Healthy life expectancy quality and methods guide

What the healthy 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 healthy life expectancy (HLE) in the UK. HLE is an important high-level measure of a population's health status. It is a main indicator of wider societal well-being, providing context to the effects of policy changes and interventions at both national and local levels.

HLE is an extension of life expectancy (LE). We estimate the average amount of life a person can expect to live in "good" health by combining mortality data with general health status data. We define HLE as the average amount of time a person can expect to live in "very good" or "good" general health. It is a summary measure that reflects the average experience of a population, not the specific health trajectory of any individual.

Our HLE estimates are based on period life expectancies, as explained in our Period and cohort life expectancy explained methodology, using abridged life tables. 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 expectancy uses experienced and projected mortality rates for people born in the same year.

We calculate HLE by adding information on self-reported health from our Annual Population Survey (APS) and the census to our LE estimates.

Our HLE publications cover the geographical and socioeconomic distributions of HLEs by sex. The geographical coverage normally includes figures for the UK and its constituent countries, English regions, and a range of local areas. The socioeconomic coverage includes deciles (tenths) of national area deprivation for England and quintiles (fifths) of national area deprivation for Wales, using each country's latest index of multiple deprivation.

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). This is because of the smaller sample sizes for subnational estimates. We also use three-year rolling averages to ensure our estimates are sufficiently robust at all geographic and socioeconomic levels. The figures are published approximately one calendar year after the last three-year reference period; for example, in February 2026, the final reference period was 2022 to 2024.

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

These are official statistics in development.

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

We produce estimates of healthy life expectancy (HLE) for the UK and its constituent countries, and by national area deprivation for England and for Wales, annually.

Geographic areas

Our HLE statistics aim for UK coverage. However, the coverage of each release depends on data availability at the time of production. The full list of geographical estimates by country is as follows:

England

- Statistics cover unitary authorities, metropolitan districts, counties, London boroughs, combined authorities, integrated care boards, regions, and national deprivation deciles in England as measured by the English indices of deprivation.

- They do not cover figures for City of London or Isles of Scilly because the numbers of deaths are too small to produce statistically robust estimates.

Wales

- Statistics cover unitary authorities, health boards and national deprivation quintiles as measured by the Welsh Index of Multiple Deprivation.

Scotland

- Statistics cover council areas and health boards.

Northern Ireland

- Statistics cover local government districts.

4 . Where the data come from

Annual Population Survey

"Good" health prevalence is estimated using our Annual population survey (APS), which is a continuous survey of households in the UK. We always use the latest version of the APS data available.

Healthy life expectancy (HLE) estimates the average years lived in "good" health. Survey respondents are asked to provide a subjective opinion of their general health status using a five-point scale that ranges from "very good" to "very bad". The measure of "good" is derived from combining the "good" and "very good" responses (this question and dichotomous output categories follow the general health harmonised standard). General health can be interpreted as measuring health-related well-being.

Each quarterly rolling annual dataset consists of Wave 1 and Wave 5 of the quarterly Labour Force Survey (LFS). This ensures that a sufficient number of interviews are conducted with economically active people in each local education authority area.

The APS excludes residents of communal establishments, such as care homes, it does include NHS housing and students in halls of residence where inclusion takes place at their parents' address. For more information, see Volume 1: Background and methodology of our LFS user guide (1.5MB).

Further information on survey data weighting is in Volume 6: APS (Local Area Database) of LFS user guide (801KB).

Releases using APS data are currently classed as official statistics in development because of decreasing APS sample sizes, as described in the Office for Statistics Regulation's letter.

Census

Census health data are used to smooth APS-based health prevalences and to calculate adjustment factors for imputation where age groups are not covered, or sparsely covered, by the APS.

We use data from the 2011 Census and Census 2021 for England and Wales, and Northern Ireland, and Census 2022 for Scotland.

Similar to the APS, Census respondents are asked to provide a self-reported assessment of their health status.

Life expectancy

To calculate HLE, we use the output from our life expectancy by local areas release. Our method for calculating life expectancy can be found in our Life expectancy for UK local areas quality and methods guide.

Index of Multiple Deprivation

We use the English Index of Multiple Deprivation (IMD) and the Welsh Index of Multiple Deprivation (WIMD) for our Healthy life expectancy by national area deprivation, England and Wales release.

In England, Lower Layer Super Output Areas (LSOAs) are divided into 10 deciles that each represent approximately 10% of the population.

In Wales, LSOAs are divided into five quintiles that each represent approximately 20% of the population. Broader groupings are used in Wales to ensure sufficient population counts within each quantile, reflecting the smaller overall population compared with England.

5 . How we produce the statistics

Healthy life expectancy

The core methodology of our healthy life expectancy (HLE) statistics is the Sullivan method (PDF, 928KB). This method combines survey data on self-assessed general health with life expectancy to calculate the average number of years lived in "good" health from a given age.

This method does not mean to imply that the first period of life is in "good" health followed by a period in "poor" health. Instead, it provides an average total of years lived in "good" health, distributed across the entire lifespan. For example, a HLE of 55 years at birth means that, on average, a person can expect to live 55 years in "good" health, but not necessarily consecutively. The healthy years could be:

- mostly early in life
- spread intermittently throughout life
- concentrated later in life (less commonly)

Our calculation of HLE uses a Reproducible Analytical Pipeline using input data from the Annual Population Survey (APS), census, life expectancy estimates, and deprivation quantiles. We first derive our estimates of "good" health prevalence from the census and APS. We use census data for smoothing the APS-based prevalences and calculating adjustment factors for imputed values. We then use a regression model (to account for small sample sizes), execute the final HLE calculation using the Sullivan method, and calculate uncertainty estimates. These steps are detailed in the rest of this section.

Interpolation of census-based health prevalence

For three-year periods that include intercensal years (2012 to 2020), we interpolate general health estimates between the two census points. We use data from the 2011 Census and Census 2021 for England and Wales, and Northern Ireland, and Census 2022 for Scotland. We calculate "good" health prevalence by five-year age group, sex and geography (or deprivation level). We then use linear interpolation to estimate health prevalence for each of the intercensal years, before aggregation to three-year periods. Health prevalence in the most recent census is used as a proxy for subsequent years.

Scotland's most recent census was conducted in 2022 and not 2021 as in the other UK countries. Because of this, UK-level health prevalence cannot be interpolated directly. These health prevalences are therefore derived by taking a population-weighted average of each country's interpolated prevalence.

The interpolated prevalences are later used to smooth the APS-based health prevalence, and to calculate adjustment factors for imputing a plausible "good" health prevalence for age groups that the APS either does not cover or covers sparsely.

Estimating health prevalence using the Annual Population Survey

We then use three-year pooled APS datasets to estimate "good" health prevalence. First, the probability of reporting "good" general health at the individual level is predicted using logistic regression modelling. To predict these probabilities by geographical area, the model uses age interacted with sex and region (England) or country (Scotland, Wales and Northern Ireland) of usual residence, with local authority as a main effect. To predict by deprivation level, age is interacted with sex and deprivation quantile (decile or quintile for England and Wales, respectively).

Ages are then grouped into five-year age bands between the ages of 16 years and 84 years, thereby excluding ages that the APS either does not cover (ages under 16 years) or where the data are too sparse (ages over 84 years). A weighted average is taken to produce a predicted prevalence for each age group-sex-geography, or age group-sex-deprivation level, grouping. The age group 15 to 19 years is used as a proxy for age group 16 to 19 years.

On rare occasions, no APS data are available for a given age group-sex-local authority grouping. In such cases, the predicted prevalence for the previous three-year period is imputed. If no data were available for the previous period, the predicted prevalence is imputed from the region (England) or country (Northern Ireland, Scotland or Wales) in which the local authority is situated.

Imputation of health prevalence for oldest and youngest age groups

Next, we impute a plausible health prevalence at both younger and very old ages, as described in our Method changes to life and health state expectancies methodology.

A set of adjustment factors are calculated, based on the proportional difference between age groups found in the interpolated census data, to impute "good" health prevalence for age groups under 16 years and over 84 years. For these age groups, the adjustment factors give the ratio of "good" health prevalence between the two adjacent age groups in the interpolated census estimates. The adjustment factor is multiplied by the "good" health prevalence for an adjacent age group to produce a plausible "good" health prevalence for the age group in question.

Smoothing of health prevalence using census data

The final "good" health prevalence used for the HLE calculation is then fitted using a least squares regression model, including a quadratic explanatory age variable and the interpolated census-based health prevalence.

This model was designed to address the weakness of small sample sizes producing somewhat erratic HLE estimates across the age distribution in those areas with smaller populations. The model also ensures the method accounts for the different levels of health in care home populations, which are not covered by APS data.

Estimating healthy life expectancy using the Sullivan method

Finally, the fitted "good" health prevalences by age group, sex and geographical area (or deprivation level) are combined with period life expectancy estimates, and HLE estimates are calculated using the Sullivan method.

For each age group, the method multiplies the total person-years lived (derived from the life table) by the estimated proportion of people in "good" health to produce a number of health state-specific person-years. We sum these across remaining age groups and divide by the number of survivors at the starting age group. This yields the expected number of years an individual can expect to live in "good" health.

Estimating uncertainty

HLE 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.

Variances are calculated from estimated health prevalences and unweighted survey counts, as outlined by the Sullivan method. The variance calculation includes a set of adjustments. First, an adjustment is made to account for the multi-stage sampling design effects of the APS data. Second, a further adjustment is made to reflect that imputed estimates for age groups under 16 years and over 84 years are not independent of the estimates for age groups 16 to 19 years and 80 to 84 years, respectively. The CIs are then computed as the estimate plus or minus 1.96 standard errors.

Slope index of inequality

We use the slope index of inequality (SII) to measure socioeconomic inequality in HLE in our Healthy life expectancy by national area deprivation release. 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 the 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. The HLE 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 HLE across a hypothetical population, ranging from the most to the least deprived.

We also 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 this uses the extreme endpoints, it does not capture inequalities in the middle groups and so does not describe inequality across the full distribution in the way that SII does.

Confidence interval details for slope index of inequality 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, HLE estimates are calculated, along with their standard error (SE). These SEs give information about the degree of uncertainty around each of the HLE values, basically describing a statistical distribution for each quantile.

Using a random-number-generating algorithm, a random value is taken from each quantile HLE distribution and the SII is 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 statistics are labelled as "official statistics in development". They are based on information from our Annual Population Survey, subnational life expectancy statistics, censuses, and the national indices of multiple deprivation. We are developing how we collect the data and produce the statistics to improve their quality.

Once we have completed the development, we will review the statistics with the Statistics Head of Profession.

If the statistics meet trustworthiness, quality and value standards, we will remove the "official statistics in development" label to publish under the "official statistics" label.

If they do not meet trustworthiness, quality and value standards, we will further develop them and might stop producing them.

If they were "accredited official statistics" before the start of the developments, we will ask the Office for Statistics Regulation (OSR) to reassess and re-accredit them.

We will inform users of the outcome of our, and any OSR, review and any changes.

How we quality assure the data and statistics

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

Our HLE 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

- Our HLE statistics use three-year pooled data, which minimises event effects, such as bad flu seasons, and provides more robust estimates.
- We use a regression model to predict "good" health prevalence, which helps account for smaller sample sizes; this method borrows strength from the whole dataset to produce local authority estimates.

Limitations

There are a number of issues that arise when trying to compare healthy life expectancies derived from different sources or methods. In general, HLEs are sensitive to:

- measurement instruments used to collect the prevalence of health status, as the concept or definition of health may vary by survey or country
- the survey mode, for example, face-to-face interview, telephone interviews or postal or online surveys; between March 2020 and October 2023, the survey mode of the Labour Force Survey and Annual Population Survey changed from face-to-face to telephone as a response to the coronavirus (COVID-19) pandemic
- exclusion or inclusion of institutionalised persons
- data availability, so abridged life tables are used rather than the complete life tables

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

These changes are ordered by date, with the most recent first.

Merging of the England and Wales deprivation releases

We merged our Health state life expectancies by national deprivation deciles, England and Health state life expectancies by national deprivation quintiles, Wales releases in July 2025, following the health user statistics consultation. We now publish these as a single publication - our Healthy life expectancy by national area deprivation, England and Wales bulletin.

Improved variance estimation

We amended the variance of the healthy life expectancy (HLE) estimates, see Section 5: How we produce the statistics in releases published from December 2024 onwards. This amendment better reflects the uncertainty in the proportionality of health prevalence between imputed age groups and other age groups instead of treating them as independent. Imputed age groups are those that are excluded from the Annual Population Survey (APS) sample (ages under 16 years) or those for which samples are inadequate for local area estimation (ages over 84 years).

Use of logistic regression to estimate "good" health prevalence

We introduced this new method for our December 2024 release to mitigate the recent decline in APS sample sizes, as described in our Estimating good health prevalence for use in healthy life expectancy outputs methodology. It replaces the previous direct estimation of health prevalence as a survey proportion using the R "glinjack" package and is also applied to the estimation of HLE by national area deprivation.

The regression model is used to estimate "good" health prevalence at the individual level. These estimates are then aggregated using a weighted mean from survey weights to cover the age groups, sex and geographical units required for HLE estimation.

Interpolation of census health prevalence in intercensal years

The HLE calculation uses census information on general health to:

- impute HLE for age groups that the APS does not cover (or in age groups where APS data are too sparse)
- adjust (smooth) the HLE observed in APS data

Previously, we used 2011 Census data for these purposes in estimating HLE between 2011 to 2013 and 2018 to 2020. Now that Census 2021 data are available, we are able to improve the accuracy of adjustment factors and intercensal prevalence used in imputing and fitting health prevalence.

We use linear interpolation between the HLE observed in the 2011 Census and Census 2021 to create period-specific "census" estimates of HLE for the intervening years 2012 to 2020. We use the Census 2021 value from 2022 onwards.

We first applied these methodological improvements in March 2024 in our Health state life expectancies in England, Northern Ireland and Wales: between 2011 to 2013 and 2020 to 2022 bulletin. We first applied the new methods by national area deprivation in July 2025 in our Healthy life expectancy by national area deprivation, England and Wales: between 2013 to 2015 and 2020 to 2022 bulletin.

Use of rebased mid-year population estimates

All releases published from March 2024 onwards use mid-year population estimates from 2012 to 2020, which have been rebased to Census 2021, to revise the historical time series between 2011 to 2013 and 2018 to 2020.

Using rebased population estimates means the new HLE estimates are more accurate, especially for the periods just before Census 2021 and the Scotland 2022 Census. For local areas in 2018 to 2020, most life expectancy estimates have had only minor revisions. However, some London boroughs have had substantial downward revisions of over 3.5 years for males and over 2.0 years for females. This is because populations in these areas were previously overestimated.

Suspension of accredited official statistics status

In October 2024, the Office for Statistics Regulation agreed to suspend the accredited official statistics status for all Office for National Statistics (ONS) estimates produced using the APS. This decision reflected the deterioration in the quality of data as a result of reduced sample sizes.

Methods used before 2016

Before using the APS, HLE was calculated using the General Household Survey (GHS).

From 2016, a new UK HLE time series based on the APS was published. This time series includes local areas in the four UK constituent countries, combined authorities and Welsh Health Boards.

Upcoming changes

Future use of administrative data

To future-proof against declining survey responses to the APS, we are investigating the use of administrative data sources to estimate the prevalence of "good" health in the population. We are looking at developing a method that will produce accurate and robust estimates of "good" health prevalence that will support the calculation of HLE. We are aiming to achieve this by using machine learning techniques to determine predictive features of health from alternative administrative data sources.

Future use of the Transformed Labour Force Survey

The HLE estimates currently use the APS, which is derived from the Labour Force Survey (LFS). The last HLE release that will be based on the APS will be published at the end of 2027, providing estimates for 2024 to 2026. Estimates produced after this will use the Transformed Labour Force Survey (TLFS) as a data source for "good" health prevalence.

Changes to Northern Ireland and Scotland survey data

In spring 2026, Northern Ireland will be producing their own labour market household survey, which will no longer ask about self-reported health. This change means that we may not be able to obtain data from the APS for Northern Ireland.

The changes to Scotland survey data means that we will not have enough data to provide local area estimates. We still hope to provide a Scotland and Great Britain estimate.

These changes will only affect data collection from 2026. Our next release for HLE in December 2026 will still include Northern Ireland and Scotland estimates for 2023 to 2025.

8 . Comparability and coherence with other statistics producers

Northern Ireland Department of Health

The Northern Ireland Department of Health's Healthy life expectancy in Northern Ireland 2022-24 statistics are not comparable with ours because they use a different data source and data are sensitive to the self-reported health measure.

Office for National Statistics

- Uses data from the Annual Population Survey, the 2011 Census and Census 2021.

Northern Ireland Department of Health

- Uses data from the Health Survey Northern Ireland.

Non-UK healthy life expectancy estimates

Healthy life expectancy (HLE) estimates produced outside the UK may not be directly comparable with ours.

First, methods used to calculate life expectancy can differ; we use abridged life tables with threeyear rolling averages to reduce statistical volatility in subnational estimates. Second, HLE estimates are highly sensitive to the underlying health measure, which can vary between surveys and across countries in terms of survey instruments, question wording, and the conceptualisation of "health".

9 . Users and uses of these statistics

Our healthy life expectancy (HLE) statistics are reported in a number of our other publications on national health and well-being.

A range of organisations and other government departments also use our HLE statistics to inform policies and ensure targets are met.

Department of Health and Social Care

The Department of Health and Social Care (DHSC) has a responsibility to improve population health, and HLE is an important measure of progress. Increases in HLE and reductions in the differences in HLE between communities are high-level indicators used in DHSC's Public Health Outcomes Framework and their 10 Year Health Plan for England, used to monitor local health improvement and national health inequalities.

Department for Work and Pensions

The Department for Work and Pensions uses HLE to inform policy around ageing, fitness for work, and decisions about the State Pension age. The Pensions Act 2014 requires periodic reviews of the pension age, and both the statutory and independent reviews in 2022 used HLE statistics as part of their evidence. As the State Pension age is set to rise, assumptions about extending working lives depends on whether older people remain fit for work and whether HLE is keeping pace with overall life expectancy.

Public Health Wales

Public Health Wales developed their Public Health Outcomes Framework to monitor and improve health of the Welsh population. Our HLE statistics are used as a core indicator to monitor progress on increases in HLE and to highlight inequalities between communities. This helps Welsh Government to assess whether Wales is achieving its goals of improving population health and reducing inequalities between groups, and helps guide national policies.

Other external users of HLE statistics include local authorities, academics, actuaries, and the media.

10 . Definitions

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.

Confidence intervals around healthy life expectancy estimates are calculated from the variance of health state prevalence. Confidence intervals can be found in our accompanying datasets.

Healthy life expectancy

Healthy life expectancy (HLE) is a summary measure of health that adds a quality dimension to estimates of life expectancy by dividing expected lifespan into time spent in different states of health. HLE measures health-related wellbeing and represents the average time an individual is expected to live in "very good" or "good" general health, based on how individuals perceive their general health.

Period life expectancy

The life expectancy estimates used for HLE estimates are period-based.

Period life expectancy at a given age for an area is the average number of years a person would live if they experienced the area's age-specific mortality rates for that time-period throughout their lives. More information can be found in our Period and cohort life expectancy explained methodology.

11 . Related links

Healthy life expectancy, UK
Bulletin series
The number of years people are expected to spend in "good" general health in the UK, including subnational areas.

Healthy life expectancy by national area deprivation, England and Wales
Bulletin series
Life expectancy and years expected to live in "good" health using national indices of deprivation to measure socioeconomic inequalities in England and Wales.

Life expectancy for local areas of the UK
Bulletin series
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 series
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 series
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
External page | Released 9 June 2022
Latest statistics from Public Health Wales on the inequality gap profile in life expectancy and healthy life expectancy in Wales.

Life Expectancy in Scotland 2022 to 2024
External page | Released 10 December 2025
The latest statistics from the National Records of Scotland on life expectancy in Scotland, council areas, health boards and other areas.

Life Expectancy in Northern Ireland 2022 to 2024
External page | 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.

12 . Cite this page

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