Office for National Statistics

Statistical bulletin

Health state life expectancies by national deprivation deciles, Wales: 2017 to 2019

Life expectancy and years expected to live in "Good" health and disability-free using national indices of deprivation to measure socioeconomic inequalities in Wales.

Table of contents

1 . Main points

- The difference in life expectancy (LE) at birth between the least and most deprived areas in Wales, as measured by the Slope Index of Inequality (SII), was 8.9 years for males and 7.4 years for females in 2017 to 2019.

- Between 2014 to 2016 and 2017 to 2019, there were no significant changes in life expectancy at birth of those living in the most and least deprived areas of Wales.

- In 2017 to 2019, healthy life expectancy (HLE) at birth for females living in the most deprived areas was 50.2 years, compared with 68.4 years in the least deprived areas; for males it was 51.8 and 68.6 years respectively.

- The SII in female healthy life expectancy at birth stood at 18.3 years, while for males it was 17.0 years in 2017 to 2019.

- There were no significant changes in healthy life expectancy at birth among those living in the most and least deprived areas of Wales in 2017 to 2019 compared with the 2014 to 2016 period.

- The SII in disability-free life expectancy (DFLE) at birth between the least and most deprived areas in Wales was 18.3 years for females and 14.7 years for males.

- There was a sizable narrowing of the inequality in male disability-free life expectancy at birth in 2017 to 2019 compared with 2014 to 2016, influenced most strongly by a large significant increase in Decile 2 and significant falls in Deciles 6 and 8.

Please note health state life expectancy data currently go up to 2019, which means coronavirus (COVID-19) deaths are not included. The inclusion of COVID-19 on these statistics will not be available until March 2022.

2 . Life expectancy at birth, by the Welsh Index of Multiple Deprivation

Life expectancy (LE) at birth among males living in the most deprived areas was 73.3 years, compared with 82.3 years in the least deprived areas, a difference of 9 years in length of life (Figure 2). LE at birth of females in the most deprived areas was 78.2 years, compared with 85.7 years in the least deprived areas, a difference of 7.5 years (Figure 1).
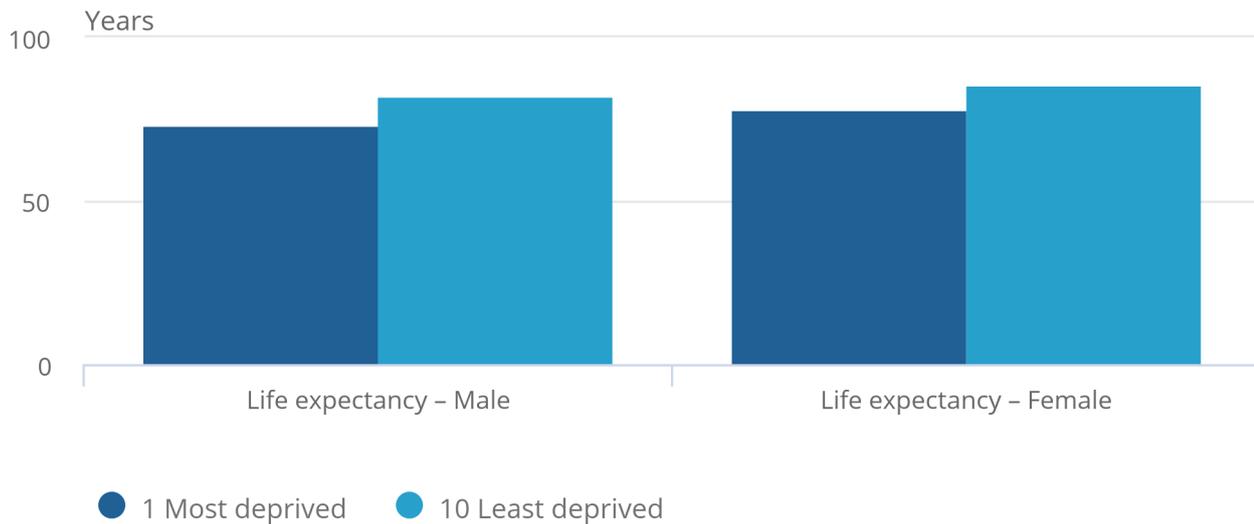
Please note differences stated throughout this release have been calculated based on figures from the accompanying datasets, where details for all deciles are available.

Life expectancy, Wales, 2017 to 2019

Figure 1: Males living in the most deprived 10% of areas could expect to live less than 75 years in Wales

Life expectancy, Wales, 2017 to 2019

Source: Office for National Statistics

Notes:

1. Life expectancy includes all usual residents.

2. Deprivation deciles are based on the Welsh Index of Multiple Deprivation 2019 (WIMD19), which is the official measure of relative deprivation. Decile 1 represents the most deprived 10% (or decile) of small areas in Wales and Decile 10 represents the least deprived 10% (or decile) of small areas in Wales.

Males living in the more advantaged areas (Deciles 8, 9 and 10) were expected to live more than 80 years in Wales, while LE in all other areas was lower than 80 years.

The difference between adjacent deciles was largest between Deciles 1 and 2 (the two most deprived area groupings) for each sex with a difference of 1.9 years for males and 1.5 years for females. The contrast between these deciles indicate the importance of the extent of deprivation exposure for health outcome.

The influence of area deprivation on females' longevity is illustrated when comparing their LE with males living in more advantaged areas; specifically, female LE in Decile 1 was lower than male LE in Deciles 5 to 10 inclusive. This shows that although in general females live longer than males, their exposure to deprivation modifies this pattern of gender advantage experienced by females. Data for all deciles can be explored further in our datasets.

Between 2014 to 2016 and 2017 to 2019, there were no significant changes in LE for males and females at birth in the least and most deprived areas. However, there was a significant increase in Decile 4 for males at birth of 49.6 weeks.

Figure 2: Males in Decile 4 experienced the largest improvement in life expectancy in 2017 to 2019 compared with 2014 to 2016

Life expectancy change in weeks, Wales, between 2014 to 2016 and 2017 to 2019

Figure 2: Males in Decile 4 experienced the largest improvement in life expectancy in 2017 to 2019 compared with 2014 to 2016

Life expectancy change in weeks, Wales, between 2014 to 2016 and 2017 to 2019
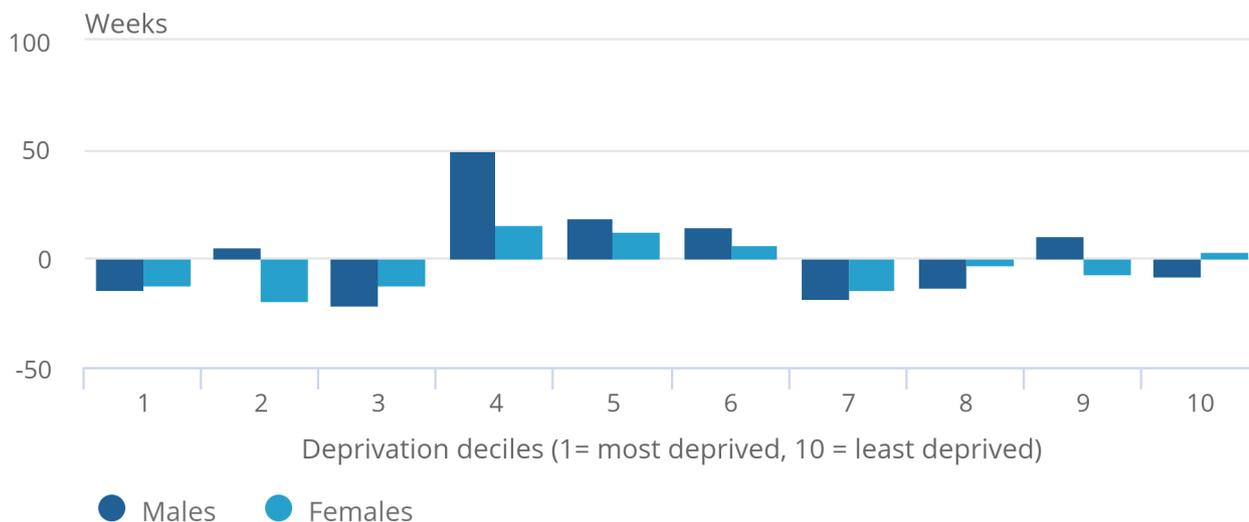
Source: Office for National Statistics

Notes:

1. Life expectancy includes all usual residents.

2. Deprivation deciles are based on the Welsh Index of Multiple Deprivation (WIMD), which is the official measure of relative deprivation. WIMD 2014 was used for periods 2011 to 2013 to 2015 to 2017 and for periods 2016 to 2018 and 2017 to 2019 WIMD 2019 was used.

3. Decile 1 represents the most deprived 10% (or decile) of small areas in Wales and Decile 10 represents the least deprived 10% (or decile) of small areas in Wales.

3 . Healthy life expectancy at birth in Wales, by the Welsh Index of Multiple Deprivation

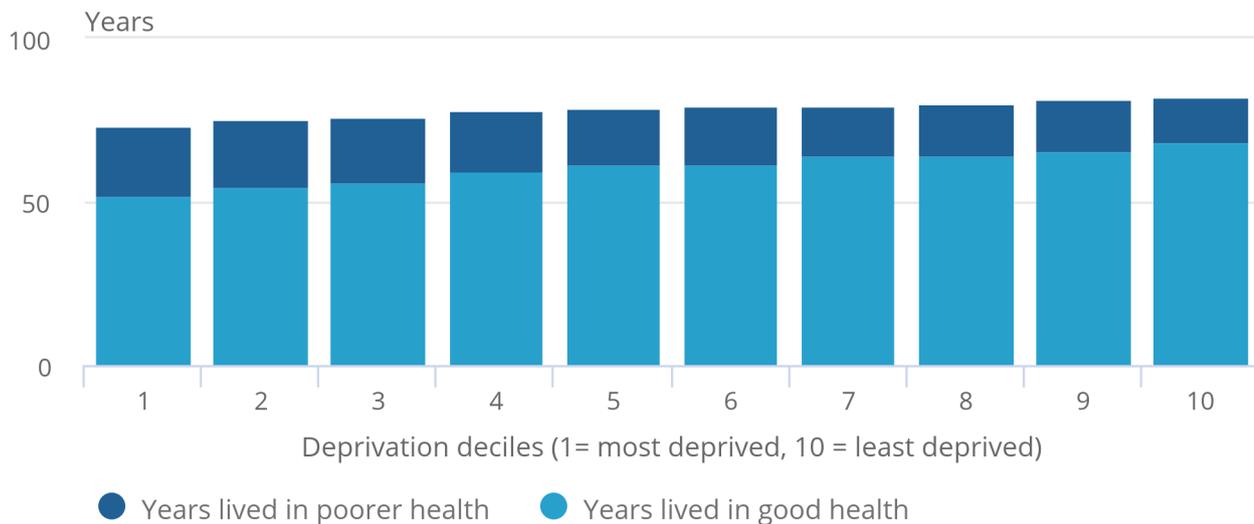Healthy life expectancy (HLE) at birth for males was lowest in the most deprived areas at 51.8 years and highest in the least deprived areas at 68.6 years, a difference of 16.9 years (Figure 3). The largest difference between adjacent deciles for males at birth was 3.9 years between Deciles 3 and 4. The second largest difference existed between Deciles 9 and 10 and Deciles 1 and 2 of 3.0 years.

Figure 3: Only males in Deciles 9 and 10 were expected to live more than 65 years in "Good" health across their life span

Healthy life expectancy, Wales, 2017 to 2019

Figure 3: Only males in Deciles 9 and 10 were expected to live more than 65 years in "Good" health across their life span

Healthy life expectancy, Wales, 2017 to 2019

Years

- ● Years lived in poorer health
- ● Years lived in good health

Deprivation deciles (1= most deprived, 10 = least deprived)

Source: Office for National Statistics – Annual Population Survey, Census 2011

Notes:

1. Life expectancy includes all usual residents.

2. The health state prevalence estimates used to estimate healthy life expectancy are sourced from Annual Population Survey (APS) data and data from the 2011 Census. The APS excludes residents of communal establishments except NHS housing and students in halls of residence where inclusion takes place at their parents' address.

3. Deprivation deciles are based on the Welsh Index of Multiple Deprivation 2019 (WIMD19), which is the official measure of relative deprivation. Decile 1 represents the most deprived 10% (or decile) of small areas in Wales and Decile 10 represents the least deprived 10% (or decile) of small areas in Wales.

Only males in Deciles 9 and 10, the two least deprived deciles, were expected to live more than 65 years in "Good" health, whereas males in the four most deprived deciles were expected to live fewer than 60 years in "Good" health.

HLE at birth for females in the most deprived areas was 50.2 years, 18.3 years fewer than those in the least deprived areas, where females could expect to live 68.4 years in "Good" health (Figure 4). There was a large difference of 5.3 years in "Good" health between Deciles 1 and 2, again showing a marked contrast between relatively deprived populations and emphasising the importance of the extent of deprivation exposure for female health status in Wales.

Figure 4: At birth females in the most deprived areas could expect to live 50.2 years in good health, this was 18.3 years fewer than those in the least deprived areas

Healthy life expectancy, Wales, 2017 to 2019

Source: Office for National Statistics – Annual Population Survey, Census 2011

Notes:

1. Life expectancy includes all usual residents.

2. The health state prevalence estimates used to estimate healthy life expectancy are sourced from Annual Population Survey (APS) data and data from the 2011 Census. The APS excludes residents of communal establishments except NHS housing and students in halls of residence where inclusion takes place at their parents' address.

3. Deprivation deciles are based on the Welsh Index of Multiple Deprivation 2019 (WIMD19), which is the official measure of relative deprivation. Decile 1 represents the most deprived 10% (or decile) of small areas in Wales and Decile 10 represents the least deprived 10% (or decile) of small areas in Wales.

Considering change over time, there were no significant decile specific changes in HLE at birth between 2014 to 2016 and 2017 to 2019.

4 . Disability-free life expectancy at birth, by the Welsh Index of Multiple Deprivation
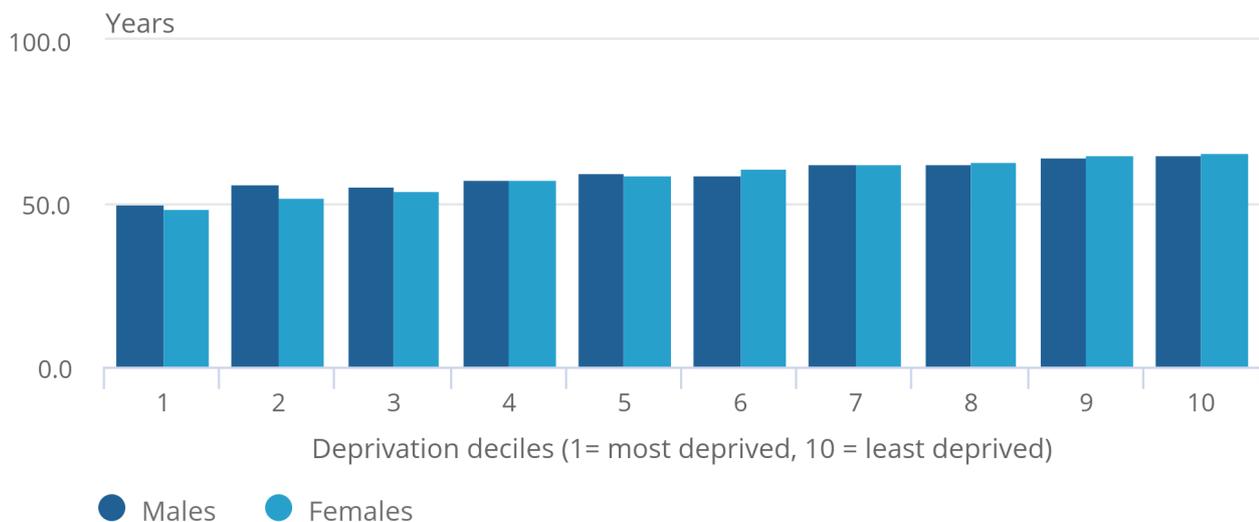
Disability-free life expectancy at birth for males living in Deciles 6 and 8 significantly reduced between 2014 to 2016 and 2017 to 2019

Figure 5: Males in Decile 2 can expect to live 4.3 years longer disability-free than females in the same decile

Disability-free life expectancy, Wales, 2017 to 2019

Figure 5: Males in Decile 2 can expect to live 4.3 years longer disability-free than females in the same decile

Disability-free life expectancy, Wales, 2017 to 2019

Source: Office for National Statistics – Annual Population Survey, Census 2011

Notes:

1. Deprivation deciles are based on the Welsh Index of Multiple Deprivation 2019 (WIMD19), which is the official measure of relative deprivation. Decile 1 represents the most deprived 10% (or decile) of small areas in Wales and Decile 10 represents the least deprived 10% (or decile) of small areas in Wales.

2. The health state prevalence estimates used to estimate disability-free life expectancy are sourced from Annual Population Survey (APS) data and data from the 2011 Census. The APS excludes residents of communal establishments except NHS housing and students in halls of residence where inclusion takes place at their parents' address.

Disability-free life expectancy (DFLE) at birth for males was 50.1 years in the most deprived areas in 2017 to 2019 compared with 65.4 years in the least deprived areas with no significant change since 2014 to 2016 (Figure 5). However, significant decreases were observed in Deciles 6 and 8 of 3.1 years (162.3 weeks) and 4.3 years (225.4 weeks) respectively; Decile 2 saw a significant increase of 3.6 years (188.9 weeks) (Figure 6).
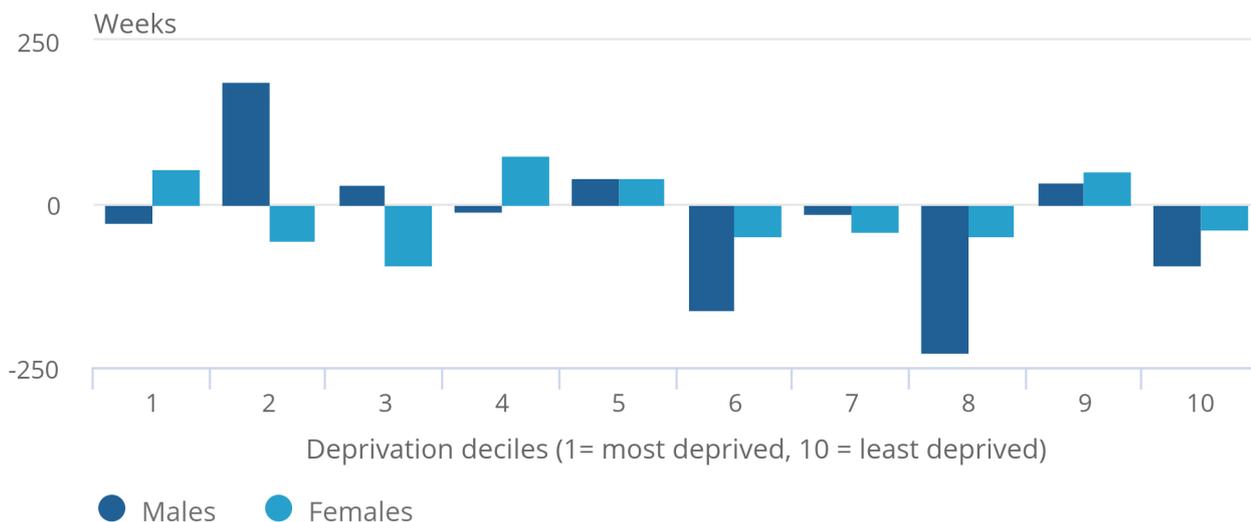
The difference between the least and most deprived deciles has reduced by 1.3 years (66.3 weeks) between 2014 to 2016 and 2017 to 2019, because of the greater reduction in DFLE in the least deprived areas.

Figure 6: Males in Deciles 6 and 8 show a significant decrease in disability-free life expectancy

Disability-free life expectancy change in weeks, Wales, between 2014 to 2016 and 2017 to 2019

Figure 6: Males in Deciles 6 and 8 show a significant decrease in disability-free life expectancy

Disability-free life expectancy change in weeks, Wales, between 2014 to 2016 and 2017 to 2019

Source: Office for National Statistics – Annual Population Survey, Census 2011

Notes:

1. Deprivation deciles are based on the Welsh Index of Multiple Deprivation (WIMD), which is the official measure of relative deprivation. WIMD 2014 was used for periods 2011 to 2013 to 2015 to 2017 and for periods 2016 to 2018 and 2017 to 2019 WIMD 2019 was used.

2. Decile 1 represents the most deprived 10% (or decile) of small areas in Wales and Decile 10 represents the least deprived 10% (or decile) of small areas in Wales.

3. The health state prevalence estimates used to estimate disability-free life expectancy are sourced from Annual Population Survey (APS) data and data from the 2011 Census. The APS excludes residents of communal establishments except NHS housing and students in halls of residence where inclusion takes place at their parents' address.

Females living in the most deprived areas in 2017 to 2019 can expect to spend 48.7 years disability-free compared with 65.7 years in the least deprived areas (Figure 5). Unlike males, there was no significant change in DFLE in any decile for females at birth from 2014 to 2016 and 2017 to 2019 (Figure 6). The difference in DFLE between females at birth in the least and most deprived areas saw a reduction of 1.8 years (93.9 weeks).

The largest difference between males and females at birth was observed in Decile 2, where males can expect to live 4.3 years (223.3 weeks) longer disability-free than females.

5 . The Slope Index of Inequality for life expectancy and healthy life expectancy

The Slope Index of Inequality (SII) is used to assess the absolute inequality in life expectancy (LE) and each health state life expectancy. The SII can be interpreted in the same way as the range between the least and most deprived areas but also takes into account inequality across the whole distribution, as well as giving greater weight to larger populations and less weight to smaller populations. This means that the higher the SII, the more unequal the population is with regard to the outcome of interest.

The gap in male and female healthy life expectancy at birth spans 17 years for males and over 18 years for females

In 2017 to 2019, the inequality in male LE at birth stood at 8.9 years, a higher inequality than that seen for females, which stood at 7.4 years. Healthy life expectancy (HLE) at birth had a more substantial gap; females experienced a larger inequality, at 18.3 years compared with 17.0 years for males. The SII for disability-free life expectancy (DFLE) at birth for males was 14.7 years while for females it was 18.3 years.

Figures 7 and 8 show the trend in the SII for LE and HLE at birth for Wales between 2011 to 2013 and 2017 to 2019 by sex.

Figure 7: The Slope Index of Inequality in male and female life expectancy at birth is higher in 2017 to 2019 compared with 2011 to 2013

Slope Index of Inequality, Wales, 2011 to 2013 to 2017 to 2019

Figure 7: The Slope Index of Inequality in male and female life expectancy at birth is higher in 2017 to 2019 compared with 2011 to 2013

Slope Index of Inequality, Wales, 2011 to 2013 to 2017 to 2019
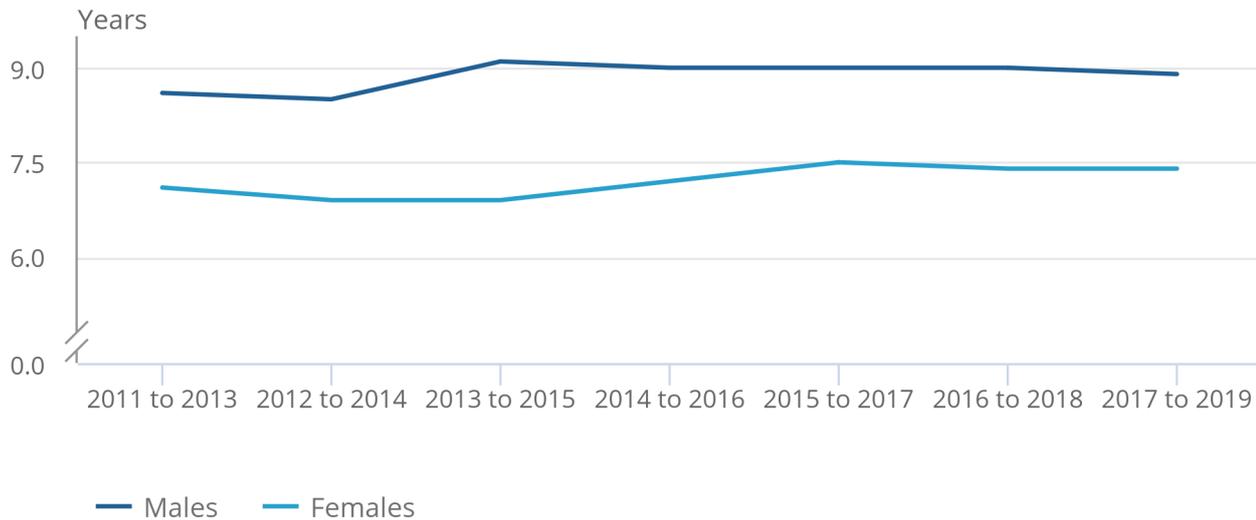
Source: Office for National Statistics

Notes:

1. Deprivation deciles are based on the Welsh Index of Multiple Deprivation (WIMD), which is the official measure of relative deprivation. Deprivation deciles for periods 2011 to 2013 to 2015 to 2017 are based on WIMD 2014 and for periods 2016 to 2018 and 2017 to 2019 WIMD 2019 was used.

2. Decile 1 represents the most deprived 10% (or decile) of small areas in Wales and Decile 10 represents the least deprived 10% (or decile) of small areas in Wales.

3. The Slope Index of Inequality is calculated by taking the difference between the extremes of a population weighted regression line of best fit.

Slope Index of Inequality, Wales, 2011 to 2013 to 2017 to 2019

Figure 8: The Slope Index of Inequality in male and female healthy life expectancy at birth has narrowed since 2011 to 2013

Slope Index of Inequality, Wales, 2011 to 2013 to 2017 to 2019

Years

21.0

18.0

0.0

2011 to 2013   2012 to 2014   2013 to 2015   2014 to 2016   2015 to 2017   2016 to 2018   2017 to 2019

— Males   — Females

Source: Office for National Statistics – Annual Population Survey, Census 2011
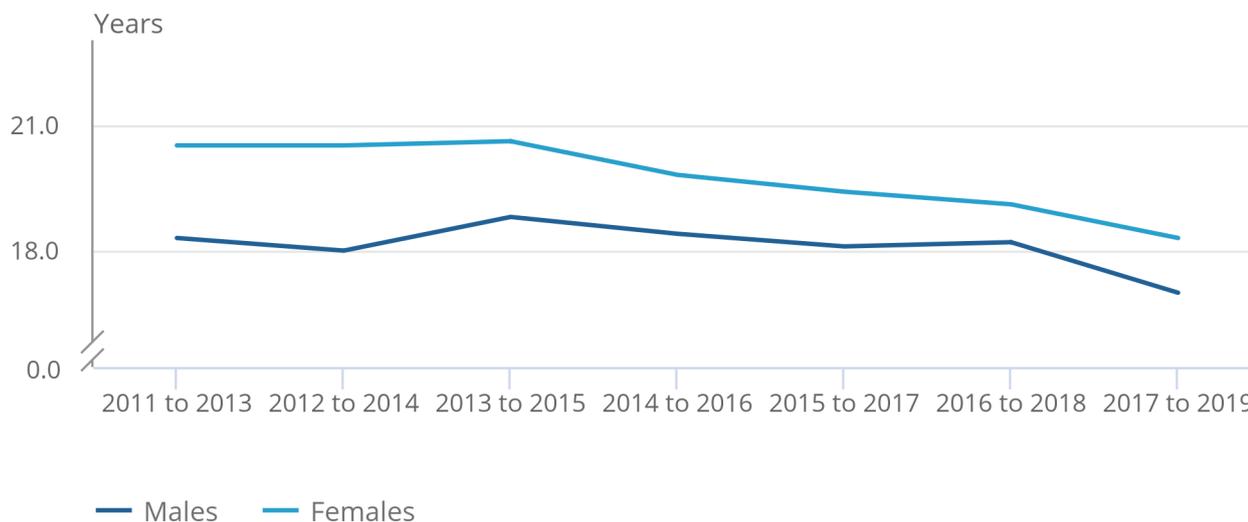
Notes:

1. Deprivation deciles are based on the Welsh Index of Multiple Deprivation (WIMD), which is the official measure of relative deprivation. Deprivation deciles for periods 2011 to 2013 to 2015 to 2017 are based on WIMD 2014 and for periods 2016 to 2018 and 2017 to 2019 WIMD 2019 was used.

2. Decile 1 represents the most deprived 10% (or decile) of small areas in Wales and Decile 10 represents the least deprived 10% (or decile) of small areas in Wales.

3. The Slope Index of Inequality is calculated by taking the difference between the extremes of a population weighted regression line of best fit.

4. The health state prevalence estimates used to estimate healthy life expectancy are sourced from Annual Population Survey (APS) data and data from the 2011 Census. The APS excludes residents of communal establishments except NHS housing and students in halls of residence where inclusion takes place at their parents' address.

There were no significant changes in the inequality in life expectancy at birth for both males and females in Wales in 2017 to 2019

The SII in male LE at birth showed no significant change between 2014 to 2016 and 2017 to 2019 (Table 1). However, the SII in female LE at birth increased from 7.2 years to 7.4 years over the same time period, but again this 0.2 of a year increase was not statistically significant.

Between 2014 to 2016 and 2017 to 2019, male DFLE at birth saw a significant decrease in the SII from 18.4 years to 14.7 years. The gap for females also decreased from 18.7 years to 18.3 years, although this was not significant.

Table 1: There was a large significant reduction in the inequality in disability-free life expectancy at birth for males between 2014 to 2016 and 2017 to 2019

Wales, between 2014 to 2016 and 2017 to 2019

	2014 to 2016		2017 to 2019			
	SII (Years)	Range (Years)	SII (Years)	Range (Years)	SII Difference	Range Difference
Males at birth						
LE	9.0	8.9	8.9	9.0	-0.1	0.1
HLE	18.4	17.6	17.0	16.9	-1.4	-0.7
DFLE	18.4	16.6	14.7	15.4	-3.7	-1.2
Females at birth						
LE	7.2	7.2	7.4	7.5	0.2	0.3
HLE	19.8	17.9	18.3	18.3	-1.5	0.4
DFLE	18.7	18.8	18.3	17.0	-0.4	-1.8

Source: Office for National Statistics – Annual Population Survey, Census 2011

Notes

1. Life expectancy includes all usual residents.

2. The health state prevalence estimates used to estimate healthy life expectancy (HLE) and disability-free life expectancy (DFLE) are sourced from Annual Population Survey (APS) data and data from the 2011 Census. The APS excludes residents of communal establishments except NHS housing and students in halls of residence where inclusion takes place at their parents' address.

3. Slope Index of Inequality (SII) is calculated by taking the difference between the extremes of a population weighted regression line of best fit.

4. Range is calculated by taking the difference between Decile 1 and Decile 10.,Figures may not sum because of rounding.

5. Deprivation deciles are based on the Welsh Index of Multiple Deprivation (WIMD), which is the official measure of relative deprivation. WIMD 2014 was used for periods 2011 to 2013 to 2015 to 2017 and for periods 2016 to 2018 and 2017 to 2019 WIMD 2019 was used.

6. Decile 1 represents the most deprived 10% (or decile) of small areas in Wales and Decile 10 represents the least deprived 10% (or decile) of small areas in Wales.

6 . Health state life expectancies data

Health state life expectancies by Welsh Index of Multiple Deprivation (WIMD 2014 and WIMD 2019), Wales, all ages
Dataset | Released on 22 March 2021
Life expectancy (LE), healthy life expectancy (HLE), disability-free life expectancy (DFLE) by national deprivation deciles (WIMD 2014 and WIMD 2019), Wales, 2011 to 2019.

Health state life expectancies by Welsh Index of Multiple Deprivation (WIMD 2014 and WIMD 2019), Wales, at birth and age 65 years
Dataset | Released on 22 March 2021
Life expectancy (LE), healthy life expectancy (HLE), disability-free life expectancy (DFLE), Slope Index of Inequality (SII) and range at birth and age 65 years by national deprivation deciles (WIMD 2014 and WIMD 2019), Wales, 2011 to 2019.

Health state life expectancies by Welsh Index of Multiple Deprivation Quintile (WIMD 2019), Wales, all ages
Dataset | Released on 22 March 2021
Life expectancy (LE), healthy life expectancy (HLE), disability-free life expectancy (DFLE), Slope Index of Inequality (SII) and range at birth and age 65 years by national deprivation quintiles (WIMD 2019), Wales, 2017 to 2019.

7 . Glossary

Period life expectancy

The life expectancy estimates reported in this bulletin are period-based. Period life expectancy at a given age for an area is the average number of years a person would live, if he or she experienced the area's age-specific mortality rates for that time period throughout his or her life.

Health state life expectancy

A generic term for summary measures of health that add a quality dimension to estimates of life expectancy by dividing expected lifespan into time spent in different states of health. In this release health state life expectancy encompasses measures based on health-related wellbeing (healthy life expectancy) and functional health status (disability-free life expectancy).

Healthy life expectancy

An estimate of lifetime spent in "Very good" or "Good" health, based on how individuals perceive their general health.

Disability-free life expectancy

An estimate of lifetime free from a limiting persistent illness which limits day to day activities: it is based upon a self-rated assessment of how health conditions and illnesses reduce an individual's ability to carry out day-to-day activities, including washing and dressing and shopping for essentials.

Confidence intervals

A measure of the uncertainty around a specific estimate. 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 confidence intervals for the Slope Index Inequality (SII) are calculated using a simulation program. Simulation is a method used to estimate the degree of uncertainty for measures where the statistical distributions underpinning the measure are too complex to analyse mathematically.

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.

Indices of Multiple Deprivation

The Welsh Indices of Multiple Deprivation 2019 (WIMD19) are a score based on the area as a whole and not everyone within a Lower layer Super Output Area (LSOA) necessarily experiences the same level or type of deprivation.

For example, some unemployed individuals live in less deprived LSOAs, while some higher-income individuals live in more deprived LSOAs. Similarly, deciles are a broad grouping and the levels of deprivation and the underlying factors determining the LSOA-level deprivation score will vary within the decile. Those LSOAs at the higher and lower end of each specific decile may vary considerably from each other.

Deciles are calculated by ranking the LSOAs from most deprived to least deprived and dividing them into 10 equal groups. These range from the most deprived 10 per cent (Decile 1) of small areas nationally to the least deprived 10 per cent (Decile 10) of small areas nationally.

Slope Index of Inequality

The Slope Index of Inequality (SII) was used to assess the absolute inequality in life expectancy and each health state life expectancy between the least and most deprived deciles. This indicator measures the gaps by taking account of the inequality across all adjacent deciles of relative deprivation, rather than focusing only on the differencing of the two extremes.

8 . Measuring the data

This statistical bulletin presents estimates of life expectancy (LE), healthy life expectancy (HLE) and disability-free life expectancy (DFLE) for the Wales by deprivation deciles.

The Health state life expectancies, UK QMI contains a more detailed description of the methods used in this report.

Data sources

LE uses death registrations data held by the Office for National Statistics, which are compiled from information supplied when deaths are certified and registered as part of civil registration. Mid-year population estimates by age, sex and geographical area are used in combination with death registrations to calculate age-specific mortality rates used in life tables.

In addition, health state life expectancies use data collected as part of the Annual Population Survey (APS) and Census 2011 data. The APS is a continuous survey of households in the UK, containing annual data. Each three-year pooled APS dataset contains approximately 170,000 households and 320,000 individuals. The primary purpose of the APS is to provide estimates for labour market and socio-economic analyses at subnational level and the APS is the recommended source of statistical information for analysis at unitary authority and local authority district level.

Health state prevalence rates are obtained from the three-year reweighted APS dataset used in HLE and DFLE calculations.

As the method requires imputation and modelling, Census 2011 data are used to produce imputation adjustment factors and census-based health state prevalence.

Method for estimating life expectancy

The LE estimates reported in this bulletin are period-based life expectancies. Unlike the other life expectancy publications, the subnational life expectancy estimates use an abridged life table method. A life table is a demographic tool used to analyse death rates (also called mortality rates) and calculate life expectancies at various ages.

Abridged life tables use the age-specific mortality rates for an area aggregated over three years, for example 2016 to 2018, which is based on the age-group death count divided by the age-group population count. A template is available, which shows how the abridged life table is deployed to derive LE estimates.

Abridged life tables are used in preference to complete life tables for smaller populations, such as local authorities, because death counts can be too sparse for examining mortality for single years of age, and mid-year population estimates are not available or sufficiently reliable to produce these by single year of age.

Method for estimating health state life expectancies

Health state life expectancies are calculated using the Sullivan life table method. The data required are age- and sex-specific prevalence of the population in "Good" health (healthy) and "Free from activity restriction" (disability-free) obtained from the APS, and age-specific mortality rates from the abridged period life table.

Health state prevalence rates are obtained from a specially created three-year reweighted APS dataset. Prevalence rates are imputed for those aged less than 1, 1 to 4, 5 to 9, 10 to 14, 85 to 89 and 90 years and above. A census adjustment is applied to these ages, which applies the proportional difference in younger ages found at the 2011 Census to the rate observed in the APS for those aged 16 to 19 years, and to older ages to that observed in the age group 80 to 84 years. This is because the survey does not cover younger age groups and only sparsely amongst the very old.

The resulting age, sex and area specific prevalence estimates are then adjusted using linear regression to produced fitted age, sex and area specific prevalence rates to use in the Sullivan life table.

The Sullivan health state life expectancies reflects the current health of a real population adjusted for mortality levels and independent of age structure. It represents the number of remaining years, at a particular age, which an individual can expect to live in a healthy or disability-free state.

Method for calculating the Slope Index of Inequality

Deciles were ordered by decreasing area deprivation, that is, from the most to the least deprived. The fraction of the total population in each decile (f) was calculated. The cumulative frequency (ci), that is, the cumulative sum of the population in successively less deprived deciles, was also obtained and the relative deprivation rank (x) for each decile was calculated as:

$$X = {}^{cj} + (0.5f)$$

This formula calculates the relative deprivation rank for use in the Slope Index of Inequality (SII) calculation.

The SII (a line of best fit) was then estimated by regressing the outcome measures (LE, HLE and DFLE) separately against the relative deprivation rank (x), weighted by the population in each decile.

Method for calculating confidence interval details for SII indicators

The confidence intervals for the SII are calculated using a simulation program. Simulation is a method used to estimate the degree of uncertainty for measures where the statistical distributions underpinning the measure are too complex to analyse mathematically.

For each decile, the LE, HLE and DFLE have been calculated along with their standard error. These standard errors give information about the degree of uncertainty around each of the health state life expectancy values: essentially it describes a statistical distribution for each decile.

Using a random number-generating algorithm, a random value is taken from each decile LE and HLE distribution and the SII recalculated. This is repeated many times (for example, 10,000), to build up a distribution of SII values based on random sampling from the decile LE distributions. The 2.5% and 97.5% values from this distribution of SII values is then reported as the 95% confidence interval for the SII, rather than that based on 10 observations representing the deciles.

9 . Strengths and limitations

The strengths of the health state life expectancies by national deprivation deciles release are:

- health state life expectancies are estimated using the same sources of data, namely the Annual Population Survey (APS) and the 2011 Census

- estimates based on abridged life tables have been shown to closely align with those based on complete life tables

- the mortality data used give complete population coverage and ensure the estimates are of high precision, and representative of the underlying population at risk

- the provision of health state life expectancy summary measures provides a quality of life dimension to length of life, which is useful for assessing health and social care needs and fitness for work to changing state pension ages

The limitations of the health state life expectancies by national deprivation deciles release are:

- the APS sample sizes for some local authority populations are small, leading to volatility in estimates and wide confidence intervals

- survey data are not routinely collected for those aged under 16 years and only sparsely for those aged 85 years and above, requiring imputation of prevalence for these age groups

- Census 2011 based imputation adjustments and prevalence used in the modelling are temporal and therefore prone to change as they are applied further away from the census

- the measures of health status are subjective self-reports and may be affected in their perception by demographic, cultural and socioeconomic factors

10 . Related links

Welsh Index of Multiple Deprivation: index guidance
Methodology | Updated 4 June 2020
Report outlining the Welsh Index of Multiple Deprivation.

Method changes to life and health state expectancies
Methodology | Updated 29 November 2016
Report outlining the changes to life expectancy, healthy life expectancy and disability-free life expectancy.

Proposed method changes to UK health state life expectancies
Methodology | Updated 7 December 2017
This report assesses three methods for future estimation of health state life expectancies and is consulting on these methods.

Health state life expectancies: UK, 2017 to 2019
Bulletin | Released 25 January 2021
The number of years people are expected to spend in different health states among local authority areas in the UK.

Life expectancy for local areas of the UK: between 2001 to 2003 and 2017 to 2019
Bulletin | Released 24 September 2020
Subnational trends in the average number of years people will live beyond their current age measured by "period life expectancy".

National life tables – life expectancy in the UK: 2017 to 2019
Bulletin | Released 24 September 2020
Trends in period life expectancy, a measure of the average number of years people will live beyond their current age, analysed by age and sex for the UK and its constituent countries.