

# Centenarians in Scotland, 2009 to 2019



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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.

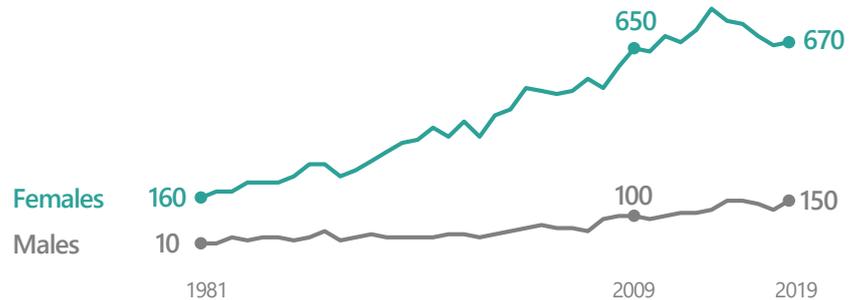
## The number of centenarians has grown

In the last year to mid-2019, the centenarian population (people aged 100 and over) increased to an estimated 820. This increase comes after 4 years of decline.

Overall, the centenarian population increased by 9% over the past decade.

The majority of centenarians are women (82% in mid-2019).

Number of centenarians (aged 100 and over) by sex

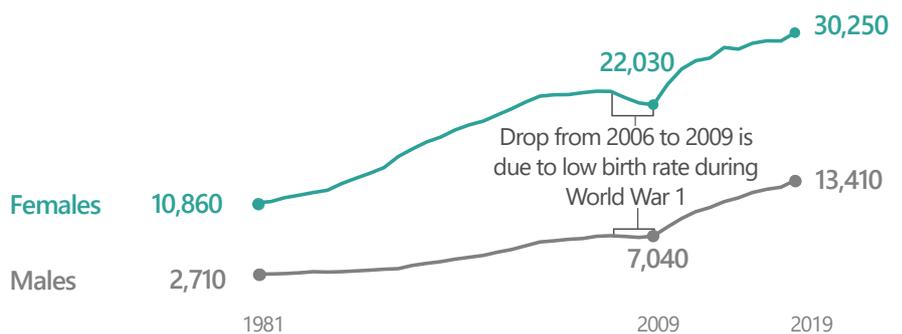


## The number of people aged 90 and over is also growing

In mid-2019, there were 43,660 people aged 90 and over in Scotland. The number of people in this age group has increased every year since mid-2009.

While women remain the majority in this age group, men represented a higher proportion than ever before (31% in mid-2019).

Persons aged 90 and over by sex

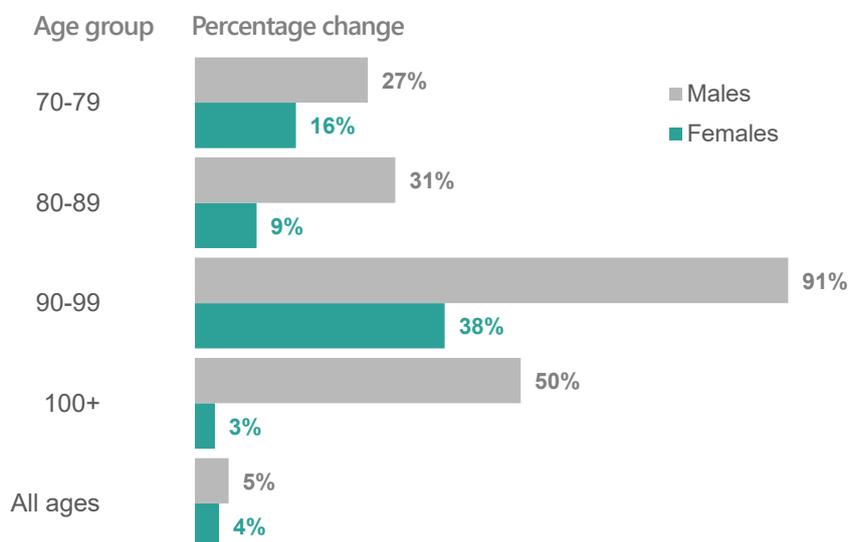


## Growth is fastest for males

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, there continues to be over 4 times as many female centenarians as males.

Overall, the population at older age groups are growing faster than the rest of the Scottish population.

Change by age group and sex, mid-2009 to mid-2019



## Contents

<b>Key Findings</b> .....	<b>5</b>
<b>1. Introduction</b> .....	<b>6</b>
What are centenarians?.....	6
How are estimates of the very old calculated?.....	6
How are these estimates used?.....	6
<b>2. Population of the very old in Scotland</b> .....	<b>7</b>
How is the number of people aged 90 and over changing in Scotland?.....	7
How is the number of centenarians in Scotland changing? .....	8
How many centenarians are there in the Scottish population? .....	9
How does population change of the very old compare with other age groups?.....	9
How has the sex structure of people aged 90 and over changed?.....	10
<b>3. Causes of changes in the very old population in Scotland</b> .....	<b>12</b>
Why is the number of people aged 90 and over increasing? .....	12
Why has the number of centenarians changed? .....	12
<b>4. Comparisons with the United Kingdom</b> .....	<b>14</b>
What is the population of people aged 90 and over in the UK? .....	14
What is the sex structure of centenarians in the UK? .....	15
<b>5. Methodology</b> .....	<b>17</b>
<b>6. Strengths and Limitations</b> .....	<b>18</b>
<b>7. Links to related statistics</b> .....	<b>19</b>
<b>8. Notes on statistical publications</b> .....	<b>20</b>

## Key Findings

- There were an estimated 820 centenarians (people aged 100 and over) in Scotland in mid-2019. This is a 5% increase over the past year, after four years of decline. This corresponds to an increase of births which occurred in Scotland at the end of World War One.
- The majority of centenarians are female. In mid-2019, there were over 4 times as many female centenarians as males. There were 670 females compared to 150 males. This disparity can be explained by the difference in life expectancy for males and females.
- Over the past decade to mid-2019, the number of male centenarians have grown at a faster rate than female centenarians.
- Scotland has had the lowest proportion of centenarians in the UK since mid-2017. Most recently in mid-2019, there were 1.5 centenarians per 10,000 people. In comparison, Wales had the highest proportion (2.3 per 10,000), followed by England (2.0 per 10,000) and Northern Ireland (1.7 per 10,000).
- In mid-2019, there were an estimated 43,660 people aged 90 and over in Scotland. The number of people in this age group has increased every year since mid-2009, however the rate of growth has slowed in recent years.
- Scotland had the second lowest proportion (80 per 10,000) of people aged 90 and over in the UK in mid-2019. Northern Ireland had the lowest proportion (73 per 10,000), and Wales had the highest (99 per 10,000).

### Do these statistics take into account the effect of COVID-19 on our population?

These statistics relate to the population as at 30 June 2019 and do not take into account recent change since then. However, we know that older people are more at risk of becoming seriously ill from coronavirus (COVID-19). In the year to mid-2020, approximately 1,800 people aged 85 and over died with COVID-19. This accounted for 43% of all COVID-19 related deaths in Scotland. Further information on COVID-19 deaths can be found on the [NRS website](#).

The statistics in this publication can be used to understand the number of people aged 90 and over living in Scotland. NRS produced other statistics on the population of older age groups in Scotland:

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

## 1. Introduction

This publication focuses on:

- the **very old** (aged 90+) population including
- **centenarians** (aged 100+) population
- changes over **10 years** (mid-2009 to mid-2019).

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 or 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 or 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 or over is the result of improvements in public health and overall life expectancy.

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

To produce single year of age population estimates for people aged 90 and over, data on the age of death for individuals is used to build up profiles of the number of elderly people in Scotland in previous years. For example, if someone dies in 2019 aged 105, this means they were alive and aged 104 in 2018, 103 in 2017 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 (1981-2019)

##### 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** between mid-2009 and mid-2019

In mid-2019, there were 43,660 people aged 90 and over in Scotland (Figure 1). The number of people in this age group has increased every year since mid-2009, however the rate of growth has slowed in recent years.

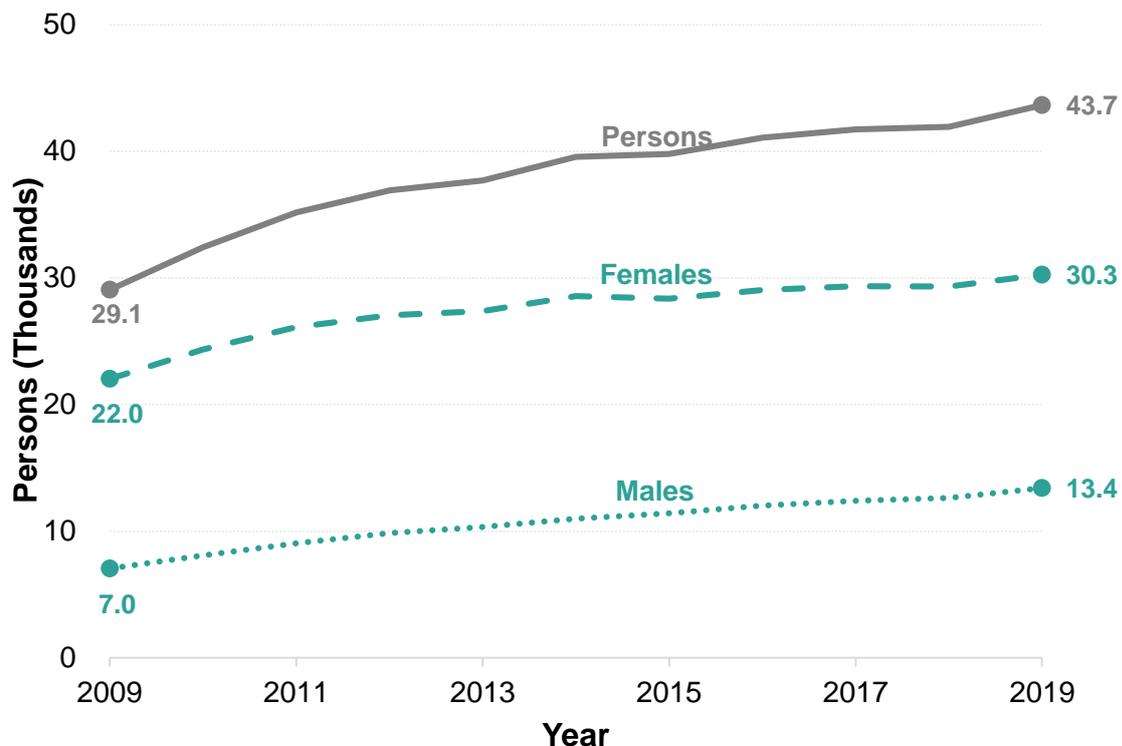
Over the past decade to mid-2019, the very old population (aged 90 and over) has:

- Increased by 50% from 29,070 to 43,660
- Increased for males by 90% from 7,040 to 13,410
- Increased for females by 37% from 22,030 to 30,250.

In mid-2019, there were over twice as many (16,840 more) females than 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 **more** females than males aged 90+ in Scotland

Figure 1: Persons aged 90 and over by sex, Scotland, mid-2009 to mid-2019



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

The number of people aged 100 and over has **increased** in the year to mid-2019

There were an estimated 820 centenarians (people aged 100 and over) in Scotland in mid-2019 (Figure 2). This is a 5% increase over the latest year, after four years of decline. This recent increase corresponds to an increase in births which occurred in Scotland after the end of World War One.

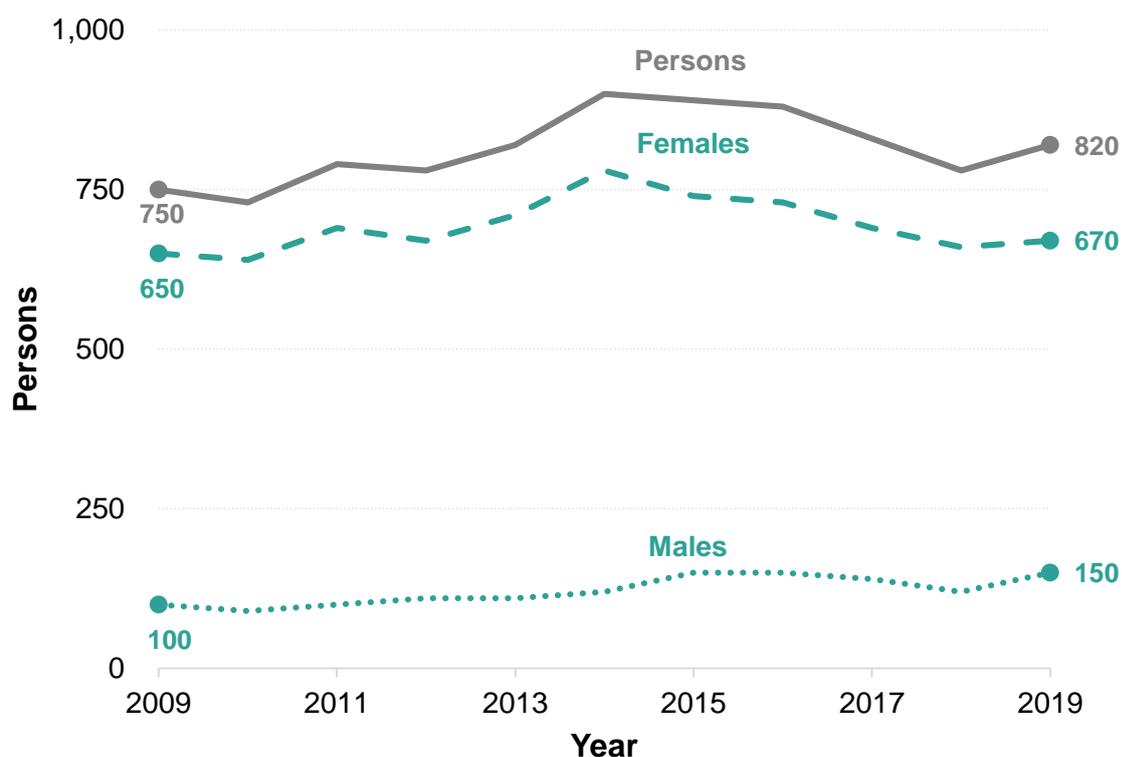
In mid-2019, there were over 4 times (520) more female than male centenarians. However, the rate of growth for male centenarians over the past year was higher due to the smaller population. There was an increase of:

- 25% (+30) for male centenarians
- 2% (+10) for female centenarians.

Overall, there has also been an increase in the number of centenarians in Scotland over the past decade between mid-2009 and mid-2019 (Figure 2). The number of centenarians during this period has increased by:

- 9% for all persons, from 750 to 820
- 50% for males, from 100 to 150
- 3% for females, from 650 to 670.

Figure 2: Centenarians by sex, Scotland, mid-2009 to mid-2019



## 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 are 820 centenarians in Scotland, 1.5 per 10,000 people as at mid-2019.

There has been a small increase in the proportion of male centenarians in Scotland over the decade, increasing from 0.4 to 0.6 per 10,000 people between mid-2009 and mid-2019 (Figure 3). Most of this growth happened from mid-2013 onwards.

In comparison, the proportion of female centenarians has remained the same (2.4 per 10,000) in both mid-2009 and mid-2019 (Figure 3). The proportion of female centenarians was highest (2.8 per 10,000) in mid-2014, but has decreased since then. The decline in centenarians between mid-2014 and mid-2018, corresponds to low births which occurred in Scotland during World War One.

**Figure 3: Centenarians per 10,000 population by sex, mid-2009 to mid-2019**



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

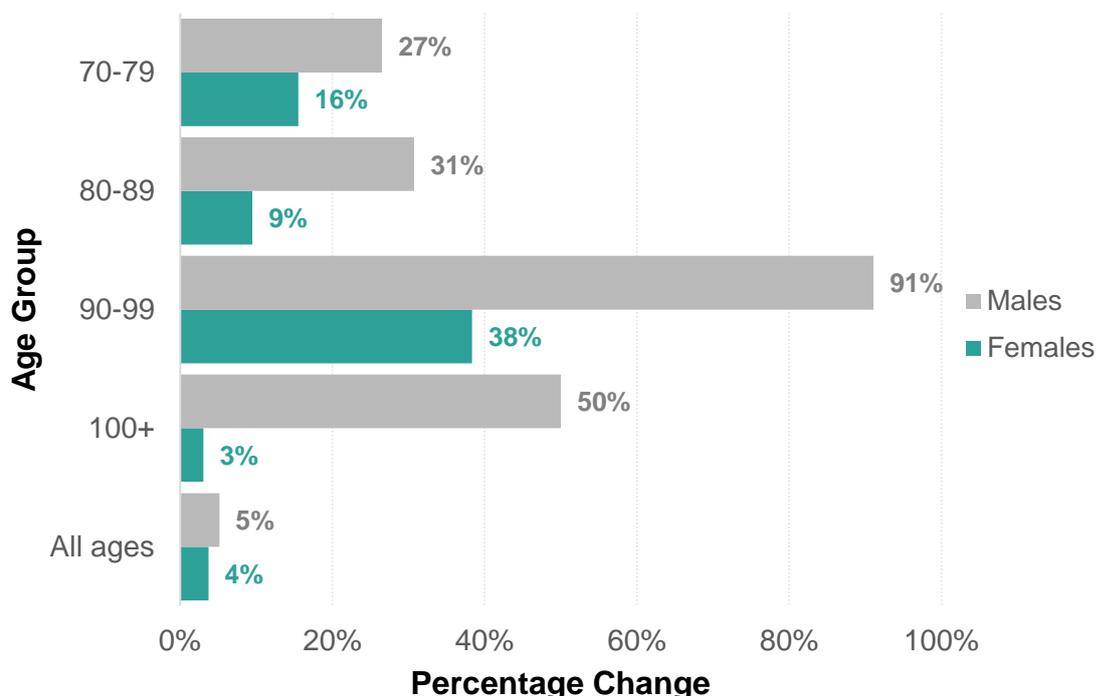
Scotland's older population is growing faster than other age groups

Over the past decade, Scotland's total population has grown by 5.2% for males and 3.7% for females (Figure 4). The older age groups in Scotland are growing faster than younger age groups. This is indicative of an ageing population.

Between mid-2009 and mid-2019, the 90 to 99 age group had the highest growth for males (+91.1%) and females (+38.4%).

The growth of the centenarian population was also high for males (+50%) compared to other age groups, however this is due to the very small number of males in this group (increasing from 100 to 150). However, there was only a small increase in the population of female centenarians (+3.1%, increasing from 650 to 670).

**Figure 4: Percentage population change by age group and sex, Scotland, mid-2009 and mid-2019**



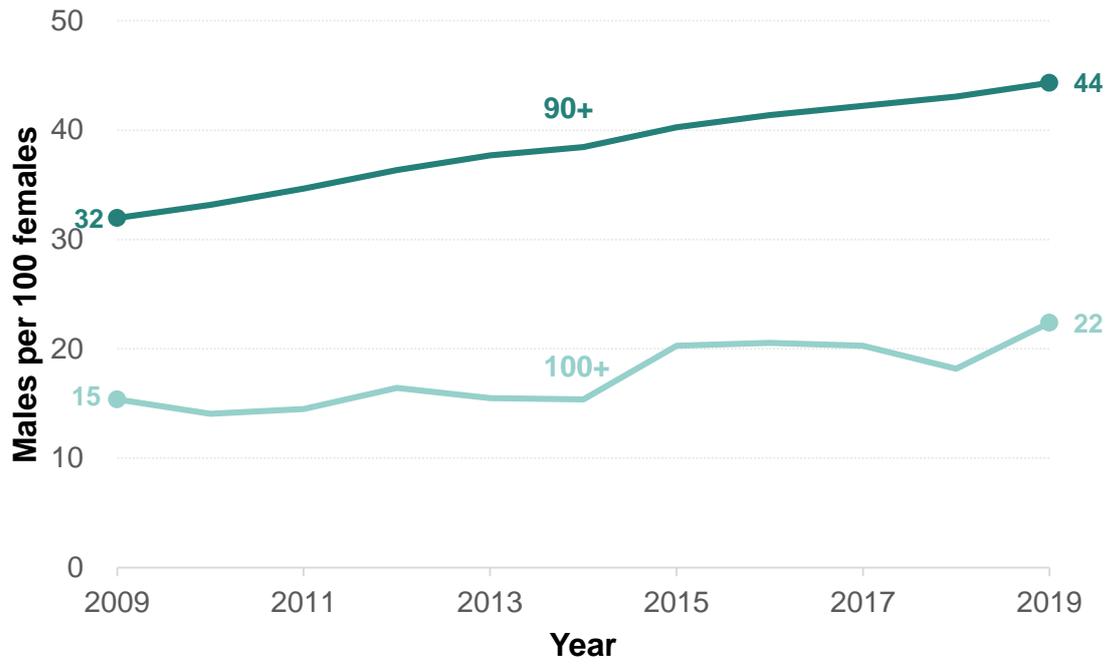
### How has the sex structure of people aged 90 and over changed?

The number of males per 100 females aged 90 and over has increased from 32 in mid-2009 to 44 in mid-2019 (Figure 5). This is the result of the higher growth of males in this age group compared to females, as seen in Figure 1.

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

The number of male centenarians per 100 female centenarians has also increased over the past decade, from 15 to 22. The number of male centenarians is very small, numbering 150 in mid-2019 compared to 670 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-2009 to mid-2019**



### 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 growth of the population in this age group has slowed in recent years. 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 2017-2019 show that a baby boy born in Scotland is expected to live for 77.1 years. A baby girl in Scotland is expected to live 81.1 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 higher age groups.

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

The increase in the number of centenarians between mid-2018 and mid-2019 corresponds to an increase in births after World War One

As seen in Figure 2, there was a decrease in the number of centenarians between mid-2014 and mid-2018. The number of centenarians then increased in the year to mid-2019. Centenarians living during this period were born during the first world war (Figure 6).

Figure 6 shows births from 1900 to 1930<sup>4</sup> alongside the populations of those born in the same period when they were 90 and 100 years old. The number of births in Scotland declined 21% during the First World War (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 the First World War were aged 90 between mid-2005 and mid-2009. The number of 90 year olds during this period declined by 16% (Figure 6).

The effect of this decline is less pronounced when the cohort reached 100 in mid-2015 to mid-2019. During these four years, there was a 8% decrease in the population of those aged 100.

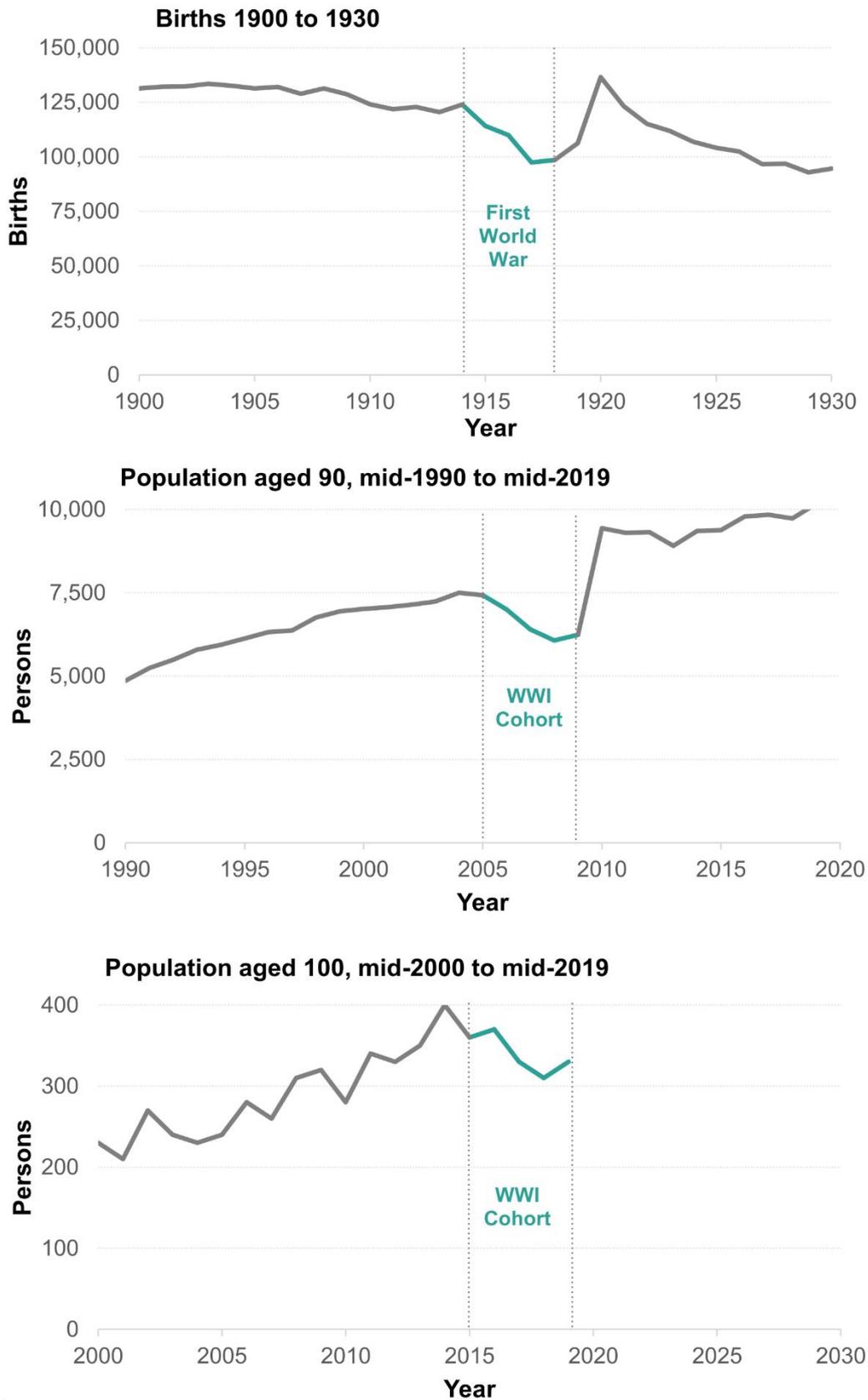
In the two years following the First World War births increased 39% to 136,550, before decreasing over the next 7 years to 96,700 in 1927. Post-war births which occurred up to 30 June 1919 will be included in the 90 year old cohort in mid-2009 and the 100 year old cohort in mid-2019. This could explain the small increase in these populations during these years.

<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 relates to the population at mid-year (30 June). Therefore, those born during the First World War (July 2014 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?

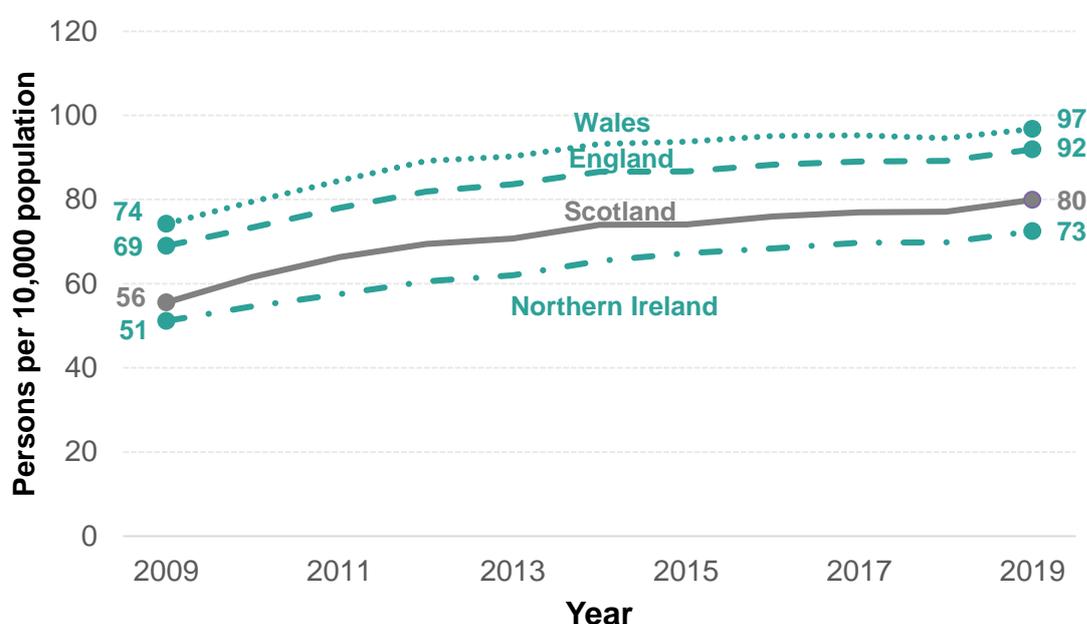
There were **605,180** people aged 90 and over in the UK in mid-2019

People aged 90 and over in Scotland accounted for 7% of the UK total (605,180) in mid-2019.

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-2019 (Figure 7).

For the past decade, Scotland 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-2019, 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-2009 to mid-2019**



How many centenarians are there across the UK?

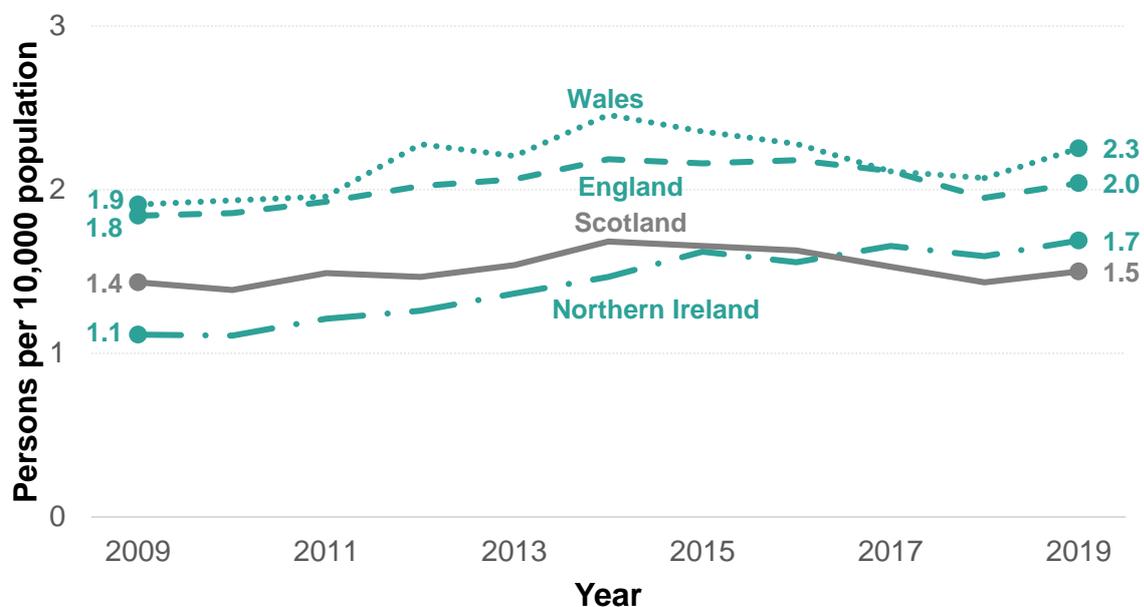
There were **13,330** centenarians in the UK in mid-2019

Centenarians in Scotland accounted for 6% of centenarians (13,330) in the UK in mid-2019.

The proportion of centenarians per 10,000 people in the UK has increased in all countries since mid-2009 (Figure 8). However, growth did not occur every year, and there were periods of decline for each of the constituent countries.

Northern Ireland had the lowest proportion of centenarians between mid-2009 and mid-2016 (Figure 8). Scotland had the slowest growth in the proportion of centenarians over the past decade and has had the lowest proportion per 10,000 people since mid-2017.

**Figure 8: Centenarians per 10,000 population by constituent country, UK, mid-2009 to mid-2019**



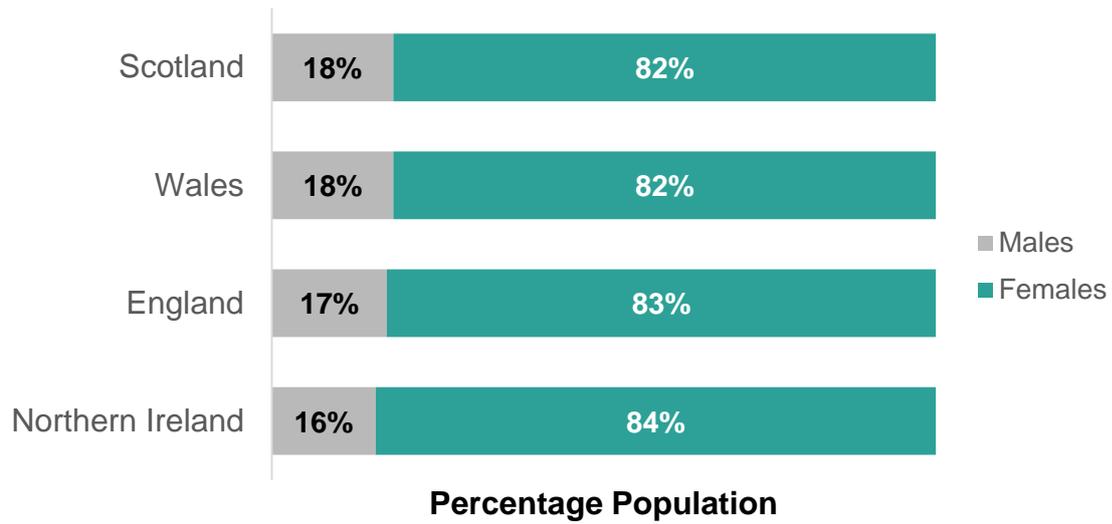
### What is the sex structure of centenarians in the UK?

In mid-2019, there were 5 times more female than male centenarians in the UK

There were five times as many female centenarians than males in the UK in mid-2019. There were 11,010 female centenarians compared to 2,310 males.

The proportion of female centenarians to the total centenarian population was similar across each of the countries in the UK (Figure 9). In Northern Ireland, there was a slightly higher proportion of females at 84% than in the other countries. This compared to 83% in England and 82% in Wales and Scotland.

**Figure 9: Proportion of male and female centenarians, by constituent country, mid-2019**



## 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 2019 aged 105, this means they were alive and aged 104 in 2018, 103 in 2017 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 minimal.

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 101 in mid-2018 (190) is different from the initial estimate that was published in the previous year's publication (210). This means 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-2020 is provisionally scheduled to be published in autumn 2021.

## 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. 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 validation 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 90+ estimates.

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-2019 Population Estimates](#) for Scotland

The [mid-2019 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, 2017-2019 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...etc. 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 contact our Statistics Customer Services if you need any further information.

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If you have comments or suggestions that would help us improve our standards of service, please contact:

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