

Winter Mortality in Scotland 2021/22



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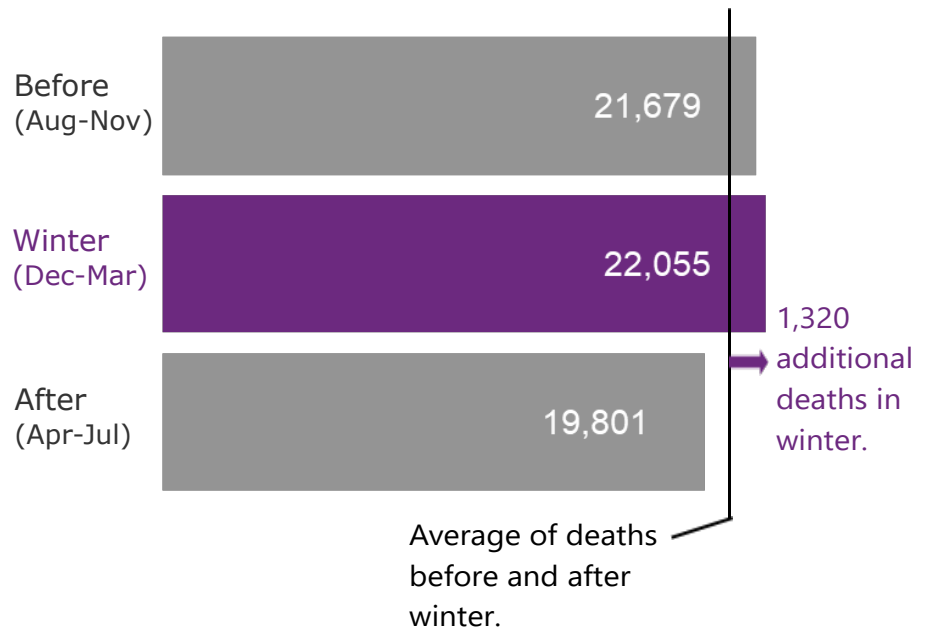
Statistics on the seasonal increase in mortality in winter in Scotland, broken down by age-group, sex, cause of death, Scottish Index of Multiple Deprivation quintile, NHS Board and Local Authority area.

Deaths in winter 2021/22

Winter months see more deaths than other times of the year. We measure the size of this effect by looking at the difference between deaths registered over winter and the average number of deaths in the adjacent periods (before and after).

The 22,055 winter deaths in 2021/22 is slightly lower than last winter but high in relation to recent years.

Deaths before, during and after winter 2021/22



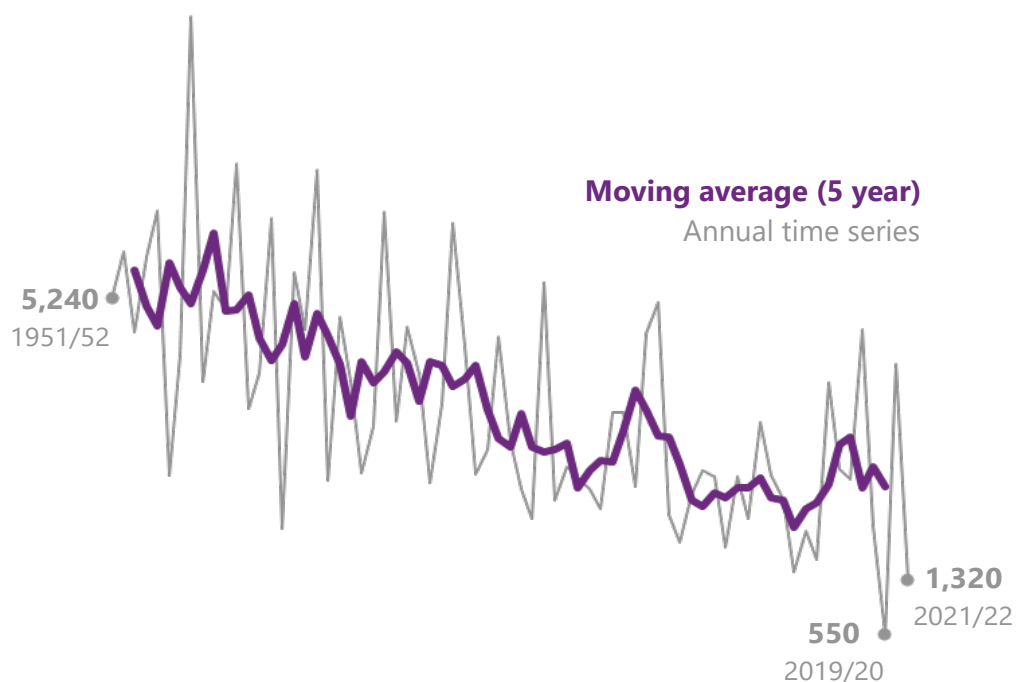
Second lowest seasonal increase in more than 70 years

The seasonal increase in mortality of 1,320 for winter 2021/22 was the second lowest in more than 70 years. Only winter 2019/20 had a smaller seasonal increase (550).

Over the long term there has been a clear downward trend in winter mortality.

Figures for recent years suggest a departure from the long-term downward trend. It is not clear whether this will continue as there have been similar increasing periods in the past which were followed by a return to the longer term decreasing trend.

Additional deaths in winter (Dec-Mar)



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Main Points

- There were 22,055 deaths registered in Scotland in the four months of winter 2021/22 (December 2021 to March 2022). This is slightly lower than last winter but high in relation to recent years.
- The seasonal increase in mortality of 1,320 for winter 2021/22 was the second lowest recorded in the 70 years since the series began. Only winter 2019/20 had a smaller seasonal increase (550).
- The four month period before winter 2021/22 (Aug-Nov 2021) had the highest number of deaths recorded, for that time of year, since the series began. This means that the seasonal increase in mortality for winter 2021/22 is relatively low because it is being compared to a high number of deaths before winter.
- The seasonal increase in mortality can change substantially from winter to winter, but the long-term trend has clearly been downward. In the 1950s and 60s, there was an average seasonal increase of over 5,200 deaths in winter, whereas over the most recent decade it has averaged around 2,600.
- The causes of death with the largest seasonal increases in winter 2021/22 were dementia and Alzheimer's disease (250 additional deaths), cerebrovascular disease (180 additional deaths), and coronary (ischaemic) heart disease, other circulatory system diseases and chronic lower respiratory disease (each 150). Very few deaths are directly due to cold weather (e.g. hypothermia).
- Coronavirus (COVID-19) was the underlying cause of 60 of the 1,320 additional deaths in winter 2021/22.
- Older age groups are consistently affected most by the seasonal increase in mortality in winter. In winter 2021/22, for people aged 85 and over there were 9 per cent more deaths compared to the months before and after winter. In the under 65 age group there were 5 per cent more deaths in winter.
- The seasonal increase in mortality in winter is generally lower in Scotland than in the other UK countries. In the latest year for which comparable figures are available (2020/21) the seasonal increase in Scotland was 23% - lower than England (37%) and Wales (32%) but slightly higher than in Northern Ireland (21%)

1. Introduction

This publication provides statistics on mortality in Scotland during winter 2021/22. This includes trends since 1951/52, as well as breakdowns by age, sex, cause of death, areas of Scotland and other factors.

Winter months generally see more deaths than other times of the year. This report examines the seasonal increase in mortality in winter - the difference between deaths registered over winter (December to March) and the average number of deaths in the adjacent four-month periods (before and after). This definition is also used by other organisations like the Office for National Statistics (ONS) and the World Health Organisation (WHO) to measure winter mortality. For more information on this definition, see the box below.

The seasonal increase in mortality is calculated using data from death registration records. The latest year's figures are provisional until the 2022 mortality data are finalised in summer 2023, but any revisions are usually small.

2. Winter mortality in Scotland

There were 22,055 deaths registered in Scotland in the four months of winter 2021/22 (December 2021 to March 2022). This is the third highest total in the last twenty years – only winters 2017/18 and 2020/21 had a higher total.

It is generally expected that more deaths will be registered in the four winter months (December to March), than in either the four months before (August to November) or the four months after (April to July). There has been only one exception in 70 years: because of the coronavirus (COVID-19) pandemic, more deaths were registered from April 2020 to July 2020 than were registered in winter 2019/20 (December 2019 to March 2020).

What is Winter Mortality?

The seasonal increase in mortality in the winter is defined as the difference between the number of deaths registered in the four-month winter period (December to March, inclusive) and the average number of deaths in the two four-month periods which precede winter (August to November) and follow winter (April to July).

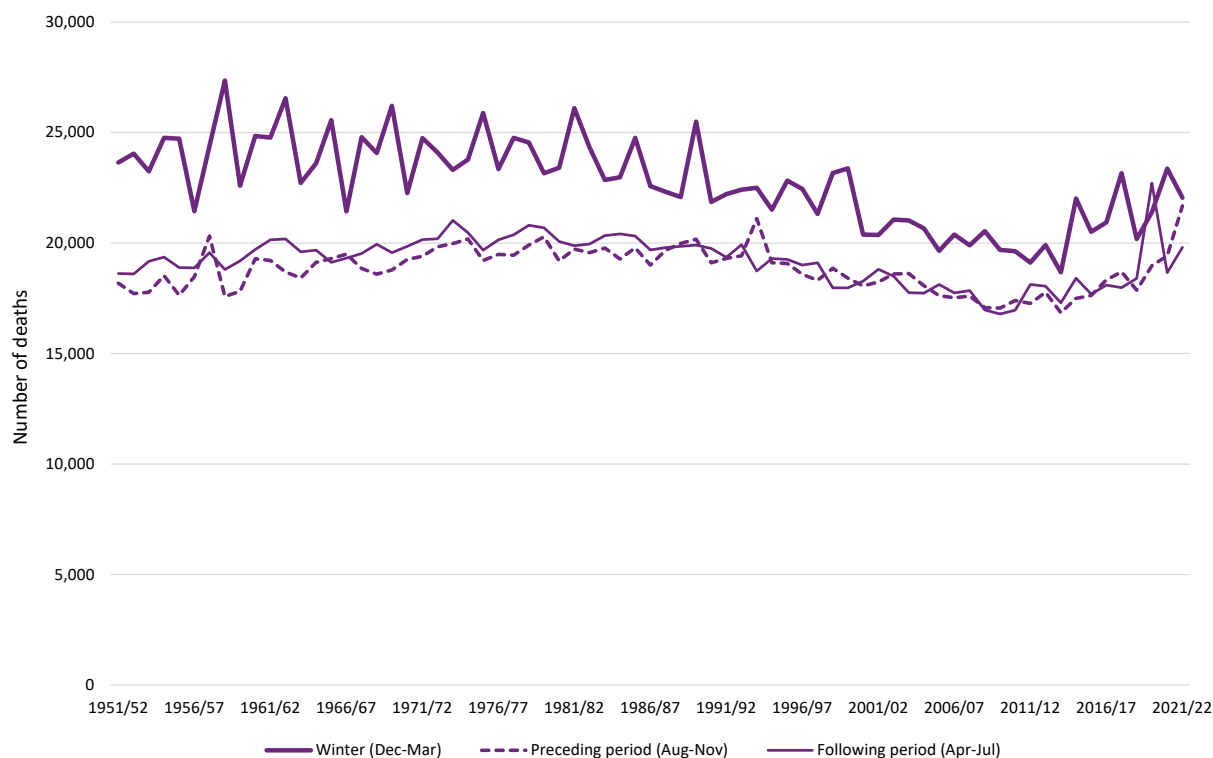
The seasonal increase represents the number of additional deaths in winter.

To account for differences in population size, seasonal increases for different areas of Scotland are better compared using the Increased Winter Mortality Index (IWMI). This is defined as the number of additional winter deaths divided by the average number of deaths in a four month non-winter period, expressed as a percentage.

The seasonal increase in mortality of 1,320 for winter 2021/22 was the second lowest recorded in the 70 years since the series began in winter 1951/52. Only winter 2019/20 had a smaller seasonal increase (550).

The four month period before winter 2021/22 (Aug-Nov 2021) had the highest recorded total, for that time of year, in the available series. This means that the seasonal increase in winter 2021/22 is low because it is being compared to a high number of deaths before winter.

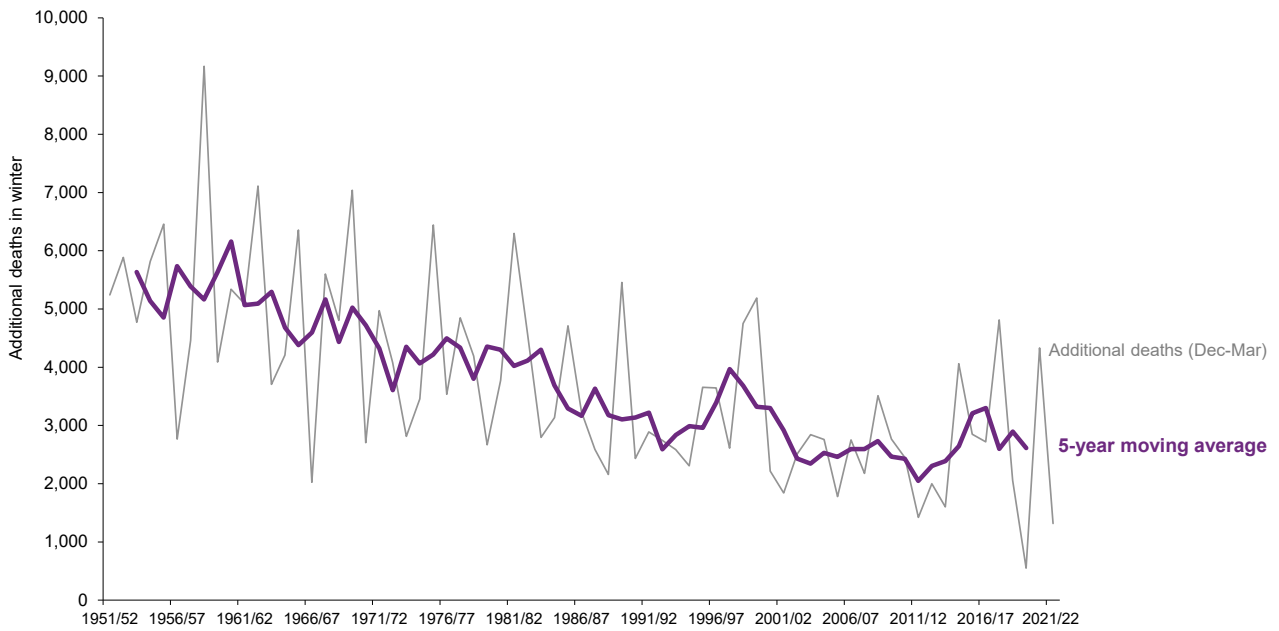
Figure 1: Deaths registered in the Winter and in the Preceding and Following periods, Scotland, 1951/52 to 2021/22



The number of additional winter deaths can change substantially from winter to winter, but over the past 70 years the long-term trend has clearly been downward. In the 1950s and 60s, there was an average seasonal increase in winter of over 5,200 deaths, whereas over the most recent decade it has averaged around 2,600. The increased winter mortality index has also fallen over time – from an average of 27% in the 1950s and 60s to 14% over the last decade.

Figures for the most recent years suggest a departure from the long-term downward trend. It is not clear whether this will continue as there have been similar increasing periods in the past which were followed by a return to the long term decreasing trend.

Figure 2: Seasonal Increase in Mortality in the Winter, Scotland, 1951/52 to 2021/22



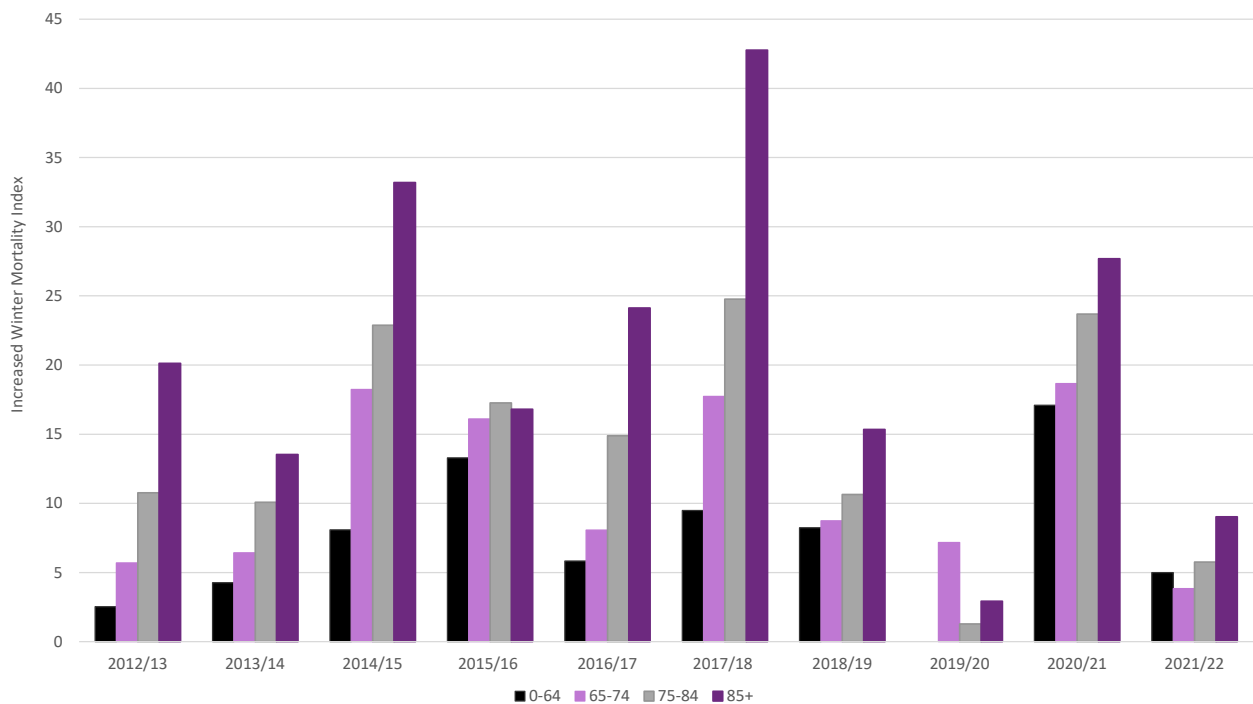
3. The seasonal increase in mortality in the winter by age-group

Older age groups are affected most by the seasonal increase in mortality in winter.

In winter 2021/22, for people aged 85 and over there were 9 per cent more deaths, compared to 5 per cent more for those aged under 65.

The figures fluctuate from year to year, but on the whole, the oldest age groups tend to have a greater seasonal increase in winter than the younger age groups.

Figure 3: Increased Winter Mortality Index, by age-group. Scotland, 1990/91 to 2021/22

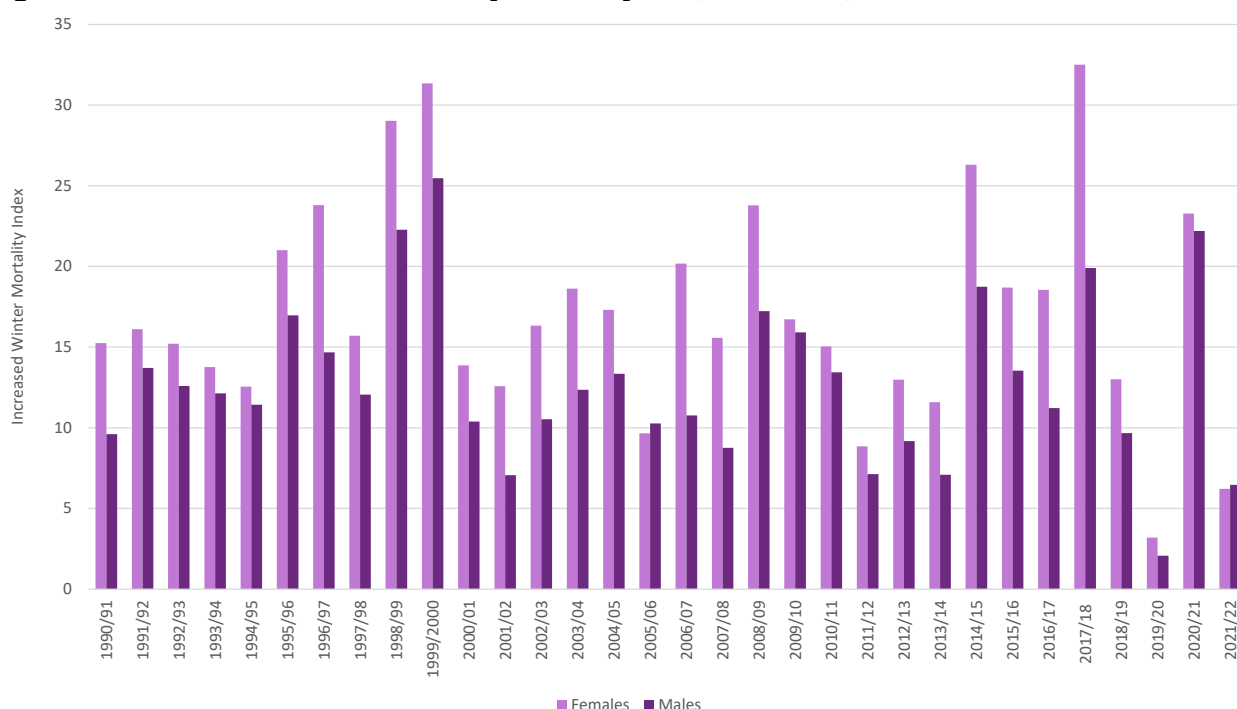


4. The seasonal increase in mortality in the winter by sex

For most of the past 30 years, the number of additional deaths in winter – and the increased winter mortality index - has been greater for females than for males. This is largely explained by the fact that females live longer than males, and therefore account for a larger proportion of the population in older age groups.

However, for the last three winters, the proportion of additional deaths in winter has been very similar for males and females.

Figure 4: Increased Winter Mortality Index by sex, Scotland, 1990/91 to 2021/22



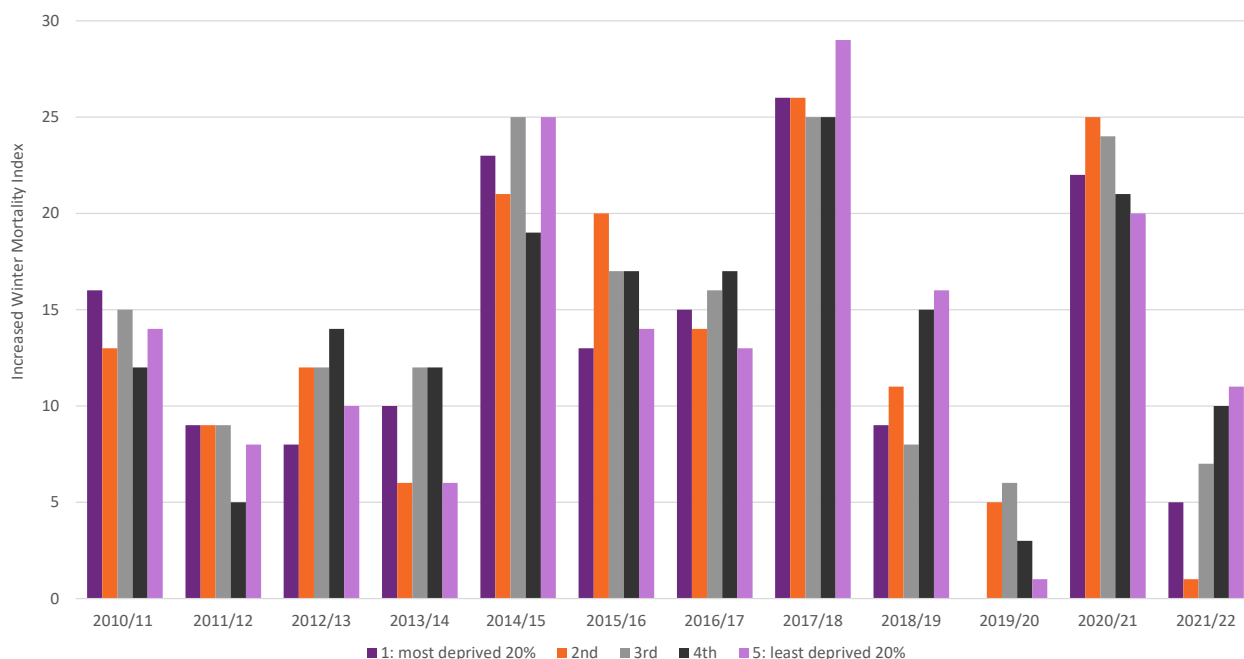
The seasonal increase in mortality in the winter by deprivation

There is no clear evidence of any consistent difference in the seasonal increase in mortality in winter between the most deprived and least deprived parts of Scotland.

In winter 2021/22 the increased winter mortality index was greater in the least deprived quintile (11%) than in the most deprived quintile (5%) but as Figure 5 shows, this pattern has not been consistent over time.

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 5: Increased Winter Mortality Index by SIMD quintile 2010/11 to 2021/22



5. The seasonal increase in mortality in the winter across areas in Scotland

There is no clear evidence of any consistent difference in the seasonal increase in mortality in winter across areas of Scotland. The Health Boards and Local Authority areas with the highest and lowest increased winter mortality indexes tend to fluctuate from year to year.

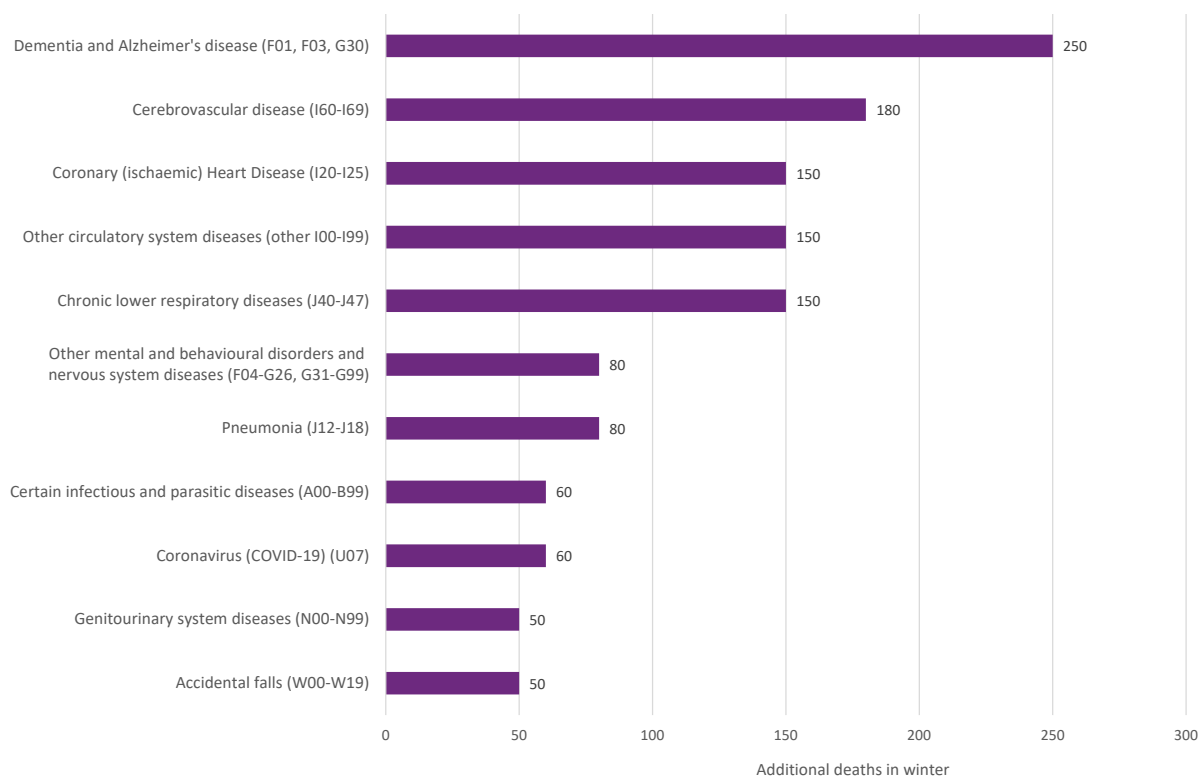
Tables 6 and 7 [LINK?] show the number of deaths in winter in each Local Authority and NHS Board area, along with the seasonal increases in each area.

6. The seasonal increase in mortality in the winter by cause of death

The causes of death with the largest seasonal increases in winter 2021/22 were dementia and Alzheimer’s disease (250 additional deaths), cerebrovascular disease (180 additional deaths), and coronary (ischaemic) heart disease, other circulatory system diseases and chronic lower respiratory disease (each 150). Very few deaths are directly due to cold weather (e.g. hypothermia).

COVID-19 was the underlying cause of 60 of the 1,320 additional deaths in winter 2021/22.

Figure 6: Seasonal Increase in Mortality in Winter 2021/22: main underlying causes



Prior to the COVID-19 pandemic, most of the additional deaths in winter were caused by:

- circulatory system diseases (e.g. coronary heart disease and stroke)
- respiratory system diseases (e.g. pneumonia and chronic obstructive pulmonary disease)
- dementia and Alzheimer's disease.

Over the winters from 2010/11 to 2018/19, those diseases combined accounted for an average of almost 80% of the total seasonal increase in mortality.

The COVID-19 pandemic has affected the seasonal increase figures for the latest three winters (2019/20, 2020/21 and 2021/22) and they do not follow the usual pattern.

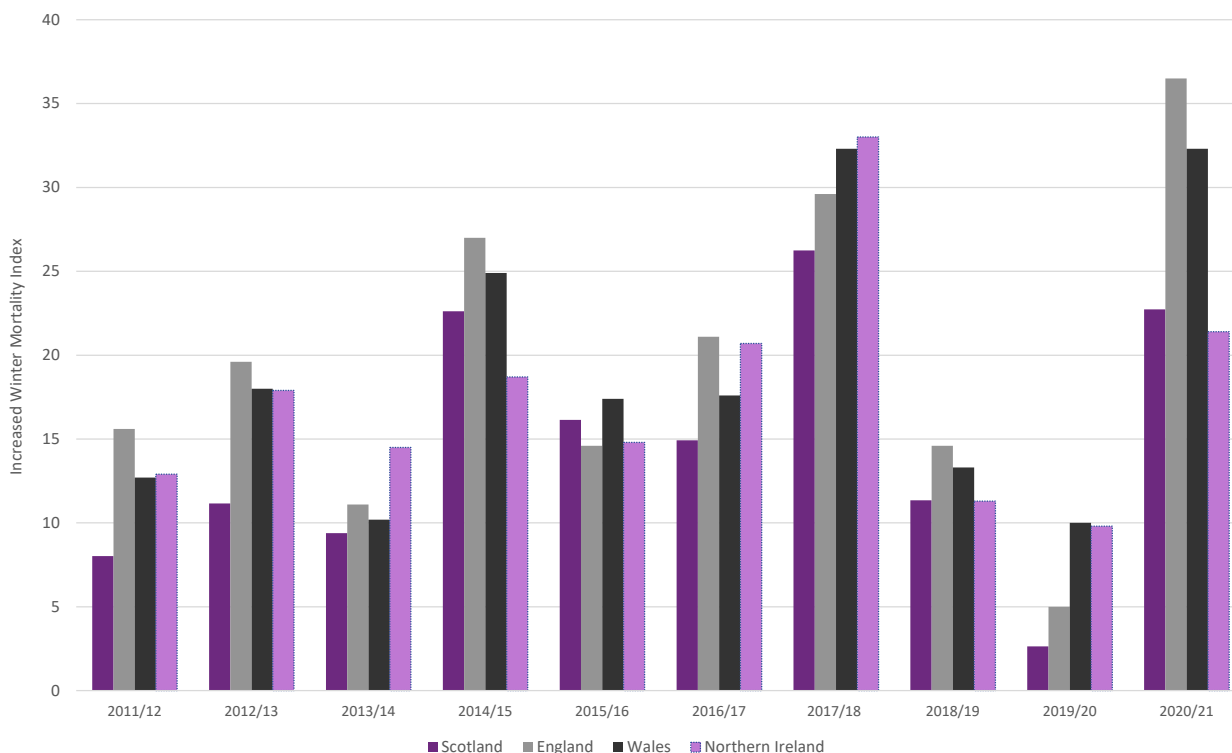
In winter 2019/20 there was only a very small seasonal increase as there were many more deaths from April to July 2020 (largely attributed to COVID-19) than from December 2019 to March 2020. Then in winter 2020/21, there was a higher number of deaths compared to previous years, again mostly explained by deaths involving COVID-19. In winter 2021/22 there was a high number of deaths, but there was also an unusually high number of deaths from August to November 2021, partly attributed to COVID-19, resulting in a relatively low seasonal increase.

The underlying cause of death is defined as the disease or injury which initiated the chain of morbid events leading directly to death, or the accident/act which produced the fatal injury. Statistics are normally produced on this basis because every death has just one underlying cause, and so will be counted only once.

7. Comparisons with the rest of the UK and other countries

In Scotland, the seasonal increase in mortality in winter has generally been lower than the other UK countries over the last 30 years although it was slightly higher than Northern Ireland in winter 2020/21. Figures are not yet available for other UK countries for winter 2021/22.

Figure 7: Increased (or Excess) Winter Mortality Index: Scotland, England, Wales and Northern Ireland, 1991/92 to 2020/21



Although equivalent data for comparisons with other European countries are not readily available, [research](#) has shown that winter mortality in Scotland has tended to be slightly higher than the overall average for countries across Europe (in terms of the seasonal increase in mortality).

For additional information on this research and an explanation on some of the causes of increased mortality in winter, see the [background note](#).

8. Links to related statistics

- [Excess Winter Mortality in England and Wales](#) is published annually by the Office for National Statistics
- [Excess Winter Mortality in Northern Ireland](#) is published annually by the Northern Ireland Statistics and Research Agency
- [Deaths involving coronavirus \(COVID-19\) in Scotland](#) are published by NRS and provide weekly, monthly and annual statistics on such deaths.
- [Vital Events Reference Tables](#) are published by NRS and contain annual statistics on deaths.

- [Births, Deaths and Other Vital Events, Quarterly Figures](#) are published by NRS and contain statistics on deaths for the most recent quarter (with a limited breakdown by cause of death).

9. Notes on statistical publications

National Statistics

The United Kingdom Statistics Authority (UKSA) has designated these statistics as National Statistics, in line with the Statistics and Registration Service Act 2007 and signifying compliance with the Code of Practice for Official Statistics (available on the [UKSA](#) website).

National Statistics status means that official statistics meet the highest standards of trustworthiness, quality and public value.

All official statistics should comply with all aspects of the Code of Practice for Official Statistics. They are awarded National Statistics status following an assessment by the Authority's regulatory arm. The Authority considers whether the statistics meet the highest standards of Code compliance, including the value they add to public decisions and debate.

It is National Records of Scotland's responsibility to maintain compliance with the standards expected of National Statistics. If we become concerned about whether these statistics are still meeting the appropriate standards, we will discuss any concerns with the Authority promptly. National Statistics status can be removed at any point when the highest standards are not maintained, and reinstated when standards are restored.

Information on background and source data

Further details on data source(s), timeframe of data and timeliness, continuity of data, accuracy, etc can be found in the About this Publication document that is published alongside this publication on the NRS website.

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