

# Information paper

## Quality and Methodology Information

### General details

Title of output:	Estimates of the Very Old (including Centenarians)
Abbreviated title:	n/a
Designation:	National Statistics
Geographic coverage:	UK; England and Wales
Date of last SQR or QMI*	February 2012
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### Executive summary

Estimates of the Very Old provide estimates by sex and single year of age for people aged 90 to 104 and for the 105+ age group for the UK and for England and Wales as a whole.

The [Mid-Year Population Estimates](#)<sup>1</sup> published by the ONS include estimates by single year of age to 89, with a final category for ages 90 and over. Until 2007, population estimates for single years of age beyond 90 were calculated for England and Wales by ONS (and previously by the Government Actuary's Department) for use in producing the [National Population Projections](#)<sup>2</sup> and compiling [National life tables](#)<sup>3</sup>. These estimates were made available for research purposes but were not officially published.

Interest in population estimates at the oldest ages by single year of age has increased as life expectancy increases and the number of centenarians grows. In recognition of this, ONS began to publish these estimates in 2007 as experimental statistics. At that time they were named 'Estimates of the Very Elderly'. Since 2010, ONS has also published these estimates at UK level.

In 2011 Estimates of the Very Elderly were assessed by the UK Statistics Authority and given National Statistics status. They were published as National Statistics for the first time in September 2011. In 2013, the estimates were renamed as 'Estimates of the Very Old, (including Centenarians)'.<sup>1</sup>

Estimates of the Very Old are constructed using the Kannisto-Thatcher (KT) model of population at advanced ages. They are based on [Death Registration statistics](#)<sup>4</sup> and are constrained to be consistent with the 90 and over totals in the official annual mid-year population estimates.

A guide to [Calculating Estimates of the Very Old](#)<sup>5</sup> is available on the ONS website.

Estimates of the Very Old for England and Wales (as a whole) and for the UK are produced by the Demographic Analysis Unit within the Office for National Statistics. The 90 and over single year estimates for Scotland and Northern Ireland, which feed into the UK estimates, are produced and published by the National Records Office for Scotland (NRS) and the Northern Ireland Statistics and Research Agency (NISRA) respectively.

The estimates are produced annually and published in tables on the ONS website together with a statistical bulletin providing description and commentary on the estimates.

Quality information about Mid-year Population Estimates and Mortality Statistics is available on the [Quality and Methodology Information reports for the Population theme](#)<sup>6</sup> page on the ONS website.

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\* Quality and Methodology Information' (QMI) replaced 'Summary Quality Reports' (SQR) from 04/11

Mortality metadata including mortality quality information are available on the [Health and Life Events guidance and metadata](#)<sup>7</sup> page on the ONS website.

This document contains the following sections:

- Output quality;
- About the output;
- How the output is created;
- Validation and quality assurance;
- Concepts and definitions;
- Other information, relating to quality trade-offs and user needs; and
- Sources for further information or advice.

## Output quality

This document provides a range of information that describes the quality of the data and details any points that should be noted when using the output.

ONS has developed [Guidelines for Measuring Statistical Quality](#)<sup>8</sup>; these are based upon the five European Statistical System (ESS) Quality Dimensions. This document addresses these quality dimensions and other important quality characteristics, which are:

- Relevance;
- Timeliness and punctuality;
- Coherence and comparability;
- Accuracy;
- Output quality trade-offs;
- Assessment of user needs and perceptions; and
- Accessibility and clarity.

More information is provided about these quality dimensions in the sections below.

## About the output

### Relevance

(The degree to which statistical outputs meet users' needs.)

Estimates of the Very Old provide estimates by sex and single year of age for persons aged 90 to 104 and for the 105+ age group.

ONS produces these estimates for England and Wales as a whole and for the UK.

Estimates for Scotland and Northern Ireland are produced and published by NRS and NISRA respectively. These feed into the UK estimates produced by ONS.

The primary use of these statistics is in the production of national life tables and national population projections. Prior to 2007, these estimates were made available for research purposes but were not officially published. ONS began to publish these estimates as experimental statistics in 2007, in recognition of increased interest in population estimates at the oldest ages. At that time they were named 'Estimates of the Very Elderly'.

In 2011, Estimates of the Very Elderly were assessed by the UK Statistics Authority and given National Statistics status. They were published as National Statistics for the first time in September 2011. In 2013, the estimates were renamed as 'Estimates of the Very Old, (including Centenarians)'.

In addition to being used internally in the production of national life tables and national population projections, external uses include formulating or assessing future policy on pensions and health care (including work by the Department for Work and Pensions, the Department of Health, and HM Treasury); research by demographers, actuaries, medical researchers and others interested in longevity, answering Parliamentary Questions and responding to media and public interest.

Estimates of the Very Old (including Centenarians) are constructed using the Kannisto-Thatcher (KT) model of population at advanced age using Mid-year Population Estimates and Death

Registrations statistics. A guide to [Calculating Estimates of the Very Old](#)<sup>5</sup> is available on the ONS website.

Strengths of these statistics are:

- they are calculated using internationally recognised methods;
- the calculation uses high quality administrative data;
- existing data sources are used;
- they are produced annually, providing timely statistics to users;
- they are consistent with the official mid year estimates; and
- equivalent comparable estimates are produced for Scotland and Northern Ireland by NRS and NISRA respectively.

Weaknesses of these statistics are:

- they are estimates and therefore some error is inevitable;
- they are published rounded to the nearest 10 and grouped at age 105 and over; and
- they are published at UK level and for England and Wales combined. Figures are not produced for England or Wales separately or at local area level because the method used does not account for the number of migrants moving between and within England and Wales in the 90 and over age groups. Also, the method would not produce reliable results at local area geographies because of the small numbers involved for the population aged 90 and over. In response to user demand ONS has proposed an approach to producing population estimates for the 90-94 and the 95-plus age groups, by sex, for Lower Layer Super Output Areas (LSOAs) in England and Wales using a different methodology. (See Other Information section below).

### **Timeliness and punctuality**

(Timeliness refers to the lapse of time between publication and the period to which the data refer. Punctuality refers to the gap between planned and actual publication dates.)

Estimates of the Very Old (including Centenarians) for England and Wales and the United Kingdom are usually published annually at the end of September. For a particular mid-year (30 June) they become available about 15 months after the reference date. This time lag reflects the availability of the data sources and the time required to process the data and calculate the estimates.

The publication date for the Estimates of the Very Old is determined by the availability of the mid-year population estimates and the death registrations data. Late occurrences of registration data are used to update the previous year's estimate before compiling the current year's estimate.

In the year following the release of census estimates, the Estimates of the Very Old are published later than the usual September release date. For more details on related releases, the [GOV.UK Statistics: Release Calendar](#)<sup>9</sup> is available online and provides 12 months' advance notice of release dates.

The publication of the Estimates of the Very Old would be later than the planned date only if the input data used to calculate the estimates were not available, for example if deaths data were unavailable, or if substantial problems were encountered with the processing systems used to calculate the estimates. In previous years the pre-published publication date has always been met.

In the unlikely event of a change to the pre-announced release schedule, public attention will be drawn to the change and the reasons for the change will be explained fully at the same time, as set out in the [Code of Practice for Official Statistics](#)<sup>10</sup>

### **How the output is created**

Estimates of the Very Old are produced using the Kannisto-Thatcher (KT) method. The KT method is a version of the survivor ratio methodology which produces age-specific estimates of population at older ages using data from death registrations.

The KT method uses 'age at death' data to build up distribution profiles of the numbers of very old people in England and Wales in previous years. For example, if someone dies in 2006 aged 105, then this means that they were alive and aged 104 in 2005 and 103 in 2004 etc. By collating 'age at death' data for a series of years, it becomes possible to make an estimate of the number of people of a given age alive in any particular year and so create age distribution profiles, assuming that migration at these oldest ages is minimal.

To make estimates for the latest year, it is not possible to use death data, as we are interested in the population who are currently or very recently alive. An average of the last five years of age at death information is used to estimate the number of survivors for the current year.

Each year as more recent deaths data become available to inform the age distribution profiles, estimates for the back years are recalculated and become more accurate.

The final estimates are constrained to agree with the ONS official mid-year population estimate of people aged 90 and over for the current year and the back years.

A guide to [Calculating Estimates of the Very Old](#)<sup>5</sup> is available on the ONS website.

Further detail on the Demography of Centenarians and the Kannisto-Thatcher method can be found in [Thatcher, R \(1999\)](#)<sup>11</sup> and [Thatcher, R, Kannisto, V, Andreev, K.F. \(2002\)](#)<sup>12</sup>.

A summary of the method used to produce mid-year population estimates aged up to 90 years can be found on the [Population Estimates Methodology](#)<sup>13</sup> page of the National Statistics website.

## **Validation and quality assurance**

### **Accuracy**

(The degree of closeness between an estimate and the true value.)

Estimates of the Very Old are constrained to the ONS Mid-year Population Estimates of those aged 90 and over by sex. Mid-year Population Estimates are produced using a well-established demographic approach called the cohort component method. This involves combining information from a number of data sources including the previous Census, survey data and administrative registers. The data sources used are the best that are available on a nationally consistent basis down to local authority level; however, the estimates are subject to the coverage and error associated with these sources. Further information on the quality of the Mid-year Population Estimates, including a brief explanation of the cohort component method can be found in the [Quality Methodology Information report for Mid-Year Population Estimates](#)<sup>6</sup>

Survivor ratio methods such as the KT method provide age-specific estimates of the population for those aged 90 and over using data from death registrations. The key assumption in these methods is that all deaths are recorded and that the recording of information on age at date of death is sufficiently accurate and reliable. Statistics on death registrations are collected through administrative sources, maintained by the General Register Office (GRO). These data are considered very reliable for two reasons. Firstly, there is a legal requirement to register a death and the certificate issued at registration is needed and used by the recipient. Second, administrative data do not suffer from sampling error in the way that survey data do.

The Kannisto-Thatcher method makes two further assumptions. First, deaths data for England and Wales are published as 'age at death', for a calendar year. In the KT method an assumption is made that these figures are evenly distributed between the two relevant cohorts (years of birth). The calendar year estimates produced by the method are then interpolated to the mid year point before being constrained to the official published mid year population estimate of those aged 90 and over. In effect this means that, while the KT method determines the estimated distribution of the population aged 90 and over, the accuracy of the overall KT estimates is dependent on the accuracy of the 90 and over total in the official mid year estimates.

Second, it is assumed that the international migration at the oldest ages is minimal so this component of population change can be ignored.

The assumptions in the KT method are being investigated as part of a wider research project investigating the accuracy of high age estimates being undertaken by ONS.

The survivorship ratio used is weighted over five years; this takes into account variations in the cohort size at each specific age. Age-specific survivorship ratios are calculated using age-specific deaths data in both the denominator and, in a more complex way, the numerator. Registered deaths are a component of population change and are included in mid-year population estimates. When creating mortality rates for the population aged 90 and over users should be aware that deaths data have been used to generate the Estimates of the Very Old (the denominator in the calculation).

Estimates of the Very Old are published rounded to the nearest 10 people<sup>1</sup>.

### **Coherence and comparability**

(Coherence is the degree to which data that are derived from different sources or methods, but refer to the same topic, are similar. Comparability is the degree to which data can be compared over time and domain for example, geographic level.)

ONS uses an internationally recognised methodology in the construction of the Estimates of the Very Old.

ONS calculates the Estimates of the Very Old for England and Wales and, until 2010, also did so for Northern Ireland. Scotland and Northern Ireland use the same methodology to produce their 90+ estimates by single year of age. The estimates are therefore comparable across UK countries and this allows the estimates to be aggregated to produce estimates for the UK.

Comparable time series are published back to the year 2002. Each annual set of Estimates of the Very Old is derived using the same methodological approach. A feature of the methodology used is that previous years' estimates may change when a new year of data is added. Estimates are constrained to the published mid-year population estimate for the 90 and over age group for the reporting year, and re-constrained for previous years as the series is updated. The Estimates of the Very Old are therefore consistent with the Mid-year Population Estimates for England and Wales and the UK.

The estimates are always published as 'provisional' because updates are made to the back series of data every time a new year's figures are added.

Mid year population estimates for the UK and constituent countries population are produced for those aged up to 89 by single year of age and for age 90 and over using the cohort component method (see [population estimates methodology](#)<sup>13</sup>). The Census provides the mid-year resident population base for the cohort component method. Mainly due to levels of uncertainty in the reporting of age in the Census at older ages, this method is not used to produce single year of age data for those aged 90 and over. Estimates of the Very Old are constrained to the 90 and over totals in the Mid-year Population Estimates and are therefore consistent with them. However, due to the differences in the methods used to compile these sets of estimates, there may be some discontinuities between the oldest age in the Mid-year Population Estimates (89) and the next age (90), where the figure is derived by the Kannisto-Thatcher method.

Following the 2011 Census, the Mid-year Population Estimates were revised back to mid-2002. Estimates of the Very Old were also revised accordingly.

A research project investigating the accuracy of high age estimates currently being undertaken by ONS will include a comparison of estimates of the population aged 90 and over with other available administrative data sources.

### **Concepts and definitions**

(Concepts and definitions describe the legislation governing the output and a description of the classifications used in the output.)

These statistics provide estimates of those aged 90 and over by sex and single year of age up to age 104 and for the 105 and over age group for England and Wales as a whole and for the UK.

Standard classification: National Statistics Country Classification. The [National Statistics Country Classification](#)<sup>14</sup> is based on ISO 3166-1, adapted to meet data needs of United Kingdom National Statistics' users and producers.

For the purposes of the NS Country Classification, a country is the name, either short or official, of a current country, dependency or other geographic area of interest. This includes administrative subdivisions, particularly the nations of the United Kingdom: England, Northern Ireland, Scotland and Wales.

NRS and NISRA publish equivalent estimates for Scotland and Northern Ireland respectively, using the same definitions, classifications and methodology. These feed into the UK estimates.

There is no legislation governing the output. There is no deviation from agreed standards.

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<sup>1</sup> The estimates cannot be guaranteed to be precise even to this level of rounding.



## Other information

### Output quality trade-offs

(Trade-offs are the extent to which different dimensions of quality are balanced against each other.)

There is a trade-off between timeliness and accuracy in the production of Estimates of the Very Old.

Estimates of the Very Old are produced using death registrations for the reporting year and death occurrences for all preceding years. This is because there is a time lag between the occurrence of a death and registration of that death (particularly for deaths referred to the coroner for investigation) with deaths data by date of occurrence not being available until several months after the availability of death registration data. The number of deaths registered is replaced by the number of deaths occurring in that year when the following year's estimates are calculated.

### Assessment of user needs and perceptions

(The processes for finding out about users and uses, and their views on the statistical products.)

The Estimates of the Very Old are produced primarily for ONS internal customers who require them for the production of national life tables and national population projections.

However, there is also a growing external user demand for the publication of population estimates at the oldest ages by single year of age as life expectancy increases and the very old population grows.

In addition to national and local government users, the estimates of the very old are also used by demographers, actuaries, medical researchers and others interested in longevity, population numbers and/or past and projected age specific mortality rates at the oldest ages

ONS has not conducted a formal user consultation however we have regular contact with our users. User need is evident from requests for this data, for example from the Department of Health, for use in outputs such as dementia prevalence rates and at both national and local government level for health and social care planning. The estimates also feed into work by the Department for Work and Pensions and HM Treasury in formulating or assessing future policy on pensions.

A research project investigating the accuracy of high age population estimates is currently being undertaken by ONS. Initial results were presented to users at a workshop organised by the International Longevity Centre - UK in March 2014. This provided an opportunity to engage directly with users of Estimates of the Very Old and listen to their views and comments. On completion of the research project a report will be published on the ONS website and key users will be alerted and sent a link.

The requirement for these estimates is specifically recognised in the former Population and Demography Division (now Population Statistics Division) [User Requirements Report](#)<sup>15</sup>. The requirement was also noted in the [Population Statistics User Engagement Day](#)<sup>16</sup> discussion held at the Royal Statistical Society on 23 November 2010.

Since the implementation of the 2013 European Standard Population, a new user requirement has arisen for producing estimates of the very old up to age 95+ at local government administrative area level.

The methodology used to produce the Estimates of the Very Old is not robust at local area geographies because of the small numbers involved for the population aged 90 and over. However, as a response to user demand ONS has proposed an approach to producing population estimates for the 90-94 and the 95-plus age groups, by sex, for Lower Layer Super Output Areas (LSOAs) in England and Wales using a different methodology and has invited user comment. Details can be found in the [LSOA Population Estimates of the Very Old Research paper](#)<sup>17</sup>. Experimental Mid-2002 to Mid-2012 LSOA Population Estimates of the Very Old, England and Wales have been published as supporting information to the paper.

## Sources for further information or advice

### Accessibility and clarity

(Accessibility is the ease with which users are able to access the data, also reflecting the format in which the data are available and the availability of supporting information. Clarity refers to the quality and sufficiency of the release details, illustrations and accompanying advice.)

ONS's recommended format for accessible content is a combination of HTML web pages for

narrative, charts and graphs, with data being provided in usable formats such as CSV and Excel. The ONS website also offers users the option to download the narrative in PDF format. In some instances other software may be used, or may be available on request. Available formats for content published on the ONS website but not produced by the ONS, or referenced on the ONS website but stored elsewhere, may vary. For further information please refer to the contact details at the beginning of this document.

For information regarding conditions of access to data, please refer to the links below:

- [Terms and conditions \(for data on the website\)](#)<sup>18</sup>;
- [Copyright and reuse of published data](#)<sup>19</sup>;
- [Pre-release access \(including conditions of access\)](#)<sup>20</sup>; and
- [Accessibility](#)<sup>21</sup>.

In addition to this Quality and Methodology Information, Basic Quality Information relevant to each release is available in the background notes of the relevant Statistical Bulletin: [Estimates of the Very Old \(including Centenarians\) for the United Kingdom, 2002-2012](#)<sup>22</sup>.

Any enquiries regarding the Estimates of the Very Old can be sent to [ageing@ons.gsi.gov.uk](mailto:ageing@ons.gsi.gov.uk).

### Useful links

[Estimates of the Population aged 85 and over, Northern Ireland](#)<sup>23</sup>.

[Centenarians in Scotland \(including mid-year population estimates for those aged 90 & over\)](#)<sup>24</sup>.

[UK Statistics Authority - Assessment of compliance with the Code of Practice for Official Statistics: Population Estimates and Projections](#)<sup>25</sup>.

[Dini E. and Goldring S. \(2008\) Estimating the changing population of the 'oldest old' \*Population Trends\* 132, 8-16](#)<sup>26</sup>.

### References

1. Mid-Year Population Estimates	<a href="http://www.ons.gov.uk/ons/publications/all-releases.html?definition=tcm%3A77-22371">http://www.ons.gov.uk/ons/publications/all-releases.html?definition=tcm%3A77-22371</a>
2. National Population Projections	<a href="http://www.ons.gov.uk/ons/rel/npp/national-population-projections/index.html">http://www.ons.gov.uk/ons/rel/npp/national-population-projections/index.html</a>
3. National life tables	<a href="http://www.ons.gov.uk/ons/rel/lifetables/interim-life-tables/index.html">http://www.ons.gov.uk/ons/rel/lifetables/interim-life-tables/index.html</a>
4. Death Registration statistics	<a href="http://www.ons.gov.uk/ons/rel/vsob1/mortality-statistics--deaths-registered-in-england-and-wales--series-dr-/index.html">http://www.ons.gov.uk/ons/rel/vsob1/mortality-statistics--deaths-registered-in-england-and-wales--series-dr-/index.html</a>
5. Calculating Estimates of the Very Old	<a href="http://www.ons.gov.uk/ons/guide-method/method-quality/specific/population-and-migration/pop-ests/calculating-estimates-of-the-very-elderly/index.html">http://www.ons.gov.uk/ons/guide-method/method-quality/specific/population-and-migration/pop-ests/calculating-estimates-of-the-very-elderly/index.html</a>
6. Quality and Methodology Information reports for the Population theme	<a href="http://www.ons.gov.uk/ons/guide-method/method-quality/quality/quality-information/population/index.html">http://www.ons.gov.uk/ons/guide-method/method-quality/quality/quality-information/population/index.html</a>
7. Health and Life Events guidance and metadata	<a href="http://www.ons.gov.uk/ons/guide-method/user-guidance/health-and-life-events/index.html">http://www.ons.gov.uk/ons/guide-method/user-guidance/health-and-life-events/index.html</a>
8. Guidelines for Measuring Statistical Quality	<a href="http://www.ons.gov.uk/ons/guide-method/method-quality/quality/guidelines-for-measuring-statistical-quality/index.html">http://www.ons.gov.uk/ons/guide-method/method-quality/quality/guidelines-for-measuring-statistical-quality/index.html</a>

9. GOV.UK Statistics: Release Calendar	<a href="https://www.gov.uk/government/statistics/">https://www.gov.uk/government/statistics/</a>
10. Code of Practice for Official Statistics	<a href="http://www.statisticsauthority.gov.uk/assessment/code-of-practice/index.html">http://www.statisticsauthority.gov.uk/assessment/code-of-practice/index.html</a>
11. Thatcher R. (1999) The demography of centenarians in England and Wales. <i>Population Trends</i> 96, 5-12	<a href="http://www.ons.gov.uk/ons/rel/population-trends-rd/population-trends/no--96--summer-1999/the-demography-of-centenarians-in-england-and-wales.pdf">http://www.ons.gov.uk/ons/rel/population-trends-rd/population-trends/no--96--summer-1999/the-demography-of-centenarians-in-england-and-wales.pdf</a>
12. Thatcher, R. Kannisto, V. Andreev, K.F. (2002) The Survivor Ratio Method for Estimating Numbers at High Ages. <i>Demographic Research</i> , Vol 6, 1-18	<a href="http://www.demographic-research.org/volumes/vol6/1/">http://www.demographic-research.org/volumes/vol6/1/</a>
13. Population estimates methodology	<a href="http://www.ons.gov.uk/ons/guide-method/method-quality/specific/population-and-migration/pop-ests/index.html">http://www.ons.gov.uk/ons/guide-method/method-quality/specific/population-and-migration/pop-ests/index.html</a>
14. National Statistics Country classification	<a href="http://www.ons.gov.uk/ons/guide-method/classifications/current-standard-classifications/national-statistics-country-classification/index.html">http://www.ons.gov.uk/ons/guide-method/classifications/current-standard-classifications/national-statistics-country-classification/index.html</a>
15. User Requirements Report	<a href="http://www.ons.gov.uk/ons/guide-method/method-quality/specific/population-and-migration/a-user-requirements-report---population-estimates-and-projection-and-migration-statistics.doc">http://www.ons.gov.uk/ons/guide-method/method-quality/specific/population-and-migration/a-user-requirements-report---population-estimates-and-projection-and-migration-statistics.doc</a>
16. Population Statistics User Engagement Day: Notes	<a href="http://www.ons.gov.uk/ons/guide-method/method-quality/specific/population-and-migration/notes-from-the-ons-centre-for-demography-user-engagement-event---23-november-2010.doc">http://www.ons.gov.uk/ons/guide-method/method-quality/specific/population-and-migration/notes-from-the-ons-centre-for-demography-user-engagement-event---23-november-2010.doc</a>
17. LSOA Population Estimates of the Very Old Research Paper	<a href="http://www.ons.gov.uk/ons/guide-method/method-quality/specific/population-and-migration/pop-ests/lsoa-population-estimates-of-the-very-old--research-paper.zip">http://www.ons.gov.uk/ons/guide-method/method-quality/specific/population-and-migration/pop-ests/lsoa-population-estimates-of-the-very-old--research-paper.zip</a>
18. Terms and conditions (for data on the website)	<a href="http://www.ons.gov.uk/ons/site-information/information/terms-and-conditions/index.html">http://www.ons.gov.uk/ons/site-information/information/terms-and-conditions/index.html</a>
19. Copyright and reuse of published data	<a href="http://www.ons.gov.uk/ons/site-information/information/creative-commons-license/index.html">http://www.ons.gov.uk/ons/site-information/information/creative-commons-license/index.html</a>
20. Pre-release access (including conditions of access)	<a href="http://www.ons.gov.uk/ons/guide-method/the-national-statistics-standard/code-of-practice/pre-release-access/index.html">http://www.ons.gov.uk/ons/guide-method/the-national-statistics-standard/code-of-practice/pre-release-access/index.html</a>
21. Accessibility	<a href="http://www.ons.gov.uk/ons/site-information/information/accessibility/index.html">http://www.ons.gov.uk/ons/site-information/information/accessibility/index.html</a>
22. Estimates of the Very Old (including Centenarians) for the United Kingdom, 2002 - 2012	<a href="http://www.ons.gov.uk/ons/rel/mortality-ageing/estimates-of-the-very-old--including-centenarians-/2002---2012--united-kingdom/stb-2002-2012-uk.html">http://www.ons.gov.uk/ons/rel/mortality-ageing/estimates-of-the-very-old--including-centenarians-/2002---2012--united-kingdom/stb-2002-2012-uk.html</a>
23. Estimates of the Population aged 85 and over, Northern Ireland	<a href="http://www.nisra.gov.uk/demography/default.asp134.htm">http://www.nisra.gov.uk/demography/default.asp134.htm</a>
24. Centenarians in Scotland (including mid-year population estimates for those aged 90 and over)	<a href="http://www.gro-scotland.gov.uk/statistics/theme/population/estimates/special-populations/centenarians/index.html">http://www.gro-scotland.gov.uk/statistics/theme/population/estimates/special-populations/centenarians/index.html</a>



<p>25. UK Statistics Authority – Assessment of compliance with the Code of Practice for Official Statistics: Population Estimates and Projections</p>	<p><a href="http://www.statisticsauthority.gov.uk/assessment/assessment/assessment-reports/assessment-report-103---population-estimates-and-projections.pdf">http://www.statisticsauthority.gov.uk/assessment/assessment/assessment-reports/assessment-report-103---population-estimates-and-projections.pdf</a></p>
<p>26. Dini E. and Goldring S. (2008) Estimating the changing population of the 'oldest old' <i>Population Trends</i> 132, 8-16</p>	<p><a href="http://www.ons.gov.uk/ons/rel/population-trends-rd/population-trends/no--132--summer-2008/estimating-the-changing-population-of-the--oldest-old-.pdf">http://www.ons.gov.uk/ons/rel/population-trends-rd/population-trends/no--132--summer-2008/estimating-the-changing-population-of-the--oldest-old-.pdf</a></p>