

Life Expectancy Statistics across the UK

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This paper outlines the current availability of life expectancy estimates and the methods used to produce them across the UK. Information on life expectancy at birth and at age 65 is invaluable in providing a useful summary measure of mortality rates actually experienced over a given period. It provides an objective means of comparing trends in mortality over time, between areas of a country and with other countries. This is particularly of use in monitoring and investigating health inequality issues and in setting public health targets.

Guidance on using life expectancy statistics

1 Period and cohort life expectancy

Life expectancy statistics are generally reported as one of two types: period and cohort life expectancy. Period life expectancies are calculated using age specific mortality rates for a given period, with no allowance for any actual or projected future changes in mortality. This means that period life expectancy at birth for a given time period and area is an estimate of the average number of years a new born baby would survive if he/she experienced the particular area's age specific mortality rates for that time period throughout his/her life. The figures reflect mortality among those living in the area in each period, rather than the mortality among those born in each area. Life expectancy at birth is not the number of years a baby born in the area during the specified time period is expected to live (although the term "can expect to live" is often used for ease of reading), both because death rates are likely to change in the future and because many of the new-borns may live elsewhere for at least some part of their lives.

Cohort life expectancies are worked out using age-specific mortality rates which allow for known or projected changes in mortality rates from relevant year based population projections. The figures reflect the projected mortality for those born in each area.

Period life expectancies are a useful measure of mortality rates actually experienced over a given period and, for past years, provide an objective means of comparison of the trends in mortality over time, between areas of a country and with other countries. Official life tables in the UK and in other countries which relate to past years are generally period life tables for these reasons. Cohort life expectancies, even for past years, usually require projected mortality rates for their calculation and so, in such cases, involve an element of subjectivity. The ONS produce estimates of cohort life expectancy as part of the national population projection which can be accessed on the [ONS website](#). More information on the differences between period and cohort life expectancies can be found [here](#).

2 Healthy life expectancy

Healthy life expectancy is useful measure of population health, usually reported alongside the equivalent life expectancy estimates. Healthy life expectancy is the number of years of their life expectancy that a person could expect to spend in good health. Similarly to life expectancy, healthy life expectancy can be reported as period (based on health prevalence of the population in the starting time period) or cohort

(based on projected population health). The measures reported by NRS are period healthy life expectancy

3 Comparability

As the methodology for compiling life expectancy estimates is very similar for all the different geographies, the estimates are consistent and users can make relevant comparisons between countries and areas within a country provided the impact of the differences in how non-resident deaths are treated in the sub-national results are borne in mind. The classifications used in Scotland to produce estimates for special areas e.g. urban/rural cannot be compared with estimates produced elsewhere using different classifications.

4 Confidence intervals

All life expectancy and healthy life expectancy estimates produced by NRS are published alongside 95% confidence intervals. This indicates the reliability of the estimate as the 'true' value is expected to lie somewhere between the upper and lower confidence intervals. The confidence intervals for areas with small populations are wider than for areas with larger populations, especially for healthy life expectancy which relies on survey data from a subset of the population. We recommend that confidence intervals are always reported when comparing life expectancy or healthy life expectancy amongst areas to avoid drawing false conclusions.

5 Treatment of deaths of non-residents

ONS include deaths of non-residents for figures that feed into United Kingdom (UK) total figures, as well as the UK, Great Britain (GB) and England and Wales Life Tables. For constituent UK country Life Tables, non-resident deaths in England and Wales are allocated to England and non-resident deaths in Scotland are allocated to Scotland. All life expectancy figures calculated by ONS for Northern Ireland include the deaths of non-residents. Otherwise ONS do not include deaths of non-residents nor do they include deaths of English or Welsh residents dying outwith England and Wales. For calculating life expectancy for areas within Scotland, deaths of Scottish residents occurring in Scotland are assigned to place of normal residence. NRS include deaths of non-residents but allocate them to place of death and ignore deaths of Scottish residents occurring out-with Scotland.

The advantage of including non-resident deaths at place of occurrence (which are thought to balance out counts of residents dying out-with the country in Scotland), as is done by NRS, is that by doing so you are reducing the risk of over-estimating life expectancy at the national level and in areas with a small share of non-resident deaths. The disadvantage, however, is that those areas with a high share of non-resident deaths will suffer from under-estimation. Another disadvantage may be that the age-sex structure of non-residents dying within a country may be different to the age-sex structure of residents dying outwith the country.

In the UK various different types of life expectancy statistics for different areas are produced by different Official Statistics producers. This paper gives a broad description of types of statistics and methodologies used by each producer to aid in use of the statistics.

National Life Tables

Main uses:

An annual summary measure of mortality rates experienced over a given period. It provides an objective means of comparing trends in mortality over time, between areas of a country and with other countries. This is particularly of use in monitoring and investigating health inequality issues and in setting public health targets.

Source of data:

Mid-year population estimates for the UK and constituent countries.
Calendar year birth and death registrations, infant mortality by month.
Data for a period of three consecutive years is used.

Years available for:

On the ONS website – 1980-81 onwards.
Estimates are available back to 1861-70 for Scotland on the [NRS website](#) (although not for every year).

Level of detail available:

Period life expectancy estimates by single year of age (0 to 100) and sex for Scotland are published on the NRS website. The equivalent tables for the UK, Great Britain, England and Wales, England, Wales, Scotland and Northern Ireland are published on the ONS website.

Frequency of publication:

Annual. UK results are published by ONS in September. NRS publish National life tables for Scotland in September at the same time as ONS.

Who produces them:

ONS. Prior to 31 January 2006 the Government Actuary Department (GAD) prepared Interim Life Tables for the countries of the UK.

Web location:

[ONS website](#)
[NRS website](#)

Dissemination:

National Life Tables for the UK and constituent countries are published on the ONS website in excel format and released in September alongside the “National Life tables: UK” bulletin
National Life Tables for Scotland are published on the NRS website in Excel format alongside the “National Life Tables for Scotland” publication.

Methodology:

A guide to calculating interim life tables can be found on the [ONS website](#)

Comparability with similar areas in the rest of the UK:

Comparisons between countries in the UK can be made.

Planned / ongoing developments:

None currently

UK Statistics Authority Assessment:

These statistics were assessed by the UK Statistics Authority and are designated as National Statistics subject to meeting the requirements in the [assessment report](#).

Life expectancy within Scotland**Publication:**

Life Expectancy for administrative areas within Scotland

Main uses:

Life expectancy at birth provides a useful summary measure of mortality rates actually experienced over a given period. It also provides an objective means of comparing trends in mortality, over time, between areas of a country and with other countries. This is of use in monitoring and investigating health inequality issues across Scotland and in setting public health targets, particularly when used in conjunction with the SIMD.

Source of data:

Mid-year estimates produced by NRS for Council and NHS Board areas and Small Area Population Estimates (SAPE) at data zone level aggregated to 'best fit' areas.

Calendar year deaths by age group, sex (the age in this data is age at death and they are recorded by date of registration). This data is provided at data zone, Council and NHS Board level.

Years available for:

Council areas, 1991-1993 onwards

NHS Board areas, 1991-1983 onwards

Urban Rural and Scottish Index of Deprivation using the most recent classification at the time of publication, 2004-2006 onwards using tables closing at 85+. From 2013-2015 onwards closing at 90+.

Life Expectancy in Scottish Parliamentary Constituency Areas, 2005-2007 onwards onwards using tables closing at 85+. From 2013-2015 onwards closing at 90+.

Life Expectancy in Scottish Council Areas split by Deprivation, 2003-2007 onwards using tables closing at 85+. From 2013-2015 onwards closing at 90+.

Level of detail available:

Council and NHS Board areas: life expectancy at birth and for age groups up to 90+ by sex.

Urban Rural and Scottish Index of Deprivation using the most recent classification at the time of publication: life expectancy at birth and for age groups up to 90+ by sex.

Life Expectancy in Scottish Parliamentary Constituency Areas: life expectancy at birth and for age groups up to 90+ by sex.

Life Expectancy in Scottish Council Areas split by Deprivation, life expectancy at and for age groups up to 90+ birth by sex.

Frequency of publication:

Annually in November/ December to coordinate with the ONS publication of results across the UK.

Who produces them:

National Records of Scotland (NRS).

Web location:

NRS website – [Life Expectancy in Scottish Areas](#)

Dissemination:

A News Release, report and accompanying tables are published on the NRS website. The report includes summary results, detailed analysis of the results for each area as well as a brief background to the methodology.

Methodology:

A paper on the [methods](#) used to produce these life expectancy estimates can be found on the NRS website at:

Comparability with similar areas in the rest of the UK:

Life expectancy estimates for Council and NHS Board areas can be compared with similar administrative areas in the rest of the UK bearing in mind the different treatment of non-resident deaths.

Life expectancy estimates for other geographic areas such as Urban/Rural and Scottish Index of Multiple Deprivation are Scottish classifications and are not comparable with other classifications used elsewhere within the UK.

National Life Expectancy estimates are calculated as part of the process for comparison with sub-national areas only.

Deaths of Scottish residents occurring in Scotland are assigned to place of normal residence. NRS include deaths of non-residents but allocate them to place of death and ignore deaths of Scottish residents occurring outwith Scotland.

Planned / ongoing developments:

None currently

UK Statistics Authority Assessment:

These statistics were assessed by the UK Statistics Authority and are designated as National Statistics subject to meeting the requirements in the [assessment report](#)

Healthy Life expectancy

Publication:

Healthy life expectancy in Scottish areas (ad-hoc release in February 2019)
Life expectancy and healthy life expectancy in Scottish areas (planned from December 2019 onwards)

Main uses:

Life expectancy at birth provides a useful summary measure of mortality rates actually experienced over a given period. It also provides an objective means of comparing trends in mortality, over time, between areas of a country and with other countries. Healthy life expectancy is derived by combining estimates of life expectancy with Census or survey data on self-assessed health. The gap between life expectancy and healthy life expectancy represents the expected years in an “unhealthy” state, and therefore is another useful statistic.

Life expectancy and healthy life expectancy are used in monitoring and investigating health inequality issues across Scotland and in setting public health targets, particularly when used in conjunction with the SIMD. Healthy Life Expectancy is currently a key indicator in the National Performance Framework of the Scottish Government.

Source of data:

Mid-year population estimates produced by NRS for NHS Board areas and Small Area Population Estimates (SAPE) at data zone level aggregated to ‘best fit’ areas.

Calendar year deaths by sex and by age group (the age in this data is age at death and they are recorded by date of registration). This data is provided at postcode level and then aggregated up to the required geography using the most recent postcode index provided by NRS.

Self-assessed health, from the Annual Population Survey and the 2011 census.

Years available for:

Scotland: estimates from 2009-2011 to 2015-2017. Available on the ONS website

Scottish Council areas: estimates from 2009-2011 to 2015-2017. Available on the ONS website

NHS Board areas, Scottish Index of Multiple Deprivation quintiles and deciles, Urban Rural six-fold classification: 2015-2017 on the NRS website.

Level of detail available:

For all geographies, for the time periods stated above: healthy life expectancy at birth and for age groups up to 90+, by sex, with 95% confidence limits.

Frequency of publication:

Annually, in December alongside the life expectancy for administrative areas in Scotland.

In 2019, the healthy life expectancy figures for 2015-2017 were reported in a separate publication.

Who produces them:

NRS.

ONS also produce healthy life expectancy for Scotland and Scottish council areas.

Prior to the 2015-2017 estimates, healthy life expectancy estimates were produced by the Information Services Division (ISD) of the NHS and published on the Scottish Public Health Observatory (ScotPHO). Archive figures are still available on the ScotPHO website.

Web location:

[NRS website](#)

[ONS website](#)

[ScotPHO website](#)

Dissemination:

A News Release, report and accompanying tables are published on the NRS website. The report includes summary results, detailed analysis of the results for each area as well as a brief background to the methodology.

Methodology:

The method used to produce healthy life expectancy was developed by the ONS in 2018 and adopted following a public consultation. [Details of the methodology](#) and the [consultation](#) with [responses](#) can be seen on the ONS website.

Comparability with similar areas in the rest of the UK:

Life expectancy estimates for NHS Board areas can be compared with similar areas in the rest of the UK bearing in mind the different treatment of non-resident deaths.

Geographic areas such as Urban/Rural and Scottish Index of Multiple Deprivation are Scottish classifications and are not comparable with other classifications used elsewhere within the UK.

Healthy life expectancy figures for Scotland and areas within Scotland are comparable with life expectancy figures for areas within Scotland and the comparator national figure for Scotland.

Deaths of Scottish residents occurring in Scotland are assigned to place of normal residence. Records of deaths of Scottish residents occurring outwith Scotland are not available so cannot be included in analyses. NRS includes

deaths of non-residents in their life expectancy and healthy life expectancy analyses, allocating residence to place of death.

Planned / ongoing developments:

None currently

UK Statistics Authority Assessment:

These statistics are due to be assessed soon