

Statistical bulletin

# Estimates of the very old, including centenarians, UK: 2002 to 2019

Annual mid-year population estimates for people aged 90 years and over by sex and single year of age (90 to 104 years, and 105 years and over) and comparisons between UK countries.



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# 1 . Main points

- There were more than 600,000 people aged 90 years and over in 2019, increasing by 3.6% compared with 2018, from 584,024 to 605,181.
- There were just over twice as many women as men aged 90 years and over in 2019.
- The number of people alive at almost every age from 90 years and above was higher in 2019 than in 2018, with the largest increase at age 99 years (62.2%), as a direct result of seasonal birth patterns after World War One.
- In 2019, there were 13,330 centenarians (people aged 100 years and over); the number of people aged 100 years increased by 11% compared with 2018.
- The number of male semi-supercentenarians (people aged 105 years and over) has more than doubled in the last decade, while the number of female semi-supercentenarians increased by around half.
- In 2019, Wales continued to have the highest proportion of male and female centenarians among UK constituent countries.

## Statistician's comment

"The UK population aged 90 years and over grew to its largest size in 2019. Historical improvements to male life expectancy continued to narrow the gap between men and women in this age group to its lowest level on record, with around two women to every man.

"Despite a low number of births 100 years earlier, we saw an uptick in the number of people aged 100 years and over in 2019, due to medical advances and improvements in public health during their lifetime. The birth spike after World War One has resulted in an unusually large birth cohort who are aged 99 in our latest figures. As those who survive reach 100 years of age, the number of centenarians is expected to increase sharply, however, other factors, such as the coronavirus pandemic (COVID-19), could influence this."

Rose Giddings, Centre for Ageing and Demography, Office for National Statistics

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## 2 . UK population growth of those aged 90 years and over

The population aged 90 years and over in the UK continued to grow in 2019, with the total number increasing by 3.6% compared with 2018, from 584,024 to 605,181. This is the largest estimate of the 90 years and over population in the UK to date, and the largest yearly increase since 2014. In 2019, almost one in every 100 people (0.9%) in the UK were aged 90 years or over.

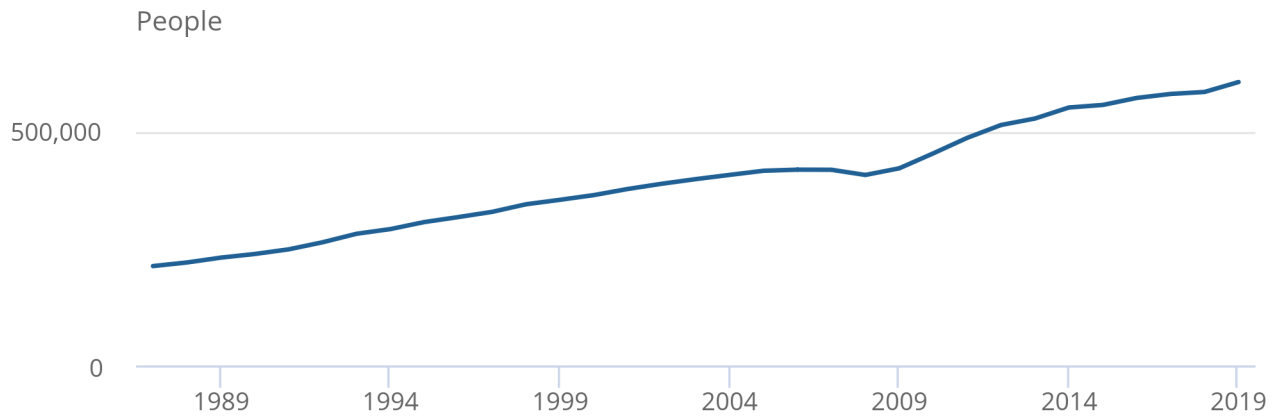
A low number of births in the UK during World War One led to a dip in the 90 years and over population between 2007 and 2008, as there were fewer people born in the cohort who had the opportunity to live to 90 years of age. The rapid increase in the size of the 90 years and over population between 2010 and 2012 (Figure 1) can be [explained by a sharp increase in the number of births in the early 1920s following the end of World War One.](#)

## Figure 1: The population aged 90 years and over continues to grow

Number of people aged 90 years and over, UK, 1987 to 2019

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Number of people aged 90 years and over, UK, 1987 to 2019



Source: Office for National Statistics, National Records of Scotland, Northern Ireland Statistics and Research Agency

[Increases in life expectancy at age 90 years have slowed in recent years, as have the chances of surviving from birth to age 90 years](#), yet we are still seeing an increase in the number of people aged 90 years and over. This is because of previous improvements in mortality arising from medical advances and improvements in public health going back many decades. This has resulted in an increasing proportion (and number) of people reaching age 90 years over time.

Findings in this release relate to estimates of the mid-year population of the UK as at 30 June 2019 and are therefore not affected by the coronavirus (COVID-19) pandemic.

## 3 . Population estimates of the very old by sex

Historical improvements in male life expectancy are largely responsible for the growing size of the 90 years and over population in the UK. While the 90 years and over population increased by 3.6% in 2019 compared with 2018, the number of men aged 90 years and over increased by 5.4%. In comparison, the number of women aged 90 years and over increased at a lower rate of 2.8%.

Women have historically had longer life expectancies than men and consequently there are more women than men living to older ages. However, the gap between male and female life expectancy has been reducing over time because of male life expectancy increasing at a faster rate than female life expectancy over many decades.

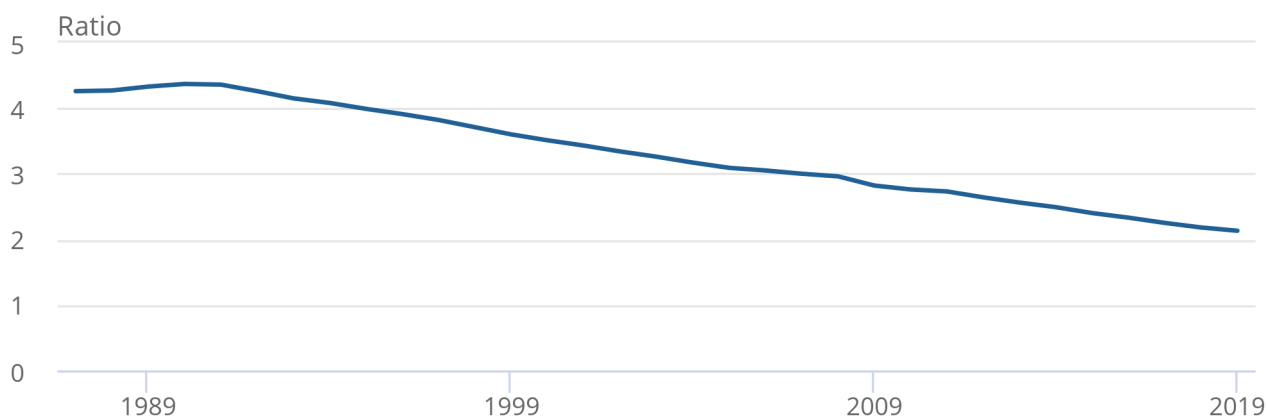
As a result, the number of men aged 90 years and over has been increasing at a faster rate than the number of women in this age group since 1990. The ratio of females to males aged 90 years and over has more than halved over the same period, from 4.4 females to every male in 1990, to 2.1 in 2019 (Figure 2). In the UK, in 2019, there were 411,765 women aged 90 years and over, compared with 193,416 men.

**Figure 2: There were just over two women for every man aged 90 years and over in 2019**

Sex ratio for ages 90 years and over, UK, 1987 to 2019

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Sex ratio for ages 90 years and over, UK, 1987 to 2019



Source: Office for National Statistics, National Records of Scotland, Northern Ireland Statistics and Research Agency

## 4 . Population estimates of the very old by single year of age

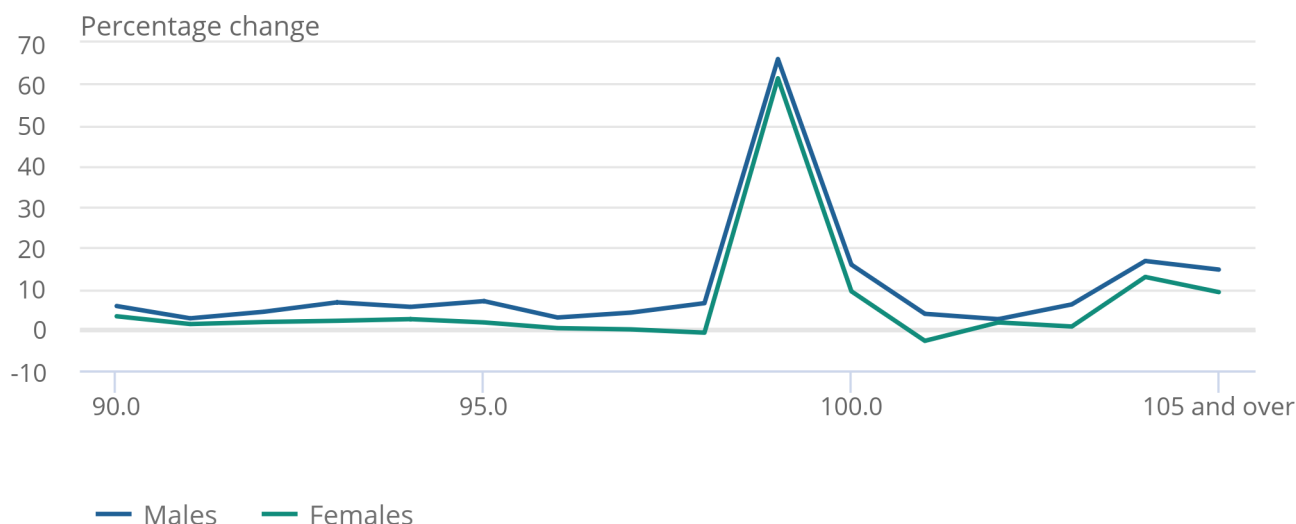
The number of people alive at almost every age from 90 years and over was higher in 2019 compared with 2018. For men, there were increases at every age, and there were increases in the number of women at all ages except 97, 98 and 101 years (Figure 3).

### Figure 3: The population aged 90 years and over is increasing at almost every age

Percentage change in the UK population aged 90 years and over between 2018 and 2019, by single year of age and sex

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Percentage change in the UK population aged 90 years and over between 2018 and 2019, by single year of age and sex



Source: Office for National Statistics, National Records of Scotland, Northern Ireland Statistics and Research Agency

The large increase (62.2%) in the number of people aged 99 years in mid-2019 compared with mid-2018 is a direct result of seasonal birth patterns after World War One. [The cohort born between mid-1919 and mid-1920 was much larger than the preceding years.](#)

Some of the largest increases are at the very oldest ages, particularly for men. The number of male semi-supercentenarians (people aged 105 years and over) increased by 14.6% compared with a 9.1% increase in the number of female semi-supercentenarians.

Looking back over the last decade, the number of male semi-supercentenarians has more than doubled, compared with an increase of around half for female semi-supercentenarians. This is reflected in the sex ratio for semi-supercentenarians decreasing from 8.4 to 5.1 women to every man over the same time period.

## 5 . Historical causes of population growth for those aged 90 years and over

The number of people alive at each age is driven primarily by historical birth patterns (see [Estimates of the very old, including centenarians, UK: 2002 to 2018](#) for more information).

The sharp increase in the number of births following World War One began in the second half of 1919, around nine months after the war ended. People born in the second half of 1919 were aged 90 years in mid-2010, and by mid-2019 they were aged 99 years.

In 2019, there were around 12,050 people aged 99 years - a birth cohort 62.2% larger than the one born one year earlier (Figure 3). The same pattern can also be seen at younger ages for this cohort going back in time (Figure 4).

#### **Figure 4: The large number of people born after World War One continues to influence the structure of the population aged 90 years and over**

Age distribution of the 90 and over population, UK, 2002 to 2019

[Download the data](#)

#### **Notes:**

1. Figures represent the percentage of people (of a given age) between 2002 and 2019, in each year.
2. Due to rounding, percentages for a given age may not sum to exactly 100 across all years.

## **6 . Population estimates for centenarians**

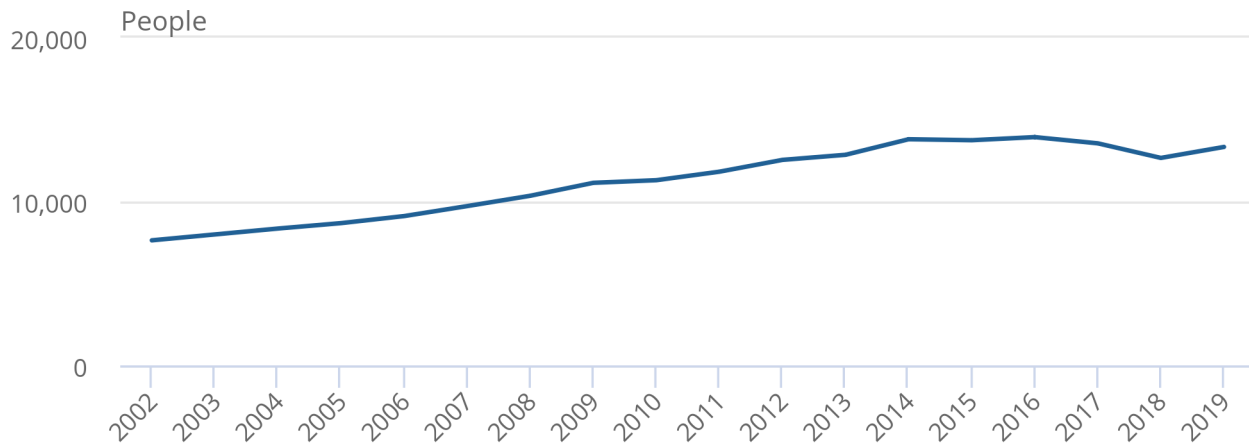
There were an estimated 13,330 centenarians in the UK in 2019, an increase of 5.2% from 2018 (Figure 5).

## Figure 5: The number of centenarians is increasing again

Number of people aged 100 years and over, UK, 2002 to 2019

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Number of people aged 100 years and over, UK, 2002 to 2019



Source: Office for National Statistics, National Records of Scotland, Northern Ireland Statistics and Research Agency

Of these, around 5,150 centenarians (just over one-third) were aged 100 years old in 2019, up from 4,660 in 2018. There were around 3% fewer babies born between mid-1918 and mid-1919 who make up the UK population aged exactly 100 years old, compared with the cohort born one year earlier. Despite there being fewer people born who would have had the opportunity to live to 100 years of age, improvements in mortality and public health over the last century has resulted in 11% more people reaching age 100 years in 2019 than in 2018.

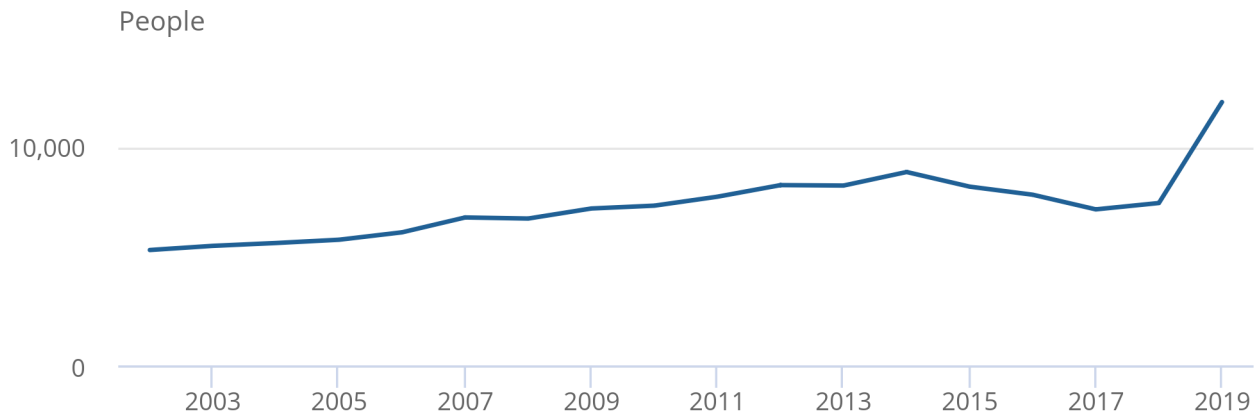
The increase in the number of centenarians between 2018 and 2019 is only the start of an expected uptick in the number of centenarians following the birth spike after World War One.

## Figure 6: The number of people aged 99 years increased sharply in 2019

Number of people aged 99 years, UK, 2002 to 2019

### Figure 6: The number of people aged 99 years increased sharply in 2019

Number of people aged 99 years, UK, 2002 to 2019



Source: Office for National Statistics, National Records of Scotland, Northern Ireland Statistics and Research Agency

Those in the large cohort aged 99 years in 2019 (Figure 6) who survive, will reach 100 years of age in 2020, suggesting that there could be a relatively large increase in the number of centenarians at that time. However, other factors, such as the coronavirus (COVID-19) pandemic, could influence this, as [figures have shown the number of deaths involving COVID-19 is highest for the 85 years and over age group](#).

## 7 . Population estimates of the very old by UK constituent country

In 2019, Wales had the greatest proportion of both male and female centenarians in the UK with eight men aged 100 years and over per 100,000 men and 36 women aged 100 years and over per 100,000 women.

England had the second largest proportion of centenarians in the UK, with seven males and 33 females per 100,000 population of each sex.

Northern Ireland and Scotland had a similar proportion of male centenarians (5 per 100,000 population of males) in 2019, while Northern Ireland had a higher proportion of female centenarians than Scotland, at 29 compared with 24 per 100,000 population of females.

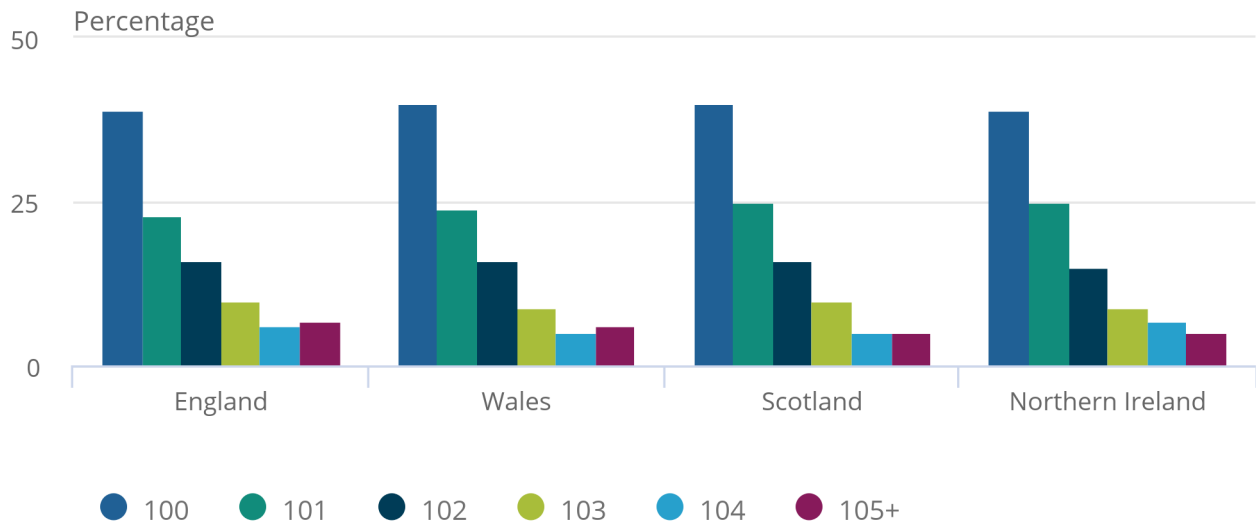


## Figure 7: The age distribution of centenarians is similar between UK constituent countries

Age distribution of centenarians by constituent country, UK, 2019

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Age distribution of centenarians by constituent country, UK, 2019



Source: Office for National Statistics, National Records of Scotland, Northern Ireland Statistics and Research Agency

Despite Wales having the highest proportion of centenarians across the constituent UK countries, age distributions over the age of 100 years are similar for all constituent UK countries (Figure 7). Around 4 in 10 people in the UK aged 100 years and over were aged 100 years in 2019, while only one in four centenarians were aged 101 years.

Around 6% of the centenarian population in any given UK country are aged 104 years, and 6% are aged 105 years and over. This pattern is consistent even in smaller populations such as those observed in Wales and Northern Ireland where the population estimates of the very old can fluctuate because of small numbers.

## 8 . Population estimates data

### [Mid-year population estimates of the very old, including centenarians: UK](#)

Dataset | Released 24 September 2020

Annual mid-year population estimates for those aged 90 years and over by sex and single year of age (90 to 104) and the 105 years and over age group, 2002 to 2019, UK.

### [Mid-year population estimates of the very old, including centenarians: England](#)

Dataset | Released 24 September 2020

Annual mid-year population estimates for those aged 90 years and over by sex and single year of age (90 to 104) and the 105 years and over age group, 2002 to 2019, England.

### [Mid-year population estimates of the very old, including centenarians: Wales](#)

Dataset | Released 24 September 2020

Annual mid-year population estimates for those aged 90 years and over by sex and single year of age (90 to 104) and the 105 years and over age group, 2002 to 2019, Wales.

## 9 . Glossary

### Birth cohort

A group of people who were born in a particular period or year.

### Centenarian

Someone who is 100 or more years old.

### Semi-supercentenarian

Someone who is aged between 105 and 109 years old.

## 10 . Measuring the data

These are annual mid-year estimates by sex and single year of age for people aged 90 to 104 years and for the 105 years and over age group. Figures for 2002 to 2019 update the figures previously published in September 2019 for England, Wales and for the UK.

Estimates of the very old are calculated from death registration data using the [Kannisto-Thatcher \(KT\) method](#); they are constrained to the age 90 years and over totals in the [mid-year population estimates](#).

Estimates for the UK, England and for Wales are produced by the Office for National Statistics (ONS) while estimates for Scotland and Northern Ireland are produced by the [National Records of Scotland \(NRS\)](#) and the [Northern Ireland Statistics and Research Agency \(NISRA\)](#) respectively. The 2019 deaths data used in the production of the Northern Ireland 90 years and over single year of age estimates are provisional.

Since 2019, the data used to calculate these estimates have changed from deaths on a calendar year basis by age at death, to deaths on a mid-year to mid-year basis by age at the start of the mid-year period. This has been done to improve precision of the estimates, reduce the use of assumptions, and harmonise with the methodology used by NRS and NISRA. Further details can be found in an accompanying [methodology paper](#). A report has also been published on the [comparability of estimates of the very old](#) produced by the ONS, NRS and NISRA.

More quality and methodology information on strengths, limitations, appropriate uses, and how the data were created is available in the [Population estimates of the very old, including centenarians QMI](#).

## 11 . Strengths and limitations

### National Statistics status for Estimates of the very old

National Statistics status means that our statistics meet the highest standards of trustworthiness, quality and public value, and it is our responsibility to maintain compliance with these standards.

Date of most recent full assessment: [July 2015](#).

Most recent compliance check, which confirms National Statistics status: [March 2017](#).

Improvements since last review:

- following an investigation in to the [accuracy of high-age population estimates](#), deaths data used in the calculations of the England and Wales estimates are based on age at the beginning of the mid-year to mid-year period, rather than by making adjustments to deaths by age at death in a calendar year. More information can be found in the [Estimates of the very old, including centenarians, QMI](#)

### UN Sustainable Development Goals

The underlying pledge of the UN Sustainable Development Goals is to leave no one behind, which by definition includes the very old. Availability of data is essential to delivery of the goals. This dataset provides an accurate estimate of the very old population in the UK aged 90 to 105 years and over disaggregated by single year of age.

## 12 . Related links

### [National life tables](#)

Bulletin | Released 24 September 2020

Trends in the average number of years people will live beyond their current age measured by period life expectancy, analysed by age and sex for the UK and its constituent countries.

### [Changing trends in mortality: a cross-UK comparison, 1981 to 2016](#)

Article | Released 7 August 2018

Analysis of age-specific and age-standardised mortality rates for the UK, England, Wales, Scotland and Northern Ireland from 1981 to 2016.

### [Accuracy of official high-age population estimates, in England and Wales: an evaluation](#)

Article | Released 12 December 2016

Assesses the quality of the component input data for official mid-year population estimates for ages 80 years and over (deaths registrations; census estimates; and migration estimates). The method used to distribute the official age 90 and over mid-year estimate to single years of age above age 90 years (the Kannisto-Thatcher method) is also assessed.

### [Trends in births and deaths over the last century](#)

Article | Released 15 July 2015

Patterns of births and deaths over the previous 100 years, and the influence of important events.

### [How has life expectancy changed over time?](#)

Article | Released 9 September 2015

Changes in life expectancy since 1841 when the first life expectancy table was constructed.

### [Living longer - how our population is changing and why it matters](#)

Article | Released 13 August 2018

Overview of population ageing in the UK and some of the implications for the economy, public services, society and the individual.