Office for National Statistics

Statistical bulletin

Estimates of the very old, including centenarians, England and Wales: 2002 to 2022

Annual mid-year population estimates for people aged 90 years and over by sex and single year of age to 105 years and over, and comparisons between England and Wales.

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1 . Main points

- In 2022 the estimated population of England and Wales aged 90 years and over grew by 2.1% compared with 2021; this was its highest ever total (550,835 people).
- The number of centenarians has more than doubled since 2002, with an estimated 15,120 centenarians living in England and Wales in 2022.
- The large post-First World War birth cohort, aged 102 years in 2022, still affected the number of centenarians in England and Wales and accounted for 17.0% of those aged 100 years and over.
- The sex ratio among centenarians in England and Wales has almost halved in the last 20 years, from 8.2 women to every man aged 100 years and over in 2002, to 4.5 women to every man in 2022.
- In 2022 Wales had a higher proportion of centenarians per 100,000 population than England, with 27 people aged 100 years and over compared with 25 people in England.

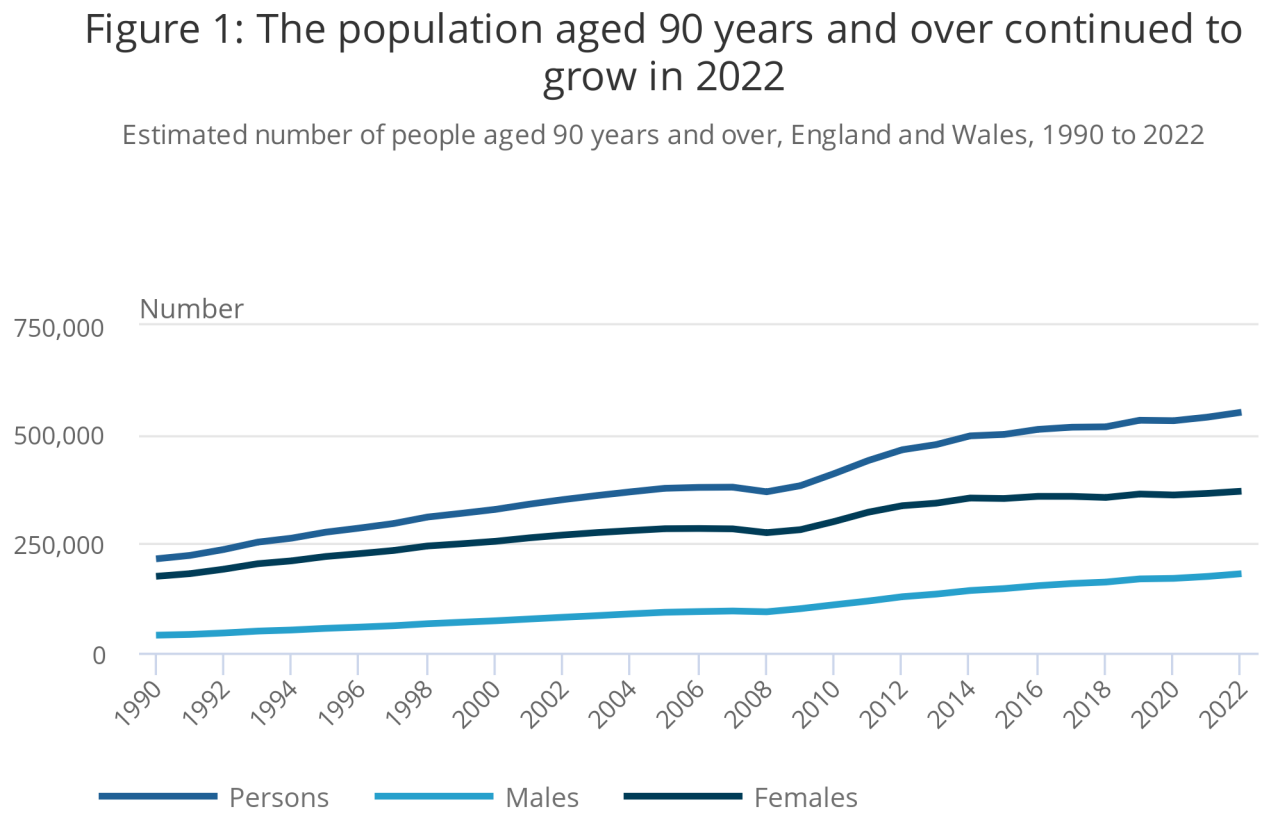
These statistics are for England and Wales only. Figures for the UK will be published in autumn 2024. The 2002 to 2022 estimates published in this release supersede previous estimates of the very old and account for rebasing of the mid-year estimates from 2012 onwards following Census 2021.

2 . Population growth of those aged 90 years and over in England and Wales

The estimated population of England and Wales aged 90 years and over grew to its highest ever total, from 539,637 in 2021 to 550,835 in 2022. This is an increase of 2.1% compared with 2021 and is the largest increase since 2019. This pattern is reflective of higher mortality rates at older ages during the coronavirus (COVID-19) pandemic in 2020 and 2021 compared with 2019. Further information can be found in our National life tables – life expectancy in the UK 2020 to 2022 bulletin.

Figure 1: The population aged 90 years and over continued to grow in 2022

Estimated number of people aged 90 years and over, England and Wales, 1990 to 2022



Source: Office for National Statistics

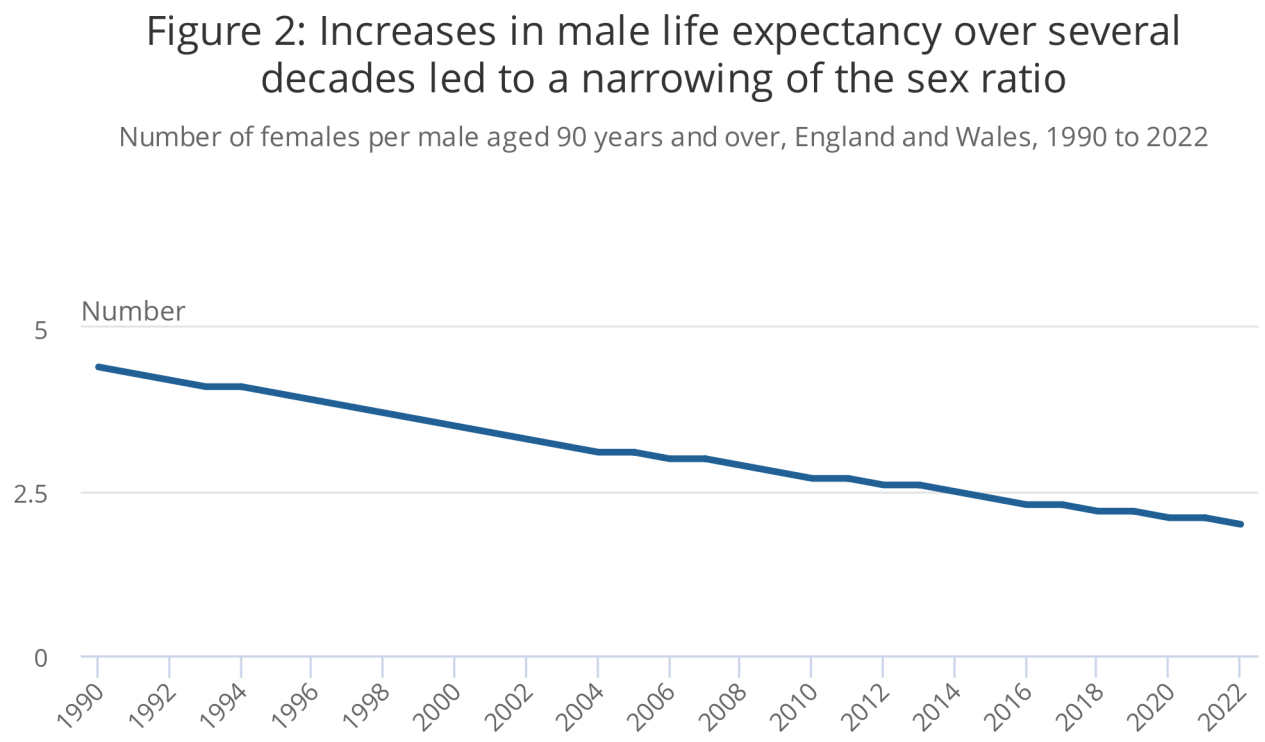
The increasing size of the 90 years and over population follows an overall trend of population growth (Figure 1). The small increases observed in 2006 and 2007, and a decline in 2008, are reflective of the low number of births 90 years earlier, during the First World War (1914 to 1918). The rapid rise in numbers between 2010 and 2012 reflect a spike in the number of births which started around nine months after the war ended, with high birth numbers continuing into 1921.

Despite the birth rate returning to that observed pre-war, the number of people aged 90 years and over has continued to grow in recent years because of improvements in mortality at older ages, arising from improved public health, and medical advances throughout their lifetimes.

There were an estimated 369,918 females aged 90 years and over compared with 180,917 males of the same age mid-2022. The number of females in this age group grew by 1.4% from 364,949 in 2021, while the number of males grew by 3.6% from 174,688.

Figure 2: Increases in male life expectancy over several decades led to a narrowing of the sex ratio

Number of females per male aged 90 years and over, England and Wales, 1990 to 2022



Source: Office for National Statistics

The ratio of females to males has steadily decreased over the last three decades from 4.4 women per man aged 90 years and over in 1990, to 2 women per man in 2022. Greater improvements in male life expectancy over the period have led to a narrowing of the ratio between the number of men and women aged 90 years and over. Further information can be found in our National life tables – life expectancy in the UK 2020 to 2022 bulletin.

3 . Distribution of people aged 90 years and over

More than one in five people aged 90 years or over were aged 90 years in mid-2022, with the number of people alive at each successive age decreasing.

People aged under 95 years make up the majority of the age 90 years and over population. In England and Wales in 2022, over three-quarters (77.4%) of the total 90 years and over population were aged 90 to 94 years, a fifth (19.9 %) were aged 95 to 99 years and 2.7% were aged 100 years and over. In comparison, in 2002, 80.4% of the total 90 years and over population were aged 90 to 94 years, 17.7% 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.

On average, women live longer than men therefore there were more women than men aged 90 years and over. There were more females than males at every age in 2022, however the percentage increase in numbers at each age since 2002 was greater for men than for women.

There were 1.9 women to every man in the 90 to 94 year age group and 2.7 in the 95 to 99 year age group, in England and Wales in 2022. The ratio of women to men widens with age, with 4.4 women to every man in the 100 to 104 year age group and 8.8 in the 105 years and over age group.

Figure 3: The number of men reaching each age over 90 years has increased more rapidly than for women

Estimated number of people by single year of age from 90 to 104 and 105 years and over and sex, England and Wales, 2002 to 2022

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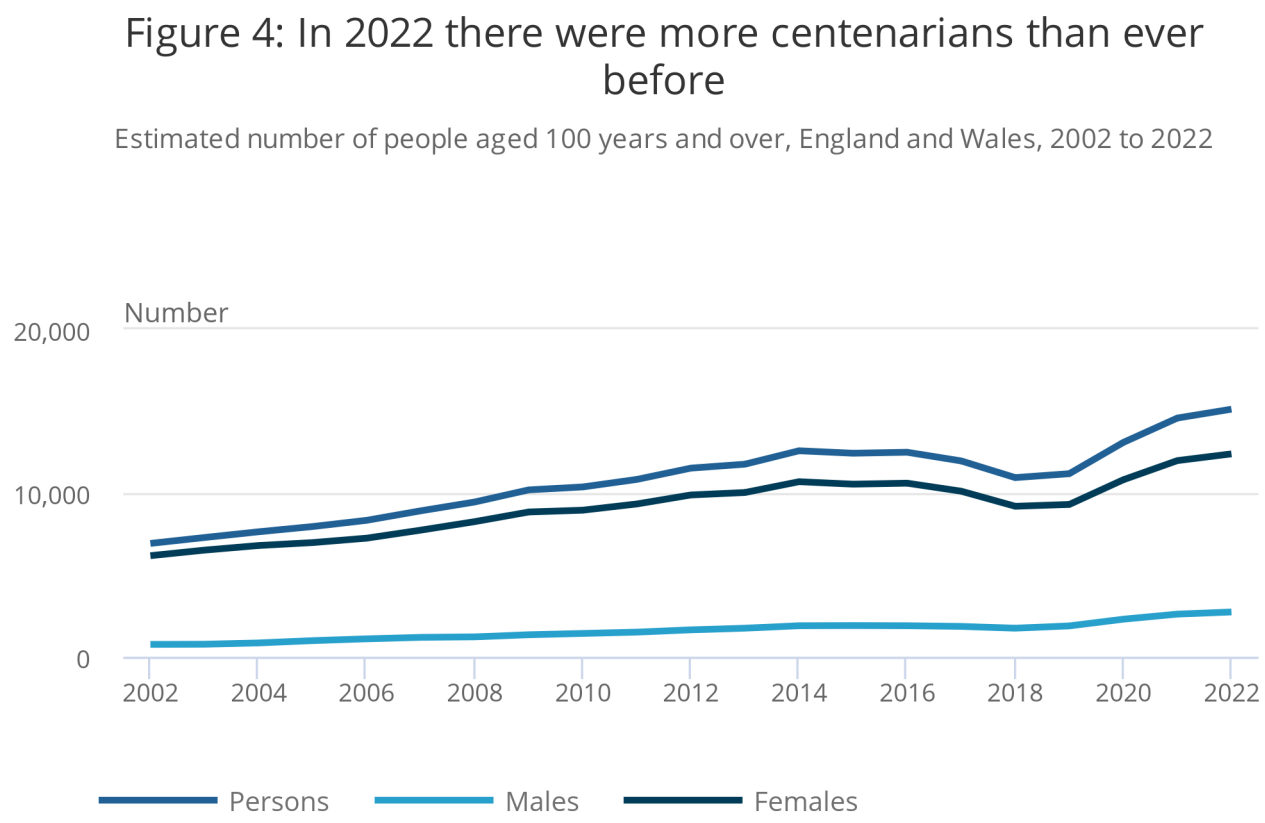
4 . Centenarians

In 2022, there were an estimated 15,120 centenarians (people aged 100 years and over) living in England and Wales; an increase of 3.7% from 2021. The number of centenarians has more than doubled since 2002 (including a doubling of the numbers aged 105 years and over from 300 in 2002, to 640 in 2022). Despite this increase, centenarians still only accounted for 2.7% of the population aged 90 years and over (550,835) in England and Wales, and 0.03% of the total population (60.2 million) in 2022.

Figure 4: In 2022 there were more centenarians than ever before

Estimated number of people aged 100 years and over, England and Wales, 2002 to 2022



Source: Office for National Statistics

Notes:

1. Totals may not sum because of rounding

The historical birth patterns of the large post-First World War cohort (those born between mid-1919 and mid-1920) were still affecting the number of centenarians in the population in 2022. Those who survived were aged 100 years in 2020, an increase of 52.9% compared with 2019, which also resulted in an increase in the overall number of centenarians. In 2022, those who survived from this same birth cohort were aged 102 years and accounted for 17.0% of centenarians compared with 11.2% in 2021. As the size of this cohort continues to decline with each successive year, they will have a decreasing influence on the future number of centenarians.

There were an estimated 2,730 male and 12,390 female centenarians in mid-2022; increases of 5.0% and 3.5%, respectively, compared with mid-2021. The sex ratio among centenarians in England and Wales has almost halved in the last 20 years, from 8.2 women to every man aged 100 years and over in 2002, to 4.5 women to every man in 2022.

In 2022 Wales had a higher proportion of centenarians per 100,000 population than England, with 27 people aged 100 years and over compared with 25 people in England. This pattern holds for females with 43 female centenarians per 100,000 women in Wales compared with 40 per 100,000 women in England. There were 9 male centenarians per 100,000 men in both England and Wales.

5 . Population estimates data

Mid-year population estimates of the very old, including centenarians: England and Wales
Dataset | Released on 11 January 2024
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 2022, England and Wales.

Mid-year population estimates of the very old, including centenarians: England
Dataset | Released on 11 January 2024
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 2022, England.

Mid-year population estimates of the very old, including centenarians: Wales
Dataset | Released on 11 January 2024
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 2022, 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 2022 update those previously published in September 2020 for England and Wales. Figures for the UK (2002 to 2023) will be released and supersede the 2020 estimates when they are released in autumn 2024.

Estimates of the very old are calculated from death registration data using the Kannisto-Thatcher (KT) method (as explained in our Calculating population estimates of the very old methodology); they are constrained to the age 90 years and over totals in our mid-year population estimates bulletins.

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.

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 our accompanying Calculating population estimates of the very old methodology. 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. More information can be found in our Estimates of the population for the UK, England, Wales, Scotland and Northern Ireland dataset. MYEs are based on the latest census and are 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. The 2002 to 2022 estimates published in this release take account of the reconciliation and rebasing of the mid-year estimates from 2012 onwards, following Census 2021. This process happens every 10 years following the census. You can find out more about this in our Rebasing of the mid-year population estimates following Census 2021, England and Wales bulletin.

This year, the deaths data used to calculate the estimates 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 highly unlikely to be of that age. As EVOs are constrained to the age 90 years and over totals in the MYE, removing these records did not affect 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 our 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:

- 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 our 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: 2020 to 2022
Bulletin | Released 11 January 2024
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.

10 . Cite this statistical bulletin

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