

# Centenarians in Scotland, 2010 to 2020



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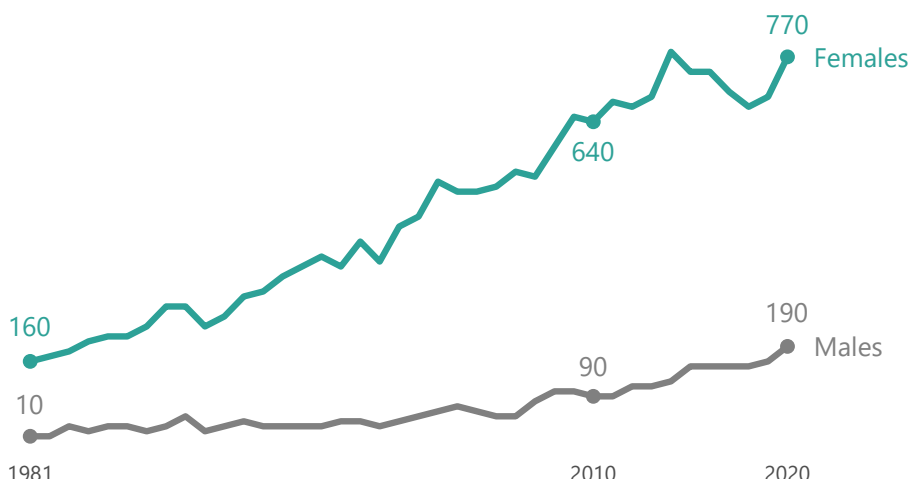
This statistical report provides population estimates of the very old (aged 90 and over), including the number of centenarians (aged 100 and over), in Scotland by sex and age.

### The number of centenarians has grown

In the last year to mid-2020, the centenarian population increased to an estimated 960. This increase reflects the births following the end of WWI.

Overall, the centenarian population increased by 32% over the past decade.

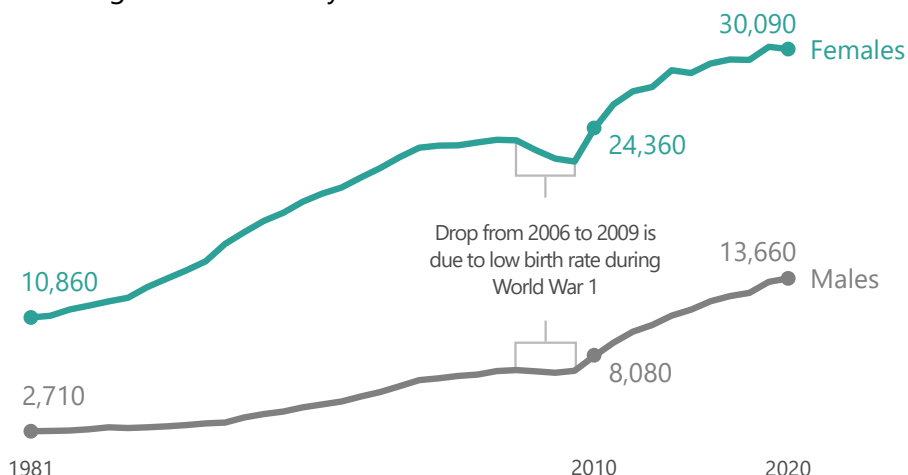
Number of centenarians (aged 100 and over) by sex



### The number of people aged 90+ is also growing

In mid-2020, there were 43,750 people aged 90 and over in Scotland. The number of people in this age group has increased by 35% since mid-2010. Females remain the majority in this age group. However, in mid-2020 males represented a higher proportion than ever before (31%).

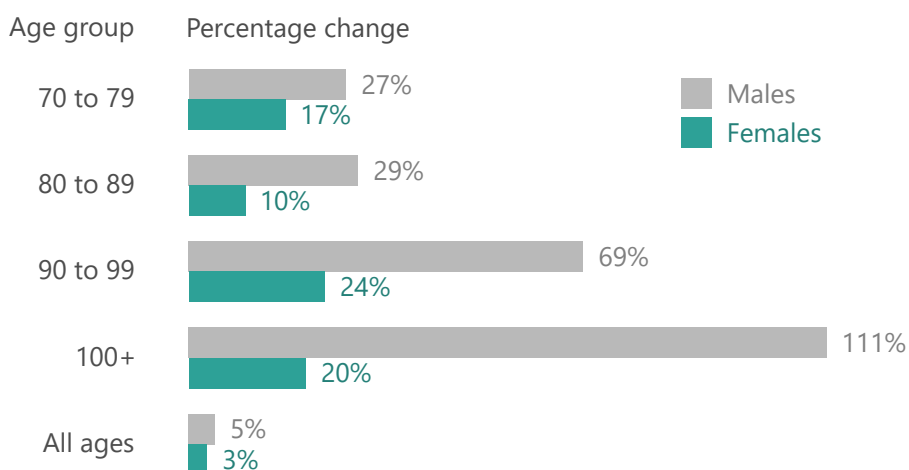
Persons aged 90 and over by sex



### Growth is faster for males

This may partly be due to the lower number of males in these age groups and the gap in life expectancy between the sexes narrowing. However, the majority of centenarians are female (80% in mid-2020). Overall, the population at older age groups are growing faster than the rest of the Scottish population.

Change by age group and sex, mid-2010 to mid-2020



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## Main Points

- There were an estimated 960 centenarians (people aged 100 and over) in Scotland in mid-2020. This is a 13% increase over mid-2019, and is the highest ever figure. This reflects the increase of births which occurred in Scotland at the end of World War One.
- The majority of centenarians are female. In mid-2020, there were 4 times as many female centenarians as males. There were 770 females compared to 190 males. This disparity can be explained by the difference in life expectancy for males and females.
- Over the past decade to mid-2020, the number of male centenarians have grown at a faster rate than female centenarians.
- For the 90 and over age group, numbers of males have increased by almost 70% since mid-2010, while the females have grown by just under 24%.
- Delete for redacted version: Scotland has had the lowest proportion of centenarians in the UK since mid-2017. Most recently in mid-2020, there were 1.76 centenarians per 10,000 people. In comparison, Wales had the highest proportion (2.49 per 10,000), followed by England (2.30 per 10,000) and Northern Ireland (1.85 per 10,000).
- In mid-2020, there were an estimated 43,750 people aged 90 and over in Scotland. The number of people in this age group has increased every year since mid-2010 when there were 32,440 people aged 90 and over.
- Delete for redacted version: Scotland had the second lowest proportion (80 per 10,000) of people aged 90 and over in the UK in mid-2020. Northern Ireland had the lowest proportion (73 per 10,000), England had 92 per 10,000 and Wales had the highest (97 per 10,000).

### **Do these statistics take account of the effect of COVID-19?**

These statistics take into account changes in the population up to 30 June 2020. This means only part of the year covered in this publication (March to June 2020) was affected by the COVID-19 pandemic. The effects of COVID-19 after June 2020 are not included.

COVID-19 deaths accounted for 7% of all deaths for the year to 30 June 2020. Deaths to those aged 85 and over were disproportionately affected, accounting for 43% of COVID-19 related deaths in Scotland, compared to 33% for all deaths in the 85 and over age group. Further information on COVID-19 deaths is on the [NRS website](#).

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### **Other publications on older age groups include:**

- [Open data](#) showing the number and percentage of people aged 70+
- [Maps of Scotland](#) displaying % of people 70+ and 85+ in each council
- [Mid-Year Population Estimates](#) by council area and health board
- [Small Area Population Estimates](#) by data zone, including [maps](#)

## 1. Introduction

This publication focuses on:

- the **very old** (aged 90+) population including
- **centenarians** (aged 100+) population
- changes over **10 years** (mid-2010 to mid-2020)

All estimates presented refer to the population at 30 June (mid-year estimates). All ages relate to age at last birthday.

### What are centenarians?

Centenarians are the population aged 100 and over. At the start of the 20<sup>th</sup> Century, Scottish centenarians were extremely rare. By the start of the 21<sup>st</sup> Century, there were estimated to be around 500 people aged 100 and over in Scotland.

The number of centenarians has been increasing globally since the 1950s<sup>1</sup>. This increase in the number of people surviving to age 100 and over is the result of improvements in public health and overall life expectancy.

### How are estimates of the very old calculated?

Population estimates for people aged 90 and over is based on individual age of death data which is used to build up profiles of the number of older people in Scotland in previous years. For example, if someone dies in 2020 aged 105, this means they were alive and aged 104 in 2019, 103 in 2018 and so on.

Further information on the methodology used to produce these statistics can be found in [Section 5](#) of this report or in the methodology document on the [NRS website](#).

### How are these estimates used?

These statistics give important insight into the most rapidly growing age-group of Scotland's population. It is important to have high quality statistics on this population, for policy development, planning and providing public services. These estimates can be used in areas such as:

- Finance allocation
- Informing pensions policy
- Looking at implications of an ageing population.
- House planning
- Health care planning

#### How to find data

##### What are you looking for?

The data used in this publication

Centenarian estimates (1981-2020)

##### Where is it?

[Data and charts](#)

[Time series data](#)

<sup>1</sup> Kannisto, V., 1997, *The advancing frontier of survival*. Odense Monographs on Population Aging 3. Odense University Press.

## 2. Population of the very old in Scotland

### How is the number of people aged 90 and over changing in Scotland?

The population of people aged 90 and over has **increased steadily** between mid-2010 and mid-2020

In mid-2020, there were 43,750 people aged 90 and over in Scotland ([Figure 1](#)). The number of people in this age group has increased every year since mid-2010.

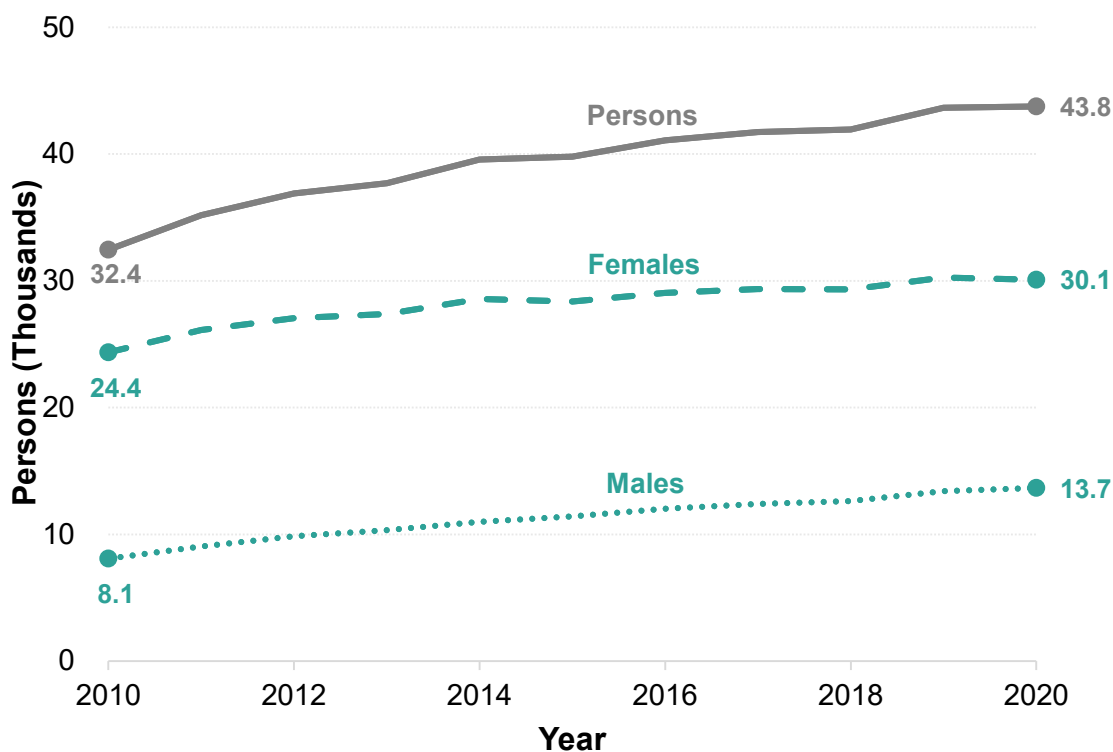
Over the past decade to mid-2020, the very old population (aged 90 and over) has:

- Increased overall by 35% from 32,440 to 43,750
- Increased for females by 24% from 24,360 to 30,090
- Increased for males by 70% from 8,080 to 13,660

In mid-2020, there were over twice as many females as males aged 90 and over. However, the number of males in this age group has grown more quickly than females over the past decade.

There are **16,430 more** females than males aged 90+ in Scotland

**Figure 1: Persons aged 90 and over by sex, Scotland, mid-2010 to mid-2020**



## How is the number of centenarians in Scotland changing?

The number of people aged 100 and over **increased** in the year to mid-2020

There were an estimated 960 centenarians (people aged 100 and over) in Scotland in mid-2020 (Figure 2). This was a 13% increase over the previous year and corresponds to an increase in births which occurred in Scotland after the end of World War One.

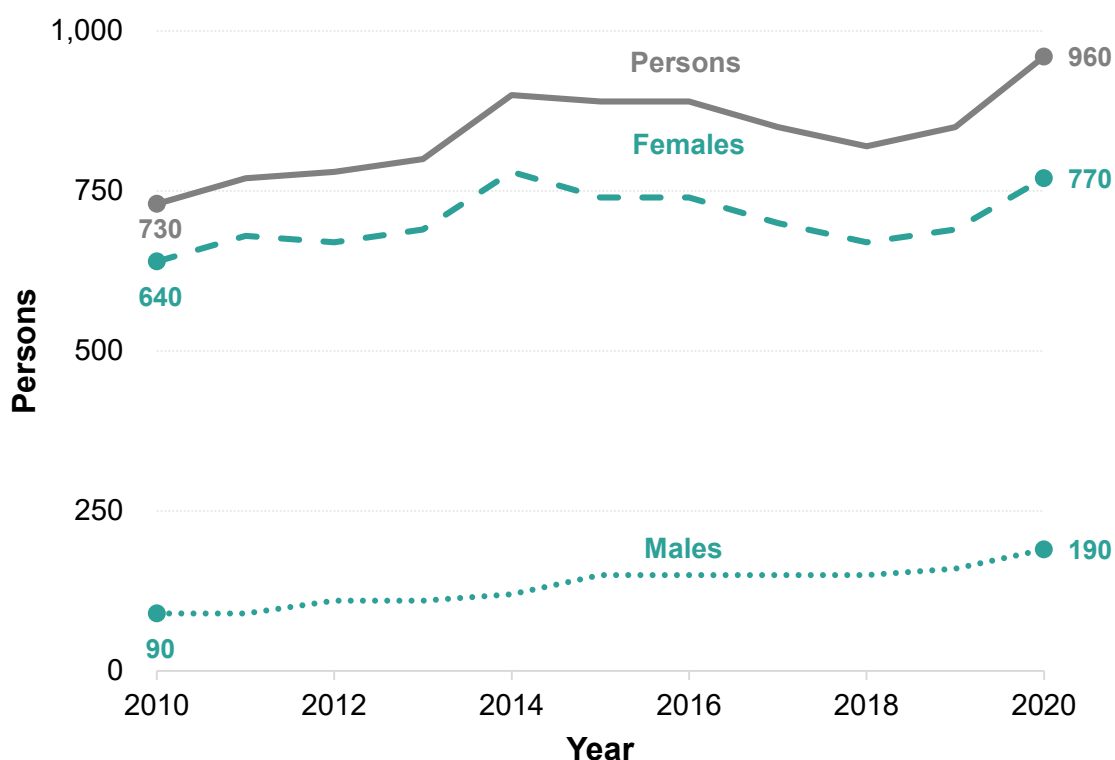
In mid-2020, there were 4 times more female (770) than male centenarians (190). Although there are fewer males, the rate of growth amongst males is faster. From mid-2019 to Mid-2020 there was an increase of:

- 13% (+110) for all centenarians
- 12% (+80) for female centenarians
- 19% (+30) for male centenarians

The number of centenarians in Scotland between mid-2010 and mid-2020 (Figure 2) also grew. The number of centenarians during this period increased by:

- 32% (+230) for all centenarians, from 730 to 960
- 20% (+130) for females, from 640 to 770
- 111% (+100) for males, from 90 to 190

**Figure 2: Centenarians by sex, Scotland, mid-2010 to mid-2020**



## How many centenarians are there in the Scottish population?

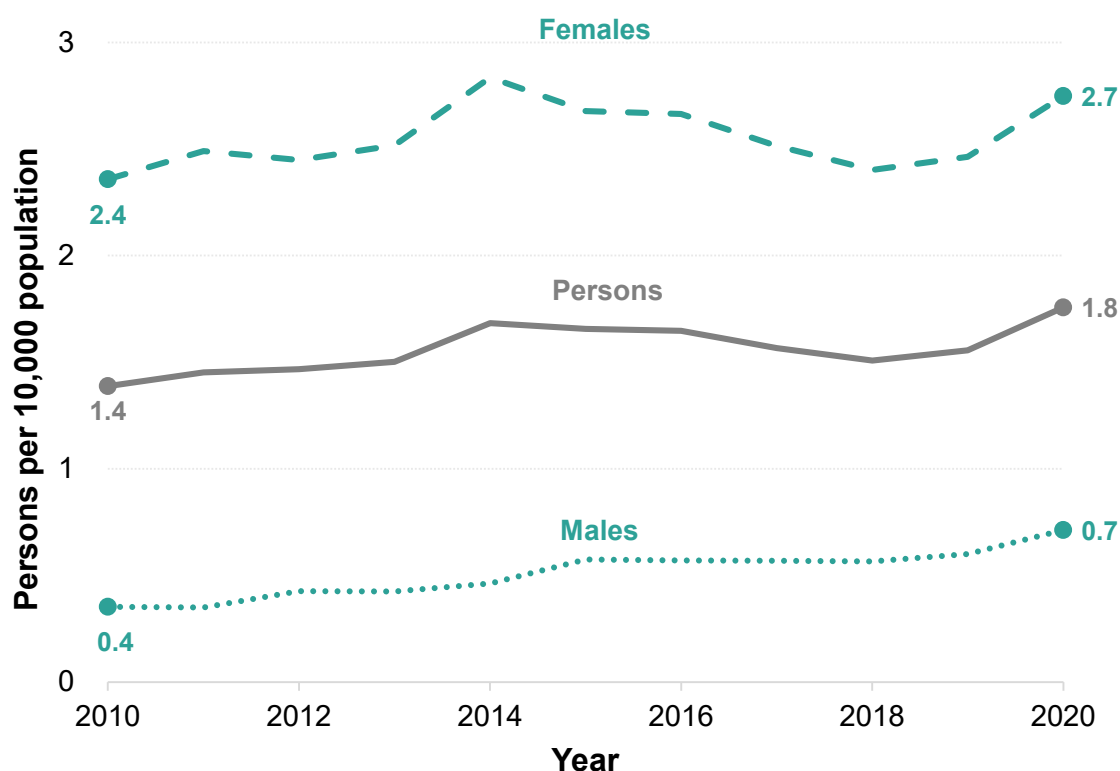
There is a higher proportion of female than male centenarians per 10,000 population

Overall there were 960 centenarians in Scotland, which is 1.8 per 10,000 people as at mid-2020.

There has been a small increase in the proportion of male centenarians in Scotland over the last decade, increasing from 0.4 to 0.7 per 10,000 people between mid-2010 and mid-2020 ([Figure 3](#)). Most of this growth happened from mid-2013 onwards.

In comparison, the proportion of female centenarians has fluctuated between 2.4 and 2.8 per 10,000. The proportion of female centenarians was highest (2.8 per 10,000) in mid-2014, decreased until 2018 and has increased since then. The decline in centenarians between mid-2014 and mid-2018, corresponds to low births which occurred in Scotland during World War One, while the recent increase reflects the boom in births just after.

**Figure 3: Centenarians per 10,000 population by sex, mid-2010 to mid-2020**



## How does population change of the very old compare with other age groups?

Scotland's older population is growing faster (in percentage terms) than other age groups

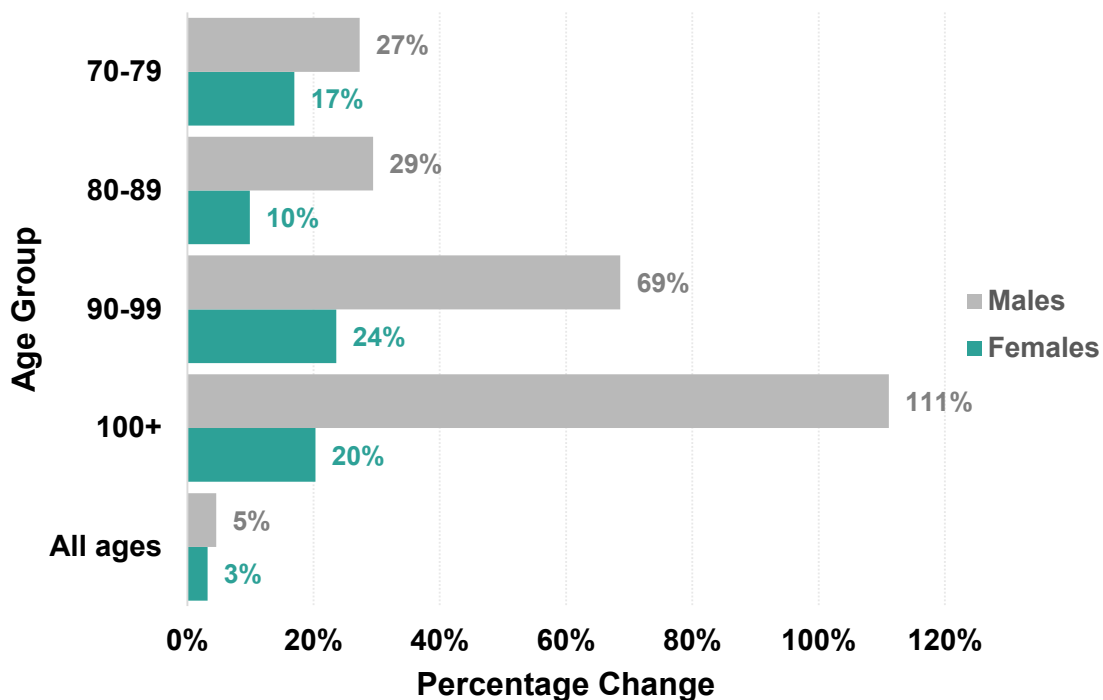
Over the past decade, Scotland's total population has grown by 5% for males and 3% for females ([Figure 4](#)). The older age groups in Scotland are growing faster than younger age groups. This is indicative of an ageing population.



The 90 to 99 age group had the highest growth for females (+24%), while female centenarians also increased strongly (+20%) between mid-2010 and mid-2020.

For males, the lower numbers produce higher percentages, with the 90-99 age group increasing by almost 70% and a more than doubling in the number of centenarians (+111%).

**Figure 4: Percentage population change by age group and sex, Scotland, between mid-2010 and mid-2020**



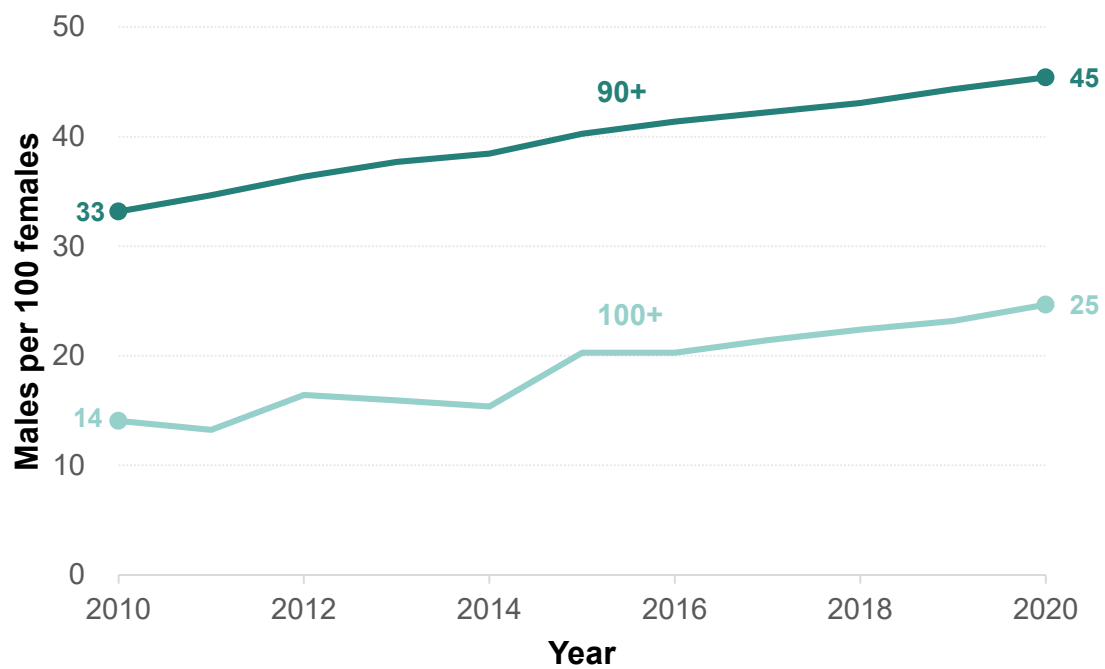
### How has the sex structure of people aged 90 and over changed?

The number of males per 100 females aged 90 and over has increased from 33 in mid-2010 to 45 in mid-2020 (Figure 5). This is the result of improved life expectancy relative to females.

The balance of sexes in older age groups is slowly getting more even, but there are still **more females** at the older age groups

The number of male centenarians per 100 female centenarians has also increased over the past decade, from 14 to 25. The number of male centenarians is small, numbering 190 in mid-2020 compared to 770 females (Figure 2). The small numbers mean that relatively small changes in the population can have a large effect on the sex ratio within the centenarian population.

**Figure 5: Males per 100 females, 90+ year olds and centenarians, Scotland, mid-2010 to mid-2020**



### 3. Causes of changes in the very old population in Scotland

#### Why is the number of people aged 90 and over increasing?

Improved life expectancy has led to an increase in the very old population over the past decade

As shown in [Figure 1](#), the number of people in Scotland aged 90 and over has been increasing over the past decade. The increase in the very old population reflects an increase in life expectancy over the past ten years<sup>2</sup>. However, life expectancy has also stalled in recent years, particularly since the 2012-2014<sup>3</sup> period.

The most recent life expectancy figures for 2018-2020 show that a baby boy born in Scotland is expected to live for 76.8 years. A baby girl in Scotland is expected to live 81.0 years. More information can be found in the [Life Tables for Scotland](#).

Females have a higher life expectancy, which explains why there are more females than males in the older age groups.

#### Why has the number of centenarians changed?

The increase in the number of centenarians between mid-2019 and mid-2020 reflects the increase in births after World War One

The number of centenarians varies according to the number of births 100 or more years ago. There were fewer births between mid-1914 and mid-1918 and then a large increase in the two years just after World War 1 (WWI), now seen in the most recent figures ([Figure 2](#)).

[Figure 6](#) shows births from 1900 to 1930<sup>4</sup> alongside the surviving populations of those born in the same period and reaching 90 and 100 years old. The number of births in Scotland declined by 20% during the WWI (1914 to 1918).

The decline in births during this period is reflected in the population trends of the very old seen over the past 20 years. Those born during WWI were aged 90 between mid-2005 and mid-2009. The number of 90 year olds during this period declined from 7,440 to 6,250, a fall of 16% ([Figure 6](#)).

The effect of this decline is less pronounced when these cohorts reached 100 in mid-2015 to mid-2019. During these four years, there was a 6% decrease in the population of those aged 100 from 360 to 340. This jumps to 490 for mid-2020, reflecting the post war baby boom.

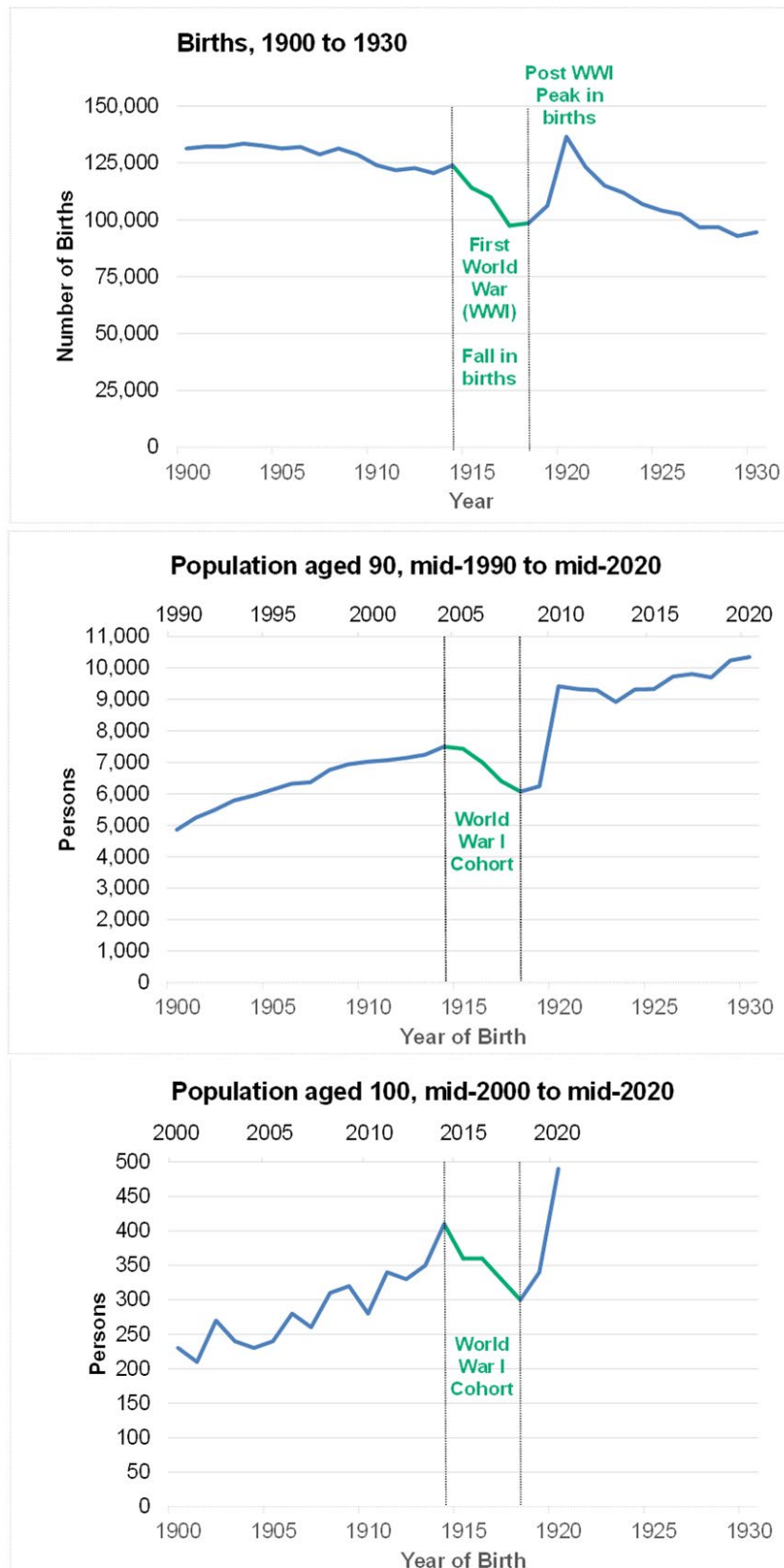
In the two years following the WWI, births increased 39% to 136,550, before decreasing over the next 7 years to 96,670 in 1927. Post-war births which occurred up to 30 June 1920 will be included in the 90 year old cohort in mid-2010 and the 100 year old cohort in mid-2020. [Figure 6](#) clearly shows these increases.

<sup>2</sup> [Life expectancy at Scotland level](#) is available on the NRS website.

<sup>3</sup> Life expectancy figures are calculated as a three year average.

<sup>4</sup> Figures for births are for a calendar year, whereas the data for population of 90 and 100 year olds relate to the population at mid-year (30 June). Therefore, those born during the World War 1 (July 1914 to November 1918) turned 90 in mid-2005 to mid-2009 and 100 in mid-2015 to mid-2019.

**Figure 6: Comparison of 1900-1930 cohort at birth, aged 90 and aged 100**



Note: Figures for births are for a calendar year. The data for population of 90 and 100 year olds relates to the population at 30 June.

## 4. Comparisons with the United Kingdom

### What is the population of people aged 90 and over in the UK?

There were  
**609,500** people  
aged 90 and over in  
the UK in mid-2020

There were 609,500 people aged 90 and over in the UK in mid-2020. This represented 0.9% of the UK total population. Scotland had 43,750 people aged 90 and over, representing 0.8% of its total population.

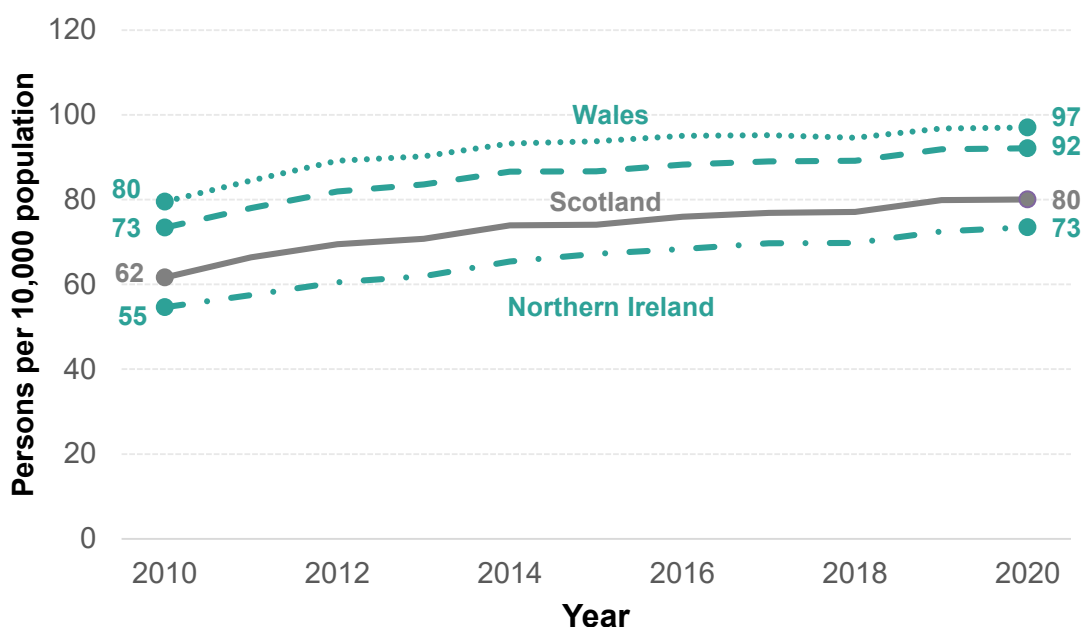
Scotland has 7.2% of UK's population aged 90 and over; this figure has remained steady over the last decade.

Scotland's share of total UK population has fallen slightly from 8.4% in mid-2010 to 8.1% in mid-2020. Whilst the overall population growth is slower than UK as a whole, the 90 and over population is growing at a similar rate to the UK.

The proportion of people aged 90 and over per 10,000 people in Scotland and other UK countries has increased almost every year over the last decade to mid-2020 ([Figure 7](#)).

Over the past decade, Scotland has consistently had the second lowest proportion of people aged 90 and over per 10,000 people in comparison to other countries in the UK ([Figure 7](#)). In mid-2020, this was 80 people per 10,000. Northern Ireland was the only country to have a lower proportion of people aged 90 and over (73 per 10,000 population).

**Figure 7: People aged 90 and over per 10,000 population by constituent country, UK, mid-2010 to mid-2020**



## How many centenarians are there across the UK?

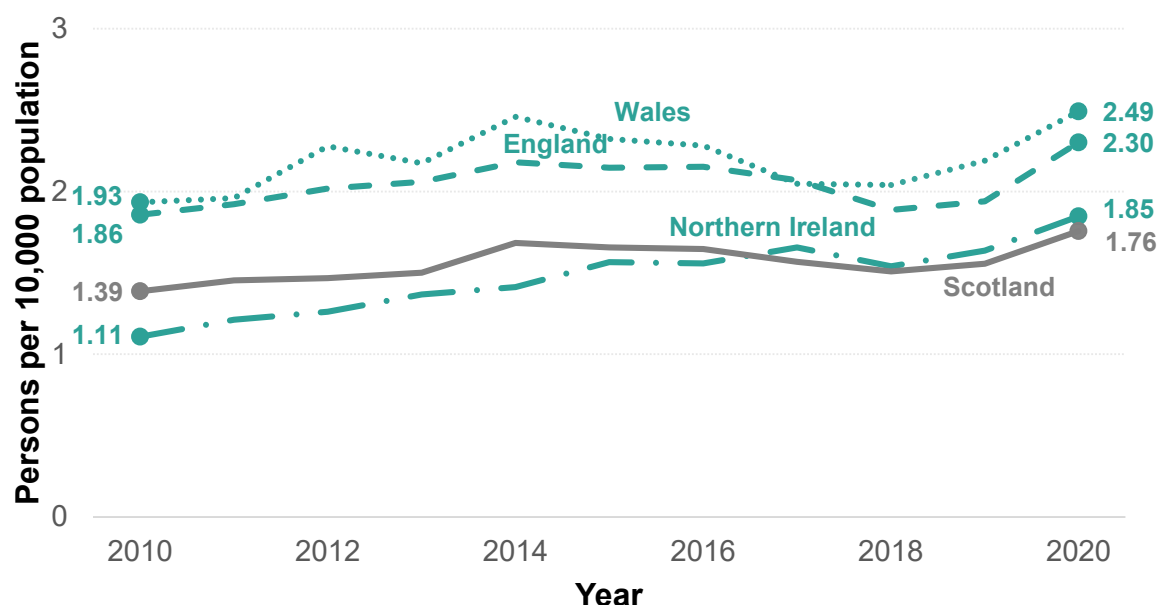
There were **15,120** centenarians in the UK in mid-2020

There were 15,120 people aged 100 and over in the UK in mid-2020 (2.25 per 10,000). Scotland had 960 people aged 100 and over (1.76 per 10,000) ([Figure 8](#)).

The proportion of centenarians per 10,000 people in the UK has increased in all countries since mid-2010 ([Figure 8](#)). However, growth did not occur every year, and there were periods of decline for each of the constituent countries, reflecting lower births during WWI across the UK.

Northern Ireland had the lowest proportion of centenarians between mid-2010 and mid-2016 ([Figure 8](#)), while Scotland has had the lowest proportion per 10,000 people since mid-2017.

**Figure 8: Centenarians per 10,000 population by constituent country, UK, mid-2010 to mid-2020**



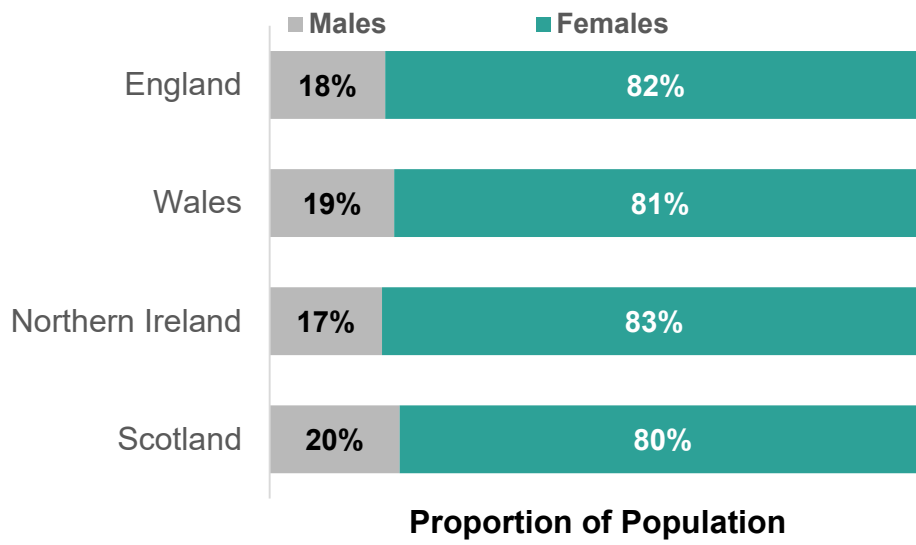
## What is the sex structure of centenarians in the UK?

In mid-2020, there were nearly **5** times more female than male centenarians in the UK

There were 4.6 times as many female centenarians than males in the UK in mid-2020. There were 12,420 female centenarians compared to 2,700 males.

The proportion of female centenarians to the total centenarian population varied across the countries in the UK ([Figure 9](#)). In Northern Ireland, there was a slightly higher proportion of females (83%) than in the other countries. This compared to 82% in England, 81% in Wales and 80% in Scotland.

**Figure 9: Proportion of male and female centenarians, by constituent country, UK, mid-2020**



## 5. Methodology

To produce single year of age estimates of the population aged 90 and over, National Records of Scotland (NRS) uses the ‘Kannisto-Thatcher’ (KT) method. This method uses ‘age at death’ data to build up distribution profiles of the numbers of elderly people in Scotland in previous years. For example, if someone dies in 2020 aged 105, this means they were alive and aged 104 in 2019, 103 in 2018 and so on.

Collating ‘age at death’ data for a series of years, it becomes possible to make an estimate of the number of people at a given age alive in any particular year. This method assumes migration at these oldest ages is negligible.

To make estimates for the population aged 90 and over that is still alive, the KT method uses an average of the last five years of age at death. Estimates are then made consistent with the NRS mid-year estimates of people aged 90 and over.

Further information on the methodology used in this publication can be found on the [NRS website](#).

### Why is the KT method used?

NRS produce population estimates by single year of age from 0 to 89 using the ‘cohort component’ method. Full information can be found in the [Mid-Year Population Estimates methodology guide](#). Briefly, starting with the census each year:

1. Population of a given area is aged on
2. Births are added to the population
3. Deaths in the area are subtracted
4. Estimates of migration are used to adjust the population

This method is not currently reliable for single year of age population for the very old, because the census estimates are less reliable for populations aged 90 and over. This is because it becomes harder to firmly establish someone’s age the older they get. In the mid-year population estimates, people aged 90 and over are aggregated together into one group.

### Differences with previously published estimates

One consequence of the method is that each year the estimates for earlier years become more accurate as more death records are available to inform the age profiles. For example, the current estimate of people aged 102 in mid-2020 (120) is different from the initial estimate that was published in the previous year’s publication (130). The most recently published data will be the most reliable.

### Publication of future Centenarians estimates

Population estimates for the very old and centenarians up to mid-2021 is provisionally scheduled to be published in autumn 2022.



## 6. Strengths and Limitations

It is important to have high quality statistics on the population of 90+ year olds living in Scotland. NRS produces annual centenarians estimates using deaths data and the latest mid-year estimates using a range of data gathered from the census, surveys and administrative data.

**Quality assurance** takes place throughout the production of the centenarians publication, with checks in place to ensure consistency and completeness. More information on the [quality assurance arrangements](#) for administrative data used in population estimates is available on the NRS website, along with information on the suitability of each data source used in the production of the population estimates.

It is important to consider the **limitations** when using centenarian population estimates.

Deaths data are used to produce the estimates of the 90+ population in Scotland. Death registration in Scotland is compulsory and must be registered within eight days of the date of death. However, the date of birth and death on these certificates is not validated, and it is possible that there may be some inaccuracies. Further information about the quality of deaths data is available on the NRS [website](#).

Estimates are constrained to the mid-year population estimates, which are produced by rolling forward the census population estimates allowing for ageing, births, deaths and migration. Census data has wide coverage and is validated using multiple data sources. However, any error in the 90 and over census estimate is carried forward to mid-year estimates produced between censuses and will be reflected in the single year of age estimates for the 90 and over population.

Further information on the strengths and limitations of the centenarians estimates can be found in the [methodology document](#).

## 7. Links to related statistics

Similar population estimates for the very old and centenarians are also produced for:

- [Northern Ireland](#)
- [England and Wales](#)
- [United Kingdom](#) as a whole

The centenarian estimates in Scotland are produced using data available on the NRS website:

- [Time series data](#) for deaths in Scotland
- [Mid-2020 Population Estimates](#) for Scotland

The [mid-2020 Population Estimates](#) contain estimates of the 90+ population by council area and health board.

A summary of demographic trends including population estimates and deaths are available in [Council Area Profiles](#) on the NRS website.

Life expectancy figures for Scotland are calculated using the Centenarians estimates. The Life Expectancy in Scotland, 2018-2020 publication is available on the [NRS website](#).

## 8. Notes on statistical publications

### National Statistics

The United Kingdom Statistics Authority (UKSA) has designated these statistics as National Statistics, in line with the Statistics and Registration Service Act 2007 and signifying compliance with the Code of Practice for Official Statistics (available on the [UKSA](#) website).

National Statistics status means that official statistics meet the highest standards of trustworthiness, quality and public value.

All official statistics should comply with all aspects of the Code of Practice for Official Statistics. They are awarded National Statistics status following an assessment by the Authority's regulatory arm. The Authority considers whether the statistics meet the highest standard of Code compliance, including the value they add to public decisions and debate.

It is National Records of Scotland's responsibility to maintain compliance with the standards expected of National Statistics. If we become concerned about whether these statistics are still meeting the appropriate standards, we will discuss any concerns with the Authority promptly. National Statistics status can be removed at any point when the highest standards are not maintained, and reinstated when standards are restored.

### Information on background and source data

Further details on data source(s), timeframe of data and timeliness, continuity of data, accuracy can be found in the [About this Publication](#) document that is published alongside this publication on the NRS website.

### National Records of Scotland

We, the National Records of Scotland, are a non-ministerial department of the devolved Scottish Administration. Our aim is to provide relevant and reliable information, analysis and advice that meets the needs of government, business and the people of Scotland. We do this as follows:

Preserving the past – We look after Scotland's national archives so that they are available for current and future generations, and we make available important information for family history.

Recording the present – At our network of local offices, we register births, marriages, civil partnerships, deaths, divorces and adoptions in Scotland.

Informing the future – We are responsible for the Census of Population in Scotland which we use, with other sources of information, to produce statistics on the population and households.

You can get other detailed statistics that we have produced from the [Statistics](#) section of our website. Scottish Census statistics are available on the [Scotland's Census](#) website.

We also provide information about [future publications](#) on our website. If you would like us to tell you about future statistical publications, you can register your interest on the Scottish Government [ScotStat](#) website.

You can also follow us on twitter [@NatRecordsScot](#).

### **Enquiries and suggestions**

Please get in touch if you need any further information, or have any suggestions for improvement.

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