

# Deaths involving coronavirus (COVID-19) in Scotland

Week 40  
(04 to 10 October 2021)



Published on 13 October 2021

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 40 of 2021 and additional monthly analysis on deaths occurring up to 30<sup>th</sup> September 2021.

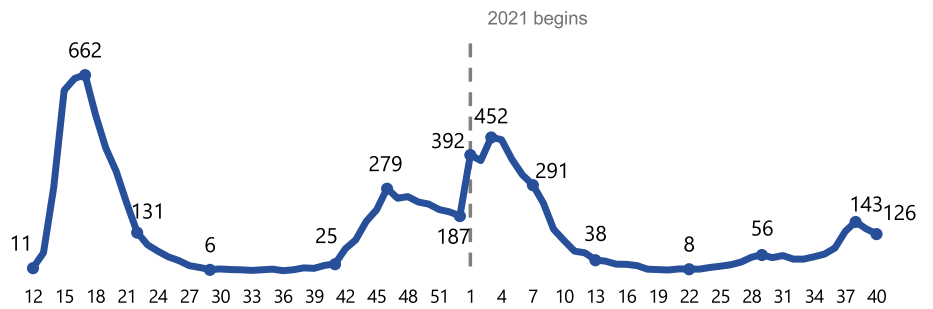
# Deaths involving coronavirus (COVID-19): Summary

## Excess deaths have been slightly above average in recent weeks

As of 10th October 2021, 11,262 deaths involving Covid-19 have been registered.

Between week 33 and week 38, deaths involving Covid-19 were increasing, however the numbers have fallen in the last two weeks

Deaths involving Covid-19



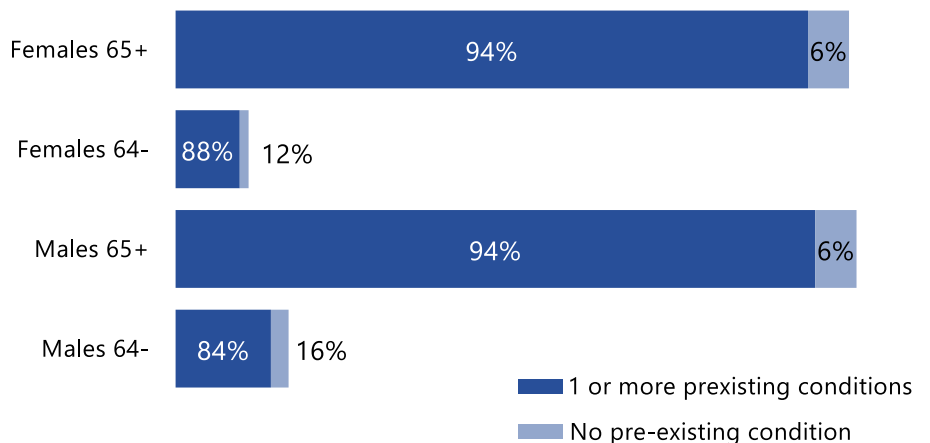
## The percentage of deaths involving Covid-19 with no pre-existing conditions is greater in under 65s.

In the 65+ age group 6% of deaths involving Covid-19 had no pre-existing conditions in both males and females

In the under 65s 12% of female deaths and 16% of male deaths had no pre-existing conditions

Pre-existing conditions of deaths involving Covid-19

March 2020 to September 2021



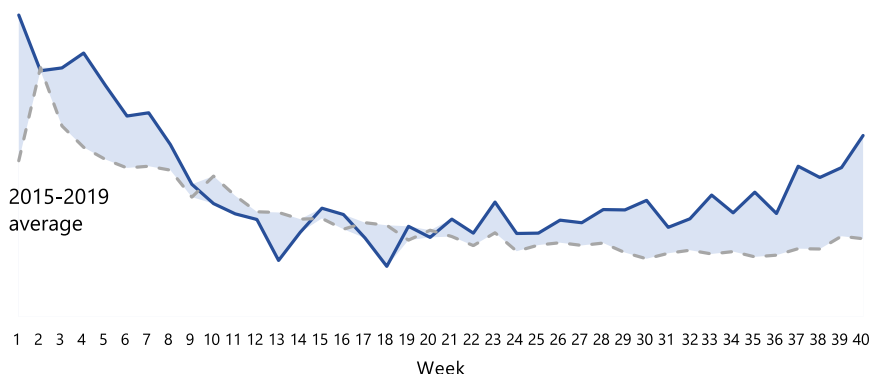
## Excess deaths have been above average for 20 consecutive weeks

As of 10th October, deaths are 30% higher than average in 2021. There were 315 excess deaths registered in week 36.

This is the highest weekly percentage excess since week 1 of 2021.

Deaths (all causes) 2021

deaths registered



## Key Findings

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

- As at the 10<sup>th</sup> of October, there have been a total of 11,262 deaths registered in Scotland where the novel coronavirus (COVID-19) was mentioned on the death certificate. In the latest week there were 126 deaths, a decrease of 17 from the previous week.
- Of deaths involving COVID-19 in the latest week:
  - 44 were female, 82 were male.
  - 76 were aged 75 or older, 24 were aged 65 to 74 and 26 were under 65.
  - There were 14 deaths in Glasgow City, 10 deaths in West Dunbartonshire and 9 deaths in West Lothian. In total 24 council areas (out of 32) had at least one death involving COVID-19 last week.
  - 98 were in hospitals, 19 were in care homes and 9 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 40 of 2021 was 1,353. This was 315 deaths more than the five year average for week 40 (30% above average).
- In week 40 there were 149 excess deaths at home or in non-institutional settings (52% above average), 104 excess deaths in hospitals (20% above average), and 60 excess deaths in care homes (26% above average) compared to the 2015-2019 average.
- There were 315 excess deaths across all locations for the latest week. There were 44 more cancer deaths, 40 more circulatory deaths, 27 more dementia/Alzheimer's deaths and 7 more respiratory deaths compared to the five year average. There were also 89 excess deaths from other causes. The number of deaths where COVID-19 was the underlying cause was 108.

### Monthly mortality analysis, deaths occurring up to 30 September 2021 ([go to section](#))

- The age standardised death rate for deaths involving COVID-19 increased for the fourth consecutive month. The rate of 126 per 100,000 in September 2021 was the highest since February 2021. Throughout the pandemic, the highest rate was 585 deaths per 100,000 people in April 2020.
- Age-standardised rates for males were significantly higher than for females (163 compared with 110 per 100,000 population in the period from March 2020 to September 2021).
- 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 from 2.1 to 2.4 over the period of the pandemic.
- Of the 11,179 deaths involving COVID-19 between March 2020 and September 2021, 93% (10,388) had at least one pre-existing condition. Just under one quarter of all people whose death involved COVID-19 also had dementia or Alzheimer's disease. This was the most common main pre-existing condition.
- In the period from March 2020 to September 2021, there were 15 deaths where post COVID-19 conditions (including long COVID) were mentioned on the death certificate.

- There have been 5 deaths in Scotland where the underlying cause of death was adverse effects of COVID-19 vaccines, with one death recorded in the latest month. By 30 September 2021 [statistics from Public Health Scotland](#) state that 4.2 million people had been given at least one vaccine dose.

Figure 1: Weekly deaths involving COVID-19 in Scotland, week 12 2020 to week 40 2021

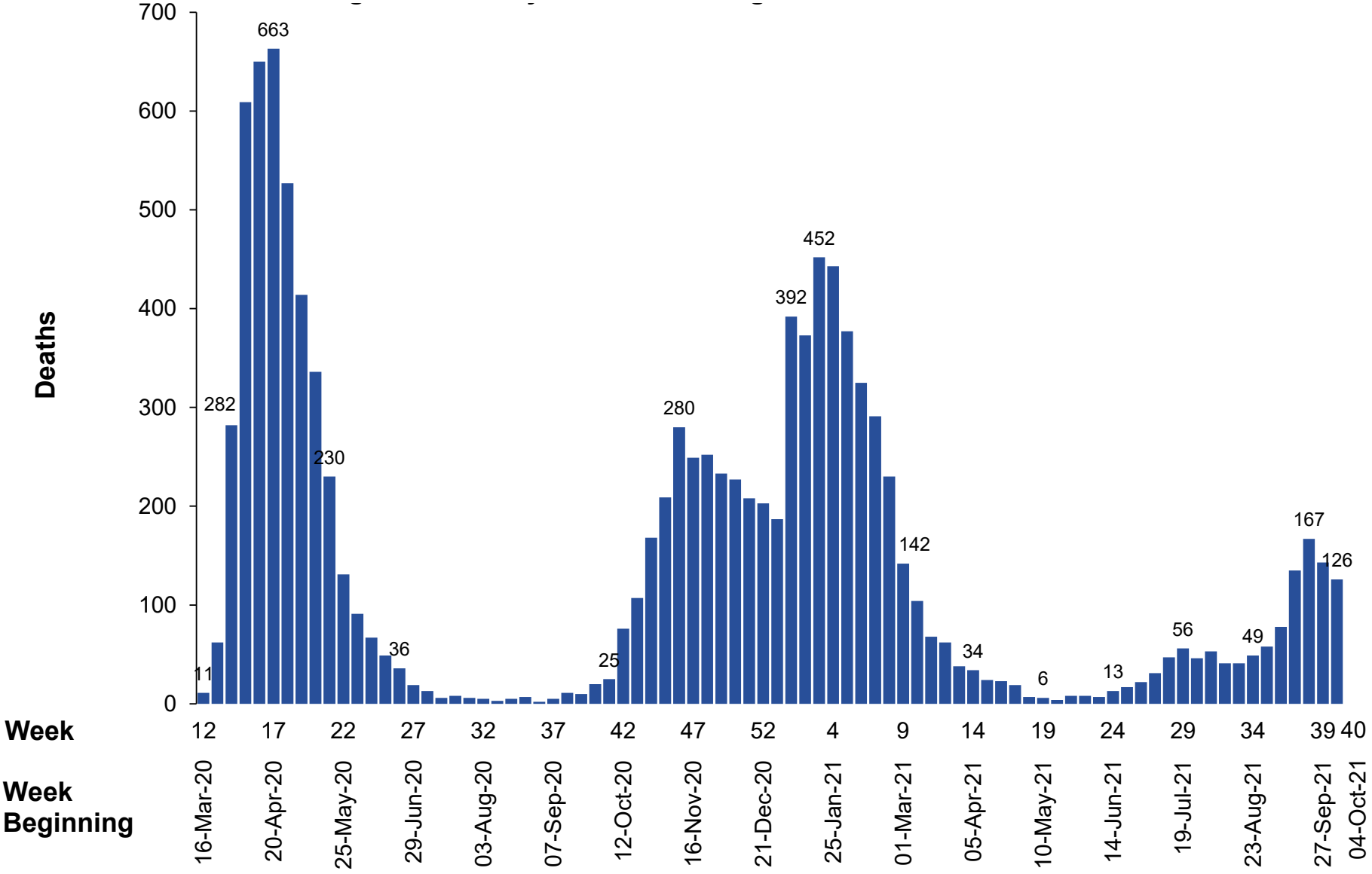
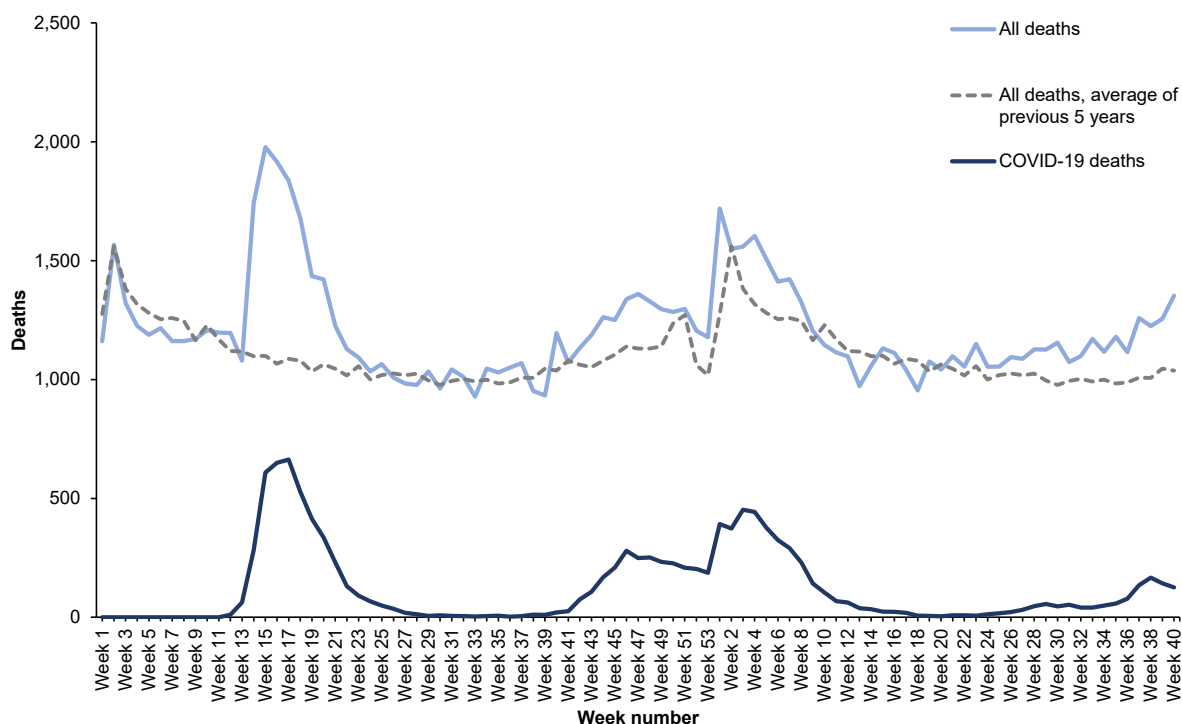


Figure 2 shows that in the most recent week (week 40, beginning 04 October 2021), there were 30% more deaths than the average for the period 2015-2019. This is the highest weekly percentage excess since week 1 of 2021. Deaths have been above the five year average in each of the past 20 weeks. Over that time, weekly deaths have ranged from being 4% above average to 30% above average. At the height of the pandemic in April 2020, deaths were around 80% above average.

**Figure 2: Deaths by week of registration, Scotland, 2020 and 2021**



### Where have COVID-19 deaths taken place?

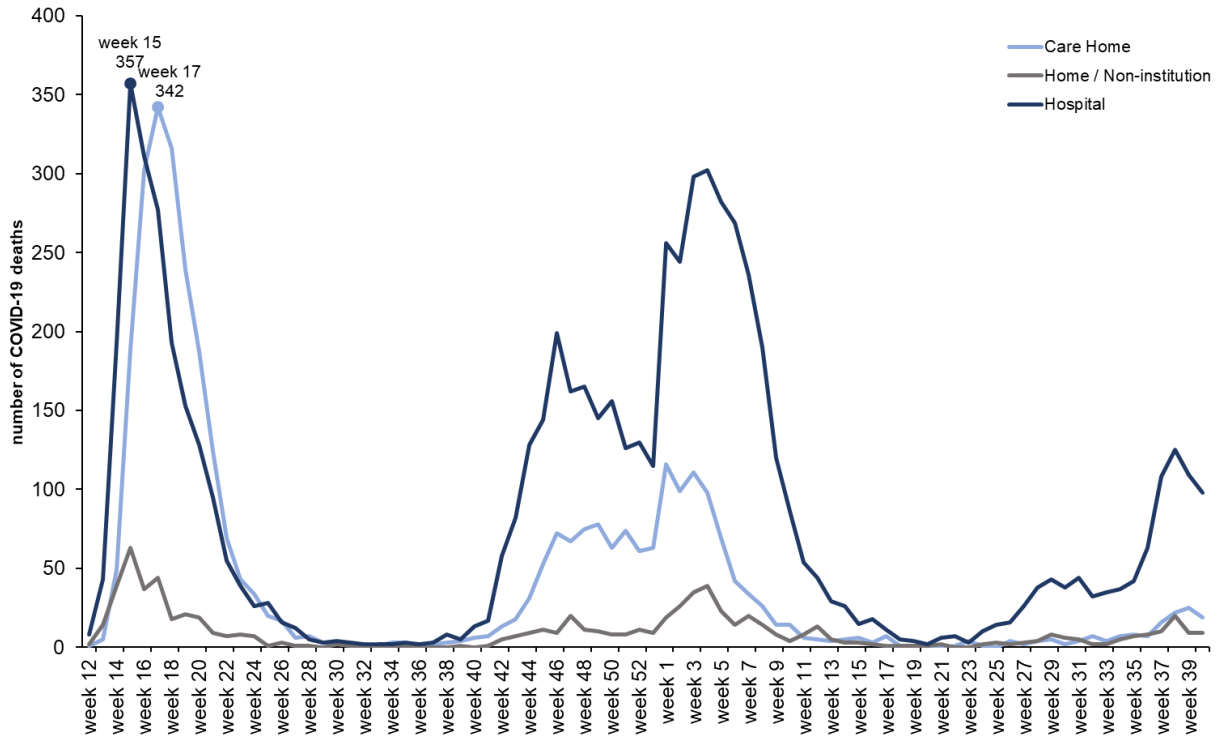
Of the 11,262 deaths involving COVID-19 which have been registered to date, 62% related to deaths in hospitals. 31% of deaths were in care homes and 7% of deaths were at home or non-institutional settings.

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

Figure 3 shows the number of deaths involving COVID-19 by location for week 12 of 2020 to week 40 of 2021.

Breakdowns of location of death within health board and council area are available on the [related statistics](#) page of our website

**Figure 3: Deaths involving COVID-19 by location of death**



## 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?

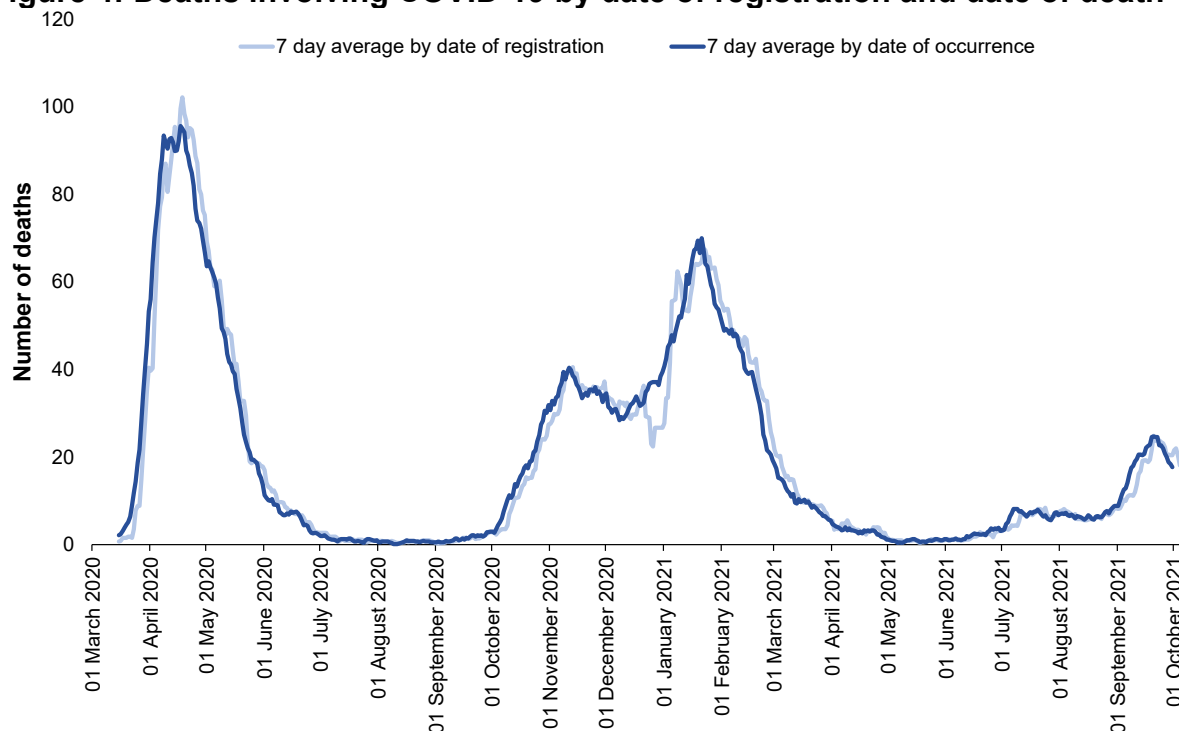
The death count based on **date of registration** is more timely but is incomplete and is subject to fluctuations due to public holidays.

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 began to rise in July 2021 and then rose through most of September, before beginning to fall at the end of September.

This report includes all deaths which were registered by 10<sup>th</sup> of October. 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 3<sup>rd</sup> of October as the majority of these are likely to have been registered by now.

**Figure 4: Deaths involving COVID-19 by date of registration and date of death**





## Monthly mortality analysis (deaths occurring up to 30 September 2021)

This section provides an in-depth analysis of deaths which **occurred** in Scotland between March 2020 and September 2021. 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 September 2021 there were 133 deaths per 100,000 population. Rates for males were significantly higher than for females (163 compared with 110 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.

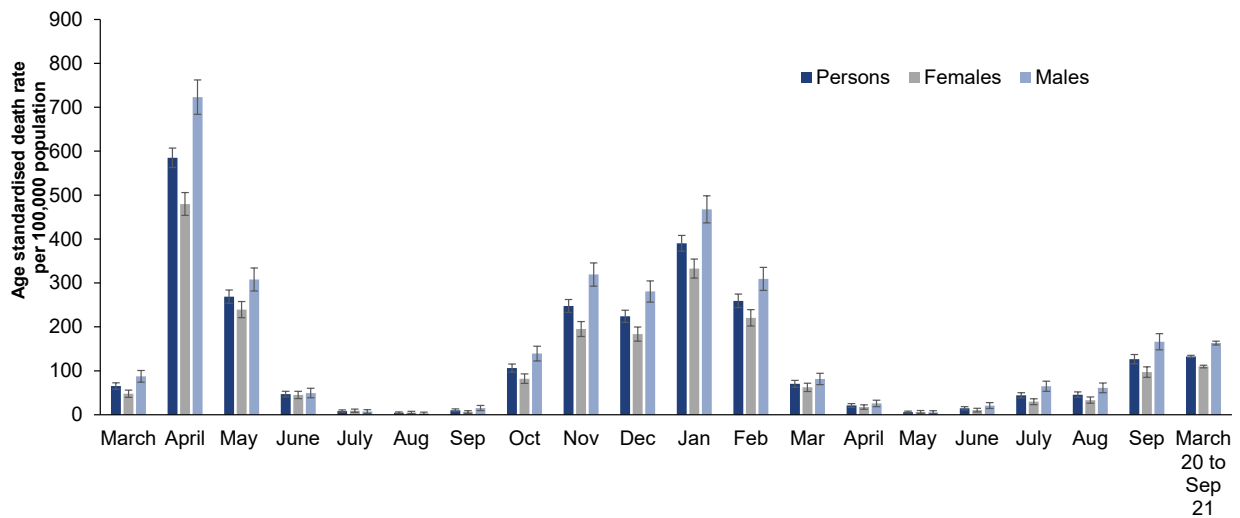
Age-standardised rates are therefore more reliable for comparing mortality over time and between different countries, different areas within a country, deprivation quintiles, and different sexes.

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

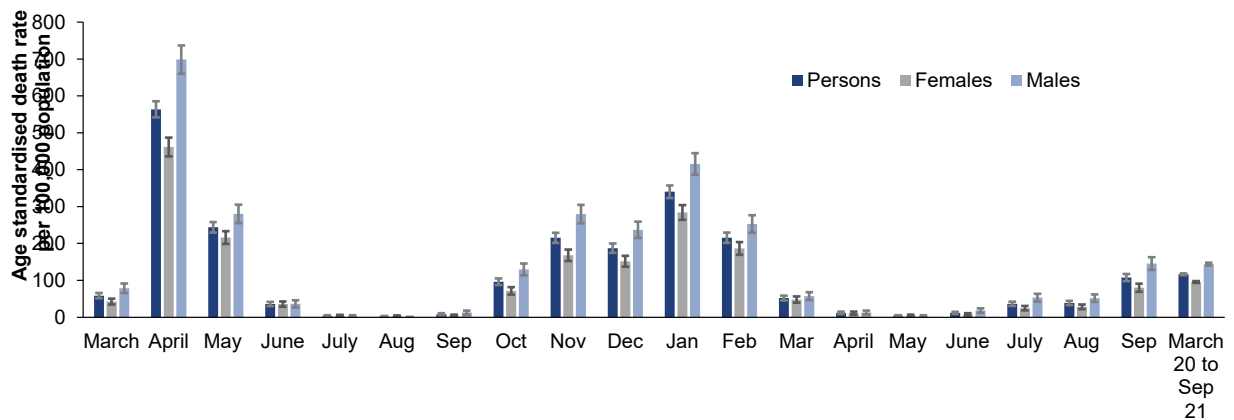
Looking only at deaths where COVID-19 was the underlying cause, the rates were only slightly lower – reflecting the fact that it was the underlying cause in the vast majority (88%) of deaths involving COVID-19. In the combined data for March 2020 to September 2021, the age-standardised mortality rate was 116 per 100,000 population, with a similar differential between males (144) and females (96).

The age standardised death rate for deaths involving COVID-19 increased for the fourth consecutive month. The rate of 126 per 100,000 in September 2021 was the highest since February 2021.

**Figure 5a: Age standardised rates for deaths involving COVID-19 by sex, between 1<sup>st</sup> March 2020 and 30<sup>th</sup> September 2021**



**Figure 5b: 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> September 2021**



The age-standardised mortality rate from all causes was 1,182 per 100,000 population in March 2020 to September 2021. 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

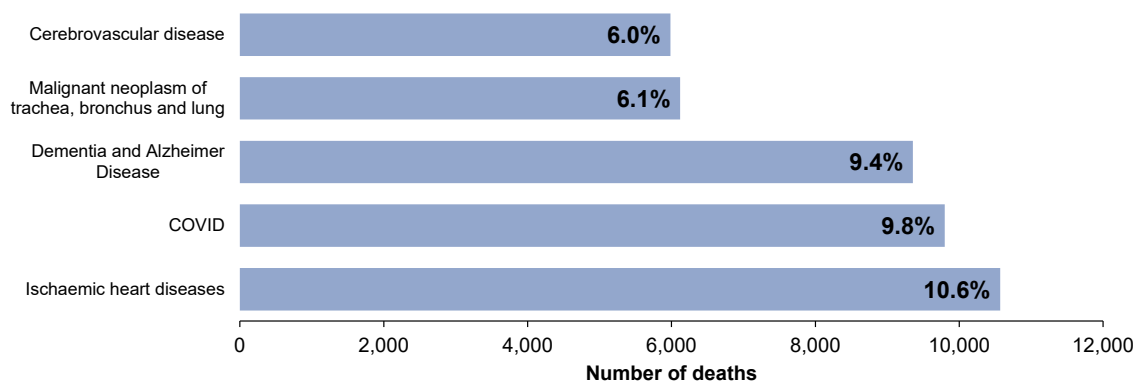
As this analysis compares different causes of death it is based on the underlying cause of death and therefore the figures for COVID-19 only include those deaths where it was the underlying cause rather than all those in which it was mentioned.

Over the period between March 2020 and September 2021, the leading cause of death was ischaemic heart disease (10,568 deaths, 10.6% of all deaths) followed by COVID-19 (9,797 deaths, 9.8% of all deaths) and dementia and Alzheimer's disease (9,356, 9.4%).

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.

The most common cause of death in September 2021 was dementia and Alzheimer's disease, which accounted for 9.6% 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 had not appeared in the top 5 leading causes between March and August 2021 but reappeared in third place in September 2021.

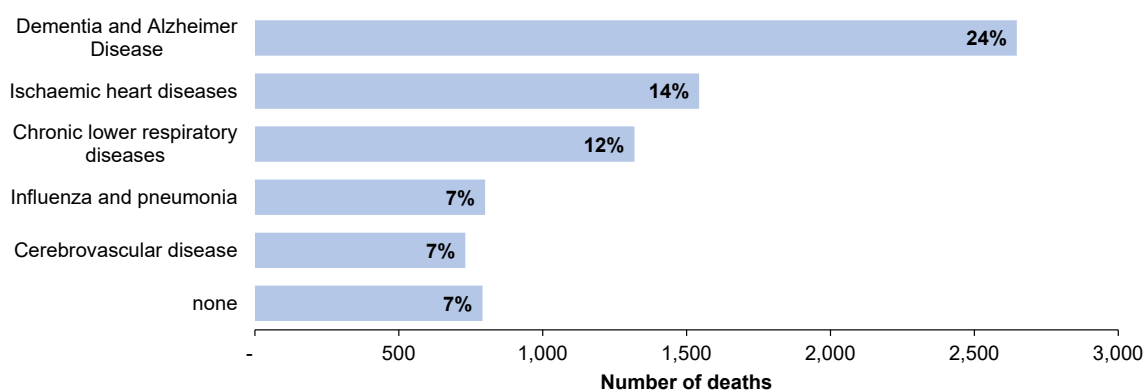
**Figure 6: Leading causes of death - 1<sup>st</sup> March 2020 and 30<sup>th</sup> September 2021**



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

Of the 11,179 deaths involving COVID-19 between March 2020 and September 2021, 93% (10,388) had at least one pre-existing condition.

**Figure 7: Main pre-existing condition in deaths involving COVID-19, between 1<sup>st</sup> March 2020 and 30<sup>th</sup> September 2021**



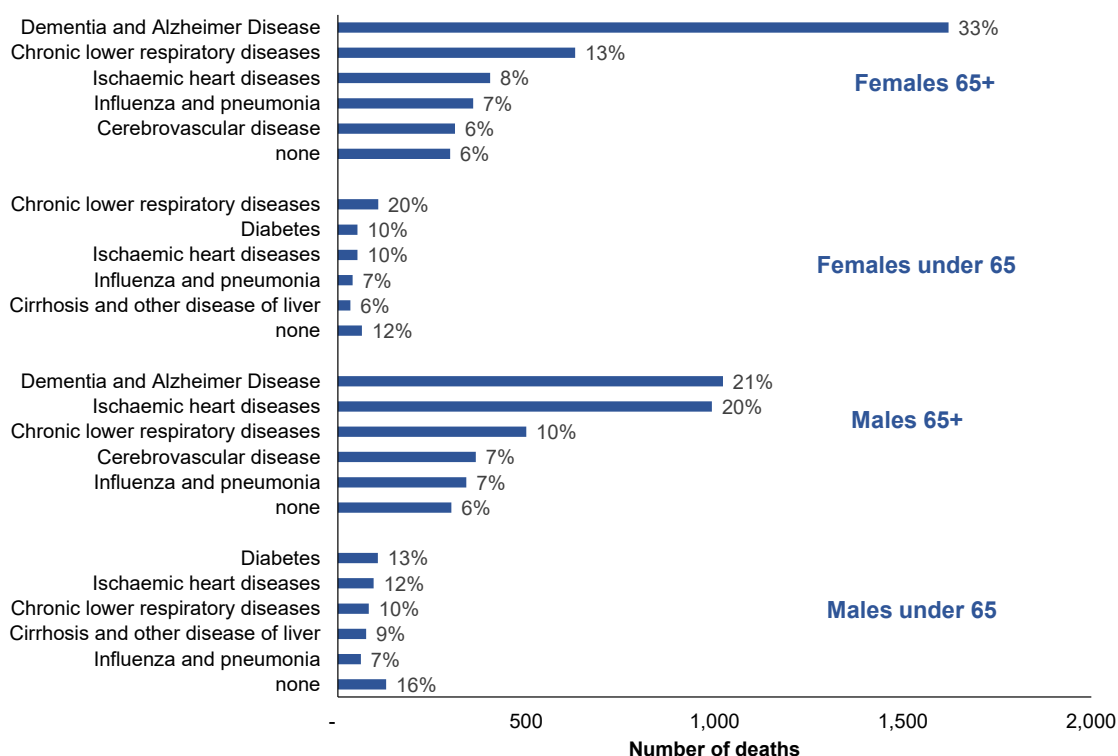
The most common main pre-existing condition among those who died with COVID-19 was dementia and Alzheimer's disease (24%), followed by ischaemic heart disease (14%), chronic lower respiratory diseases (12%), influenza and pneumonia (7%) and cerebrovascular disease (7%).

**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 [methodology paper](#).

Pre-existing conditions differed by age and sex. For both males and females over 65 the main pre-existing condition was dementia and Alzheimer's disease (21% and 33% of all COVID-19 deaths respectively). For females under 65, the most common main pre-existing condition was chronic lower respiratory diseases (20%) and for males under 65 it was diabetes (13%). There were 128 male deaths under 65 (16% of all COVID deaths) compared to 64 for women under 65 (12% of all COVID deaths).

**Figure 8: 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> September 2021**



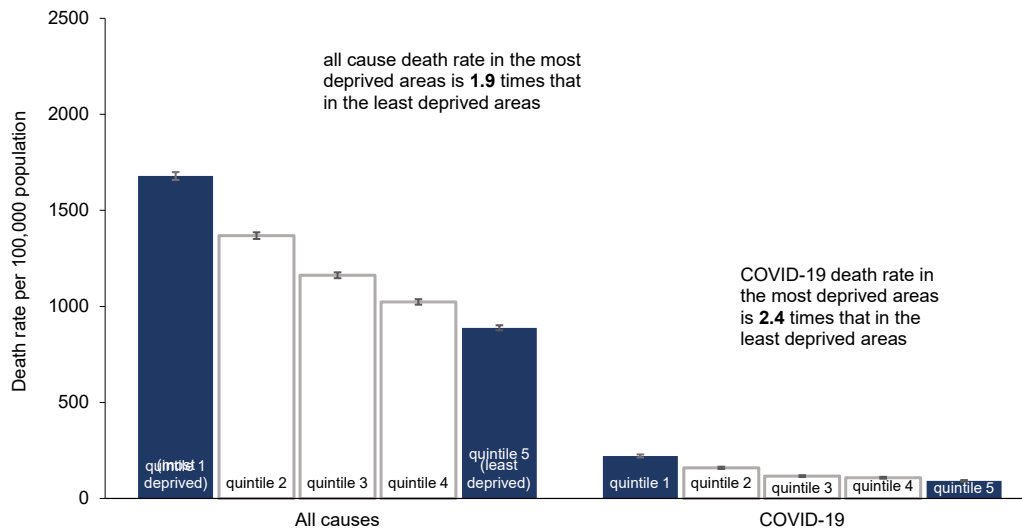
### Mortality by deprivation

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 September 2021.

The deprivation gap is greater when looking at deaths involving COVID-19. The rate in the most deprived quintile (221 per 100,000 population) was 2.4 times the rate in the least deprived quintile (91 per 100,000 population). The size of this gap has widened from 2.1 to 2.4 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 9: Age-standardised death rates by SIMD quintile between 1<sup>st</sup> March 2020 and 30<sup>th</sup> September 2021**

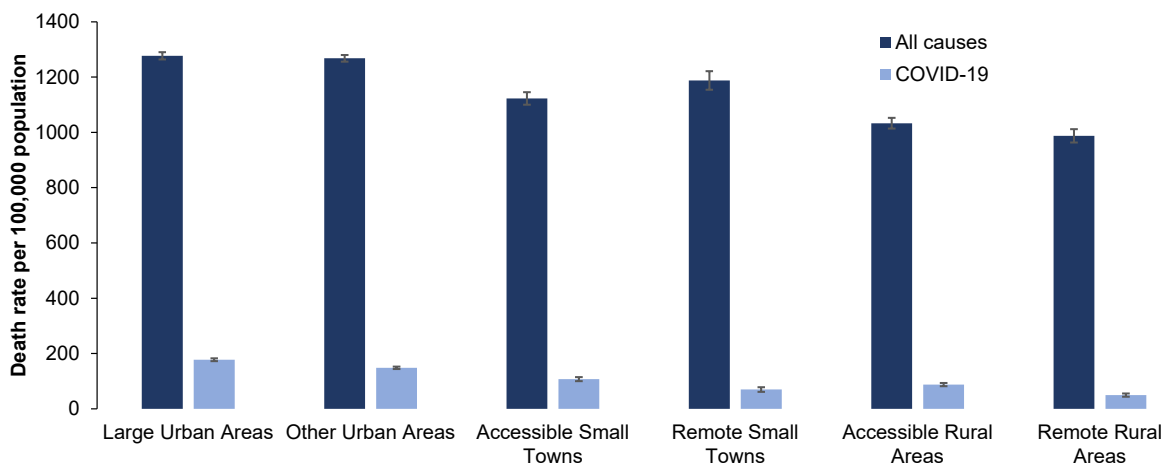


**Mortality by urban rural classification**

The age-standardised rate for deaths involving COVID-19 in large urban areas (177 deaths per 100,000 population) was 3.6 times the rate in remote rural locations (49 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 10: Age-standardised death rates by urban rural classification between 1<sup>st</sup> March 2020 and 30<sup>th</sup> September 2021**

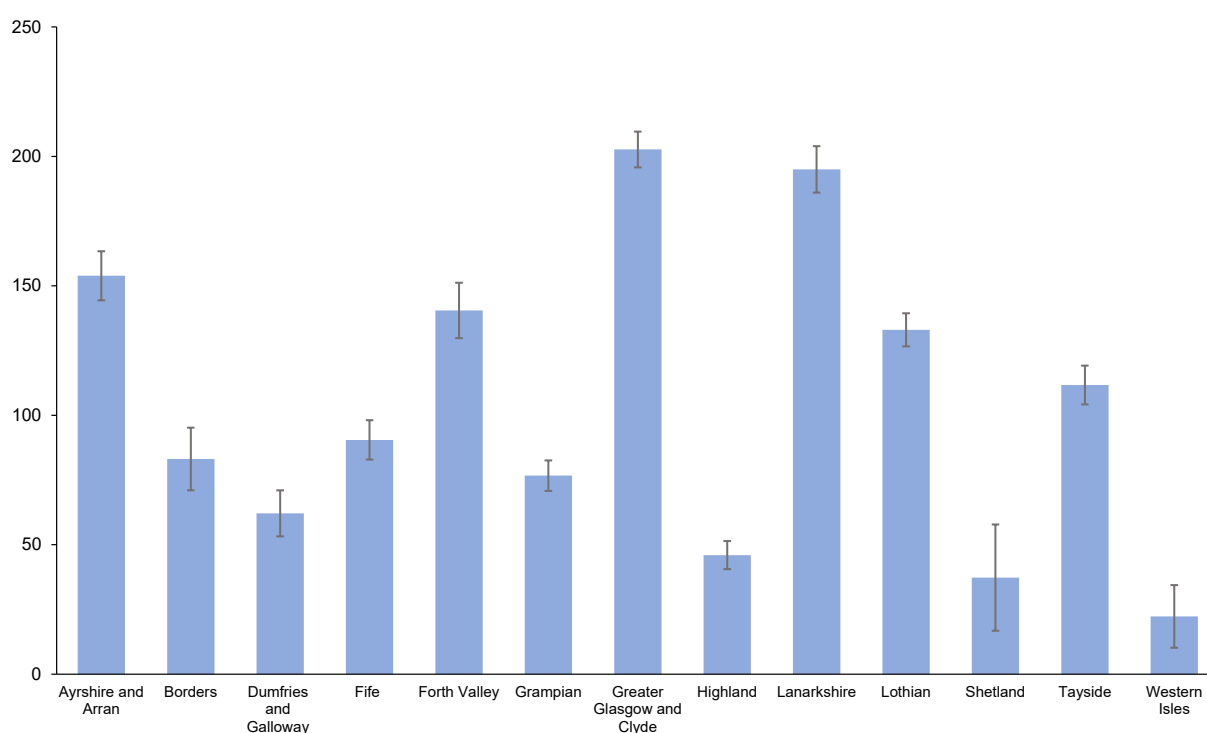


## Age-standardised death rates by health board and council area

Figure 11 shows that Greater Glasgow and Clyde had the highest rate of all health boards (203 per 100,000 population), followed by Lanarkshire (195) and Ayrshire and Arran (154).

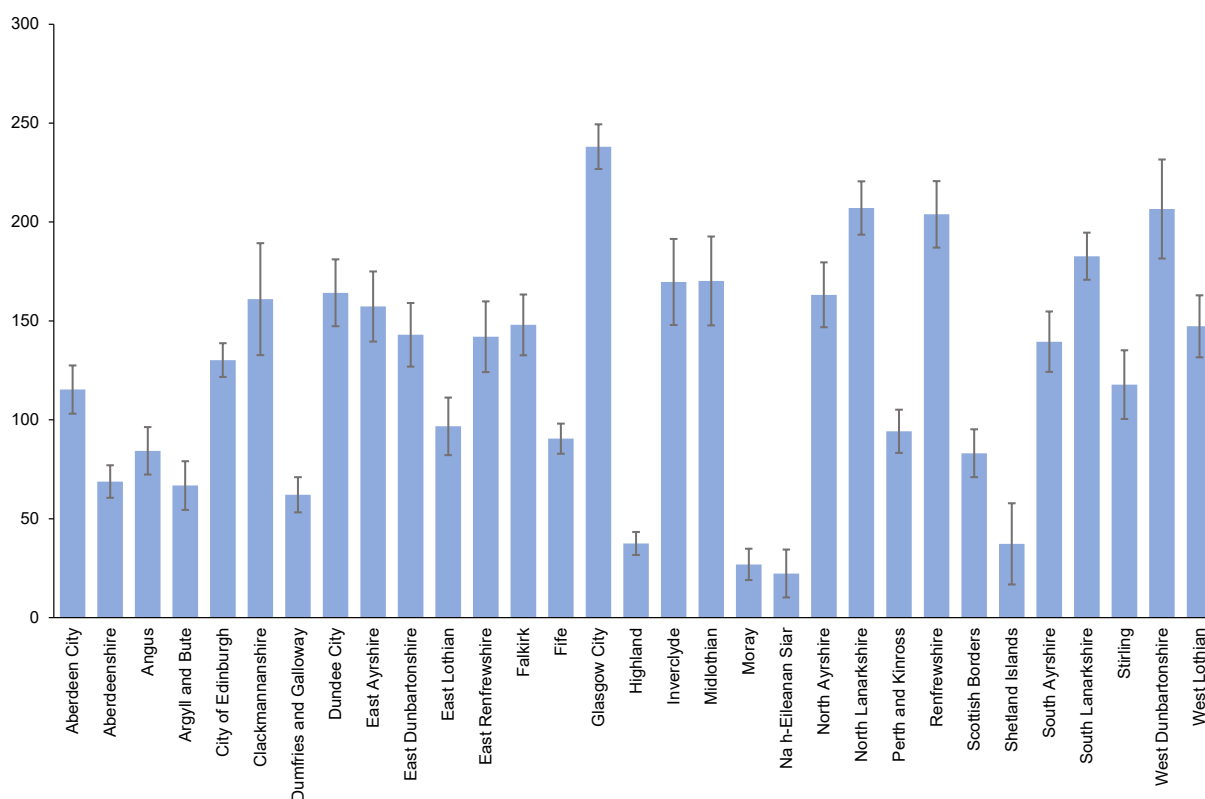
Rates are not shown for Orkney as the number of deaths involving COVID-19 are too low to calculate robust age-standardised rates.

**Figure 11: age standardised rates for deaths involving COVID-19 between 1<sup>st</sup> March 2020 and 30<sup>th</sup> September 2021 in NHS health board areas**



Glasgow City had the highest age-standardised death rate of all council areas (238 per 100,000 population), followed by North Lanarkshire (207), West Dunbartonshire (207) and Renfrewshire (204). Na h-Eileanan Siar (22 per 100,000 population), Moray (27), Shetland Islands (37) and Highland (38) had the lowest rates (in addition to Orkney whose numbers were too low to calculate rates) ([Figure 12](#)).

**Figure 12: Age-standardised rates for deaths involving COVID-19 between 1<sup>st</sup> March 2020 and 30<sup>th</sup> September 2021 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 (161 deaths and an age-standardised death rate of 60 per 100,000 population) followed by elementary occupations (129 deaths, 36 per 100,000 population). For context, there were 840 COVID-19 deaths in this age group across all occupations, with a rate of 24 per 100,000 population. People in professional occupations had the lowest death rate (54 deaths, 7 per 100,000 population). ([Table 10](#))

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 (36 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 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.

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

[Table 12](#) 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 September 2021, there were 15 deaths where post COVID-19 conditions (including long COVID) were mentioned on the death certificate.

Between December 2020 and the end of September 2021 [statistics from Public Health Scotland](#) state that 4.2 million people had been given at least one COVID-19 vaccine dose. Over this period there have been 5 deaths where the underlying cause of death was reported as being due to adverse effects of COVID-19 vaccines. One death involving COVID-19 vaccines occurred in September 2021.

**Table 12: Number of deaths with ICD-10 codes related to COVID-19 mentioned on the death certificate, Scotland, 1<sup>st</sup> March 2020 – 30<sup>th</sup> September 2021**

ICD-10 code	Description	Deaths where this code was mentioned on the death certificate	of which, deaths where this code was the underlying cause
U07.1	COVID-19, virus identified	9,586	8,336
U07.2	COVID-19, virus not identified	1,584	1,461
U08.9	Personal history of COVID-19, unspecified	0	:
U09.9	Post COVID-19 condition, unspecified	15	:
U10.9	Multisystem inflammatory syndrome associated with COVID-19, unspecified	0	0
U11.9	Need for immunisation against COVID-19, unspecified	0	:
U12.9	COVID-19 vaccines causing adverse effects in therapeutic use, unspecified	5	5

## 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.

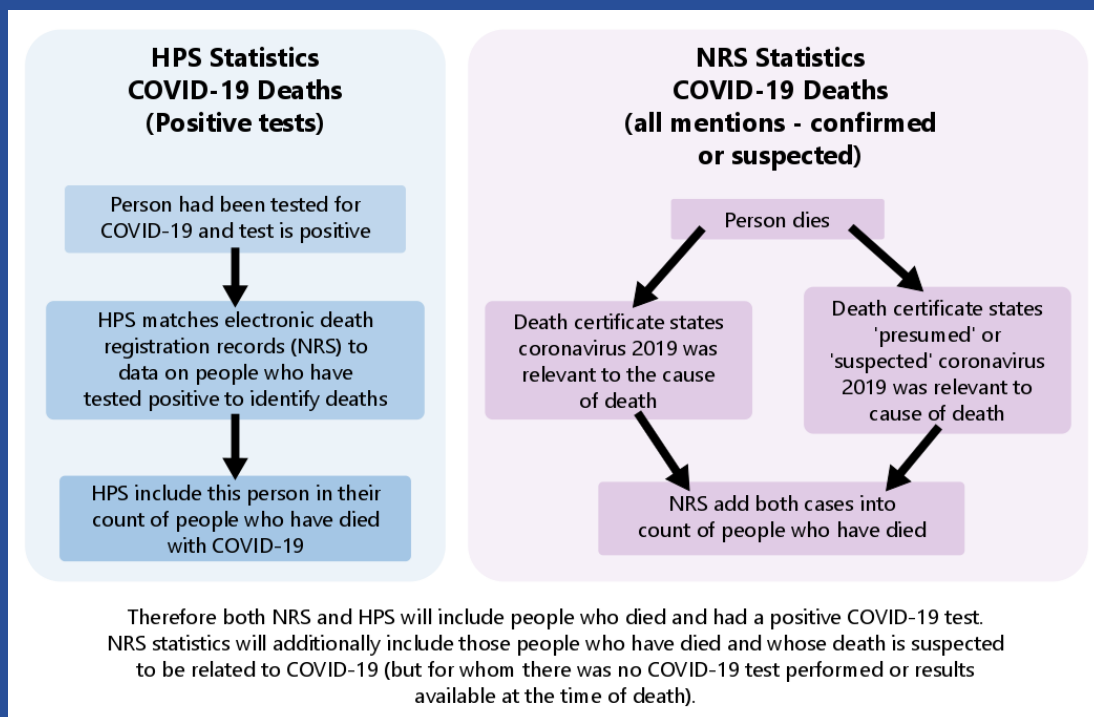
### NRS weekly death totals

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.



## 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 for 2021 are provisional and subject to change in future weekly publications. The data will be finalised in June 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

<b>Breakdown</b>	<b>Frequency</b>	<b>When Added</b>	<b>Latest Period Covered</b>	<b>Date Last updated</b>
<a href="#">Age group</a>	Weekly	8 <sup>th</sup> April 2020	Week 40	11 <sup>th</sup> October 2021
<a href="#">Sex</a>	Weekly	8 <sup>th</sup> April 2020	Week 40	11 <sup>th</sup> October 2021
<a href="#">Location</a>	Weekly	15 <sup>th</sup> April 2020	Week 40	11 <sup>th</sup> October 2021
<a href="#">Health Board</a>	Weekly	8 <sup>th</sup> April 2020	Week 40	11 <sup>th</sup> October 2021
<a href="#">Local Authority</a>	Weekly	22 <sup>nd</sup> April 2020	Week 40	11 <sup>th</sup> October 2021
<a href="#">Excess deaths by cause</a>	Weekly	22 <sup>nd</sup> April 2020	Week 40	11 <sup>th</sup> October 2021
<a href="#">Excess deaths by cause and location</a>	Weekly	17 <sup>th</sup> June 2020	Week 40	11 <sup>th</sup> October 2021
<a href="#">Age-standardised mortality rates – Scotland</a>	Monthly	13 <sup>th</sup> May 2020	September 2021	11 <sup>th</sup> October 2021
<a href="#">Age-standardised mortality rates – sub-Scotland</a>	Monthly	17 <sup>th</sup> June 2020	March 2020 – September 2021	11 <sup>th</sup> October 2021
<a href="#">Leading causes of death</a>	Monthly	13 <sup>th</sup> May 2020	September 2021	11 <sup>th</sup> October 2021
<a href="#">Pre-existing conditions</a>	Monthly	13 <sup>th</sup> May 2020	September 2021	11 <sup>th</sup> October 2021
<a href="#">Deprivation</a>	Monthly	13 <sup>th</sup> May 2020	March 2020 – September 2021	11 <sup>th</sup> October 2021
<a href="#">Urban Rural</a>	Monthly	13 <sup>th</sup> May 2020	March 2020 – September 2021	11 <sup>th</sup> October 2021
<a href="#">Daily occurrences by location of death</a>	Monthly	13 <sup>th</sup> May 2020	September 2021	11 <sup>th</sup> October 2021
<a href="#">Occupation</a>	Monthly	17 <sup>th</sup> June 2020	March 2020 – September 2021	11 <sup>th</sup> October 2021
<a href="#">Intermediate Zone</a>	Monthly	17 <sup>th</sup> June 2020	March 2020 – September 2021	11 <sup>th</sup> October 2021
<a href="#">Deaths by ICD-10 codes</a>	Monthly	16 <sup>th</sup> June 2021	March 2020 – September 2021	11 <sup>th</sup> October 2021
<a href="#">Ethnic Group</a>	One-off	8 <sup>th</sup> July 2020	March to mid-June	11 <sup>th</sup> November 2020
<a href="#">Disability</a>	One-off	24 <sup>th</sup> March 2021	March to Jan	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.

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.

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