Office for National Statistics

Statistical bulletin

Dementia and Alzheimer's disease deaths including comorbidities, England and Wales: 2019 registrations

Deaths registered in 2019 in England and Wales due to dementia and Alzheimer's disease, by sex, age group, ethnicity, region and place of occurrence. Includes analysis of comorbidities.

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Correction

12 January 2021 09:09

The figures for the ‘other’ category in the ethnicity breakdown have been updated. There was an error which resulted in a higher number of deaths and rates. Apologies for any inconvenience caused.

Table of contents

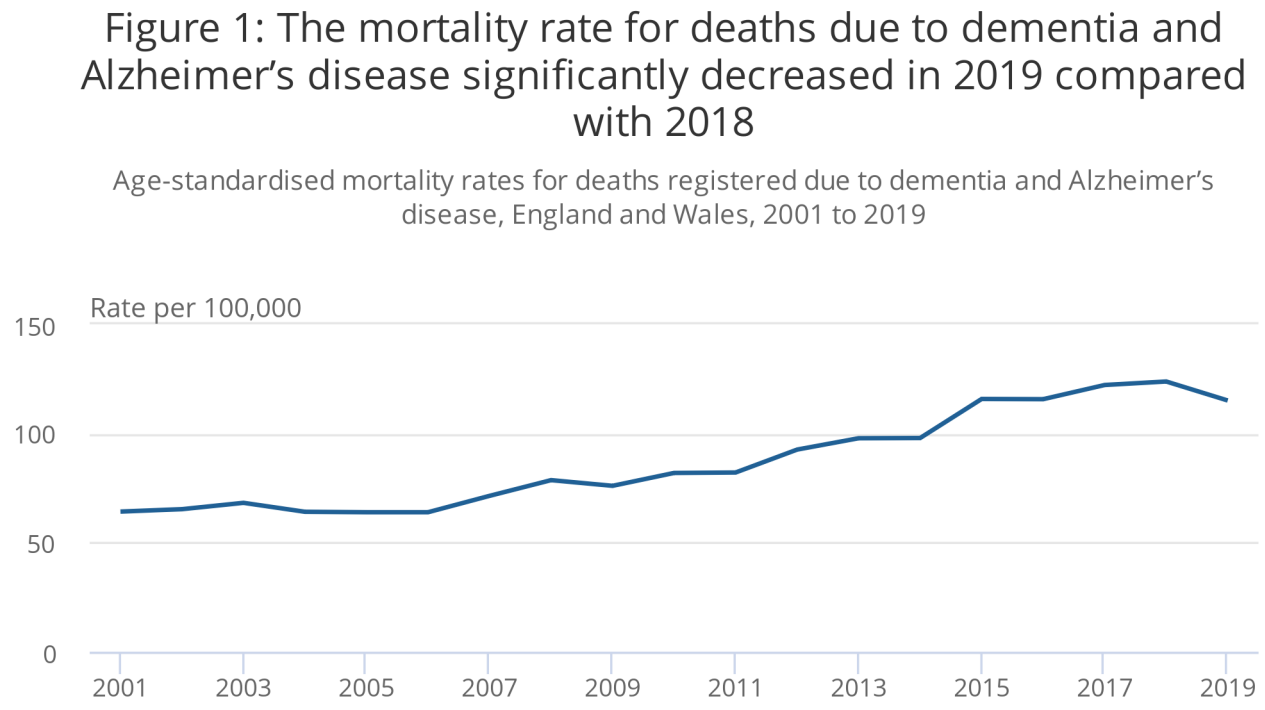
1 . Main points

- Of all deaths registered in 2019 in England and Wales, 66,424 (12.5%) were due to dementia and Alzheimer’s disease.
- There was a statistically significant decrease in the age-standardised mortality rate in 2019 in comparison to 2018 (from 123.8 per 100,000 people in 2018 to 115.1 per 100,000 people in 2019)
- The age-standardised mortality rate due to dementia and Alzheimer's disease was significantly lower in males compared with females.
- The highest number of deaths registered in 2019 due to dementia and Alzheimer's disease was among people aged between 85 and 89 years, in both England and Wales; the age-standardised mortality rate was highest among those aged 95 years and over, significantly higher than any other age group.
- The North East of England had the highest age-standardised mortality rate for deaths registered due to all causes in 2019, however the highest mortality rate due to dementia and Alzheimer's disease was in the North West.
- In England the age-standardised mortality rate due to dementia and Alzheimer’s disease in 2019 was 115.4 per 100,000 people and in Wales 109.4 deaths per 100,000 people.
- The proportion of deaths that occurred in care homes that were due to dementia and Alzheimer's disease was 65.1% (43,230 deaths).
- More than three-quarters of deaths due to dementia and Alzheimer's disease had between one and three mentions of other contributing factors on the death certificate.

2 . Deaths due to dementia and Alzheimer’s disease

Figure 1: The mortality rate for deaths due to dementia and Alzheimer’s disease significantly decreased in 2019 compared with 2018

Age-standardised mortality rates for deaths registered due to dementia and Alzheimer’s disease, England and Wales, 2001 to 2019



Source: Office for National Statistics

Notes:

1. Based on deaths registered in each calendar year.
2. Figures include deaths of non-residents.
3. Figures are based on boundaries as of August 2020.
4. Rates are for all ages and are standardised to the 2013 European Standard Population.
5. The International Classification of Diseases, tenth edition (ICD-10) definitions are as follows: dementia and Alzheimer’s disease (F01, F03 and G30).
6. To account for coding changes in 2011 and 2014, comparability ratios have been applied to death counts.

In 2019 there were 530,841 deaths registered in England and Wales. Of these deaths, there were 66,424 deaths due to dementia and Alzheimer's disease (12.5%). The age-standardised mortality rate (AMSR) for deaths due to dementia and Alzheimer's disease in England and Wales in 2019 was 115.1 per 100,000 people, which was statistically significantly lower than the ASMR in 2018 - 123.8 per 100,000 people (69,478 deaths).

2019 had the lowest number of deaths and ASMR due to dementia and Alzheimer's disease since 2016. This can also be seen in England and Wales separately, as both countries reported a significantly lower ASMR for deaths due to dementia and Alzheimer's disease in 2019 (115.4 and 109.4 deaths per 100,000 people respectively) in comparison with 2018 (123.6 and 125.7 deaths per 100,000 people respectively).

Age-standardised mortality rates (ASMR) are used to measure mortality as they account for the population size and age structure, allowing for easier comparison over time than number of deaths.

Since 2001, the overall mortality rate for deaths registered due to dementia and Alzheimer's disease has been generally increasing year-on-year (Figure 1). The highest mortality rate in the time series was in 2018 (123.8 deaths per 100,000 people).

There are several important reasons why the number of deaths from dementia and Alzheimer's disease has increased in recent years, including:

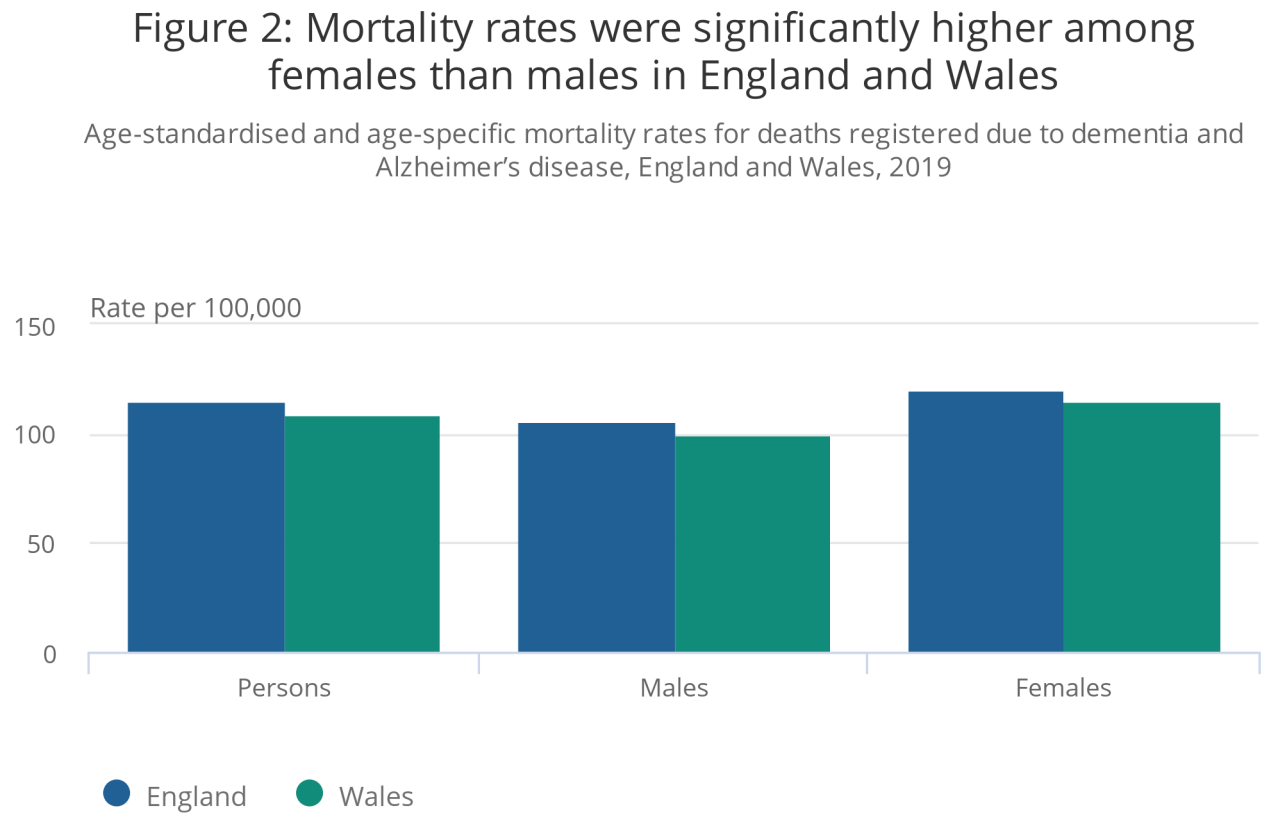
- dementia and Alzheimer's disease are more likely to occur at older ages; more people living longer and surviving other illnesses will result in more deaths related to ageing
- a better understanding of dementia, and improved diagnosis, is also likely to have caused increased reporting of dementia on death certificates; this may be a consequence of initiatives put in place in 2013 to 2014, such as the Prime Minister's challenge on dementia and the government's mandate to NHS England (PDF, 507KB), which included an ambition that two-thirds of the estimated number of people with dementia in England should have a diagnosis
- updates to the coding framework used to code cause of death took place in 2011 and 2014; these updates increased the number of deaths with an underlying cause of dementia (more information on these updates is available in Measuring the data)

The analysis of dementia and Alzheimer’s disease in this bulletin focuses primarily on deaths where this condition was the underlying cause of death (deaths “due to”), rather than deaths where they were either the underlying cause or mentioned as a contributing factor (deaths “involving”).

3 . Deaths registered by sex

Figure 2: Mortality rates were significantly higher among females than males in England and Wales

Age-standardised and age-specific mortality rates for deaths registered due to dementia and Alzheimer's disease, England and Wales, 2019



Source: Office for National Statistics

Notes:

1. Figures exclude deaths of non-residents.
2. Based on the date a death was registered rather than occurred.
3. Figures are based on boundaries as of August 2020.
4. The International Classification of Diseases, tenth edition (ICD-10) definitions are as follows: dementia and Alzheimer's disease (F01, F03, G30).
5. Age-standardised mortality rates (ASMRs) per 100,000 population, standardised to the 2013 European Standard Population.

Of the 66,424 deaths registered in 2019 due to dementia and Alzheimer's disease, 23,634 were males (105.1 deaths per 100,000 males) and 42,790 were females (120.1 deaths per 100,000 females). Despite female mortality rates being significantly higher than males, the decrease in dementia and Alzheimer's disease deaths between 2018 and 2019 was driven by a decrease in the number of female deaths, as opposed to males. In England and Wales in 2019,16.1% (42,790 deaths) of all female deaths were due to dementia and Alzheimer's disease in comparison with 16.7% (45,726 deaths) in 2018.

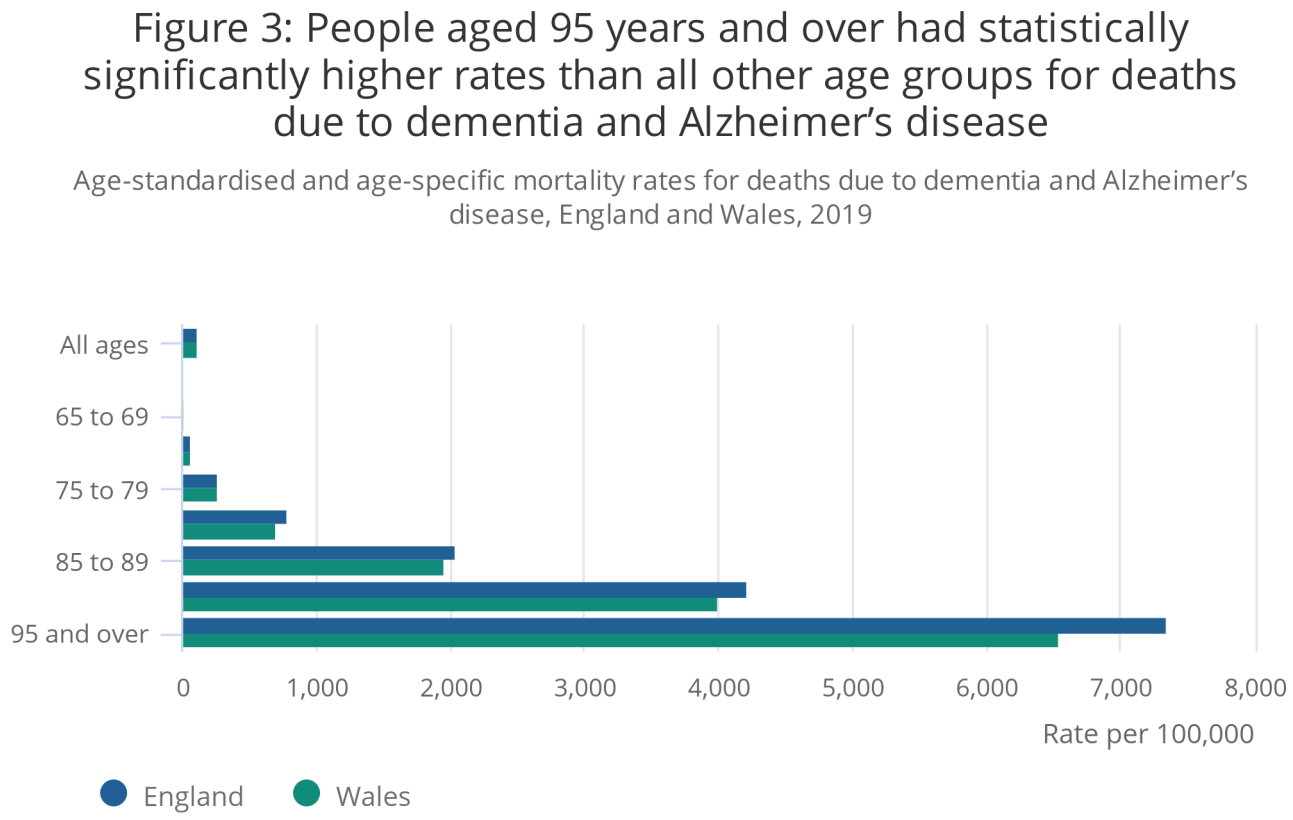
The significant difference in mortality rates between sexes can also be seen in England and Wales separately. In 2019 the age-standardised mortality rate in England was 105.5 deaths per 100,000 males and 120.4 deaths per 100,000 females. In Wales the rate was 99.6 deaths per 100,000 males and 114.9 deaths per 100,000 females.

Part of the reason rates are higher in females than males is because deaths due to dementia and Alzheimer's disease are more prevalent in the oldest age groups and there are more females in these groups (see Section 4). In the 2019 mid-year population estimates there were 933,274 females aged 85 years and over compared with 548,171 males in England and Wales.

4 . Deaths registered by age

Figure 3: People aged 95 years and over had statistically significantly higher rates than all other age groups for deaths due to dementia and Alzheimer's disease

Age-standardised and age-specific mortality rates for deaths due to dementia and Alzheimer's disease, England and Wales, 2019



Source: Office for National Statistics

Notes:

1. Figures exclude deaths of non-residents.
2. Figures are based on boundaries as of August 2020.
3. The International Classification of Diseases, tenth edition (ICD-10) definitions are as follows: dementia and Alzheimer's disease (F01, F03, G30).
4. Age-standardised mortality rates (ASMRs) per 100,000 population, standardised to the 2013 European Standard Population for all ages and under 65 years. For more information, see Section 14: Measuring the data.

The age group with the highest age-standardised mortality rate (ASMR) in England and Wales was those aged 95 years and over, with a rate of 7,306.4 per 100,000 people (9,393 deaths). The ASMR increased significantly throughout the five-year age groups for those over 65 years. The age group with the highest number of deaths was those aged 85 to 89 years with 18,981 deaths.

It is important to note that 84.6% (449,047 deaths) of all deaths registered in 2019 were from those aged 65 years and over, therefore the increase in mortality rates is to be expected in the older age groups. For deaths due to dementia and Alzheimer's disease, the ASMR for those aged 65 years and under in 2019 was 0.6 (269 deaths).

The following analysis will focus on England and Wales separately, allowing any difference in trends between the two countries to be identified.

In 2019, the ASMR for deaths due to dementia and Alzheimer's disease, for all ages, was significantly higher in England than in Wales (115.4 deaths per 100,000 people compared with 109.4 deaths per 100,000 people). However, this difference was not prevalent among all age groups.

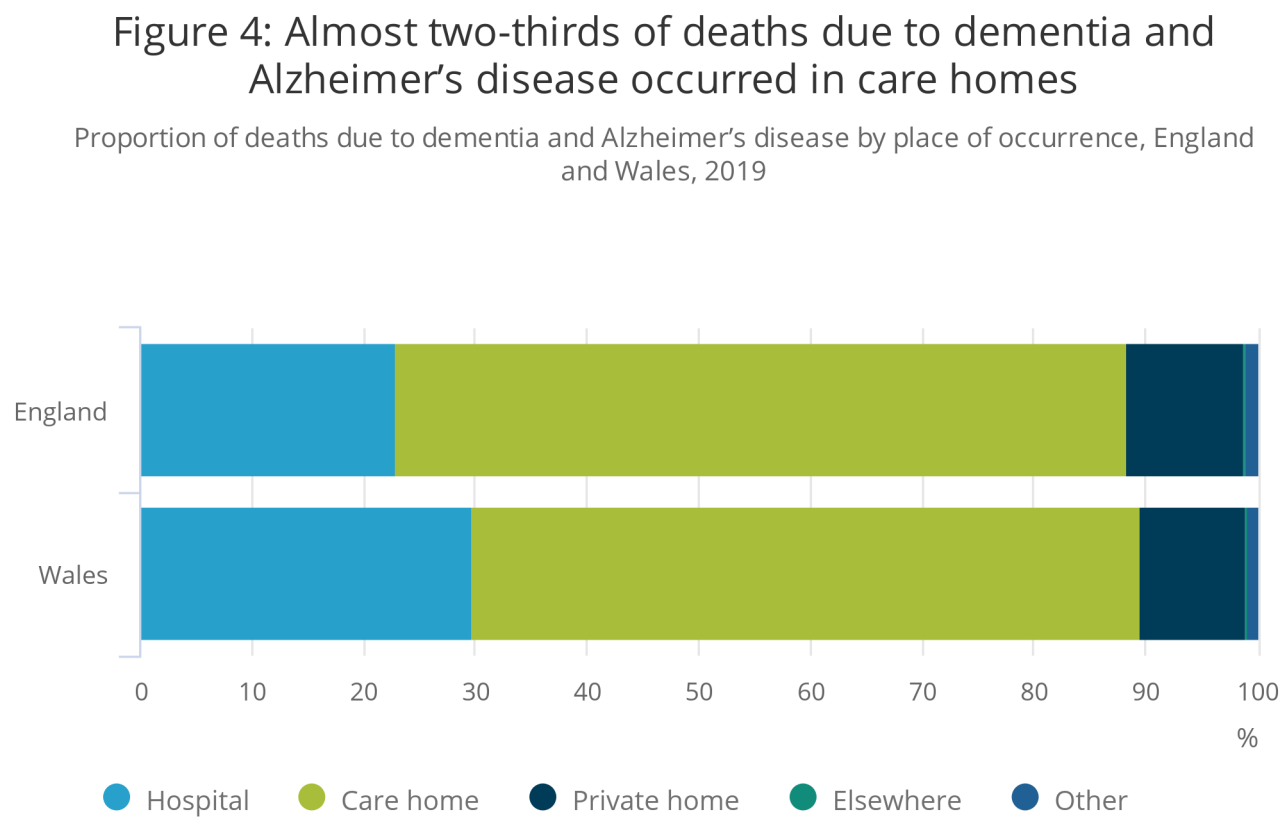
Age-specific mortality rates in Wales were higher than in England for those aged under 65 years, 65 to 69 years, 70 to 74 years and 75 to 79 years but none of these differences were significant. Age-specific mortality rates for those aged 80 to 84 years, 85 to 89 years and 90 to 94 years old were higher in England than in Wales, but again these differences were not significant. Among those aged 95 years and over the age-specific mortality rate was significantly higher in England than it was in Wales (7,349.3 compared with 6,535.8 deaths per 100,000 people).

The age specific-mortality rate in England was significantly lower in males compared with females for the 85 years and over age groups. In Wales the rate was only significantly lower for males aged 95 years and over. The differences in mortality rates between males and females in the younger ages groups were not significant in England or Wales. A full breakdown of the age-specific rates by sex is available in the accompanying dataset.

5 . Deaths by place of occurrence

Figure 4: Almost two-thirds of deaths due to dementia and Alzheimer’s disease occurred in care homes

Proportion of deaths due to dementia and Alzheimer’s disease by place of occurrence, England and Wales, 2019



Source: Office for National Statistics

Notes:

1. Figures exclude deaths of non-residents.
2. Figures are based on boundaries as of August 2020.
3. Based on date a death was registered rather than occurred.
4. "Other" includes deaths in communal establishments other than hospitals and care homes, in hospices, and that occurred "elsewhere". More information on the place of death definitions used is available in the accompanying dataset.

The greatest proportion of deaths in England due to dementia and Alzheimer's disease (41,048 deaths) occurred in care homes; this was 65.4% of all deaths due to dementia and Alzheimer's disease. This is a much greater proportion of deaths than when considering all causes of death (22.4% occur in care homes) and any other leading cause of death in 2019.

The second highest proportion of deaths due to dementia and Alzheimer's disease occurred in hospitals (22.9% of all dementia and Alzheimer's disease deaths), which was a lower proportion than all other leading causes of death.

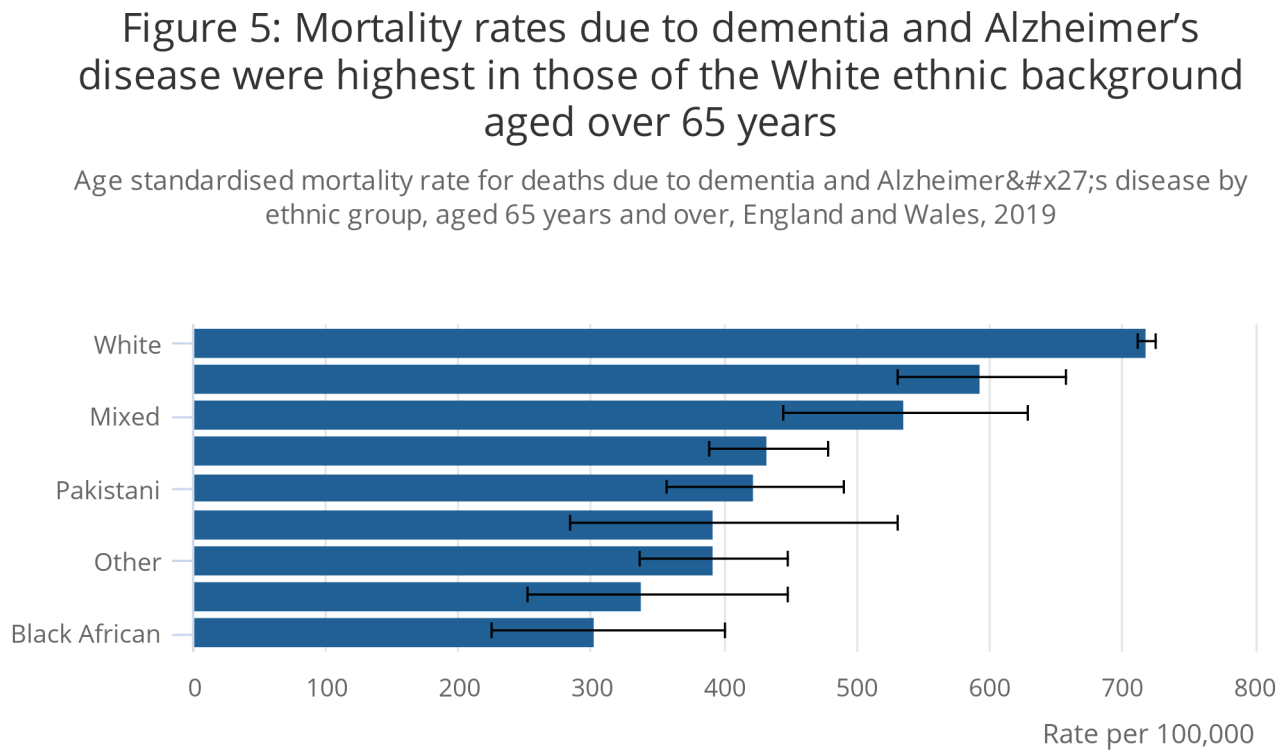
In Wales, similar findings can be seen with the highest proportion of deaths due to dementia and Alzheimer's disease occurring in care homes (2,171 deaths), accounting for 59.8% of all deaths due to dementia and Alzheimer's disease.

A higher proportion of deaths due to dementia and Alzheimer's disease in Wales occurred in hospital (29.8%) in comparison with England but was still less than all other leading causes. A similar pattern can be seen for all other causes. This is in line with the higher proportion of deaths to all causes occurring in hospital in Wales compared with England (53.3% and 45.0% respectively).

6 . Deaths by ethnicity

Figure 5: Mortality rates due to dementia and Alzheimer's disease were highest in those of the White ethnic background aged over 65 years

Age standardised mortality rate for deaths due to dementia and Alzheimer's disease by ethnic group, aged 65 years and over, England and Wales, 2019



Source: Office for National Statistics

Notes:

1. Include Office for National Statistics (ONS) figures based on 2019 death registrations that could be linked to the 2011 Census.
2. Figures include deaths of non-residents of England and Wales.
3. Based on the date a death was registered rather than occurred.
4. Figures are based on boundaries as of August 2020.
5. Age-standardised rates were calculated for all ages. All rates are per 100,000 population, standardised to the 2013 European Standard Population.

In this section mortality data have been linked to Census data. The study population included all usual residents coded to an ethnic group in 2011 and not known to have died before 1 January 2019. Those enumerated in 2011 answering the "Intention to stay" question, because they had entered the UK in the year before the 2011 Census took place, were excluded from the analyses because of their high propensity to have left the UK before the analysis period under investigation.

The highest age-standardised mortality rate (ASMR) for people aged over 65 years in England and Wales in 2019 was in the White ethnic background with 718.3 deaths per 100,000 people. The White ethnic group also had the highest number and proportion of deaths with 47,093 deaths and 97.1% of deaths for this cause. Deaths in all other ethnic groups were 0.8% or fewer as a proportion of all deaths. The ethnic group with the lowest ASMR was Black African (302.8 deaths per 100,000 people). ASMRs for all ethnic groups, by leading cause are available in the accompanying dataset.

7 . Deaths by region

Table 1: The proportion of deaths due to dementia and Alzheimer’s disease was highest in the East of England
Number of deaths registered due to dementia and Alzheimer’s disease, in Wales and in regions of England, 2019

Region name	Deaths due to all causes	Deaths due to dementia and Alzheimer's disease	Rate due to dementia and Alzheimer's disease	Proportion due to dementia and Alzheimer's disease
North East	28,036	3,235	124.4	11.5
North West	72,016	9,060	131.5	12.6
Yorkshire and the Humber	52,547	6,616	127.0	12.6
East Midlands	45,429	5,888	125.1	13.0
West Midlands	54,601	6,907	120.3	12.6
East	57,199	7,832	116.8	13.7
London	49,007	5,331	91.3	10.9
South East	81,234	10,831	108.7	13.3
South West	56,301	7,076	104.5	12.6
Wales	33,183	3,628	109.4	10.9

Source: Office for National Statistics

Notes

1. Based on area of usual residence.
2. Based on boundaries as of August 2020.,Figures exclude deaths of non-residents.,Based on date a death was registered rather than occurred.

In 2019, there were 496,370 deaths registered in England (62,776 due to dementia and Alzheimer's disease) and 33,183 registered in Wales (3,628 due to dementia and Alzheimer's disease). Out of the English regions, the South East recorded the most deaths from all causes (81,234 deaths) as well as the most deaths due to dementia and Alzheimer's disease (10,831 deaths) in 2019 (Table 1).

The areas with the lowest proportion of deaths due to dementia and Alzheimer's disease were Wales and London (10.9% of all deaths). In comparison, the East of England had the highest proportion, with 13.7% of all deaths being due to dementia and Alzheimer's disease.

When considering age-standardised mortality rate (ASMR) for deaths due to all causes, the region with the highest mortality rate was the North East (1,053.7 deaths per 100,000 people). The region with the highest mortality rate for deaths due to dementia and Alzheimer's disease was the North West (131.5 deaths per 100,000 people). The English region that reported the lowest mortality rate for deaths due to all causes as well as due to dementia and Alzheimer's disease was London (809.1 and 91.3 deaths per 100,000 people respectively).

In comparison, the age-standardised mortality rate in Wales for deaths due to dementia and Alzheimer's disease was 109.4 deaths per 100,000 people, this was lower than six out of the nine English regions.

London was the region with the lowest proportion (12.1%) of people aged 65 years and over in the population. This offers some explanation as to why the age-standardised mortality rate for deaths due to dementia and Alzheimer's disease was significantly lower in London than every other English region.

The South West had the highest proportion (22.3%) of people aged 65 years and over in the population, where the rate was 104.5 deaths per 100,000 people; this was one of the lowest rates observed in all English regions (Table 1). Similarly, in Wales, the proportion of the population aged 65 years and over was 21.0%; this was the second highest proportion in 2019 in comparison with all English regions. The age-standardised mortality rate in Wales was 109.4 deaths per 100,000 people, which was again one of the lowest rates observed.

8 . Deaths where dementia and Alzheimer’s disease was a contributory factor

The following analysis will focus on deaths where dementia and Alzheimer's disease was not the underlying cause of death but was mentioned on the death certificate as a contributory factor.

This has been carried out in line with the leading causes of death groupings, based on a list developed by the World Health Organization (WHO). This categorises causes of death using the International Classification of Diseases, 10th edition (ICD-10) into groups that are epidemiologically more meaningful than single ICD-10 codes, for the purpose of comparing the most common causes of death in the population.

As mentioned previously, the number of deaths registered due to dementia and Alzheimer's disease in England and Wales in 2019 was 66,424. However, when we consider the number of deaths involving dementia and Alzheimer's disease (mentioned anywhere on the death certificate), this number increases to 93,568 deaths registered (25,746 deaths in England and 1,384 deaths in Wales).

Of the deaths where dementia and Alzheimer's disease was mentioned on the death certificate but not as the underlying cause, the most common underlying cause for males was cerebrovascular diseases and Parkinson's disease (1,379 deaths each), and the most common underlying cause for females was cerebrovascular disease (2,445 deaths). Table 2a and 2b show what other causes were most common as underlying causes of death where dementia and Alzheimer's disease was mentioned on the death certificate.

Table 2a: Parkinson’s disease and cerebrovascular diseases were the most common causes of death in males where dementia and Alzheimer’s disease was mentioned but not the underlying cause of death on the death certificate

Number of deaths registered by cause of death for males where dementia and Alzheimer’s disease was mentioned on the death certificate as a contributory factor, England and Wales, 2019

Cause of death	Number of deaths
Cerebrovascular diseases	1,379
Parkinson’s disease	1,379
Ischaemic heart diseases	1,334
Chronic lower respiratory diseases	917
Malignant neoplasm of prostate	650
Accidental falls	418
Malignant neoplasm of trachea, bronchus and lung	410
Diabetes	365
Heart failure and complications and ill-defined heart disease	349
Cardiac arrhythmias	287

Source: Office for National Statistics

Notes

1. Based on the date a death was registered rather than occurred.
2. Figures include deaths of non-residents.
3. Leading causes groupings produced by the World Health Organization (WHO) have been used.

Table 2b: Cerebrovascular diseases was the most common cause of death in females where dementia and Alzheimer's disease was mentioned but not the underlying cause of death on the death certificate
Number of deaths registered by cause of death for females where dementia and Alzheimer's disease was mentioned on the death certificate, England and Wales, 2019

Cause of death	Number of deaths
Cerebrovascular diseases	2,445
Ischaemic heart diseases	1,528
Chronic lower respiratory diseases	1,160
Parkinson's disease	855
Heart failure and complications and ill-defined heart disease	599
Cardiac arrhythmias	583
Accidental falls	508
Malignant neoplasm of trachea, bronchus and lung	488
Malignant neoplasm of breast	458
Hypertensive diseases	433

Source: Office for National Statistics

Notes

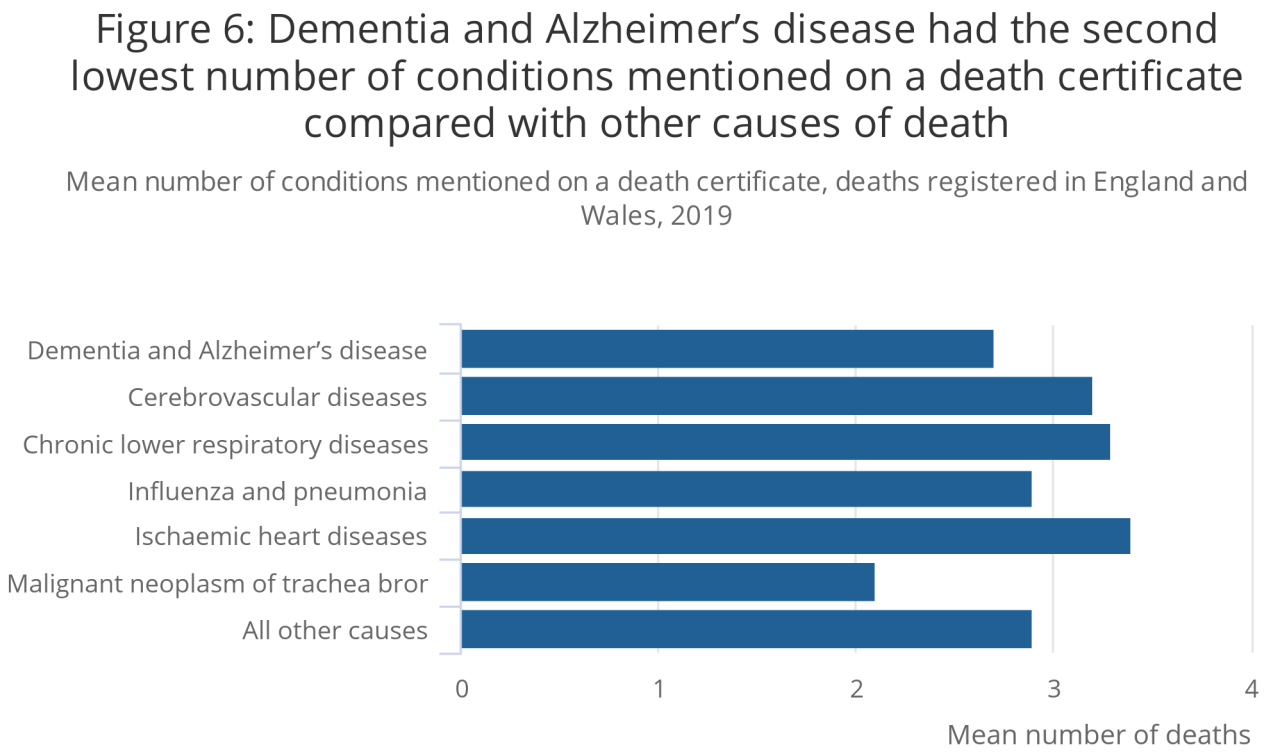
1. Based on the date a death was registered rather than occurred.

2. Figures include deaths of non-residents.,Leading causes groupings produced by the World Health Organization (WHO) have been used.

9 . Number of other conditions mentioned on a death certificate

Figure 6: Dementia and Alzheimer's disease had the second lowest number of conditions mentioned on a death certificate compared with other causes of death

Mean number of conditions mentioned on a death certificate, deaths registered in England and Wales, 2019



Source: Office for National Statistics

Notes:

1. Based on the date a death was registered rather than occurred.
2. Figures include deaths of non-residents.
3. Leading causes groupings produced by the World Health Organization (WHO) have been used.

When looking at the number of conditions mentioned on a death certificate, most deaths due to dementia and Alzheimer's disease had two mentions (28.5% of deaths). In addition, more than three-quarters of deaths due to dementia and Alzheimer's disease had between one and three mentions.

In 2019, out of the leading causes of death identified in Figure 6, only malignant neoplasm of trachea, bronchus and lung had more deaths registered with between one and three mentions (85.5% of deaths). The highest number of mentions on any death certificate where dementia and Alzheimer's disease was the underlying cause of death was nine. In comparison, the largest amount of conditions mentioned on a death certificate from all other causes was 12 conditions.

10 . Comorbidities of deaths due to dementia and Alzheimer’s disease

This section looks at comorbidities where dementia and Alzheimer's disease was the underlying cause of death. There are several ways to look at this, the following have been used here:

- pre-existing conditions; any condition mentioned after dementia and Alzheimer's disease on the death certificate
- immediate cause of death; Part I (a) of the death certificate
- contributory factors of death; Part II of the death certificate

The death certificate (Annex A (PDF, 224KB)) used in England and Wales is compatible with that recommended by the World Health Organisation (WHO). It is set out in two parts: Part I gives the condition or sequence of conditions leading directly to death, while Part II gives details of any associated conditions that contributed to the death but are not part of the causal sequence.

The leading causes of death groupings have been used in this comorbidities section.

Pre-existing conditions

We define a pre-existing condition here as any condition mentioned after dementia and Alzheimer's disease on the death certificate. This can also be described as the pre-existing condition that was most likely to cause death in the absence of dementia and Alzheimer's disease. More information on how a pre-existing condition is derived can be found in the Measuring pre-existing health conditions in death certification - deaths involving COVID-19 release.

On 18,057 death certificates where dementia and Alzheimer's disease was the underlying cause of death, there was no other condition mentioned. This was 27.2% of all deaths due to dementia and Alzheimer's disease. For the deaths where another condition was mentioned after dementia and Alzheimer's disease on the death certificate, the most common pre-existing conditions included:

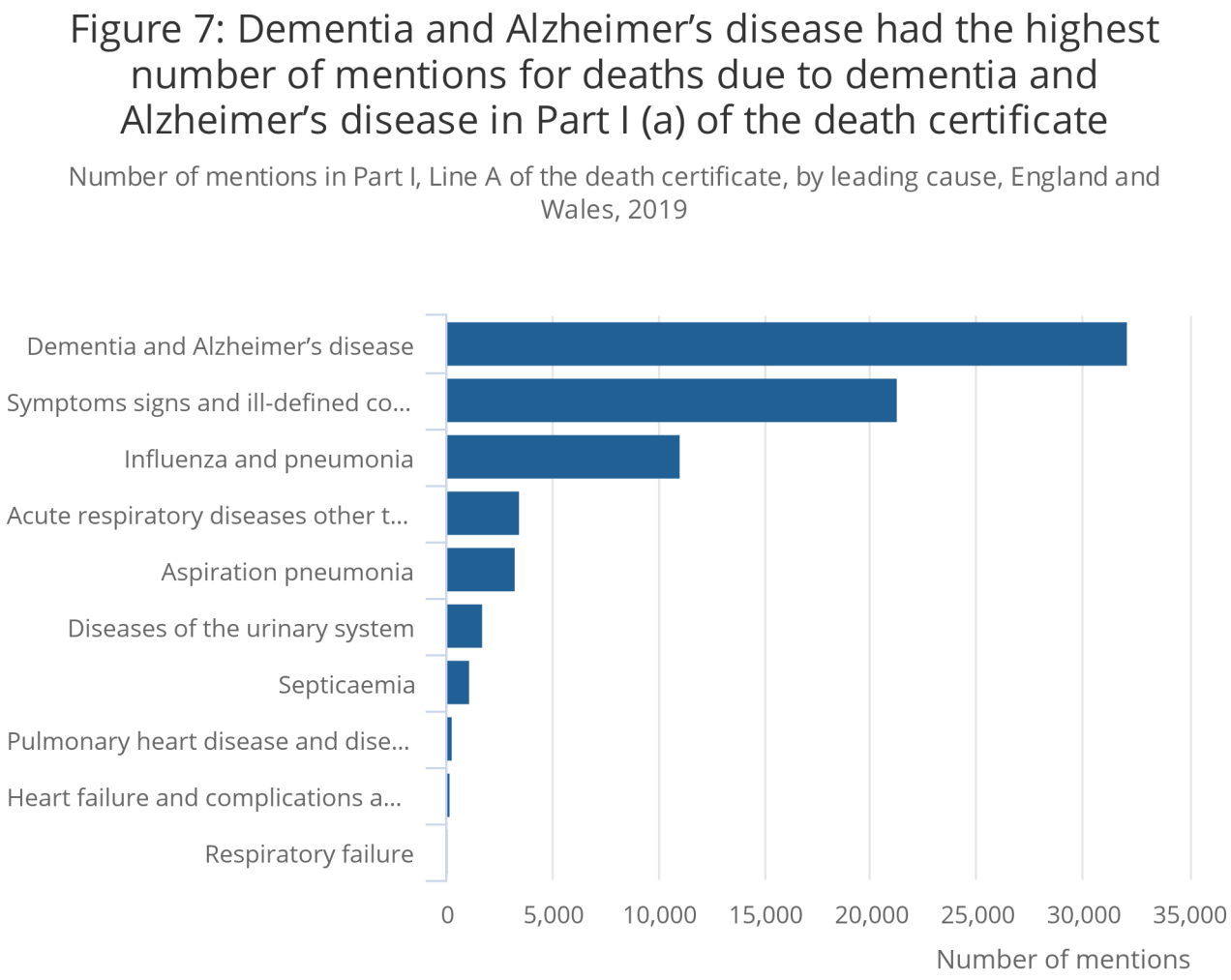
- symptoms signs and ill-defined conditions
- ischaemic heart diseases
- cerebrovascular diseases
- diseases of the urinary system
- acute respiratory diseases other than influenza and pneumonia

Of those people who had conditions mentioned on their death certificate other than dementia and Alzheimer's disease, 44.7% (7,996) of males and 51.1% (15,599) of females had just one other condition.

Immediate cause of death

Figure 7: Dementia and Alzheimer's disease had the highest number of mentions for deaths due to dementia and Alzheimer's disease in Part I (a) of the death certificate

Number of mentions in Part I, Line A of the death certificate, by leading cause, England and Wales, 2019



Source: Office for National Statistics

Notes:

1. Based on the date a death was registered rather than occurred.
2. Figures include deaths of non-residents.
3. Leading causes groupings produced by the World Health Organization (WHO) have been used.
4. Aspiration pneumonia has been included; this is not a leading cause. The International Classification of Diseases, tenth edition (ICD-10) definition is as follows: J69.0 Aspiration pneumonia.

For this section, Part I (a) of the death certificate has been analysed in relation to comorbidities. This outlines the immediate cause(s) of death.

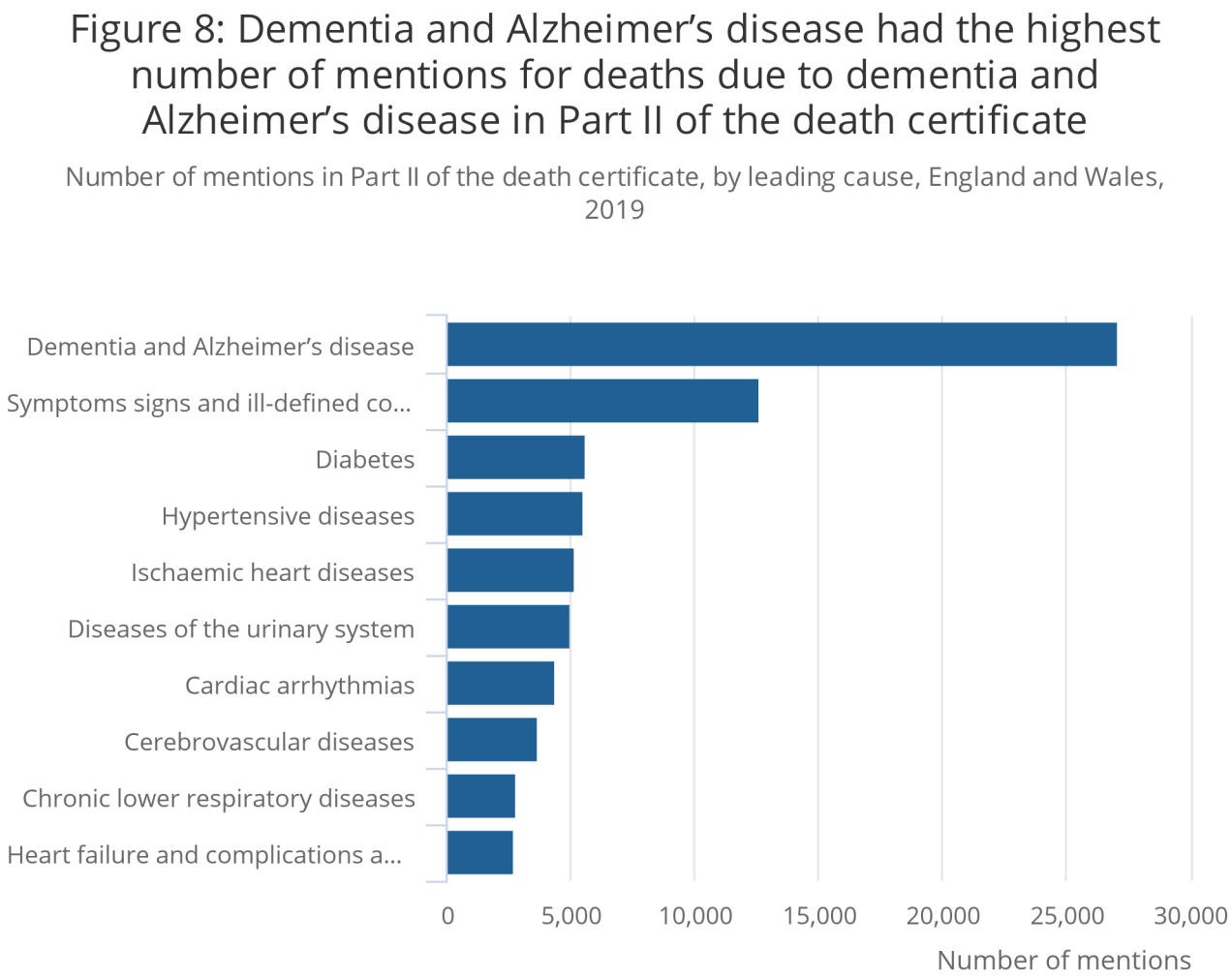
The conditions mentioned on Part I (a) of the death certificate showed that dementia and Alzheimer's disease had the highest number of mentions (32,161).

Other top 10 causes mentioned on Part I (a) for deaths due to dementia and Alzheimer's disease also included: symptoms, signs and ill-defined conditions, influenza and pneumonia and acute respiratory infections other than influenza and pneumonia (Figure 7). This indicated that these diseases or conditions led directly to a person's death and were preceded by dementia and Alzheimer's disease.

Contributory factors of death

Figure 8: Dementia and Alzheimer's disease had the highest number of mentions for deaths due to dementia and Alzheimer's disease in Part II of the death certificate

Number of mentions in Part II of the death certificate, by leading cause, England and Wales, 2019



Source: Office for National Statistics

Notes:

1. Based on the date a death was registered rather than occurred.
2. Figures include deaths of non-residents.
3. Leading causes groupings produced by the World Health Organization (WHO) have been used.

Part II of the death certificate is where a cause can be noted on a death certificate as contributing to the death but not related to the disease or condition causing it. However, for dementia and Alzheimer's disease, coding changes that took place in 2014 can mean this is not the case.

The coding changes included a change in the coding of chest infections which contributed to a reduction of 2.5% in deaths allocated an underlying cause of respiratory disease and an increase of 7.0% in those allocated to the mental and behavioural disorders chapter, which includes dementia.

Deaths given an underlying cause of dementia were also increased by a rule change to count aspiration pneumonia as being a consequence of one of a number of other conditions. The total percentage change in deaths attributed to an underlying cause of dementia was 7.1%.

This means that there are coding rules that state conditions like aspiration pneumonia and chest infections can be a consequence of dementia and Alzheimer's disease. This results in dementia and Alzheimer's disease being selected as the underlying cause of death, even if it is recorded as a contributory factor in Part II. A plausible causal chain can be created by including dementia and Alzheimer's disease even if it is recorded in Part II, which is why it is then selected as the underlying cause of death.

This explains why dementia and Alzheimer's disease also had the highest number of mentions on Part II of the death certificate (27,079 mentions) for deaths due to dementia and Alzheimer's disease, as seen in Part I (a). Other causes in the top 10 mentions in Part II of the death certificate included: symptoms, signs and ill-defined conditions, diabetes, hypertensive diseases and ischaemic heart diseases (Figure 8).

More details of these changes can be found in the Impact of the Implementation of IRIS Software for ICD-10 Cause of Death Coding on Mortality Statistics report.

11 . Deaths data

Dementia and Alzheimer's disease deaths including comorbidities, England and Wales: 2019 registrations
Dataset | Released 2 December 2020
Analysis of the characteristics of people who died from dementia and Alzheimer's disease. Includes analysis of dementia and Alzheimer's disease as an underlying cause of death and where mentioned on the death certificate by date of registration, and breakdown by sex, region and place of death. Exploration of other notifiable conditions mentioned on death certificates.

12 . Glossary

Age-specific mortality rates

Age-specific mortality rates are used to allow comparisons between specified age groups.

Age-standardised mortality rates

Age-standardised mortality rates (ASMRs) are used to allow comparisons between populations that may contain different proportions of people of different ages. The 2013 European Standard Population is used to standardise rates.

Registration delay

Mortality statistics are compiled from information supplied when deaths are certified and registered as part of civil registration, a legal requirement. According to the Births and Deaths Registration Act 1953, a death should be registered within five days unless it is referred to a coroner for investigation. Mortality statistics for a given time period can be based on occurrence (death date) or registration (registration date); registration delay is the difference between date of occurrence and date of registration.

Statistical significance

The term "significant" refers to statistically significant changes or differences. Significance has been determined using the 95% confidence intervals, where instances of non-overlapping confidence intervals between estimates indicate the difference is unlikely to have arisen from random fluctuation. In some circumstances, significance has also been tested using z scores. More information about this z test is available in Appendix 1 of the Sullivan guide (PDF, 1.19MB).

95% confidence intervals

A confidence interval is a measure of the uncertainty around a specific estimate. If a confidence interval is 95%, it is expected that the interval will contain the true value on 95 occasions if repeated 100 times. As intervals around estimates widen, the level of uncertainty about where the true value lies increases. The size of the interval around the estimate is strongly related to the number of deaths, prevalence of health states and the size of the underlying population. At a national level, the overall level of error will be small compared with the error associated with a local area or a specific age and sex breakdown. More information is available on our uncertainty page.

13 . Measuring the data

More quality and methodology information on strengths, limitations, appropriate uses, and how the data were created is available in the Mortality statistics in England and Wales QMI and User guide to mortality statistics.

The purpose of this bulletin is to provide further insight into deaths due to dementia and Alzheimer's disease. This has been done by analysing breakdowns by characteristics and comorbidities. Additional data are provided in the accompanying dataset.

This bulletin is based on the date deaths are registered, not the date of death, because of the time taken for a death to be registered. Deaths in England and Wales are normally registered within five days, but there can be a considerably longer delay in some circumstances, particularly when the death is referred to a coroner.

In the bulletin we use comparisons of dementia and Alzheimer's disease with other leading causes of death. This is based on a list developed by the World Health Organisation (WHO). This categorises causes using the International Classification of Diseases version 10 (ICD-10), specially designed for determining the leading causes of death.

14 . Strengths and limitations

Data coverage, timeliness and registration delays

Figures in this release represent the number of deaths registered in the calendar year: this includes some deaths that occurred in the years prior to this calendar year, while a proportion of deaths occurring in this year will not be registered until subsequent years.

Data for England and Wales combined include deaths of non-residents. Deaths for England and Wales separately covers deaths of usual residents of each country. In 2019 there were 1,288 deaths of non-residents that were registered in England and Wales.

More quality and methodology information on strengths and limitations is available in the Mortality statistics in England and Wales QMI and User guide to mortality statistics.

15 . Related links

Deaths registered in England and Wales: 2019
Bulletin | 1 July 2020
Registered deaths by age, sex, selected underlying causes of death and the leading causes of death. Contains death rates and death registrations by area of residence and single year of age.

Leading causes of death, UK: 2001 to 2018
Article | 27 March
Registered leading causes of death by age, sex and country.