

Life expectancy and causes of death



Life expectancy and causes of death: Key focus areas

Life expectancy

In 2018-2020 the average life expectancy for females in Wiltshire is 3.6 years more than males, with females expected to live to 84.5 years and males 80.9 years in Wiltshire .

Healthy Life expectancy



Male - Within Wiltshire, male healthy life expectancy is above that of its statistical neighbours and the South West; meaning that the time males spend in a healthy life extends into their state pension age at 66

Female - Wiltshire's female healthy life expectancy has been in continual decline and has dropped by 4.2 years over the past 4 years to 65.2 years and now sits below that of the region, whilst Wiltshire's comparators have remained largely stagnant.



All-age all-cause mortality - 2021

1. Diseases of the circulatory system	26%
2. Neoplasms (cancers)	25%
3. Diseases of the respiratory system	9%
4. Mental and behavioural disorders	9%
5. Codes for special purposes (mainly Covid-19)	8%
6. Diseases of the nervous system	7%
7. Diseases of the digestive system	4%
8. Other causes	11%

Trends in under 75 mortality

Cancer and CVD are the main causes of premature mortality in Wiltshire causing around 60% of premature deaths.



Gender inequality - Men have a higher rate of premature mortality than women (803 to 588 deaths in 2020), and the inequality is particularly evident in premature CVD deaths with 85.2 male deaths per 100,000 population compared to 32.3 deaths for females.

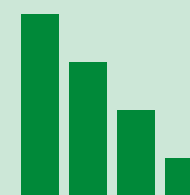


The gap between genders is smaller when looking at premature mortality from cancer. However, there is substantial variation between genders for preventable premature cancer mortality, with 52.3 male deaths per 100,000 compared to 30.8 for females.

Under 75 preventable mortality

In Wiltshire, under 75 preventable mortality is considerably lower than England and South West.

Yet, within Wiltshire preventable deaths were over 3x higher for men living in our most deprived areas than in our least deprived areas. For women it was 3.7x higher.



Identifying inequalities in life expectancy in Wiltshire

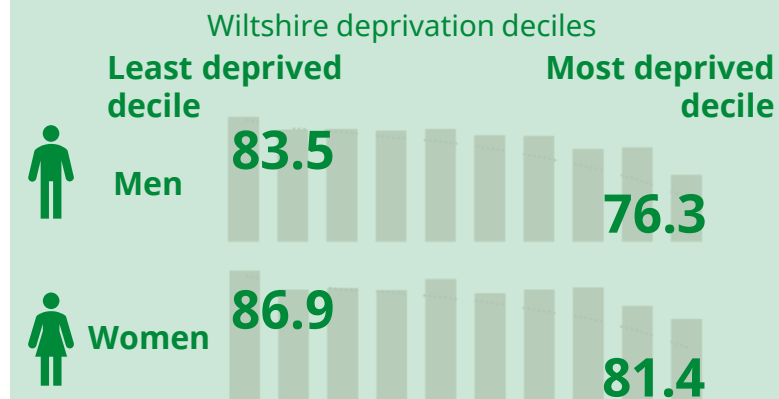
Healthy life expectancy - in years (England)

The areas of deprivation in England have a large variation in healthy life expectancy at birth:

	Least deprived decile	Most deprived decile
Men	70.5 years	52.3 years
Women	70.7 years	51.9 years

Nearly 120,000 people in Wiltshire live in in the most deprived 5 deciles (half) of areas in England, and face these inequalities in their healthy life expectancy.

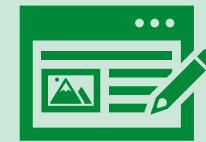
Life Expectancy - in years



This difference in life expectancy among the different deciles is likely to worsen as a result of the cost of living crisis.

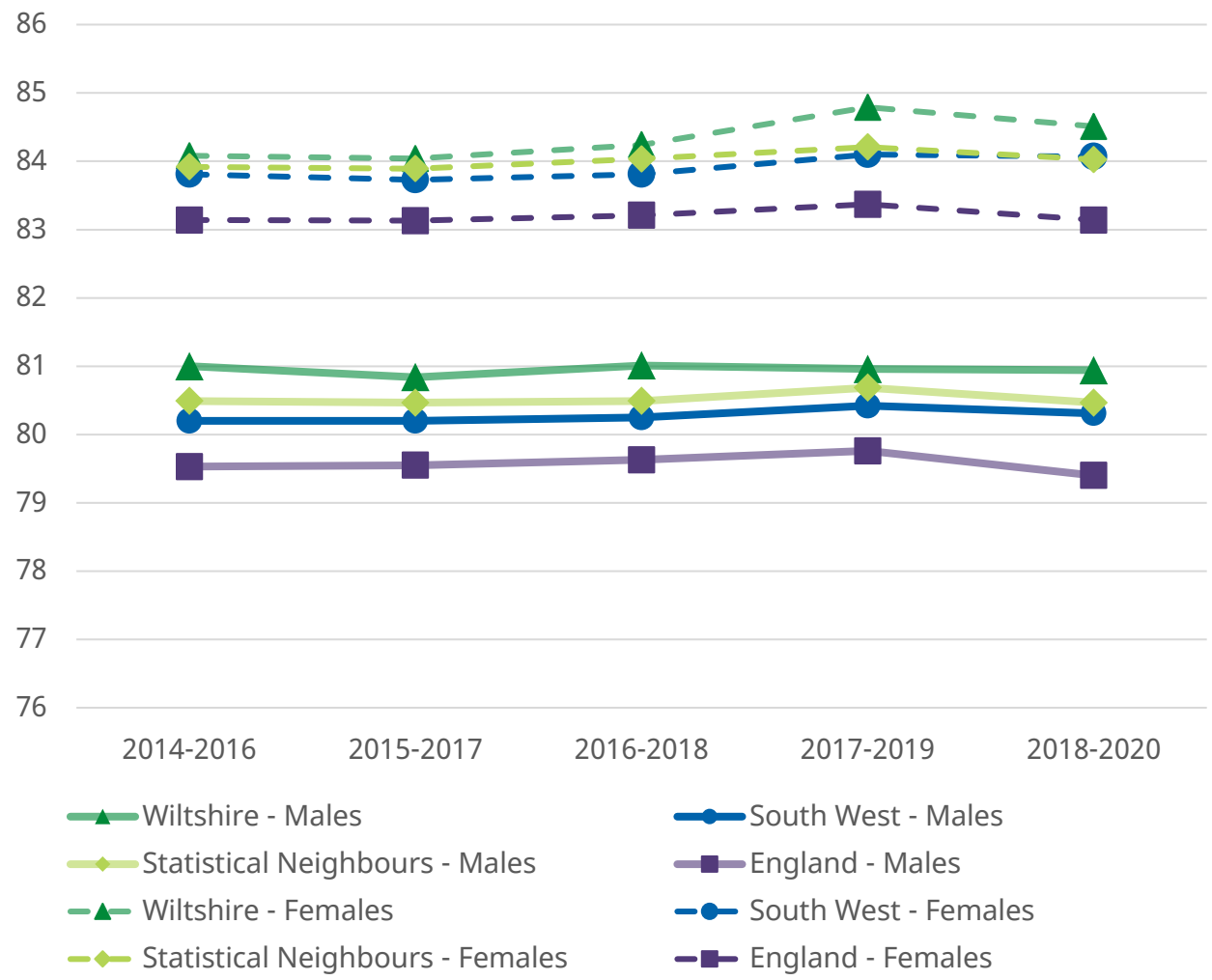
Contents

- 1) [Life expectancy at birth](#)
- 2) [Life expectancy at 65](#)
- 3) [Healthy life expectancy](#)
- 4) [Healthy life expectancy by deprivation decile \(England\)](#)
- 5) [All-age all-cause mortality](#)
- 6) [Under 75 all-cause mortality](#)
- 7) [Under 75 mortality rates](#)
- 9) [Under 75 mortality rates \(cancer and CVD\)](#)
- 10) [Under 75 preventable mortality rates \(cancer and CVD\)](#)
- 11) [Under 75 preventable mortality](#)
- 12) [Under 75 preventable mortality by deprivation quintile](#)
- 13) [Data sources and references](#)
- 14) [Technical guidance](#)

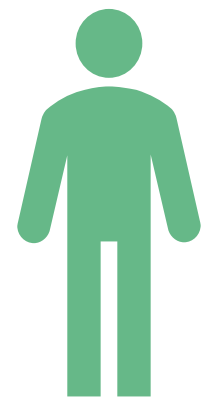


Life expectancy and causes of death: Life expectancy at birth

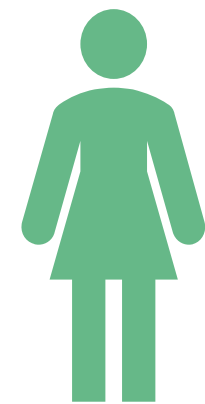
Life expectancy at birth (years): Geographical and gender comparison
2014-2016 - 2018-2020



Average life expectancy in Wiltshire 2018-2020



80.9
years



84.5
years

Life expectancy at birth illustrates the average number of years a new-born can expect to live based on contemporary mortality rates in a particular area.

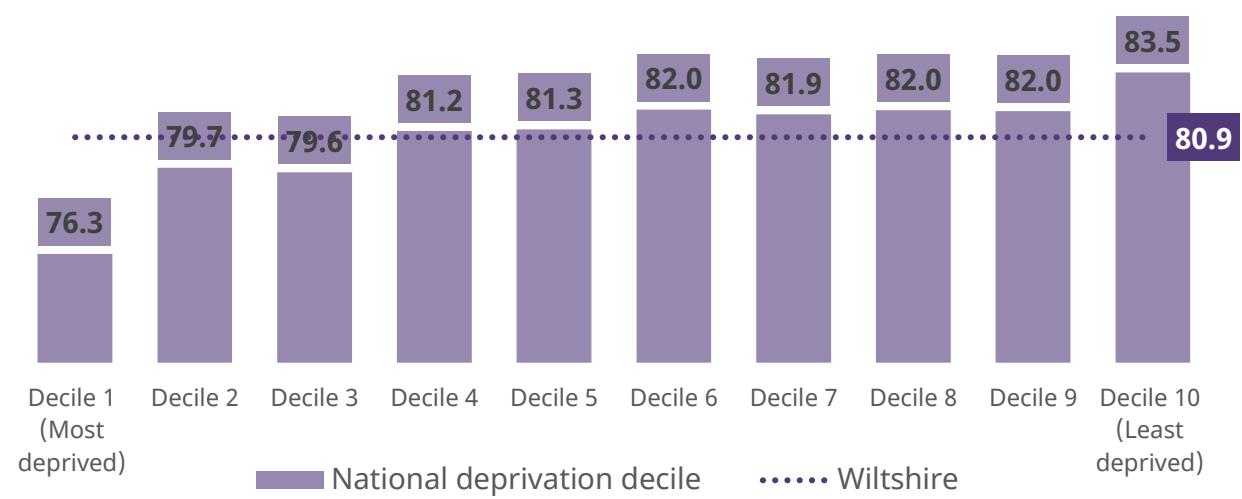
Wiltshire's population has historically had slightly longer life expectancies than the South West, England and the county's statistical neighbours (areas with similar demographics).

In the period 2018-2020, the average life expectancy for females in Wiltshire was 3.6 years higher than males, with females in Wiltshire expected to live to 84.5 years and males to 80.9 years.

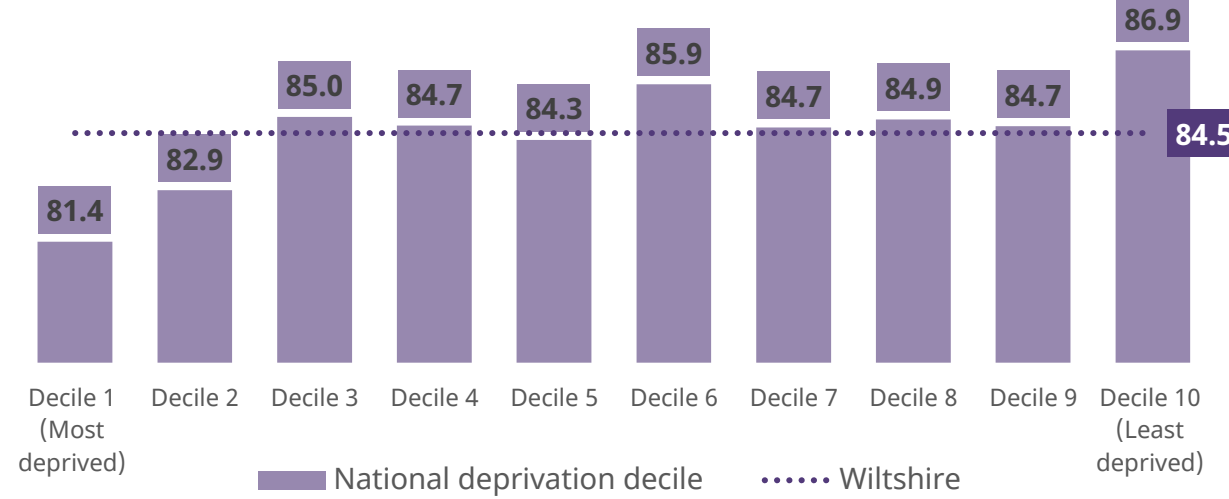


Life expectancy and causes of death : Life expectancy at birth

Male life expectancy at birth (years) in Wiltshire by national deprivation decile 2018-2020



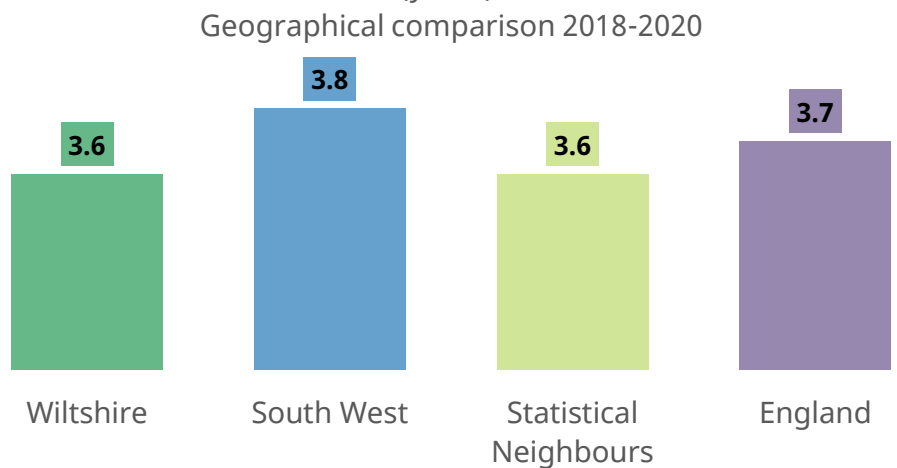
Female life expectancy at birth (years) in Wiltshire by national deprivation decile 2018-2020



For both male and females living in Wiltshire, those living in more deprived areas (as denoted by the [Indices of Deprivation 2019](#)) have a shorter life expectancy than those living in other parts of the county.

Residents of Wiltshire who live in the most deprived 10% of areas in England have a life expectancy of between 5.5 years (females) and 7.2 years (males) lower than people living in areas of Wiltshire that are in the 10% least deprived areas of England. This is comparably lower than the England average of 8 years difference for females and 9.7 years for males.

Gap in life expectancy between males and females (years):

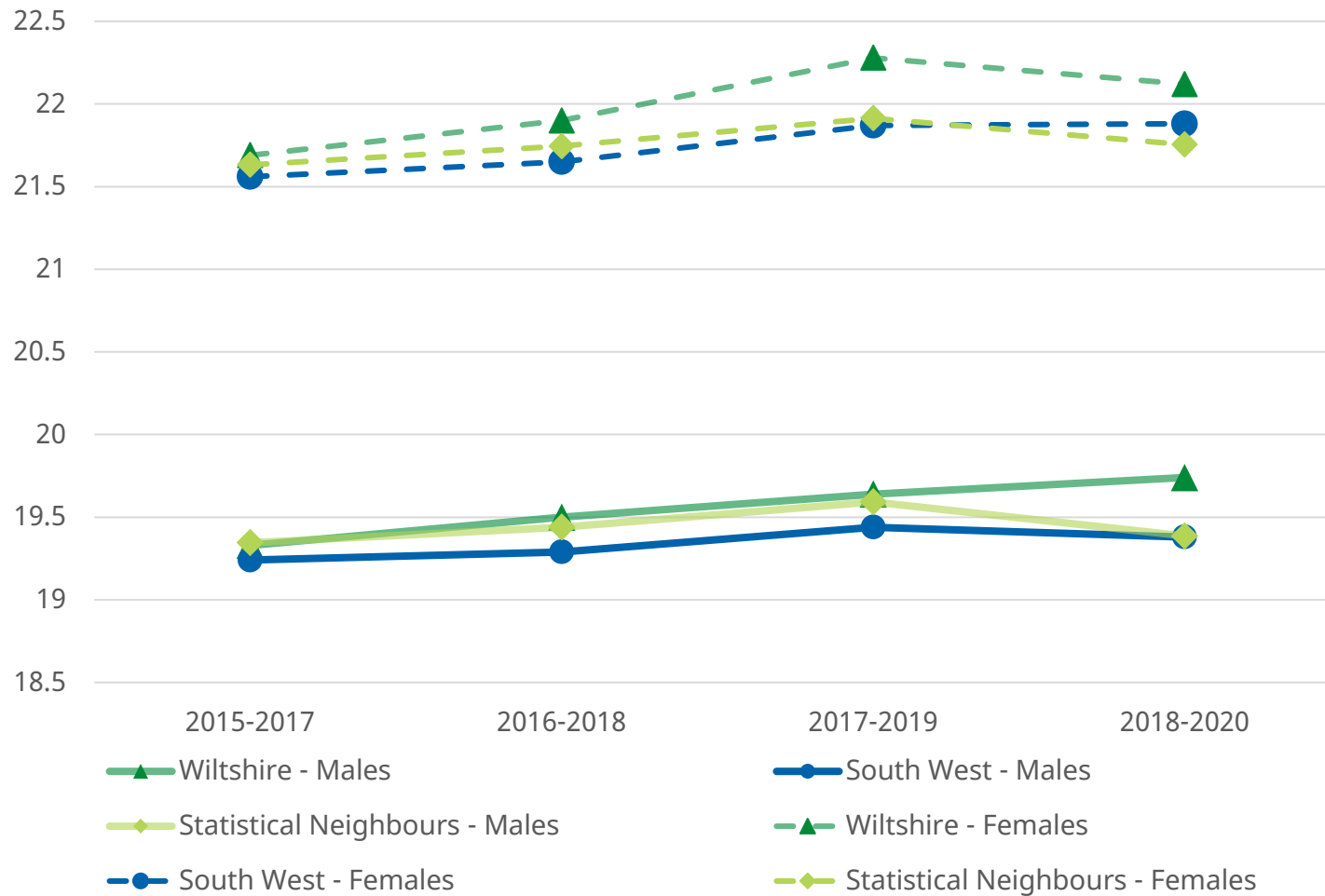


The gap in life expectancy between genders is partly down to genetic, biological and behavioural differences ([Advisory Board, 2020](#)). However, [Pinho-Gomes, et al. \(2022\)](#) also found countries with greater overall societal gender equality had a narrower gender gap in life expectancy, as well as in healthy life expectancy.



Life expectancy and causes of death: Life expectancy at 65

Life expectancy at age 65 (years): Geographical and gender comparison 2014-2016 - 2018-2020



Life expectancy at 65 years indicates the average number of years that a person at that age can be expected to live, assuming that mortality levels remain constant.

For Wiltshire, as with life expectancy at birth, females aged 65 have a longer life expectancy than males by 2.4 years. Comparatively, life expectancy for both genders at 65 years is above the averages seen in the South West and amongst Wiltshire's statistical neighbours.

The long-term rise in life expectancy is a factor in the restructuring of Wiltshire's population to include a higher proportion of older people, as discussed in the population and deprivation section. This represents a challenge for care services in the county.

Wiltshire life expectancy at 65 years 2018-2020



19.7 years

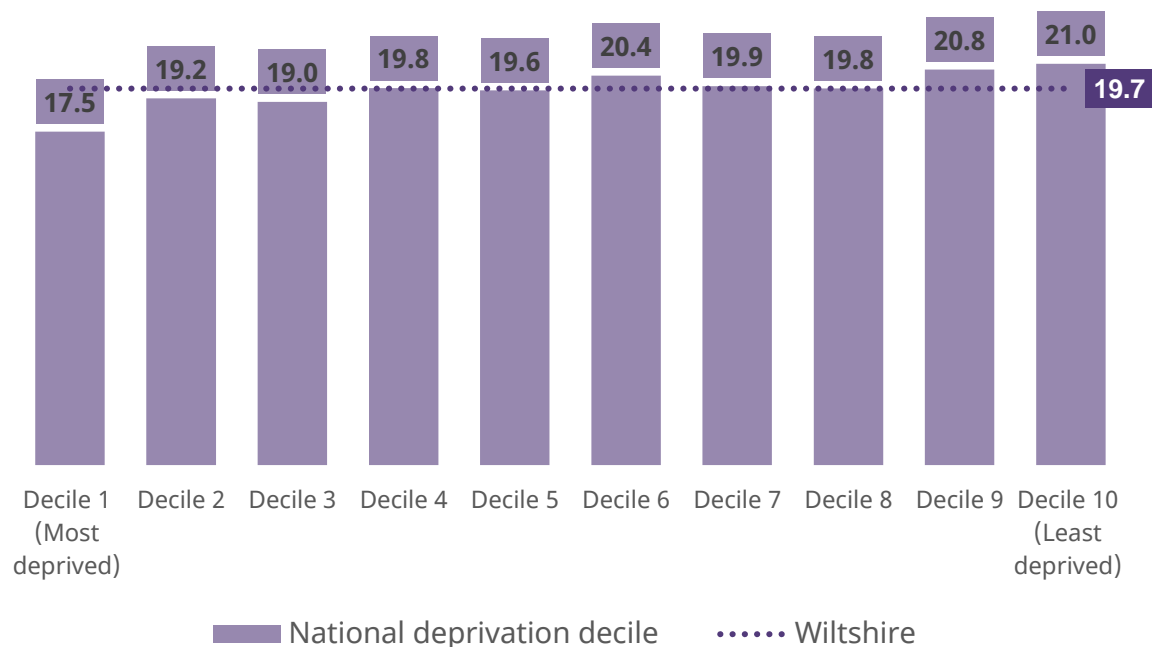


22.1 years

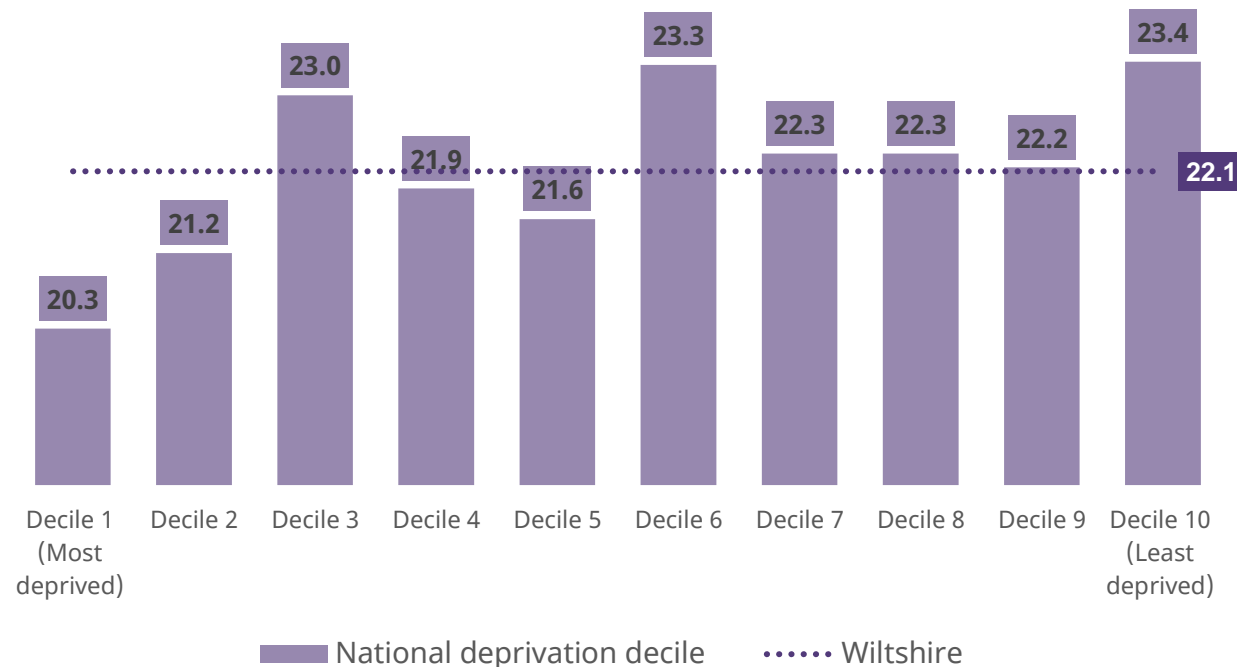


Life expectancy and causes of death : Life expectancy at 65

Male life expectancy at 65 (years) in Wiltshire by national deprivation decile 2018-2020



Female life expectancy at 65 (years) in Wiltshire by national deprivation decile 2018-2020

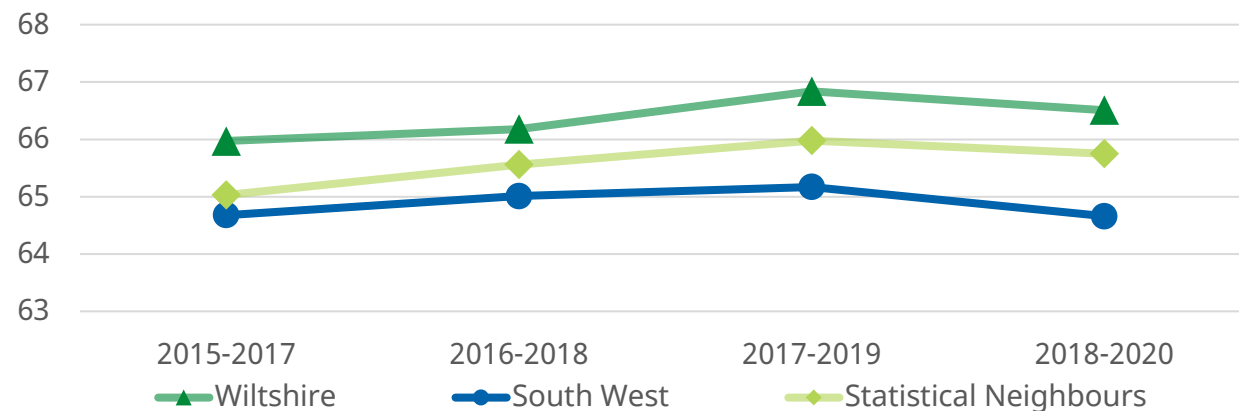


As with life expectancy at birth, residents of Wiltshire in 2018-2020, who live in the most deprived 10% of areas in England have a lower life expectancy at 65 compared with those living in areas of Wiltshire that are in the 10% least deprived areas nationally. For male residents living in the 10% most deprived areas of England their life expectancy at 65 is 17.5 years compared to 21 years for male residents in 10% least deprived areas in England. For female residents living in the 10% most deprived areas of England their life expectancy at 65 is higher than their male counterparts at 20.3 years, and female residents in 10% least deprived areas in England have a life expectancy at 65 of 23.4 years.

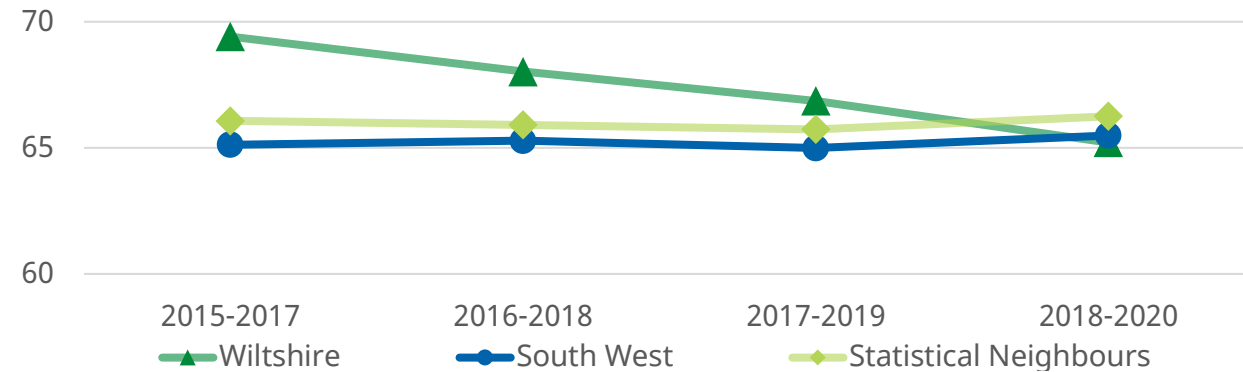
In 2018-2020, the variation between Wiltshire residents living in the most and least deprived areas in England is slightly higher for males (3.5 years) compared with females (3.1 years).

Life expectancy and causes of death: Healthy life expectancy

Male healthy life expectancy at birth (years): Geographical comparison
2015-2017 - 2018-2020



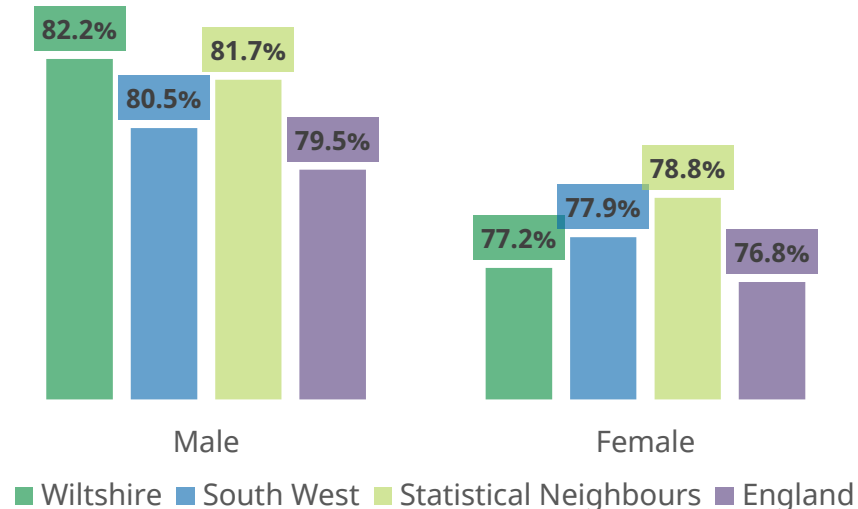
Female healthy life expectancy at birth (years): Geographical comparison
2015-2017 - 2018-2020



Healthy life expectancy is an estimated measure of the average number of years a person can expect to live in good health based on contemporary mortality rates. As such, it adds a quality of life dimension to overall life expectancy measures.

In 2018-2020, healthy life expectancy in males in Wiltshire was 66.5 years, extending into state pension age. This is above that for males in both the South West (64.7 years) and our statistical neighbours (65.8 years). Whilst female healthy life expectancy has remained broadly stable amongst Wiltshire's comparators since 2015-2017, it has gradually declined in Wiltshire by 4.2 years between 2015-2017 - 2018-2020. In 2018-2020, female healthy life expectancy in Wiltshire was 65.2 years. This is lower than that of our statistical neighbours (66.3 years) and slightly lower than the South West (65.5 years).

Proportion of healthy life: Percentage of life expectancy spent in healthy life
Geographical comparison 2018-2020



When looking at healthy life expectancy as a proportion of life expectancy, although both genders can expect to live 65-66 years in good health, Wiltshire's males typically live substantially longer proportions of their lives (82.2%) in good health compared to Wiltshire's females (77.2%).

This larger proportion is generally as a result of women living longer with a greater proportion of their lives spent in poor health, a phenomenon known as 'expansion of morbidity' ([Pinho-Gomes, et al. 2022](#)). It is also linked to men typically having higher rates of conditions that can lead to premature mortality such as cardiovascular conditions and cancers ([Crimmins, et al. \(2019\)](#)). Females however, may report health problems more frequently ([Luy and Minagawa \(2014\)](#)).

Life expectancy and causes of death: Healthy life expectancy by deprivation decile (England)

Inequality gap: Gap between most and least deprived deciles in England for healthy life expectancy and life expectancy

Gender comparison 2018-2020



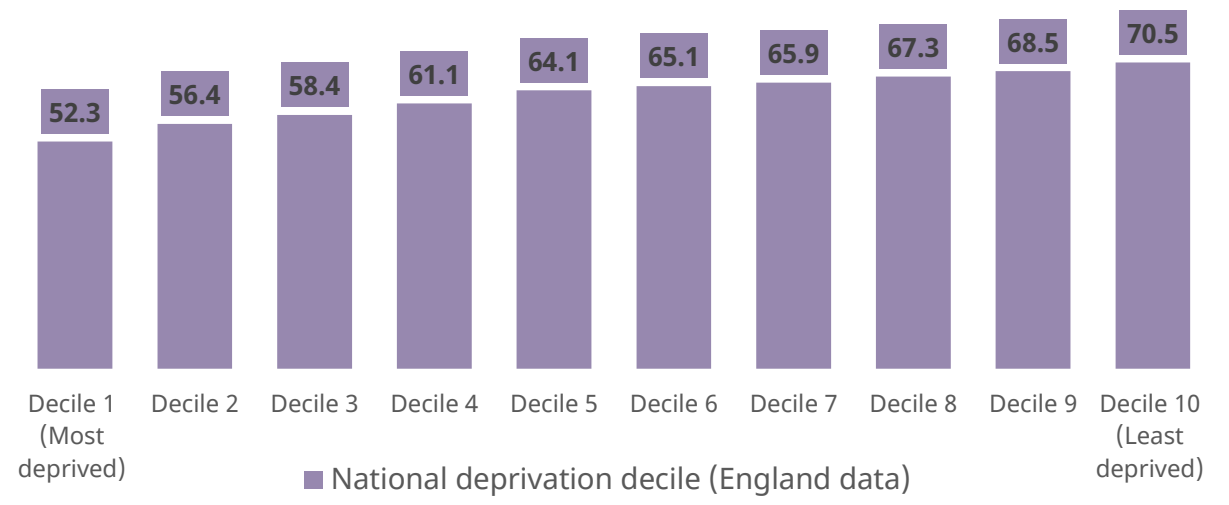
Across England, the level of deprivation is associated with an even greater inequality in healthy life expectancy than in life expectancy.

Males in the most deprived decile in England have a healthy life expectancy at birth of 52.3 years, which is 18.2 years less than those in the least deprived decile.

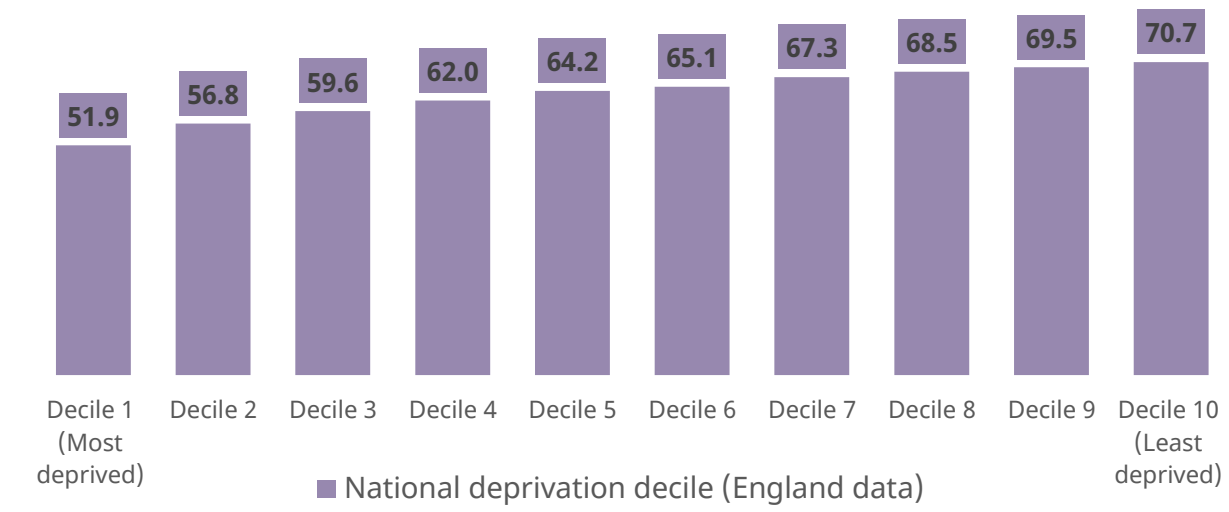
Females in the most deprived areas in England have a healthy life expectancy of 51.9 years, which is 18.8 years less than those in the least deprived areas of the country.

Nearly 120,000 people in Wiltshire live in the most deprived half of areas in England (deciles 1-5), and therefore face the corresponding inequalities in their healthy life expectancy.

Male healthy life expectancy at birth (years) by national deprivation decile, England 2018-2020



Female healthy life expectancy at birth (years) by national deprivation decile, England 2018-2020



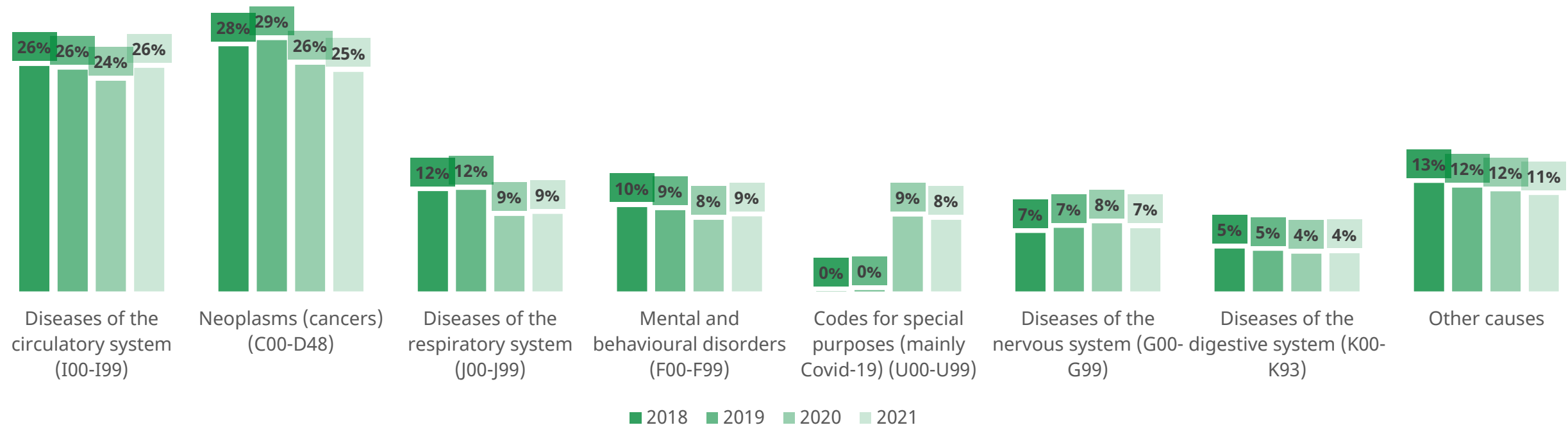
Life expectancy and causes of death: All-age all-cause mortality

Year	2018	2019	2020	2021
Number of deaths of Wiltshire residents	4736	4505	5241	5142

Understanding the numbers and causes of death and how these are changing over time is important to help plan for future services and provide information which can be useful to support the development of population based prevention services.

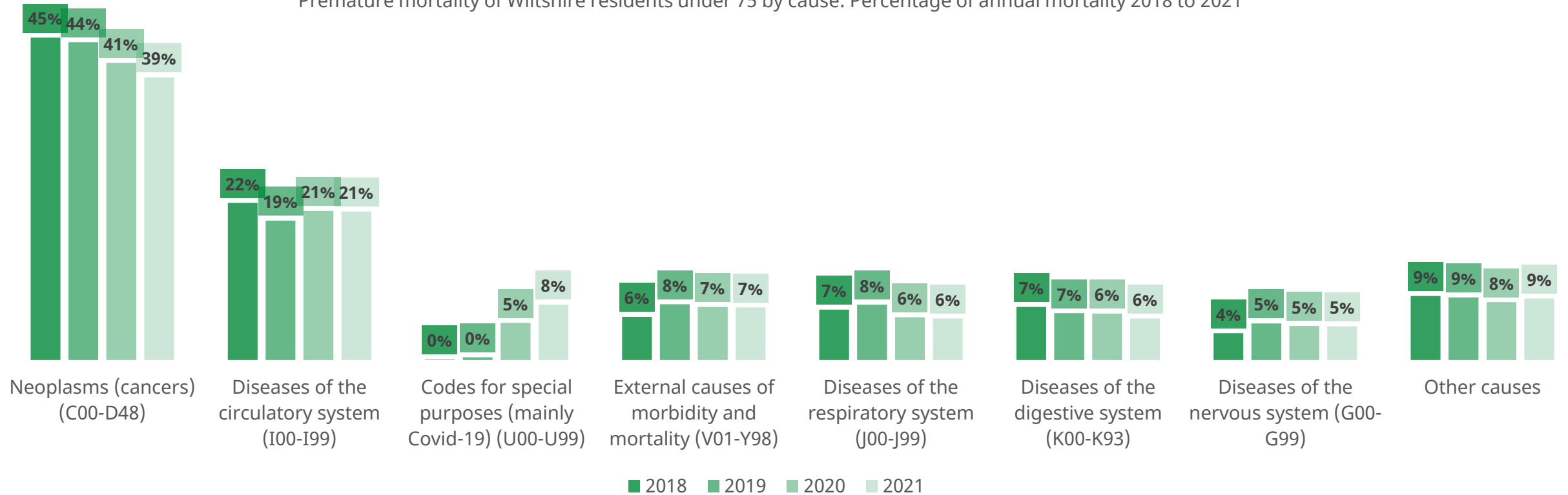
Cancers and cardiovascular (circulatory) diseases continue to cause over half of all deaths in Wiltshire (2634 of 5142 deaths in 2021), while Covid-19 caused just under 10% of all deaths in the county in both 2020 and 2021.

All-age mortality in Wiltshire by cause: Percentage of annual mortality 2018 to 2021



Life expectancy and causes of death: Under 75 all-cause mortality

Premature mortality of Wiltshire residents under 75 by cause: Percentage of annual mortality 2018 to 2021



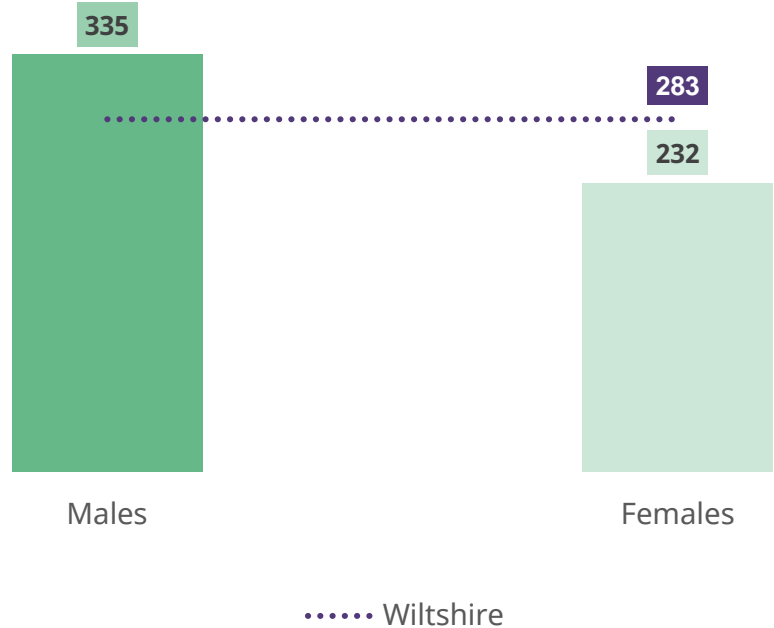
Year	2018	2019	2020	2021
Number of deaths of Wiltshire residents under 75	1311	1271	1391	1295

Cancers and cardiovascular (circulatory) diseases are also responsible for the majority of deaths of people aged under 75 in Wiltshire, causing 778 of 1295 premature deaths in 2021. Covid-19 was the third biggest cause of death in the county among under 75 year olds in 2021, causing 98 deaths (67 in 2020).

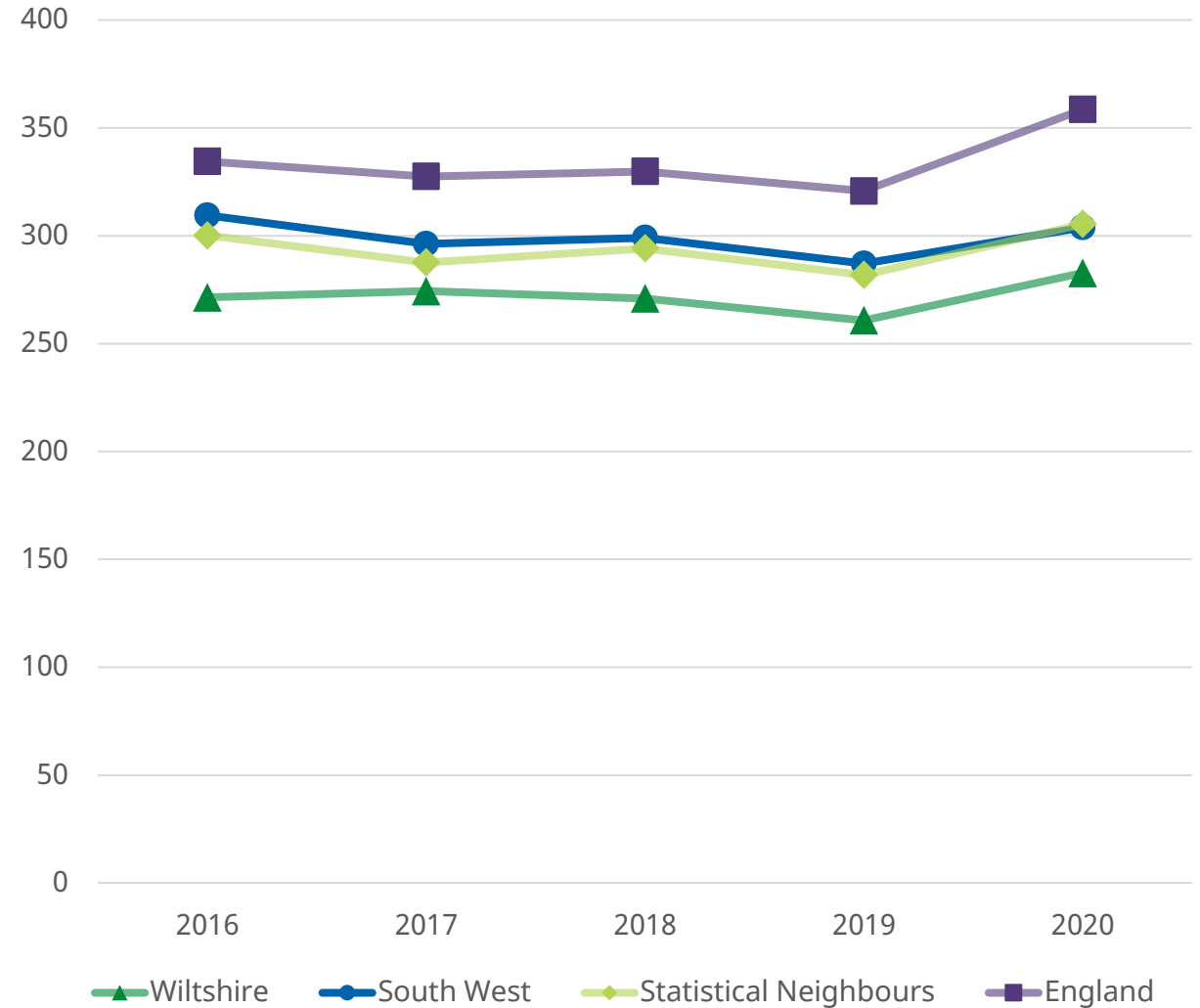
Premature mortality correlates strongly with many other measures of population health. To ensure a reduction in the rates of premature mortality, there needs to be combined action on both prevention and treatment.

Life expectancy and causes of death: Under 75 mortality rates

Under 75 premature mortality in Wiltshire: Rate per 100,000 population by gender 2020



Under 75 premature mortality: Rate per 100,000 population Geographical comparison 2016-2020

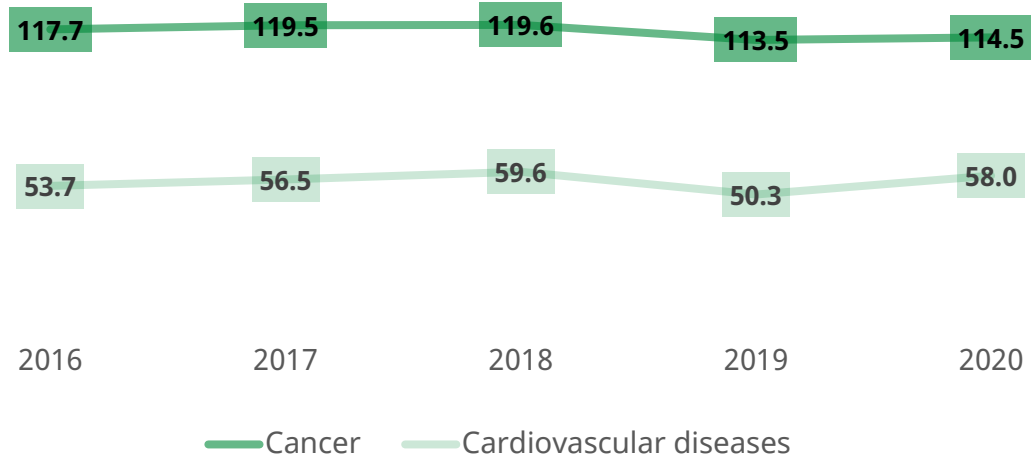


In 2020, there were 1,391 deaths in Wiltshire of those aged under 75 years old, of which 803 were male and 588 were female. This represents 283 deaths per 100,000 population, which is substantially less than rates in the South West (304), amongst statistical neighbours (305) and in England (359).

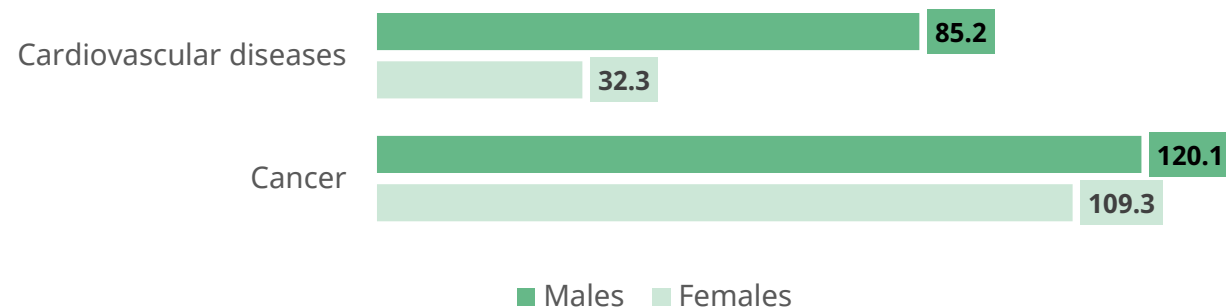
Wiltshire, like other areas, saw a marked increase in premature deaths in 2020, likely caused by the direct and indirect effects of the COVID-19 pandemic.

Life expectancy and causes of death: Under 75 mortality rates (cancer and CVD)

Under 75 mortality due to CVD and cancer in Wiltshire: Rate per 100,000 population, 2016-2020



Under 75 mortality due to CVD and cancer in Wiltshire: Rate per 100,000 population
Gender comparison 2020



Under 75 mortality in 2020 Rate per 100,000	Wiltshire	South West	England
Cardiovascular diseases	58.0	62.8	73.8
Cancer	114.5	117.8	125.1

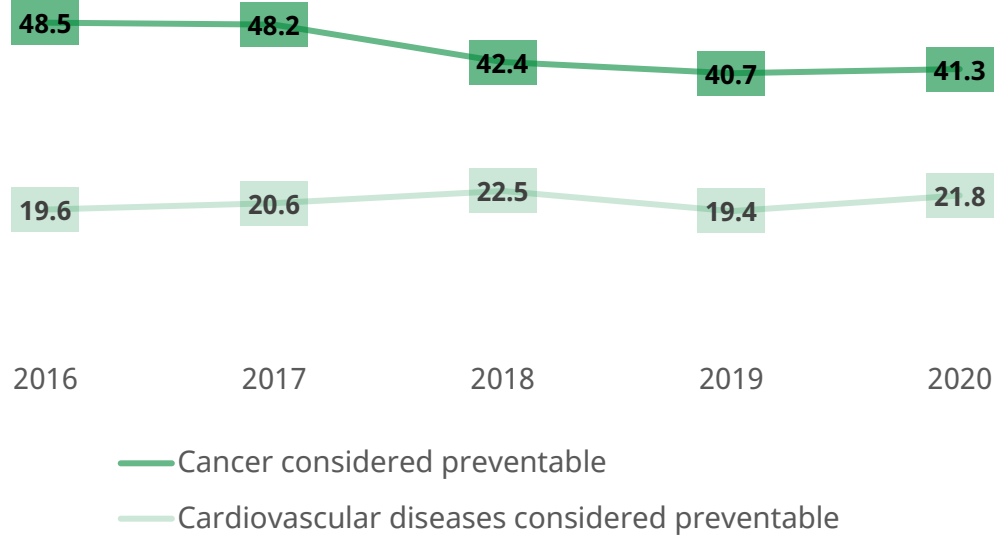
Cardiovascular diseases (CVD) include all heart and circulatory diseases, including coronary heart disease, angina, heart attack, congenital heart disease, hypertension, stroke and vascular dementia.

In Wiltshire, rates of premature mortality due to CVD in males in 2020 was more than double that observed in females in the county. This is a trend that is reflected nationally. Overall rates of mortality for cardiovascular disease in Wiltshire in 2020 (58 per 100,000 persons) are however below that reported in the South West (62.8 per 100,000) as well as England (73.8 per 100,000).

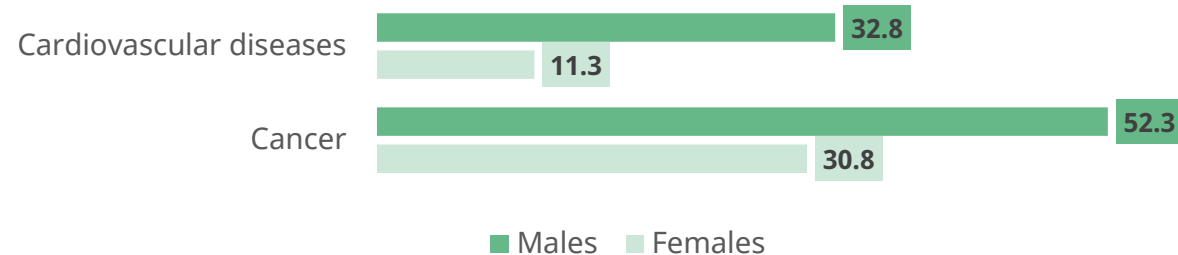
The gap between genders is smaller when looking at cancer mortality. In 2020, 569 individuals aged under 75 died of cancer in Wiltshire.

Life expectancy and causes of death: Under 75 preventable mortality rates (cancer and CVD)

Under 75 preventable mortality due to CVD and cancer in Wiltshire:
Rate per 100,000 population 2016-2020



Under 75 preventable mortality due to CVD and cancer in Wiltshire:
Rate per 100,000 population
Gender comparison 2020



The previous slide shows the under 75 mortality rates from cancers and cardiovascular diseases (CVD) in Wiltshire. Over a third of these premature deaths were considered “preventable” in the sense that early public health interventions might have stopped the onset of the disease.

Males aged under 75 in Wiltshire have a significantly higher rate of preventable mortality from cancer and CVD than women.

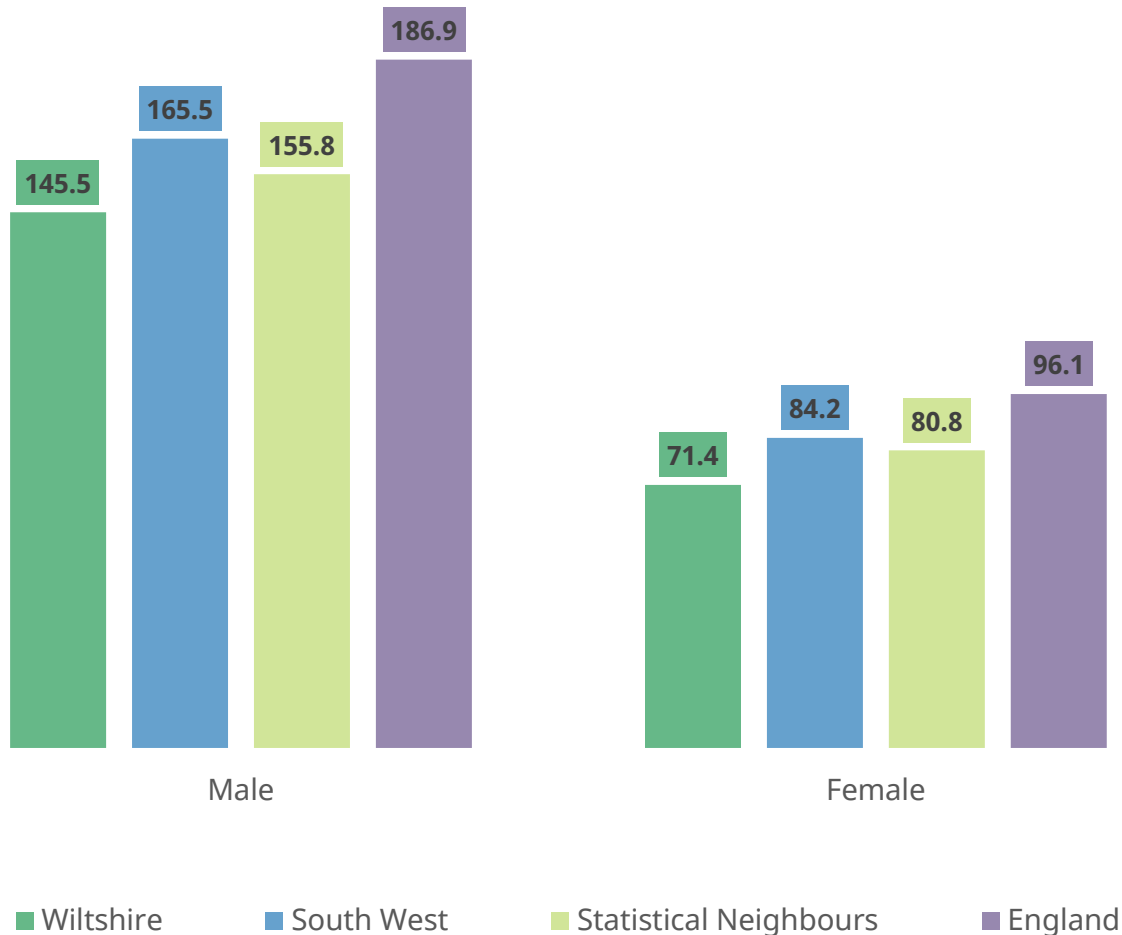
In the case of preventable premature deaths from cancer, the variation in rates between genders is more pronounced than the variation seen in overall premature cancer deaths shown on the previous slide. This inequality is seen in our comparator areas as well as in Wiltshire.

The next slide shows Wiltshire’s overall preventable mortality rate from all causes.

Percentage of under 75 mortalities considered to be preventable in 2020	Wiltshire	South West	England
Cardiovascular diseases	38%	39%	40%
Cancer	36%	40%	41%

Life expectancy and causes of death: Under 75 preventable mortality

Under 75 preventable mortality: Rate per 100,000 population
Geographical and gender comparison 2020



Under 75 preventable mortality rates in 2020,
per 100,000 population



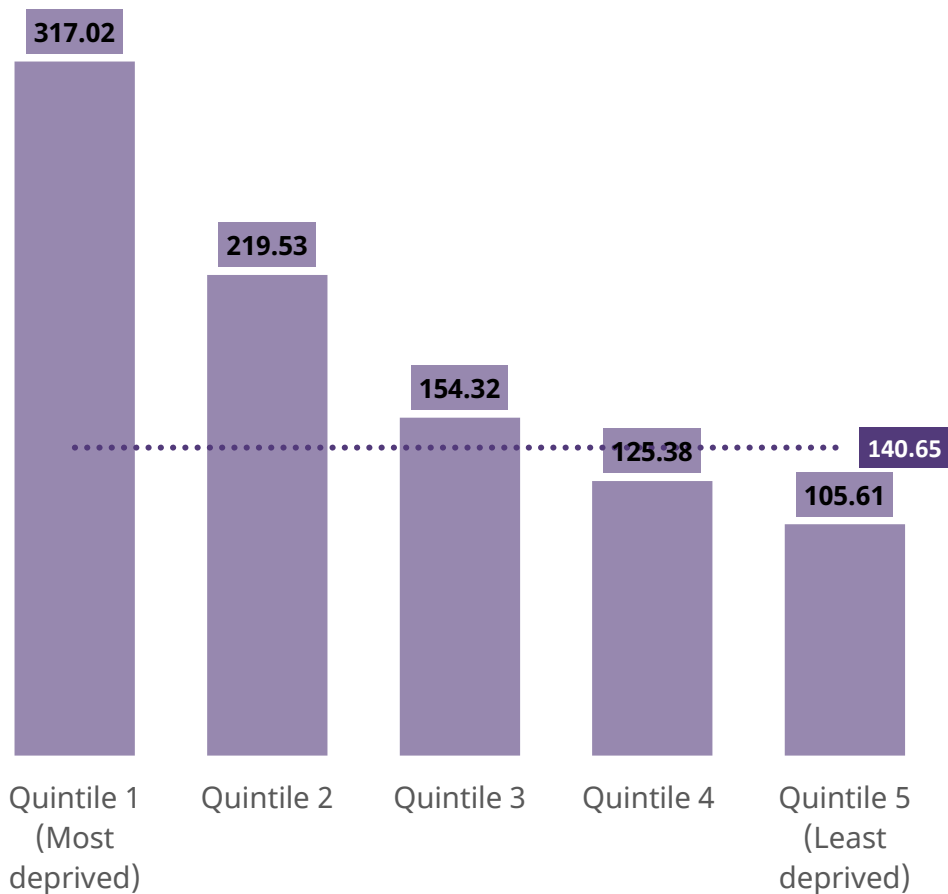
Preventable mortalities are those where the causes of death are considered to have been potentially preventable by early public health and primary healthcare interventions (i.e. before the onset of diseases).

Wiltshire has a substantially lower preventable premature mortality rate than the South West, England and our statistical neighbours. Wiltshire also, like many areas, has seen a long-term reduction in these rates, but this downward trend has slowed in recent years.

As in our comparator areas, Wiltshire has around double the rate of preventable premature deaths in males than females.

Life expectancy and causes of death: Under 75 preventable mortality by deprivation quintile

Male preventable mortality among under 75s in Wiltshire: Rate per 100,000 population by national deprivation quintile 2018-2020



■ National deprivation quintile Wiltshire

3

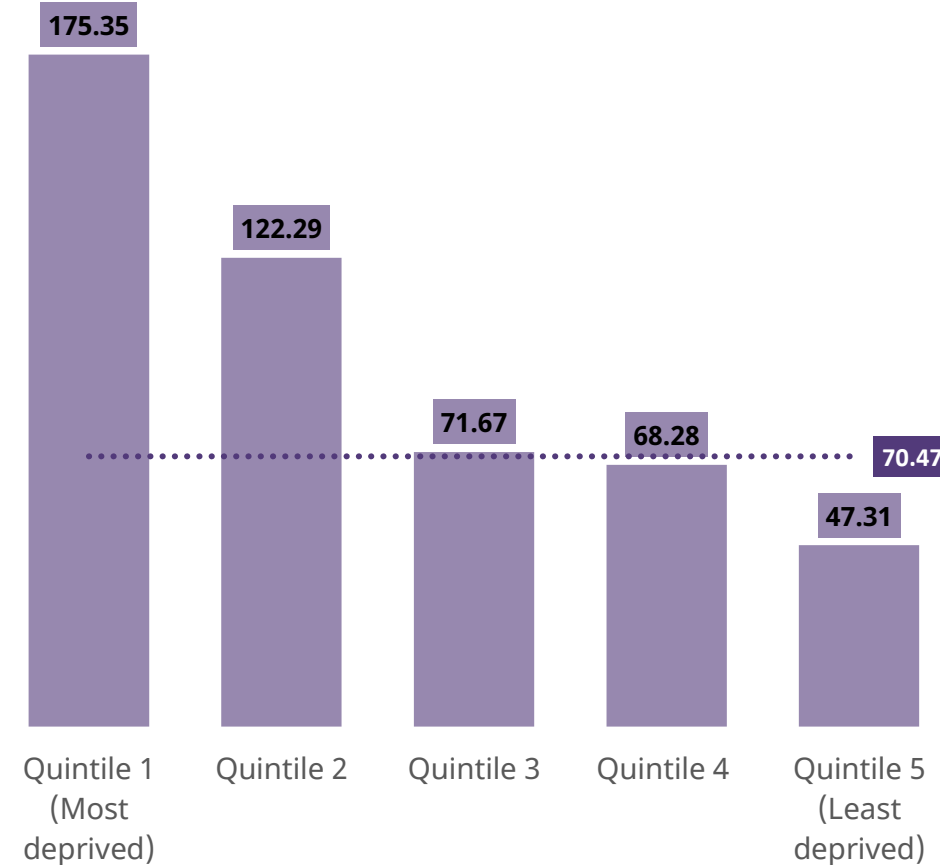
The age-adjusted rate of preventable deaths in Wiltshire between 2018 and 2020 was just over **3x** higher for men living in our most deprived areas than it was for men in our least deprived areas.

3.7

It was **3.7x** higher for women.

Wiltshire has low rates of preventable deaths in our least deprived areas, compared with national figures, but the inequality between our most and least deprived areas is greater.

Female preventable mortality among under 75s in Wiltshire: Rate per 100,000 population by national deprivation quintile 2018-2020



■ National deprivation quintile Wiltshire

Life expectancy and causes of death: Data sources and references

Section title	Reference title	Data source	Date	Link
Life expectancy at birth (1)	Chart: Life expectancy at birth (years): Geographical and gender comparison 2014-2016 to 2018-2020	Office of National Statistics	2014-16 to 2018-20	Life expectancy estimates, all ages, UK - Office for National Statistics (ons.gov.uk)
Life expectancy at birth (1)	Infographic: Average life expectancy in Wiltshire 2018-2020	Office of National Statistics	2018-2020	Life expectancy estimates, all ages, UK - Office for National Statistics (ons.gov.uk)
Life expectancy at birth (2)	Chart: Male life expectancy at birth (years) in Wiltshire by national deprivation decile, 2018-2020	Office of National Statistics	2018-2020	Life expectancy estimates, all ages, UK - Office for National Statistics (ons.gov.uk)
Life expectancy at birth (2)	Chart: Female life expectancy at birth (years) in Wiltshire by national deprivation decile, 2018-2020	Office of National Statistics	2018-2020	Life expectancy estimates, all ages, UK - Office for National Statistics (ons.gov.uk)
Life expectancy at birth (2)	Chart: Gap in life expectancy between males and females (years): Geographical comparison, 2018-2020	Office of National Statistics	2018-2020	Life expectancy estimates, all ages, UK - Office for National Statistics (ons.gov.uk)
Life expectancy at 65 (1)	Chart: Life expectancy at age 65 (years): Geographical and gender comparison 2014-2016 - 2018-2020	Office for Health Improvement & Disparities	2014-16 to 2018-20	Public health profiles - OHID (phe.org.uk)
Life expectancy at 65 (1)	Infographic: Wiltshire life expectancy at age 65 in 2018-2020	Office for Health Improvement & Disparities	2018-2020	Public health profiles - OHID (phe.org.uk)

Life expectancy and causes of death: Data sources and references

Section title	Reference title	Data source	Date	Link
Life expectancy at 65 (2)	Chart: Male life expectancy at 65 (years) in Wiltshire by national deprivation decile, 2018-2020	Office for Health Improvement & Disparities	2018-2020	Public health profiles - OHID (phe.org.uk)
Life expectancy at 65 (2)	Chart: Female life expectancy at 65 (years) in Wiltshire by national deprivation decile, 2018-2020	Office for Health Improvement & Disparities	2018-2020	Public health profiles - OHID (phe.org.uk)
Healthy life expectancy	Chart: Male healthy life expectancy at birth (years): Geographical comparison 2015-2017 - 2018-2020	Office for National Statistics	2015-2017 to 2018-2020	Health state life expectancy, all ages, UK - Office for National Statistics (ons.gov.uk)
Healthy life expectancy	Chart: Female healthy life expectancy at birth (years): Geographical comparison 2015-2017 - 2018-2020	Office for National Statistics	2015-2017 to 2018-2020	Health state life expectancy, all ages, UK - Office for National Statistics (ons.gov.uk)
Healthy life expectancy	Chart: Proportion of healthy life: Percentage of life expectancy spent in healthy life Geographical comparison 2018-2020	Office for National Statistics	2018-2020	Health state life expectancy, all ages, UK - Office for National Statistics (ons.gov.uk)
Healthy life expectancy by deprivation decile (England)	Chart: Inequality gap: Gap between most and least deprived deciles in England for healthy life expectancy and life expectancy Gender comparison 2018-2020	Office for Health Improvement & Disparities	2018-2020	Public health profiles - OHID (phe.org.uk)
Healthy life expectancy by deprivation decile (England)	Chart: Male healthy life expectancy at birth (years) by national deprivation decile, England 2018-2020	Office for Health Improvement & Disparities	2018-2020	Public health profiles - OHID (phe.org.uk)

Life expectancy and causes of death: Data sources and references

Section title	Reference title	Data source	Date	Link
Healthy life expectancy by deprivation decile (England)	Chart: Female healthy life expectancy at birth (years) by national deprivation decile, England 2018-2020	Office for Health Improvement & Disparities	2018-2020	Public health profiles - OHID (phe.org.uk)
All-age all-cause mortality	Table: Number of deaths of Wiltshire residents, 2018 to 2021	Wiltshire Council Public Health Intelligence team using data from the Primary Care Mortality Database. Totals for Wiltshire may differ slightly from totals published elsewhere due to small variations in the data sources	2018 to 2021	intelligence@wiltshire.gov.uk
All-age all-cause mortality	Chart: All-age mortality in Wiltshire by cause: Percentage of annual mortality 2018 to 2021	Wiltshire Council Public Health Intelligence team using data from the Primary Care Mortality Database. Totals for Wiltshire may differ slightly from totals published elsewhere due to small variations in the data sources	2018 to 2021	intelligence@wiltshire.gov.uk
Under 75 all-cause mortality	Chart and table: Premature mortality of Wiltshire residents under 75 by cause, 2018 to 2021	Wiltshire Council Public Health Intelligence team using data from the Primary Care Mortality Database. Totals for Wiltshire may differ slightly from totals published elsewhere due to small variations in the data sources	2018 to 2021	intelligence@wiltshire.gov.uk
Under 75 mortality rates	Chart: Under 75 premature mortality in Wiltshire: Rate per 100,000 population by gender in 2020	Office for Health Improvement & Disparities	2020	Mortality Profile - Data - OHID (phe.org.uk)
Under 75 mortality rates	Chart: Under 75 premature mortality: Rate per 100,000 population Geographical comparison 2016-2020	Office for Health Improvement & Disparities	2016-2020	Mortality Profile - Data - OHID (phe.org.uk)
Under 75 mortality rates (cancer and CVD)	Chart: Under 75 mortality due to CVD and cancer in Wiltshire: Rate per 100,000 population, 2016-2020	Office for Health Improvement & Disparities	2016-2020	Mortality Profile - Data - OHID (phe.org.uk)

Life expectancy and causes of death: Data sources and references

Section title	Reference title	Data source	Date	Link
Under 75 mortality rates (cancer and CVD)	Chart: Under 75 mortality due to CVD and cancer in Wiltshire: Rate per 100,000 population Gender comparison 2020	Office for Health Improvement & Disparities	2020	Mortality Profile - Data - OHID (phe.org.uk)
Under 75 mortality rates (cancer and CVD)	Table: Under 75 mortality in 2020, rate per 100,000	Office for Health Improvement & Disparities	2020	Mortality Profile - Data - OHID (phe.org.uk)
Under 75 preventable mortality rates (cancer and CVD)	Chart: Under 75 preventable mortality due to CVD and cancer in Wiltshire: Rate per 100,000 population 2016-2020	Office for Health Improvement & Disparities	2016-2020	Mortality Profile - Data - OHID (phe.org.uk)
Under 75 preventable mortality rates (cancer and CVD)	Chart: Under 75 preventable mortality due to CVD and cancer in Wiltshire: Rate per 100,000 population Gender comparison 2020	Office for Health Improvement & Disparities	2020	Mortality Profile - Data - OHID (phe.org.uk)
Under 75 preventable mortality rates (cancer and CVD)	Table: Percentage of under 75 mortalities considered to be preventable in 2020	Office for Health Improvement & Disparities	2020	Mortality Profile - Data - OHID (phe.org.uk)
Under 75 preventable mortality	Chart: Under 75 preventable mortality: Rate per 100,000 population Geographical and gender comparison 2020	Office for Health Improvement & Disparities	2020	Mortality Profile - Data - OHID (phe.org.uk)
Under 75 preventable mortality	Table: Under 75 preventable mortality rates in 2020, per 100,000 population	Office for Health Improvement & Disparities	2020	Mortality Profile - Data - OHID (phe.org.uk)

Life expectancy and causes of death: Data sources and references

Section title	Reference title	Data source	Date	Link
Under 75 preventable mortality by deprivation quintile	Chart: Male preventable mortality among under 75s in Wiltshire: Rate per 100,000 population by national deprivation quintile, 2018-2020	Wiltshire Council Public Health Intelligence team using data from the Primary Care Mortality Database and the ONS mid-year population estimates. Directly age-standardised rates per 100,000 population. Figures may differ slightly from those published elsewhere due to small variations in the data sources	2018-2020	intelligence@wiltshire.gov.uk
Under 75 preventable mortality by deprivation quintile	Chart: Female preventable mortality among under 75s in Wiltshire: Rate per 100,000 population by national deprivation quintile, 2018-2020	Wiltshire Council Public Health Intelligence team using data from the Primary Care Mortality Database and the ONS mid-year population estimates. Directly age-standardised rates per 100,000 population. Figures may differ slightly from those published elsewhere due to small variations in the data sources	2018-2020	intelligence@wiltshire.gov.uk

Life expectancy and causes of death: Technical guidance

1) Statistical neighbours

- a. The “statistical neighbours” used in this JSNA are a group of local authorities whose populations have broadly similar characteristics to the population of Wiltshire.
- b. Providing a result for our statistical neighbours provides an indication of how Wiltshire is performing on a specific indicator compared to areas with broadly similar characteristics.
- c. There are a range of “statistical neighbour” or “nearest neighbour” models available. This JSNA follows OHID’s Fingertips tools in using the 15 default areas provided by the Chartered Institute of Public Finance and Accountancy (CIPFA) Nearest Neighbours 2018 model. At the UTLA level, these are the East Riding of Yorkshire, Rutland, North Somerset, South Gloucestershire, West Berkshire, Cheshire East, Cheshire West and Chester, Shropshire, Cornwall, Bedford, Central Bedfordshire, Dorset, Buckinghamshire UA, Stockport and Solihull. Results are presented as a combined rate or as an average of the combined results for these areas.
- d. For more information, please see [Nearest Neighbour Model \(cipfa.org\)](https://www.cipfa.org/nearest-neighbour-model/) and [OHID CIPFA document](#).

2) Counts, proportions and rates (taken from [APHO: Commonly used public health statistics, 2010](#))

- a. The most basic measure used in public health is the count. This may be a count of events such as deaths or admissions to hospital, or a count of people with a particular attribute such as people who smoke. This count itself is essential information for planning the health services for prevention and/or treatment. However, to properly investigate the distribution of disease and risk factors and to make comparisons between different populations, the denominator population or population years at risk in which the count was observed must also be taken into consideration.
- b. The simplest way of doing this is to divide the numerator count by the denominator population to give a proportion or crude rate. Both proportions and rates are frequently multiplied by a scaling factor for presentation purposes, e.g. per 100,000. When this factor is 100 the statistic is usually described as a percentage.
- c. Disease and mortality rates may vary widely by age. Such variation complicates comparisons made between two populations that have different structures.
 - i. For example, consider two areas A and B with equal-sized populations and identical crude all-age death rates. At first glance they appear to have a similar mortality experience. Suppose, however, that area A has a younger age structure than area B. Given that mortality rates increase with age, one would expect the older population in area B to experience more deaths. The fact that the two have identical crude mortality rates in fact means that the younger population in area A must have a relatively worse mortality experience.
 - ii. The most comprehensive way of comparing the disease experience of two populations is to present and compare their age-specific rates. However, when the number of populations being compared increases, the volume of data that needs to be considered quickly becomes unmanageable. What is used instead is a single, easily interpreted, summary figure for each population that is adjusted to take into account its age structure. Such summary figures are calculated using age standardisation methods. It is sometimes also desirable to standardise for other variables, such as sex or level of deprivation, that may also potentially confound any comparisons.
- d. This JSNA uses a combination of counts, proportions, crude rates and directly standardised rates to describe data. Details are specified in the chart titles or citations when the method is not already in the public domain. Where the method is already published elsewhere, this source is provided in the Data sources and references sections.

3) Deprivation

- a. Results by deprivation quintile/decile are derived from the [Index of Multiple Deprivation \(2019\)](#)
- b. The English Indices of Deprivation (IoD) uses a collection of indicators grouped into seven deprivation domains to provide an estimate of relative deprivation levels within England. These domains are weighted to indicate their impact on deprivation and are combined into a single Index of Multiple Deprivation (IMD).
- c. The IMD is a measure of relative, not absolute, deprivation. It ranks England's 32,844 lower super output areas (LSOAs – small geographical areas sometimes known as 'neighbourhoods') in order from most to least deprived, i.e. it tells us whether LSOA A is more or less deprived than LSOA B.
- d. Wiltshire local authority area has 285 LSOAs, and these can be presented in terms of their deprivation rankings within England ("national deprivation deciles/quintiles") or in terms of their rankings within Wiltshire ("local deprivation deciles/quintiles"). Because much of Wiltshire is less deprived than England as a whole, small numbers in our more deprived national deciles/quintiles can complicate the presentation of information at this level and this JSNA presents local deprivation deciles/quintiles where appropriate. National deciles/quintiles within Wiltshire are presented in purple, and local deciles/quintiles in green.
- e. For more information, please see the "Population and deprivation" section of this JSNA.