Indicator 13.12 - Life expectancy at birth

Rationale
The Department of Health 2004 Public Service Agreement (PSA) targets included increasing average life expectancy at birth in England to 78.6 years for men and to 82.5 years for women and to reduce health inequalities by 10% by 2010 as measured by life expectancy at birth (PSA objective 1).

Average life expectancy is determined by mortality at all ages. Therefore, the range of influences on life expectancy is vast and includes all those influences on health at each age. All of the health determinants will have an impact on life expectancy. Average life expectancy is therefore a good summary indicator of the health status of the population. A gap in health status exists between different areas in the country, different social groups, the population as a whole, different black and minority ethnic groups, and men and women.

Existing indicator sets
This indicator is a Department of Health PSA target.

Definition
Life expectancy at birth for an area in each time period is an estimate of the average number of years a new-born baby would survive if he or she experienced the particular area’s age-specific mortality rates for that time period throughout his or her life. The figure reflects mortality among those living in the area in each time period, rather than mortality among those born in each area. It is not therefore the number of years a baby born in the area in each time period could actually expect to live, both because the death rates of the area are likely to change in the future and because many of those born in the area will live elsewhere for at least some part of their lives.

Life expectancy at birth is also not a guide to the remaining expectancy of life at any given age. For example, if female life expectancy was 80 years for a particular area, life expectancy of women aged 75 years in that area would exceed 5 years. This reflects the fact that survival from a particular age depends only on the mortality rates beyond that age, whereas survival from birth is based on mortality rates at every age.

Source of indicator
This indicator is published on the National Statistics website. All previous life expectancy reports are also available on the National Statistics website.
**Numerator definition**
Number of deaths in each Local Authority area. Figures are aggregated for each three year period.

**Source of numerator**
ONS death registrations.

**Denominator definition**
Population of each Local Authority area. Mid-year population estimates for each of the years were used, based on the 2001 census. Figures are aggregated for each three year period.

**Source of denominator**
ONS mid-year population estimates.

**Geographic coverage**
This indicator is available at Local Authority level.

**Other dimensions of inequality**
This indicator is also available by gender.

**Timeliness**
Life expectancy by local authority is published annually by ONS.
Accuracy and completeness

The figures are rolling three-year averages, produced by aggregating deaths and population estimates for each successive overlapping three year period, so as to provide large enough numbers to ensure that the presented figures are sufficiently robust. Two local authorities, City of London and Isles of Scilly, are excluded from the results because of small numbers of deaths and populations in these areas.

95% confidence intervals have been calculated for all life expectancy at birth results. 95% confidence intervals are presented to give an indication of the level of uncertainty of the calculation of the quantity being measured, in this case the life expectancy. Uncertainties usually arise because these quantities are based on a random sample of finite size from a population of interest. Confidence intervals are used to assess what would happen if we were to repeat the same study, over and over, using different samples each time. The precise statistical definition of the 95% confidence interval states that on repeated sampling, 95 times out of 100 the true population value would be within the calculated confidence interval range and 5 times the true value would be either higher or lower than the range.

However, the information presented here is not based on a sample and is therefore not subject to sampling error. They are however subject to random fluctuations over time or between local authorities. In this case the 95% confidence interval is a way of conveying the stability of the values. The smaller the confidence interval, the more stable the life expectancy. More events lead to a smaller interval.

Disclosure

Two local authorities, City of London and Isles of Scilly, are excluded from the results because of small numbers of deaths and populations in these areas.
Further information

Life expectancies for the United Kingdom and its constituent countries are calculated annually by the Government Actuary’s Department (GAD) using complete life tables. GAD has published on their website interim complete life tables for the United Kingdom and its constituent countries.

A detailed description of the standard methods and notation associated with the calculation of life expectancy can be found on the Government Actuary’s Department website.

The calculation of confidence intervals used the method developed by Chiang. A report which details research undertaken by ONS to compare methodologies to allow the calculation of confidence intervals for life expectancy at birth has been published as No 33 in the National Statistics Methodology Series. This report, ‘Life expectancy at birth: methodological options for small populations’ also presents research carried out to establish if there is a minimum population size below which the calculation of life expectancy may not be considered feasible. It can be found on the National Statistics website.

Examples of life tables constructed for the comparison of methodologies are also available in an Excel workbook, ‘Life Table Templates’ which can be found on the National Statistics website.

References


Health and Social Care Information Centre
Updated August 2015