England & Wales mortality monitor – week 1 of 2024

Note: Bank holidays mean that results for recent weeks may not be directly comparable to other weeks or years.

Summary

There have been around 173,800 excess deaths from all causes in the UK from the start of the pandemic to 5 January 2024. We calculate excess deaths by comparing deaths to those expected if mortality rates were similar to those experienced in 2019. This estimate uses data from National Records Scotland (NRS) and the Northern Ireland Statistics and Research Agency (NISRA) as well as the Office for National Statistics (ONS).

In week 1 of 2024, there were 0.4% more deaths registered in England & Wales than would have been expected if Age Standardised Mortality Rates had been the same as in the corresponding week of 2019. This figure will have been affected by bank holidays over the Christmas and New Year period.

The mortality monitor now makes allowance for revised population estimates following the 2021 census, published in November 2023. Appendix 1 has further information.

Results are based on the date of registration of deaths. Using date of occurrence would give different results, particularly since late 2022. Appendix 2 discusses this and estimates the impact.

Appendix 3 describes our intention to stop calculating excess deaths after this week.

Background

In light of the coronavirus pandemic we have been publishing frequent updates to the CMI Mortality Monitor. This update shows the position as at 5 January 2024 (week 1 of 2024), based on provisional deaths data published by the Office for National Statistics (ONS) on 17 January 2024.

In future weeks, we plan to publish:

- A summary weekly monitor. The next is planned for week 2 of 2024 on Wednesday 24 January 2024.
- More detailed information quarterly. The next is planned for week 13 of 2024 in April 2024.

All updates are publicly available from the CMI pages of the Institute and Faculty of Actuaries website, together with software that we have made available to Authorised Users to carry out ad hoc analyses.

Notes

Full details of the methods used for results based on the ONS data are included in Working Paper 111. Our analysis is based on Age Standardised Mortality Rates (ASMRs). These adjust the provisional weekly deaths data published by the ONS to control for changes in the size, age and gender distribution of the population over time. We note that mortality rates and mortality improvements vary by age, and the results shown are sensitive to the age distribution of the chosen standard population (the 2013 European Standard Population).

Our calculations rely on data for registered deaths, and we are conscious that during the pandemic deaths may have been registered earlier or later than in previous years. Consequently, comparisons of mortality between years during the pandemic and earlier years may not be on a like-for-like basis. Also, results for individual weeks may not be consistent between years due to the timing of public holidays.

We have included analysis of the difference between when deaths were registered and when they occurred in Appendix 3.

We recently revised the population data used for the mortality monitor as well as refining our approach to allocating age-grouped deaths to single years of age. Appendix 2 shows the impact of these changes.

Use of this document

The CMI disclaims any liability from use of or reliance on these calculations, including in relation to financial transactions such as longevity swaps; and the CMI does not guarantee that it will continue to publish updates. Please also see the reliances and limitations, disclaimer, and copyright notice on the final page of this document.

TAS compliance

This paper is intended to translate publicly available demographic information published by the Office for National Statistics and similar bodies into indicative mortality measures to illustrate recent mortality experience primarily in England & Wales. The paper is intended for use by actuaries and other parties interested in detailed mortality statistics and is for information only.

The paper complies with the principles in the Financial Reporting Council's Technical Actuarial Standard "TAS 100: General Actuarial Standards". Any person using this paper should exercise judgement over its suitability and relevance for their purpose.

Results – Standardised mortality rates

Chart 1 shows how SMRs in 2022 to 2024 compare to the range of SMRs in the same week in the 2011-2019 period.

Ignoring the volatility caused by bank holidays, standardised mortality in recent weeks has tended to be within the 2011-2019 range.

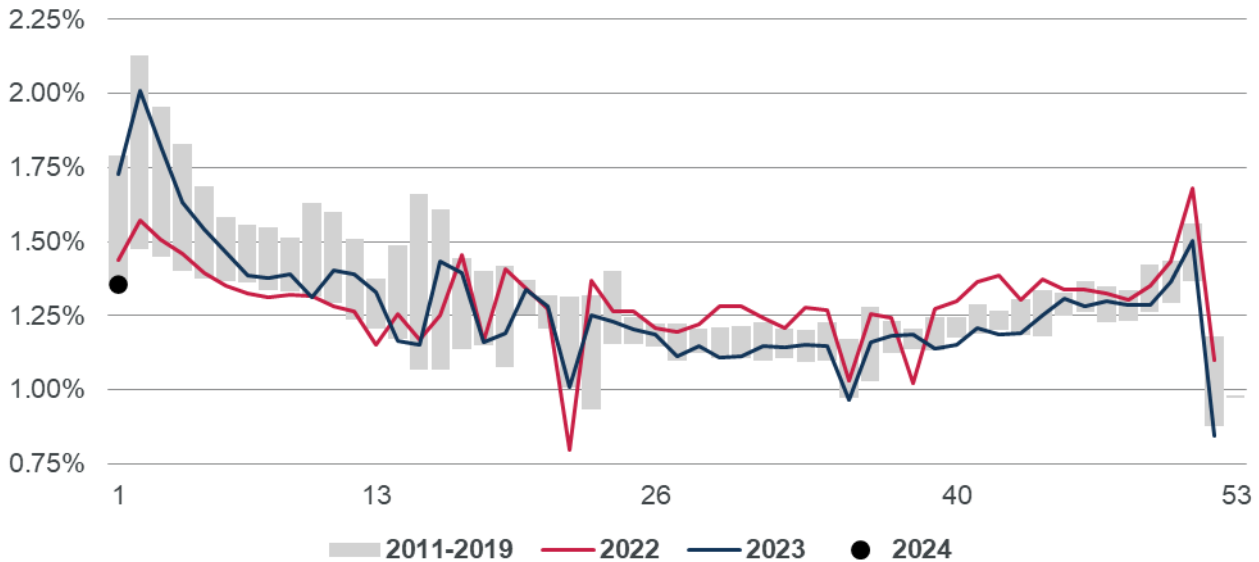**Chart 1: Weekly standardised mortality rates for 2011 to 2024**
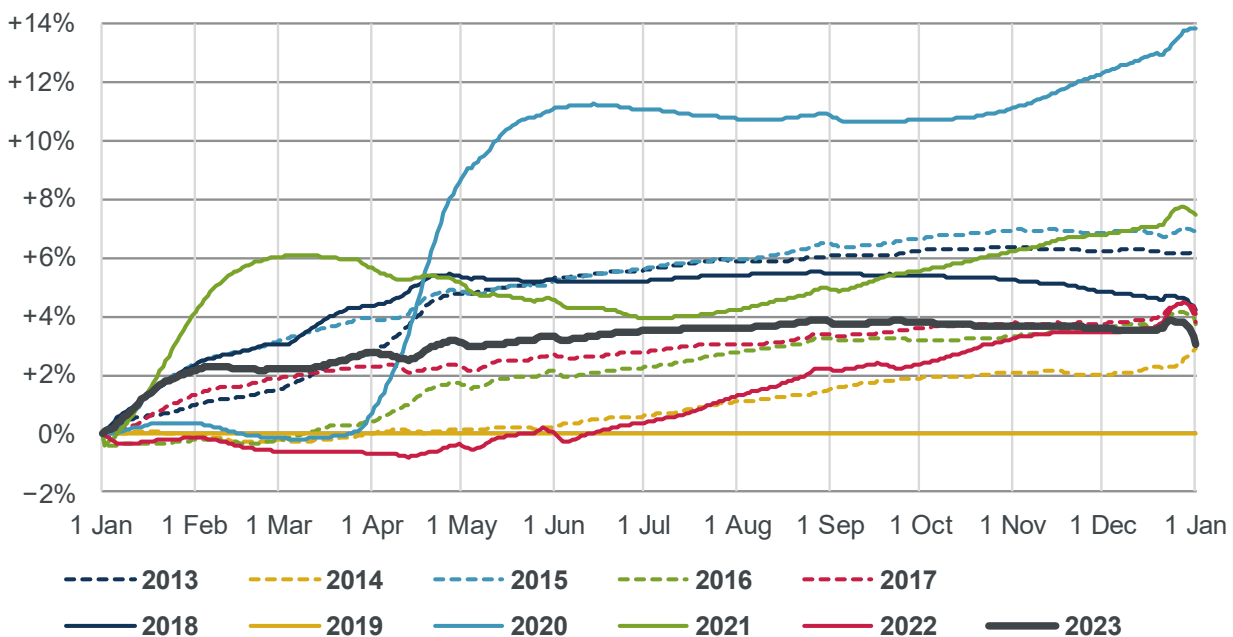

Chart 2 shows cumulative standardised mortality rates relative to 2019[1]. Cumulative mortality to the end of 2023 was 3.0% higher than in 2019.

Chart 2: Cumulative standardised mortality rate compared to 2019

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[1] Showing relative mortality rather than absolute mortality makes it easier to make comparisons between years. We use 2019 as the comparator as this is consistent with the excess deaths calculations in this report.

Chart 3 shows the cumulative annual standardised mortality improvement for 2024 and the previous ten years. The cumulative mortality improvement to the end of the first week of 2024 was +0.1%.

Please note:

- The cumulative improvement for year N is the reduction in cumulative mortality from year N–1 to year N, as a proportion of full-year mortality for year N–1.

- The cumulative mortality improvement for a year reflects mortality in that year and the prior year.

- Chart 3 shows cumulative improvements, so a higher value represents a higher improvement and lower mortality; whereas in Chart 2 a higher value represents higher mortality.

Chart 3: Cumulative annual standardised mortality improvement for 2014 to 2024
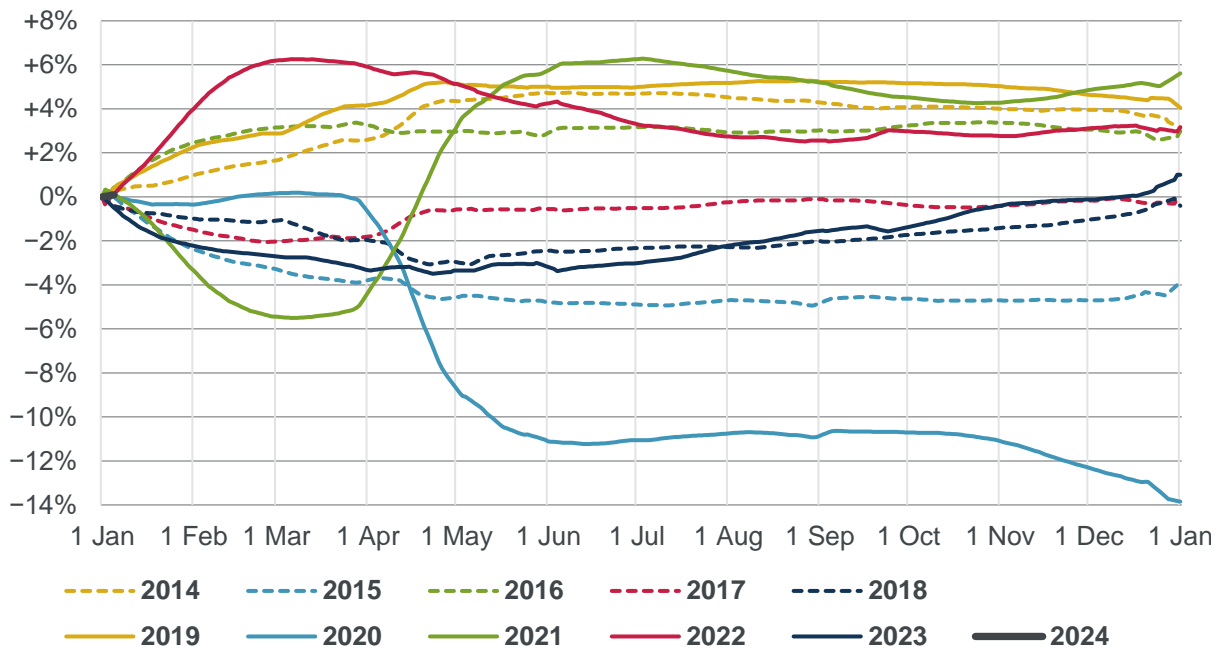
Results – Excess and COVID-19 deaths

The ONS data shows 301 deaths registered during week 1 of 2024 "where COVID-19 was mentioned on the death certificate". The overall impact of the coronavirus pandemic on total deaths has differed during the pandemic for various reasons:

- There may have been some deaths that were wholly or partially due to COVID-19 but where COVID-19 was not mentioned on the death certificate.

- Some deaths where COVID-19 was mentioned on the death certificate may not be "excess" deaths, as the deceased might have died from another cause in the same period, in the absence of coronavirus.

- There may have been "forward mortality displacement": some deaths that occurred earlier in the pandemic would otherwise have occurred in this period.

- There may have been indirect impacts on deaths due to restrictions on movement and changes in behaviour during the pandemic. For example, access to healthcare, reductions in other infectious diseases, and changes in traffic, pollution and mental health.

- The pandemic has led to increased pressures on the NHS and the provision of social care.

- In the absence of the pandemic, we would have expected mortality to tend to fall over time, but with some volatility from year to year.

To consider the possible impact of the pandemic on total deaths, we have estimated the number of "expected" deaths that we would have seen in each week of the pandemic (in 2020 to 2024) if the SMRs for each gender and age-group had been the same in that week as in the corresponding week of 2019, the last full "normal" year before the pandemic.

We can then subtract the expected deaths from actual deaths to estimate the "excess" deaths that, in the absence of other likely causes, may be attributable to the pandemic.

Excess death calculations depend on the historical period used to estimate expected deaths. We initially used 2019 as our measure of "expected" mortality because of the similarity of SMRs in the first 12 weeks of 2019 and 2020, before the pandemic had a material impact on mortality.

We propose to stop calculating excess deaths after this week, as discussed in Appendix 3.

As there was no ISO week 53 in 2019, we have instead used week 1 of 2020 to calculate expected deaths for 53 week of 2020.

We have not made any adjustment for differences in the timing of public holidays. While such differences affect individual weeks, the positive and negative impacts for different weeks should cancel out over time in cumulative results.

Table 1 shows results for week 1 of 2024 compared to week 52 of 2023:

- Actual deaths in week 1 of 2024 were 0.4% higher than expected: 4% higher than expected for males and 3% lower than expected for females.

- In week 52 of 2022 deaths were 7% lower than expected: 5% lower than expected for males and 9% lower than expected for females.

Table 1: Comparison of COVID-19 deaths and "excess" deaths

Description	Week 1 of 2024			Week 52 of 2023
	Male	Female	**Total**	Total
"Expected" registered deaths	5,740	6,158	**11,898**	8,043
Actual registered deaths, from all causes	5,951	5,995	**11,946**	7,447
"Excess" registered deaths (actual minus expected)	211	-163	**48**	-596
Registered deaths where COVID-19 was mentioned on the death certificate	*	*	**301**	181
Excess as a proportion of expected	+4%	-3%	**+0.4%**	-7%

* This data is no longer being published by the ONS

Chart 4 compares two measures of COVID-19 mortality during the pandemic: our calculation of "excess" registered deaths from all causes, and ONS data for registered deaths where COVID-19 was mentioned on the death certificate.

The relationship between the measures has varied during the pandemic.

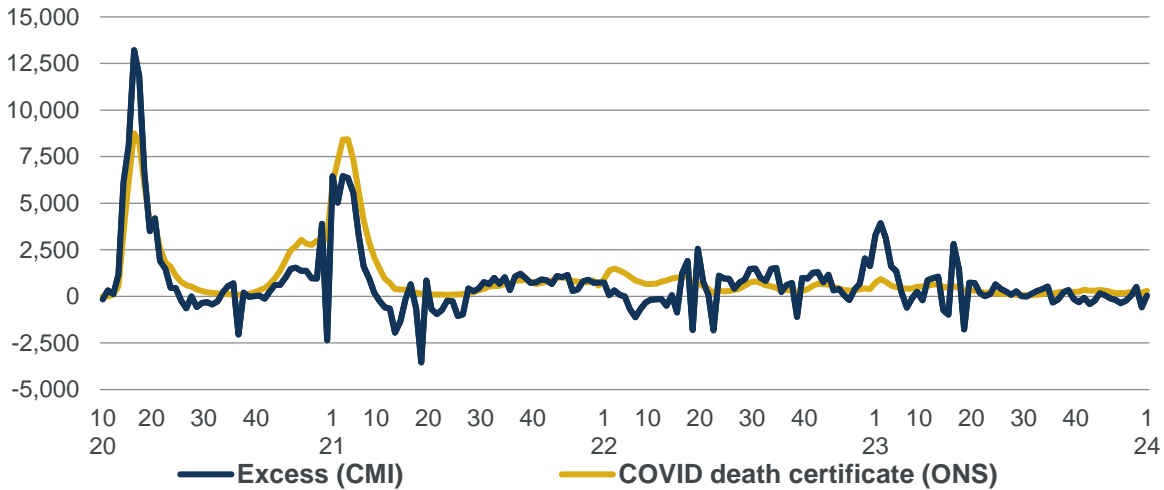**Chart 4: Comparison of weekly measures of COVID-19 deaths (see text for details)**


Chart 5 shows the split of excess deaths into deaths where COVID-19 was mentioned on the death certificate and "Non-COVID excess" (i.e. excess deaths minus deaths with COVID-19 mentioned on the death certificate). For much of the period, the Non-COVID excess has tended to be negative; i.e. deaths from causes other than COVID-19 were lower than in the corresponding part of 2019.

Chart 5: Split of Excess deaths into COVID and Non-COVID Excess
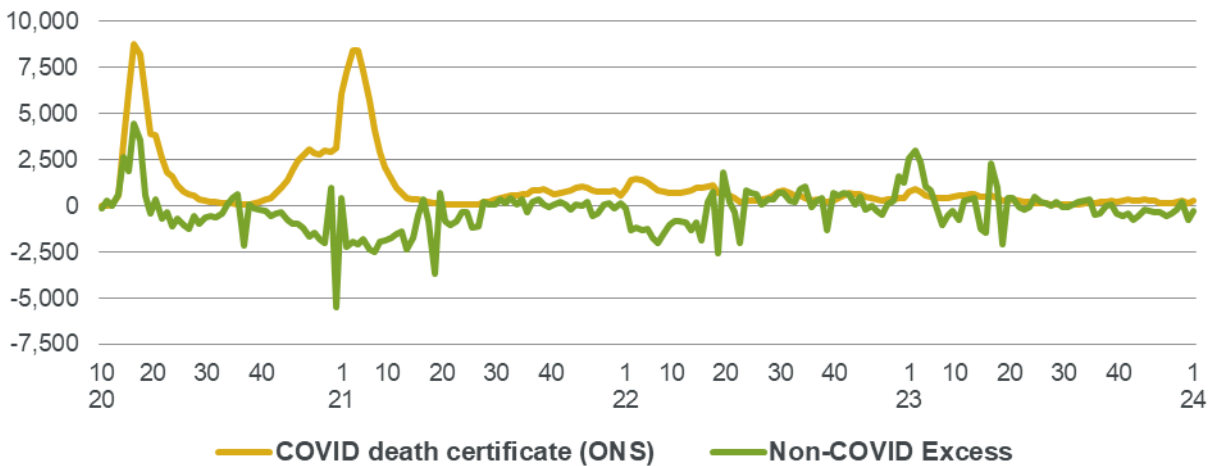
Charts 4B and 5B are "zoomed in" versions of Charts 4 and 5, showing greater detail of the past 26 weeks, with a narrower y-axis range.

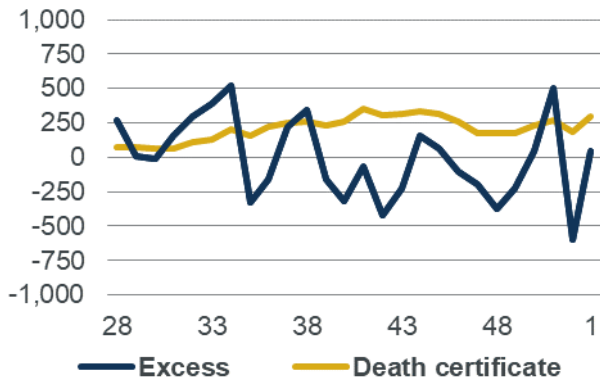**Chart 4B: Recent detail of Chart 4**
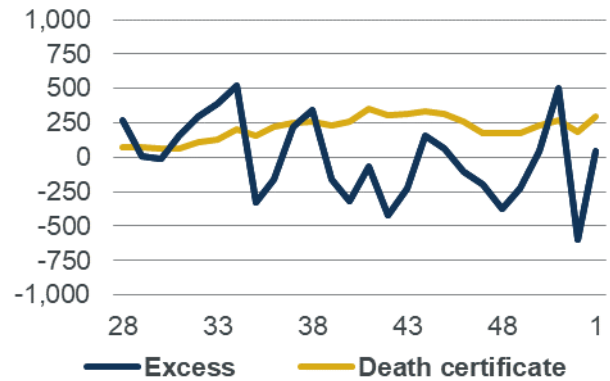

Chart 5B: Recent detail of Chart 5

Chart 6 is similar to Chart 4 but shows cumulative numbers of deaths since week 10 of 2020. In the earliest part of the period shown, the cumulative number of excess deaths from all causes was higher than the cumulative number of deaths where COVID-19 was mentioned on the death certificate. However, cumulative excess deaths are now lower than mentions of COVID-19 on death certificates – a consequence of weekly excess deaths often being lower than COVID-19 deaths, and sometimes negative.

Chart 6: Comparison of cumulative deaths measures (see text for details)
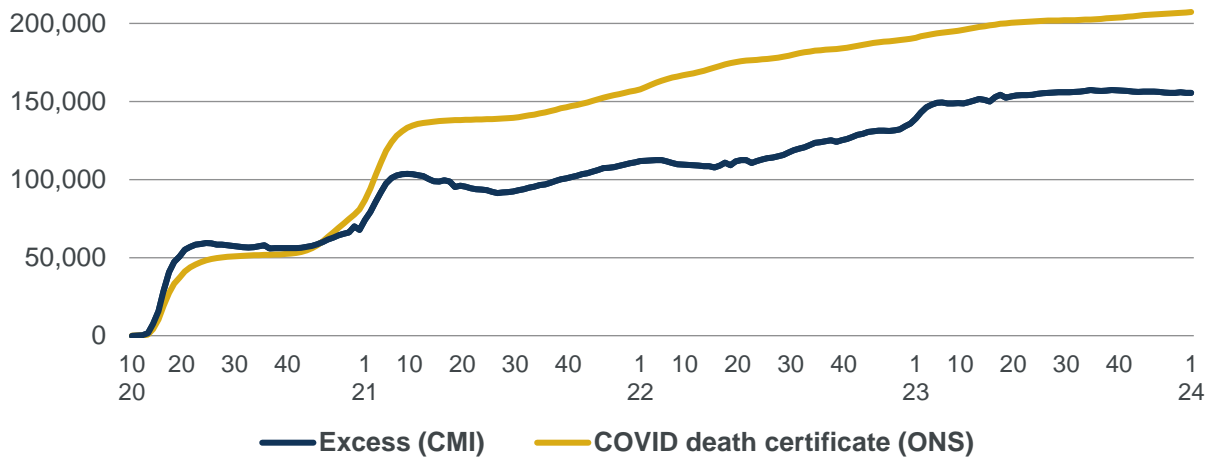
Charts 7 and 8 show excess deaths as a proportion of expected deaths by age band for each week during the pandemic. Charts 7B and 8B show the same information, for the most recent 26 weeks, in more detail. Excess deaths as a proportion of expected appear to have been higher for males for the younger ages shown in recent weeks. We do not show results for ages below 45 as the relatively low numbers of deaths at those ages means that estimates of expected deaths would be unreliable.

Chart 7: Excess as a proportion of expected in each week – males (see text for details)
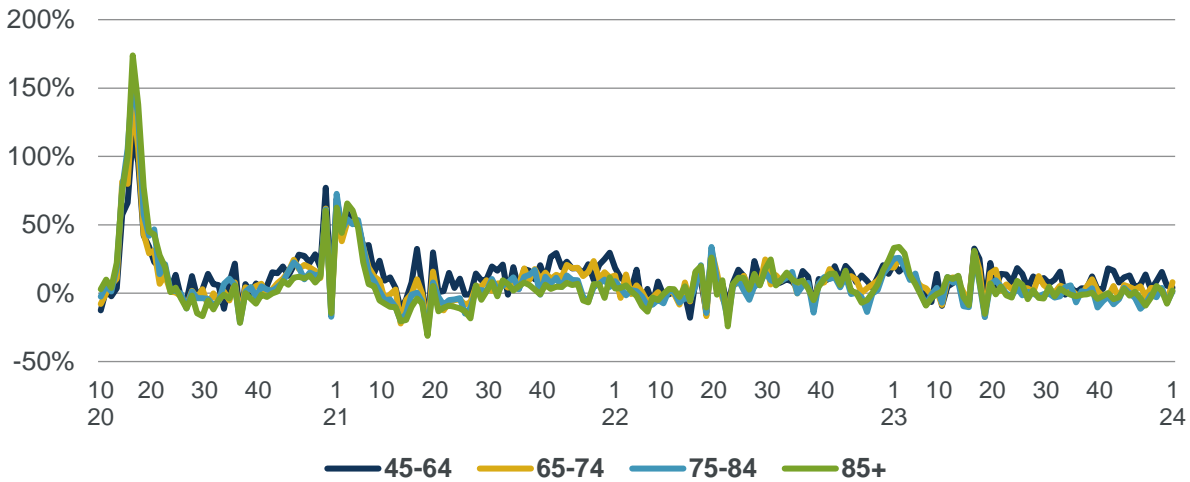

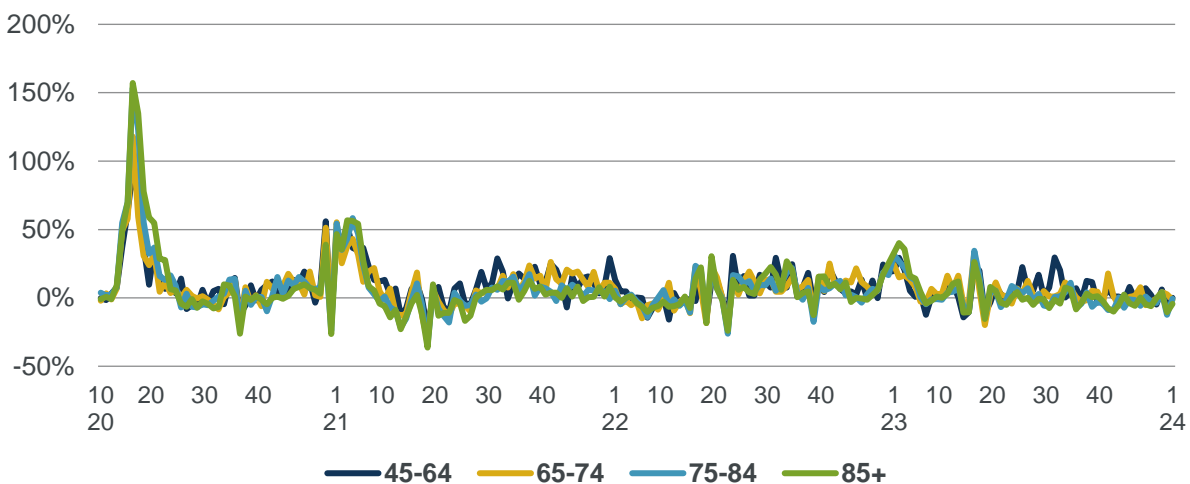**Chart 8: Excess as a proportion of expected in each week – females (see text for details)**

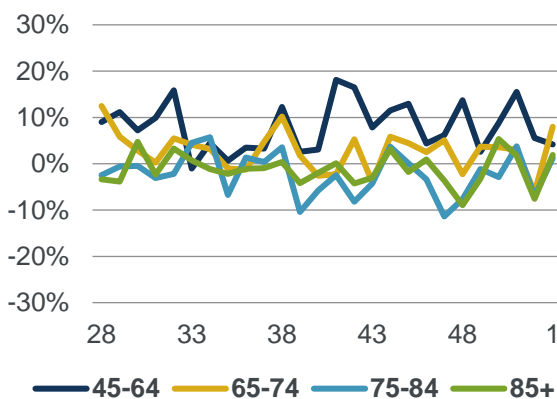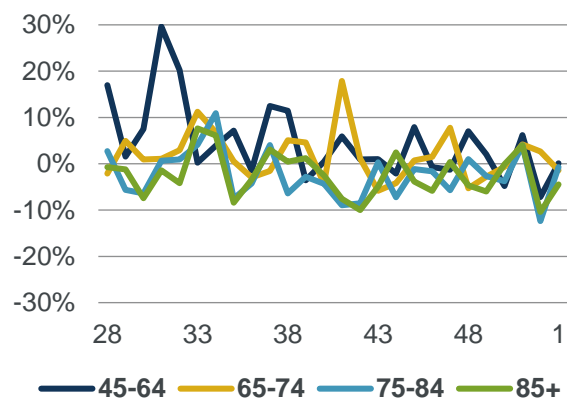**Chart 7B: Recent detail of Chart 7 – males**

Chart 8B: Recent detail of Chart 8 – females

Results – Excess deaths for the United Kingdom

The previous sections of this report are based on registered deaths data for England & Wales to 5 January 2024, published by the ONS. In this section we extend our analysis to the United Kingdom as a whole.

We estimate that the numbers of excess deaths from the start of the pandemic to 5 January 2024 are:

- 155,500 for England & Wales[2]; and
- 173,800 for the United Kingdom.

Chart 9 shows the split of excess deaths by quarter. Q1 of 2020 is not a full quarter and Q4 of 2020 has an extra week. Table 2 shows the split by calendar year.

Chart 9: Quarterly excess deaths (from week 10 of 2020)
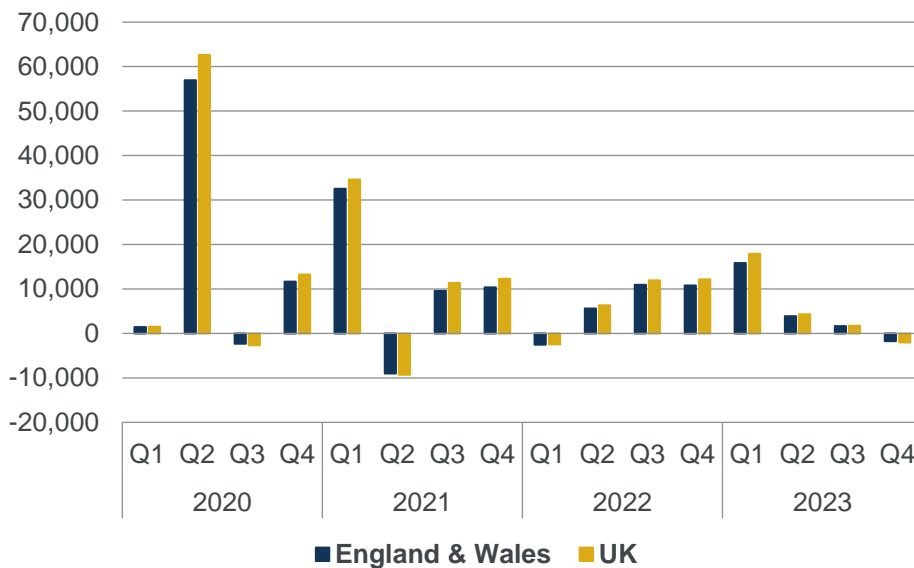
Table 2: Annual excess deaths

Year (weeks)	England & Wales	United Kingdom
2020 (10-53)	+67,700	+74,700
2021 (1-52)	+43,400	+49,000
2022 (1-52)	+24,700	+28,000
2023 (1-52)	+19,600	+22,000

As in earlier sections, excess deaths compare registered deaths to those that we would have seen if standardised mortality rates were the same as in the corresponding period in 2019. Our calculations use data for all-cause mortality from National Records Scotland (NRS) and the Northern Ireland Statistics and Research Agency (NISRA) in addition to the ONS data.

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[2] The cumulative figures since the start of the pandemic are for deaths registered from week 10 of 2020 onwards; i.e. from 29 February 2020.

Data sources

The provisional weekly deaths are available from:

- ONS (England & Wales)
  https://www.ons.gov.uk/peoplepopulationandcommunity/birthsdeathsandmarriages/deaths/datasets/weeklyprovisionalfiguresondeathsregisteredinenglandandwales

- NRS (Scotland)
  https://www.nrscotland.gov.uk/covid19stats

- NISRA (Northern Ireland)
  https://www.nisra.gov.uk/publications/weekly-deaths

Appendix 1 – Impact of updated population estimates on results

Versions of the mortality monitor from week 26 of 2023 to week 51 of 2023 made approximate allowance for the impact of results of the 2021 census in England & Wales on views of mortality rates and improvements. Those versions used the same dataset as the latest version of the CMI Mortality Projections Model, CMI_2022. The dataset was based on an estimate of the mid-2021 population published by the ONS and the CMI's estimate of implied revisions to the populations from mid-2012 to mid-2020.

We updated the dataset used for the mortality monitor for week 52 of 2023 to reflect:

- the ONS's own estimates of the mid-2012 to mid-2020 populations;
- the ONS's revised estimates of the mid-2021 population;
- the ONS's estimate of the mid-2022 population;
- our own revised estimates of the mid-2023 and mid-2024 populations;
- changes to the way we allocate age-grouped deaths to single years of age; and
- using more granular deaths data for 2020 onwards.

This appendix provides an indication of the impact of updating the dataset used for the monitor by comparing:

- the results for end of 2023 in the body of this mortality monitor, using the "new" population estimates; and
- illustrative results based on the "previous" population estimates used for monitors for weeks 26 to 51 of 2023.

Results

Chart A1A is a version of Chart 2, showing cumulative mortality rates relative to 2019. The end-year figures for 2021 to 2023 are higher relative to 2019 in Chart A1A (using the previous dataset) than in Chart 2 (using the new dataset).

Chart A1A: (Like Chart 2) Cumulative standardised mortality rate (cSMR) compared to 2019 average – using the previous dataset.
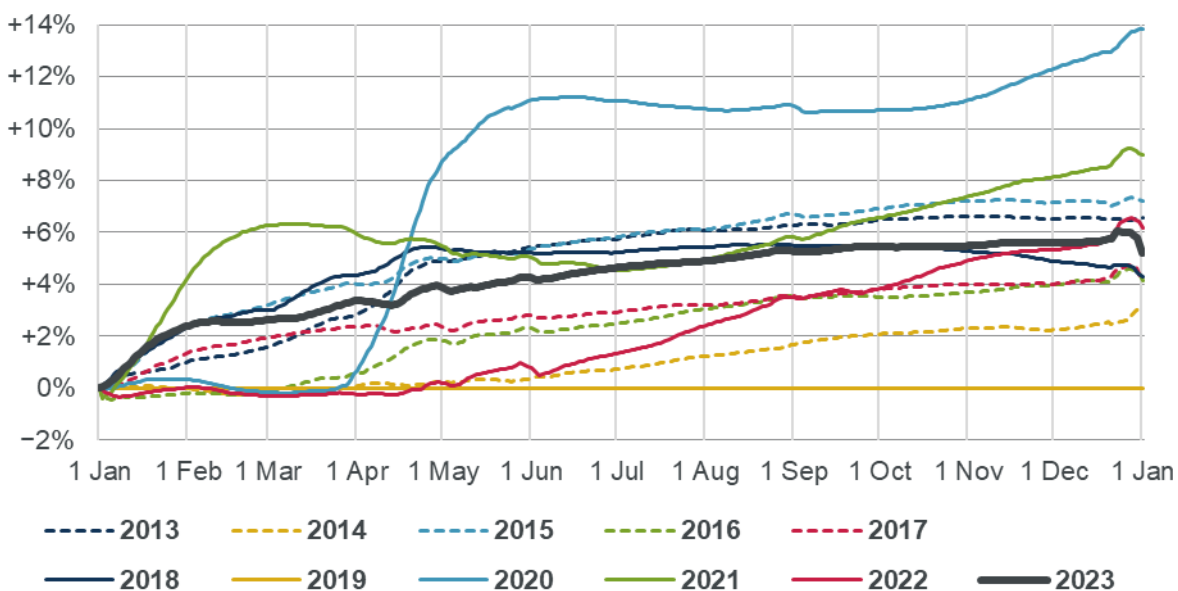

Chart A2B compares full year cumulative standardised mortality rates compared to 2019 from the two datasets directly to make the differences clearer. It shows that the difference in SMRs relative to 2019 between the two datasets is greatest in 2021, 2022 and 2023.

Chart A2B: Annual SMRs for 2011-2023, relative to 2019 – comparing new and previous datasets.
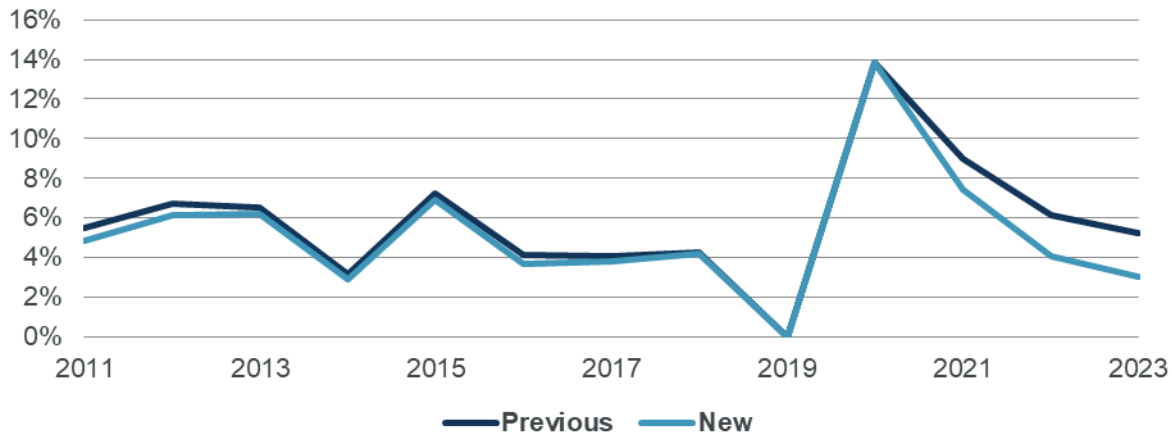

Chart A2C compares full year cumulative standardised mortality improvements from the two datasets. It shows that the improvements are generally broadly similar, with the largest difference in improvements in 2021.

Chart A2C: Annual improvements for 2011-2023 – comparing new and previous datasets.
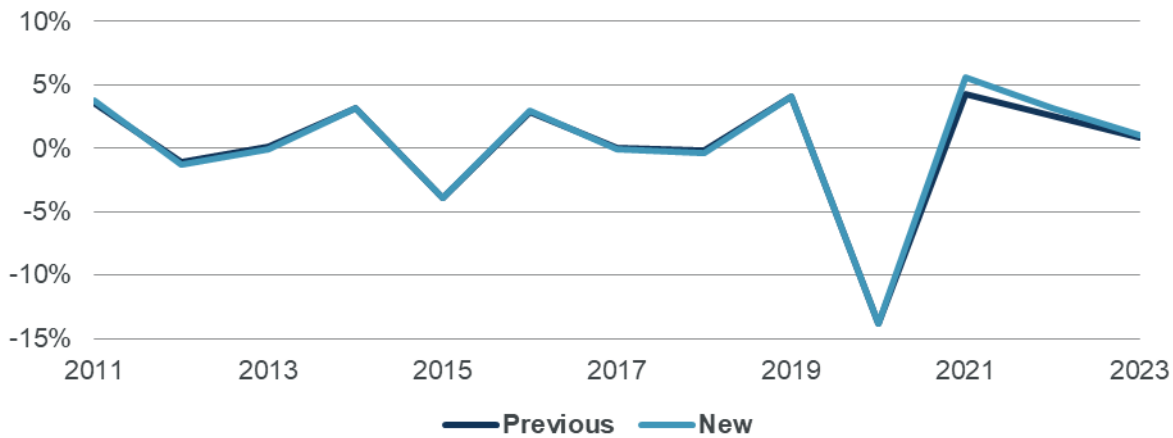

Table A1.1 shows the percentage change in annual ASMRs due to each of the following:
- changes to the population dataset;
- changes to the method used to assign deaths from age bands to single year of age (SYOA); and
- using more granular age bands from 2020 onwards.

For each year, the ASMR is only affected by the change in population data for that year.

Table A1.1: Components of percentage changes in annual ASMRs due to revised population data and methods

Year	Population data	SYOA method	Granular data	Total
2011	+0.0%	+0.2%	-	**+0.2%**
2012	+0.0%	+0.3%	-	**+0.3%**
2013	+0.0%	+0.5%	-	**+0.5%**
2014	+0.1%	+0.5%	-	**+0.6%**
2015	+0.1%	+0.4%	-	**+0.5%**
2016	+0.2%	+0.2%	-	**+0.4%**
2017	+0.3%	+0.3%	-	**+0.5%**
2018	+0.3%	+0.4%	-	**+0.8%**
2019	+0.3%	+0.5%	+0.0%	**+0.8%**
2020	+0.4%	+0.5%	-0.1%	**+0.8%**
2021	-0.7%	+0.1%	+0.0%	**-0.6%**
2022	-1.4%	+0.2%	-0.0%	**-1.2%**
2023	-1.5%	+0.3%	-0.1%	**-1.3%**

Table A1.2 shows the impact of changes in data and methods on ASMRs relative to 2019. The "population data" impact is a combination of the change in 2019 and the change in the specific year.

Table A1.2: Components of changes in annual ASMRs relative to 2019 due to revised population data and methods

Year	Population data	SYOA method	Granular data	Total
2011	-0.4%	-0.3%	-	**-0.7%**
2012	-0.4%	-0.2%	-	**-0.5%**
2013	-0.3%	+0.0%	-	**-0.3%**
2014	-0.3%	+0.0%	-	**-0.3%**
2015	-0.2%	-0.1%	-	**-0.3%**
2016	-0.1%	-0.3%	-	**-0.4%**
2017	-0.1%	-0.2%	-	**-0.3%**
2018	-0.0%	-0.0%	-	**-0.1%**
2019	-	-	-	**-**
2020	+0.1%	+0.0%	-0.1%	**+0.0%**
2021	-1.2%	-0.4%	+0.0%	**-1.5%**
2022	-1.8%	-0.3%	-0.0%	**-2.1%**
2023	-2.0%	-0.1%	-0.1%	**-2.2%**

Table A1.3 shows the impact of changes in data and methods on annual mortality improvements. The "population data" impact is a combination of the change in the specific year and the previous year.

Table A1.3: Components of changes in annual mortality improvements due to revised population data and methods

Year	Population data	SYOA method	Granular data	Total
2011	+0.0%	+0.2%	-	**+0.2%**
2012	+0.0%	+0.1%	-	**+0.1%**
2013	+0.0%	+0.2%	-	**+0.2%**
2014	+0.0%	+0.0%	-	**+0.1%**
2015	+0.1%	-0.1%	-	**-0.1%**
2016	+0.1%	-0.2%	-	**-0.1%**
2017	+0.0%	+0.1%	-	**+0.1%**
2018	+0.1%	+0.2%	-	**+0.2%**
2019	+0.0%	+0.0%	-	**+0.1%**
2020	+0.1%	+0.0%	-0.1%	**+0.0%**
2021	-1.1%	-0.3%	+0.1%	**-1.3%**
2022	-0.6%	+0.1%	-0.0%	**-0.6%**
2023	-0.2%	+0.1%	-0.1%	**-0.1%**

Table A1.4 shows the impact on excess mortality of changes in population and method. Figures are rounded to the nearest 100, and totals may not agree due to rounding.

Table A1.4: Components of changes in excess mortality due to revised population data and methods

Year	Population data	SYOA method	Granular data	Total
2020	-700	0	-300	**-1,000**
2021	-5,900	-1,700	100	**-7,500**
2022	-10,000	-1,500	0	**-11,400**
2023	-11,400	-1,100	-300	**-12,800**
Total	**-28,000**	**-4,300**	**-400**	**-32,700**

Table A1.5 provides further detail of how changes to data in a specific year affects excess mortality in a year.

- Excess deaths for a year are the sum of excess deaths for the weeks in that year.

- Excess deaths for a week are based on the ASMRs in that week. The ASMRs for a given week rely on a population estimate for that week, which generally requires interpolation between mid-populations for adjacent years. Consequently, the population data for one year (e.g. 2022) has some impact on neighbouring years (e.g. the second half of 2021 and the first half of 2023) as well as the year itself.

- Excess deaths are measured relative to 2019, so ASMRs for 2019 affect excess deaths in all years. This means that excess deaths in all years are affected by the population data for 2018 and 2020 as well as 2019, because of the interpolation of mid-year populations.

- Figures are rounded to the nearest 100, and totals may not agree due to rounding.

Table A1.5: Components of changes in excess mortality due to revised population data (detail)

Year	2018 data	2019 data	2020 data	2021 data	2022 data	2023 data	2024 data	Total
2020	-100	-1,200	1,400	-800	-	-	-	**-700**
2021	-100	-1,500	0	-2,900	-1,300	-	-	**-5,900**
2022	-100	-1,600	-200	-1,000	-5,600	-1,600	-	**-10,000**
2023	-100	-1,600	-200	-	-1,700	-6,000	-1,900	**-11,400**
Total	**-500**	**-5,900**	**1,100**	**-4,700**	**-8,600**	**-7,600**	**-1,900**	**-28,000**

Appendix 2 – Estimated results on an occurrences basis

This appendix considers how the results of the monitor for England & Wales would differ if they were based on death occurrences rather than death registrations. It largely reproduces the appendix from the monitor for week 39 of 2023. We have not updated the analysis as the ONS has not published updated monthly occurrences data since July 2023, and the analysis has not been updated to reflect the revised population estimates published by the ONS in November 2023.

Occurrences, registrations, and delays

Deaths data for a particular time period can be based on "occurrences" (when the deaths occurred) or based on "registrations" (when the death was registered).

There is typically a "registration delay" between the date of occurrence and date of registration. The registration delay is often short, as UK deaths should be registered within five days unless referred to a coroner, but delays of several years are possible in some cases.

Why we use registrations

The number of deaths in a period on an occurrences basis is uncertain for some time after that period due to registration delays. While it is possible to estimate the number of occurrences sooner, based on typical registration delays, these estimates are themselves uncertain.

Registrations are a timely and reasonable proxy for occurrences, as long as registration delays are stable, or reasonably stable, over time.

The mortality data published weekly by the ONS provides much more detail on a registrations basis than on an occurrences basis. The registrations data provides splits by gender and five-year age band, while the occurrences data only provides a total figure.

Registration delays

Chart A2A shows registration delays in the month following occurrence, based on monthly data published by the ONS[3]. For deaths occurring in each month, we show the number of deaths registered in the following month as a percentage of the number registered within the month of occurrence. For example, data to the end of December 2022 shows 48,164 deaths occurring in December 2022, while data to the end of January 2023 shows 61,286 deaths occurring in December 2022, which is 27% higher. A higher percentage indicates a longer delay in registering deaths.

Chart A2A: Registration delays in the month following occurrence – see text for details

The chart shows a fairly steady pattern for the first half of the period, but with the registration delay drifting upwards. The pattern changes dramatically in the later months shown, with large registration delays in December 2022, March 2023, and April 2023.

3

https://www.ons.gov.uk/peoplepopulationandcommunity/birthsdeathsandmarriages/deaths/datasets/monthlymortalityanalysisenglandandwales

We have also looked at registration delays for later periods (e.g. between the following month and three months later, or between three months later and a year later). These delays are smaller and show a more stable pattern, without the sharp peaks of recent months.

Estimated recent occurrences and registrations

We have estimated the number of occurrences in each month based on the number of occurrences registered by 31 July 2023 with an allowance for a typical historical pattern of monthly registration delays after that point. These estimates are necessarily uncertain, particularly for more recent periods where registration delays form a larger proportion of the estimate.

Chart A2B compares monthly death registrations with our estimate of monthly occurrences. Registrations and estimated occurrences tend to show peaks and troughs at similar times, but there are some notable differences, particularly for December 2022.

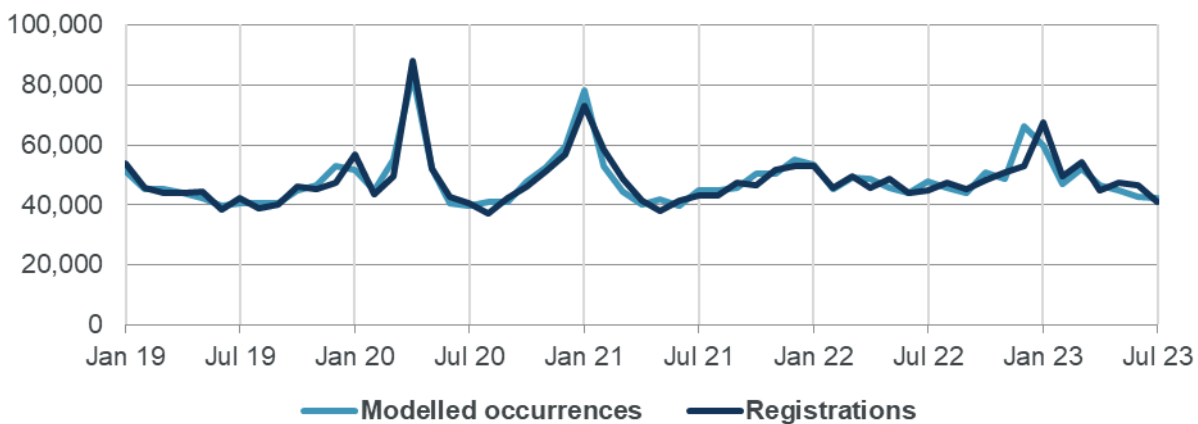**Chart A2B: Estimated occurrences and registrations**

Table A2.1 considers the difference between modelled occurrences and registrations for calendar years 2019 to 2022 and for 1 January 2023 to 31 July 2023.

Table A2.1: Comparison of modelled occurrences and registration by year

Period	Modelled occurrences minus registrations		
	Number	Relative to 2019	Relative to 2019 (%)
2019	+4,800	-	-
2020	+1,600	−3,200	−0.6%
2021	+3,000	−1,800	−0.3%
2022	+13,400	+8,700	+1.6%
2023 – to 31 July	−16,200	−12,700	-2.4%

In 2019, 2020 and 2021 the difference between modelled occurrences and registrations was less than 1%. The differences are more material for 2022 and for 2023, due to the unusual registration delays shown in Chart 6.

We have not calculated ASMRs on an occurrences basis, due to a lack of detailed occurrences data by age and gender. If registration delays had the same impact on ASMRs as on deaths, then:

- The cumulative ASMR for 2022 relative to 2019, would be 1.6% higher, so around +5.7% rather than +4.1%.

- The cumulative ASMR for 2023 relative to 2019 would depend on the difference between registrations and occurrences after 31 July 2023. If the difference was the same as in the corresponding part of 2019, then the cumulative ASMR to date would be 2.4% lower, so around +0.6% rather than +3.0%.

- We emphasise that these figures are uncertain as we do not know how registration delays may have varied by age and gender, and what registration delays have been after 31 July 2023.

Appendix 3 – Stopping calculations of excess deaths

We currently publish two types of mortality monitor:

- We have published "quarterly" mortality monitors since Q4 of 2018.

- We introduced "weekly" monitors in April 2020 containing additional information on the impact of the COVID-19 pandemic. We currently publish a detailed version of the weekly monitor (like this one) once a quarter and a summary version each week.

The weekly monitors currently include an estimate of excess deaths, comparing actual deaths to those that would have been expected if mortality rates had been the same as in the corresponding week of 2019. We propose not to include any measure of expected or excess deaths in the weekly monitors after this one.

We do not intend to change the content of quarterly monitors at this time.

Our measure of excess deaths was informative during the earlier part of the pandemic, but the comparison to mortality in 2019 has become less relevant over time as mortality is affected by a range of factors and we would typically have expected mortality rates to reduce over time in the absence of the pandemic.

We will still include standardised mortality rates in the monitor, so users will be able to see how mortality in each year compares, but we will stop making the comparison to 2019 such a prominent feature of our outputs.

We propose to have a single format for weekly monitors in 2024, as the current differences in content between the detailed and summary weekly monitors all relate to excess deaths in some way. The proposed content is shown below where the first chart number corresponds to the current summary monitor and the number in brackets corresponds to the current detailed monitor:

- Chart 1 [1] – In its current format

- Chart 2 [4B] – Amended to only show deaths with COVID on the death certificate

- Chart 4 [2] – Amended to show results relative to the ten-year average (e.g. 2014-2023 in the 2024 monitors) rather than 2019. The purpose of showing relative mortality rather than absolute mortality is to make it easier to make comparisons between years, and the choice of comparator does not affect the relative level of mortality in different years. We emphasise that we will use the ten-year average for simplicity and consistency with the quarterly monitor and it is not intended to be a measure of "expected" or "normal" mortality.

- Chart 5 [3] – In its current format

Reliances and limitations

The purpose of the weekly mortality monitor is to provide regular updates on standardised mortality in England & Wales, adjusting ONS data to allowing for changes in the size and age of the population.

The CMI aims to produce high-quality outputs and takes considerable care to ensure that the mortality monitor and the accompanying spreadsheet of results are accurate. However:

- We cannot guarantee their accuracy (see the Disclaimer).

- There is a reliance on the data published by third parties, particularly the ONS data which is described as "provisional".

- We have also applied judgement and assumptions in deciding on the calculation methods and the presentation of results.

- Anyone using the results of the mortality monitor should ensure that it is appropriate for their particular use, and note that care is needed when estimating full year experience from partial year experience. This is particularly true during the coronavirus pandemic.

- Population estimates for the latest years reflect our own estimates and are less certain than published ONS figures for earlier years.

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