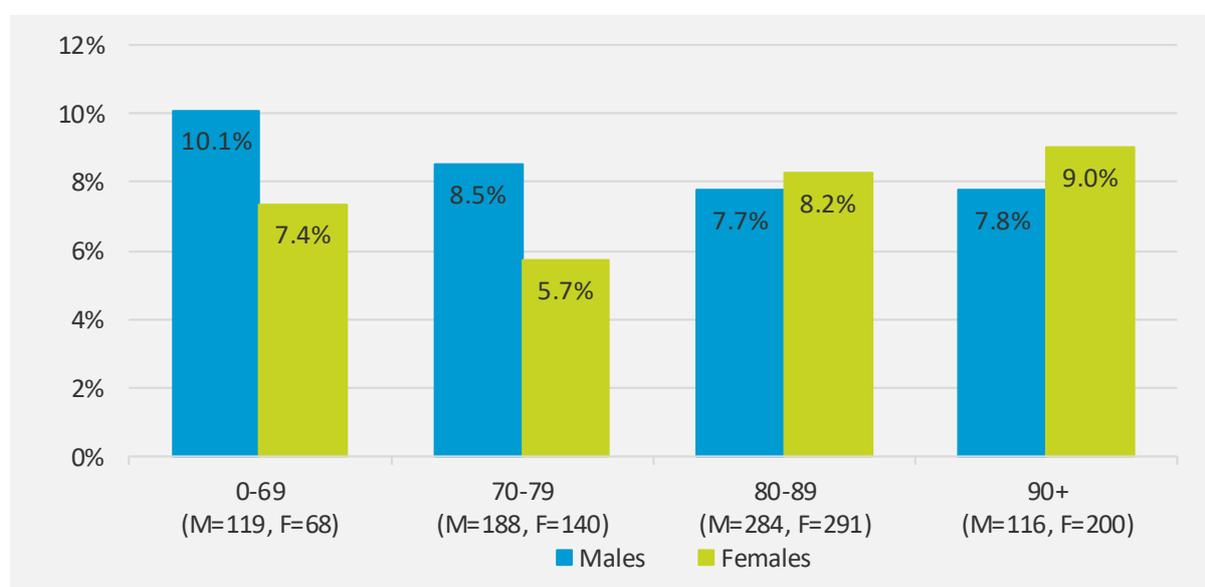


The remainder of this report will focus on the presence, counts and types of pre-existing conditions associated with Covid-19 related deaths.

Presence of pre-existing conditions – March-November 2020

The definition of pre-existing condition used in this paper is any mention on the death certificate of a condition that pre-dated or was independent of Covid-19. Conversely, deaths without pre-existing conditions are those where Covid-19 is the only cause of death recorded, or where other causes mentioned are known to be the direct result of Covid-19. For Covid-19 related deaths that occurred from March to November (1,406 in total), 114 (8.1%) did not have any pre-existing conditions. This proportion was higher for males (8.3%) compared with females (7.9%). Figure 4 shows the proportion of Covid-19 deaths that did not have pre-existing conditions, by age and sex.

Figure 4: Proportion of Covid-19 deaths that did not have pre-existing conditions, by age and sex, occurrences from March to November 2020



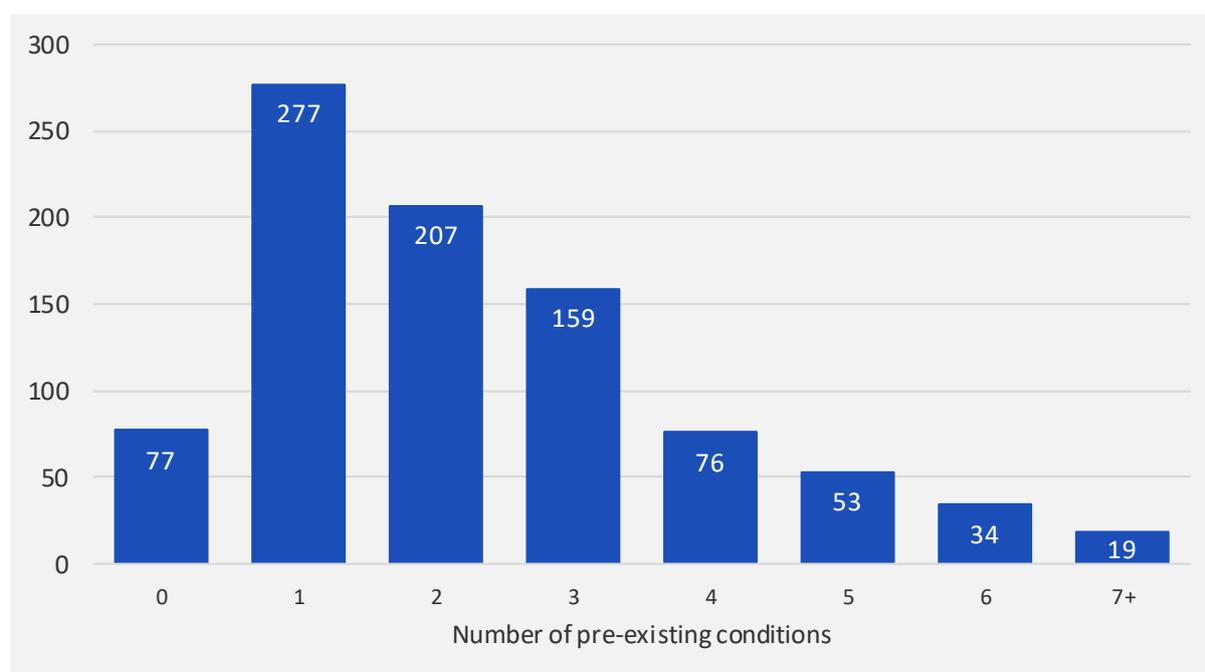
The highest proportion of deaths without pre-existing conditions was in the younger males group (0-69 years). This age group effect has also been observed in England, Wales and Scotland, but for both sexes. Older people have generally multiple morbidities. Caution should be taken when interpreting these results given the small number of deaths.

A more in-depth analysis of pre-existing conditions of Covid-19 related deaths relies on the coding of cause of death text fields, to report on the frequency and type of pre-existing conditions. Such information is not available for the 504 Covid-19 related deaths registered in October and November, where 37 deaths (7.3%) did not have pre-existing conditions. Coded cause of death is available for deaths registered up to 30th September (Quarter 3).

Number of pre-existing conditions – March-September 2020

There were 902 Covid-19 related deaths registered up to 30th September 2020. Covid-19 was the underlying cause of death for 807 of these (89.5% of Covid-19 related deaths). For 77 deaths (8.5%), there were no pre-existing conditions. This is a similar proportion as reported in the previous section (8.1%), which covered the longer period of deaths occurring up to 30th November. Figure 5 shows the number of Covid-19 related deaths, registered up to 30th September 2020, by the number of pre-existing conditions.

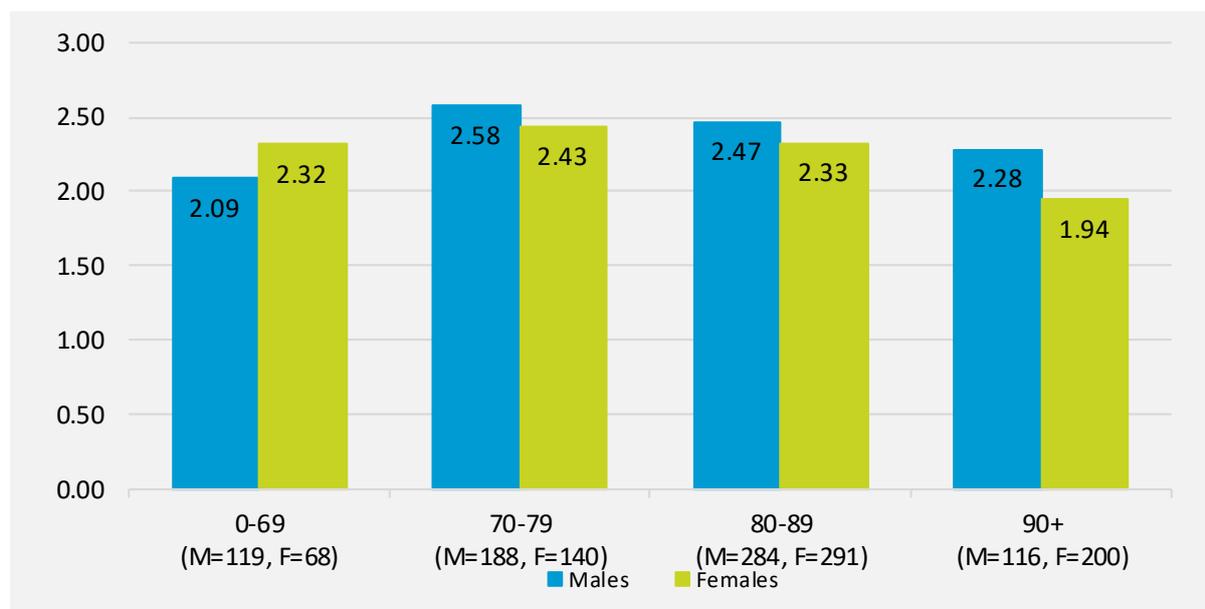
Figure 5: Frequency of Covid-19 related deaths by number of pre-existing conditions, March to September 2020



Over half (484) of Covid-19 deaths (53.7%) had one or two pre-existing conditions. The average number of pre-existing conditions was 2.32, and was higher for males (2.40) compared to females (2.24). Figure 6 shows the average number of pre-existing conditions by sex and age group. These figures are in line with those found in England and Wales⁷.

⁷ The Office for National Statistics (ONS) found that in England and Wales from March to June, the average number of pre-existing conditions was 2.1 for those aged 0 to 69 years and 2.3 for those aged 70 years and over, see <https://www.ons.gov.uk/peoplepopulationandcommunity/birthsdeathsandmarriages/deaths/bulletins/deathsinvolvingcovid19englandandwales/latest>

Figure 6: Average number of pre-existing conditions of Covid-19 related deaths, by age and sex, March to September 2020



Type of pre-existing conditions – March-September 2020

Further analysis into specific pre-existing conditions of Covid-19 deaths provides some indication of populations most at risk. Individual ICD-10 codes are combined into groups of codes, using the ONS’s leading causes of deaths groupings⁸. Table 1 shows the number of Covid-19 deaths for the most common pre-existing conditions.

Table 1: Most common pre-existing conditions in Covid-19 deaths in Northern Ireland, registrations from March to September 2020

ICD10 code	Pre-existing condition	Number of deaths*
F01, F03, G30	Dementia and Alzheimer’s disease	327
I10-I15	Hypertensive diseases	180
E10-E14	Diabetes	165
N00-N39	Diseases of the urinary system	139
I20-I25	Ischaemic heart diseases	128
J40-J47	Chronic lower respiratory diseases	114
I47-I49	Cardiac arrhythmias	111

* Sum of pre-existing conditions exceeds total deaths, as individual deaths can have multiple pre-existing conditions

⁸ See

<https://www.ons.gov.uk/peoplepopulationandcommunity/birthsdeathsandmarriages/deaths/methodologies/userguidetomortalitystatistics/leadingcausesofdeathinenglandandwalesrevised2016>

Dementia and Alzheimer’s disease is by far the most common pre-existing condition, appearing in 36.3% of Covid-19 related deaths. This may not be surprising given that nearly half (44.0%) of Covid-19 related deaths up to end September were residents of care homes, and nearly two-thirds (65.5%) were aged 80 or over. Dementia and Alzheimer’s disease was also the most common pre-existing condition in England (27.7%) and Wales (23.7%) from March to June 2020⁹, albeit as lower proportions. The [accompanying tables](#) provide an extended list of pre-existing conditions, plus lists by sex and age groups.

Main pre-existing condition – March-September 2020

For 60.8% (548) of Covid-19 related deaths, there are two or more pre-existing conditions. It can be difficult to identify a single main pre-existing condition i.e. the one most likely to cause death in the absence of Covid-19, based solely on the recorded information on the death registration. For example, there is often no indication of the severity of conditions.

A simple rule is to choose the pre-existing condition which historically has been the most common underlying cause of death, given the age and sex of the deceased. Table 2 shows the main pre-existing condition of the 902 Covid-19 related deaths registered from March to September 2020.

Table 2: Main pre-existing conditions of Covid-19 related deaths in Northern Ireland, March to September 2020

ICD10 code	Pre-existing condition	Number of deaths	As a proportion
F01, F03, G30	Dementia and Alzheimer’s disease	297	32.9%
I20-I25	Ischaemic heart diseases	81	9.0%
	No pre-existing conditions	77	8.5%
J40-J47	Chronic lower respiratory diseases	67	7.4%
E10-E14	Diabetes	39	4.3%
I60-I69	Cerebrovascular diseases	36	4.0%
N00-N39	Diseases of the urinary system	34	3.8%

Most commonly selected as the main pre-existing condition was Dementia and Alzheimer’s disease. For 113 deaths, it was the only recorded pre-existing condition. Dementia and Alzheimer’s disease was also most often the main pre-existing condition in other UK countries¹⁰, yet as a smaller proportion of Covid-19 related deaths (Scotland 31.3%; England 25.8%; and Wales 22.2%) compared to Northern Ireland (32.9%).

⁹ March to June, see Table 5 of

<https://www.ons.gov.uk/peoplepopulationandcommunity/birthsdeathsandmarriages/deaths/datasets/deathsinvolvingcovid19englandandwales>)

¹⁰ Scotland, March to October (Figure 9 data; <https://www.nrscotland.gov.uk/files//statistics/covid19/covid-deaths-data-week-45.xlsx>); England and Wales, March to June (Table 7;

<https://www.ons.gov.uk/peoplepopulationandcommunity/birthsdeathsandmarriages/deaths/datasets/deathsinvolvingcovid19englandandwales>)

After dementia and Alzheimer's disease, there is quite a gap with the next most common pre-existing conditions, ischaemic heart diseases (9.0%) and chronic lower respiratory diseases (7.4% of Covid-19 related deaths). The [accompanying tables](#) provide an extended list of the main pre-existing condition for all Covid-19 deaths, plus lists by sex and age groups.

Future analysis

This report was released at a time when Northern Ireland was in the second wave of the Covid-19 pandemic, the first vaccine was starting to get administered and a new lockdown was announced by the Northern Ireland Executive. Unfortunately, further Covid-19 related deaths are expected to occur in the remainder of this year and into next year. There will be continued interest in further analysis of Covid-19 related deaths specifically, and all-cause mortality in general. NISRA is planning to update the analyses of age-specific mortality rates of Covid-19 related deaths, as well as the excess mortality in early 2021.

The analysis of Covid-19 related deaths that were registered after September 2020 was limited by the absence of coded cause of death information, which will become available once the fourth quarterly report of the Registrar General is published. This information can be used to make a comparison between Covid-19 related deaths in the first and second wave.

This report was created within the Administrative Data Research Northern Ireland (ADR NI), a partnership between the Administrative Data Research Centre Northern Ireland (ADRC NI, comprising Queen's University Belfast and Ulster University), and the Northern Ireland Statistics and Research Agency (NISRA). Together they support the acquisition, linking and analysis of administrative data sets, developing cutting-edge research to improve knowledge, policymaking and public service delivery.

Links to relevant publications

A range of data and analyses on Covid-19 in Northern Ireland and its effect on the economy and society can be accessed at:

<https://www.nisra.gov.uk/statistics/ni-summary-statistics/coronavirus-covid-19-statistics>

Weekly death registrations in Northern Ireland, 2020

<https://www.nisra.gov.uk/publications/weekly-deaths>

Covid-19 related deaths in Northern Ireland: deaths occurring during March to August 2020

<https://www.nisra.gov.uk/publications/covid-19-related-deaths-northern-ireland>

Excess Mortality and Covid-19 Related Deaths in Northern Ireland: March to June 2020

<https://www.nisra.gov.uk/publications/excess-mortality-covid-19-related-deaths>

The Department of Health published a report on COVID-19 related health inequalities

<https://www.health-ni.gov.uk/topics/doh-statistics-and-research/covid-19-statistics>

Northern Ireland Department of Health daily COVID-19 figures:

<https://www.health-ni.gov.uk/news> and daily dashboard

Number of coronavirus (Covid-19) cases and risk in the UK

<https://www.gov.uk/guidance/coronavirus-covid-19-information-for-the-public>

Covid-19 Health Surveillance Monitor (Ireland)

<https://www.gov.ie/en/service/0039bc-view-the-covid-19-coronavirus-dashboard-showing-the-latest-stats-and/>

Deaths involving coronavirus (Covid-19) in Scotland

<https://www.nrscotland.gov.uk/covid19stats>

Vital statistics (Central Statistics Office, Ireland)

<https://www.cso.ie/en/statistics/birthsdeathsandmarriages/>

Contact Details

We welcome feedback from users, please contact NISRA Vital Statistics, Northern Ireland Statistics and Research Agency, Colby House, Stranmillis Court, Belfast BT9 5RR

E-mail: demography@nisra.gov.uk

Telephone: +44 (0)300 200 7836

Twitter: [@NISRA](https://twitter.com/NISRA)

<https://www.nisra.gov.uk/statistics>



List of Tables

Data accompanying this bulletin are available from the [NISRA website](#) in Excel format. The spreadsheet includes the following tables.

Death registrations from 1st March to 30th November

- [Table 1](#) Number of (a) Covid-19 related deaths, (b) deaths where Covid-19 was mentioned in Part 1 of MCCD, and (c) deaths where Covid-19 was the confirmed underlying cause of death, by registration month, March to November 2020
- [Table 2](#) Number of (a) Covid-19 related deaths, and (b) deaths where Covid-9 was mentioned in Part 1 of MCCD, by age and sex, March to November 2020
- [Table 3](#) Covid-19 related deaths and whether there were pre-existing conditions, by age and sex, registrations from March to November 2020
- [Figure 1a](#) Number of (a) Covid-19 related deaths, (b) deaths where Covid-19 was mentioned in Part 1 of MCCD, and (c) deaths where Covid-19 was the confirmed underlying cause of death, by registration month, March to November 2020
- [Figure 1b](#) Proportion of Covid-19 related deaths that were (a) mentioned in Part 1 of MCCD, and (b) the underlying cause of death, by month, March to November 2020
- [Figure 2](#) Proportion of Covid-19 related deaths that were mentioned in Part 1 of MCCD, by age and sex, March to November 2020
- [Figure 3](#) Proportion of Covid-19 related deaths without pre-existing conditions, by age and sex, March to November 2020

Death registrations from 1st March to 30th September

- [Table 4](#) Covid-19 related deaths, by number of pre-existing conditions, registrations from March to September 2020
- [Table 5](#) Covid-19 related deaths, by age, sex and number of pre-existing conditions, March to September 2020
- [Table 6](#) Number of Covid-19 related deaths by all pre-existing conditions, March to September 2020
- [Table 7](#) Number of deaths involving COVID-19 by all pre-existing conditions, by age and sex, March to September 2020
- [Table 8](#) Number of deaths involving COVID-19 by main pre-existing conditions, March to September 2020
- [Table 9](#) Number of Covid-19 related deaths by age, sex and main pre-existing conditions, March to September 2020
- [Figure 4](#) Covid-19 related deaths, by number of pre-existing conditions, registrations from March to September 2020
- [Figure 5](#) Average number of pre-existing conditions for Covid-19 related deaths, by age and sex, March to September 2020

Annex A: Methodology: pre-existing conditions of Covid-19 related deaths

A.1: Registration of Cause of Death

Death registrations in Northern Ireland are carried out by District Registrars, who record information provided by the informant, including the Medical Certificate of Cause of Death (MCCD). This form contains two parts: Part 1 gives the conditions leading directly to death. This could be either a single condition, or a sequence of conditions split over multiple lines (1a, 1b, 1c). Part 2 contains conditions that contributed to the death but are not directly causal.

As an example, assume the following MCCD:

- 1a: Respiratory failure
- 1b: Pneumonia
- 1c: Covid-19
- 2: Dementia

In this example, a person who was already diagnosed with dementia (Part 2), got infected by the coronavirus (1c), developed pneumonia (1b) and died from respiratory failure (1a).

Coding for cause of death in Northern Ireland is carried out by the Office for National Statistics (ONS) according to the World Health Organisation (WHO) International Classification of Diseases (ICD tenth revision). This process consists of two steps. Firstly, the text on the MCCD is converted into codes. Using the example above, the coded causes of deaths become:

1a: J96 1b: J18 1c: U07 2: F03

Where the codes (J96, J18, U07 and F03) correspond with the causes and their position on the MCCD.

In general, the underlying cause of death is the condition on the lowest line of Part 1. However, in practice, it is identified by applying detailed and complex rules. This second step is done to maintain consistency and thus allow comparability over time and place. In some cases, the last mention in Part 1 is not the underlying cause of death, but has been recorded under Part 2 (11% of registrations) or does not appear on the MCCD at all (2% of registrations).

A.2: Pre-existing conditions of Covid-19 related deaths – ONS methodology

The methodology for identifying pre-existing conditions for Covid-19 related deaths was initially based on that developed by the Office for National Statistics¹¹. Their definition of a pre-existing condition was any mention on the death certificate that predated or was independent of Covid-19.

Pre-existing conditions are all those recorded in Part 2, plus the last mention of Part 1, excluding the Covid-19 itself. This step will distinguish Covid-19 related deaths into those with or without pre-existing conditions. Furthermore, it will establish the number of pre-existing conditions for individual deaths, and derive the average number of pre-existing conditions for a group of deaths.

The final step is to identify the main pre-existing condition. For this part of the analysis, the ONS methodology excluded deaths where Covid-19 was mentioned solely in Part 2, that is, where Covid-19 was considered to have contributed to death, but was not the underlying cause or a consequence of the underlying cause of death. For deaths registered in Northern Ireland from March to September 2020, this was the case for 92 out of the 904 Covid-19 related deaths.

The main pre-existing death is chosen from all pre-existing conditions. This is straightforward if only one pre-existing condition is identified. When there are two or more pre-existing conditions, ONS made a selection of the condition that is '*most likely to cause death in the absence of the Covid-19*' based on age and sex.

Death registrations from the previous five years (2015-2019) are split by sex and five-year age groups; individual ICD10 codes are grouped into the ONS's "leading causes of death" groupings¹². From this dataset, a ranking is created of the most common cause of death grouping. As an example, the table below shows an extract of the most common cause of death groupings for males aged 75-79.

Leading causes of death grouping (males, 75-79)	ICD-10 codes	Rank
Ischaemic heart diseases	I20-I25	1
Malignant neoplasm of trachea, bronchus and lung	C33-C34	2
Chronic lower respiratory diseases	J40-J47	3
Dementia and Alzheimer disease	F01, F03, G30	4
Cerebrovascular diseases	I60-I69	5

¹¹

<https://www.ons.gov.uk/peoplepopulationandcommunity/birthsdeathsandmarriages/deaths/methodologies/measuringpreexistinghealthconditionsindeathcertificationdeathsinvolvedwithcovid19march2020>

¹² ONS's leading causes of death groupings and their associated ICD-10 codes can be found at

<https://www.ons.gov.uk/peoplepopulationandcommunity/birthsdeathsandmarriages/deaths/methodologies/userguidetomortalitystatistics/leadingcausesofdeathinenglandandwalesrevised2016>

If ischaemic heart disease is recorded as a pre-existing condition for a male aged 75 to 79, then it will be regarded as the main pre-existing condition. Otherwise, if lung cancer is recorded, part of the second most common cause of death grouping, then it will be chosen as the main pre-existing condition. This process continuous going further down the list.

The ONS recognised potential short-comings of this method. The identification of the underlying cause of death is a complex process, and does not always follow directly from the sequence in Part 1 of the MCCD. In addition, the severity of the pre-existing conditions is rarely recorded.

A.3: Pre-existing conditions – NISRA methodology

Minor changes to the ONS methodology were made for the analysis of Covid-19 related deaths in Northern Ireland, to align with the approach used to date in reporting.

A common mention on death certificates has been '*Covid-19 pneumonia*', which has been coded as '*U07, J18*', representing the ICD10 codes for Covid-19 (U07) and pneumonia (J18). The ONS methodology would dictate that, if this was the lowest mention in Part 1, then Pneumonia would be regarded as a pre-existing condition. To date, NISRA has responded to queries on the number of deaths where Covid-19 was the sole mention, by including those where Part 2 was blank and Covid-19 pneumonia was the lowest mention in Part 1. To remain consistent with that approach, in similar cases, pneumonia will not be considered as a pre-existing condition if mentioned alongside Covid-19.

In Northern Ireland, there were 10 registrations where Covid-19 (U07) was found to be the underlying cause of death, despite being recorded in Part 2 and hence would have been excluded from the analysis according to the ONS methodology. In other words, Covid-19 should have been the lowest mention in Part 1. One option would be to add these records to the analysis, and considering the other mentions in Part 2 to be the pre-existing conditions. However, it is not possible to postulate how the MCCD would have looked if Covid-19 was mentioned in Part 1. For this reason, these cases will continue to be excluded from the analysis to establish the main pre-existing condition.

There have also been registrations where Covid-19 was mentioned in Part 1, but was not found to be the underlying cause of death. Instead, another mention in either Part 1 or 2 was identified at the underlying cause of death. In these cases, the main pre-existing condition should equate to the underlying cause of death, regardless of other pre-existing conditions and their rankings.

Box A: Background Changes to the death certification and registration process during the Covid-19 pandemic

During the Covid-19 pandemic, a number of changes have been made to the usual process of certifying and registering a death which have been enabled by the Coronavirus Act 2020. More detail is available from the Department of Health website <https://www.health-ni.gov.uk/publications/covid-19-guidance-surrounding-death>. This includes guidance to medical practitioners on how to complete the Medical Certificate of Cause of Death (MCCD) in Covid-19 related cases. In relation to who can complete the MCCD, upon which these weekly statistics are based, usual practice is that the MCCD must be signed by a doctor (Dr A) who has seen the deceased within the last 28 days or refer the case to the coroner. However, in the pandemic situation, if Dr A has treated the deceased within the last 28 days but is unable to complete the MCCD or it is impracticable for them to do so, another practitioner (Dr B) from the same hospital or GP practice, can complete the MCCD, provided the deceased died as a result of a natural illness and Dr B can state, to the best of their knowledge and belief, the cause of death. In the event that neither Dr A nor Dr B is able to complete the MCCD, any medical practitioner (Dr C) can complete it, as long as the death was as a result of a natural illness and they can state the cause of the death, to the best of their knowledge and belief. Dr C does not have to have treated the deceased within the last 28 days. Coroners' cases will still be treated in the usual way - more detail on this is available on page 3 of the quality and methodology background information for NI death statistics at https://www.nisra.gov.uk/sites/nisra.gov.uk/files/publications/Northern%20Ireland%20Death%20Statistics%20Quality%20Assessment_0.pdf.

The process by which an informant registers a death has also been adapted. Usual practice is that the informant attends their local Registration Office to register a death, bringing the MCCD with them. During the pandemic, the MCCD can be sent to the General Register Office (GRO) electronically, directly from the hospital or General Practitioner certifying the death. Information required from the informant can be provided to GRO by telephone and no signature is required from the informant.