

# Deaths involving coronavirus (COVID-19) in Scotland



Published on 19 May 2022

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 week 19 of 2022 and additional monthly analysis on deaths occurring up to 30 April 2022.

## Key Findings

### Deaths involving COVID-19, weekly registrations ([go to section](#))

- As at the 15<sup>th</sup> of May 2022, there have been a total of 14,699 deaths registered in Scotland where the novel coronavirus (COVID-19) was mentioned on the death certificate. In the latest week there were 60 deaths, a decrease of 27 from the previous week.
- Of deaths involving COVID-19 in the latest week:
  - 21 were female, 39 were male.
  - 46 were aged 75 or older, 7 were aged 65 to 74 and 7 were under 65.
  - There were 5 deaths in Fife and 5 deaths in Renfrewshire, with 4 deaths in each of Aberdeenshire, Glasgow City, North Lanarkshire and South Lanarkshire. In total 23 council areas (out of 32) had at least one death involving COVID-19 last week.
  - 44 were in hospitals, 9 were in care homes, and 7 were at home or a non-institutional setting.

### Deaths from all causes, weekly registrations ([go to section](#))

- The total number of deaths registered in Scotland in week 19 of 2022 was 1,221. This was 176 deaths more than the five year average for week 19 (17% above average).
- In week 19 there were 102 excess deaths at home or in non-institutional settings (33% above average), 65 more deaths in hospitals (13% above average), and 2 more deaths in care homes (1% above average) compared to the five-year average.
- There were 176 more deaths across all locations for the latest week. Respiratory deaths were 11 below average. Deaths from cancer were 24 above average, circulatory deaths were 21 above average and dementia and Alzheimer's deaths were 14 above average. There were 96 excess deaths from other causes. The number of deaths where COVID-19 was the underlying cause was 32.

### Monthly mortality analysis, deaths occurring up to 30 April 2022 ([go to section](#))

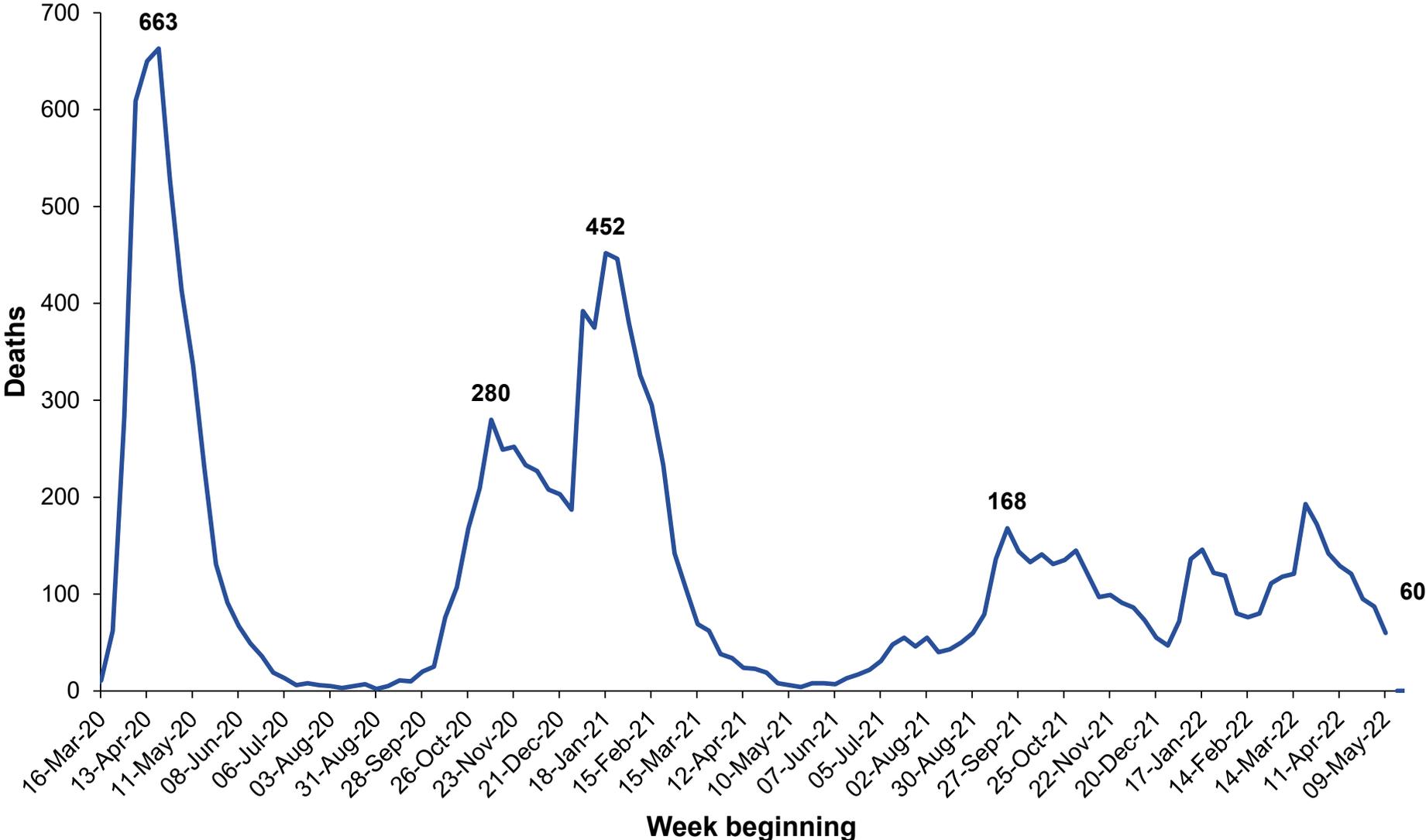
- The age standardised death rate for deaths involving COVID-19 was lower in April 2022 (112 per 100,000) compared to March 2022 (147 per 100,000). The difference between the last two months was statistically significant. Throughout the pandemic, the highest rate was 585 deaths per 100,000 people in April 2020.
- After adjusting for age, people living in the most deprived areas were 2.4 times as likely to die with COVID-19 as those in the least deprived areas. The size of this gap has slowly widened over the period of the pandemic but has narrowed slightly since January when the gap was 2.5.
- Of the 14,616 deaths involving COVID-19 between March 2020 and April 2022, 93% (13,606) had at least one pre-existing condition. Just under one quarter of people whose death involved COVID-19 had dementia or Alzheimer's disease. This was the most common main pre-existing condition.
- There have been 9 deaths in Scotland in which the underlying cause of death was due to the adverse effects of vaccination against COVID-19 and two further deaths where an adverse effect was mentioned on the death certificate. There is no increase from the figure reported last month. By 30 April 2022 [statistics from Public Health Scotland](#) state that 4.4 million people had been given at least one vaccine dose.

### **Five year average for calculation of 2022 excess deaths**

2022 deaths are being compared against a five year average of the years 2016 2017, 2018, 2019 and 2021. This approach is also being used by the Office for National Statistics (ONS).

The reasons for this choice are laid out in a paper on the [NRS website](#).

Figure 1: Weekly deaths involving COVID-19 in Scotland, week 12 2020 to week 19 2022



### Date of occurrence vs date of registration

Most of the figures throughout the weekly report are based on the date a death was registered rather than the date the death occurred. There is on average a 3 day gap between a death occurring and being registered. Please find a more detailed explanation in the [methodology](#) document.

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

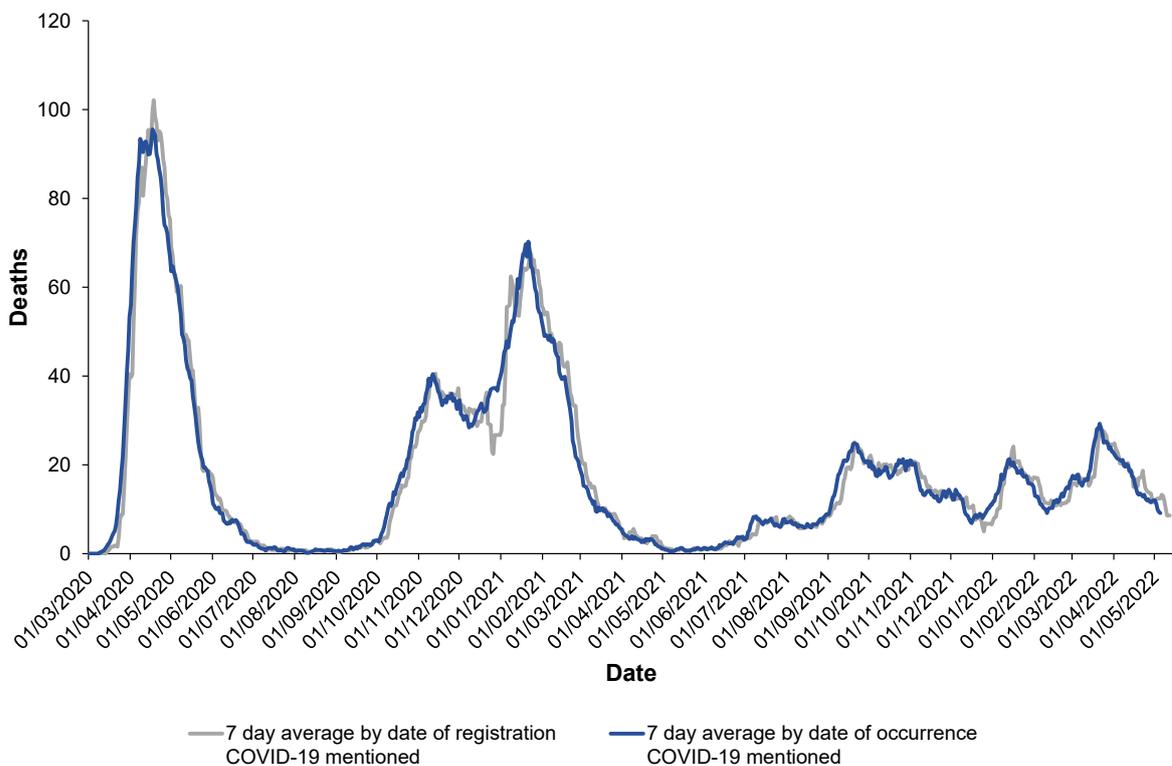
The death count based on **date of registration** is more timely but is incomplete and is subject to fluctuations due to public holidays.

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).

Differences between the two measures can be seen at times of year when there are public holidays, most noticeably at Christmas and Easter. Daily deaths have been falling since the end of March 2022.

This report includes all deaths which were registered by 15<sup>th</sup> May. 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 occurrence, we need to wait an additional week to allow the registration process to fully complete. The trend based on date of occurrence therefore only includes deaths which occurred by 8<sup>th</sup> of May as the majority of these are likely to have been registered by now.

**Figure 2: Deaths involving COVID-19 by date of registration and date of death**



## Monthly mortality analysis (deaths occurring up to 30 April 2022)

This section provides an in-depth analysis of deaths which **occurred** in Scotland between March 2020 and April 2022. This is a different basis from the rest of this report which (unless specified) 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 between March 2020 and April 2022 there were 126 deaths per 100,000 population. Rates for males were significantly higher than for females (156 compared with 104 per 100,000).

#### Why use age-standardised mortality rates?

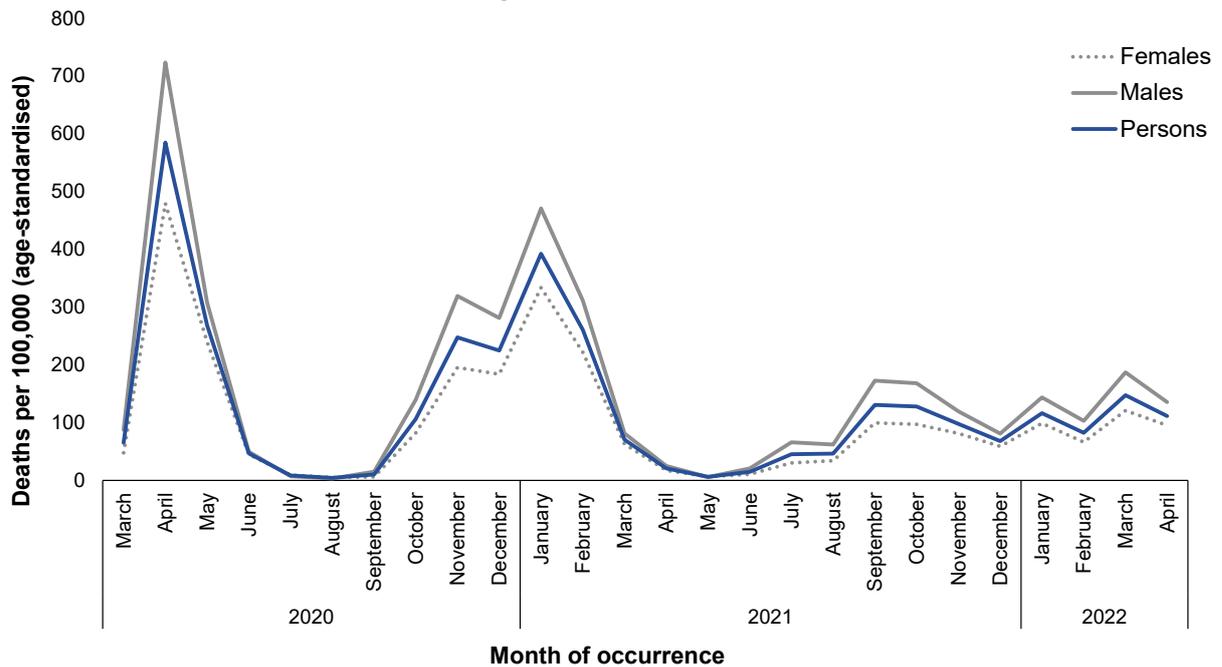
Age-standardised mortality rates are a better measure of mortality than numbers of deaths, as they account for the population size and age structure and provide more reliable comparisons between groups or over time. As the probability of death tends to increase with age, changes in the age-distribution 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).

More information on the calculation of age-standardised mortality rates is available on our [website](#).

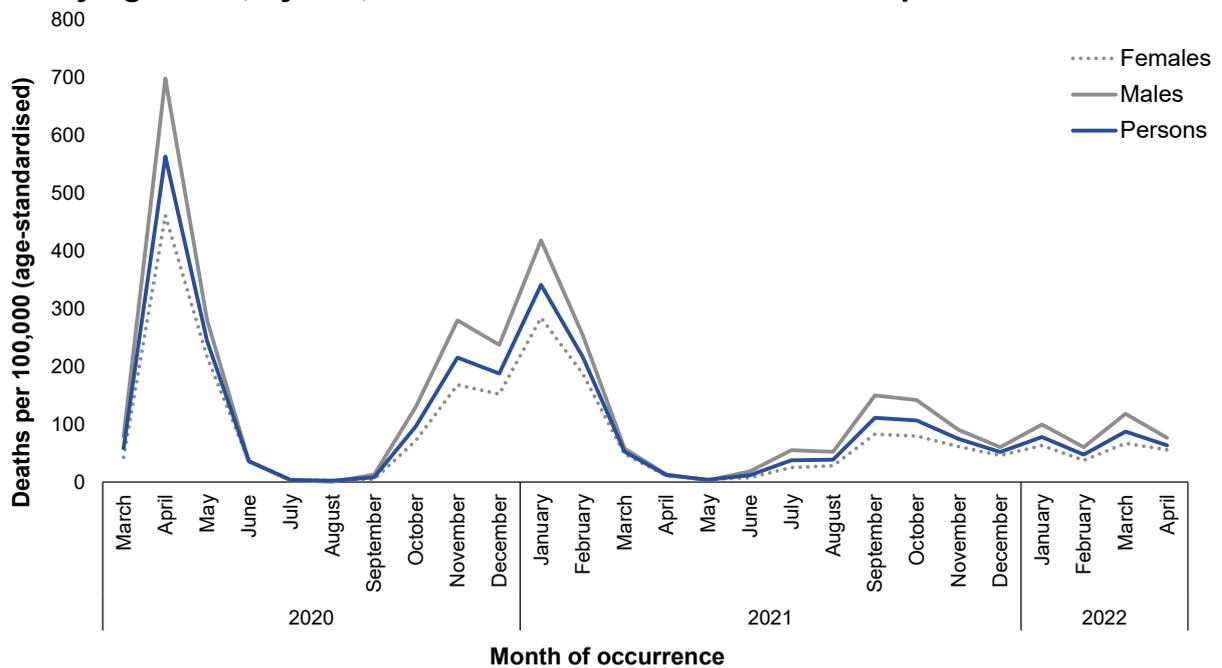
Looking only at deaths where COVID-19 was the underlying cause, the rates were only slightly lower – reflecting the fact that it was the underlying cause in the vast majority (83%) of deaths involving COVID-19. This proportion has changed over the course of the pandemic. It was 96% at the height of the first wave in April 2020, and 56% in the most recent month (April 2022).

The age standardised death rate for deaths involving COVID-19 was lower in April 2022 (112 per 100,000) when compared to March 2022 (147 per 100,000). The difference between the last two months was statistically significant.

**Figure 3a: Age standardised rates for deaths involving COVID-19 by sex, between 1<sup>st</sup> March 2020 and 30<sup>th</sup> April 2022**



**Figure 3b: Age standardised rates for deaths where COVID-19 was the underlying cause, by sex, between 1<sup>st</sup> March 2020 and 30<sup>th</sup> April 2022**



The age-standardised mortality rate from all causes was 1,193 per 100,000 population in the period from 1<sup>st</sup> March 2020 to 30<sup>th</sup> April 2022. To put this figure into context the age-standardised mortality rate from all causes in 2019 was 1,108 per 100,000.

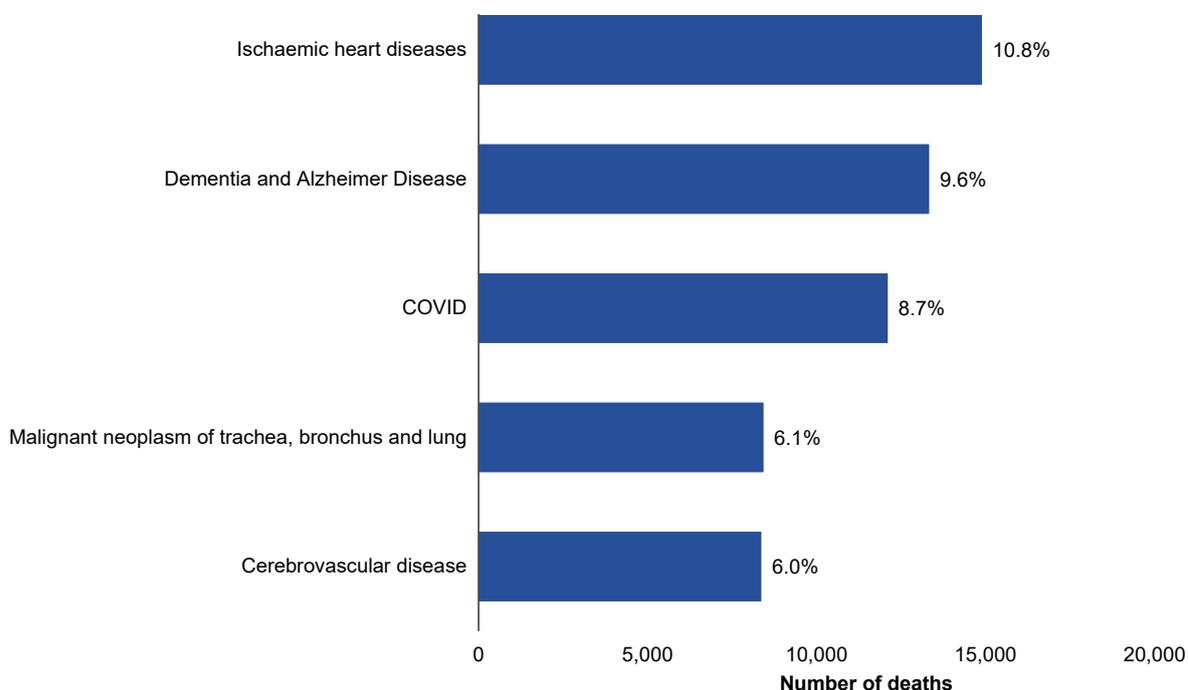
## Leading causes of death

Over the period between 1<sup>st</sup> March 2020 and 30<sup>th</sup> April 2022, the leading cause of death was ischaemic heart disease (14,911 deaths, 11% of all deaths) followed by dementia and Alzheimer's disease (13,348, 10%) and COVID-19 (12,125 deaths, 9% of all deaths).

The most common cause of death in April 2022 was dementia and Alzheimer's disease, which accounted for 11% of all deaths last month. COVID-19 was the most common cause of death for every month between November 2020 and February 2021 (inclusive). COVID-19 did not appear in the top 5 leading causes between March and August 2021 but reappeared in third place in September 2021, and dropped to fifth place in November 2021. COVID-19 was in the top 5 leading causes for January, March and April 2022.

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. The full list of leading causes is available on the ONS website.

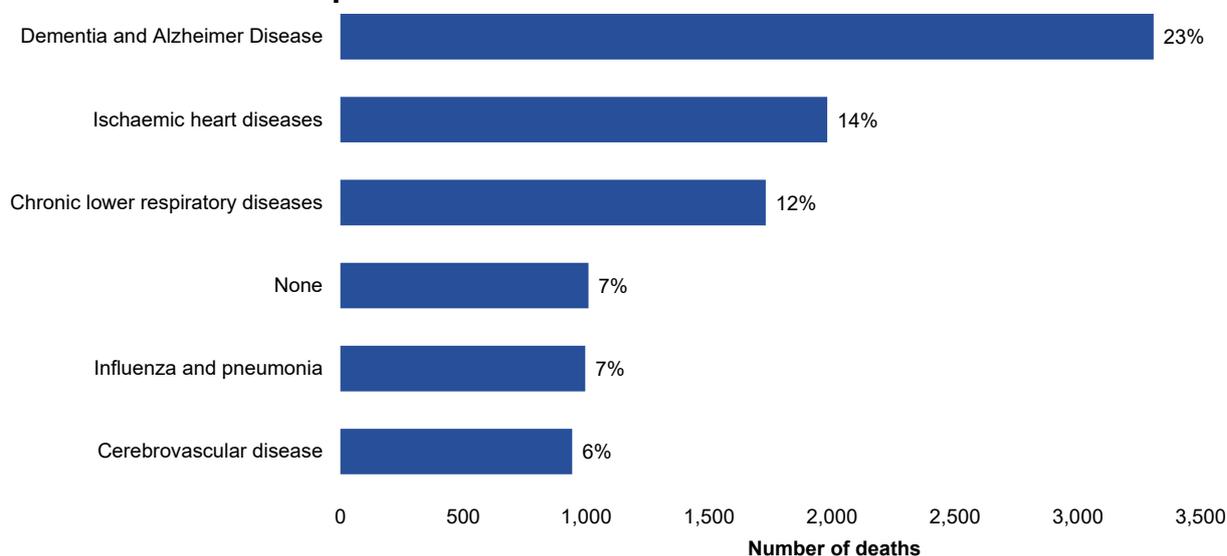
**Figure 4: Leading causes of death - 1<sup>st</sup> March 2020 to 30<sup>th</sup> April 2022**



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

Of the 14,616 deaths involving COVID-19 between March 2020 and April 2022, 93% (13,607) had at least one pre-existing condition.

**Figure 5: Main pre-existing condition in deaths involving COVID-19, between 1<sup>st</sup> March 2020 and 30<sup>th</sup> April 2022**



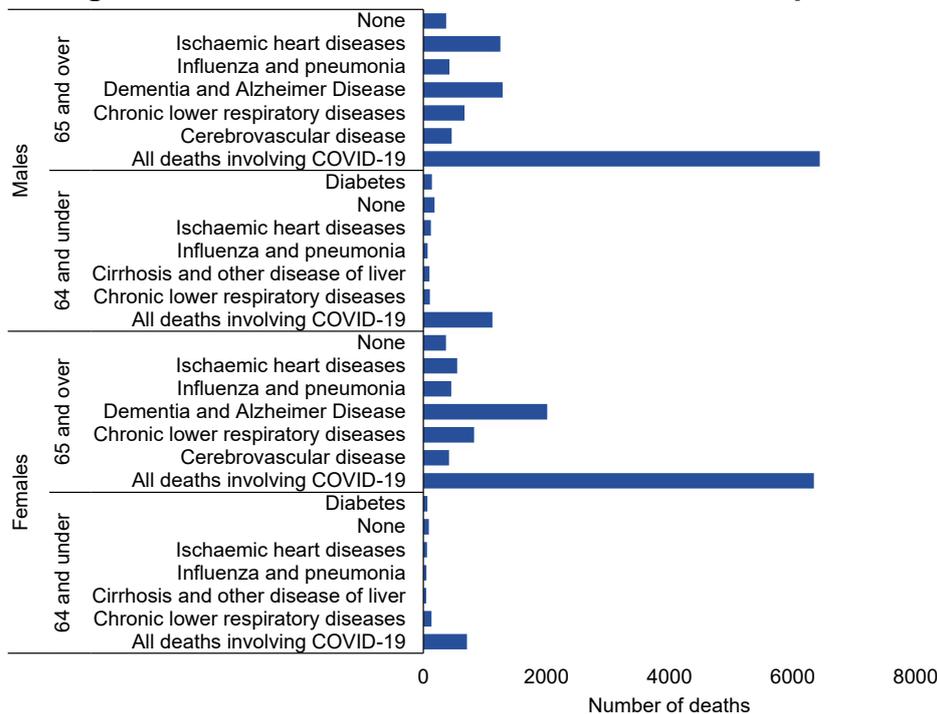
The most common main pre-existing condition among those who died with COVID-19 was dementia and Alzheimer's disease (23%), followed by ischaemic heart disease (14%), chronic lower respiratory diseases (12%), influenza and pneumonia (7%) and cerebrovascular disease (6%).

**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 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

Pre-existing conditions differed by age and sex. For females and males over 65 the most common main pre-existing condition was dementia and Alzheimer's disease (32% of all female COVID-19 deaths and 20% of all male COVID-19 deaths in that age group). 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 (12%).

**Figure 6: Main pre-existing medical condition by age and sex, in deaths involving COVID-19 between 1<sup>st</sup> March 2020 and 30<sup>th</sup> April 2022**



### Mortality by deprivation

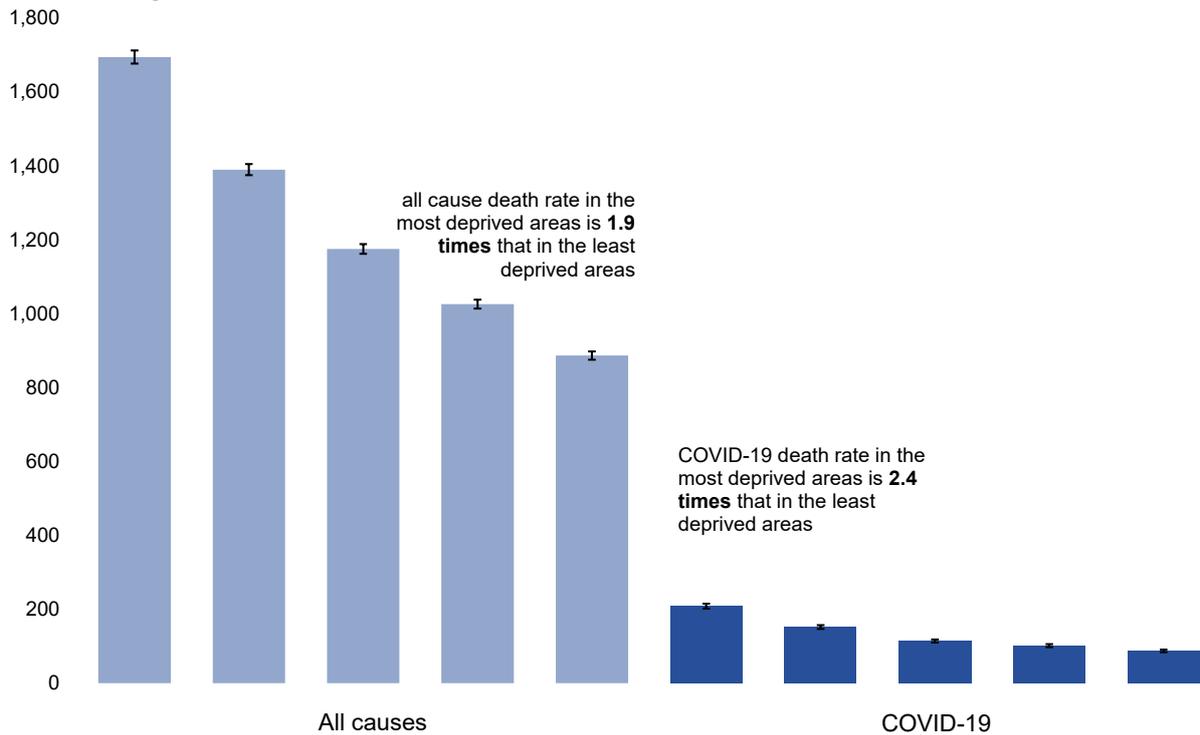
Age-standardised death rates from all causes are generally higher in the most deprived areas than in the least deprived areas. The rate in the most deprived quintile was 1.9 times the rate in the least deprived quintile between March 2020 and April 2022.

The deprivation gap is greater when looking at deaths involving COVID-19. The rate in the most deprived quintile (208 per 100,000 population) was 2.4 times the rate in the least deprived quintile (87 per 100,000 population).

The size of this gap has generally widened across the period of the pandemic.

**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.

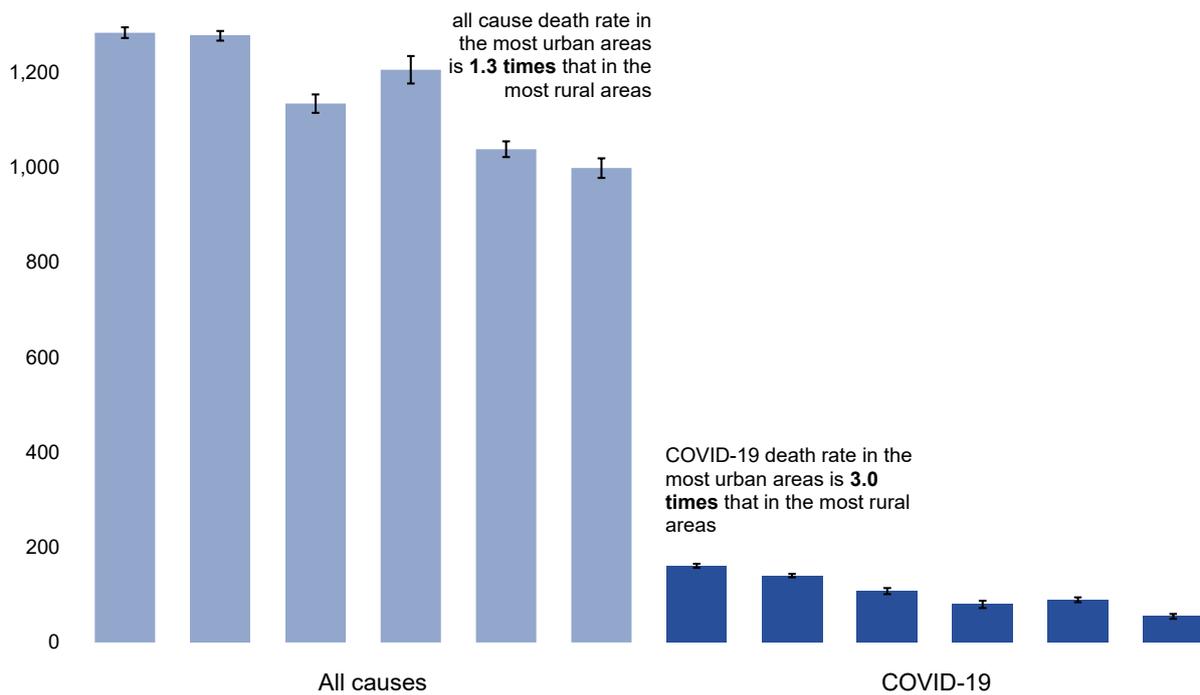
**Figure 7: Age-standardised death rates by SIMD quintile between 1<sup>st</sup> March 2020 and 30<sup>th</sup> April 2022**



**Mortality by urban rural classification**

The age-standardised rate for deaths involving COVID-19 in large urban areas (161 deaths per 100,000 population) was 3 times the rate in remote rural locations (55 per 100,000 population). The gap was substantially smaller when considering the rate of deaths from all causes (the rate in large urban areas was 1.3 times that in remote rural areas).

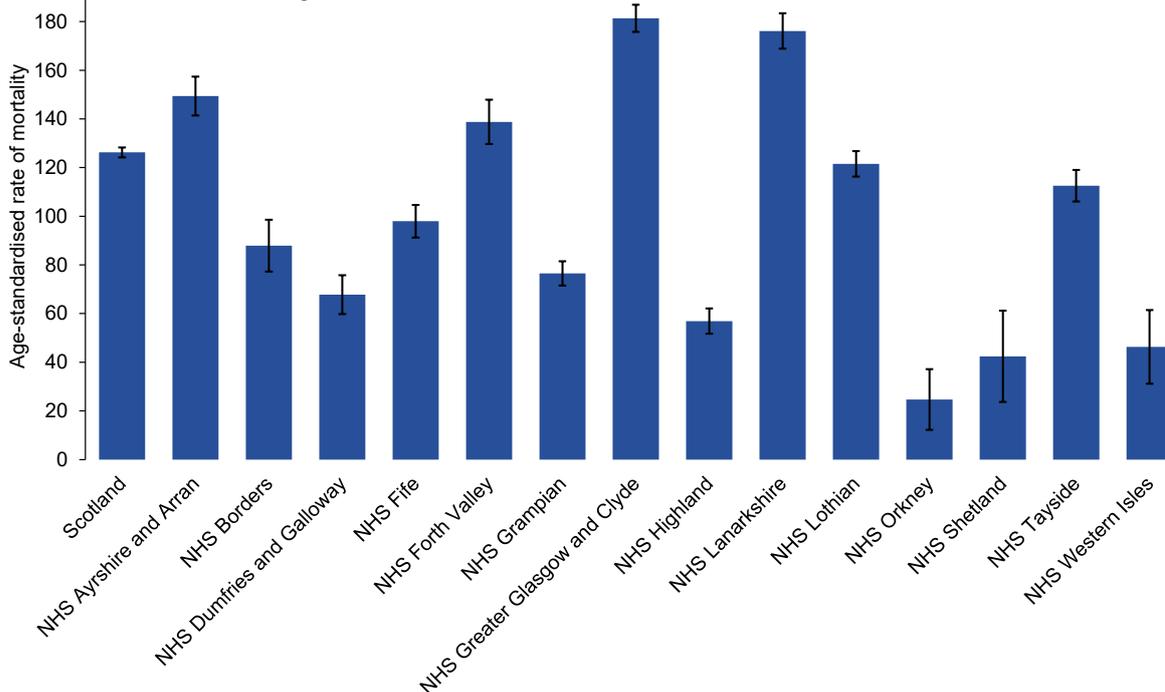
**Figure 8: Age-standardised death rates by urban rural classification between 1<sup>st</sup> March 2020 and 30<sup>th</sup> April 2022**



**Age-standardised death rates by health board and council area**

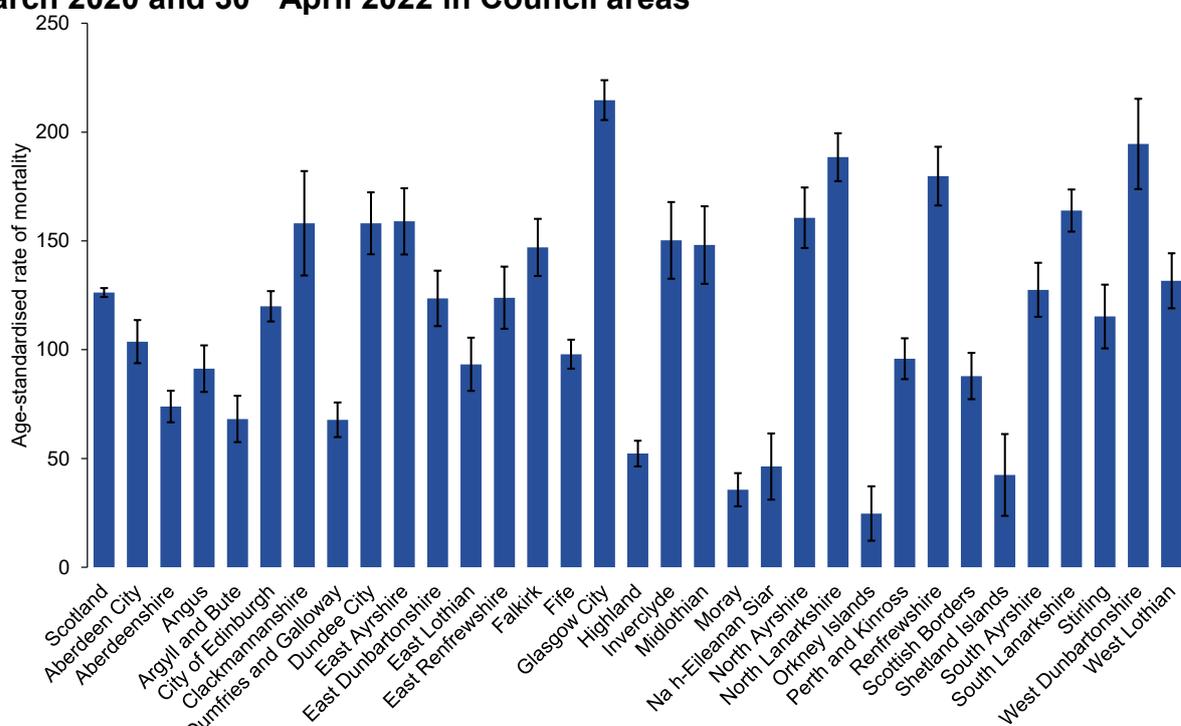
Figure 9 shows that Greater Glasgow and Clyde had the highest rate of all health boards (181 per 100,000 population), followed by Lanarkshire (176) and Ayrshire and Arran (149).

**Figure 9: age standardised rates for deaths involving COVID-19 between 1<sup>st</sup> March 2020 and 30<sup>th</sup> April 2022 in NHS health board areas**



Glasgow City had the highest age-standardised death rate of all council areas (215 per 100,000 population), followed by West Dunbartonshire (195), North Lanarkshire (189) and Renfrewshire (180). Orkney Islands (25 per 100,000 population), Moray (36), Shetland (42), and Na h-Eileanan Siar (46) had the lowest rates (Figure 10).

**Figure 10: Age-standardised rates for deaths involving COVID-19 between 1<sup>st</sup> March 2020 and 30<sup>th</sup> April 2022 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 rate of death occurred among process, plant and machine operatives (200 deaths and an age-standardised death rate of 54 per 100,000 population) followed by element ary occupations (175 deaths, 35 per 100,000 population). For context, there were 1,138 COVID-19 deaths in this age group across all occupations, with a death rate of 24 per 100,000 population. People in professional occupations had the lowest death rate (83 deaths, 8 per 100,000 population). ([Table M7](#))

Compared to the average COVID-19 death rate for all occupations, health care workers had a lower death rate (13 per 100,000 population) whilst social care workers had a higher rate (32 per 100,000 population).

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 M8. 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 range between 2,500 and 6,000.

## Deaths involving COVID-19 by ICD-10 code

[Table M9](#) shows all deaths with ICD-10 codes related to COVID-19 following the release of additional ICD-10 codes by the World Health Organisation (WHO).

In the period from March 2020 to April 2022, there were 34 deaths where post COVID-19 conditions (including long COVID) were mentioned on the death certificate.

Between December 2020 and the end of April 2022 [statistics from Public Health Scotland](#) state that 4.4 million people had been given at least one COVID-19 vaccine dose. Over this period there have been 9 deaths where the underlying cause of death was reported as being due to adverse effects of COVID-19 vaccines. There were two additional deaths where adverse effects of COVID-19 vaccination was mentioned on the death certificate but was not the underlying cause. There is no increase in these types of death in the last month.

## Why are the NRS number of deaths different from the Scottish Government deaths figures?

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 deaths figures

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.

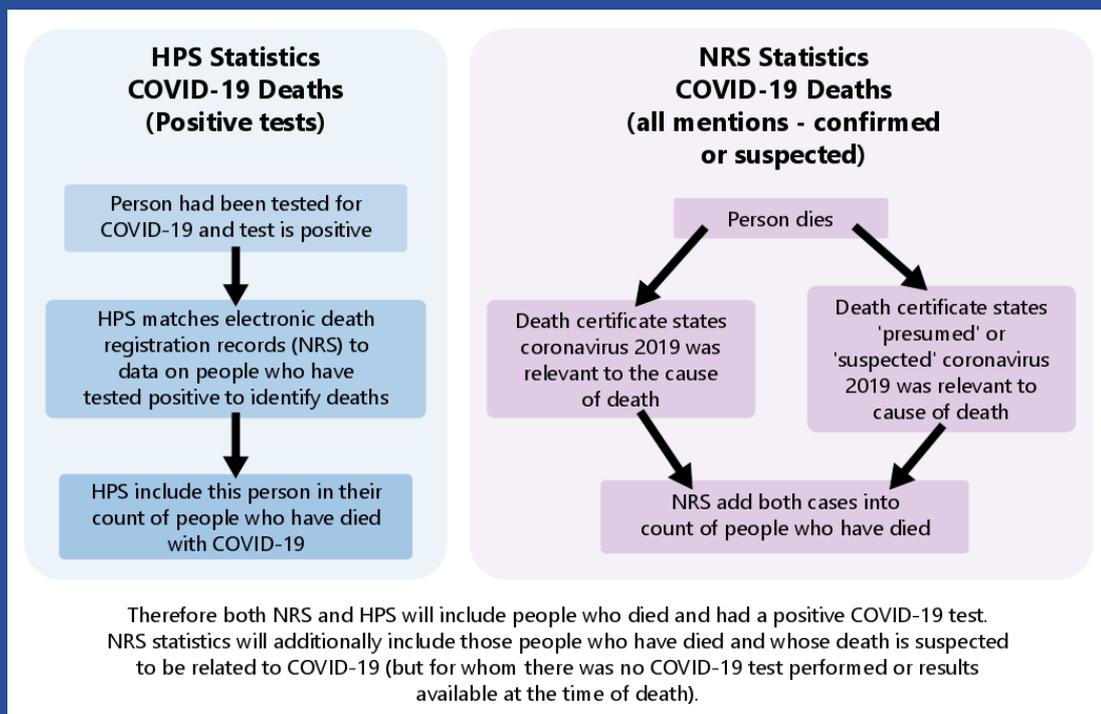
### NRS weekly death totals

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 may 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.



## 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.
- 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<sup>th</sup> Revision (ICD-10). The relevant codes included in this publication are U07.1, U07.2, U09.9 and U10.9.
- Figures include deaths where 'suspected' or 'probable' COVID-19 appears on the death certificate.
- From the week beginning 22 March 2021, new ICD-10 codes issued by the World Health Organisation (WHO) were also used to code deaths involving COVID-19. U09.9 is used for 'post-COVID' conditions, when death occurred after acute or ongoing COVID-19. U10.9 is used in the rare cases where 'Kawasaki-like' syndrome is caused by COVID-19. Data back to March 2020 has been recoded to ensure consistency of the time series.
- Data are provisional and subject to change in future weekly publications. 2021 data will be finalised in summer 2022. 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](#).
- The 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).
- NRS mortality data (COVID-19 and excess deaths) continue to be made available on a weekly basis through the [Scottish Government's COVID-19 dashboard](#)

## Index of available analysis on registered deaths involving COVID-19

| Breakdown   | Frequency  | When Added                  | Latest Period Covered       | Date Last updated              |
|---|------------|-----------------------------|-----------------------------|--------------------------------|
| <a href="#">Age group</a>                                       | Weekly     | 8 <sup>th</sup> April 2020  | Week 19                     | 19 <sup>th</sup> May 2022      |
| <a href="#">Sex</a>   | Weekly     | 8 <sup>th</sup> April 2020  | Week 19                     | 19 <sup>th</sup> May 2022      |
| <a href="#">Location</a>  | Weekly     | 15 <sup>th</sup> April 2020 | Week 19                     | 19 <sup>th</sup> May 2022      |
| <a href="#">Health Board</a>                                    | Weekly     | 8 <sup>th</sup> April 2020  | Week 19                     | 19 <sup>th</sup> May 2022      |
| <a href="#">Local Authority</a>                                 | Weekly     | 22 <sup>nd</sup> April 2020 | Week 19                     | 19 <sup>th</sup> May 2022      |
| <a href="#">Excess deaths by cause</a>                          | Weekly     | 22 <sup>nd</sup> April 2020 | Week 19                     | 19 <sup>th</sup> May 2022      |
| <a href="#">Excess deaths by cause and location</a>             | Weekly     | 17 <sup>th</sup> June 2020  | Week 19                     | 19 <sup>th</sup> May 2022      |
| <a href="#">Age-standardised mortality rates – Scotland</a>     | Monthly    | 13 <sup>th</sup> May 2020   | April 2022                  | 19 <sup>th</sup> May 2022      |
| <a href="#">Age-standardised mortality rates – sub-Scotland</a> | Monthly    | 17 <sup>th</sup> June 2020  | March 2020 – April 2022     | 19 <sup>th</sup> May 2022      |
| <a href="#">Leading causes of death</a>                         | Monthly    | 13 <sup>th</sup> May 2020   | April 2022                  | 19 <sup>th</sup> May 2022      |
| <a href="#">Pre-existing conditions</a>                         | Monthly    | 13 <sup>th</sup> May 2020   | April 2022                  | 19 <sup>th</sup> May 2022      |
| <a href="#">Deprivation</a>                                     | Monthly    | 13 <sup>th</sup> May 2020   | March 2020 – April 2022     | 19 <sup>th</sup> May 2022      |
| <a href="#">Urban Rural</a>                                     | Monthly    | 13 <sup>th</sup> May 2020   | March 2020 – April 2022     | 19 <sup>th</sup> May 2022      |
| <a href="#">Daily occurrences by location of death</a>          | Monthly    | 13 <sup>th</sup> May 2020   | April 2022                  | 19 <sup>th</sup> May 2022      |
| <a href="#">Occupation</a>                                      | Monthly    | 17 <sup>th</sup> June 2020  | March 2020 – April 2022     | 19 <sup>th</sup> May 2022      |
| <a href="#">Intermediate Zone</a>                               | Monthly    | 17 <sup>th</sup> June 2020  | March 2020 – April 2022     | 19 <sup>th</sup> May 2022      |
| <a href="#">Deaths by ICD-10 codes</a>                          | Monthly    | 16 <sup>th</sup> June 2021  | March 2020 – April 2022     | 19 <sup>th</sup> May 2022      |
| <a href="#">Ethnic Group</a>                                    | Occasional | 8 <sup>th</sup> July 2020   | March 2020 – September 2021 | 17 <sup>th</sup> November 2021 |
| <a href="#">Disability</a>                                      | One-off    | 24 <sup>th</sup> March 2021 | March 2020 – Jan 2021       | 24 <sup>th</sup> March 2021    |

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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.

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