

Article

Changing trends in mortality by leading causes of death, England and Wales: 2001 to 2018

Analysis of the recent changes in the trends of mortality rates in England and Wales by leading causes of death (Experimental statistics).

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1 . Other pages in this release

- [Changing trends in mortality in England and Wales: 1990 to 2018](#)
- [Changing trends in mortality by national indices of deprivation, England and Wales: 2001 to 2018](#)

2 . Main points

- In England, the majority (54%) of the leading causes of death analysed by age and sex follow the slowdown in mortality improvements; in Wales, 38% observed a slowdown in improvement.
- Mortality rates for deaths from ischaemic heart disease (IHD) for all ages have continued to decrease, however since 2011 the extent of the decrease diminished markedly.
- The slowdown in mortality improvement in IHD post-2011 was not observed for females aged 80 years and over (England and Wales), males aged 85 years and over (Wales) and males aged 90 years and over (England).
- Mortality rates for deaths resulting from dementia and Alzheimer disease have continued to increase post-2011 for both males and females in England and Wales.

3 . Introduction

This analysis examines the recent changes in mortality trends in England and Wales by leading causes of death. This is an extension of the [Changing trends in England and Wales: 1990 to 2018 release](#), which reports on the statistically significant slowdown in the long-term improvement in age-standardised mortality rates in the early 2010s.

[Using segmented regression, a technique that detects the presence of a significant change in trend \(breakpoint\)](#), a breakpoint in males was found in the early 2010s, while for females, two breakpoints were detected, one in the early 1990s and a second in the early 2010s. The breakpoints found in the early 2010s marked the slowdown in mortality improvement.

Based on this evidence, this analysis sets a breakpoint at 2011 and identifies any changes in trend between 2001 to 2011 (pre-2011) and 2011 to 2018 (post-2011) by leading causes of death. The Office for National Statistics (ONS) determines the [leading causes of death](#) using a detailed list, based on one developed by the World Health Organization (WHO).

To identify the leading causes for this analysis, we determined which causes, using the WHO grouping, accounted for approximately 40% of all deaths registered in England and Wales. As this analysis covers an 18-year time period we identified the leading causes of death from both data year 2001 and data year 2018 for each age grouping, sex and country. This is why the number of leading causes differs for each combination of age and sex. For this analysis, we have also used ratios to explain differences pre- and post-2011, however some of these ratios are based on relatively small numbers of deaths so caution is advised.

4 . Change in mortality trends for leading causes of death in England

Since 2001, ischaemic heart disease (IHD) has remained the leading cause of death for males in England (Figure 1). Mortality rates for deaths resulting from IHD have continued to decrease, however since 2011 these decreases have slowed, with the average fall in mortality rates pre-2011 being 1.5 times greater than the fall post-2011.

This pattern of slowing mortality rates post-2011 was also observed in deaths resulting from cerebrovascular diseases, influenza and pneumonia and chronic lower respiratory diseases. Mortality rates for deaths resulting from malignant neoplasm of trachea, bronchus and lung have continued to decrease, however greater declines were observed post-2011 compared with pre-2011. In contrast, mortality rates for deaths resulting from dementia and Alzheimer disease have continued to increase since 2001, with rates post-2011 increasing 2.6 times greater than pre-2011.

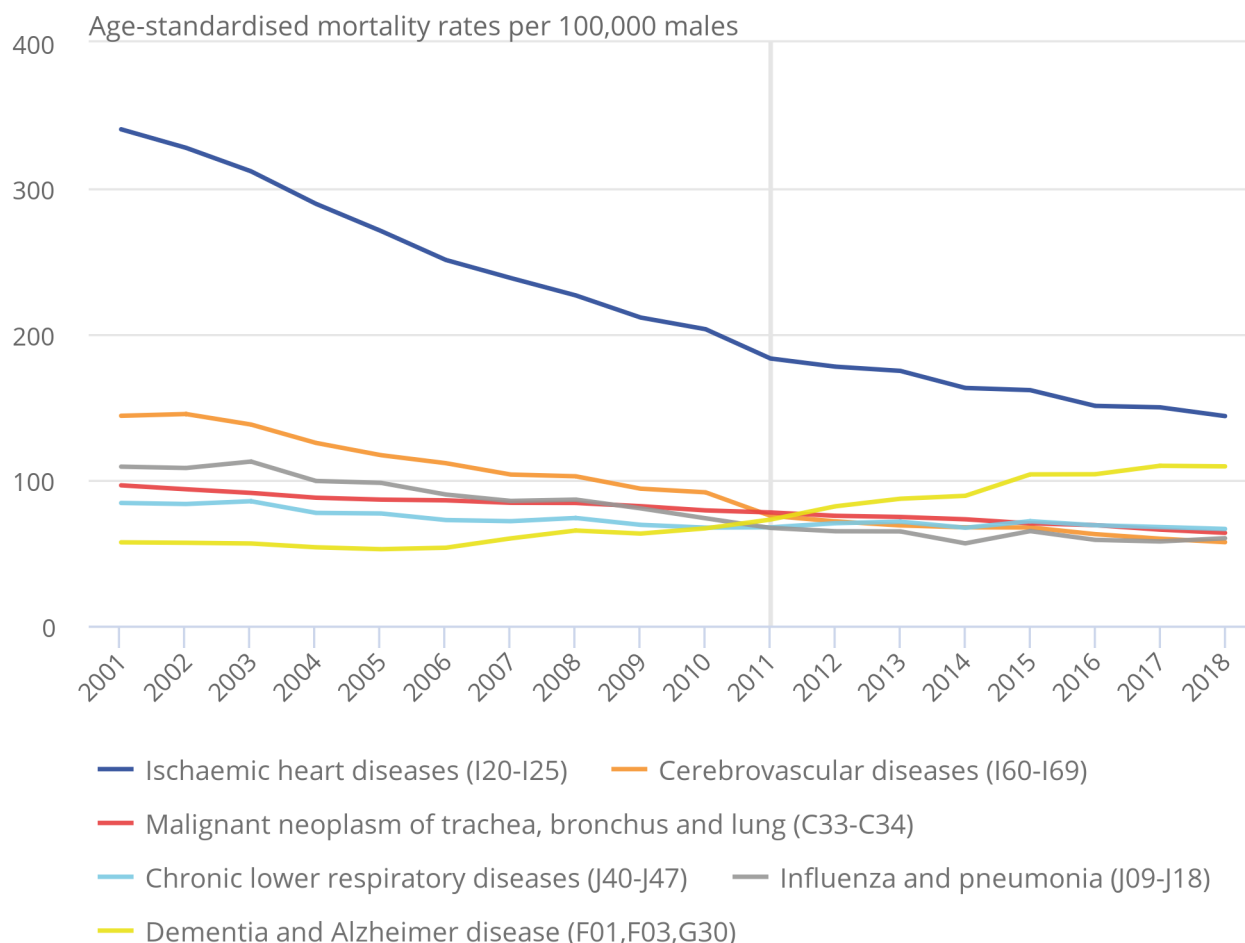
The pattern observed for males was similar to females, however from 2012 onwards, the leading cause of death for females was dementia and Alzheimer disease instead of IHD, with mortality rates increasing 2.5 times greater post-2011 (Figure 2). Unlike males, mortality rates for deaths resulting from chronic lower respiratory diseases have increased since 2001 with rates increasing 15.1 times greater post-2011 compared with pre-2011.

Figure 1: A slowdown in mortality improvement for ischaemic heart disease for males was identified post-2011

Age-standardised mortality rates for males by leading causes of death, all ages, England, 2001 to 2018

Figure 1: A slowdown in mortality improvement for ischaemic heart disease for males was identified post-2011

Age-standardised mortality rates for males by leading causes of death, all ages, England, 2001 to 2018



Source: Office for National Statistics

Notes:

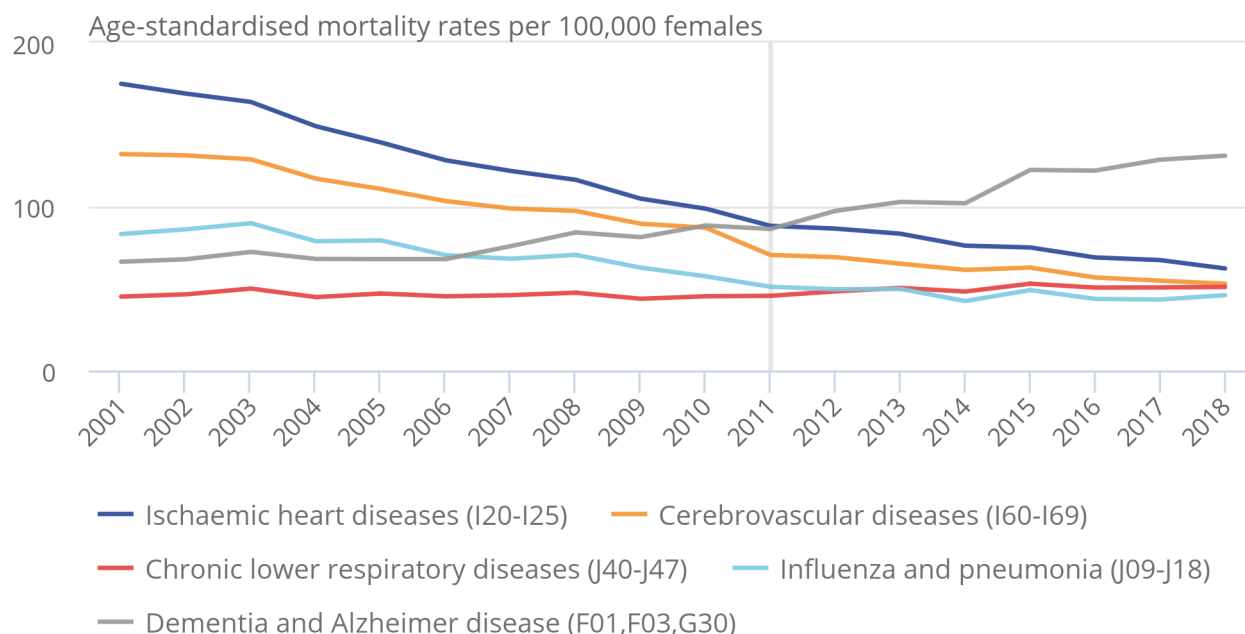
1. The plotline on the figure represents the 2011 breakpoint.
2. Age-standardised mortality rates per 100,000 population, standardised to the 2013 European Standard Population.
3. Figures exclude non-residents, based on boundaries as of August 2019.
4. Comparability ratios have been applied to death counts of dementia and Alzheimer disease and influenza and pneumonia to account for coding changes.

Figure 2: Since 2012, the leading cause of death for females in England was dementia and Alzheimer disease

Age-standardised mortality rates for females by leading causes of death, all ages, England, 2001 to 2018

Figure 2: Since 2012, the leading cause of death for females in England was dementia and Alzheimer disease

Age-standardised mortality rates for females by leading causes of death, all ages, England, 2001 to 2018



Source: Office for National Statistics

Notes:

1. The plotline on the figure represents the 2011 breakpoint.
2. Age-standardised mortality rates per 100,000 population, standardised to the 2013 European Standard Population.
3. Figures exclude non-residents, based on boundaries as of August 2019.
4. Comparability ratios have been applied to death counts of dementia and Alzheimer disease and influenza and pneumonia to account for coding changes.

Change in mortality trend for people aged under 75 years by leading causes of death in England

Looking in more detail at specific age groups, Figures 3 and 4 show the [rate of change](#) in age-standardised mortality rates, allowing us to observe which leading causes of death experienced a slowdown in mortality improvement.

For males and females aged under 75 years, a slowdown in mortality improvement was observed for ischaemic heart disease (IHD), cerebrovascular diseases, malignant neoplasm of colon, sigmoid, rectum and anus, and malignant neoplasm of breast (females only).

For males, this was most evident in deaths resulting from IHD where decreases were 2.5 times greater pre-2011 compared with post-2011. For females, deaths resulting from malignant neoplasm of colon, sigmoid, rectum and anus had the most evident slowdown with decreases in mortality 5.3 times greater pre-2011 than post-2011.

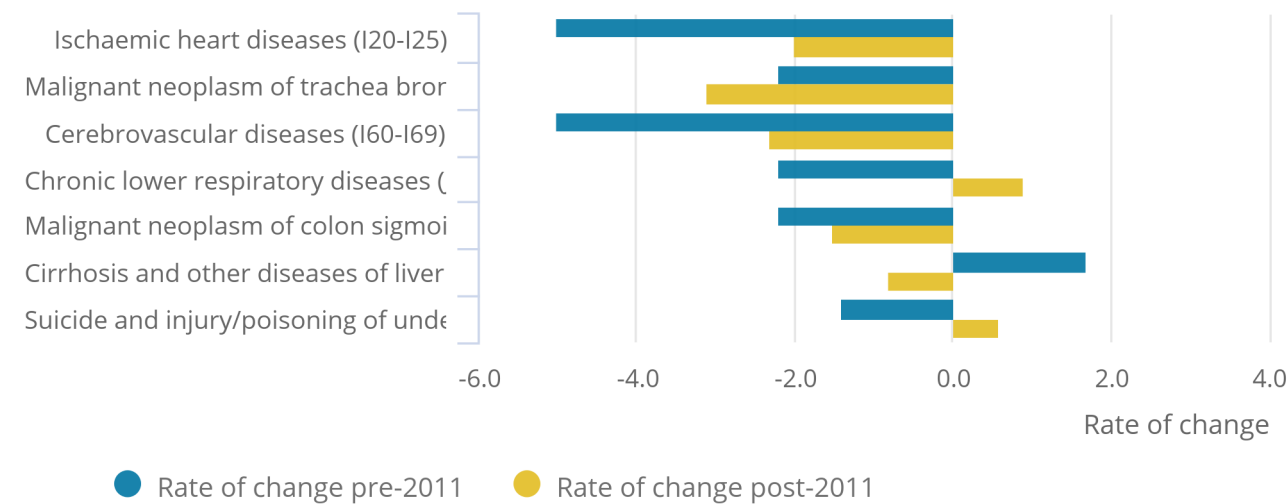
For males and females, post-2011 increases in mortality rates were observed in deaths resulting from chronic lower respiratory diseases and suicide and injury/poisoning of undetermined intent (males only). In contrast, mortality rates for deaths resulting from cirrhosis and other diseases of the liver and malignant neoplasm of trachea, bronchus and lung had greater improvements post-2011 compared with pre-2011.

Figure 3: The greatest slowdown in mortality improvement for males aged under 75 years was in deaths from ischaemic heart disease

Rate of change in age-standardised mortality rates pre- and post-2011 for ages under 75 years for males, England

Figure 3: The greatest slowdown in mortality improvement for males aged under 75 years was in deaths from ischaemic heart disease

Rate of change in age-standardised mortality rates pre- and post-2011 for ages under 75 years for males, England



Source: Office for National Statistics

Notes:

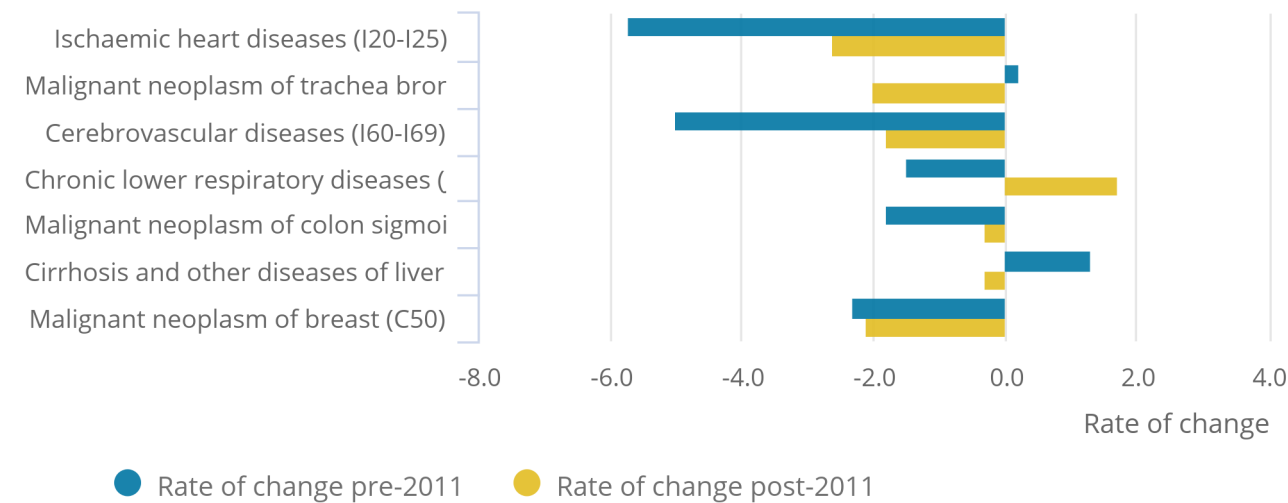
1. Figures refer to the rate of change in age-standardised mortality rates (the average increase or decrease per year) between 2001 to 2011 and 2011 to 2018. The positive figures refer to a worsening in mortality while negative figures reflect an improvement in mortality.
2. Figures exclude non-residents, based on boundaries as of August 2019.

Figure 4: The greatest slowdown in mortality improvement for females aged under 75 years was in deaths from malignant neoplasm of colon, sigmoid, rectum and anus

Rate of change in age-standardised mortality rates pre- and post-2011 for ages under 75 years for females, England

Figure 4: The greatest slowdown in mortality improvement for females aged under 75 years was in deaths from malignant neoplasm of colon, sigmoid, rectum and anus

Rate of change in age-standardised mortality rates pre- and post-2011 for ages under 75 years for females, England



Source: Office for National Statistics

Notes:

1. Figures refer to the rate of change in age-standardised mortality rates (the average increase or decrease per year) between 2001 to 2011 and 2011 to 2018. The positive figures refer to a worsening in mortality while negative figures reflect an improvement in mortality.
2. Figures exclude non-residents, based on boundaries as of August 2019.

Slowdown in mortality improvement trend for older age groups by leading causes of death in England

Looking in more detail at the older age groups, out of the six leading causes of death for males aged 75 to 79 years, mortality rates for ischaemic heart disease (IHD), cerebrovascular diseases, and malignant neoplasm of trachea, bronchus and lung have seen a slowdown in improvement post-2011. This slowdown was most evident in deaths resulting from malignant neoplasm of trachea, bronchus and lung where decreases were 1.9 times greater pre-2011.

For males aged 80 to 84 years and 85 to 89 years, the greatest slowdown in mortality improvement was in deaths resulting from influenza and pneumonia where decreases were 2.4 times greater pre-2011 for 80- to 84-year-olds, and 2.0 times greater for 85- to 89-year-olds.

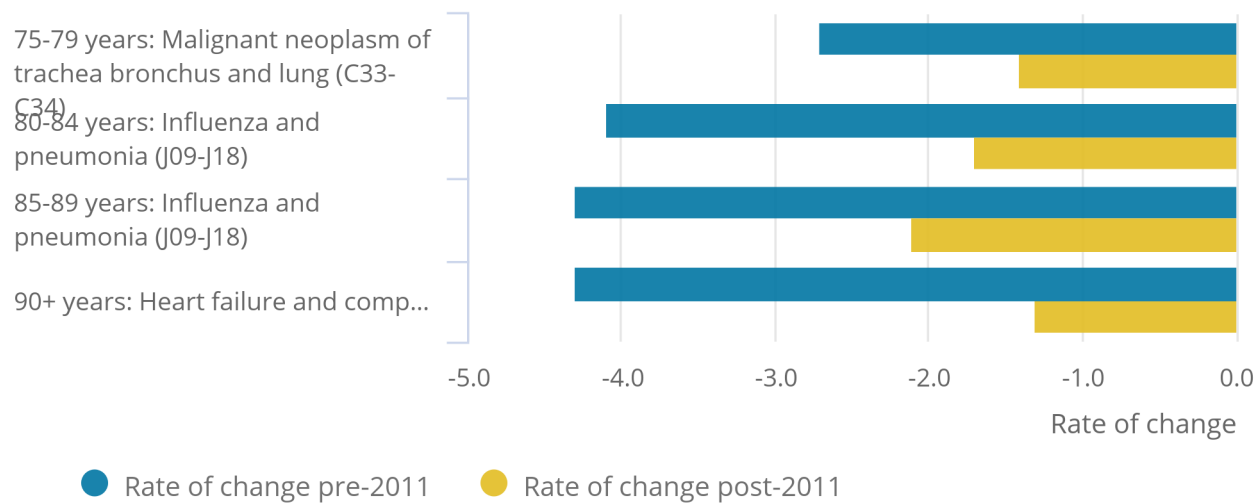
For those aged 90 years and over, the patterns of mortality rates pre- and post-2011 are not uniform across the leading causes of death. A slowdown in mortality improvement was observed for deaths resulting from influenza and pneumonia, and heart failure and complications and ill-defined heart disease, which accounted for the greatest slowdown with decreases 3.3 times greater pre-2011.

Figure 5: The greatest slowdown in mortality improvement for males aged 80 to 89 years was in deaths from influenza and pneumonia

Rate of change in age-specific mortality rates for leading causes with the greatest slowdown in improvement post-2011 for ages 75 years and over for males, England

Figure 5: The greatest slowdown in mortality improvement for males aged 80 to 89 years was in deaths from influenza and pneumonia

Rate of change in age-specific mortality rates for leading causes with the greatest slowdown in improvement post-2011 for ages 75 years and over for males, England



Source: Office for National Statistics

Notes:

- 1. Figures refer to the rate of change in age-specific mortality rates (the average increase or decrease per year) between 2001 to 2011 and 2011 to 2018. The positive figures refer to a worsening in mortality while negative figures reflect an improvement in mortality.
- 2. Figures exclude non-residents, based on boundaries as of August 2019.
- 3. Comparability ratios have been applied to death counts of influenza and pneumonia to account for coding changes.

Out of the leading causes of death for females aged between 75 to 89 years, the greatest slowdown in mortality improvement was for deaths resulting from influenza and pneumonia where decreases were 11.0 times greater pre-2011 for ages 75 to 79 years, 3.0 times greater for ages 80 to 84 years and 2.4 times greater for ages 85 to 89 years.

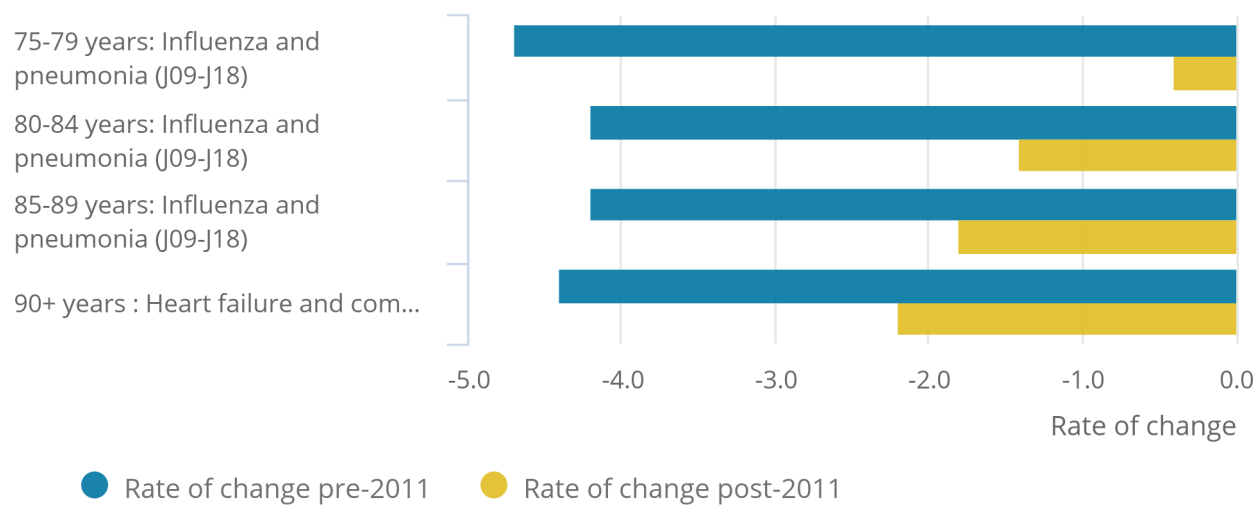
For females aged 90 years and over, the greatest slowdown in mortality improvement post-2011 was observed in deaths resulting from heart failure and complications and ill-defined heart disease, where decreases were 2.0 times greater pre-2011.

Figure 6: Decreases in mortality from influenza and pneumonia pre-2011 were 11.0 times greater than post-2011 for females aged 75 to 79 years

Rate of change in age-specific mortality rates for leading causes with the greatest slowdown in improvement post-2011 for ages 75 years and over for females, England

Figure 6: Decreases in mortality from influenza and pneumonia pre-2011 were 11.0 times greater than post-2011 for females aged 75 to 79 years

Rate of change in age-specific mortality rates for leading causes with the greatest slowdown in improvement post-2011 for ages 75 years and over for females, England



Source: Office for National Statistics

Notes:

1. Figures refer to the rate of change in age-specific mortality rates (the average increase or decrease per year) between 2001 to 2011 and 2011 to 2018. The positive figures refer to a worsening in mortality while negative figures reflect an improvement in mortality.
2. Figures exclude non-residents, based on boundaries as of August 2019.
3. Comparability ratios have been applied to death counts of influenza and pneumonia to account for coding changes.

Increases in mortality trend for older age groups by leading causes of death in England

Out of the leading causes of death, increases post-2011 were observed across different age groups for deaths resulting from chronic lower respiratory diseases, malignant neoplasm of trachea, bronchus and lung (females only), influenza and pneumonia, and dementia and Alzheimer disease, which accounted for the largest absolute increases (Figure 7). The increases in dementia and Alzheimer disease are in line with figures reported in the [deaths registered in England and Wales annual release](#).

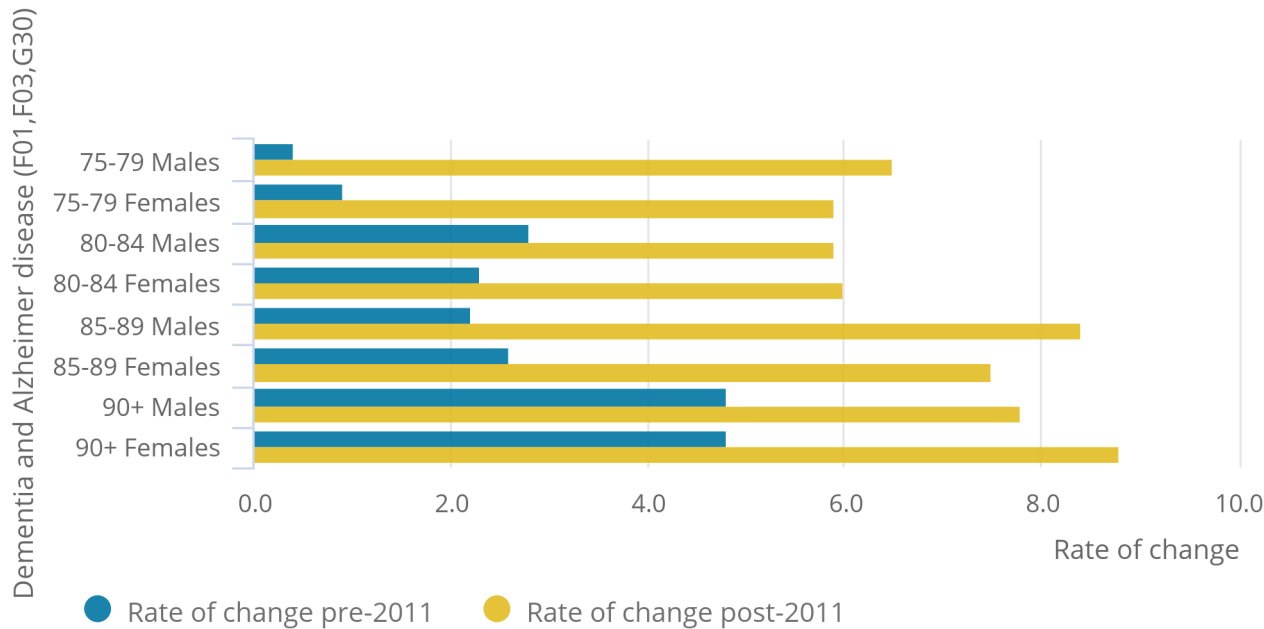
The increases in mortality rates for dementia and Alzheimer disease post-2011 compared with pre-2011 were most evident in 75- to 79-year-olds with increases 16.3 times greater for males and 6.5 times greater for females. In comparison, mortality rate increases for ages 90 years and over were smallest with increases 1.6 times greater post-2011 for males and 1.8 times greater for females.

Figure 7: Increases in mortality rates for deaths from dementia and Alzheimer disease were greater post-2011

Rate of change in age-specific mortality rates for leading causes with the largest absolute increases post-2011 compared with pre-2011 for ages 75 years and over by sex, England

Figure 7: Increases in mortality rates for deaths from dementia and Alzheimer disease were greater post-2011

Rate of change in age-specific mortality rates for leading causes with the largest absolute increases post-2011 compared with pre-2011 for ages 75 years and over by sex, England



Source: Office for National Statistics

Notes:

1. Figures refer to the rate of change in age-specific mortality rates (the average increase or decrease per year) between 2001 to 2011 and 2011 to 2018. The positive figures refer to a worsening in mortality while negative figures reflect an improvement in mortality.
2. Figures exclude non-residents, based on boundaries as of August 2019.
3. Comparability ratios have been applied to death counts of dementia and Alzheimer disease to account for coding changes.

The leading causes of death not in line with the slowdown in mortality improvement for older age groups in England

For some leading causes of death, the opposite effect of a slowdown post-2011 was identified, that is, improvements in mortality rates were larger post-2011 compared with pre-2011. For females, this was observed in deaths resulting from ischaemic heart disease (IHD) for those aged 80 years and over.

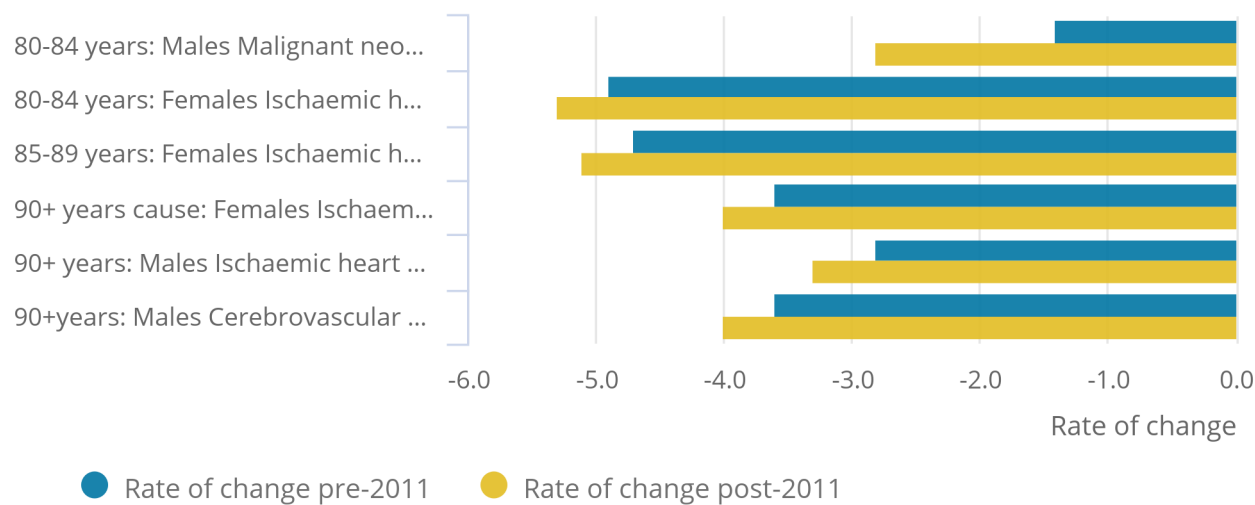
For males, this opposite effect was observed for deaths resulting from IHD and cerebrovascular diseases for ages 90 years and over and for deaths resulting from malignant neoplasm of trachea, bronchus and lung for ages 80 to 84 years. These findings were not found for males and females aged 75 to 79 years and males aged 85 to 89 years.

Figure 8: A slowdown in mortality improvement post-2011 was not evident in deaths from ischaemic heart disease for females aged 80 years and over and males 90 years and over

Rate of change in age-specific mortality rates for leading causes not in line with a slowdown in improvement post-2011 for ages 80 years and over by sex, England

Figure 8: A slowdown in mortality improvement post-2011 was not evident in deaths from ischaemic heart disease for females aged 80 years and over and males 90 years and over

Rate of change in age-specific mortality rates for leading causes not in line with a slowdown in improvement post-2011 for ages 80 years and over by sex, England



Source: Office for National Statistics

Notes:

1. Figures refer to the rate of change in age-specific mortality rates (the average increase or decrease per year) between 2001 to 2011 and 2011 to 2018. The positive figures refer to a worsening in mortality while negative figures reflect an improvement in mortality.
2. Figures exclude non-residents, based on boundaries as of August 2019.

5 . Change in mortality trend for leading causes of death in Wales

Since 2001, mortality rates for five out of the six leading causes of death for males in Wales have decreased, with ischaemic heart disease (IHD) remaining the leading cause of death (Figure 9). Out of these five leading causes, a slowdown in mortality improvement post-2011 was observed in three, with deaths from chronic lower respiratory disease accounting for the largest slowdown with falls 3.4 times greater pre-2011. As seen in England, mortality rates for deaths resulting from dementia and Alzheimer disease have continued to increase, with greater increases post-2011 compared with pre-2011.

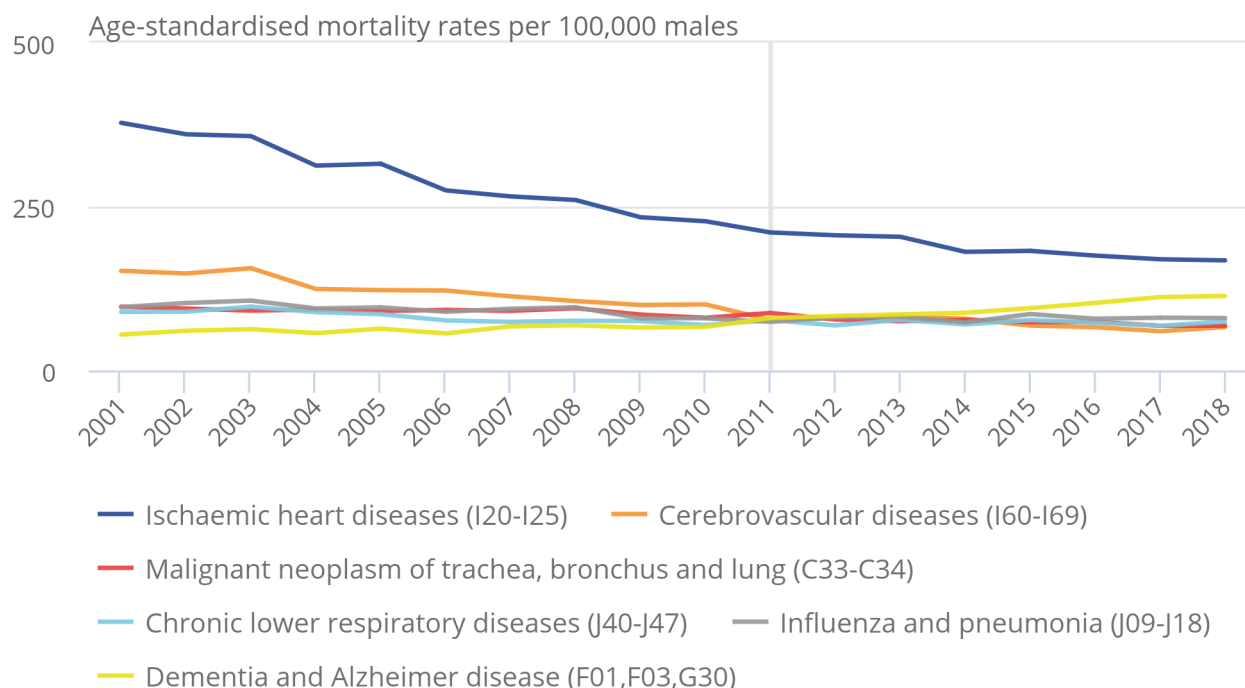
For females in Wales, a slowdown in mortality improvement post-2011 was evident for deaths resulting from IHD with the fall in mortality rates 1.1 times greater pre-2011 and for deaths from cerebrovascular diseases with falls 1.7 times greater pre-2011. In contrast, mortality rates for deaths resulting from chronic lower respiratory diseases, influenza and pneumonia and dementia and Alzheimer disease increased post-2011 (Figure 10).

Figure 9: Male mortality rates for deaths from dementia and Alzheimer disease have continued to increase post-2011

Age-standardised mortality rates for males by leading causes of death, all ages, Wales, 2001 to 2018

Figure 9: Male mortality rates for deaths from dementia and Alzheimer disease have continued to increase post-2011

Age-standardised mortality rates for males by leading causes of death, all ages, Wales, 2001 to 2018



Source: Office for National Statistics

Notes:

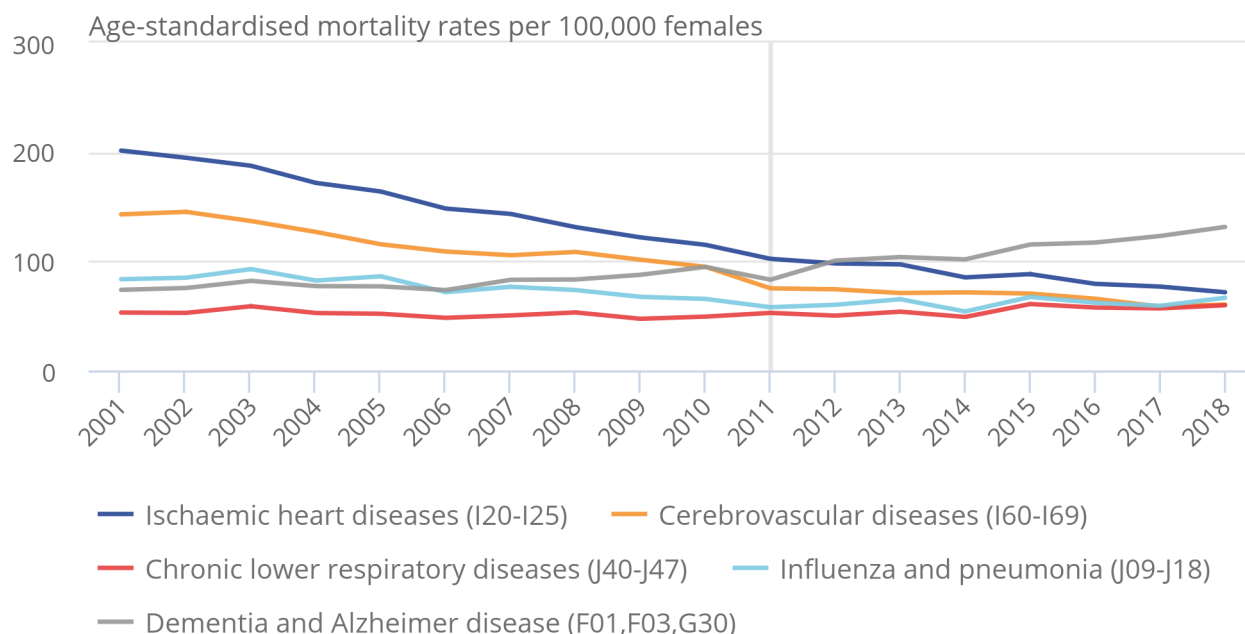
1. The plotline on the figure represents the 2011 breakpoint.
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3. Figures exclude non-residents, based on boundaries as of August 2019.
4. Comparability ratios have been applied to death counts of dementia and Alzheimer disease and influenza and pneumonia to account for coding changes.

Figure 10: A slowdown in mortality improvement post-2011 was evident for deaths from cerebrovascular diseases

Age-standardised mortality rates for females by leading causes of death, all ages, Wales, 2001 to 2018

Figure 10: A slowdown in mortality improvement post-2011 was evident for deaths from cerebrovascular diseases

Age-standardised mortality rates for females by leading causes of death, all ages, Wales, 2001 to 2018



Source: Office for National Statistics

Notes:

1. The plotline on the figure represents the 2011 breakpoint.
2. Age-standardised mortality rates per 100,000 population, standardised to the 2013 European Standard Population.
3. Figures exclude non-residents, based on boundaries as of August 2019.
4. Comparability ratios have been applied to death counts of dementia and Alzheimer disease and influenza and pneumonia to account for coding changes.

Change in mortality trend for people aged under 75 years by leading causes of death in Wales

For males and females aged under 75 years a slowdown in mortality improvement was observed in leading causes ischaemic heart disease (IHD), cerebrovascular diseases, malignant neoplasm of colon, sigmoid, rectum and anus (males only), and malignant neoplasm of breast (females only). This was most evident in deaths resulting from IHD where decreases were 4.3 times greater pre-2011 compared with post-2011 for males and 2.9 times greater for females.

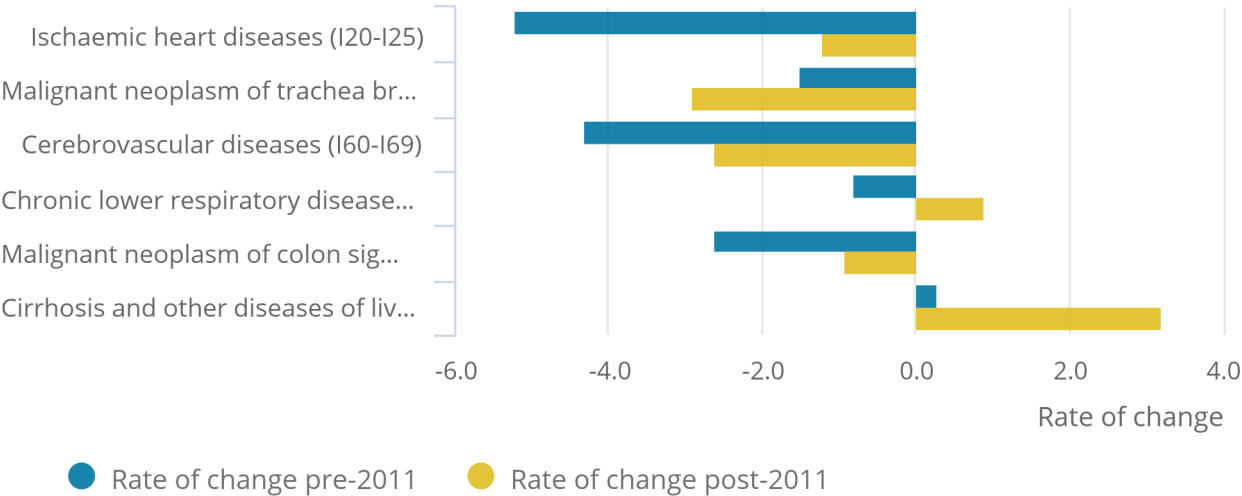
In contrast, increases in mortality rates post-2011 were seen for males for deaths resulting from chronic lower respiratory diseases, and cirrhosis and other diseases of the liver. For females, mortality rates increased for deaths from chronic lower respiratory diseases, and influenza and pneumonia.

Figure 11: A slowdown in mortality improvement in deaths from ischaemic heart disease was observed for males aged under 75 years

Rate of change in age-standardised mortality rates pre- and post-2011 for ages under 75 years for males, Wales

Figure 11: A slowdown in mortality improvement in deaths from ischaemic heart disease was observed for males aged under 75 years

Rate of change in age-standardised mortality rates pre- and post-2011 for ages under 75 years for males, Wales



Source: Office for National Statistics

Notes:

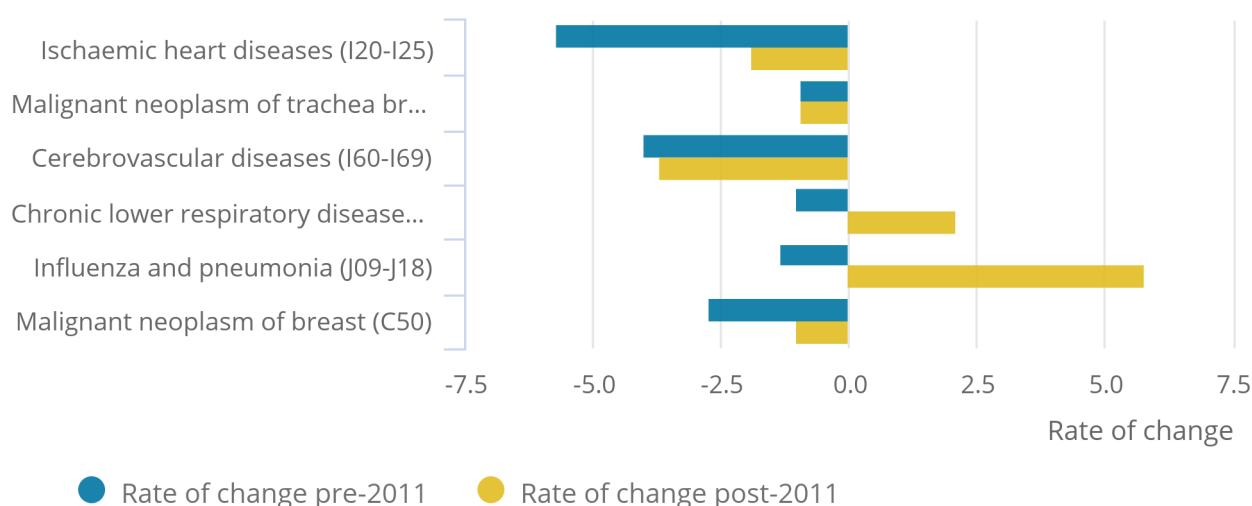
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Figure 12: Mortality rates for females aged under 75 years increased in deaths from influenza and pneumonia, and chronic lower respiratory diseases post-2011

Rate of change in age-standardised mortality rates pre- and post-2011 for ages under 75 years for females, Wales

Figure 12: Mortality rates for females aged under 75 years increased in deaths from influenza and pneumonia, and chronic lower respiratory diseases post-2011

Rate of change in age-standardised mortality rates pre- and post-2011 for ages under 75 years for females, Wales



Source: Office for National Statistics

Notes:

1. Figures refer to the rate of change in age-standardised mortality rates (the average increase or decrease per year) between 2001 to 2011 and 2011 to 2018. The positive figures refer to a worsening in mortality while negative figures reflect an improvement in mortality.
2. Figures exclude non-residents, based on boundaries as of August 2019.
3. Comparability ratios have been applied to death counts of influenza and pneumonia to account for coding changes.

Slowdown in mortality improvement trend for older age groups by leading causes of death in Wales

Looking in more detail at the leading causes of death for males aged 75 to 89 years, mortality rates for deaths resulting from cerebrovascular diseases have observed the greatest slowdowns in improvement post-2011, with decreases 2.9 times greater pre-2011 for ages 75 to 79 years, 5.1 times greater for ages 80 to 84 years, and 6.4 times greater for ages 85 to 89 years (Figure 13).

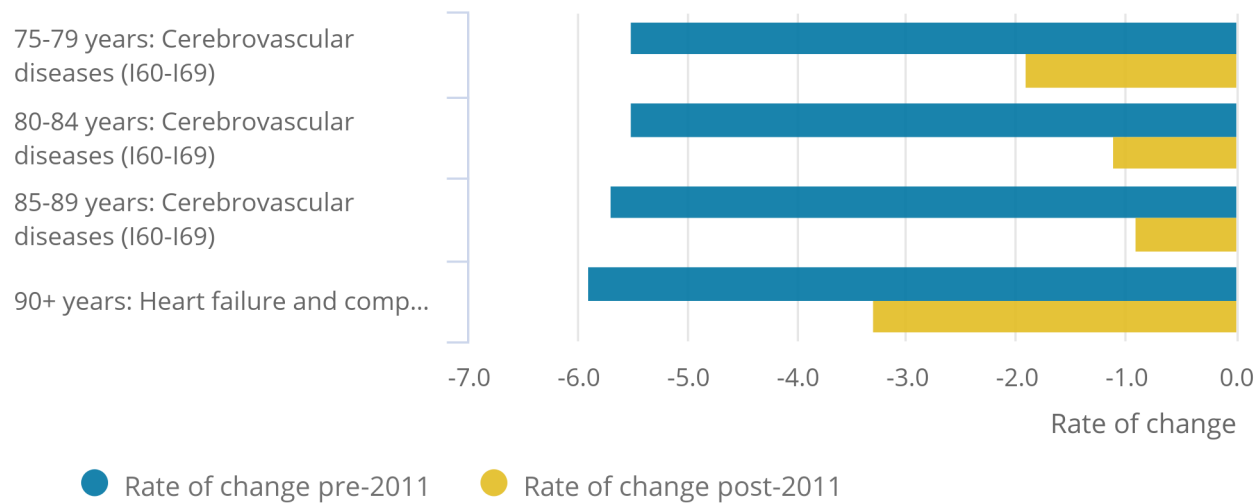
For those aged 90 years and over, the greatest slowdown in mortality improvement was observed for deaths resulting from heart failure and complications and ill-defined heart disease, where decreases were 1.8 times greater pre-2011.

Figure 13: The largest slowdown in mortality improvement was in males aged 85 to 89 years for deaths from cerebrovascular diseases

Rate of change in age-specific mortality rates for leading causes with the greatest slowdown in improvement post-2011 for ages 75 years and over for males, Wales

Figure 13: The largest slowdown in mortality improvement was in males aged 85 to 89 years for deaths from cerebrovascular diseases

Rate of change in age-specific mortality rates for leading causes with the greatest slowdown in improvement post-2011 for ages 75 years and over for males, Wales



Source: Office for National Statistics

Notes:

- Figures refer to the rate of change in age-specific mortality rates (the average increase or decrease per year) between 2001 to 2011 and 2011 to 2018. The positive figures refer to a worsening in mortality while negative figures reflect an improvement in mortality.
- Figures exclude non-residents, based on boundaries as of August 2019.

Out of the leading causes of death for females aged 75 to 84 years and 90 years and over, cerebrovascular diseases had the greatest slowdown in mortality improvement post-2011 with decreases 1.9 times greater pre-2011 for ages 75 to 79 years, 1.7 times greater for ages 80 to 84 years and 2.1 times greater for ages 90 years and over (Figure 14).

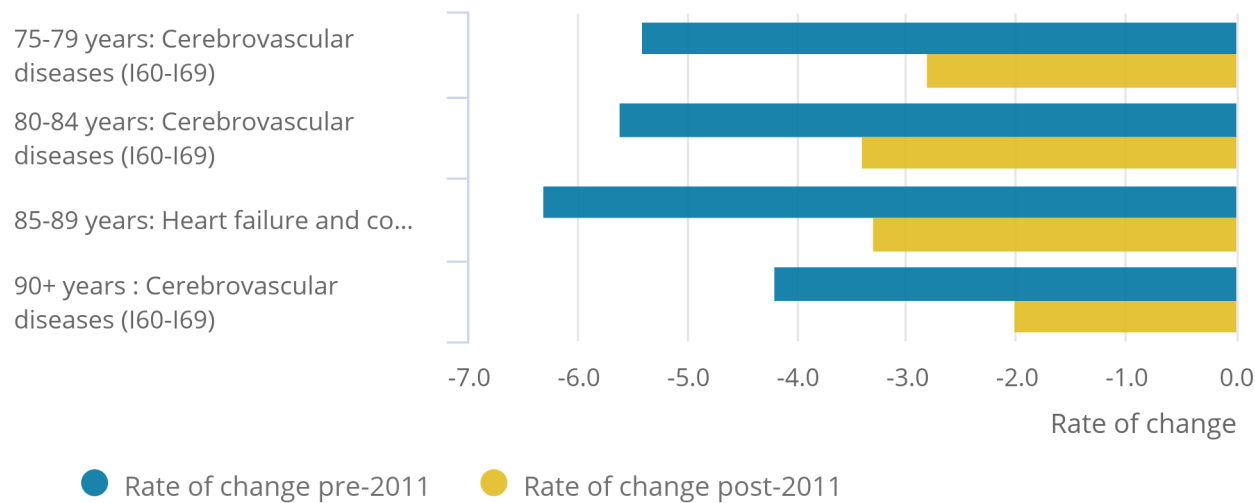
For females aged 85 to 89 years, deaths resulting from heart failure and complications and ill-defined heart diseases had the greatest slowdown in mortality improvement post-2011 with decreases 1.9 times greater pre-2011.

Figure 14: The largest slowdown in mortality improvement for females aged 75 to 84 years and 90 years and over was for deaths from cerebrovascular diseases

Rate of change in age-specific mortality rates for leading causes with the greatest slowdown in improvement post-2011 for ages 75 years and over for females, Wales

Figure 14: The largest slowdown in mortality improvement for females aged 75 to 84 years and 90 years and over was for deaths from cerebrovascular diseases

Rate of change in age-specific mortality rates for leading causes with the greatest slowdown in improvement post-2011 for ages 75 years and over for females, Wales



Source: Office for National Statistics

Notes:

- Figures refer to the rate of change in age-specific mortality rates (the average increase or decrease per year) between 2001 to 2011 and 2011 to 2018. The positive figures refer to a worsening in mortality while negative figures reflect an improvement in mortality.
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Increases in mortality trend for older age groups by leading causes of death in Wales

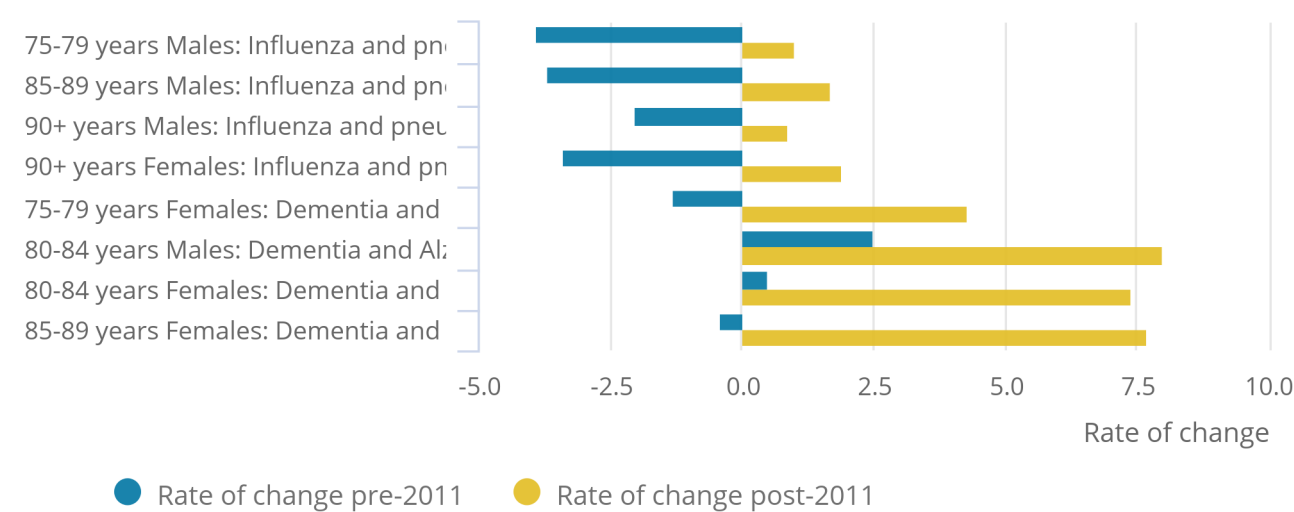
As seen in England, increases post-2011 were observed across different older age groups in Wales for deaths resulting from chronic lower respiratory diseases, malignant neoplasm of trachea, bronchus and lung (females only), influenza and pneumonia, and dementia and Alzheimer disease. The largest absolute increases across the age groups were in deaths resulting from dementia and Alzheimer disease, and influenza and pneumonia (Figure 15).

Figure 15: There were increases in mortality rates post-2011 for deaths from dementia and Alzheimer disease and influenza and pneumonia

Rate of change in age-specific mortality rates for leading causes with the largest absolute increases post-2011 compared with pre-2011 for ages 75 years and over by sex, Wales

Figure 15: There were increases in mortality rates post-2011 for deaths from dementia and Alzheimer disease and influenza and pneumonia

Rate of change in age-specific mortality rates for leading causes with the largest absolute increases post-2011 compared with pre-2011 for ages 75 years and over by sex, Wales



Source: Office for National Statistics

Notes:

- Figures refer to the rate of change in age-specific mortality rates (the average increase or decrease per year) between 2001 to 2011 and 2011 to 2018. The positive figures refer to a worsening in mortality while negative figures reflect an improvement in mortality.
- Figures exclude non-residents, based on boundaries as of August 2019.
- Comparability ratios have been applied to death counts of dementia and Alzheimer disease and influenza and pneumonia to account for coding changes.

The leading causes of death not in line with the slowdown in mortality improvement for older age groups in Wales

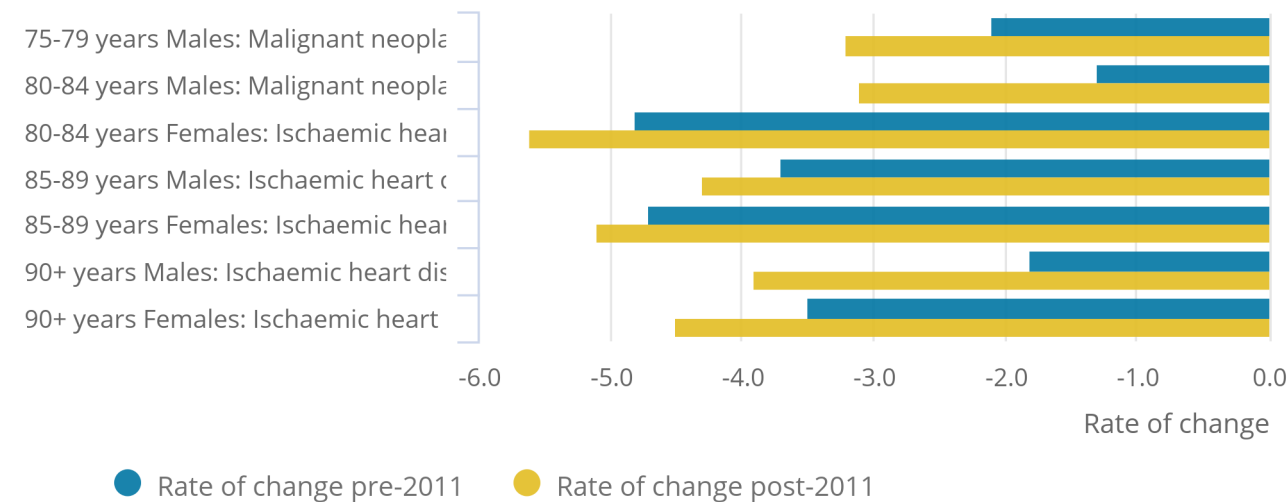
For some leading causes of death, the opposite effect of a slowdown post-2011 was identified where improvements in mortality rates were larger post-2011 compared with pre-2011. This was observed in deaths resulting from ischaemic heart disease (IHD) for females aged 80 years and over, and males aged 85 years and over. For males aged 75 to 84 years, the opposite effect was observed in deaths caused by malignant neoplasm of trachea, bronchus and lung. These findings were not evident for females aged 75 to 79 years.

Figure 16: Slowdowns in mortality improvement post-2011 were not evident in all leading causes of death

Rate of change in age-specific mortality rates for leading causes not in line with a slowdown in improvement post-2011 for ages 75 years and over by sex, Wales

Figure 16: Slowdowns in mortality improvement post-2011 were not evident in all leading causes of death

Rate of change in age-specific mortality rates for leading causes not in line with a slowdown in improvement post-2011 for ages 75 years and over by sex, Wales



Source: Office for National Statistics

Notes:

1. Figures refer to the rate of change in age-specific mortality rates (the average increase or decrease per year) between 2001 to 2011 and 2011 to 2018. The positive figures refer to a worsening in mortality while negative figures reflect an improvement in mortality.
2. Figures exclude non-residents, based on boundaries as of August 2019.

6 . Changing trends in mortality by leading causes of death data

[Changing trends in mortality in England and Wales by leading causes of death, England and Wales: 2001 to 2018](#)

Dataset | Released 10 March 2020

Annual age-standardised and age-specific mortality rates by leading causes of death for England and Wales, 2001 to 2018.

7 . 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 are used to allow comparisons between populations, which may contain different proportions of people of different ages. The 2013 European Standard Population is used to standardise rates.

Rate of change

To compute the rate of change we have calculated the percentage difference in mortality rates pre-2011 (2001 to 2011) and post-2011 (2011 to 2018). This is then divided by the number of comparison periods within the time period analysed.

8 . Measuring the data

The publication [Changing trends in mortality in England and Wales: 1990 to 2018](#) reports on the statistically significant slowdown in the long-term improvement in age-standardised mortality rates for England and Wales in the early 2010s. This article identifies that the breakpoint in males was found in the early 2010s. For females, two breakpoints were detected, one in the early 1990s and a second in the early 2010s marking the slowdown in mortality improvement. Based on this evidence, this analysis sets a breakpoint at 2011 and identifies any changes in trend by leading causes of death.

Important information for interpreting these mortality statistics:

- Death statistics are compiled from information supplied when deaths are certified and registered as part of civil registration, a legal requirement.
- Figures represent the number of deaths registered in each calendar year; this includes some deaths that occurred in the years prior to the calendar year, while a proportion of deaths occurring in this year will not be registered until subsequent years (more information can be found in [Impact of Registration Delays](#)).
- Figures represent deaths that were registered in England and Wales; these include some deaths of individuals whose usual residence was outside England and Wales, while any deaths of residents that happened abroad are not included.
- Please note all rate of change and ratios calculated within this article are based on unrounded age-standardised and age-specific mortality rates.

Leading causes of death

The Office for National Statistics (ONS) determines the [leading causes of death](#) using a detailed list based on one developed by the World Health Organization (WHO). This list uses more specific groupings than the broad group level, splitting causes such as cancer and circulatory diseases into different subtypes, with the aim to provide policymakers with enough detail to generate appropriate health policies and interventions.

To identify the leading causes of death for this analysis, we determined which causes, using the WHO grouping, accounted for approximately 40% of all deaths registered in England and Wales. As this analysis covers an 18-year time period we identified the leading causes of death from data year 2001 and data year 2018 for each age grouping, sex and country. This is why the number of leading causes of death we have focused on differs for each variable combination.

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 the [User guide to mortality statistics](#).

9 . Strengths and limitations

Strengths

Information is supplied when a death is registered which gives complete population coverage and ensures the estimates are of high precision and representative of the underlying population at risk.

Coding for cause of death is carried out according to the World Health Organization (WHO) [ICD-10](#) and internationally agreed rules.

Limitations

This analysis sets a breakpoint at 2011 for leading causes of death, which was identified in the analysis of [Changing trends in mortality in England and Wales: 1990 to 2018](#). However, this might not be the actual breakpoint if the segmented regression was run on specific leading cause data.

Confidence intervals were not able to be created for rate of change analysis which means we are unable to say whether findings are statistically significant.

10 . Related links

[Changing trends in mortality: a cross-UK comparison, 1981 to 2016](#)

Article | Released 7 August 2018

Analysis of age-specific and age-standardised mortality rates for the UK, England, Wales, Scotland and Northern Ireland from 1981 to 2016.

[Changing trends in mortality: an international comparison: 2000 to 2016](#)

Article | Released 7 August 2018

Analysis of period life expectancies and mortality in selected countries globally from 2000 to 2016.

[Deaths registered in England and Wales: 2018](#)

Bulletin | Released 6 August 2019

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.

[Recent trends in mortality in England](#)

Report | Released 11 December 2018

Public Health England report on the recent trends in life expectancy and mortality.

[Trends in life expectancy in EU and other OECD countries](#)

Report | Released 28 February 2019

This report outlines that these changes in mortality trends are also evident in other countries.

[What is happening to life expectancy in the UK?](#)

Article | Released 22 October 2019

The Kings Fund think tank provide commentary on the change in life expectancy.