NOTE: This is an Archive Report of the Healthy Life Expectancy web pages on the ScotPHO website, as at 16 December 2014

Links within this report have been disabled to avoid users accessing out-of-date information. For the latest information please see the relevant "live" web page.

Healthy life expectancy: key points (new data this update)

Life expectancy (LE) is an estimate of how many years a person might be expected to live, whereas **healthy life expectancy (HLE)** is an estimate of how many years they might live in a 'healthy' state. HLE is a key summary measure of a population's health.

Note: There is a major discontinuity in the HLE series between 2008 and 2009 due to a change in methodology to align with the European Union. This results in estimates of HLE at birth from 2009 onwards being over eight years lower for each sex. The 2009 estimates form the start of a new time trend.

- The most recent annual estimates for Scotland are for boys born in 2013 to live 77.1 years on average, 60.8 of these in a 'healthy' state. Girls born in 2013 would be expected to live 81.1 years on average, 61.9 of these years being 'healthy'.
- Underlying trends in both LE and HLE at birth show a general improvement in Scotland over recent years.
- The gap between LE and HLE (the years expected to be spent in a 'not healthy' state during the average lifetime) has been fairly constant for females between 1980 and 2008, but tended to increase for males.
- Time trends show that the gap between the sexes, in both LE and HLE at birth, has narrowed over time. For LE at birth, the difference between males and females was 6.4 years in 1980, falling to 4.0 years in 2013. For HLE at birth, the difference between males and females was 3.3 years in 1980, falling to 1.1 years in 2013.
- There are considerable variations in LE and HLE at birth in Scotland among different geographical and socio-economic groupings. For example, in 2011-12, male LE at birth ranged from 81.7 years in the least deprived quintile to 71.3 years in the most deprived quintile (a difference of 10.4 years). For male HLE at birth, the figures were 69.1 and 48.3 years respectively (a difference of 20.8 years). For females, LE at birth ranged from 84.0 years in the least deprived quintile to 77.2 years in the most deprived quintile (a difference of 6.9 years) while for HLE at birth, the figures were 71.9 and 51.5 years respectively (a difference of 20.4 years).
- LE is significantly worse (lower) in Scotland than in the UK as a whole, for both males and females. HLE is significantly worse (lower) in Scotland than in the UK for males, but similar for females.
- Scotland has one of the lowest LEs in Western Europe. International comparisons of HLE are hampered by the lack of consistent health measures. However, on the basis of a related indicator, healthy life years (HLY), it would appear that, in comparison with many European countries, Scotland fares badly for males but compares better for females.
- ScotPHO welcomes feedback from website users on the information included in this update. Please e-mail us at scotpho@nhs.net with any comments on how the data are used and presented and how this could be improved.

Section updates:

- The last major update of this section was completed in **December 2014**. It included 2013 HLE estimates for Scotland (including deprivation quintiles).
- The next major update is due to be carried out in **Spring 2015**.
- It is anticipated that the HLE estimates based on self-assessed health from the 2011 Census (i.e. HLE by NHS board, Community Health Partnership, deprivation decile and urban rural classification) will be published in **Spring 2015**. Please note that, as for the HLE results for Scotland and deprivation quintiles, estimates for these geographies will also be lower due to the methodological change, and there will be a discontinuity in time trends between the 2001 and 2011 Censuses.

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Healthy life expectancy: introduction

What is life expectancy (LE)?

Put at its simplest, LE is an estimate of how long the average person might be expected to live. LE is most often quoted for an entire lifetime; LE at birth is the number of years that a newborn baby would live if they experienced the death rates of the local population at the time of their birth, throughout their life. It is a theoretical measure rather than a true prediction of life expectancy, since death rates may increase or decrease during a person's lifetime, and people may move to areas with different mortality risks.

LE can also be calculated for other ages. For example, LE at age 65 indicates the number of further years that a 65-year-old might be expected to live. As a person who reaches 65 has already survived many years, their LE when added to their current age (65) will generally be greater than the corresponding estimate of a baby's LE at birth. For example, a 65-year-old man might have a LE of 15 years, meaning that he might be expected to live until the age of 80; whereas a boy's LE at birth might only be 73 years.

While LE is a very useful measure, it does not take account of how healthy someone is during their life. The measure of healthy life expectancy attempts to do this.

What is healthy life expectancy (HLE)?

Put at its simplest, HLE is an estimate of how long the average person might be expected to live in a 'healthy' state. Like LE, it is most often expressed for an entire lifetime from the time of birth. HLE at birth is the number of years that a newborn baby would live in 'healthy' health if they experienced the death rates and levels of general health of the local population at the time of their birth, throughout their life.

HLE is calculated by combining LE and a measure of 'healthy' health: in these HLE analyses for Scotland the measure used is self-assessed general health (see HLE technical paper (section 1.4). This is self-reported by survey or Census respondents but has been shown to reflect both mental and physical health.

Why is HLE useful?

HLE provides a single summary measure of a population's health, which takes account of the population's health status and death rates at different ages. HLE can be used to look at health trends over time and to compare the health of different populations and population sub-groups. It is useful in resource allocation, planning of health and other services, and evaluation of health outcomes. Further information on the uses made of HLE estimates, and users' experiences of the statistics, are included in the HLE technical paper (Appendix B).

Why look at HLE alongside LE?

While one aim is to maximise LE for the population, a second aim is to maximise HLE for the population. In other words, the target is a healthy life and not just a long life. The gap between LE and HLE indicates the length of time likely to be spent in 'not healthy' health by the average person, and therefore when considering time trends a third aim is to try to increase HLE so that it comes closer to LE, reducing the gap or period of morbidity (ill-health). The proportion of the average lifetime expected to be spent in 'healthy' health (HLE/LE) is often used to assess whether over time there is a **compression of morbidity** (proportion increasing, i.e. less time spent in poor health) or an **expansion of morbidity** (proportion decreasing, i.e. more time spent in poor health).

The period spent in 'not healthy' health will tend to occur towards the end of life, but LE and HLE are average measures and some people experience 'not healthy' health in their early years.

Both LE and HLE are usually estimated for males and females separately, as in Western Europe women generally outlive men by several years. More detailed notes on LE and HLE and methodology can be found in the HLE technical paper.

What other measures of health expectancy are there?

The global term for HLE and other similar measures is **health expectancy**. While these HLE analyses for Scotland are based on self-assessed general health, alternative measures of health can be used. One of the most common is the absence of limiting long-term illness or disability (primarily a measure of physical functioning), leading to the estimation of **disability-free life expectancy (DFLE)** which is sometimes also called **healthy life years**.

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Healthy life expectancy: policy context

Although life expectancy (LE) and healthy life expectancy (HLE) have been increasing in Scotland in recent years, both tend to be worse (lower) in Scotland than in the UK as a whole. Indeed, due to its relatively high death rates, Scotland has one of the lowest levels of LE in Western Europe (see international comparisons).

The aim of increasing HLE is included as part of the high level purpose target on Population set out by the Scottish Government in Scotland Performs:

Government Economic Strategy Target 4: "To match average European (EU15) population growth over the period from 2007 to 2017, **supported by increased healthy life expectancy in Scotland over the period from 2007 to 2017."**

Methodological changes and limited availability of data have complicated the assessment of time trends in HLE. However, estimates of HLE at birth based on self-assessed health from both the Scottish Health Survey and Scottish Household Survey suggest an increasing general trend between 2003 and 2011 for both males and females (see Scotland Performs chart). This suggests that progress is being made towards the target for the period 2007 to 2017.

Equally Well is the Scottish Government's social policy framework on reducing health inequalities initiated by the Ministerial Task Force on Health Inequalities. This sets out a series of recommendations addressing the social determinants of health – including education, poverty and employment – and the need for preventative action in the early years. In 2008 the Ministerial Task Force called for analysis to support long-term monitoring of inequalities in a number of high level indicators, of which HLE was one.

The 2013 Long-term Monitoring of Health Inequalities report, published by the Scottish Government on 29 October 2013, includes a section on Healthy life expectancy at birth. It concludes that there continue to be inequalities in relative and absolute terms. Between 2009-2010 and 2011-2012, although inequalities appear to have widened slightly, the changes were not statistically significant. Changes to the methodology from 2009 mean comparisons with earlier years cannot be made.

At a European level, the pilot European Innovation Partnership on Active and Healthy Ageing has an overarching target to increase the average healthy lifespan in Europe by two years by 2020. It is focused on three areas: prevention and health promotion; care and cure; and active and independent living of elderly people.

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Healthy life expectancy: data introduction

Estimates of life expectancy (LE) and healthy life expectancy (HLE) for Scotland and the population sub-groups indicated in Table 1 are to be found within the data pages accessible either via hyperlinks in the table or via the menu on the left (or in the case of local authority, through hyperlinks to a report published in 2004).

The **December 2014 HLE update** includes previously unpublished 2013 LE and HLE estimates for Scotland. Note that for geographies such as NHS board and CHP area, there have been no HLE updates since the estimates for the 5-year period 1999-2003, as these are reliant on Census data. The next update for these geographies (Spring 2015) will be after the 2011 Census data are released.

Table 1: Data for Scotland presented on life expectancy and healthy life expectancy

Data dimensions/geographies	Data Presented? (Y=yes; N=no)	
	Life expectancy	Healthy life expectancy
By gender	Y	Y
By age group	Y	Y
By NHS board area	Y	Y
By local authority area	Y (in 2004 report *)	Y (in 2004 report *)
By Community Health Partnership (CHP) area	Y	Y
By intermediate geography	Y (but not shown for very small areas)	N
By deprivation quintile	Y	Y
By deprivation decile	Y	Y
By urban rural classification	Y	Y
Time trend	Y	Y
National target	No target	Y (trends show progress towards 2017 target)
Comparison with UK/GB	Y	Y
International comparison	Y	Y (limited data, for health expectancy)

* The 2004 Healthy life expectancy in Scotland (324KB) report, executive summary (92KB) and paper by Wood et al (2006) provided the first published estimates of male and female HLE for the Scottish population. They included estimates by NHS board, local authority area and deprivation quintile, with health expectancy based on either self-assessed health (SAH) or limiting long-term illness.

Important data notes

95% confidence intervals are presented alongside every LE or HLE estimate presented here, to show the precision of each figure in terms of the likely range of random year-to-year statistical variability in the data used to produce the estimates. However, it should be emphasised that it is not possible to quantify effects such as any inconsistencies in how people interpret and respond to questions about their health, or any unusual circumstances which affect the figures for a particular area or year. For further discussion of such issues, and interpretation of the 95% confidence interval for LE in a particular small area, please see the data page for intermediate geographies.

Please note that in the charts on the data pages, the y axis does not start at zero, and different scales may be used in different charts as appropriate.

ScotPHO publishes Scotland's definitive **HLE** estimates (alongside the corresponding LE estimates for the same time-periods and geographies, to allow an estimation of the time expected to be spent in 'not healthy' health). The Office for National Statistics publishes the definitive Scotland-level **LE** estimates (based on interim life tables by single year of age) on behalf of National Records of Scotland (NRS, formerly the General Register Office for Scotland). NRS publishes definitive **LE** estimates for areas within Scotland.

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Healthy life expectancy: Scotland (new data this update)

Males

Chart 1 and the accompanying Table 1 (55KB) show the patterns for life expectancy (LE) and healthy life expectancy (HLE) at birth for males in Scotland, over the period 1980 to 2013. In addition to the 1-year period data which indicate trends over the full 34 years, more robust 5-year period data for 1999-2003 are shown for comparison. 95% confidence intervals are presented to give some indication of the stability of the estimates.

- Estimates of male LE at birth based on single years of data increased from 68.7 years in 1980 to 77.1 years in 2013; an increase of 8.4 years overall (or 12.2% of the 1980 figure).
- Estimates of male HLE at birth based on single years are quite variable, but like LE demonstrate an overall upward trend. HLE increased from 62.6 years in 1980 to 68.1 years in 2008; an increase of 5.5 years overall (or 9% of the 1980 figure). **Estimates of HLE from 2009 onwards are not comparable with earlier years due to a major change in the self-assessed health (SAH) question. For further discussion, please see the HLE technical paper (section 1.4.3).**
- Male HLE at birth based on the new SAH question was estimated to be 60.0 years in 2009 and 60.8 years in 2013 (figures not significantly different).
- Chart 1 shows a slight divergence of the trends for males in LE and HLE at birth between 1980 and 2008. As explained in the HLE introduction page, this is undesirable as it indicates that an average male would be expected to spend more years in 'not healthy' health if born in 2008 (7.3 years) than in 1980 (6.2 years). This indicates an expansion in morbidity. However, the **percentage** of life expected to be spent in 'healthy' health ((HLE/LE) x 100) is fairly constant over time (around 90%), indicating neither a compression nor an expansion of morbidity when assessed by this measure.
- The most robust HLE estimates are based on SAH measured in the Scotland Census. The estimate for HLE at birth for the 5-year period 1999-2003 (based on 5 years of data on deaths and population estimates, and SAH from the 2001 Census) agrees closely with the single year figure. Unfortunately as 2001 was the first Census to ask about SAH, comparable HLE data cannot be calculated for previous years. It is also worth noting that as the 2011 Census used the new SAH question, future HLE estimates based on this will be comparable to the new annual time series from 2009, but not comparable to the old HLE estimate based on the 2001 Census.
- The wide confidence intervals for HLE compared to LE reflect the use of survey data for the SAH component of HLE. They became narrower in 1999 when the Scottish Household Survey (with a larger sample size) became available and was used in place of the General Household Survey.

Females

Chart 2 and the accompanying Table 2 (55KB) show the corresponding patterns for LE and HLE at birth for females in Scotland, over the 34-year period 1980 to 2013.

- Estimates of female LE at birth based on single years of data have increased from 75.1 years in 1980 to 81.1 years in 2013; an increase of 6.0 years overall (or 8.0% of the 1980 figure).
- Estimates of female HLE at birth based on single years are quite variable, but like LE demonstrate an overall upward trend. HLE increased from 65.9 years in 1980 to 70.8 years in 2008; an increase of 4.9 years overall (or 7% of the 1980 figure). As discussed above, there is a break in the time series after 2008; the change in the SAH question resulted in HLE estimates of 62.2 years in 2009 and 61.9 years in 2013 (figures not significantly different).

- Between 1980 and 2008, Chart 2 shows that female LE and HLE at birth maintained a fairly constant separation over time. The average female would be expected to spend just over 9 years in 'not healthy' health if born in 1980 or 2008. The percentage of life expected to be spent in 'healthy' health ((HLE/LE) x 100) was fairly constant over time (around 88%). Therefore, there was neither a compression nor an expansion of morbidity.
- The estimate of HLE at birth for the 5-year period 1999-2003 based on SAH from the 2001 Scotland Census (70.2 years) is significantly higher than the single year estimate for 2001 based on SAH from the Scottish Household Survey (69.2 years). The former is likely to be more accurate because of the far larger sample size in the Census than in the Survey. Further details are given in the HLE technical paper (section 1.4.1).

Comparison of patterns for males and females

The more robust 5-year period (1999-2003) data for Scotland in Charts 1 and 2 demonstrate that:

- Females have greater longevity than males, with LE at birth over 5 years longer for females (78.7 years) than males (73.3 years).
- Females have a greater HLE at birth than males, although the difference of nearly 4 years (females 70.2 years versus males 66.3 years) is less than for LE.
- Females are, however, expected to spend on average 1.5 years longer in ‘not healthy’ health than males (8.5 compared with 7.0 years).
- Time trends in the single year data show that the gap between the sexes in both LE and HLE at birth has narrowed over time:
- The difference between males and females in LE at birth was 6.4 years in 1980, falling to 4.0 years in 2013.
- The difference between males and females in HLE at birth was 3.3 years in 1980, falling to 1.1 years in 2013.

Further information

LE and HLE can be estimated for people at various ages, not just at birth. Table 3 provides the life tables for males and females (30KB) for Scotland, based on the data presented above for the 5-year period 1999-2003. These show that, for example, an average man aged 65 could expect to live a further 14.9 years, 11.6 of them in ‘healthy’ health. An average 65-year-old woman could expect to live a further 17.9 years, 13.7 of them in ‘healthy’ health.

In addition to LE and HLE at different ages (with 95% confidence limits), Table 3 also shows for each age group: the population estimate, number of death registrations, proportion of population surviving to a specific age, number reporting SAH, proportion with ‘not healthy’ health, and period expected to be spent in ‘not healthy’ health.

The HLE technical paper provides further information on life tables and methodology, data sources, etc.

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Healthy life expectancy: NHS boards

Males

Chart 1 and the accompanying Table 1 (62KB) show male life expectancy (LE) and healthy life expectancy (HLE) at birth for the 14 Scottish NHS board areas, for the period 1999-2003. The estimates are based on 5 years of data on deaths and populations, and a single year of data for self-assessed health (SAH) from the Scotland Census for 2001 (the middle year).

- When ordered by LE at birth, Borders NHS Board had the highest male LE (75.7 years) and Greater Glasgow and Clyde the lowest (70.8 years).
- HLE at birth broadly followed the same pattern, with Orkney and Borders having the highest male HLE (both 70.4 years) and Greater Glasgow and Clyde the lowest (62.2 years).
- The three island boards (Orkney, Shetland and Western Isles) had some of the shortest periods expected to be spent in 'not healthy' health (LE minus HLE); around 5 years. By contrast, the figure for Greater Glasgow and Clyde was nearly 9 years.
- As expected, the 95% confidence intervals for LE and HLE were widest for the three island boards with small populations.

Females

Chart 2 and the accompanying Table 2 (39KB) show the comparable data for females for LE and HLE at birth, by NHS board area. (Note that the chart y axis scale is different from Chart 1.)

- When ordered by LE at birth, Orkney NHS Board had the highest female LE (81.6 years) and Greater Glasgow and Clyde the lowest (77.4 years).
- HLE at birth broadly followed the same pattern, with Orkney having the highest female HLE (76.1 years) and Greater Glasgow and Clyde the lowest (66.9 years).
- Similarly, the period expected to be spent in 'not healthy' health (LE minus HLE) ranged from 5.5 years in Orkney to 10.5 years in Greater Glasgow and Clyde.
- Again, the 95% confidence intervals for LE and HLE at birth were widest for the three island boards.

Further information

Table 3 provides the life tables for males and females (487KB) for the 14 NHS board areas in Scotland, based on the 5-year period 1999-2003. These allow the user to look at LE and HLE at ages other than birth (with 95% confidence limits). Also shown for each age group are: the population estimate, number of death registrations, proportion of population surviving to a specific age, number reporting SAH, proportion with 'not healthy' health, and period expected to be spent in 'not healthy' health.

More recent LE data by NHS board, including time trends, are published by National Records of Scotland (NRS, formerly the General Register Office for Scotland). Time trends in HLE by NHS board are not available due to reliance on the Scotland Census for SAH data; only data from the 2001 Census are currently available.

The HLE technical paper provides further information on life tables and methodology, data sources, geography, etc.

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Health life expectancy: community health partnerships

Males

Chart 1 and the accompanying Table 1 (92KB) show life expectancy (LE) and healthy life expectancy (HLE) at birth for the 40 community health partnership (CHP) areas in Scotland in 2003. Only data for the 5-year period 1999-2003 are shown, based on 5 years of data on deaths and populations, and a single year of data for self-assessed health from the Scotland Census for 2001 (the middle year).

- East Dunbartonshire CHP had the highest male LE at birth (76.7 years), and North Glasgow and East Glasgow Community Health and Care Partnerships the lowest (67.3 and 67.2 years respectively).
- HLE at birth broadly followed the same pattern across the 40 CHPs as LE at birth. East Dunbartonshire, Aberdeenshire and Perth & Kinross had the highest male HLE (all 70.8 years), and North Glasgow and East Glasgow the lowest (56.4 and 56.0 years respectively). This means that a boy born during 1999-2003, subject to the self-assessed health and mortality patterns for East Glasgow during that period, would be expected to live in a healthy state for nearly 15 years less than a similar baby experiencing the patterns for nearby East Dunbartonshire.
- Orkney, Shetland and Aberdeenshire had the shortest period expected to be spent in 'not healthy' health (LE minus HLE); 5.0 years. By contrast, North Glasgow and East Glasgow had the longest (10.9 and 11.2 years respectively).
- As expected, the 95% confidence intervals for LE and HLE at birth were widest for the three island CHPs with small populations (Orkney, Shetland and Western Isles).

Females

Chart 2 and the accompanying Table 2 (83KB) show the comparable data for LE and HLE at birth for females for the 40 CHP areas in Scotland in 2003.

- Orkney and Shetland CHPs had the highest female LE at birth (81.6 and 81.1 years respectively), and East Glasgow and North Glasgow Community Health and Care Partnerships the lowest (75.5 and 74.7 years respectively).
- HLE at birth broadly followed the same pattern across the 40 CHPs as LE at birth. Orkney had the highest female HLE (76.1 years), and North Glasgow and East Glasgow the lowest (61.6 and 61.5 years respectively). This means that a girl born during 1999-2003, subject to the self-assessed health and mortality patterns for East Glasgow during that period, would be expected to live in a healthy state for nearly 15 years less than a similar baby experiencing the patterns for Orkney.
- Orkney CHP had the shortest period expected to be spent in 'not healthy' health (LE minus HLE); 5.5 years. By contrast, North Glasgow and East Glasgow had the longest (13.1 and 14.0 years respectively).
- As expected, the 95% confidence intervals for LE and HLE at birth were widest for the three island CHPs with small populations (Orkney, Shetland and Western Isles).

Further information

Table 3 provides the life tables for males and females (2,228KB) for the 40 CHP areas in Scotland, based on the 5-year period 1999-2003. These allow the user to look at LE and HLE at ages other than birth (with 95% confidence limits). Also shown for each age group are: the population estimate, number of death registrations, proportion of population surviving to a specific age, number reporting SAH, proportion with 'not healthy' health, and period expected to be spent in 'not healthy' health.

More recent LE data by CHP, including time trends, are published by National Records of Scotland (NRS, formerly the General Register Office for Scotland). Time trends in HLE by CHP are not available due to reliance on the Scotland Census for SAH data; only data from the 2001 Census are currently available.

The HLE technical paper provides further information on life tables and methodology, data sources, geography, etc.

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Life expectancy: intermediate geographies

Exclusion rules

Within Scotland, statistics are sometimes published by small areas such as intermediate geography (also called intermediate zone). Healthy life expectancy (HLE) is not estimated for such small areas due to the severe instability of the very small numbers that would be used to calculate the proportion of Census respondents with 'healthy' health in each age group. However, life expectancy (LE) has been analysed by this geography, and for most areas data are available for LE at birth for 5-year periods. However, to avoid the least robust situations, LE for a sex and area is not calculated where:

a) the 5-year total population for that sex was less than 5,000 people; and/or

b) there were fewer than 40 deaths for that sex over the 5-year period.

In addition, for a small number of intermediate geographies, LE could not be calculated because an age group had a zero population estimate or no deaths had occurred in the oldest (85+ years) age group. For further details, please see the HLE technical paper (section 2.1).

Available data

In November 2010, as part of the 2010 CHP Profiles, LE data by intermediate geography/zone were presented for five time periods: 1994-98, 1996-2000, 1999-2003, 2001-05 and 2003-07. (The intermediate zone data were grouped by CHP area - to access please download either the Spine Chart Pack or Sub-CHP Chart Tool spreadsheet for the area you are interested in, from the list at the bottom of the Profiles page.) The exclusion rules outlined above meant that some LE data were unavailable; for example in 2003-07, 2-3% of the 1,235 potential estimates for Scotland for each sex were not calculated.

The National Records of Scotland (NRS, formerly the General Register Office for Scotland) produced the estimates for 2003-07, and in November 2010 it published an update for the period 2005-09.

Interpreting the LE findings

Using exclusion rules means that some extreme LE estimates are omitted from the full range for intermediate geographies within Scotland. It is therefore not possible to state which intermediate geography has the highest or lowest LE. Over the time period 2003-07, amongst the remaining data for intermediate geographies, LE at birth ranged from 59.9 to 89.0 years for males, and from 70.2 to 92.3 years for females.

Please note that some of these data have large 95% confidence intervals (up to 14 or 12 years). The implications of this are best explained using an example. The lowest remaining male LE at birth (59.9 years) has a confidence interval of 4.6 years, from 57.6 to 62.2 years. This means that there is a 1 in 20 chance that the true LE at birth lies either below 57.6 years or above 62.2 years (although the most likely true value remains at 59.9 years). The wide range of possible values indicates that further caution is required in drawing conclusions about the apparent ranking of small areas.

As small numbers are involved, these estimates for LE at birth in small areas are subject to random fluctuations in the number of deaths and the age at death. As a result, conclusions about time trends for any specific small area may not be reliable. Also, in any small area where the population is changing significantly (rising or falling), the calculated mortality rates and LE estimates may be less reliable as the population estimates may not yet fully reflect this change.

Therefore the results should be interpreted as providing a general indication of LE estimates over time, rather than precise and robust figures. The 95% confidence intervals give some indication of the stability of the estimates, in terms of the likely range of random year-to-year statistical variability in the data from which the estimates are produced. However, it should be emphasised that it is not possible to quantify the effects of any unusual circumstances which affect the figures for a particular area or year.

If a small area has a low LE at birth, there may be particular reasons for this. For example, the area may include nursing homes, hostels or other long-term care establishments which may serve people with poorer than average health and lower LE, and many of these people may have come from other parts of Scotland.

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Healthy life expectancy: deprivation quintiles (new data this update)

Males

Chart 1 and the accompanying Table 1 (61KB) show male life expectancy (LE) and healthy life expectancy (HLE) at birth for the 5 deprivation quintiles in Scotland. The quintiles are based on the Scottish Government's Scottish Index of Multiple Deprivation (SIMD), not weighted for population. SIMD 2006 used up to 2007-08 analyses; SIMD 2009 v2 used for 2009-10, SIMD 2012 used for 2011-12. For discussion on this change, please see the HLE technical paper (section 6 - Deprivation quintiles).

The earliest period is 1999-2000 because the Scottish Household Survey (which provides estimates of self-assessed health (SAH)) started in 1999. LE is presented for 2-year periods from 1999-2000 to 2011-12; HLE for all except 2003-04 when SAH was not recorded in the survey. Note that HLE from 2009-10 onwards is not comparable with earlier years due to a major change in the SAH question. For further discussion on the change, please see the HLE technical paper (section 1.4.3).

In addition to the 2-year HLE figures which indicate time trends, data are also presented for the more statistically robust 5-year 1999-2003 figures which are based on 5 years of data on deaths and populations, and SAH from the 2001 Scotland Census.

- As expected, male LE at birth decreased steadily from the least to the most deprived quintile. In 2011-12, LE for the least deprived quintile (81.7 years) was 10.4 years longer than for the most deprived quintile (71.3 years).
- There was a similar, but more marked, pattern for HLE; in 2011-12, HLE at birth for the least deprived quintile (69.1 years) was 20.8 years longer than for the most deprived quintile (48.3 years).
- Like the overall figure for Scotland, the figures for deprivation quintiles tended to show a steady increase over time in LE at birth. Between 1999-2000 and 2011-12, the increase ranged from 3.5 to 3.8 years.
- HLE at birth for 2-year periods also tended to increase over time before 2009-10 when the new methodology was introduced.
- HLE estimates are likely to be more accurate when based on SAH from the 2001 Census than on SAH from surveys (with much smaller numbers of respondents). The 1999-2003 data based on the Census are close to, but in some cases slightly higher than, the 2001-02 survey-based data. This emphasises the less robust nature of the 2-year survey-based data.
- There is a clear gradient in the period expected to be spent in 'not healthy' health (LE minus HLE); in 2011-12 this ranged from 12.5 years in the least deprived quintile to 23.0 years in the most deprived quintile.

Females

Chart 2 and the accompanying Table 2 (69KB) show the comparable female LE and HLE at birth data for the 5 deprivation quintiles in Scotland.

- As expected, female LE at birth decreased steadily from the least to the most deprived quintile. In 2011-12, LE for the least deprived quintile (84.0 years) was 6.9 years longer than for the most deprived quintile (77.2 years).
- There was a similar, but more marked, pattern for HLE; in 2011-12, HLE for the least deprived quintile (71.9 years) was 20.4 years longer than for the most deprived quintile (51.5 years).

- Like Scotland, all quintiles tended to show a steady increase in LE at birth over time. Between 1999-2000 and 2011-12, the increase ranged from 1.7 to 2.8 years.
- Apart from in the most deprived quintile, HLE at birth for 2-year periods also increased steadily over time before 2009-10 when the new methodology was introduced.
- The 1999-2003 HLE figures based on SAH from the 2001 Census are close to, but tend to be slightly higher than, the 2001-02 data based on survey SAH, again highlighting the less robust nature of the 2-year survey-based data.
- There is a clear gradient in the period expected to be spent in 'not healthy' health (LE minus HLE); in 2011-12 this ranged from 12.2 years in the least deprived quintile to 25.7 years in the most deprived quintile.

Males and females summary

It may be concluded from Charts 1 and 2 that:

- For each sex, the more deprived the quintile the shorter the LE at birth, the shorter the HLE at birth and the longer the period expected to be spent in 'not healthy' health.
- For each sex, HLE at birth differed more between quintiles 1 and 5 than did LE at birth.
- The inequality or spread between deprivation quintiles 1 and 5 was wider for males than females for LE at birth, slightly wider for HLE at birth, but narrower for the period expected to be spent in 'not healthy' health.
- Between 1999-2000 and 2011-12, female LE at birth appears to have diverged slightly between quintiles 1 and 5, indicating a possible increase in health inequality for females. There is less evidence of the LE gap widening for males.

Further information

Table 3 provides the life tables for males and females (466KB) for the 5 deprivation quintiles in Scotland, based on the 5-year period 1999-2003 and SAH from the 2001 Census, as this is more robust than the 2-year period data for quintiles and is in line with the life tables presented for other geographies/groupings within Scotland. The life tables allow the user to look at LE and HLE at ages other than birth (with 95% confidence limits). Also shown for each age group are: the population estimate, number of death registrations, proportion of population surviving to a specific age, number reporting SAH, proportion with 'not healthy' health, and period expected to be spent in 'not healthy' health.

The HLE technical paper provides further information on life tables and methodology, data sources, geography, etc.

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Healthy life expectancy: deprivation deciles

The deprivation patterns in life expectancy (LE) and healthy life expectancy (HLE) at birth identified for deprivation quintiles are examined below in more detail, by looking at deprivation deciles. Like the quintiles, these are based on the Scottish Government's Scottish Index of Multiple Deprivation (SIMD) , not weighted for population. SIMD 2006 is used up to 2004-06, and SIMD 2009 v2 from 2006-08. For discussion on this change, please see the HLE technical paper (section 6 - Deprivation deciles).

LE at birth is presented for 5-year periods from 1994-98 (the earliest period for which decile population estimates are available) up to 2001-05, then 3-year periods from 2004-06. Healthy life expectancy (HLE) at birth is shown for 1999-2003, based on 5 years of data on deaths and populations, and a single year of data for self-assessed health (SAH) from the 2001 Census (the middle year). Note that although HLE estimates based on survey SAH data for 2-year periods were presented for quintiles, they are not presented here for deciles as they are less robust at this smaller geography. The next update on HLE by decile is likely to be produced in 2013, using results from the 2011 Census (based on the new SAH methodology).

Males

Chart 1 and the accompanying Table 1 (55KB) show that:

- Male LE at birth decreased steadily from the least to the most deprived decile. In 1994-98, LE for the least deprived decile (77.0 years) was 11.0 years longer than for the most deprived decile (66.0 years). In 2008-10, LE for the least deprived decile (81.4 years) was 13.2 years longer than for the most deprived decile (68.2 years). This indicates a slight increase in inequality over this period.
- Like the figures for Scotland as a whole, most deciles showed a steady increase in LE at birth between 1994-98 and 2008-10. However, over the whole period the increases tended to be greater for the less deprived deciles and smaller for the most deprived deciles. Indeed, LE at birth in the most deprived decile was fairly constant until 2001-05, after which it also started to increase.
- HLE at birth in 1999-2003 decreased steadily from the least deprived decile (75.0 years) to the most deprived (54.5 years), giving a range of 20.5 years.
- There was also a clear gradient in the period expected to be spent in 'not healthy' health (LE minus HLE); in 1999-2003 this ranged from 4.0 years in the least deprived decile to 11.3 years in the most deprived decile.

Females

Chart 2 and the accompanying Table 2 (55KB) show that:

- Female LE at birth also decreased steadily from the least to the most deprived decile. In 1994-98, LE for the least deprived decile (80.9 years) was 7.0 years longer than for the most deprived decile (73.9 years). In 2008-10, LE for the least deprived decile (84.6 years) was 8.9 years longer than for the most deprived decile (75.7 years). This indicates a slight increase in inequality over this period.
- Like the figures for Scotland as a whole, most deciles showed a steady increase in LE at birth between 1994-98 and 2008-10. However, the increases tended to be greater for the less deprived deciles and smaller for the most deprived deciles.
- HLE at birth in 1999-2003 decreased steadily from the least deprived decile (77.3 years) to the most deprived (60.8 years), giving a range of 16.5 years.

- There was also a clear gradient in the period expected to be spent in 'not healthy' health (LE minus HLE); this ranged from 5.0 years in the least deprived decile to 13.5 years in the most deprived decile.

Males and females summary

It may be concluded from Charts 1 and 2 that:

- For both males and females, the more deprived the decile the shorter the LE at birth, the shorter the HLE at birth and the longer the period expected to be spent in 'not healthy' health.
- LE at birth has increased over time in all deciles.
- The inequality or spread between deprivation deciles 1 and 10 was wider for males than females for both LE and HLE at birth, but not for the period expected to be spent in 'not healthy' health.
- HLE at birth demonstrated a greater inequality between deciles 1 and 10 than did LE at birth.

Further information

Table 3 provides the life tables for males and females (485KB) for the 10 deprivation deciles in Scotland, based on the 5-year period 1999-2003. These allow the user to look at LE and HLE at ages other than birth (with 95% confidence limits). Also shown for each age group are: the population estimate, number of death registrations, proportion of population surviving to a specific age, number reporting SAH, proportion with 'not healthy' health, and period expected to be spent in 'not healthy' health.

The HLE technical paper provides further information on life tables and methodology, data sources, geography, etc.

Other deprivation analyses

LE data by deprivation decile (for 3-year periods) are published annually by National Records of Scotland (NRS, formerly the General Register Office for Scotland).

LE and HLE data were published in the Scottish Government's 2008 Long-term monitoring of health inequalities report, with bi-annual updates in 2011 and 2013. Using analyses for deciles based on the income-employment index (a deprivation measure developed from the Scottish Index of Multiple Deprivation (SIMD)) the latest report concludes that there continued to be inequalities in HLE in both relative and absolute terms. Between 2009-2010 and 2011-2012, although inequalities appear to have widened slightly, the changes were not statistically significant. Changes to the methodology from 2009 mean comparisons with earlier years cannot be made (discussed in more detail in the HLE technical paper (section 1.4.3).

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Healthy life expectancy: urban rural classification

The association between rurality and life expectancy (LE) and healthy life expectancy (HLE) at birth was examined by means of the Scottish Government's urban rural classification (2001 version). The 6-fold classification was used, comprising large urban areas, other urban areas, accessible small towns, remote small towns, accessible rural and remote rural. Approximately two-thirds of the Scottish population live in the two urban area categories. For further details of the classification, please see the HLE technical paper (section 6).

The data relate to the 5-year period 1999-2003, using death registrations and population estimates for each of the 5 years, self-assessed health (SAH) from the Scotland Census for 2001 (the middle year), and the urban rural classification for 2001.

Males

Chart 1 and the accompanying Table 1 (62KB) show that:

- Male LE at birth tended to decrease as area of residence became more urban. LE for remote rural (75.3 years) was 3.3 years longer than large urban areas (71.9 years).
- Male HLE at birth decreased steadily as area of residence became more urban. HLE for remote rural (69.9 years) was 5.9 years longer than large urban areas (64.0 years).
- There was also a clear gradient in the period expected to be spent in 'not healthy' health (LE minus HLE); this ranged from 5.4 years in remote rural up to 7.9 years in large urban areas.

Females

Chart 2 and the accompanying Table 2 (66KB) show that:

- Female LE at birth decreased steadily as area of residence became more urban. LE for remote rural (80.6 years) was 2.5 years longer than large urban areas (78.1 years).
- Female HLE at birth decreased steadily as area of residence became more urban. HLE for remote rural (74.4 years) was 5.8 years longer than large urban areas (68.5 years).
- There was also a clear gradient in the period expected to be spent in 'not healthy' health (LE minus HLE); this ranged from 6.2 years in remote rural up to 9.5 years in large urban areas.

Males and females summary

It may be concluded from Charts 1 and 2 that, for both males and females:

- Residents of the most remote rural areas are expected to live longest, live longest in a healthy state and spend fewest years in 'not healthy' health. This may be partly due to the fact that rural areas tend to have lower levels of deprivation than urban areas, and deprivation has been shown to be strongly associated with a lower LE and HLE (see deprivation quintiles and deprivation deciles data pages).
- Conversely, residents of the most urban areas are expected to live the shortest time, live the shortest time in a healthy state and spend the most years in 'not healthy' health.
- HLE at birth showed a greater spread or inequality between the remote rural and large urban areas (nearly 6 years) than did LE at birth (2-3 years).

Further information

Table 3 provides the life tables for males and females (504KB) for the 6 urban rural classification categories in Scotland, based on the 5-year period 1999-2003. These allow the user to look at LE and HLE at ages other than birth (with 95% confidence limits). Also shown for each age group are: the population estimate, number of death registrations, proportion of population surviving to a specific age, number reporting SAH, proportion with 'not healthy' health, and period expected to be spent in 'not healthy' health.

More recent LE data by urban rural categories are published by National Records of Scotland (NRS, formerly the General Register Office for Scotland). Time trends in HLE by urban rural categories are not available due to reliance on the Scotland Census for SAH data; only data from the 2001 Census are currently available.

The HLE technical paper provides further information on life tables and methodology, data sources, geography, etc.

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Healthy life expectancy: UK comparisons

Comparisons including healthy life expectancy (HLE)

The Office for National Statistics (ONS) regularly publishes reports and tables comparing life expectancy (LE), HLE and disability-free life expectancy (DFLE) at birth and at age 65 in the UK, Great Britain, England, Wales, Scotland and Northern Ireland. The ONS data are for a 3-year period and therefore for Scotland even the LE figures differ slightly from those published here for a 1-year or 5-year period. In addition, for HLE the ONS estimates use self-assessed health (SAH) from the cross-sectional sample of the General Lifestyle module (GLF) of the Integrated Household Survey (and previously used the General Household Survey). As the sample size is smaller than either the Scottish Household Survey or the 2001 Scotland Census, the confidence intervals are wider than for the estimates published here. Please also note that ONS uses the terminology 'good' health to describe the SAH responses used to estimate HLE, and 'not good' health for the other responses, whilst ScotPHO uses the terms 'healthy' health and 'not healthy' health respectively.

The fall in HLE estimates due to the recent move to the new EU SAH question discussed on the Scotland data page can also be seen in estimates published by ONS (click on the required edition and then on Reference tables), for the UK and constituent countries including Scotland, for 2005-07 onwards.

Scotland compared with the UK

ONS comparisons of Scotland with the UK generally show a lower LE at birth in Scotland by around 2 years, for both males and females. LE at age 65 also tends to be lower in Scotland (by around 1 year) for both males and females. This indicates that the lower LE at birth in Scotland than the UK is not simply due to inequalities in mortality at younger ages, but at older ages too.

Similarly, estimates of HLE in Scotland are generally lower than for the UK as a whole. In 2008-10, HLE at birth was 3.7 years lower in Scotland than in the UK for males, and 1.6 years lower for females. At age 65, HLE was 1.5 years lower in Scotland than in the UK for males, and 0.8 years lower for females.

Scotland compared with other countries in the UK

Looking at the four countries within the UK, in 2008-10, Scotland had the lowest LE for males and females at birth and at age 65, while England had the highest. England also ranked highest for HLE for each sex at birth and at age 65. Scotland generally had the lowest or second lowest figure (apart from females who ranked second highest for HLE at birth).

Comparisons of LE only

ONS produce complete interim life tables annually for the United Kingdom, Great Britain and constituent countries, giving period life expectancy by single year of age (0 to 100) and sex for 3-year rolling periods. They are known as interim life tables to distinguish them from fully graduated life tables which are prepared only every ten years, based on data around a census year. ONS also calculates abridged life tables (based on 5-year age groups) for national and sub-national areas in the United Kingdom, for 3-year rolling periods.

Key ONS documents with data for Scotland include:

- Statistical Bulletin: Life expectancy at birth and at age 65 by local areas in the United Kingdom (click on the required edition and then on Reference tables). The spreadsheet for Scotland includes LE at birth and at age 65 for the UK, Scotland and Scotland's council areas (local authorities). Of the local authority areas in the UK, Glasgow City consistently had the lowest LE at birth and at age 65, for males and females.

- Statistical Bulletin: Life expectancy at birth and at age 65 for health areas in the United Kingdom (click on the required edition and then on Reference tables). Of the health areas in the UK, Greater Glasgow & Clyde NHS Board was among the areas with the lowest LE at birth and at age 65, for males and females.

- Animated maps showing changes in LE at birth by local area in the UK, between 1991-93 and 2008-10.

- National life tables for Scotland (click on the required edition and then on Reference tables). These include Scotland-level LE data, by single year of age (0 to 100) and sex.

- LE tables (projections) (click on the required edition and then on Reference tables). These show future LE projections for Scotland, the UK and its other constituent countries, available on a period or cohort basis.

LE comparisons between Scotland and the UK can also be found on the Scotland and European Health for All (HfA) Database which is described in more detail on the HLE international comparisons data page.

Note that in December 2011, National Records of Scotland published a paper Life expectancy statistics across the UK giving information on the availability of LE estimates and the methods used to produce them across the UK.

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Healthy life expectancy: international comparisons

Life expectancy (LE)

Historical trends from 1910 to 1995 in male and female LE at birth in Scotland and other Western European countries were published by Leon et al (2003) in Understanding the health of Scotland's population in an international context (1.71MB). Figure 3.4 in the report shows that Scotland's position has slipped relative to the other countries over time. In 1930, for example, out of 17 European countries Scottish males were ranked 9th worst, while females were ranked 11th worst. However, with most other countries having a steeper rate of improvement in LE at birth from 1950, Scotland's relative position deteriorated, and by 1995 males were ranked the 2nd worst (behind Portugal), and females the worst.

More recent LE data are included in the Scotland and European Health for All (HfA) Database. This presents data for life expectancy at birth and at ages 1, 15, 45 and 65 years, and allows quick comparisons between Scotland and any/all of the 53 member states in the WHO European Region, including the UK. Time trends are given, with the Scottish data starting in 1981 for LE for males and for females, but only 2004 for persons. The graphs and tables from the database show that despite the general pattern of an increase in LE over time in Scotland and many other Western European countries, Scotland's LE is one of the lowest.

Using the database to compare male LE at birth with the 27 member states of the European Union (EU), in recent years Scotland has ranked worse than 16 countries: Austria, Belgium, Cyprus, Denmark, Finland, France, Germany, Greece, the Republic of Ireland, Italy, Luxembourg, Malta, the Netherlands, Spain, Sweden and the United Kingdom. Scotland has had a broadly similar male LE to Portugal and Slovenia, and a better LE than Bulgaria, the Czech Republic, Estonia, Hungary, Latvia, Lithuania, Poland, Romania and Slovakia.

For female LE at birth, there is a broadly similar picture, with Scotland, in recent years, ranking worse than 18 of the 27 member states of the EU: Austria, Belgium, Cyprus, Denmark, Finland, France, Germany, Greece, the Republic of Ireland, Italy, Luxembourg, Malta, the Netherlands, Portugal, Slovenia, Spain, Sweden and the United Kingdom. Scotland's female LE has been similar to the Czech Republic and Poland in recent years, and better than Bulgaria, Estonia, Hungary, Latvia, Lithuania, Romania and Slovakia.

Male and female LE at birth in 2005 is also included in I2SARE Regional Health Profiles. For these indicators, Scotland ranked lowest of the 12 UK 'regions' for both males and females; and 134/189 EU regions for males and 162/189 EU regions for females.

Health expectancy

There do not appear to be suitable data to draw comparisons of healthy life expectancy (HLE) between Scotland and countries other than the UK, and therefore other measures of health expectancy must be considered.

The Scotland and European Health for All (HfA) Database includes indicators for disability-adjusted life expectancy (DALE) based on estimates made by the WHO. These are available for the 27 member states of the EU, including the UK, but not Scotland separately.

For a broader picture world-wide than just Europe, Mathers (1999) compared DALE at birth for persons in 191 countries. While again Scotland was not included, it is of interest that the UK ranked 14th best of the 191 countries.

Macdonald et al (2006) compared Scotland to 14 EU (pre-accession) countries, including the UK, with respect to disability-free life expectancy (DFLE) at birth, in various years between 1995 and 2000. They

concluded that because different definitions of health were used in different countries, a great deal of caution was required, but the Scottish estimates fell "very near the bottom of the European league for men, and in the bottom half for women".

A more recent comparison of HLY (DFLE) at birth was undertaken by ScotPHO using data for 2008-10 for European Union countries from the Eurostat Statistics Database; Joint Action European Health and Life Expectancy Information System (JA EHLEIS), and data for the UK and its constituent countries from the Office for National Statistics (ONS).

Caution is needed when comparing the data for HLY as the figures for the United Kingdom differ between the Eurostat and ONS sources, due to the use of different surveys: Eurostat data are based on the European Union Statistics on Income and Living Conditions (EU-SILC) Survey; ONS data are based on the General Lifestyle Survey (GLS), formerly known as the General Household Survey (GHS).

Chart 1 and the accompanying Table 1 (84KB) show that for males in 2008-10, the UK as a whole ranked lower for HLY than 3 of the 27 member states of the EU: Greece, Malta, and Sweden, and also lower than Iceland, Norway and Switzerland. Scotland had a significantly lower HLY at birth than the UK (and England). Although it is difficult to compare Scotland directly with the EU countries, it would appear that Scotland would be in the lower half of the ranking for HLY in males.

Chart 2 and the accompanying Table 2 (84KB) show that for females in 2008-10, the UK as a whole ranked lower for HLY than 4 of the 27 member states of the EU: Bulgaria, Greece, Malta and Sweden, and also lower than Iceland and Norway. Scotland had one of the highest HLY estimates within the UK, and although comparisons with the EU countries are again hampered by the use of different surveys, it would appear that Scotland would be in the upper third of the ranking for HLY in females.

Again, some caution is needed in drawing conclusions, as the data are based on just one 3-year period, there are no confidence intervals for the EU data, and there are differences arising from the use of different surveys in the two sets of UK data. It would appear, however, that for HLY, in comparison with many European countries, Scotland fares badly for males but compares better for females.

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Healthy life expectancy: key data sources

The Office for National Statistics (ONS) publishes data at UK and lower levels on life expectancy (LE) and health expectancy.

National Records of Scotland (NRS, formerly the General Register Office for Scotland) publishes the definitive LE estimates for Scotland's administrative areas (council and NHS board), special areas (community health partnership; parliamentary constituency area; urban rural classification; deprivation quintile, decile and vigintile; and council area split by 15% most deprived and 85% least deprived data zones).

In addition, ISD publish Life Expectancy estimates for intermediate zones.

The Scotland and European Health for All (HfA) Database publishes data for LE for Scotland and the 53 member states of the WHO European Region, including the UK. Although there are also indicators for disability-adjusted life expectancy (DALE) for countries including the UK, these are not available for Scotland separately.

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Healthy life expectancy: references

Technical paper for these web pages

Burlison A, Gordon R. Healthy life expectancy: technical paper (Version 7) (350Kb). Scottish Public Health Observatory, NHS Information Services (ISD), NHS Scotland. 2014. (332KB)

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Clark D, McKeon A, Sutton M, Wood R. Healthy life expectancy in Scotland (324Kb). Information and Statistics Division, Common Services Agency, NHS Scotland, 2004. (324KB)

Jagger C, Gillies C, Moscone F, et al, and the EHLEIS team. Inequalities in healthy life years in the 25 countries of the European Union in 2005: a cross-national meta-regression analysis. *Lancet* 2008; published online.

Macdonald AS, Straughn J, Sutton M. Healthy life expectancy measurement in Scotland. *British Actuarial Journal*2006;12(II):327-394. (no web version available)

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Wood R, Sutton M, Clark D, McKeon A, Bain M. Measuring inequalities in health: the case for healthy life expectancy. *Journal of Epidemiology and Community Health* 2006;60:1089-1092.

World Health Organization. Commission on Social Determinants of Health. Final report: Closing the gap in a generation - Health equity through action on the social determinants of health. 2008. (Part 1, Chapter 2 of this report compares (in Table 2.1) male life expectancy at birth in selected countries and small areas, including data for Calton and for Lenzie North in Glasgow in Scotland.)

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Healthy life expectancy: useful links

Health expectancy

- The international organisation Réseau Espérance de Vie en Santé (REVES) promotes the use of health expectancy as a population health indicator. It focuses on disability-free life expectancy and the definition, measurement, and comparison of disability globally.
- The European Health Expectancy Monitoring Unit (EHEMU) will begin the third phase of European work to monitor and promote healthy active longevity throughout Europe through the Joint Action European Health and Life Expectancy Information System (JA EHLEIS). Its new website EurOHex facilitates the calculation of life expectancies and healthy life years in 27 countries within the European Union, including the UK (but not Scotland separately) and also provides a calculation guide and programs, an interpreting guide, a glossary and publications.
- Seminar on Healthy life expectancy - past, present and future by Professor Carol Jagger (5Mb), 15 January 2009 (4.9MB).

Life expectancy

- National Records of Scotland (NRS, formerly the General Register Office for Scotland) publishes the definitive life expectancy estimates for areas within Scotland.

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