

Statistical bulletin

# Interim Life Tables: England and Wales, 2010-2012

National life tables give statistics on period life expectancy by age and sex for the UK and its constituent countries.



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# 1. Main points

- Life expectancy at birth in England and Wales in 2010-2012 was 79.0 for boys and 82.8 for girls
- The gap between life expectancy at birth between boys and girls has narrowed from six years in 1980-1982 to under four years in 2010-2012
- Over the last thirty years life expectancy at birth for boys and girls has increased by 4.6 hours per day for females and 6.3 hours per day for males
- Life expectancies for men at age 65 and at age 85 in England and Wales reached 18.3 years and 5.8 years respectively in 2010-2012
- For women in England and Wales life expectancy reached 20.9 years at age 65 and 6.8 years at age 85 in 2010-2012

## 2. Introduction

ONS have released today interim life tables for 2010-2012 for England, Wales and England and Wales. The tables provide period life expectancy for males and females by single year of age (0 to 100), for three-year rolling periods from 1980–1982 onwards.

ONS produce national interim life tables, which are for the UK and constituent countries and give statistics on period life expectancy by age and sex. National interim life tables are produced annually and are based on three consecutive years worth of data to reduce the annual fluctuations in the number of deaths caused by seasonal events such as flu. The tables are known as interim life tables since fully graduated life tables are also prepared every ten years (decennial life tables), based on the three years data around a census year.

Interim life tables are 'period' life tables and therefore all figures referred to in this bulletin are 'period' life expectancies. Period life expectancy is the average number of additional years a person would live if he or she experienced the age-specific mortality rates of the given area and time period for the rest of their life. Therefore it is not the number of years someone in the area in that time period is actually likely to live, because the death rates of the area are likely to change over time.

This statistical bulletin will focus on England and Wales as a whole and England and Wales as separate countries. The release does not include figures for the UK or Great Britain (GB), because the corresponding population estimates for 2002-2010, rebased following the 2011 Census, are not yet available for Scotland.

The figures in this release are from the [2010-2012 Interim life tables](#) that use the population estimates for England and Wales revised in line with the 2011 Census in their calculation.

## 3. Methods

The life table is a purely hypothetical calculation. The basic assumption is that the given number of births, an arbitrary number of people called the radix (ONS uses 100,000) are subject, as survivors pass through each year of age, to the mortality rates prevailing for each age.

The national interim life tables are produced annually for the UK and its constituent countries. Each table is based on the population estimates and birth and death registration data for a period of three consecutive years. Period life tables are calculated using age-specific mortality rates for a given period, with no allowance for any actual or projected future changes in mortality. The notation required to calculate life tables is available in the [guide to calculating interim life tables](#).

Life expectancy is the average number of years a person has before death. This is conventionally calculated from birth, but can also be calculated from any specified age. This gives the remaining further number of years a person on average can expect to live given the age they have attained. 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 newborn baby would survive if he/she experienced the particular area's age-specific mortality rates for that time period throughout his /her life.

Life expectancies that allow for actual or projected changes in mortality during a person's lifetime are known as 'cohort' life expectancies. ONS also produces [historic and projected period and cohort life expectancy tables](#) that are consistent with the [national population projections](#).

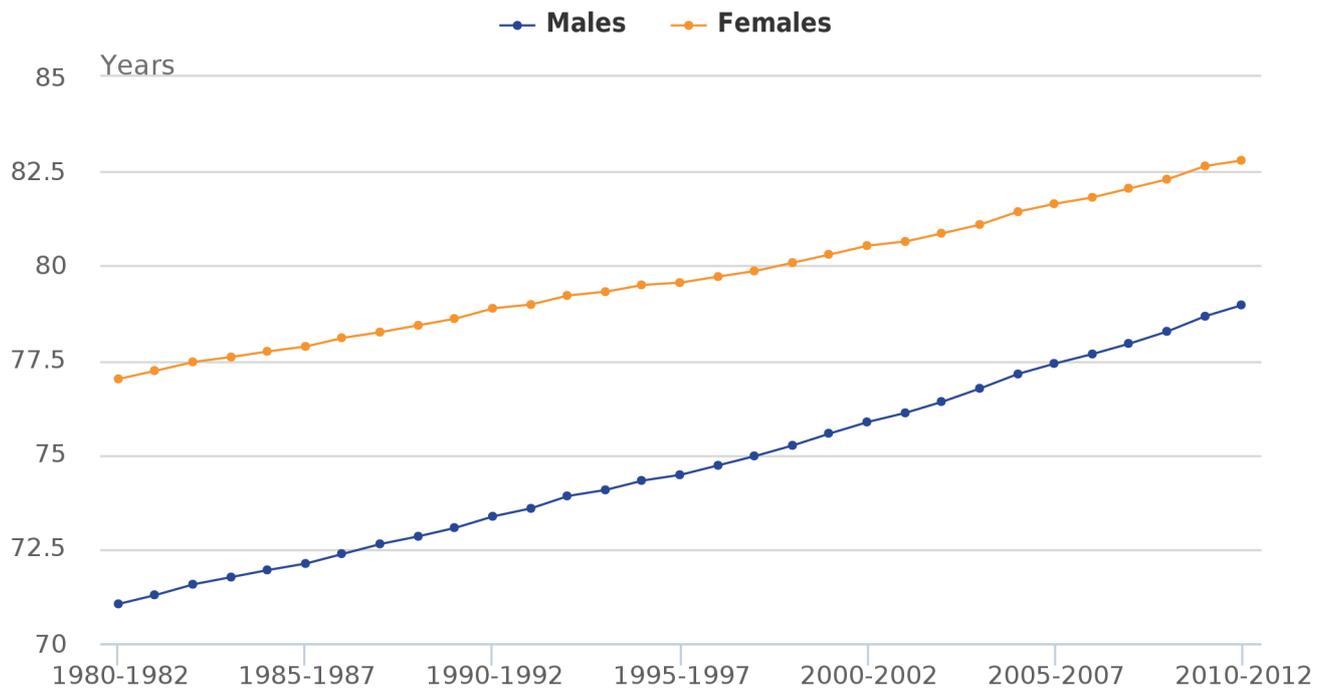
This release relates to the interim life tables for England and Wales only, rather than the UK and constituent countries. This is because of the availability of population data following the 2011 Census. ONS has recently released the 2011 and 2012 mid-year population estimates for the UK based on the 2011 Censuses. The revised back series of population estimates for the years 2002 to 2010 have also been released for England and Wales and Northern Ireland. However the corresponding population estimates for 2002-2010 for Scotland are not available at this time. Today ONS has released the 2010-2012 interim life tables for England and Wales using the latest population estimates available.

## 4. Life Expectancy at Birth

### England and Wales

Life expectancy at birth in England and Wales has reached its highest level on record for both males and females. A newborn baby boy could expect to live 79.0 years and a newborn baby girl 82.8 years if mortality rates remain the same as they were in 2010-2012.

**Figure 1: Life Expectancy at Birth, England and Wales, 1980-1982 to 2010-2012**



Source: Office for National Statistics

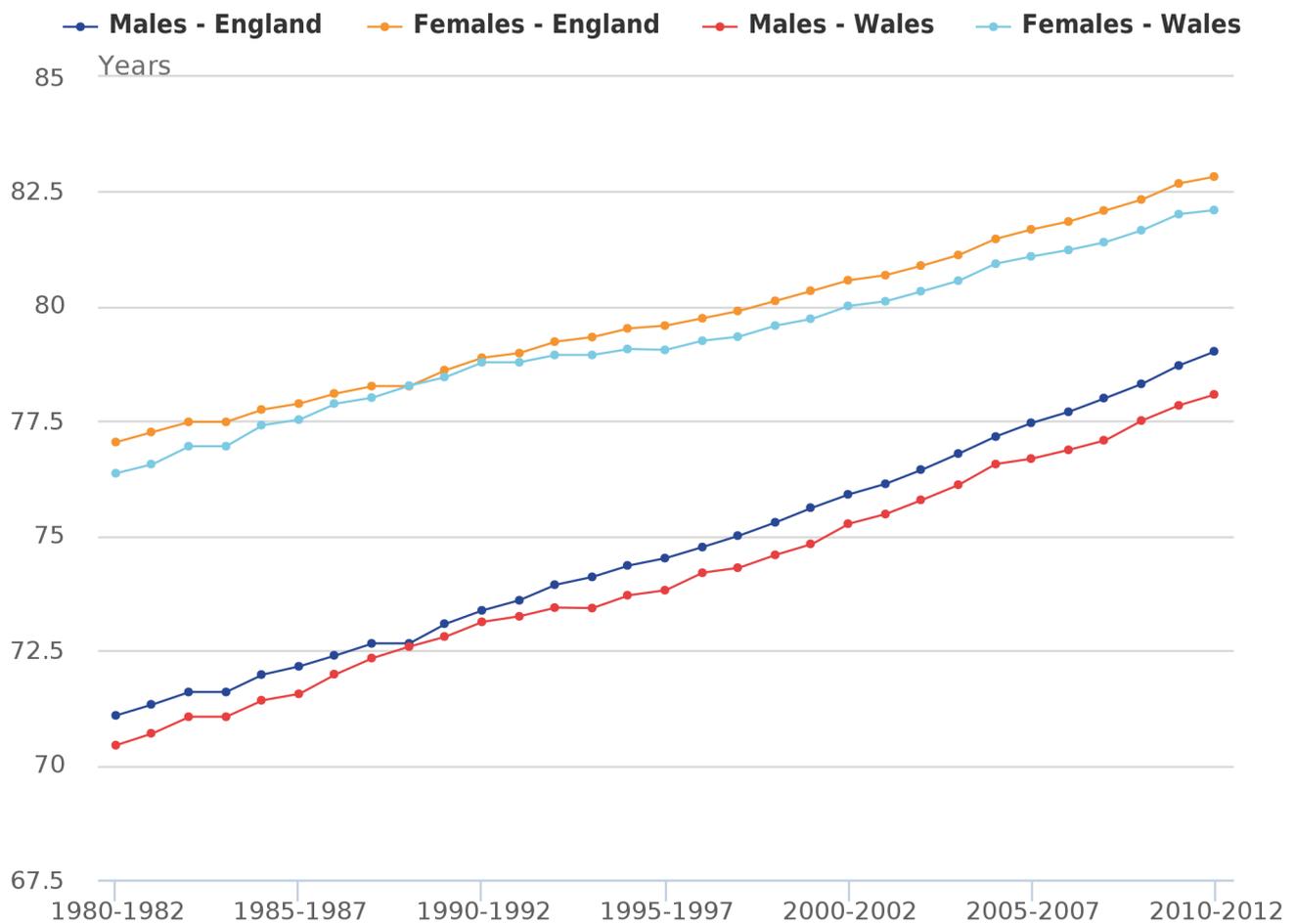
Figure 1 shows how life expectancy at birth in England and Wales has changed over time. It has consistently increased from 71.0 years for males and 77.0 years for females in 1980-1982 to 79.0 years for males and to 82.8 years in 2010-2012.

Females continue to live longer than males, but the gap in life expectancy has been closing. Although both sexes have shown annual improvements in life expectancy at birth, over the past 30 years the gap has narrowed from 6.0 years to 3.8 years.

## Comparing England and Wales

Life expectancy in England was 79.0 years for males and 82.8 years for females. In Wales life expectancy was 78.1 years for males and 82.1 years for females. In both countries the increase in life expectancy at birth since 1980-1982 has been just under eight years for males and six years for females.

**Figure 2: Life Expectancy at Birth, England, Wales, 1980-1982 to 2010-2012**



Source: Office for National Statistics

Figure 2 shows that life expectancy at birth in England has been consistently higher compared to life expectancy at birth in Wales for both males and females throughout the time period 1980-1982 to 2010-2012. In 1988-1990 the life expectancy at birth for both males and females living in England and living in Wales converged at about 72.6 and 78.3 years respectively. By 2010-2012 the gap between life expectancy at birth in England and in Wales had diverged again to just under one year in 2010-2012, about the same as that in 1980-1982.

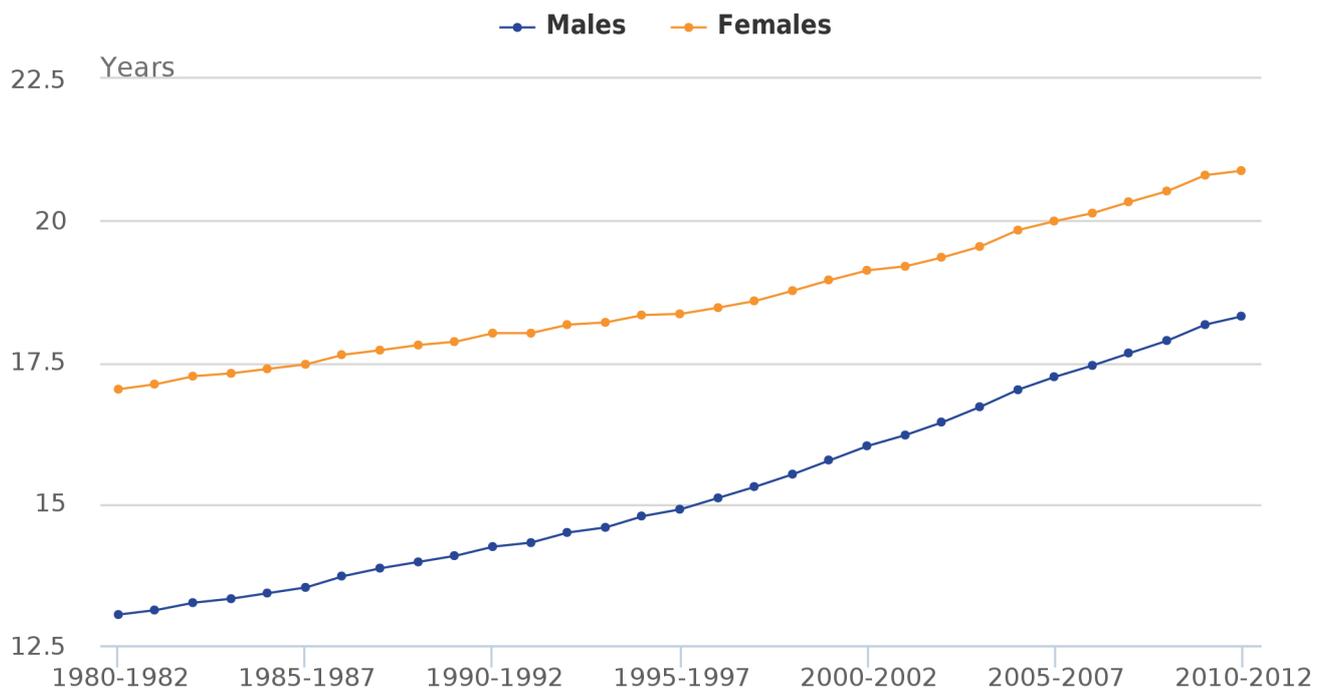
Continued increases in life expectancy have been seen since the 1980s for both males and females in England and in Wales. Life expectancy has increased in the most recent decades due to the improvements in mortality at older ages. As mortality improves at older ages, larger numbers of people survive to the oldest ages and therefore contribute to the ageing population of England and Wales.

## 5. Life Expectancy at Older Ages

### Life Expectancy at age 65

Life expectancy at age 65 for men in England and Wales reached 18.3 years and for women it reached 20.9 years in 2010-2012.

**Figure 3: Life Expectancy at age 65, England and Wales, 1980-1982 to 2010-2012**



Source: Office for National Statistics

Figure 3 shows how life expectancy at age 65 in England and Wales has improved over time. For men it has risen by 5.3 years since 1980-1982 when it was 13.0 years. Women have seen a smaller increase of 3.9 years since 1980-1982 when it was 17.0 years.

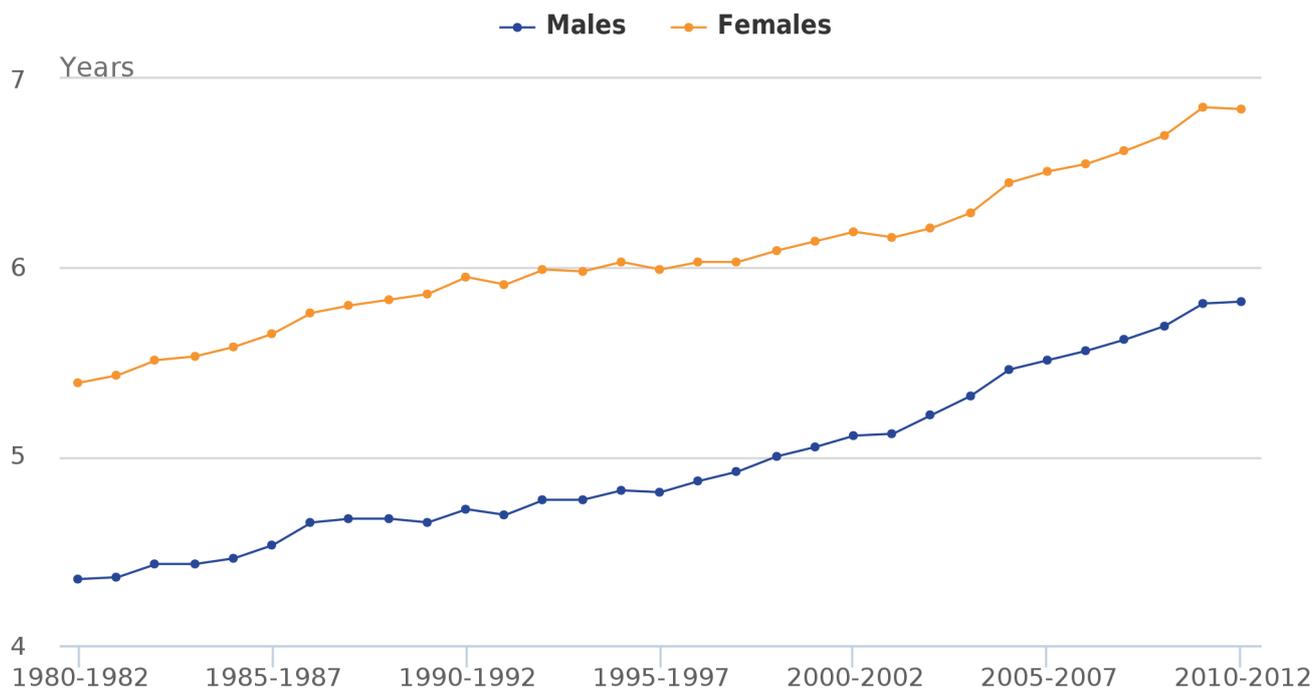
The difference between male and female life expectancy at age 65 has decreased over the last 30 years from 4.0 years in 1980-1982 to 2.6 years in 2010-2012. Male life expectancy at age 65 has improved at a faster rate compared to females, but males have not yet reached the life expectancy we observe for a female at age 65. Male life expectancy at age 65 is now the same as female life expectancy at age 65 was in 1994-1996.

In 2010-2012 life expectancy at age 65 in England was 18.3 years for men and 20.9 years for women; in Wales it was slightly lower at 17.9 years for males and 20.4 years for females.

## Life Expectancy at age 85

A man in England and Wales aged 85 had a life expectancy of 5.8 years in 2010-2012. For women in England and Wales aged 85 in 2010-2012 life expectancy was 6.8 years.

**Figure 4: Life Expectancy at age 85, England and Wales, 1980-1982 to 2010-2012**



Source: Office for National Statistics

Life expectancy at age 85 has improved for both males and females in England and Wales. From 1980-1982 to 2010-2012 it increased by 1.5 years for both males and females. The gap between life expectancy at age 85 for males and females has remained fairly consistent; in 1980-1982 the difference was one year, this increased to 1.2 years for most of the 1990s and has fallen to one year again in 2010-2012.

## 6. Surviving to Older Ages

Table 1 gives the percentage increase in life expectancy at birth, at age 65 and at age 85, between 1980-1982 and 2010-2012 in England and Wales. It shows that the percentage change in life expectancy between 1980-1982 and 2010-2012 was greater for both males and females at ages 65 and 85 than for life expectancy at birth. The percentage increase in life expectancy at age 85 (27%) is greater than at age 65 and at birth (23% and 8%) for women, but for men the greatest percentage increase in life expectancy is at age 65 (40%). Although life expectancy is lower for males than females, males are experiencing larger improvements at all ages. The greater increases at older ages add to evidence that increasing life expectancy over the last few decades is mostly due to the improving mortality rates at older ages.

**Table 1: Percentage Increase in Life Expectancy, England and Wales, 1980-1982 to 2010-2012**

| Sex     | Improvement in Life expectancy at birth | Improvement in Life expectancy at age 65 | Improvement in Life expectancy at age 85 |
|---------|---|--|--|
| Males   | 11%                                     | 40%                                      | 34%                                      |
| Females | 8%                                      | 23%                                      | 27%                                      |

Source: Interim Life Tables, ONS

Table 2 shows how the percentage chance of surviving to older ages changed over the 30 year period 1980-1982 to 2010-2012. The chance of surviving to older ages has increased for both males and females, and the increase from birth to age 85 for males has been substantial. Baby boys born in 1980-1982 had a 14% chance of surviving to age 85 but by 2010-2012 this had more than doubled to 39%. The other large increase was in the percentage chance of men who have reached their 65th birthday surviving another 20 years to reach age 85; 19% in 1980-82 and 45% in 2010-2012.

**Table 2: Percentage survival to older ages, England and Wales, 1980-1982 to 2010-2012**

|             | Males     |           | Females   |           |
|-------------|-----------|-----------|-----------|-----------|
|             | 1980-1982 | 2010-2012 | 1980-1982 | 2010-2012 |
| Birth to 65 | 74.2%     | 86.7%     | 84.4%     | 91.2%     |
| Birth to 85 | 14.1%     | 39.1%     | 32.0%     | 52.5%     |
| 65 to 85    | 19.1%     | 45.0%     | 37.9%     | 57.6%     |

Source: Office for National Statistics

Mortality rates at older ages are thought to be improving because of a combination of factors. One major factor is the improvements in mortality from circulatory diseases, such as heart disease and stroke, partly driven by changing smoking habits<sup>1</sup> and medical and technological advances.

People born between 1926 and 1935, now aged in their late 70s and 80s, and in particular those born around 1930, are often referred to as the Golden Cohort. This group have experienced improvements in mortality throughout most of their lifetimes that no cohorts previously or since have experienced. The effect of their greater rates of improvement in mortality contributes to the overall improvements in mortality at older ages in England and Wales.

Patterns of life expectancy at age 85 in England and in Wales are very similar to those for England and Wales as a whole.

As the percentage chance of surviving to older ages has improved over time, this has led to increases in the population aged 90 and over. See [ONS estimates of the very old \(including centenarians\)](#).

## Notes for surviving to older ages

1. Murphy M, Di Cesare M, (2012) Use of an age-period-cohort model to reveal the impact of cigarette smoking in trends in twentieth century adult cohort mortality in England and Wales, Population Studies, Vol 66, issue 3.

## 7. International Comparison

### Comparison of life expectancy in England and Wales with other selected countries

Tables 3 and 4 show life expectancy at birth, at age 65 and at age 85 for males and females respectively, for a selection of countries selected purely by the availability of the relevant data.

**Table 3: Life Expectancy in Selected Countries, Males, 2010-2012**

| Country             | Life expectancy at birth | Life expectancy at age 65 | Life expectancy at age 85 |
|---------------------|--------------------------|---------------------------|---------------------------|
| Iceland (2012)      | 80.8                     | 19.2                      | 5.9                       |
| Switzerland (2012)  | 80.5                     | 19.1                      | ..                        |
| Japan (2012)        | 79.9                     | 18.9                      | 6.0                       |
| Australia (2009-11) | 79.7                     | 19.1                      | 6.2                       |
| Sweden              | 79.5                     | 18.2                      | ..                        |
| Italy (2010)        | 79.4                     | 18.3                      | 5.7                       |
| Norway (2012)       | 79.4                     | 18.2                      | 5.5                       |
| New Zealand         | 79.3                     | 18.8                      | 5.9                       |
| Spain (2011)        | 79.2                     | 18.5                      | 6.0                       |
| Netherlands (2012)  | 79.1                     | 17.9                      | ..                        |
| England & Wales     | 79.0                     | 18.3                      | 5.8                       |
| France (2012)       | 78.4                     | 18.1                      | ..                        |
| Germany (2009-11)   | 77.7                     | 17.5                      | 5.5                       |
| Denmark (2011-12)   | 77.9                     | 17.3                      | 5.4                       |
| Poland (2012)       | 72.7                     | 15.4                      | 5.5                       |
| Estonia (2012)      | 71.1                     | 14.4                      | 5.2                       |
| Brazil (2011)       | 70.6                     | 16.1                      | ..                        |
| Latvia (2012)       | 69.1                     | 13.5                      | 4.4                       |

Source: Swiss Federal Statistical Office, Statistics Iceland, Australian Bureau of Statistics, Statistics Bureau of Japan, The National Institute of Statistics Italy, Statistics Netherlands, National Statistics Institute of Spain, Statistics New Zealand, Statistics Norway, ONS, Federal Statistical Office of Germany, Statistics Denmark, Central Statistical Office of Poland, Brazilian Institute of Statistics and Geography, Statistical Office of Estonia, Central Statistical Bureau of Latvia and Statistics Sweden

Notes:

1. Countries have been selected based on the availability of data for the selected years and are ordered by life expectancy at birth
2. .. Indicates that the figure was not available at the time of publication of this report

From the selected countries in Table 3, Iceland had the highest male life expectancy at birth of 80.8 years in 2012. Latvia has the lowest male life expectancy at birth in 2012 at 69.1 years. Life expectancy at birth for males in England and Wales was 79.0 years in 2010-2012, which is higher than France at 78.4 years and Germany at 77.7 years. Although men living in England and Wales had lower life expectancy at birth than 10 of the countries shown in Table 3, the difference between England and Wales and Iceland is less than two years which shows the potential for further increases in future male life expectancy.

Compared to the countries in Table 3 Iceland also had the highest life expectancy at age 65 in 2012 at 19.2 years. Again Latvia was the lowest at 13.5 years. Men in England and Wales had on average 18.3 years of life remaining at age 65, which is above Norway and Sweden at 18.2 years, despite both countries having a higher life expectancy at birth. Male life expectancy at age 65 for England and Wales is less than one year below Iceland.

At age 85 men in Australia had the highest life expectancy of 6.2 years. Men in England and Wales having reached aged 85 could expect, on average, to live a further 5.8 years.

**Table 4: Life Expectancy in Selected Countries, Females, 2010-2012**

| Country             | Life expectancy at birth | Life expectancy at age 65 | Life expectancy at age 85 |
|---------------------|--------------------------|---------------------------|---------------------------|
| Japan (2012)        | 86.4                     | 23.8                      | 8.1                       |
| Spain (2011)        | 85.0                     | 22.4                      | 7.0                       |
| France (2012)       | 84.8                     | 22.6                      | ..                        |
| Switzerland (2012)  | 84.7                     | 22.1                      | ..                        |
| Italy (2010)        | 84.4                     | 21.9                      | 6.9                       |
| Australia (2009-11) | 84.2                     | 22.0                      | 7.2                       |
| Iceland (2012)      | 83.9                     | 21.1                      | 6.7                       |
| Norway (2012)       | 83.4                     | 21.0                      | 6.6                       |
| Sweden              | 83.4                     | 21.0                      | ..                        |
| New Zealand         | 83.0                     | 21.2                      | 6.8                       |
| England & Wales     | 82.8                     | 20.8                      | 6.8                       |
| Netherlands (2012)  | 82.8                     | 19.8                      | ..                        |
| Germany (2009-11)   | 82.7                     | 20.7                      | 6.3                       |
| Denmark (2011-12)   | 81.9                     | 20.0                      | 6.6                       |
| Estonia (2012)      | 81.1                     | 19.8                      | 6.2                       |
| Poland (2012)       | 81.0                     | 19.7                      | 6.5                       |
| Latvia (2012)       | 78.9                     | 18.4                      | 5.3                       |
| Brazil (2011)       | 77.7                     | 18.9                      | ..                        |

Source: Swiss Federal Statistical Office, Statistics Iceland, Australian Bureau of Statistics, Statistics Bureau of Japan, The National Institute of statistics Italy, Statistics Netherlands, National Statistics Institute of Spain, Statistics New Zealand, Statistics Norway, ONS, Federal Statistical Office of Germany, Statistics Denmark, Central Statistical Office of Poland, Brazilian Institute of Statistics and Geography, Statistical Office of Estonia, Central Statistical Bureau of Latvia and Statistics Sweden

Notes:

1. Countries have been selected based on the availability of data for the selected years and are ordered by life expectancy at birth
2. .. Indicates that the figure was not available at the time of publication of this report

Table 4 shows that out of the 18 selected countries Japanese females had the highest life expectancy at birth of 86.4 years in 2012. Females in Brazil had the lowest life expectancy at 77.7 years. Life expectancy at birth for females in England and Wales was 82.8 years, 3.6 years lower than Japan's. This shows the potential for further increases in female life expectancy. Life expectancy at birth for females in England and Wales is higher than in Germany and Denmark. Females in France appear to be doing better than their male counterparts when being compared with the other countries shown in Tables 3 and 4. French females had the third highest life expectancy at birth and males had the 12th highest compared with the other countries shown in Tables 3 and 4.

Japanese women had the highest life expectancy at age 65, at 23.8 years in 2012. Of the 18 selected countries, women in Latvia had the lowest life expectancy at age 65 at 18.4 years. Women in England and Wales having celebrated their 65th birthday had on average a further 20.8 years of life, more than women in Germany (20.7 years) and in Denmark (20.0 years).

Life expectancy at age 85 is the highest for women in Japan at 8.1 years. Australia has the second highest life expectancy at age 85 at 7.2 years; this is nearly one whole year lower than Japan. Next is Spain with 7.0 years of life expectancy at age 85, while all the other countries shown in Table 4 are below seven years. In England and Wales females aged 85 in 2010-12 would expect to live on average a further 6.8 years. The lowest life expectancy at age 85 for females is in Latvia at 5.3 years in 2012.

## 8. Use and Users of Life Tables

The interim life tables provide the user with life tables in the intercensal period, therefore enabling up-to-date analysis of life expectancy which is important to track progress against health targets and undertake pension analysis. Life expectancy figures provide users with an indicator of the health of the nation which can be used to inform policy, planning and research in both public and private sectors in areas such as health, population, pensions and insurance.

### Key uses:

- to study the course of mortality throughout the life cycle
- as an indicator of the health of the nation
- to inform policy regarding state pension age
- to assess risk for life assurance and pension liability

Within ONS, interim life tables are used in the methodologies used to calculate disability free life expectancy and healthy life expectancy and in the new methodology for calculating 'duration of working life'. They are also used to inform the assumptions of future mortality for the National Population Projections.

### Users of life tables outside of ONS include:

#### Other government departments:

- Government Actuary's Department
- Department of Work and Pensions
- Department of Health and Health Authorities
- National Records of Scotland, Northern Ireland Statistics and Research Agency and Welsh Assembly
- HM Treasury

#### Non-government organisations:

- universities – academics and students
- news media
- financial advisors/consultants
- insurance companies and actuarial professionals
- the general public

## 9. Background notes

1. Figures in the tables of this bulletin and in the commentary are rounded to one decimal place.
2. The interim life tables that include the years 2002 to 2010 take into account the rebased population estimates following the 2011 Census.
3. The interim life tables 2010-2012, 2009-2011, and revised tables 2000-2002 to 2008-2010, for the United Kingdom and Great Britain will be published Spring 2014.
4. Follow ONS on [Twitter](#) and [Facebook](#).
5. Details of the policy governing the release of new data are available by visiting [www.statisticsauthority.gov.uk/assessment/code-of-practice/index.html](http://www.statisticsauthority.gov.uk/assessment/code-of-practice/index.html) or from the Media Relations Office email: [media.relations@ons.gsi.gov.uk](mailto:media.relations@ons.gsi.gov.uk)

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