

Statistical bulletin

Estimates of the very old, including centenarians, UK: 2002 to 2020

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

- In 2020, the population aged 90 years and over in the UK continued to grow but at a slower rate, increasing by 0.7% from 2019 compared with a 3.6% increase in the previous year.
- The number of centenarians in the UK rose to its highest ever level in 2020, reaching 15,120, an increase of almost a fifth from last year.
- The large increase in centenarians in 2020 in the UK was driven by a 52% increase in those aged 100 years from the previous year.
- The sharp increase in those aged 100 years is a result of birth patterns one hundred years ago when there was a spike in births following World War One.
- There are twice as many women aged 90 years and over than men in the UK, however, the gap has narrowed over the last three decades and continued to narrow in 2020.
- In 2020, Wales had the highest proportion of male and female centenarians among UK constituent countries.

Statistician's comment

"While growth in the population aged 90 years and over slowed in the year to mid-2020, most likely impacted by the coronavirus pandemic, there was a large rise in the number of people aged 100 years and over.

"In fact, the number of centenarians grew by almost a fifth from the previous year. This was driven by people, born in the post-World War One birth spike, turning 100 years old.

"Improvements in living standards and public health over the last century improved the chances of those born at that time surviving to age 100."

Angele Storey, Centre for Ageing and Demography, Office for National Statistics

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

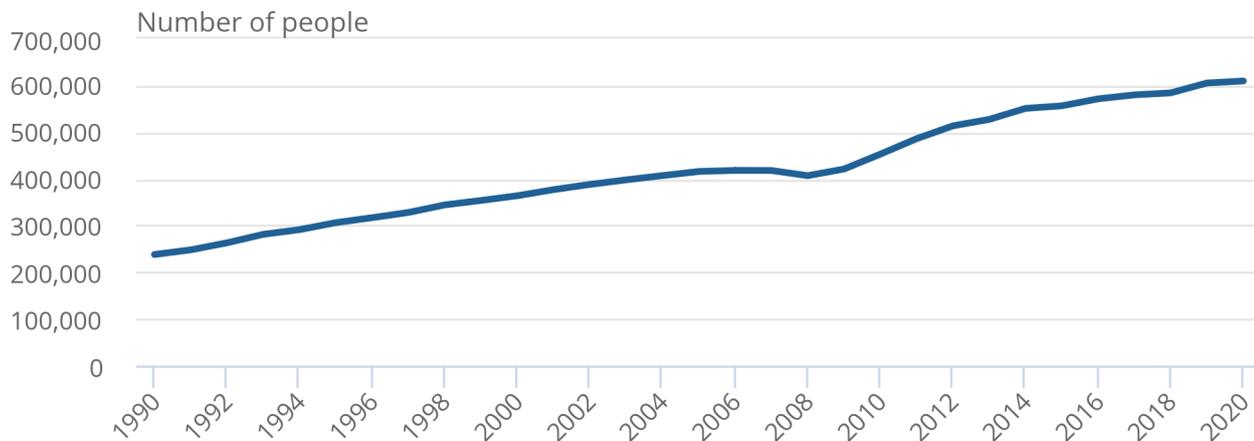
The population aged 90 years and over in the UK has increased by more than two and a half times in the last 30 years, reaching 609,503 in mid-2020.

Figure 1: The population aged 90 years and over continues to grow in 2020 but at a slower rate

Number of people aged 90 years and over, UK, 1990 to 2020

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Number of people aged 90 years and over, UK, 1990 to 2020



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

The overall trend since 1990 has been growth in the size of this population, with the exception of decreases in 2007 and 2008 (Figure 1). This dip in the age 90 years and over population was followed by a rapid rise in numbers between 2010 and 2012. This pattern reflects low birth numbers 90 years previously, during World War One, followed by higher numbers of births immediately after the war (Figure 3).

Despite a steady decline in numbers of births after the post-World War One peak, the age 90 years and over population has continued to grow. This is because of past improvements in mortality, going back many decades, with more people surviving to older ages. These improvements are because of factors such as advances in medical treatments and improvements in living standards and public health.

However, in the most recent year, the rate of growth of the age 90 years and over population has slowed, with numbers increasing by 0.7% from mid-2019. This compares with an increase of 3.6% in the population aged 90 years and over between 2018 and 2019. This is despite the number of births in the mid-year to 1930, when those aged 90 in 2020 were born, being similar to the number of births in the previous year (Figure 3).

Coronavirus (COVID-19) may have been a factor in the slowing of the rate of growth this year. The estimates cover the mid-year period up to 30 June 2020, and so include the early months of the pandemic. The peak in [number of deaths registered involving coronavirus \(COVID-19\)](#) in 2020 occurred in April, and at this time [people aged 90 years and over had the highest mortality rate for deaths involving COVID-19](#).

3 . Age group comparisons for the age 90 years and over population

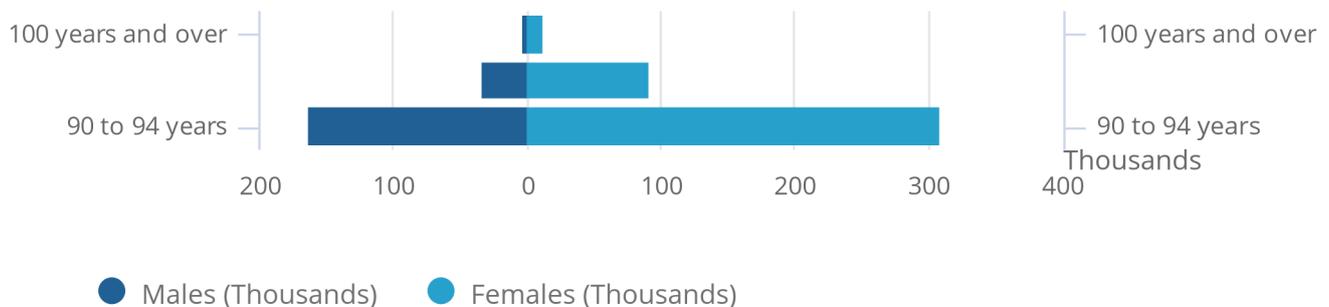
People aged under 95 years make up the majority of the age 90 years and over population. In the UK in 2020, over three-quarters (77.2%) of the total 90 years and over population were aged 90 to 94 years, a fifth (20.3%) were aged 95 to 99 years and 2.5% were aged 100 years and over (Figure 2). In comparison, in 2002, 80.4% of the total 90 years and over population were aged 90 to 94 years, 17.6% were aged 95 to 99 years and 2.0% were aged 100 years and over, indicating that even at the highest ages, the population is ageing.

Figure 2: The majority of the population aged 90 years and over are aged under 95 years

Number of people aged 90 years and over by age group and sex, UK, 2020

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Number of people aged 90 years and over by age group and sex, UK, 2020



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

Notes:

1. Data for age groups are calculated by summing the rounded single year of age estimates.

There are more women than men aged 90 years and over because on average women live longer than men, with the ratio of women to men increasing with age within the age 90 years and over population.

There were 1.9 females to every male in the 90 to 94 year age group, 2.8 females to every male in the 95 to 99 year age group and 4.6 females to every male for those aged 100 years and over, in the UK in 2020. However, the gap in numbers of men and women at high ages has been reducing over time. This is because male life expectancy increased at a faster rate than female life expectancy over many decades, because of factors such as a greater reduction in the proportion of men smoking relative to women and improved working conditions as heavy industry has declined. Looking back to 2002, there were 3.1 females to every male in the 90 to 94 year age group, 4.8 females to every male in the 95 to 99 year age group and 8.3 females to every male for those aged 100 years and over.

4 . Centenarians

There were an estimated 15,120 centenarians (people aged 100 years and over) in the UK in 2020, an increase of almost a fifth (18%) from 2019. This large increase in centenarians is driven by the increase in 100-year-olds. Around 50% of the centenarian population in 2020 were aged 100 years compared with an average of 39% in the previous five years.

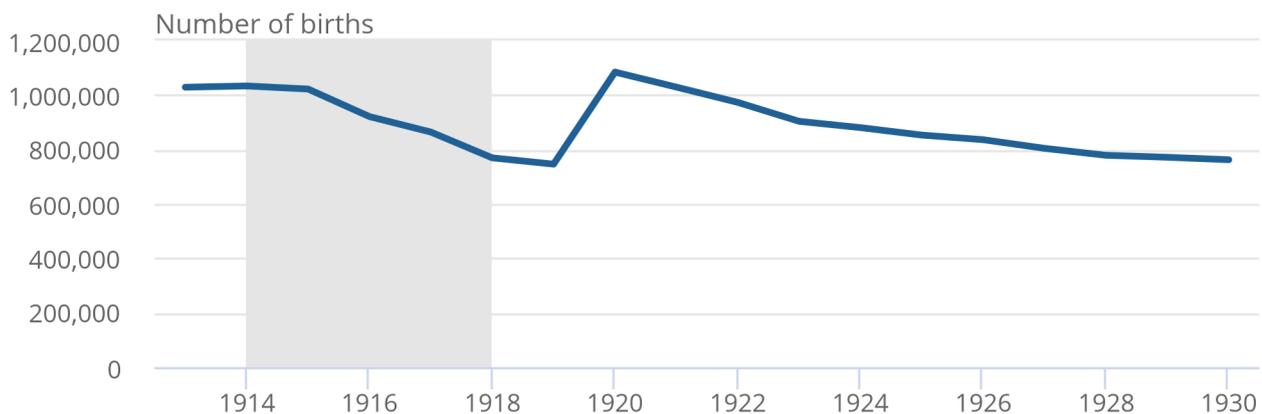
The number of people aged 100 years in the UK increased by 52% in 2020 from the previous year. Following World War One there was a sharp increase in the number of births in the year mid-1919 to mid-1920, with 45% more births than the year before (Figure 3). This spike in births resulted in a greater number of individuals who had the potential to survive to very old ages, with enhancements in living standards and public health over the last century increasing their chances. Those still alive in mid-2020 born at that time would be aged 100 years, driving the sharp increase in 100-year-olds from mid-2019 (Figure 4).

Figure 3: After declining during World War One, birth numbers increased sharply following the end of the War

Number of mid-year live births, UK, 1913 to 1930

Figure 3: After declining during World War One, birth numbers increased sharply following the end of the War

Number of mid-year live births, UK, 1913 to 1930



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

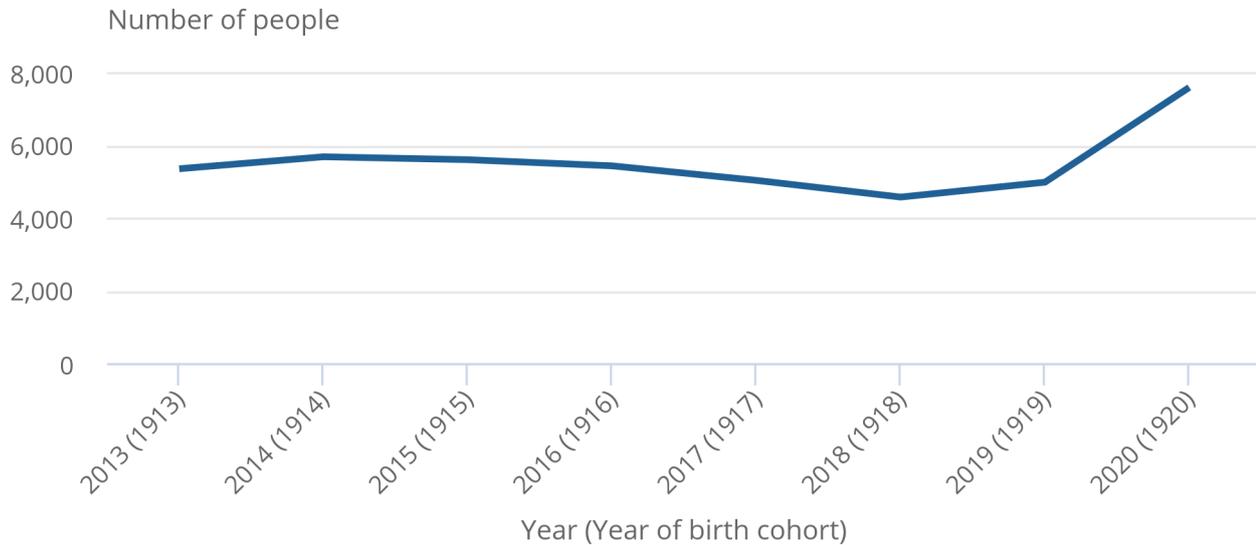
Figure 4: Numbers of people aged 100 years increase by 52% as large post-World War One birth cohort¹ reaches age 100

Number of people aged 100 years, UK, 2013 to 2020

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Number of people aged 100 years, UK, 2013 to 2020



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

Notes:

1. A birth cohort is a group of people who were born in a particular period or year.

Wales had the highest proportion of centenarians among the UK constituent countries in 2020, with 25 people aged 100 years and over per 100,000 population (Table 1). England had 23 people aged 100 years and over per 100,000 population. Scotland and Northern Ireland both had 18 people aged 100 years and over per 100,000 population. A very similar pattern held for both males and females, with Wales having the most male centenarians per 100,000 men and the most female centenarians per 100,000 women (Table 1).

Table 1: Wales had the highest proportion of centenarians for both males and females
Number of centenarians per 100,000 persons by constituent countries, UK, 2020

Country	Persons	Males	Females
Wales	25	9	40
England	23	8	38
Northern Ireland	18	7	30
Scotland	18	7	28
UK	23	8	37

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

5 . Population estimates data

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

Dataset | Released on 23 September 2021

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 2020, UK.

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

Dataset | Released on 23 September 2021

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 2020, England.

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

Dataset | Released on 23 September 2021

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 2020, Wales.

6 . Glossary

Birth cohort

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

Centenarian

A person aged 100 years or more.

Life expectancy

Life expectancy is a population-based statistical measure of the average number of years a person has before death. Life expectancies can be calculated for any age and give the further number of years a person can, on average, expect to live given the age they have attained.

7 . Measuring the data

These are annual mid-year population 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 2020 update the figures previously published in September 2020 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 2020 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.

8 . Strengths and limitations

Quality

The relatively small size of the populations of the smaller UK constituent countries can produce more volatility in the deaths data used to estimate centenarians in these countries.

To provide users with a consistent set of estimates by single year of age up to age 105 years and over, estimates of the very old (EVOs) are constrained to the 90 years and over totals in the [mid-year estimates \(MYE\)](#), the highest age published in these datasets. MYE are based on the latest census and adjusted for births, deaths and migration each year following the census. As errors accumulate over time the population estimates for the years immediately prior to a census year tend to be less accurate than those immediately after. Following the publication of the [Census 2021 results for England and Wales](#), mid-year estimates will be rebased using the most up-to-date census data.

This year, the deaths data used to calculate the EVOs have been through an extra validation data cleaning step. While the data are very accurate in terms of the number of deaths that occur, the age of death at very high ages may not always be accurate as the date of birth given by the person registering the death is not checked against birth certificates. A very small number of records were removed from the input data where evidence was found to indicate those recorded as aged 110 years and over were not in fact of that age. As EVOs are constrained to the age 90 years and over totals in the MYE, removing these records did not impact the total number of people estimated in the EVOs and only very slightly shifted percentage distributions by single year of age.

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](#).

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 into 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; by definition, this includes the very old. Availability of data is essential to delivery of the goals. These datasets provide an estimate of the very old population in the UK, England, and Wales, aged 90 to 105 years and over disaggregated by single year of age and sex.

9 . Related links

[National life tables – life expectancy in the UK: 2018 to 2020](#)

Bulletin | Released 23 September 2021

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

[Calculating population estimates of the very old](#)

Article | Released 17 September 2021

Methods used to produce the population estimates of the very old (aged 90 years and over) by single year of age and sex, UK, England, and Wales.

[The impact of the First World War on the 90 and over population of the UK: 2015](#)

Article | Released 29 September 2016

The impact of birth patterns around the time of the First World War and the influence of the Spanish “flu” pandemic that followed on the size and make up of today's population aged 90 years and over.

[Life expectancy for local areas of the UK: between 2001 to 2003 and 2018 to 2020](#)

Bulletin | Released 23 September 2021

Subnational trends in the average number of years people will live beyond their current age measured by “period life expectancy”.