Deaths involving coronavirus (COVID-19) in Scotland

Week 45
(2 to 8 November 2020)

Published on 11 November 2020

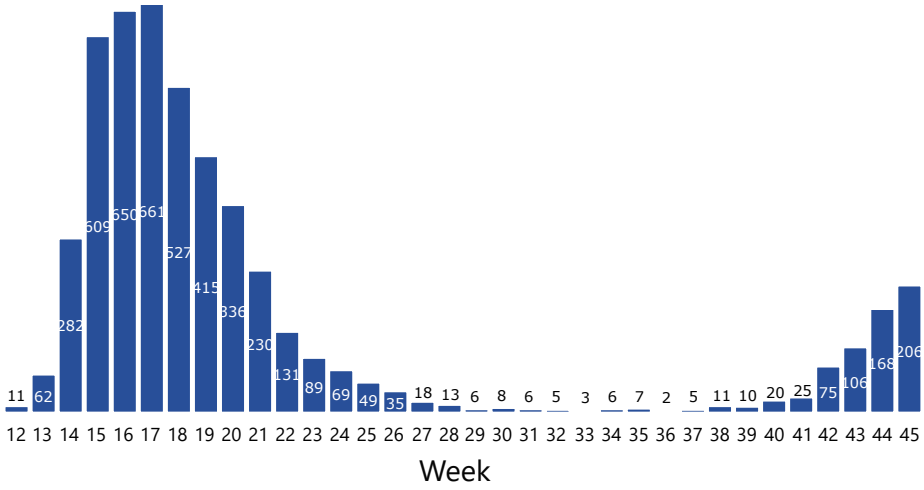
This statistical report includes provisional statistics on the number of deaths associated with coronavirus (COVID-19) and the total number of deaths registered in Scotland, for weeks 1 to 45 of 2020

Deaths involving coronavirus (COVID-19) up to 8th November 2020 Summary

As of 8th November, 4,856 deaths had been registered which mentioned COVID-19

The highest number of COVID-19 deaths were registered in week 17 (20th to 26th April). Deaths have decreased since then but have increased in the last six weeks to reach a level of 206 in week 45 (2nd to 8th November).

Deaths per week involving COVID-19



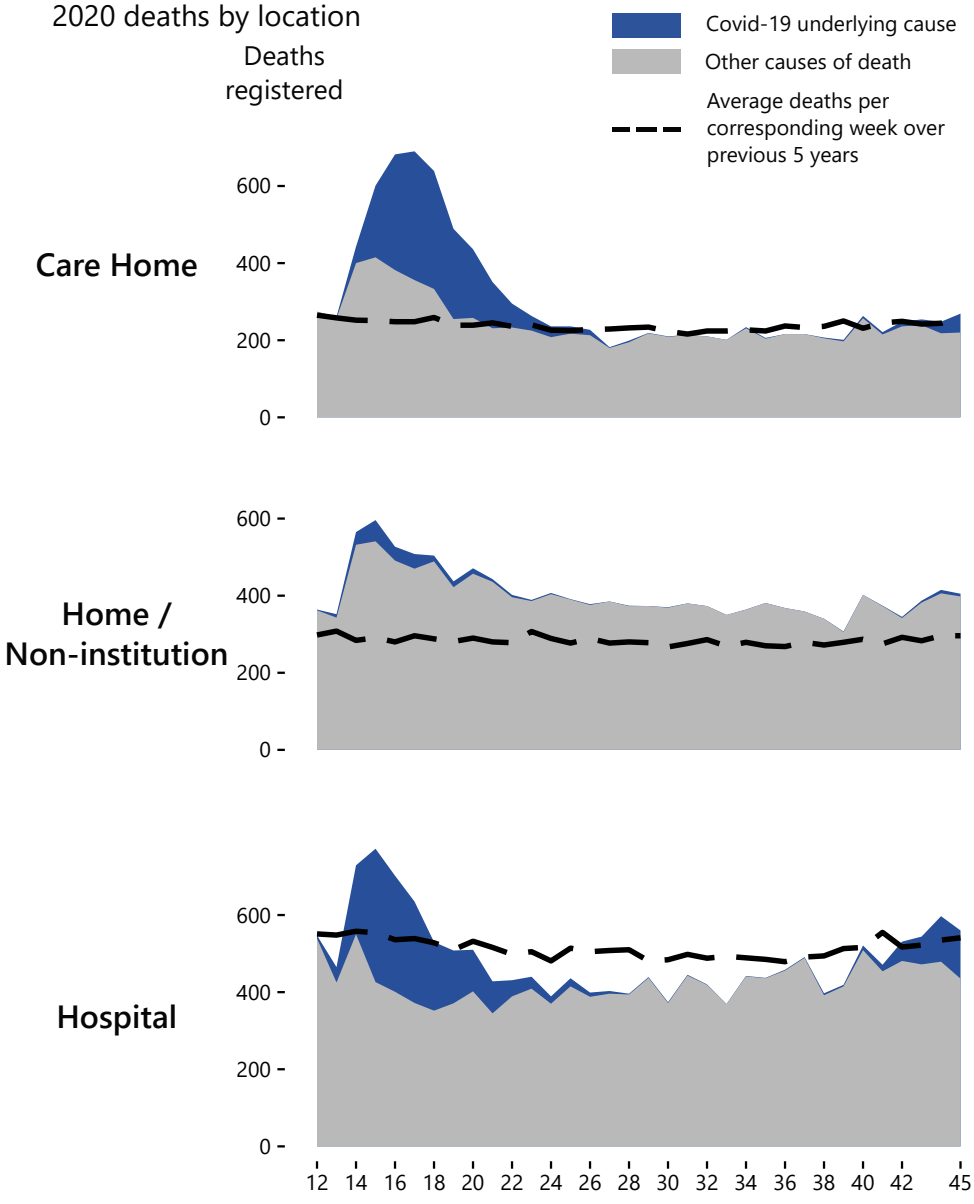
Return of excess deaths in hospitals

Between weeks 12 and 45 (16th March to 8th November) there were 2,219 (27%) more deaths in care homes than average. COVID-19 was the underlying cause in 2,004 (90%) of these excess deaths.

In the same period, there were 4,141 excess deaths which took place at home or in a non-institutional setting (43% above average). COVID-19 was the underlying cause in 267 (6%) of these excess deaths.

After peaking in week 15, hospital deaths fell below average levels in week 19 and remained low although increases in recent weeks have led to a return to excess deaths. Over the full period, hospital deaths are still 839 (5%) below average.

2020 deaths by location



National Records of Scotland (NRS) has been closely monitoring the weekly number of deaths, and given the increase in recent weeks, we have taken the decision to make additional weekly analysis available through this short publication providing a weekly breakdown of deaths from all causes and deaths involving COVID-19.

This weekly publication includes breakdowns by sex, age, health board, local authority and location of death. It also includes an analysis of excess deaths by location and broad cause of death.

We also publish a comprehensive and detailed analysis of mortality on a monthly basis (this publication). This report includes analysis of deaths occurring in the previous month, and looks at age-standardised death rates, breakdown by deprivation, urban/rural, an analysis of leading causes of death and a breakdown by main pre-existing condition of those who died with COVID-19

NRS mortality data (COVID-19 and excess deaths) will continue to be made available on a weekly basis through the Scottish Government's COVID-19 dashboard

Key Findings

COVID deaths

- As at the 8th of November, there have been a total of 4,856 deaths registered in Scotland where the novel coronavirus (COVID-19) was mentioned on the death certificate.
- Of the total number of deaths registered in week 45 (2 November to 8 November), there were 206 where COVID-19 was mentioned on the death certificate, an increase of 38 from the previous week (26 October to 1 November).
- Of deaths involving COVID-19 in the latest week:
    - Nearly three quarters (74%) were aged 75+, and 9% were aged under 65.
    - 50% were male (103 deaths) and 50% female (103 deaths).
    - There were 85 deaths in Greater Glasgow and Clyde Health Board area, 42 in Lanarkshire and 22 in Ayrshire and Arran.
    - At council level, the highest number of deaths occurred in Glasgow City (61), South Lanarkshire (23) and North Lanarkshire (19).
    - The majority (69%) occurred in hospitals (143 deaths), with 53 deaths in care homes and 9 at home or in non-institutional settings.

All-cause deaths and excess deaths

- The provisional total number of deaths registered in Scotland in week 45 of 2020 (2 November to 8 November) was 1,238.

- The average number of deaths registered in the corresponding week over the previous five years was 1,105, so there were 133 (12%) more deaths registered in week 45 of 2020 compared to the average.

- In week 45 there were 6 excess deaths in care homes (2% above average), 109 excess deaths at home or in non-institutional settings (37% above average) and 19 excess deaths in hospitals (4% above average).

- There were 133 excess deaths in the latest week. The number of deaths where COVID-19 was the underlying cause (182) was actually higher than the total number of excess deaths because deaths from cancer (-18), dementia (-17) and respiratory causes (-43) were lower than the average for this time of year.

Monthly analysis

- The age-standardised death rate for deaths involving COVID-19 which occurred between March and October was 135 per 100,000 people.

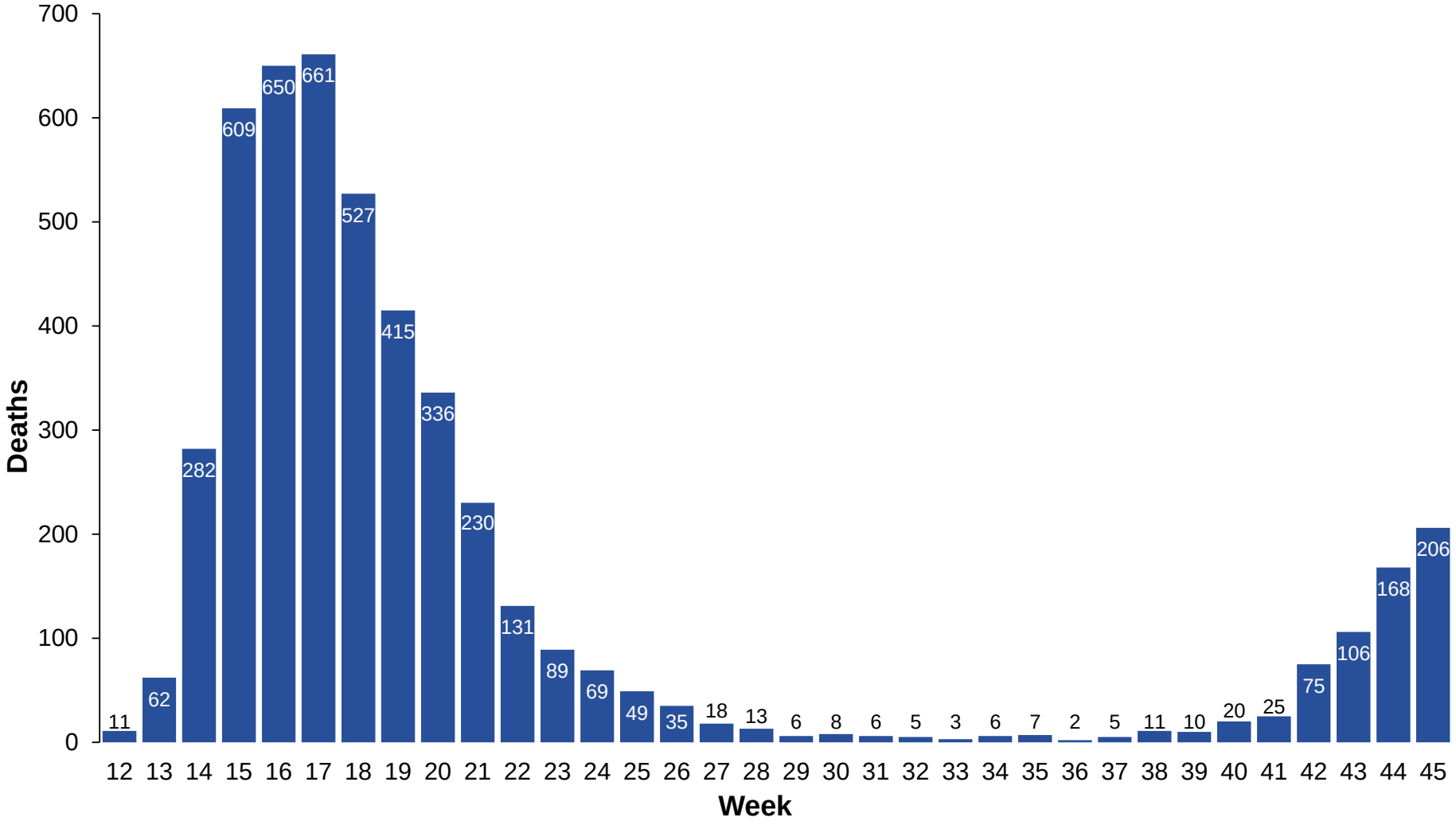
- Age-standardised rates for males were significantly higher than for females (164 compared with 113 per 100,000 people in March to October combined).

- After adjusting for age, people living in the most deprived areas were 2.2 times as likely to die with COVID-19 as those in the least deprived areas.

- Of the 4,743 deaths involving COVID-19 between March and October 2020, 92% (4,367) had at least one pre-existing condition. The most common main pre-existing condition was dementia and Alzheimer's, accounting for 30% of all deaths involving COVID-19.

- West Dunbartonshire had the highest age-standardised death rate of all council areas, followed by Glasgow City, Midlothian and Inverclyde. Highland, Moray and Dumfries and Galloway had the lowest rates (in addition to Na h-Eileanan Siar, Orkney and Shetland whose numbers were too low to calculate rates)

Figure 1: Weekly deaths involving COVID-19 in Scotland, week 12 to week 45



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 of their first positive test.

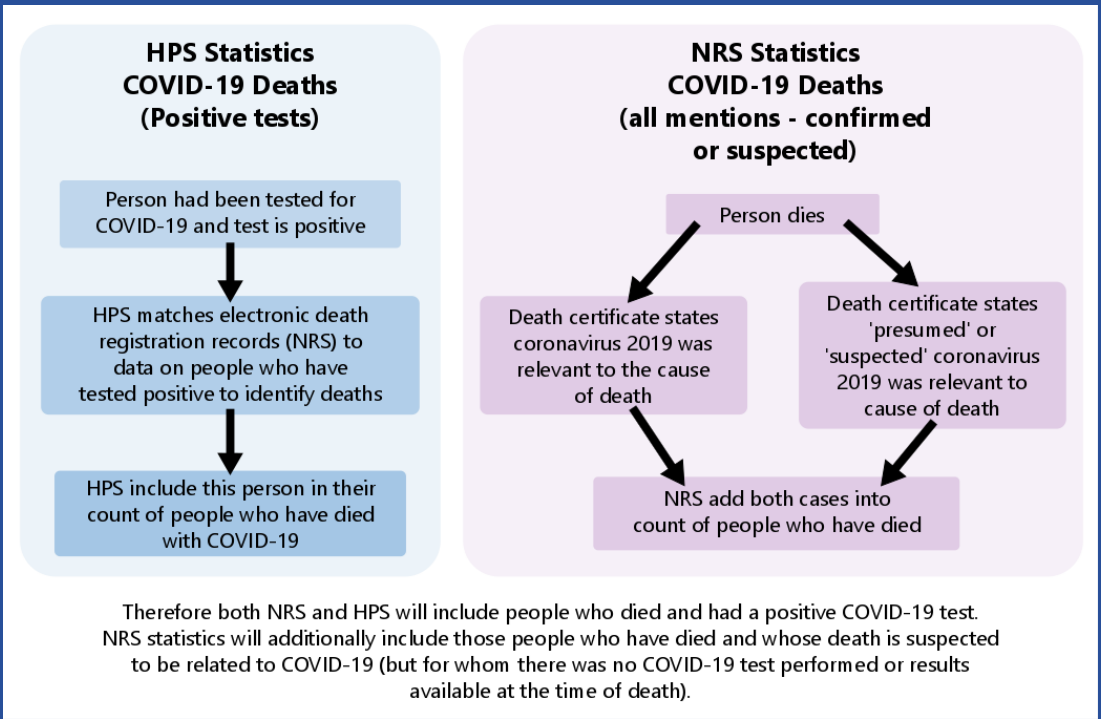
These are important because they are available earlier, and give a quicker indication of what is happening day by day and are broadly comparable with the figures released daily for the UK by the Department for Health and Social Care.

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 suspected or probable coronavirus infection involved in the death.

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

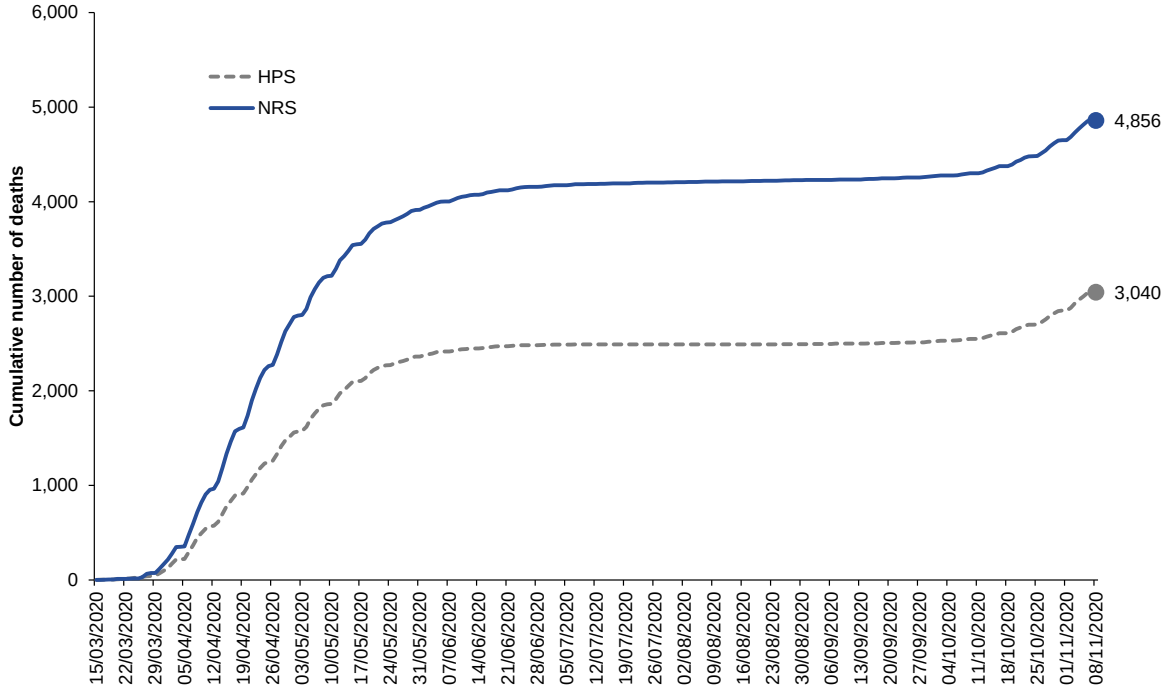
Using the complete death certificate allows NRS to analyse a lot of information, such as location of death and what other health conditions contributed to the death. We will start publishing more detailed breakdowns of the figures as soon as possible.



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. As the HPS figures count people who died within 28 days of their first positive test, in the more recent period the NRS figures may pick up people who tested positive but died more than 28 days later.

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



How do these weekly death figures compare with those produced across the rest of the UK?

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

One minor difference is how the registration weeks are defined:

- Weeks used by ONS and NISRA run from Saturday to Friday
- NRS weeks run from Monday to Sunday (this is the ISO8601 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 here. The latest figures from NISRA for Northern Ireland are available here. The figures for the rest of the UK are a week behind those for Scotland so the equivalent weeks should be compared.

Figure 3: Deaths by week of registration, Scotland, 2020

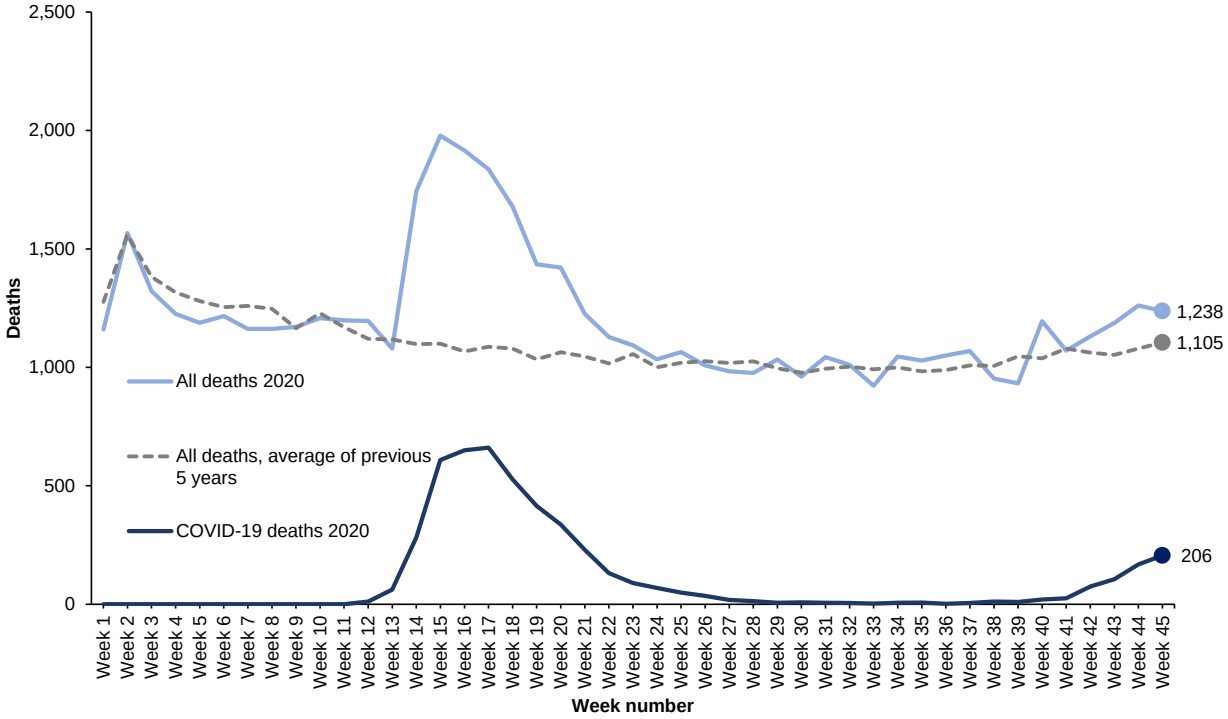


Figure 3 shows that in 2020 up to week 13, the number of weekly registered deaths in Scotland had been broadly in line with the five year average. From week 14 to 22, there was a clear divergence from the five year average. After peaking in week 15, the number of excess deaths reduced and was within 7 per cent above or below the average in every week between week 23 (1st to 7th June) and week 38 (14th to 20th September). In the last four weeks it has consistently been above average, rising from 6% above average in week 42 to 17% in week 44. In the most recent week, deaths were 12% above average for this time of year.

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.

Deaths involving COVID-19 as a percentage of all deaths rose from 16% in week 14 to 36% in week 17, but fell below 1% by week 29 and remained at a very low level until week 39 (21st to 27th September). From this point, the percentage has begun rising steadily again and reached 17% in the most recent week.

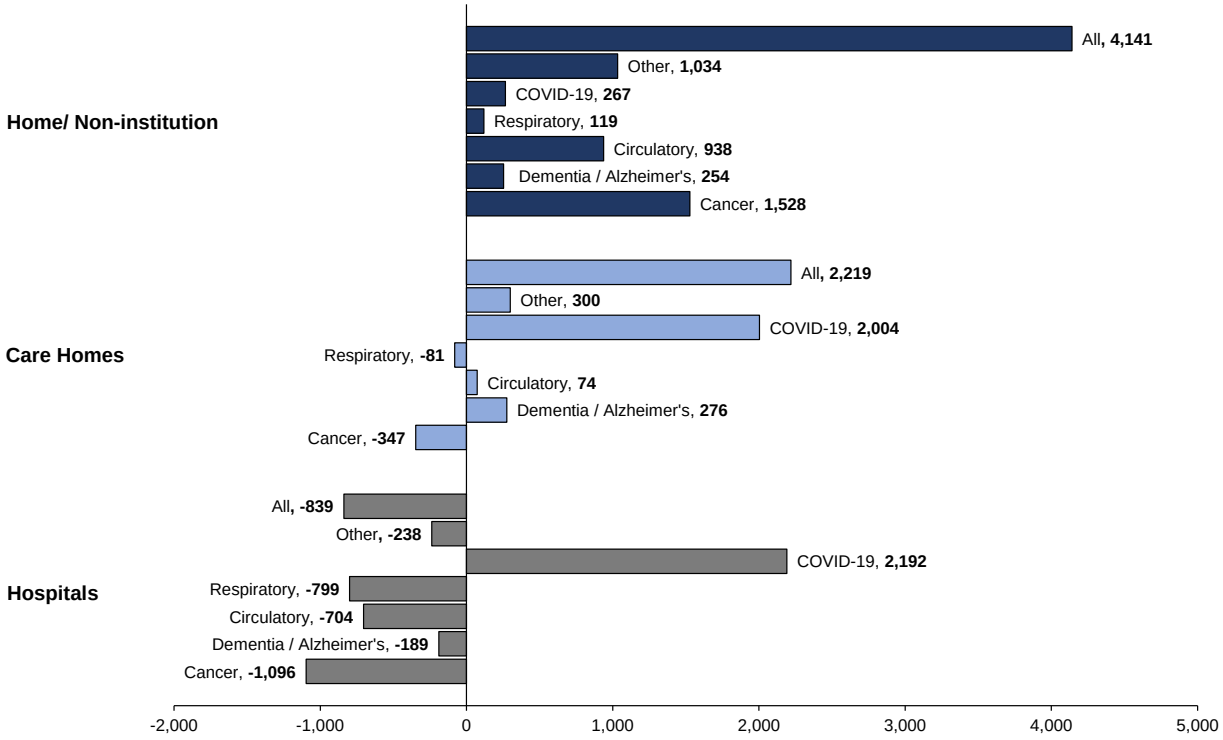
Figure 4 shows the number of excess deaths during weeks 12 to 45 (the period since the first coronavirus death was registered) broken down by location of death and the underlying cause of death.

There were 2,219 excess deaths in care homes (27% above average), 4,141 excess deaths at home or in non-institutional settings (43% above average) whilst hospital deaths were 839 (5%) below average levels for the period covering weeks 12-45.

In care homes and hospitals, COVID-19 was the cause of the majority of excess deaths whilst in home and non-institutional settings there were far fewer excess deaths involving COVID-19. Cancer, circulatory deaths, and deaths from other causes accounted for most of the excess deaths in these settings. Conversely, in hospital settings there were lower than average numbers of deaths from all causes other than COVID-19.

Figure 4: Excess Deaths by underlying cause of death* and location, weeks 12 to 45, 2020

Figure 4: Excess Deaths by underlying cause of death and location, week 12 to most recent, 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 or 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 table 3 and figure 4 is based on deaths where COVID-19 was the underlying cause of death. Therefore the number of deaths to week 45 (4,472) are slightly lower than the number given for COVID-19 deaths elsewhere in this publication (4,856) as they are deaths involving COVID (either as the underlying cause or as a contributory factor).

Of all deaths involving COVID-19 registered by 8th November, it was the underlying cause in 92% of cases (4,472 out of 4,856).

More information on how the underlying cause of death is determined is available on the NRS website.

Where have COVID-19 deaths taken place?

Of the 4,856 deaths involving COVID-19 which were registered to date, 50% related to deaths in hospitals. 43% of deaths were in care homes and 7% of deaths were at home or non-institutional settings.

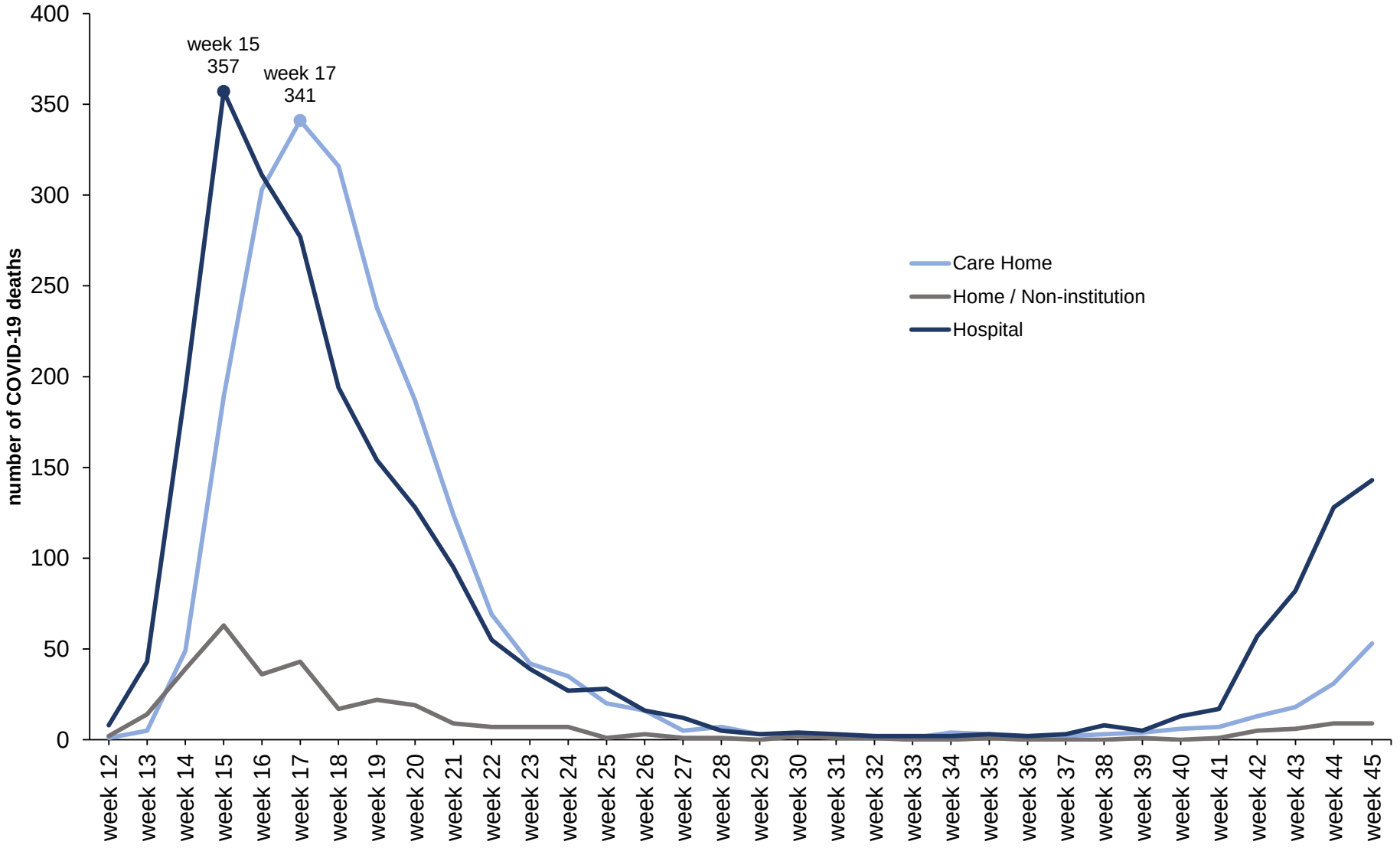
To put these figures into context, in 2019 around 24% of all deaths occurred in care homes, 48% in hospitals and 28% in home or non-institutional settings.

Figure 5 shows the number of deaths involving COVID-19 by location for weeks 12 to 45 in 2020.

In the earliest weeks of the pandemic most COVID-19 deaths were occurring in hospitals, but by week 17 more COVID-19 deaths were occurring in care homes. Between weeks 23 and 39 (June to September) the number of COVID-19 deaths in hospitals and care homes were broadly similar but from week 40 onwards there have been more hospital deaths.

Breakdowns of location of death within health board and council area are available on the related statistics page of our website.

Figure 5: Deaths involving COVID-19 by location of death, weeks 12 to 45, 2020

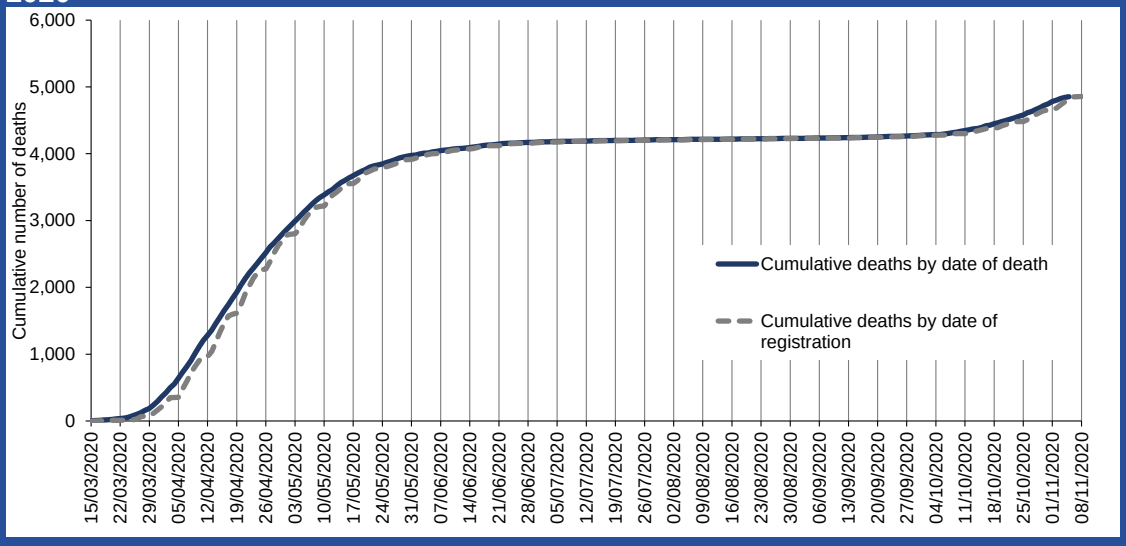


Why focus on date of registration rather than the actual date of death?

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 6 below illustrates this – of the 4,650 deaths which were registered by 1st November, all had all occurred by 28th October.

Figure 6: Deaths involving COVID-19, Date of Death vs Date of Registration 2020



This report includes all deaths which were registered by 8th November. There will, however, be deaths which occurred before this date 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 1st November as the majority of these are likely to have 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).

DEATHS OCCURRING BETWEEN MARCH AND OCTOBER 2020

This section provides an in-depth analysis of all deaths which **occurred** in Scotland between March and October. This is a different basis from the rest of this report which is based on the date deaths were **registered**.

Age-standardised mortality rates

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 583 per 100,000 people in April, before falling to 268 in May and 47 in June. It fell to very low levels in July (8 per 100,000) and August (5 per 100,000) and then increased slightly in September (10 per 100,000) and then more sharply in October (102 per 100,000).

Why use 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 age-standardised 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 website.

Rates for males were significantly higher than for females (164 compared with 113 per 100,000 people in March to October combined).

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 (92%) of deaths involving COVID-19. In the combined data for March to October, the age-standardised mortality rate was 124 per 100,000 people, with a similar differential between males (152) and females (103).

Figure 7a: Age standardised rates for deaths involving COVID-19 by sex, between 1st March 2020 and 31st October 2020

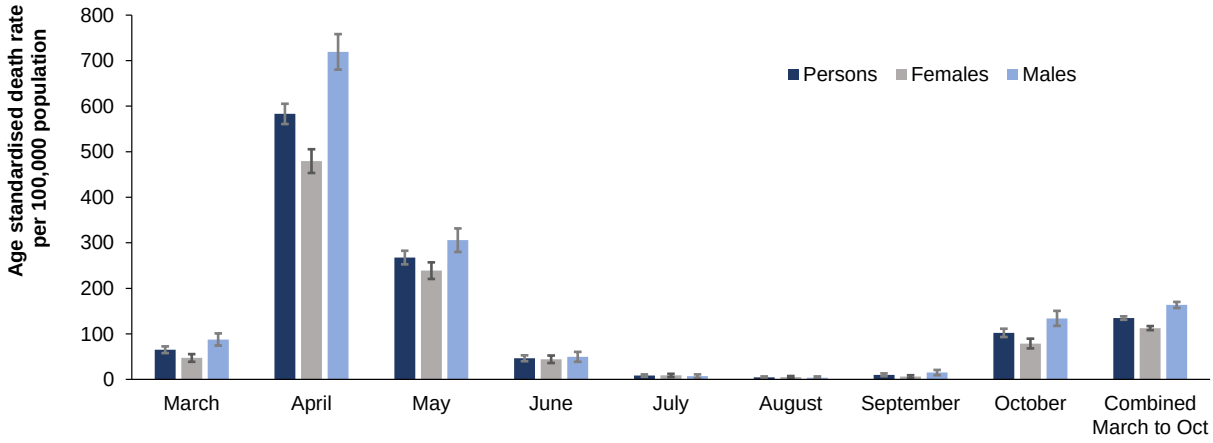
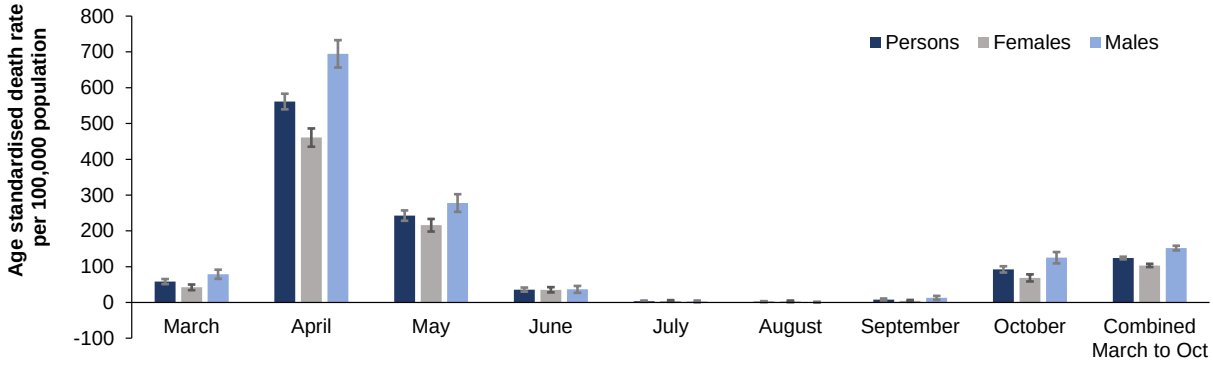


Figure 7b: Age standardised rates for deaths where COVID-19 was the underlying cause, by sex, between 1st March 2020 and 31st October 2020



The age-standardised mortality rate from all causes was 1,257 per 100,000 people in March, 1,783 per 100,000 people in April, 1,294 per 100,000 people in May, 1,024 per 100,000 people in June, 998 per 100,000 people in July and 977 per 100,000 people in August before rising to 1,025 per 100,000 people in September and 1,119 per 100,000 people in October. The April figure is considerably higher than the latest annual figure for 2019 when there were 1,108 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 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.

Over the period between March and October, the leading cause of death was COVID-19 (4,374 deaths, 10.4% of all deaths) followed very closely by ischaemic heart disease (4,268, 10.2%) and dementia and Alzheimer's disease (4,093, 9.7%).

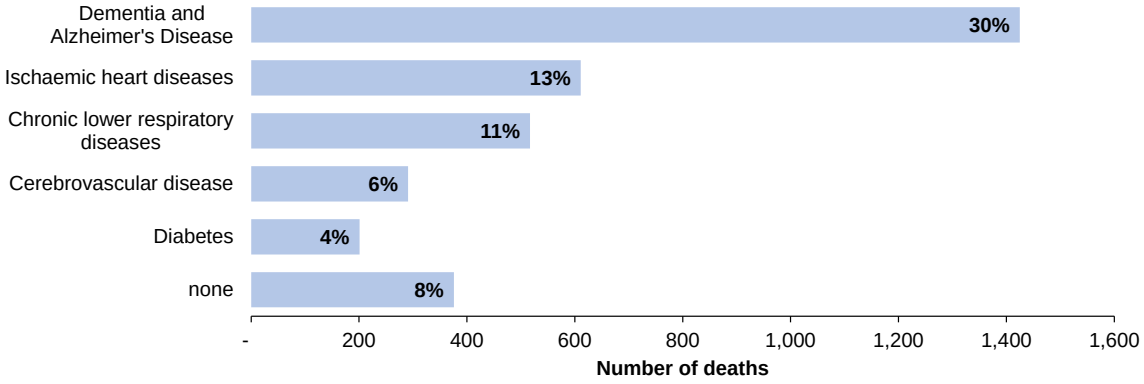
This has changed over the months, with COVID-19 not appearing in the top 5 in March and then becoming the leading cause in both April and May. From June until September COVID-19 did not appear in the top 5 leading causes, but it has reappeared in October as the third most common cause of death, accounting for 8.4% of all deaths in October.

Figure 8: Leading causes of death - 1st March 2020 and 31st October 2020

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

Of the 4,743 deaths involving COVID-19 between March and October 2020, 92% (4,367) had at least one pre-existing condition.

Figure 9: Main pre-existing medical condition in deaths involving COVID-19, between 1st March 2020 and 31st October 2020



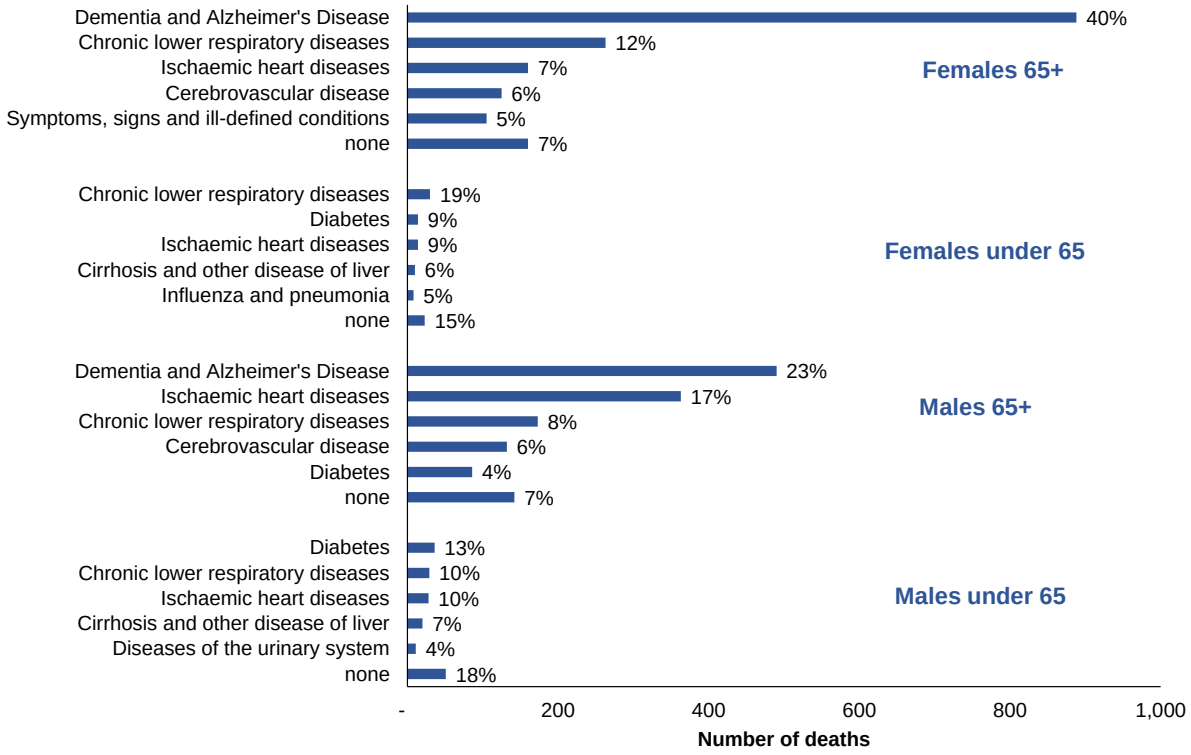
The most common main pre-existing condition among those who died with COVID-19 was dementia and Alzheimer's disease (30%), followed by ischaemic heart disease (13%), chronic lower respiratory diseases (11%), cerebrovascular disease (6%) and diabetes (4%).

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 methodology paper.

Pre-existing conditions differed by age and sex. For males and females over 65 the main pre-existing condition was dementia and Alzheimer's disease (40% and 23% of all COVID-19 deaths respectively). For females under 65, the most common main pre-existing condition was chronic lower respiratory diseases (19%) and for males under 65 it was diabetes (13%).

Figure 10: Main pre-existing medical condition by age and sex, in deaths involving COVID-19 between 1st March 2020 and 31st October 2020



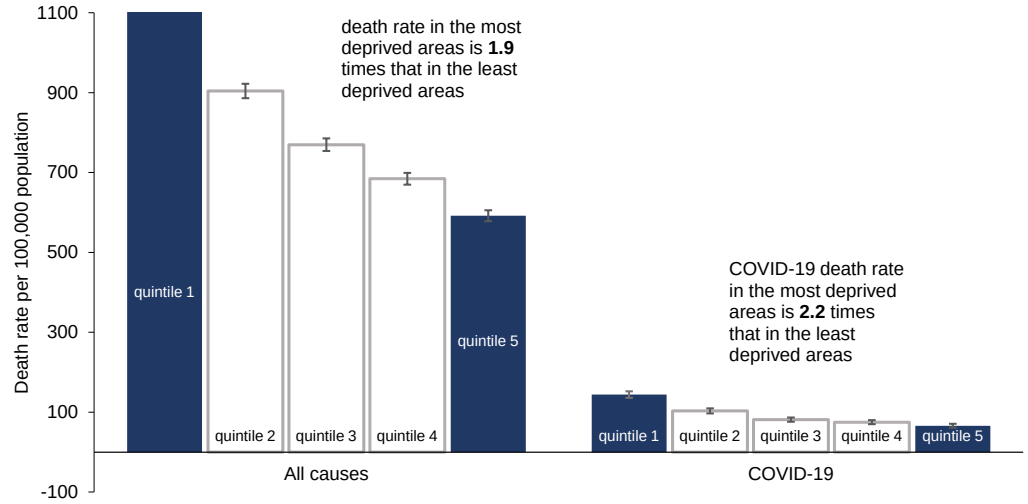
Mortality by deprivation

The age-standardised rate of deaths involving COVID-19 in the most deprived quintile (125 per 100,000 population) was more than double (2.2 times higher) that in the least deprived quintile (60 per 100,000 population).

The gap was slightly smaller when considering the rate of deaths from all causes (the rate in the most deprived quintile was 1.9 times the rate 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 11: Age-standardised death rates by SIMD quintile between 1st March 2020 and 31st October 2020

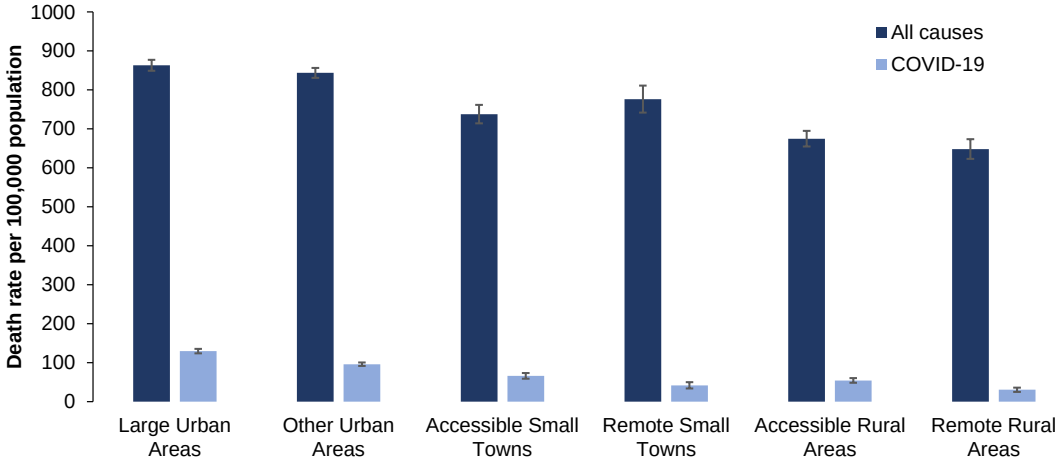


Mortality by urban rural classification

The age-standardised rate for deaths involving COVID-19 in large urban areas (130 deaths per 100,000 population) was 4.3 times the rate in remote rural locations (30 per 100,000 population).

The gap was substantially smaller when considering the rate of deaths from all causes (the rate in large urban areas 1.3 times that in remote rural areas).

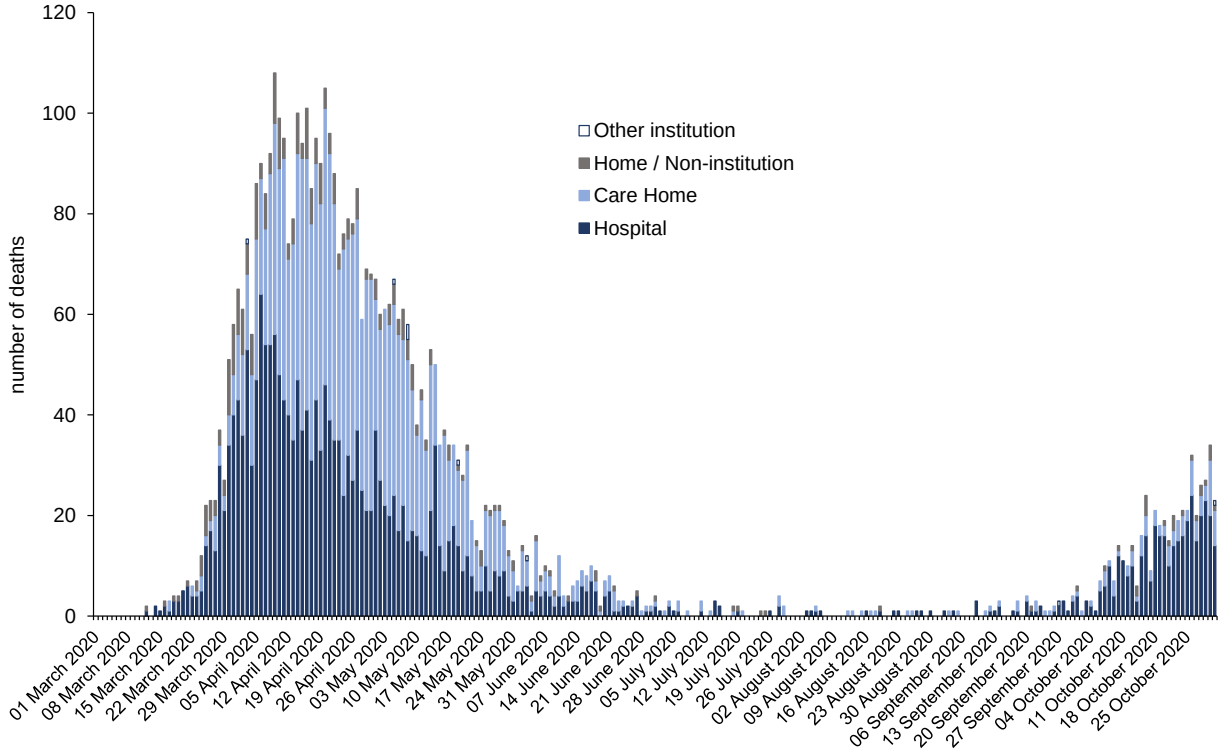
Figure 12: Age-standardised death rates by urban rural classification between 1st March 2020 and 31st October 2020



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 6th April and were reducing until the recent increase to deaths involving COVID-19. Care home deaths continued to increase until 20th April and then began to decrease. Deaths in all locations were very low over summer but have begun to increase since mid-September. Most of the recent deaths have occurred in hospitals.

Figure 13: Daily deaths by location, COVID-19 deaths between 1st March 2020 and 31st October 2020

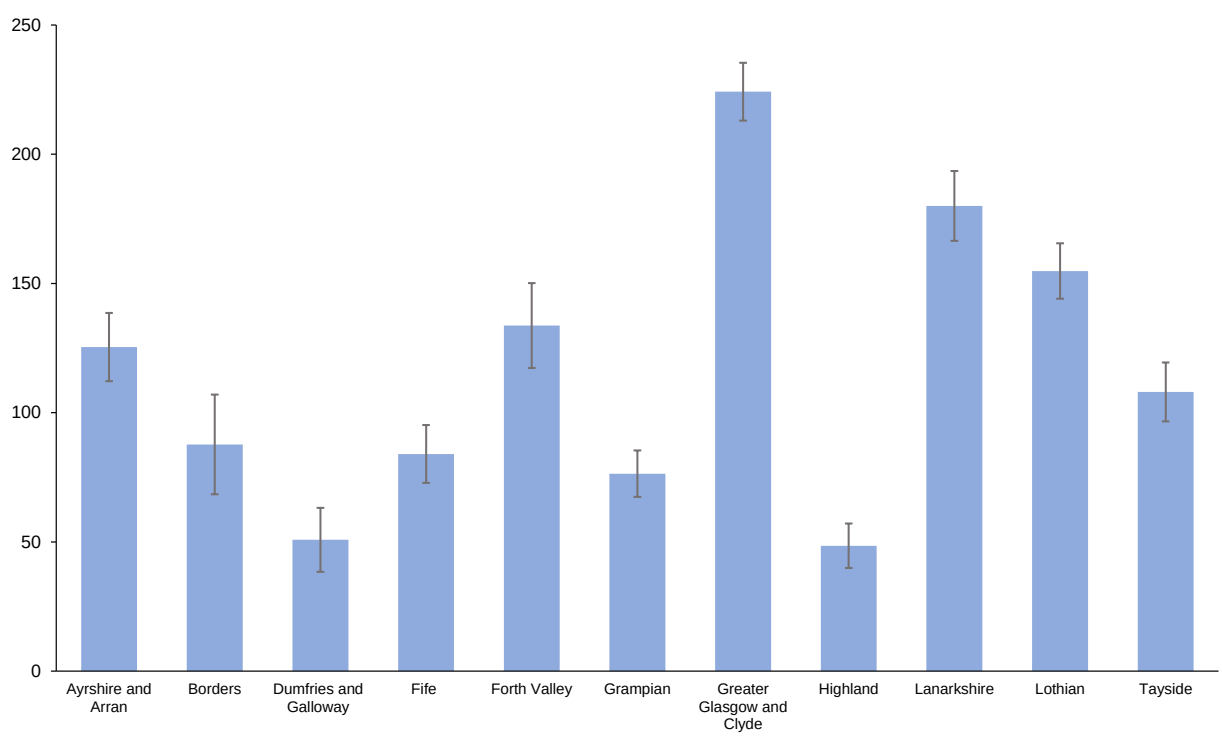


Age-standardised rates by health board and council area

Figure 14 shows that Greater Glasgow and Clyde had the highest rate of all health boards, followed by Lanarkshire and Lothian.

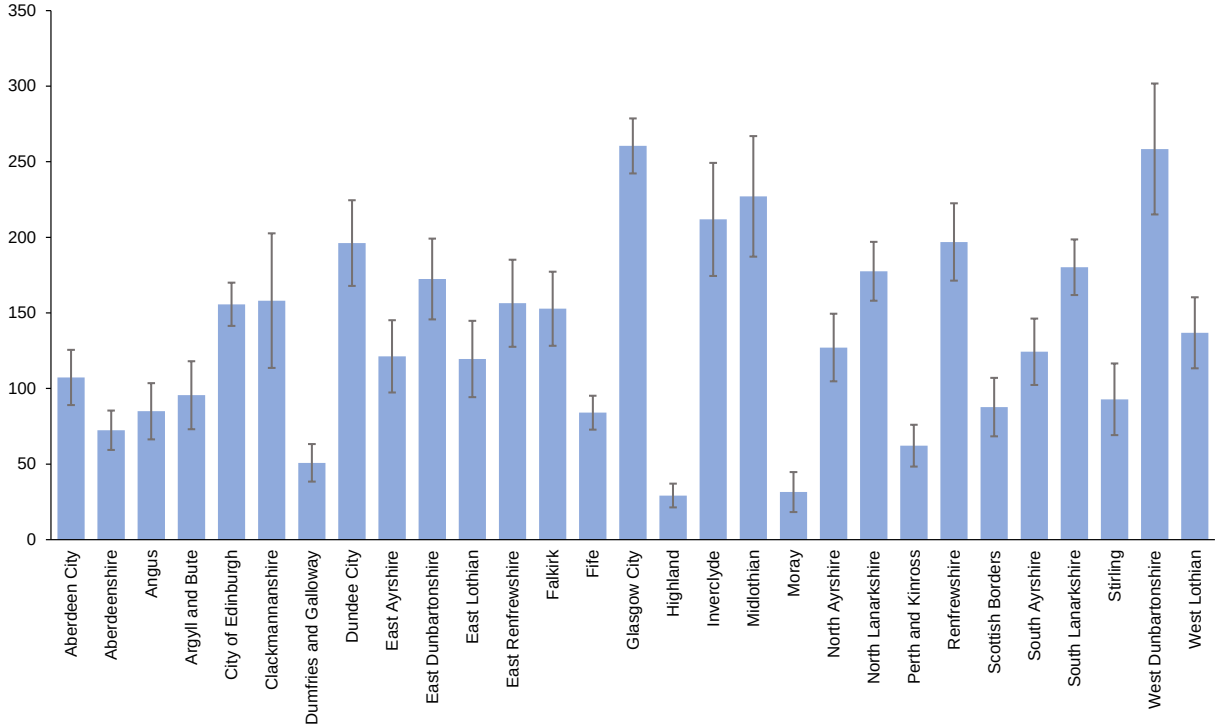
Rates are not shown for Orkney and Shetland and Western Isles as the number of deaths involving COVID-19 are too low to calculate robust age-standardised rates.

Figure 14: age standardised rates for deaths involving COVID-19 between 1st March 2020 and 31st October 2020 in NHS health boards



West Dunbartonshire had the highest age-standardised death rate of all council areas, followed by Glasgow City, Midlothian and Inverclyde. Highland, Moray and Dumfries and Galloway had the lowest rates (in addition to Na h-Eileanan Siar, Orkney and Shetland whose numbers were too low to calculate rates) (Figure 15).

Figure 15: Age-standardised rates for deaths involving COVID-19 between 1st March 2020 and 31st October 2020 in Council areas



COVID-19 deaths by occupation

Analysis by major occupation group (of deaths involving COVID-19 of people aged 20-64 years old) showed that the highest number of deaths occurred among 'process, plant and machine operatives' (53 deaths and an age-standardised death rate of 31 per 100,000 population). For context, there were 269 deaths across all occupations, with a rate of 11.9 per 100,000 population. (Table 10)

Compared to the average death rate (of deaths involving COVID-19) for all occupations, health care workers had a lower death rate (6.8 per 100,000 population) whilst social care workers had a higher rate (16.9 per 100,000 population) although due to the small numbers these differences were not significant.

It is important to note that these are the occupations as stated on the death certificate. It does not mean that the individuals contracted the virus while at work, merely that this was their occupation at the time of their death.

COVID-19 deaths at a small area level

A breakdown of deaths involving COVID by intermediate zone is available in table 11. Intermediate zones are a statistical geography that sit between datazones and local authorities. There are 1,279 intermediate zones covering the whole of Scotland and their populations ranges between 2,500 and 6,000.

Updated analysis of deaths involving coronavirus (COVID-19) in Scotland, by ethnic group

Summary

NRS analysis, published in July, showed that deaths amongst people in the South Asian ethnic group were more likely to involve COVID-19 than deaths in the White ethnic group, and that there was no evidence of a significant difference for the other minority ethnic groups analysed.

This section explores whether these conclusions are changed by including additional ethnicity data collected for individuals in the initial study whose death involved COVID-19, but where no ethnicity information was recorded. The conclusions from the initial analysis are similar when the additional data is included.

Feedback from stakeholders

Updated analysis has been produced in response to feedback from stakeholders on the completeness of the ethnicity data for deaths involving COVID-19, and feedback on the ethnic groups used for further analysis.

Completeness of ethnicity data

Although the death registration process is statutory, ethnicity information about the deceased person is collected by registrars on a voluntary basis. By linking to census data on self-reported ethnicity we reduced the number of records with no ethnicity data substantially in the initial analysis – from 8% to 1% for deaths involving COVID-19.

This improvement allowed a meaningful analysis of the data to be produced. However, feedback from stakeholders highlighted the importance of improving the completeness of the dataset further, to confirm that the remaining deaths involving COVID-19 with no ethnicity data were not concentrated in a specific minority ethnic group (or groups).

We agree that there is public value in collecting this information. We asked registrars to contact the 53 informants who registered a death involving COVID-19 over the initial study period where (i) no ethnicity information was provided at the point of registration, and (ii) it was not possible to obtain ethnicity information from the census. Registrars were able to collect ethnicity data in 45 cases (85%). Some informants chose not to provide data and others were unable to do so. In some cases the informant may be someone other than a family member, e.g. a funeral director.

For deaths that did not involve COVID-19, we decided it would place a disproportionate burden on registrars to ask them to contact informants. Instead, we applied statistical techniques to impute the missing ethnicity data among an equivalent percentage of non-COVID-19 deaths (around 1% of records). Further information on the approach used is available in the updated Methodology Note published on the NRS website.

Ethnic groups used for further analysis

In the initial analysis, decisions on which ethnic groups to carry out regression analysis for were informed by an assessment of the quantity and quality of the available data. In some cases we were unable to carry out further analysis due to a low number of death records in a specific ethnic group. In other cases we had concerns about the consistency or robustness of the data available.

There were 199 deaths (from all causes) in the initial dataset where the person's ethnicity was recorded as White Irish in the census or their death registration record (where no census information was available). We found that 70 of the 161 people (43%) who identified as White Irish in the census were recorded as White Scottish or White British on their death registration record.

Due to this inconsistency, we did not carry out regression analysis on records in the White Irish ethnicity category. We also aggregated to a more stable grouping for the comparator group used throughout the regression analysis. This meant combining several ethnicity categories, including White Irish, to create a White ethnic group.

Notes on the quality of ethnicity data used in this analysis

Completeness
Ethnicity information is provided on a voluntary basis during the death registration process. Linking to census provided some missing ethnicity data but not all, since some people who died were not living in Scotland at the time of the census. Following up with informants provided more missing ethnicity data but not all, since some informants chose not to provide data or were unable to do so.

Consistency
Ethnicity information may be recorded inconsistently over time and between sources. This might be because some sources (e.g. census) are self-reported whilst some are not (e.g. death registration records), or because the ethnicity that someone identifies as has changed.

Further discussion with stakeholders highlighted interest in further analysis for the White Irish group, despite the concerns about the underlying data. We maintain that these concerns make it difficult to interpret the findings of any further analysis of deaths in the White Irish group. However, we agree that there is public value in publishing the analysis with the caveats noted previously, given the number of deaths involving COVID-19 in the White Irish group and the discussion this has generated.

Updated analysis of deaths involving COVID-19, adjusting for socio-demographic factors

Additional data collected through follow-up exercise

Registrars contacted 53 informants who registered a death involving COVID-19 over the initial study period where (i) no ethnicity information was provided at the point of registration, and (ii) it was not possible to obtain ethnicity information from the census. A breakdown of the ethnicity data collected through this exercise is provided in Table E1 below.

Table E1 – Deaths involving COVID-19 by ethnicity, where ethnicity was identified via registrar follow-up, occurring on or after 12 March and registered by 14 June 2020

Ethnicity recorded on death registration record	Number of deaths involving COVID-19
White Scottish	27
White Other British	3
White Irish	3
Other White ethnic group	4
Mixed or Multiple ethnic groups	2
Bangladeshi, Bangladeshi Scottish or Bangladeshi British	1
Chinese, Chinese Scottish or Chinese British	1
African, African Scottish or African British	1
Other Ethnic Group	3
No ethnicity provided on follow-up	8
Total	**53**

Source: National Records of Scotland

Table E1 shows that around half (51%) of the 53 records which initially had no ethnicity data recorded were subsequently recorded in the White Scottish category (compared to 89% of the 4,070 deaths involving COVID-19 in the initial dataset). In 15% of cases, no ethnicity information was obtained via the follow-up exercise. The remaining records were split between 8 different ethnicity categories.

Table E2 provides a breakdown of all deaths in the study period by ethnicity, including where ethnicity information was obtained via registrar follow-up.

Table E2 – Deaths by COVID-19 involvement and ethnicity, Scotland, occurring on or after 12 March and registered by 14 June 2020

Ethnicity category	Deaths involving COVID-19	Other deaths	Total
White Scottish	3,633	12,720	16,353
White Other British	270	1,161	1,431
White Irish	57	145	202
White Gypsy / Traveller	0	8	8
White Polish	3	37	40
Other White ethnic group	35	134	169
Mixed or Multiple ethnic groups	8	12	20
Pakistani, Pakistani Scottish or Pakistani British	23	46	69
Indian, Indian Scottish or Indian British	10	22	32
Bangladeshi, Bangladeshi Scottish or Bangladeshi British	2	2	4
Chinese, Chinese Scottish or Chinese British	10	21	31
Other Asian	6	16	22
African, African Scottish or African British	1	10	11
Other African	0	0	0
Caribbean, Caribbean Scottish or Caribbean British	0	8	8
Black, Black Scottish or Black British	0	3	3
Other Caribbean or Black	0	0	0
Arab, Arab Scottish or Arab British	0	5	5
Other ethnic group	4	7	11
Not provided	8	203	211
Total	4,070	14,560	18,630

Source: National Records of Scotland, data on death registrations linked to Scotland's Census 2011
Notes:
1. Self-reported ethnicity from the 2011 Census was used where available, otherwise ethnicity recorded through the death registration process was used, including data obtained via registrar follow-up.

Further analysis of the updated dataset

The analysis in this section uses a binary logistic regression model to look for evidence of differences between ethnic groups in the likelihood that deaths involved COVID-19. The model uses information on age group, sex, area-level deprivation[1], and whether a person lived in an urban or rural area[2]. More information on the model is provided in the updated Methodology Note published alongside this report.

The results are presented as odds ratios in Table E3 and Figure E1. An odds ratio higher than one for a given ethnic group indicates that deaths were more likely to involve COVID-19, compared to the White Scottish ethnic group (the reference group). An odds ratio less than one indicates that deaths were less likely to involve COVID-19. The confidence intervals illustrate the range of values over which we are confident the true value of the odds ratio lies. If the confidence interval includes the value one, then there is not significant evidence to conclude that the likelihood of deaths involving COVID-19 is different to the White Scottish ethnic group.

Table E3 – Relative likelihood that deaths involved COVID-19 compared to White Scottish group, deaths occurring on or after 12 March and registered by 14 June 2020
Odds ratios and associated confidence interval

Ethnic group	Odds ratio	95% Confidence Interval	Significant evidence that deaths more likely to involve COVID-19
South Asian	1.92	(1.26, 2.92)	Yes
Chinese	1.76	(0.82, 3.77)	No
White Irish	1.24	(0.91, 1.69)	No

Source: National Records of Scotland, data on death registrations linked to Scotland's Census 2011
Notes:
1. Self-reported ethnicity from the 2011 Census was used where available, otherwise ethnicity recorded through the death registration process was used.
2. South Asian ethnic group includes the following ethnicity categories: "Pakistani, Pakistani Scottish or Pakistani British", "Indian, Indian Scottish or Indian British" and "Bangladeshi, Bangladeshi Scottish or Bangladeshi British".
3. Chinese ethnic group corresponds to the ethnicity category "Chinese, Chinese Scottish or Chinese British".
4. Odds ratios were obtained by fitting a binary logistic regression model with explanatory variables: Ethnic group, Age group, Sex, Urban rural classification (2-fold), and SIMD 2020 quintile.
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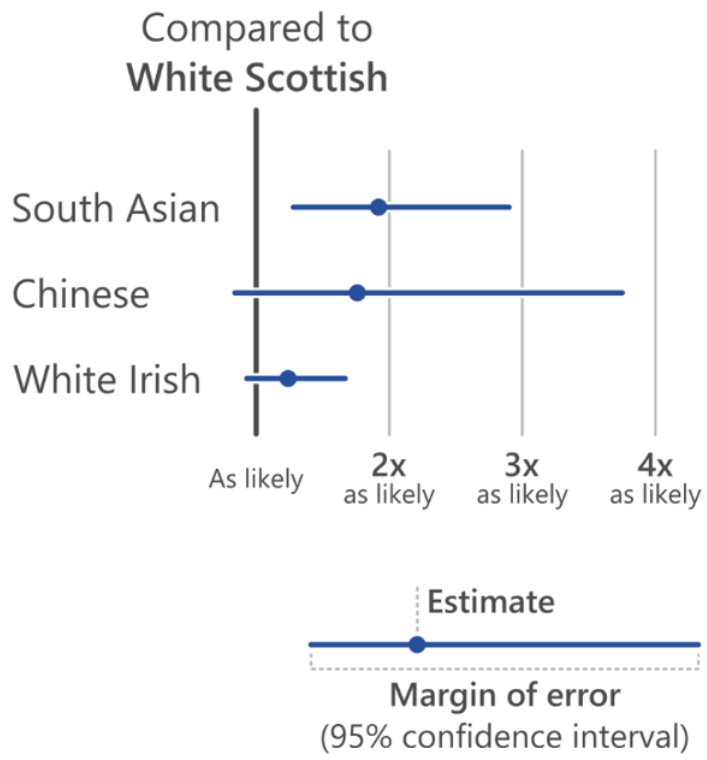
[1] Scottish Index of Multiple Deprivation (SIMD 2020) quintile.
[2] Urban rural classification (2-Fold) was used, according to which Data Zones are classified as either 'Urban' or 'Rural'.

Figure E1 – Relative likelihood that deaths involved COVID-19 compared to White Scottish group, deaths occurring on or after 12 March and registered by 14 June 2020



Source: National Records of Scotland, data on death registrations linked to Scotland's Census 2011
Notes:
1. Odds ratios were obtained by fitting a binary logistic regression model with explanatory variables: Ethnic group, Age group, Sex, Urban rural classification (2-fold), and SIMD 2020 quintile.
2. Filled points represent odds ratios. Horizontal lines represent 95% confidence intervals.

Conclusions

The results of the updated analysis are similar to the results from the initial analysis. Deaths amongst people in the South Asian ethnic group were more likely to involve COVID-19 than deaths in the White Scottish ethnic group over the study period. There was no evidence of a significant difference for the Chinese or White Irish groups. The number of deaths in other minority ethnic groups was too low to allow comparable analysis to be performed.

Other Evidence, Strengths and Limitations, Methodology

Further information including other evidence, a discussion of the strengths and limitations of the approach, and an explanation of the model used is available in the initial NRS report and updated Methodology Note.

How do NRS compile these statistics?

- Weekly 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.

- Figures in the second half of this report (page 13 onwards) are based on date of death rather than date of registration.

- 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 10th 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.

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

Index of available analysis on registered deaths involving COVID-19

Breakdown	Frequency	When Added	Latest Period Covered	Date Last updated
Age group	Weekly	8th April 2020	Week 45	11th November 2020
Sex	Weekly	8th April 2020	Week 45	11th November 2020
Location	Weekly	15th April 2020	Week 45	11th November 2020
Health Board	Weekly	8th April 2020	Week 45	11th November 2020
Local Authority	Weekly	22nd April 2020	Week 45	11th November 2020
Excess deaths by cause	Weekly	22nd April 2020	Week 45	11th November 2020
Excess deaths by cause and location	Weekly	17th June 2020	Week 45	11th November 2020
Age-standardised mortality rates – Scotland	Monthly	13th May 2020	October	11th November 2020
Age-standardised mortality rates – sub-Scotland	Monthly	17th June 2020	March – Oct combined	11th November 2020
Leading causes of death	Monthly	13th May 2020	October	11th November 2020
Pre-existing conditions	Monthly	13th May 2020	October	11th November 2020
Deprivation	Monthly	13th May 2020	March – Oct combined	11th November 2020
Urban Rural	Monthly	13th May 2020	March – Oct combined	11th November 2020
Daily occurrences by location of death	Monthly	13th May 2020	October	11th November 2020
Occupation	Monthly	17th June 2020	March – Oct combined	11th November 2020
Intermediate Zone	Monthly	17th June 2020	March – Oct combined	11th November 2020
Ethnic Group	One-off	8th July 2020	March to mid-June	11th November 2020

National Records of Scotland

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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 statisticscustomerservices@nrscotland.gov.uk