Life expectancy for UK local areas quality and methods guide

What the life expectancy statistics cover, how we produce them, and their quality and comparability. Includes definitions and latest, past and upcoming changes.

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1 . Overview

We produce annual statistics on life expectancy (LE) for local areas of the UK. Country-level and UK estimates of LE are published in our National life tables statistical bulletin.

LE is an important high-level measure of a population's health status. The estimates are used for population projections and informing policy such as setting State Pension ages.

LE is a measure of the average number of years people will live beyond their current age. We use period life expectancies rather than cohort life expectancies. Period life expectancies estimate the average number of years people would live if they experienced the population's age-specific mortality rates for that time period throughout their lives. Cohort life LE uses experienced and projected mortality rates for people born in the same year.

Our LE estimates cover the geographical and socioeconomic distributions of life expectancies by sex. The geographical coverage normally encompasses a range of local areas across the UK. The socioeconomic coverage encompasses deciles (tenths) of area deprivation for England and quintiles (fifths) of area deprivation for Wales using each country's latest index of multiple deprivation.

Because of the smaller sample sizes for subnational estimates, we group the population into five-year age bands and use abridged life tables, rather than using complete life tables (based on single year of age). We also use three-year rolling averages to ensure our estimates are sufficiently robust at all geographic and socioeconomic levels. We include estimates for single calendar years following user demand for more timely estimates during the coronavirus (COVID-19) pandemic period; these single year estimates are not as precise or as stable as the three-year rolling average estimates.

LE estimates for local areas of the UK are usually published alongside our National life tables release (approximately one year after the end of the reference period), following the release of annual death registrations data and subnational mid-year population estimates for the previous year in each country. If there are delays in the delivery of required data for a constituent country of the UK, figures for this country will be added to the release the next time the publication is updated.

We carry out thorough validation and quality assurance checks on the data to ensure our statistics are as accurate as possible.

These are accredited official statistics.

2 . Latest changes to quality and methods

We made minor changes to this guide on 15 April 2026. We made no important changes to quality and methods.

For information on past and upcoming changes, go to Section 7: Changes and their effects on comparability over time.

3 . What the statistics cover

Annually, we produce estimates of life expectancy (LE) for local areas of the UK and by national area deprivation for England and for Wales.

Geographic areas

The statistics aim for UK coverage but estimates for the UK and its constituent countries are only produced for internal comparison purposes (for UK and country estimates see our National life tables statistical bulletin). Estimates for lower-tier local authorities are provided, as well as those for combined authorities and health authorities.

England

- Covers unitary authorities, metropolitan districts, non-metropolitan districts, London boroughs, combined authorities, integrated care boards, regions, and national deprivation deciles in England as measured by the Index of Multiple Deprivation (IMD).
- Figures are not calculated for City of London or Isles of Scilly because the numbers of deaths are too small to produce statistically robust estimates.

Wales

- Covers unitary authorities, health boards and national deprivation quintiles as measured by the Welsh Index of Multiple Deprivation (WIMD).

Scotland

- Covers council areas and health boards.

Northern Ireland

- Covers local government districts.

4 . Where the data come from

Deaths registered in England and Wales

- We use annual extracts of death registration data, as used in our Deaths registered in England and Wales statistical bulletin.
- These data are aggregated by sex, five-year age bands and geographical areas of interest for each three-year period.

Deaths registered in Scotland

- We use data from the most recent annual release of deaths time series data published by National Records of Scotland (NRS).
- The published data provide deaths by sex, age and council area.
- These data are aggregated to five-year age bands and to Scottish health boards for each three-year period.

Deaths registered in Northern Ireland

- We use data from the most recent annual release of the Registrar General Annual Report published by the Northern Ireland Statistics and Research Agency (NISRA).
- The published data provide deaths by sex, age and local government district.
- These data are aggregated to five-year age bands for each three-year period.

Mid-year population estimates

- We use the latest mid-year population estimates for all geographical areas; these may include revised estimates for previous years.
- For life expectancy (LE) by national deprivation, we use the latest mid-year population estimates for Census 2021 Lower-layer Super Output Areas (LSOAs); these are aggregated to deprivation deciles (England) and quintiles (Wales).
- These population estimates are aggregated to three-year periods and used with the deaths registration data to calculate the age-specific mortality rates.

Abridged life tables

- The LE calculated are period-based LE, estimated using an abridged life table.
- Abridged life tables group ages into five-year intervals, whereas complete life tables are based on single years of age.
- Abridged tables are more suitable for calculating subnational LE because of the small number of deaths by single year of age, particularly among younger ages and in smaller local authorities.
- Abridged tables are created using numbers of deaths registered in a calendar year and mid-year population estimates.
- LE figures are calculated as three-year rolling averages to provide large enough numbers to ensure that the results are sufficiently precise; these produce robust estimates as they are less sensitive to year-on-year changes, for example, bad flu seasons.
- We produce estimates for single years in response to demand for more timely updates from stakeholders for coronavirus (COVID-19) pandemic monitoring purposes; these estimates based on a single year of mortality data are not considered as robust as those based on aggregated three-year periods but are included in the datasets accompanying the release.
- A life expectancies estimates template, which shows how abridged life tables are calculated, is available.

5 . How we produce the statistics

Life expectancy

Life expectancy (LE) is calculated using the standard Chiang II abridged life table method. A minor modification has been added to the Chiang II life table calculations to enable the calculation of a confidence interval for the final age group, 90 years and over. For this, a method developed by Silcocks and others, and published in Life expectancy as a summary of mortality in a population (2001) has been used. Its impact has been published in our Method changes to life and health state expectancies methods paper in 2016.

For each release, we re-run the whole time series and publish those data. This means that if there are any changes in geographical boundaries, the most recent boundaries are applied to the whole time series, making it comparable.

Uncertainty estimates

LE estimates are published with 95% confidence intervals (CIs) to allow the user to judge their precision and identify a plausible range of uncertainty. These CIs can be used to more meaningfully compare estimates by age, sex, geographic area and deprivation strata. Confidence intervals are computed as the estimate plus or minus 1.96 standard errors.

Slope Index of Inequality for life expectancy by national area deprivation

In our healthy life expectancy (HLE) by national area deprivation release, the socioeconomic inequality in LE is measured using the slope index of inequality (SII). This estimates the absolute gap between the most deprived and least deprived areas in years of life lived overall and those lived in "good" general health.

SII measures inequality across the entire socioeconomic distribution, not just the extremes. It takes every group into account and weights each group by its population size, showing how outcomes change from the most to least deprived. A higher SII indicates greater inequality.

To calculate the SII, quantiles are ranked from most to least deprived, and a social median rank is calculated to serve as the exploratory variable in a weighted regression model. The fraction of the total population in each quantile is determined, and the cumulative population is calculated by summing the populations of individuals across successively less deprived quantiles.

From this, a relative deprivation rank is assigned to each quantile, and the LE for each quantile is then regressed on the relative deprivation rank, with weights corresponding to each quantile's share of the total population. This produces a line of best fit that represents the relationship between deprivation and LE across a hypothetical population ranging from the most to the least deprived.

In addition, we provide the range, which represents a simpler absolute measure of inequality by calculating the simple difference between the values of the most deprived and least deprived quantiles. Because it uses the extreme endpoints, it does not capture inequalities in the middle groups and therefore does not describe inequality across the full distribution in the way that SII does.

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 quantile, LE has been calculated along with its standard error (SE). These SEs give information about the degree of uncertainty around each of the LE values: essentially, it describes a statistical distribution for each quantile.

Using a random-number-generating algorithm, a random value is taken from each quantile's LE distribution and the SII recalculated. This is repeated 10,000,000 times to build up a distribution of SII values based on random sampling from the quantile distributions. The 2.5% and 97.5% values from this distribution of SII values are then reported as the 95% confidence interval for the SII, rather than that based on 10 or 5 observations representing the quantiles.

6 . Quality of the statistics

Statistical designation

These accredited official statistics were independently reviewed by the Office for Statistics Regulation in June 2013. They comply with the standards of trustworthiness, quality and value in the Code of Practice for Statistics and should be labelled "accredited official statistics".

How we quality assure the data and statistics

Life expectancy (LE) statistics are secondary analyses of mortality and mid-year population estimates. As such, the input data have already been subject to rigorous quality control procedures.

Our LE statistics are calculated subject to a rigorous documented quality control procedure. Calculations are performed using a reproducible analytical pipeline (RAP), programmed in R open-source software, which includes unit testing to ensure each programme function works as intended. The RAP minimises manual intervention when producing new estimates and therefore reduces the risk of error. In future, the R code used to produce the data tables will be made available on Github.

Strengths and limitations

Strengths

There are several strengths to how LE is estimated:

- it is independent of any differences in the age structures of populations; results for local areas and area deprivation strata can therefore be meaningfully compared, as can results for males and females
- an abridged life table closed at age 90 years and over was introduced for our Health state life expectancies for local areas in the UK: 2013 to 2015 statistical bulletin and a back series was produced from 2001 to 2003 for life expectancy; closing this table at age 90 years, rather than 85 years, provides more accurate representation of survival at older ages and therefore, LE estimates for local areas are now comparable back to 2001 to 2003 using a life table closed at age 90 years and over
- the use of three-year pooled data minimises event effects on LE, such as bad flu seasons, providing more robust estimates
- the mortality data used are mostly complete as they are based on registration data, however, this does not include all deaths because of registration delays

Limitations

There are some issues that arise when calculating LE. In general, LEs are:

- calculated by pooling three years' worth of mortality data to improve precision of estimates, but this constrains the timeliness of releases and prompt assessment of progress on health improvement on these metrics
- not routinely calculated for areas smaller than local authorities because of small numbers of deaths and populations; however, for five-year periods centred on the census year, we have produced life expectancies for Middle-layer Super Output Areas (MSOAs) and Census 2011 wards

European Statistical System Quality Dimensions

The Office for National Statistics (ONS) has developed guidelines for measuring statistical quality based on the five European Statistical System (ESS) Quality Dimensions. These are:

- relevance
- accuracy and reliability
- timeliness and punctuality
- comparability and coherence
- accessibility and clarity

We have integrated these considerations into the guide.

7 . Changes and their effects on comparability over time

Latest changes

We made minor updates to this guide on 15 April 2026. We made no important changes to quality and methods.

Past changes

Use of rebased mid-year population estimates

All releases published for England, Northern Ireland and Wales from January 2024 onwards use mid-year population estimates from 2012 to 2020, which have been rebased to the 2021 Census, to revise the historical time series between 2011 to 2013 and 2018 to 2020. The Office for National Statistics (ONS) has published a revised time series for Scotland as National Records of Scotland has provided their new population estimates based on their 2022 Census.

Using rebased population estimates means the new life expectancy (LE) estimates are more accurate, especially for the periods just before Census 2021. For local areas in 2018 to 2020, most LE estimates have had only minor revisions. However, some London boroughs have had substantial downward revisions of over 3.5 years for males and over 2 years for females. This is because populations in these areas were previously overestimated.

Upcoming changes

We currently have no plans to change the methods in the near future.

8 . Comparability and coherence with other statistics producers

Life expectancy (LE) estimates calculated outside of the UK may not be directly comparable with ours; we use abridged life tables with three-year rolling averages to reduce statistical volatility in our subnational estimates. Some other countries use complete life tables, or publish for single year periods, depending on population sizes and the stability of local mortality data. The national life tables should be used when comparing results with other countries.

Our LE for local area estimates are not comparable with our national life tables because they are calculated using different methods.

9 . Users and uses of these statistics

Life expectancy (LE) provides users with an indicator of longevity, which can be used to inform policy needs and planning for services, and provide context for further research in both the public and private sectors in areas such as health, social care, population size, pensions and insurance.

The main users of LE data include:

- Department of Health and Social Care (DHSC)
- Office for Health Improvement and Disparities (OHID)
- Public Health Wales (PHW)
- NHS England (NHSE)
- National Records of Scotland (NRS)
- Northern Ireland Statistics and Research Agency (NISRA)
- Ministry of Housing, Communities and Local Government (MHCLG)
- Department for Work and Pensions (DWP)
- Government Actuary's Department (GAD)
- local public health departments
- local authorities
- combined authorities
- private pensions and insurance companies
- academic institutions such as the Institute for Health Equity and the Institute and Faculty of Actuaries

Regional and local levels

LE figures are used at regional and local levels to focus on health monitoring and planning in specific areas. They are also published as part of the Regional Health Profiles, which are produced by OHID. The profiles comprise a package of indicators, which are designed to support action by local governments and primary care trusts to tackle health inequalities through greater targeting of interventions to promote health improvement. LE figures are also presented for local authority areas in OHID's Public Health Outcomes Framework.

Private sector

In the private sector, LE figures are used by pensions and insurance companies for planning their financial services.

10 . Definitions

Period life expectancy

The life expectancy (LE) estimates are period based. Period LE at a given age for an area is the average number of additional years a person would live if he or she experienced the area's age-specific mortality rates for that time period, throughout the rest of their life. More information can be found in our period and cohort life expectancy explained methodology.

The LE figure reflects mortality among those living in the area in each period, rather than mortality among those born in each area. It is not therefore the number of years a person in the area in each period will be expected to actually live. This is because the death rates of the area are likely to change in the future and because many of those in the area may live elsewhere for at least part of their lives. The measure reflects the mortality rates prevailing at the time and therefore gives a measure with which to compare different populations both by location and by time.

95% confidence intervals

A confidence interval is a measure of the uncertainty around a specific estimate. As intervals around estimates widen, the level of uncertainty about where the true value lies increases. At a national level, the overall level of error will be small compared with the error associated with a local area or a specific age and sex breakdown. Therefore, the widths of the confidence intervals we report will have sizeable differences.

11 . Related links

Life expectancy for local areas of the UK statistical bulletins
ONS website | Previous releases
Subnational trends in period life expectancy, a measure of the average number of years people will live beyond their current age.

National life tables - life expectancy in the UK
Bulletin
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.

Past and projected period and cohort life tables
Bulletin
Life expectancy (e), probability of dying (q) and number of persons surviving (l) from the period and cohort life tables, using past and projected mortality data from the 2022-based national population projections (NPPs), for the UK and constituent countries.

Inequalities in life expectancy and healthy life expectancy in Wales
Report | Released 9 June 2022
Latest statistics on inequality gap profile in life expectancy and healthy life expectancy in Wales.

Life Expectancy in Scotland 2022 to 2024
Report | Released 10 December 2025
The latest statistics on life expectancy in Scotland, council areas, health boards and other areas.

Life Expectancy in Northern Ireland 2022 to 2024
Report | Released 9 December 2025
Latest estimates of life expectancy, healthy life expectancy and disability-free life expectancy including a life table decomposition exploring the extent to which mortality within certain age groups and causes of death contribute to the observed variations in life expectancy over time, in addition to inequality gaps between sexes, deprivation levels, Health and Social Care Trusts and Local Government Districts.

Public Health Outcomes Framework
Dataset | Released 3 February 2026
Latest data showing health trends in England, summarising key information about the health of people in England and how it has changed over time.

Health state life expectancy by 2011 Census wards, England and Wales: 2009 to 2013
Article | Released 7 March 2018
Estimates of health state life expectancy for small area populations for males and females at birth and age 65 years. The differences between small areas allows the scale of inequality to be determined.

Health expectancies at birth and at age 65 in the UK, based on 2011 Census health and disability prevalence data: 2010 to 2012
Bulletin | Released 11 October 2016
Estimates of health state life expectancies for the UK, its constituent countries and their subnational areas using 2011 Census health and disability prevalence data.

Health Expectancies at Birth for Middle Layer Super Output Areas (MSOAs), England: 2009 to 2013
Article | Released 25 September 2015
Estimates of health expectancy for small area populations based on self-assessed health and self-assessed activity limitation. Differences between small areas allows the scale of inequality to be determined and which areas are statistically significantly higher or lower than the national and local authority specific average.

Inequality in Health and Life Expectancies within Upper Tier Local Authorities: 2009 to 2013
Bulletin | Released 20 November 2015
Absolute difference of years spent in favourable health states between the least and most deprived areas, based on the Slope Index of Inequality.

English Life Tables No.17
Bulletin
Graduated life tables which give statistics on national life expectancy for England and Wales. Published once every 10 years.

12 . Cite this page

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