



# postnote

February 2006 Number 257

## HEALTHY LIFE EXPECTANCY

Will the UK's ageing population be vibrant and independent, or suffer from greater chronic ill health? Healthy life expectancy (HLE) is commonly used to try to assess this: it is an estimate of how many years are lived in good health over the lifespan. Such data are invaluable for predicting future needs, evaluating health programmes and identifying trends and inequalities. They can inform planning of health and social services, long term care and pensions. This POSTnote reviews the current debate on HLE, outlines possible future scenarios, and looks at the pros and cons of different HLE measures.

### Background

#### What should be measured?

There are several approaches to assessing a population's health: historically, one of the most important has been life expectancy (LE; see Box 1). LE at birth has risen by five years for men and almost three for women in the last twenty years, and most people now live to ages in which they are more likely to experience chronic disease and disability (Table 1).

**Table 1. Trends in life expectancy and healthy life expectancy at birth, 1981 to 2001**

Year	Women		Men	
	1981	2001	1981	2001
Life expectancy	76.8	80.4	70.9	75.7
General HLE	66.7	68.8	64.4	67.0
% life in 'good' or 'fairly good' health	86.9%	85.6%	90.0%	88.5%

Source: [www.statistics.gov.uk](http://www.statistics.gov.uk)

In recent years, self-reported overall general health status has been increasingly used to calculate HLE, which is a measure of the balance between length and quality of life. Health expectancies can be measured in several ways, including life expectancy in good health, free from disability, or free from a specific disease. They all combine data on illness and death to provide a single summary measure (Box 1).

### Box 1. Different ways of measuring health

#### Life expectancy (LE) at birth

Life expectancy has long been used as an indicator of population health. It is increasingly seen as too crude to measure a population's health as it does not take into account chronic disease and disability.

#### Healthy Expectancies

##### Self reported healthy life expectancy

Two types of HLE are routinely calculated from the following (abridged) national General Household Survey questions:

- General HLE: "Over the last 12 months would you say your health has been ... good, fairly good, or not good?"
- LE free from limiting long-term illness: "Do you have any long-standing illness, disability or infirmity?"

Levels of reported ill health are combined with mortality data to estimate the number of years of healthy life an individual will live. Self-reported poor health is strongly linked with mortality and health service use. However, levels of self-reported health vary systematically over time and social group, making comparisons difficult. This might reflect real differences in health between groups, or could be due to changing health expectations. For instance, a recent US study found that younger people and people on higher incomes did not report disability until a higher level of tested limitation than those in older groups and those with lower incomes<sup>1</sup>. Changes in disability allowances and unemployment benefit might also influence people's inclination to report themselves as ill.

##### Disability free life expectancy (DFLE)

Disability-free life expectancy measures disability by looking at reported limitations in day to day activities such as work, school and leisure activities. The General Household Survey has included such questions in certain years for 65+ year olds. More severe disability and dependence can be measured by people's ability to carry out activities of daily living such as bathing, dressing, and shopping (which can be used to calculate dependency-free life expectancy). Such measures of functional ability are considered to be more independent of social factors than self-reported health.

However, the self-reported health questions in Box 1 do not distinguish between types of health problem. For instance, they do not distinguish between long-term conditions such as diabetes, which can be managed and

need not always cause disability, and severe health impairments such as Alzheimer's and other dementias that often require nursing and residential care.

Currently, severe disability data on older people are not routinely available nationally. Specialists in ageing agree that the onset of disability and dependence is the crucial transition in old age. Most people fear losing their independence; and dependence is also associated with high economic costs. A recent House of Lords report on the scientific aspects of ageing recommended that government should routinely measure disability-free life expectancy (DFLE, see Box 1) by asking people about limitations in carrying out their daily activities<sup>2</sup>. This information would be useful for policy purposes given that limitations in daily activities are currently used to assess people's eligibility for social services.

### Trends in health expectancies

A crucial question is whether the proportion of life spent in disability is expanding or decreasing. Existing data can be used to support either case. While there have been clear rises in overall LE between 1981 and 2001, there are concerns that not all years gained are in good health and that the proportion of life spent in good general health has fallen slightly (see Table 1).

However, disability data suggest there has been an increase in the proportion of 65+ year olds able to carry out most daily activities such as stair climbing and personal care activities<sup>3</sup>. The general consensus in the academic community is that these trends reflect increased years of mild disability, and a decline in severe disability<sup>4</sup>. Two notable findings that emerge from the substantial range of analyses that has now been carried out on HLE are:

- gender differences – women live longer, but experience proportionally more chronic ill health and disability than men at all ages (see Table 1);
- socio-economic differences – those in the richest 10% of electoral wards have 16.9 more years of HLE than those in the poorest 10%<sup>5</sup>.

### Why measure healthy life expectancy?

Monitoring HLE can help evaluation of the nation's health and the impact of health policies. It is used to identify health inequalities, but could also be used to target resources for health promotion, and improve understanding of the determinants of health. HLE is increasingly used to inform long-term planning for pension, fiscal, and health and social care policy (see Box 2). There are also other potential applications. For example, while the Turner Commission's pensions report suggests raising the state pension age in line with LE<sup>6</sup>, others argue that HLE is a more appropriate indicator, as health status rather than age determines an individual's fitness for work. Policy makers are interested in looking at the relationship between self-reported HLE and work and retirement patterns in order to inform policy relating to incapacity benefit reforms.

### Box 2. Long term care & future health expectancy

Projections of future long term care needs are extremely sensitive to changes in the health of older people.

- If all achieved the disability-free health levels of the richest social classes by 2016, the number of disabled older people could fall, despite large rises in the total number of older people<sup>7</sup>. The fact that mortality rates in 65+ year olds have fallen by 30% in the last eight years suggests that this pace of decline is plausible.
- If the proportion of healthy life remains constant, the Treasury projects that health and long-term care spending will increase from 7.9% of GDP in 2003-4 to 11% by 2053-4<sup>8</sup>.

### Current uses

HLE is currently used to monitor progress towards achieving targets in a wide range of policies including:

- The Department of Health's (DH) National Service Framework for older people includes targets to increase HLE for older people;
- The Treasury's work on long term fiscal sustainability sees future HLE as an important demand driver<sup>8</sup>;
- The Department for Work and Pensions' strategy for tackling poverty and social exclusion uses HLE as an indicator<sup>9</sup>.

### Action to improve HLE

Various programmes aim to prolong independence and promote an active old age. For instance, the DH is funding a £60 million Partnerships for Older People Programme. Under the scheme, 19 local councils across England are being funded to provide community services that will allow people to live independently for as long as possible. The National Lottery is also funding a £300 million Healthy Living Centres programme that targets the most disadvantaged sectors of the population. The 350 centres provide activities and services to a wide range of people, including the elderly.

### Sources of information

In addition to the General Household Survey, recent years have seen several new surveys that measure HLE in the same individuals over a number of years (longitudinal studies, see Box 3). The English Longitudinal Study of Ageing is half funded by the government, and half by the US National Institute on Aging. It was set up in 1999, and measures the health and other socio-economic factors of 12,000 individuals aged 50+ from the Health Survey for England over time. The study measures physical abilities such as muscle strength, walking speed and the time taken to stand up from a chair five times. These performance measures are a sensitive indicator of dependency and are the most independent of social and self-reporting biases.

Researchers using data from the Medical Research Council (MRC) Cognitive Function and Ageing Study have explored the impact of different possible future health trends on numbers of older people with severe disability. They have supplied estimates of disability rates to the Personal Social Services Research Unit for inclusion in a

long-term care finance projections model. Expenditure projections using these data are being prepared for the Wanless Social Care Review on the future of long-term social care.

### Box 3. Different types of study

Longitudinal studies like the English Longitudinal Study of Ageing recruit a population and follow them over a certain number of years, or until an event such as death, or recovery from a disease occurs. This type of study is good for measuring rates at which people move in and out of states such as disability, and can help to establish cause and effect. It takes several years before they can report results. They tend to be expensive and lose study participants over time.

Cross-sectional studies like the General Household Survey question a sample of the population to provide a snapshot at a point in time. The survey may be repeated, but will contain a different group of individuals. They are cheaper than longitudinal studies and it is easier to get a representative sample of the country, but they do not capture rates at which people move from health to disability and dependence. Capturing trends over time can also be hard as questions may differ between surveys.

## Issues

Issues surrounding the measurement of HLE include uncertainty over future trends, whether to carry on measuring self-rated health or whether to measure disability (defined by ability to carry out daily activities), and how this data might be collected in a survey.

### Uncertainty about future trends

The government projects that the overall number and proportion of older people in the UK will rise significantly in coming decades. However, there is a debate over whether these people will live longer, healthier lives (the 'compression of morbidity scenario' in Box 4), longer but more disabled lives (the 'nightmare scenario'), or something in between (the 'dynamic equilibrium scenario'). Current data limitations mean that researchers modelling future scenarios cannot interpret past trends confidently, which adds a further degree of uncertainty into predicting which scenario might prevail.

### The need for better data

Because of uncertainty over future disability trends, most models of future health and care costs are based on current levels of health or disability. However, there is widespread agreement that better data on older people's health would be valuable because:

- Current measures offer only a partial indication of levels of disability and dependency. This is particularly true among ethnic minorities, the oldest old and those in long-term care, who are under-represented in current surveys.
- A range of factors will influence the health of future cohorts so it cannot be assumed that HLE will remain at current levels. For example, some academics predict that rising obesity levels will cause future decreases in HLE, whereas improvements in medical technologies such as

joint replacements could contribute towards lower disability rates and higher HLE.

### Box 4. Scenarios for the future of HLE

#### 'Compression of morbidity'

Under this scenario, the period of ill health and disability before death is shortened. In combination with increased longevity this results in an older, healthier population. The costs of health care occur largely in the 18 months before death regardless of when people die. Although the number of older people will increase in the future, long term care costs will be mitigated if extra years of life are spent in good health. Extra costs would be paying out pensions for longer, unless this healthier population work longer.

#### Expansion of morbidity - 'The Nightmare Scenario'

Under this scenario, incidence of disability remains the same or increases, while life expectancy increases, resulting in longer periods of disability and dependency before death. As the older population grows, this creates increasing pressure on health and social care services, as well as on carers and communities, as greater numbers suffer chronic disease and disability.

#### 'Dynamic Equilibrium'

In this scenario, severe disability decreases, while light to moderate disability increases, as the pace of disease and disability progression is slowed down. This might explain the mixed conclusions from UK data sources. This scenario does not envisage greater long term social care costs, but primary care and local health services could experience greater pressure.

### What type of data should be collected?

Self-rated HLE is a quick and easy way of measuring health, and is a good predictor of mortality. However, further research on the validity and sensitivity of self-rated measures may be needed if they are to gain wider acceptability for use in policy-making decisions. Understanding the variation in self-reported health between different social groups and whether these are true differences in health is particularly important. Measures of disability, which are used to calculate DFLE, may prove to be more useful in informing policy, but are considerably more expensive to collect as they involve asking more numerous questions about limitations in activities of daily living.

### How should data be collected?

There are two main options for collecting better data on health in older people: to build on an existing survey or to introduce a new one.

#### *Building on existing surveys*

There are at least three established surveys that could be built upon:

- The General Household Survey (soon to become the Continuous Population Survey): In 2005, a standardised set of HLE questions was added to health surveys across Europe, including the British General Household Survey. These extra questions examine the severity and nature of disability and ill health. Extra samples would be needed to study ethnic minorities, people in long term care and the oldest old in detail.

- The Census: an anonymous 1% sample of the population already have their census data joined up with data on certain conditions (such as cancers and death). Some of these could be followed up in more detail with questions on health and disability.
- The English Longitudinal Study of Ageing: In the next wave of data collection, the study could recruit extra numbers from groups where more detailed data are needed. However, some have questioned whether this is the best study to measure DFLE nationally. They suggest that the original cohort may not have been nationally representative, and that this problem may be exacerbated as the study loses respondents over time.

There is considerable potential for getting more out of existing data on older people's health. Extra resources could be invested in data sharing, analytical capacity, and joining up interested parties such as government departments, researchers and bodies such as the Institute of Actuaries. The MRC is considering funding work to integrate existing data into a national database, and the Economic and Social Research Council is considering work to link social and medical data to enable more sophisticated analyses.

#### *A completely new study?*

Other suggestions have been made recently as to how the health of older people should be monitored. The Turner Commission recommended that a body be established to report regularly on LE trends, and 'whether ageing is being associated with increased health at specific ages'. It is not clear what data would be used, though the report states that data on health from the English Longitudinal Study of Ageing is very important and that its future funding should be ensured.

The House of Lords Science and Technology Committee suggested that the English Longitudinal Study of Ageing is inadequate for monitoring national levels of DFLE<sup>2</sup> (see Box 1). It recommended that the Office for National Statistics carry out a new national longitudinal study of DFLE. According to HLE experts in a previous report, HLE for older people would ideally be measured every few years in a 'national longitudinal survey based on a sample of all people over a certain age, including those in communal establishments'<sup>10</sup>. To calculate DFLE at birth, this sample would have to include people of all ages. At present, the establishment of such a survey seems unlikely as it is an expensive option and would compete with existing studies for funding. The government response to the recommendation was that sufficient data already exist. Most academics agree that any new study should not be set up at the expense of existing studies. Established studies have the inherent value of providing a series of data over time, whereas a new study would not be able to report time trend data for several years.

## Overview

- Substantial increases in numbers of elderly people are predicted, partly due to increased longevity.
- These extra years of life may be in good health; age is not inevitably associated with disability. However, trends in the proportion of these extra years spent in good health, free from disability, are unclear.
- Many see a need for better data on health and disability levels, to inform a range of policy areas, and to address the question of whether people are living longer, healthier lives, or are suffering more chronic ill health.
- Healthy life expectancy is currently measured nationally using self-rated health, which is subject to various biases due to different cultural expectations between groups and over time.
- A better way to measure the health of older people could be to assess disability, by measuring limitations in daily activities, or physical and cognitive measures such as walking speed. There are currently no plans to measure disability routinely.
- Improvements in measuring health could come from asking extra questions in existing surveys, extending existing surveys to include more people from currently under-represented groups, investing in a new survey, or investing in sharing and extra analysis of existing data.

## Endnotes

- 1 Melzer D et al, *The Journals of Gerontology Series A: Biological Sciences and Medical Sciences* 59:1295-1303 (2004)
- 2 House of Lords, Report of the Select Committee on Science and Technology, Session 2004-05, HL Paper 20-1
- 3 Bebbington A and Darton R, PSSRU Discussion Paper 1205 (1996)
- 4 Kelly S, Baker A and S Gupta, *Health Statistics Quarterly* 7 32-37 (2000)
- 5 Bajekal M, *Health Statistics Quarterly* 25 19-27 (2004)
- 6 Pensions Commission, *A New Pensions Settlement for the 21<sup>st</sup> Century*, November 2005
- 7 Melzer D et al *Journal of Epidemiology and Community Health* 54 286-292 (2000)
- 8 HM Treasury, *Long-term public finance report: an analysis of fiscal sustainability*. December 2004 Department for Work and Pensions. *Opportunity for all: Seventh Annual Report*. Cm 6673, October 2005
- 9 Department for Work and Pensions. *Opportunity for all: Seventh Annual Report*. Cm 6673, October 2005
- 10 Bone A et al *Health Expectancy and its Uses* (London 1995)

---

POST is an office of both Houses of Parliament, charged with providing independent and balanced analysis of public policy issues that have a basis in science and technology.

POST is grateful to Joanne Hemmings for researching this briefing, to the Economic and Social Research Council for funding her parliamentary fellowship, and to all contributors and reviewers. For further information on this subject, please contact Dr Peter Border at POST.

Parliamentary Copyright 2006

The Parliamentary Office of Science and Technology, 7 Millbank, London, SW1P 3JA; Tel: 020 7219 2840; email: post@parliament.uk

[www.parliament.uk/parliamentary\\_offices/post/pubs2006.cfm](http://www.parliament.uk/parliamentary_offices/post/pubs2006.cfm)