

Deaths involving coronavirus (COVID-19) in Scotland

Week 19 (4 May to 10 May 2020)

Published on 13 May 2020



This statistical report includes provisional statistics on the number of deaths associated with coronavirus (COVID-19) and the total number of deaths registered in Scotland, for weeks 1 to 19 of 2020

As of 10th May, 3,213 deaths had been registered which mentioned COVID-19

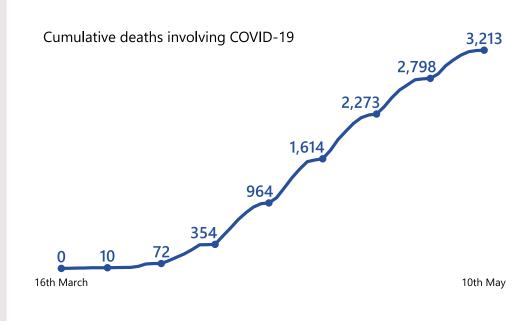
The first mention of COVID-19 in a death registration was in the week beginning 16th March 2020.

400 more deaths in week 19 compared to the 5 year average

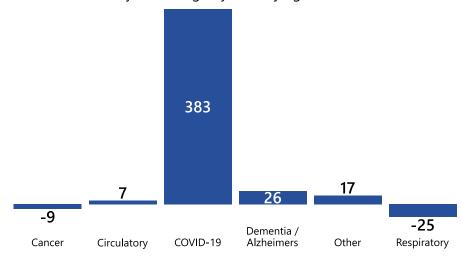
The majority (383) of these excess deaths had an underlying cause of COVID-19. There were 26 more dementia and Alzheimer's deaths and 17 more deaths from other causes. Deaths from cancer and respiratory diseases were lower than average for the time of year.

Most people who died with COVID-19 had at least one pre-existing condition

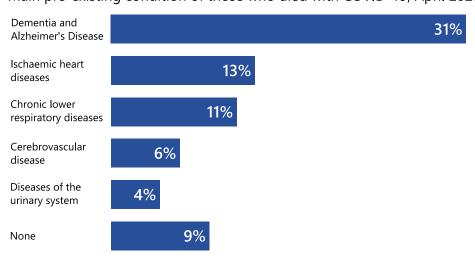
91% of people who died with COVID-19 during April had at least one pre-existing condition. The most common condition was dementia and Alzheimer's disease (31%) followed by ischaemic heart disease (13%).



Difference from 5 year average by underlying cause, week 19 2020



Main pre-existing condition of those who died with COVID-19, April 2020





Key Findings

Deaths involving COVID-19

- As at 10 May, there have been a total of 3,213 deaths registered in Scotland where the novel coronavirus (COVID-19) was mentioned on the death certificate. The first mention of COVID-19 in a registered death certificate was the week beginning 16th March 2020.
- Of the total number of deaths registered in week 19 (4 May to 10 May), there
 were 415 where COVID-19 was mentioned on the death certificate, a decrease
 of 110 from the previous week (27 April to 3 May). This is the second weekly
 reduction in a row.
- Deaths involving COVID-19 as a proportion of all deaths has changed from:
 - 16% in week 14:
 - 31% in week 15;
 - 34% in week 16:
 - 36% in week 17;
 - 31% in week 18; to
 - 29% in week 19.
- 45% of COVID-19 deaths registered to date related to deaths in care homes.
 48% of deaths were in hospitals and 7% of deaths were at home or non-institutional settings.
- The proportion of COVID-19 deaths which took place in care homes has risen over time but has dropped back slightly in the latest week to represent 57% of all COVID-19 deaths. The number of deaths in care homes fell for a second week, by 76 to 238.
- Three quarters (76%) of all deaths involving COVID-19 to date were of people aged 75 or over.
- This number is different from the count of deaths published daily on the <u>gov.scot</u> <u>website</u>, because the latter is based on deaths of those who have tested positive for COVID-19. The NRS figures published here include all deaths where COVID-19 (included suspected cases) was mentioned on the death certificate.

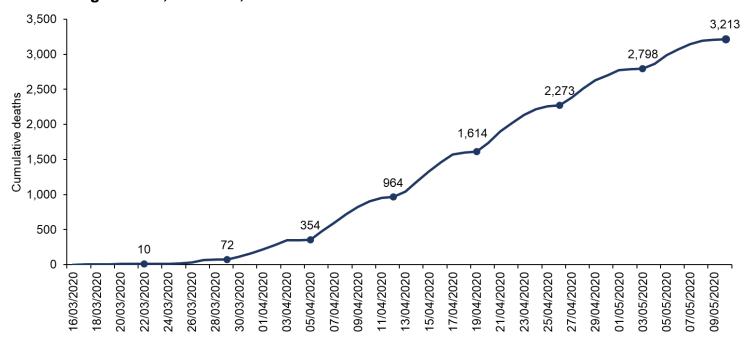
All Deaths

- The provisional total number of deaths registered in Scotland in week 19 of 2020 (4 May to 10 May) was 1,434. This is a decrease of 245 from the number registered in the previous week.
- The average number of deaths registered in the corresponding week over the previous five years was 1,034. There were 39% more deaths registered in week 19 of 2020 (4 May to 10 May) compared to the average. Of these 400 excess deaths:
 - 96% (383) had COVID-19 as the underlying cause
 - 7% (26) came from an increase in dementia and Alzheimer's deaths
 - 4% (17) were due to an increase in deaths from other causes
 - deaths from cancer and respiratory diseases were lower than the average for this time of year.

Additional Analysis (deaths occurring in March & April 2020)

- People in the most deprived areas were 2.3 times more likely to die with COVID than those living in the least deprived areas.
- Of those who died with COVID in April, 91% had at least one pre-existing condition. The most common pre-existing condition was dementia and Alzheimer's disease (31% of all deaths involving COVID) followed by ischaemic heart disease (13%).
- Age-standardised death rates (adjusting for the age-structure of the population), were almost 50% higher for men than for women (716 vs 479 per 100,000 population for deaths occurring in April).

Figure 1: Cumulative number of deaths involving COVID-19 by date of registration, Scotland, 2020



Why are the NRS number of deaths different from the Scottish Government daily updates?

Put simply - they are two different measures that each have a valuable role in helping to monitor the number of deaths in Scotland involving COVID-19.

Scottish Government daily updates

These are provided by Health Protection Scotland (HPS) and count:

• all people who have had a positive test for COVID-19 and died within 28 days.

These are important because they are available earlier, and give a quicker indication of what is happening day by day and are broadly comparable with the figures released daily for the UK by the Department for Health and Social Care.

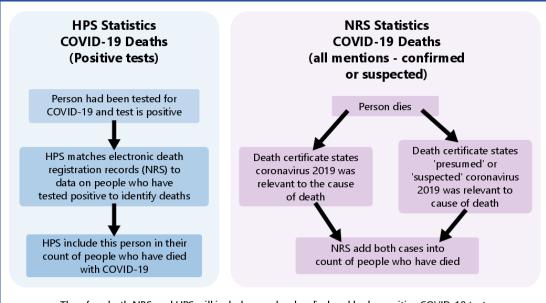
NRS weekly death totals

The figures in this publication count:

 all deaths where COVID-19 was mentioned on the death certificate by the doctor who certified the death. This includes cases where the doctor noted that there was <u>suspected</u> or <u>probable</u> coronavirus infection involved in the death.

As a result these weekly totals are <u>likely to be higher</u> than the daily figures - because the daily updates only include those who tested positive for the virus.

Using the complete death certificate allows NRS to analyse a lot of information, such as location of death and what other health conditions contributed to the death. We will start publishing more detailed breakdowns of the figures as soon as possible.



Therefore both NRS and HPS will include people who died and had a positive COVID-19 test. NRS statistics will additionally include those people who have died and whose death is suspected to be related to COVID-19 (but for whom there was no COVID-19 test performed or results available at the time of death).

Figure 2 illustrates the differences between the two sets of figures. In the early stages, the figures were closely aligned but over time they have diverged with the NRS figure higher than the HPS figure. This is due to the inclusion of probable and suspected COVID deaths whereas the HPS figure only includes deaths of those who had tested positive for the virus.

It should be noted that the apparent flattening of these curves over weekends are caused by a limited number of death registrations taking place at weekends and are not an indication that the curve has reached a plateau. Figures for weekends will be artificially low and the numbers are likely to rise more steeply at the beginning of the week as registrars catch up with the backlog of death registrations.

3,500 3.213 3.000 Cumulative number of deaths 2,500 - HPS 1,862 NRS 2,000 1,500 1,000 500 0 30/03/2020 01/04/2020 03/04/2020 5/04/2020 4/03/2020 07/04/2020 01/05/2020 3/05/2020 5/05/2020 6/03/2020 22/03/2020 26/03/2020 28/03/2020 9/04/2020 1/04/2020 3/04/2020 5/04/2020 3/04/2020 7/04/2020 9/04/2020 7/05/2020 8/03/2020 20/03/2020 24/03/2020 7/04/2020 9/04/2020 1/04/2020 5/04/2020

Figure 2: Cumulative number of deaths involving COVID-19 in Scotland using different data sources 2020

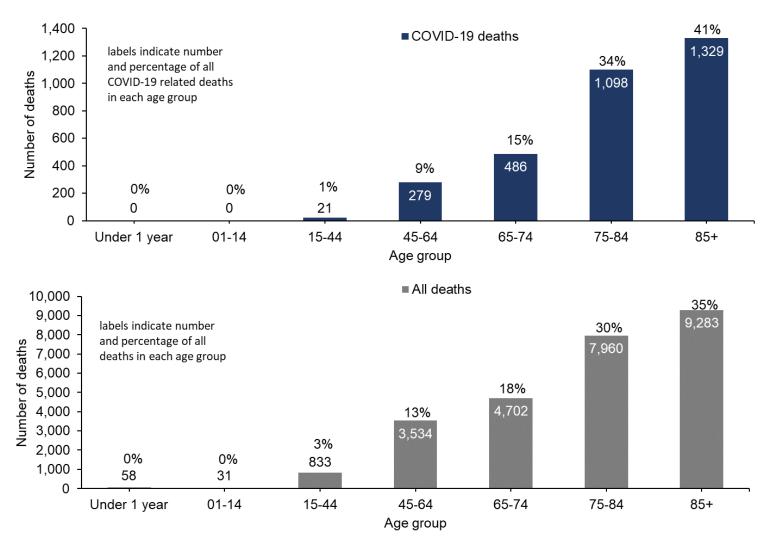
How are different age groups being impacted?

- Three quarters (76%) of all deaths involving COVID-19 to date were of people aged 75 or over.
- The greatest proportion of COVID-19 deaths are in people aged 85+ with 41% of all COVID-19 deaths. This compares with 35% of deaths from all causes in this age category.

What are the number of deaths broken down by sex?

• Of all deaths to date involving COVID-19, 51% were male (1,637) and 49% were female (1,576).

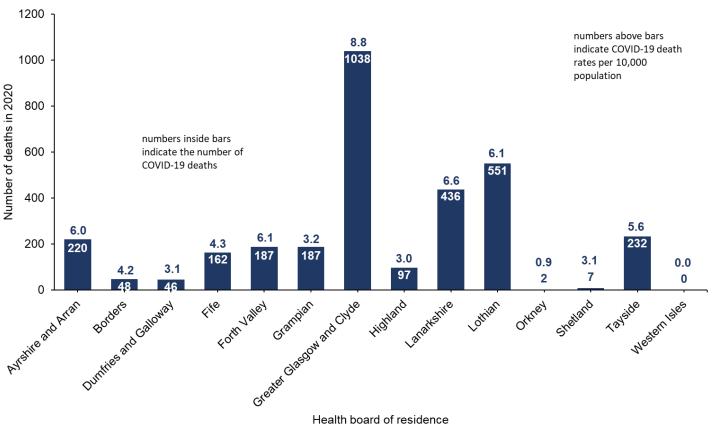
Figure 3: COVID-19 deaths and all deaths registered between weeks 1 and 19 (year to 10 May), 2020 by age group, Scotland



How do the number of deaths differ across Scotland?

- In week 19 (4 to 10 May), the Health Board area with the highest number of deaths involving COVID-19 was Greater Glasgow and Clyde with 126 deaths (also the highest number of COVID-19 deaths to date with 1,038).
- The Health Board area with the highest rate of COVID-19 deaths to date was also Greater Glasgow and Clyde with 8.8 deaths per 10,000 population.
- Figures for council areas are available in the accompanying spreadsheet.

Figure 4: Deaths involving COVID-19 registered between weeks 1 and 19 (year to 10 May), 2020 by Health Board of residence, Scotland¹



Health board of residence

¹ Rates per 10,000 population are based on population in mid-2019 as these are the most recent population estimates at the time of publication.

How do these weekly death figures compare with those produced by ONS (for England and Wales)?

The figures are produced using same definition as those published by the ONS for England and Wales, so are broadly comparable.

One minor difference is how the registration weeks are defined:

- Weeks used by ONS (for England and Wales) run from Saturday to Friday
- NRS weeks (for Scotland) run from Monday to Sunday (this is the <u>ISO8601</u> standard week).

In practice, this is likely to have very little impact on comparisons as there are few registrations that take place on Saturdays and Sundays.

You can view the latest weekly figures from ONS for England and Wales <u>here</u> and their latest monthly analysis <u>here</u>. The latest figures from NISRA for Northern Ireland are available <u>here</u>. The figures for the rest of the UK are a week behind those for Scotland so the equivalent weeks should be compared.

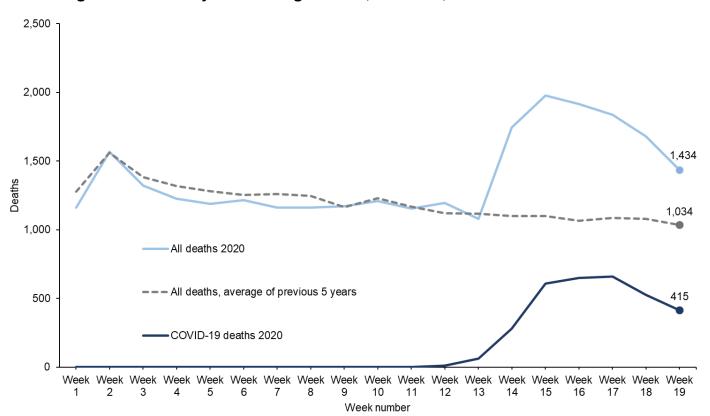


Figure 5: Deaths by week of registration, Scotland, 2020

Figure 5 shows that in 2020 up to week 13, the number of weekly registered deaths in Scotland had been broadly in line with the five year average. From week 14 onwards there has been a clear divergence from the five year average. After peaking in week 15, the number of excess deaths has reduced. For the most recent week (ending 10 May) there were 400 (39%) more deaths registered compared to the average for this time of year.

Deaths involving COVID-19 as a percentage of all deaths rose from 16% in week 14 to 36% in week 17 but has fallen to 29% in week 19.

Figure 6 shows the number of excess deaths in the latest five weeks broken down by the underlying cause of death. There were 400 more deaths registered in week 19 of 2020 (4 to 10 May)

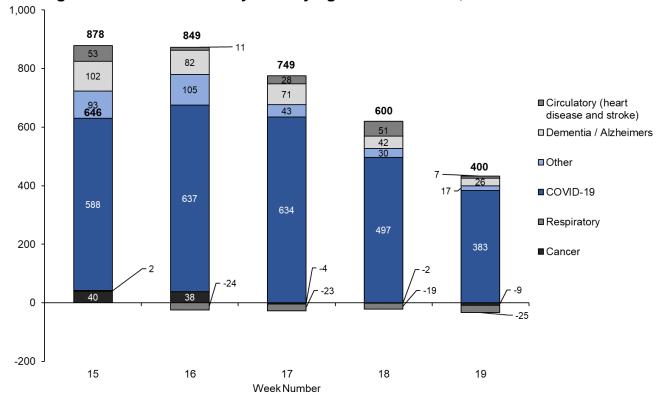
What are "Excess Deaths"?

The total number of deaths registered in a week in 2020 minus the average number of deaths registered in the same week over the period 2015 to 2019.

compared to the average for this time of year. Of these 400 excess deaths:

- 96% (383) were deaths where COVID-19 was the underlying cause of death;
- 7% (26) came from an increase in dementia and Alzheimer's disease deaths;
- 4% (17) were due to an increase in deaths from other causes;
- deaths from cancer and respiratory diseases were lower than the average for this time of year.

Figure 6: Excess Deaths by underlying cause of death*, weeks 15 to 19 2020



^{*} ICD-10 codes for cause of death categories are as follows: Cancer – C00-C97 Dementia and Alzheimer's – F01, F03, G30 Circulatory – I00-I99

Respiratory – J00-J99 COVID-19 – U07 Other – all other codes not mentioned above

What do we mean by "Underlying Cause of Death"?

The figures in this publication focus on deaths where COVID-19 was mentioned on the death certificate (either as the underlying cause <u>or</u> as a contributory factor).

In order to present a comparison of different causes of death, it is better to focus on deaths by underlying cause. This is because several causes can be listed on an individual death certificate so if we include all mentions of each particular cause we would end up with some double counting within our analysis.

The analysis of excess mortality in figure 6 is based on deaths where COVID-19 was the underlying cause of death. Therefore the number of deaths in week 19 (383) are slightly lower than the number given for COVID-19 deaths elsewhere in this publication (415) as they are deaths involving COVID (either as the underlying cause or as a contributory factor).

Of all deaths involving COVID-19 registered by 10 May, it was the underlying cause in 95% of cases (3,058 out of 3,213).

More information on how the underlying cause of death is determined is available on the <u>NRS website</u>.

Where have COVID-19 deaths taken place?

Of the 3,213 deaths involving COVID-19 which were registered to date, 45% related to deaths in care homes. 48% of deaths were in hospitals and 7% of deaths were at home or non-institutional settings.

To put these figures into context, in 2018 (the latest year for which final figures are available) around 24% of all deaths occurred in care homes, 49% in hospitals and 27% in home or non-institutional settings.

Figure 7 shows the numbers and proportion of deaths involving COVID-19 by location for weeks 14 to 19 in 2020.

In earlier weeks most COVID deaths were occurring in hospitals. The proportion of deaths in care homes has increased in recent weeks although has dropped back slightly in the latest week to represent 57% of COVID deaths. The number of deaths in care homes fell for a second week, by 76 to 238.

Breakdowns of location of death within health board and council area are available in the accompanying <u>spreadsheet</u>.

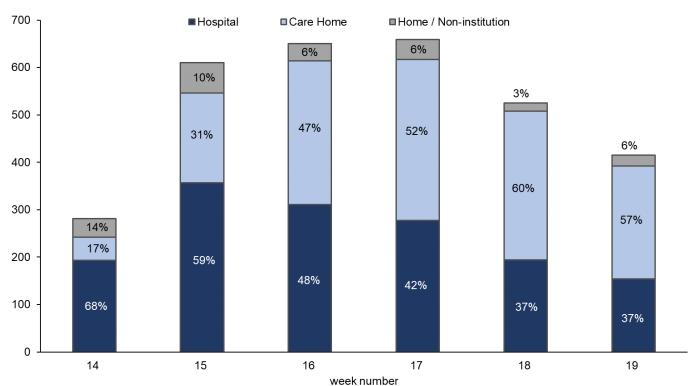


Figure 7: Deaths involving COVID-19 by location of death, weeks 14 to 19, 2020

Why focus on date of registration rather than the actual date of death?

The figures throughout this report are based on the date a death was registered rather than the date the death occurred. When someone dies, their family (or a representative) have to make an appointment with a registrar to register the death. Legally this must be done within 8 days, although in practice there is, on average, a 3 day gap between a death occurring and being registered.

This therefore means that the latest trend in COVID-19 deaths by date of registration (the NRS headline measure) has a lag of around 3 days when compared with the figures on date of death. Figure 8 below illustrates this – of the 2,798 deaths which were registered by 3 May, almost all had all occurred by 30 April.

2020 3,500 3,000 of deaths Cumulative deaths by date of death 2,000 Cumulative deaths by date of registration 1.500 Sumulative 1.000 500 8/03/2020 21/03/2020 24/03/2020 27/03/2020 30/03/2020 02/04/2020 29/04/2020 2/03/2020 20/04/2020 02/05/2020

Figure 8: Deaths involving COVID-19, Date of Death vs Date of Registration 2020

This publication includes all deaths which were registered by 10 May. There will, however, be deaths which occurred before 10 May but were not yet registered. In order to include a more complete analysis based on date of death, we need to wait an additional week to allow the registration process to fully complete. The trend based on date of death therefore only includes deaths which occurred by 3 May as the vast majority of these have now been registered – so although this gives a more accurate picture, it takes more time to compile. However, they are valuable statistics and provide a clearer understanding of the impact and progress of COVID-19, when used alongside the other available daily and operational data.

In Summary

The death count based on date of registration is more timely but is incomplete.

The death count based on **date of death is more complete** and gives a more accurate trend on the progress of the virus, but less timely (a one week delay compared to date of registration figures).

ADDITIONAL ANALYSIS OF DEATHS OCCURRING IN MARCH AND APRIL 2020

This section provides an in-depth analysis of all deaths which occurred in Scotland during March and April. This is a different basis from the rest of this report which is based on the date deaths were registered. The box on page 13 explains the difference between these two measures.

These analyses will be updated on a monthly basis and will next appear in this publication when data for deaths occurring in May become available.

Age-standardised mortality rates

Age-standardised mortality rates are a better measure of mortality than numbers of deaths, as they account for the population size and age structure and provide more reliable comparisons between groups or over time. As the probability of death tends to increase with age, changes in the age-distribution of the population could have an effect on any apparent trend shown by numbers of deaths, or crude death rates (dividing the number of deaths by the total population).

Similarly, if two groups populations have different age-distributions, using agestandardised rates will remove the effect of the differences between the groups and show which one has the higher mortality.

Age-standardised rates are therefore more reliable for comparing mortality over time and between different countries, different areas within a country, deprivation quintiles, and different sexes.

More information on the calculation of age-standardised mortality rates is available on our <u>website</u>.

When adjusting for size and age structure of the population, for all deaths involving COVID-19 there were 65 deaths per 100,000 people in March, rising to 582 per 100,000 people in April. Rates for males were significantly higher than for females (716 compared with 479 per 100,000 people in April).

Looking only at deaths where COVID-19 was the underlying cause, the rates were only slightly lower – reflecting the fact that it was the underlying cause in the vast majority (95%) of deaths involving COVID-19. In April the age-standardised mortality rate was 560 per 100,000 people, with a similar differential between males (691) and females (461).

Figure S1a: Age standardised rates for deaths involving COVID-19 by sex

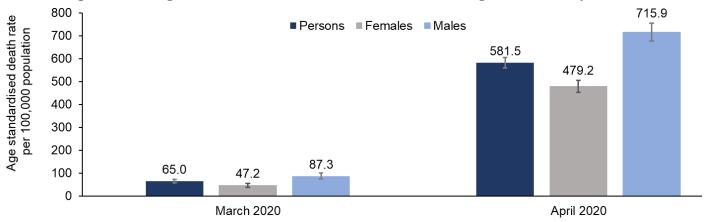
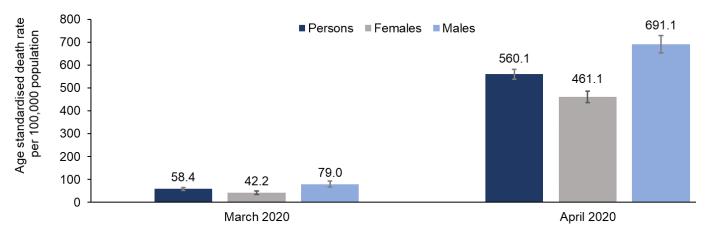


Figure S1b: Age standardised rates for deaths where COVID-19 was the underlying cause, by sex



The age-standardised mortality rate from all causes was 1,248 per 100,000 people in March and 1,763 per 100,000 people in April. The April 2020 figure is considerably higher than the latest annual figure for 2018 when there were 1,140 deaths per 100,000 population.

Leading causes of death

As this analysis compares different causes of death it is based on the underlying cause of death and therefore the figures for COVID-19 only include those deaths where it was the underlying cause rather than all those in which it was mentioned.

The leading causes of death in March 2020 were:

- 1. Dementia and Alzheimer's Disease (650 deaths, 12% of all deaths)
- 2. Ischaemic heart disease (587, 11%)
- 3. Cerebrovascular disease (stroke) (377, 7%)
- 4. Lung cancer (364, 7%)
- 5. Chronic lower respiratory diseases (272, 5%)

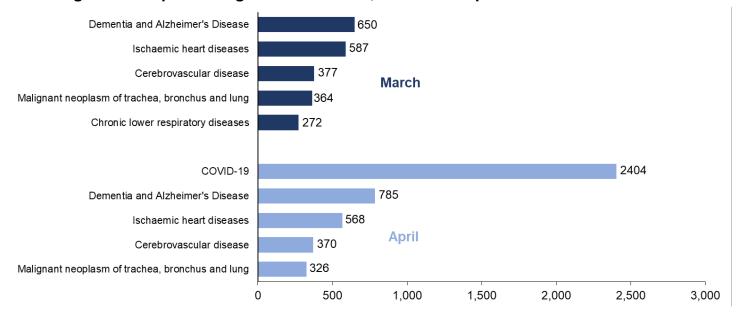
The leading cause of death analysis is based on a list of causes developed by the World Health Organisation (WHO). There are around 60 categories in total and cancers are grouped separately according to the type of cancer. For example, lung, breast and prostate cancer are all counted as separate causes.

Although there were 265 deaths in March where COVID-19 was the underlying cause, it was not one of the top 5 leading causes of death.

In April, this changed as COVID-19 clearly became the leading cause of death:

- 1. COVID-19 (2,404 deaths, 32% of all deaths)
- 2. Dementia and Alzheimer's deaths (785, 10%)
- 3. Ischaemic heart disease (568, 8%)
- 4. Cerebrovascular disease (370, 5%)
- 5. Lung cancer (326, 4%)

Figure S2: Top 5 leading causes of death, March and April 2020



Pre-existing conditions of people who died with COVID-19

Of the 296 deaths involving COVID-19 in March, 92% (271) had at least one preexisting condition. Similarly for April, 2,281 (91%) of the 2,497 people who died with COVID-19 had at least one pre-existing condition.

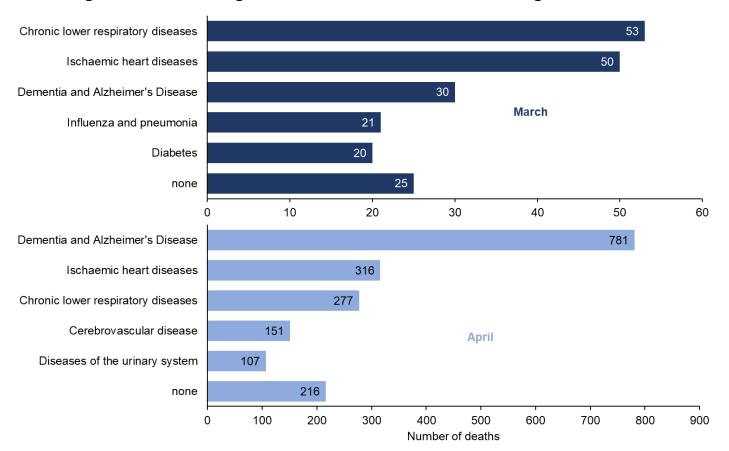


Figure S3: Pre-existing medical conditions in deaths involving COVID-19

In March, the most common pre-existing condition was chronic lower respiratory diseases (53, 18%), closely followed by ischaemic heart disease (50, 17%). In April, the most common pre-existing condition was dementia and Alzheimer's disease (781, 31%), followed by ischaemic heart disease (316, 13%).

Pre-existing conditions are defined as a health condition mentioned on the death certificate which either came before COVID-19 or was an independent contributory factor in the death. Where only COVID-19 was recorded on the death certificate, or only COVID-19 and subsequent conditions caused by COVID-19 were recorded, these deaths are referred to as having no pre-existing conditions.

We have used methodology developed by ONS to determine the main pre-existing condition. This is the defined as the one pre-existing condition that is, on average, most likely to be the underlying cause of death for a person of that age and sex had they not died from COVID-19. For more detail on how pre-existing conditions and main pre-existing conditions are derived, refer to the <u>methodology paper</u>.

Mortality by deprivation

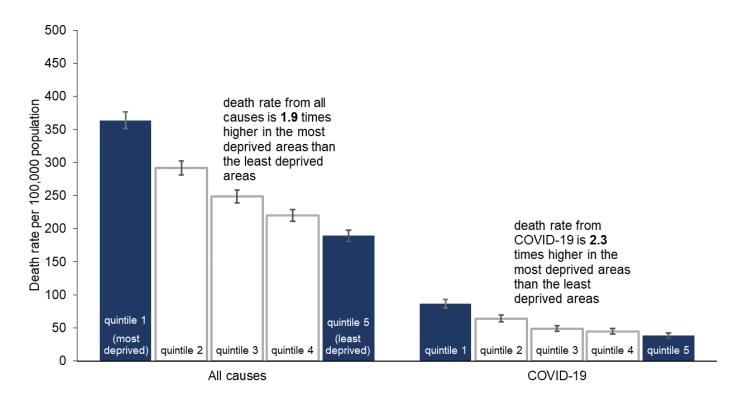
The age-standardised rate of deaths involving COVID-19 in the most deprived quintile (86.5 per 100,000 population) was more than double (2.3 times higher) than in the least deprived quintile (38.2 per 100,000 population).

The gap was smaller when considering the rate of deaths from all causes (1.9 times higher in the most deprived quintile than in the least deprived quintile.

Deprivation quintiles are based on the Scottish Index of Multiple Deprivation (SIMD). This is an area based measure of deprivation.

Quintiles are allocated according to the deceased's usual place of residence.

Figure S4: Age-standardised death rates by SIMD quintile, March and April 2020

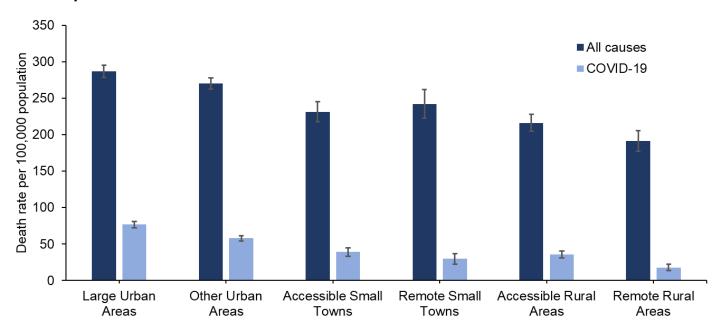


Mortality by urban rural classification

The age-standardised rate for deaths involving COVID-19 was over 4 times higher in large urban areas (76.8 deaths per 100,000 population) than in remote rural locations (17.9 per 100,000 population).

The gap was substantially smaller when considering the rate of deaths from all causes (1.5 times higher in large urban areas than in remote rural areas).

Figure S5: Age-standardised death rates by urban rural classification, March and April 2020



Daily deaths by location of death

During March and the first half of April, the majority of deaths involving COVID-19 took place in hospitals, but from mid-April onwards there were more deaths in care homes. Hospital deaths peaked on 6 April and have been reducing since then. Care home deaths continued to increase until 20 April and have now begun to decrease.

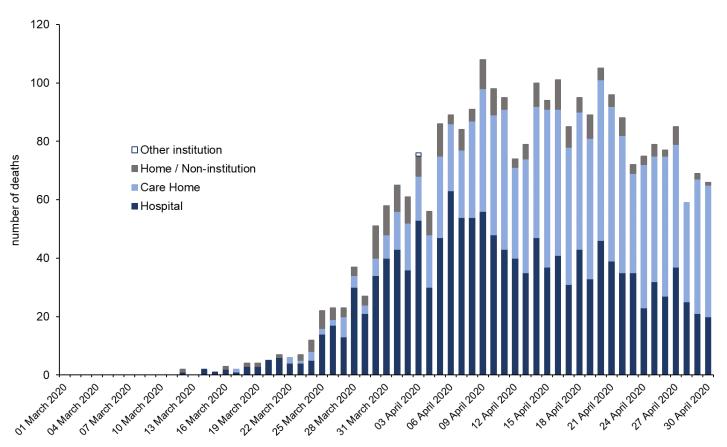


Figure S6: Daily deaths by location of death, COVID-19 deaths

Things you should know about how these statistics are compiled

Figures are based on the date of registration. In Scotland deaths must be registered within 8 days but in practice, the average time between death and registration is around 3 days.

Figures are allocated to weeks based on the ISO8601 standard. Weeks begin on a Monday and end on a Sunday. Often weeks at the beginning and end of a year will overlap the preceding and following years (e.g. week 1 of 2020 began on Monday 30 December 2019) so the weekly figures may not sum to any annual totals which are subsequently produced.

Deaths involving COVID-19 are defined as those where COVID-19 is mentioned on the death certificate, either as the underlying cause of death or as a contributory cause. Cause of death is coded according to the International Statistical Classification of Diseases and Related Health Conditions 10 Revision (ICD-10). The relevant codes included in this publication are U07.1 and U07.2.

Figures include deaths where 'suspected' or 'probable' COVID-19 appears on the death certificate.

Data are provisional and subject to change in future weekly publications. The data will be finalised in June 2021. Reasons why the data might be revised later include late registration data being received once the week's figure have been produced or more information being provided by a certifying doctor or The Crown Office and Procurator Fiscal Service (COPFS) on the cause of death.

The deprivation and urban/rural analysis uses annual datazone populations for 2018 as these are the latest available estimates for this geography.

The monthly age-standardised rates are calculated using a monthly population interpolated from the 2019 mid-year population estimates and the population projection for 2020.

Error bars are showing in figures S1, S4 and S5 to denote the 95% confidence intervals around the age-standardised rates.

We recently published a note on our <u>website</u> which explains why we cannot currently analyse COVID-19 deaths data on the basis of ethnic group.

Deaths involving coronavirus (COVID-19) in Scotland - Index of Analyses

Breakdown	Frequency	When	Latest Period	Date Last Published
		Added	Covered	
Age group	Weekly	8 April	Week 19	13 May 2020
		2020		
Sex	Weekly	8 April	Week 19	13 May 2020
		2020		
Location	Weekly	15 April	Week 19	13 May 2020
		2020		
Health Board	Weekly	8 April	Week 19	13 May 2020
	,	2020		""
Local Authority	Weekly	22 April	Week 19	13 May 2020
	,	2020		"""
Excess deaths	Weekly	22 April	Week 19	13 May 2020
by cause	1100,	2020		
Age-	Monthly	13 May	April	13 May 2020
standardised		2020		"""
mortality rates		_0_0		
Leading causes	Monthly	13 May	April	13 May 2020
of death	Ivioriany	2020	/ tpiii	10 May 2020
Pre-existing	Monthly	13 May	April	13 May 2020
conditions	Wichting	2020	/ (pill	10 May 2020
Deprivation	Monthly	13 May	March/April	13 May 2020
Doprivation	IVIOLITIII	2020	combined	10 May 2020
Urban Rural	Monthly	13 May	March/April	13 May 2020
Ulbali Kulai	ivioriting	2020	combined	13 May 2020
Deily	Monthly			42 May 2020
Daily	Monthly	13 May	March and	13 May 2020
occurrences by		2020	April	
location of				
death				

Certain user enquiries for ad-hoc analysis related to COVID-19 deaths have been published on our <u>website</u>.

National Records of Scotland

We, the National Records of Scotland, are a non-ministerial department of the devolved Scotlish Administration. Our aim is to provide relevant and reliable information, analysis and advice that meets the needs of government, business and the people of Scotland. We do this as follows:

Preserving the past – We look after Scotland's national archives so that they are available for current and future generations, and we make available important information for family history.

Recording the present – At our network of local offices, we register births, marriages, civil partnerships, deaths, divorces and adoptions in Scotland.

Informing the future – We are responsible for the Census of Population in Scotland which we use, with other sources of information, to produce statistics on the population and households.

You can get other detailed statistics that we have produced from the Statistics section of our website. Scottish Census statistics are available on the Scotland's Census website.

We also provide information about future publications on our website. If you would like us to tell you about future statistical publications, you can register your interest on the Scottish Government ScotStat website.

You can also follow us on twitter @NatRecordsScot

Enquiries and suggestions

Please get in touch if you need any further information, or have any suggestions for improvement.

For media enquiries, please contact communications@nrscotland.gov.uk

For all other enquiries, please contact <u>statisticscustomerservices@nrscotland.gov.uk</u>