This is a National Statistics publication

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 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 standards of Code compliance, including the value they add to public decisions and debate.

It is NHS Digital’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.

Find out more about the Code of Practice for Statistics at https://www.statisticsauthority.gov.uk/code-of-practice/
List of tables

<table>
<thead>
<tr>
<th>Adults</th>
<th></th>
<th>Years available</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Adults: number estimates for body mass index (BMI) categories, by survey year, age and sex</td>
<td>2003-2018</td>
</tr>
<tr>
<td>2</td>
<td>Adults: number estimates for self-reported cigarette smoking status, by survey year, age and sex</td>
<td>2003-2018</td>
</tr>
<tr>
<td>3</td>
<td>Adults: number estimates for weekly alcohol consumption, by survey year, age and sex</td>
<td>2011-2018</td>
</tr>
<tr>
<td>4</td>
<td>Adults: number estimates for fruit and vegetable consumption, by survey year, age and sex</td>
<td>2003-2011, 2013, 2015-2018</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Children</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>5</td>
<td>Children: number estimates for overweight and obesity prevalence, by survey year and sex</td>
<td>2003-2018</td>
</tr>
<tr>
<td>6</td>
<td>Children: number estimates for fruit and vegetable consumption, by survey year, age and sex</td>
<td>2003-2011, 2013-2018</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Bases</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>7</td>
<td>ONS mid-year population estimates for adults aged 16 and over living in private households</td>
<td>2003-2018</td>
</tr>
<tr>
<td>8</td>
<td>ONS mid-year population estimates for children aged 2-15</td>
<td>2003-2018</td>
</tr>
</tbody>
</table>

Introduction

The Health Survey for England series

The Health Survey for England is a series of annual surveys designed to measure health and health-related behaviours in adults and children living in private households in England. The survey is currently commissioned by NHS Digital (formerly the Health and Social Care Information Centre (HSCIC)), and before April 2005 was commissioned by the Department of Health. Since 1994, the survey has been carried out by NatCen Social Research and the Research Department of Epidemiology and Public Health at UCL.

The survey consists of an interview and nurse visit. It has a series of core elements that are included every year or alternate years, and special topics that are included in selected years. These areas are currently included every year:

- General health
- Social care
- Smoking
- Alcohol consumption
- Height and weight measurements
- Prescribed medicines
- Doctor-diagnosed hypertension and diabetes
- Waist and hip measurements
- Blood pressure measurements
- Adult blood samples
- Child saliva samples

Other areas are covered regularly, including well-being, fruit and vegetable consumption, and saliva and urine samples from adults. Special topics covered in selected years include cardiovascular disease (CVD), physical activity, gambling, and certain blood analytes.

Each annual survey has covered the adult population aged 16 and over living in private households in England. Since 1995, the surveys have also covered children aged 2 to 15, and since 2001, infants aged under 2 have been included. In some years a boost sample is used to increase the proportion of participants from certain population groups. There was no sample boost in 2018.

In 2018, interviews were completed with 8,178 adults and 2,072 children.¹

Reports on HSE data

Reports and tables are published on a selection of findings for each survey year, as well as a report giving full details of the survey methods and survey documentation.

Trend tables are updated each year to show survey estimates for a number of key measures (for example, the percentage of the population who are overweight or obese, the proportions of current smokers). The trend tables focus on key changes in core topics and measurements. Trend tables are included in the relevant topic reports, of which there are seven in 2018, including general reports on Adults’ Health, Adults’ Behaviours and Risks, and Children’s Health.

The population number estimates tables show estimates of the numbers of people in the population for key variables such as body mass index (BMI), smoking and drinking alcohol. This user guide introduces the tables and explains how they are produced.


Population number estimates

The number estimates presented here convert the prevalence in the key trend tables into estimates of the numbers of people in the population in England that they represent. As an illustration, the obesity prevalence estimate of 27.7% for all adults aged 16 and over in 2018 has been converted into a number estimate of around 12.4 million (between 11,857,000 and 13,021,000). The tables in this series relate to characteristics and behaviours influencing health:

- Overweight and obesity
- Smoking
- Drinking alcohol
- Fruit and vegetable consumption.

The number estimates cover 2003 to 2018. Weekly alcohol consumption is shown from 2011 onwards. Fruit and vegetable consumption were not covered in 2012 or, for adults, in 2014.

The trend tables present the results from the representative general population sample, and in some years boost sample data are also included to increase the precision of sub-group estimates (e.g. young adults in 2002, people aged 65 and over in 2005, and children in 2015).

---

2 In 2018, the population estimates for maximum alcohol consumption for any day in the last week were replaced by estimates of usual weekly alcohol consumption to reflect a change in emphasis in the official alcohol guidelines.

3 In previous years, population estimates for adults’ and children’s physical activity were included in this report. As there are no new estimates available for 2018, these are not included in this report.
For the number estimates, the prevalence estimates for each year (expressed as a proportion) were multiplied by a scaling factor equal to the total mid-year population estimate, then multiplied by the estimated proportion of people in the relevant age-sex group in the HSE. The mid-year population estimate was adjusted to represent the population living in private households excluding those aged 65 years and over living in institutions (44.9 million adults aged 16 and over in 2018).

Details of the method used to compute the number estimates and accompanying margin of error (i.e. the width of the 95% confidence interval divided by two) are provided in the technical annex.

**How to use these tables**

The six tables show estimates of how many people in England, living in private households, have particular characteristics or behaviour. For instance, the tables show the number of men and women who are estimated to be obese, who eat the recommended five or more portions of fruit and vegetables a day, or who currently smoke cigarettes. The tables also show breakdowns by age groups, for instance the number of children aged 8 to 10 who meet the government’s recommendation of eating five or more portions of fruit and vegetables per day, or the number of 16 to 24 year olds who drink at levels of increasing risk.

Each table for adults shows results separately for men and women, usually within age categories, followed by results for all adults (men and women combined). Similarly, tables for children show results for boys and girls within age groups, and then results for all children.

Numbers in all tables are presented in thousands, so, for example, 10,301 in the tables represents an estimate of 10,301,000 people in the population in England.

The Health Survey for England, in common with other surveys, collects information from a sample of the population. The sample is designed to represent the whole population as accurately as possible within practical constraints, such as time and cost. Consequently, statistics based on the survey are estimates, rather than precise figures, and are subject to a margin of error, which defines what is known as the 95% confidence interval.

The margin of error is shown for each estimate in the tables, again in thousands. For instance, ‘+-389’ in the tables represents +/-389,000. The lower and upper limits of the 95% confidence interval can be obtained from the margin of error as follows:

- Upper limit = estimate + margin of error
- Lower limit = estimate – margin of error

A different sample might have given a different estimate, but we expect that the true value of the statistic in the population would be within the range given by the 95% confidence interval in 95 cases out of 100. Thus, for the estimate of 10,301,000

---

4 Mid-year population estimates are published by the Office for National Statistics (ONS), and can be found at: https://www.ons.gov.uk/peoplepopulationandcommunity/populationandmigration/populationestimates/bulletins/annualmidyearpopulationestimates/mid2018
people and a margin of error of +/-389,000, the true number in the population is expected to lie between 9,912,000 and 10,690,000 in 95 cases out of 100.

Confidence intervals are affected by the size of the sample on which the estimate is based. Generally, the larger the sample, the smaller the confidence interval, and hence the more precise the estimate. Estimates for adults aged 16 and over based on a general population sample of 15,000 to 16,000 adults (2003, 2006 and 2008) have a narrower confidence interval than in years with smaller samples (2004, 2005, 2007 and 2009 onwards). Similarly, in years when the sample has been boosted to include additional numbers of a specific population group, for example children aged under 16 in 2015, confidence intervals for those groups will be narrower than in years when no such boost has been applied.

The same principle applies to estimates based on subgroups. For a large sample such as all men or all women, the confidence interval is narrower than for an estimate based on a smaller sample, for instance when looking at a particular age group, reflecting the larger uncertainty in the estimation.

The ONS mid-year population estimate bases for 2003 to 2018 are shown in Tables 7 and 8 for adults and children respectively. These have been adjusted to represent the population living in private households, excluding those aged 65 years and over living in institutions. It should be noted that there may be slight differences between the sum of estimates in the tables and the bases in the final two tables. (For instance, the numbers in each BMI category may not sum to the exact population size). The reason for this is the rounding of estimates to the nearest thousand.

Before 2003, no weighting was applied to the adult sample, whereas from 2003 survey estimates have been weighted for non-response. The sample of children each year was weighted to adjust for the probabilities of selection, and from 2003 non-response weighting was also introduced for children. While the trend tables show estimates from 1993 onwards, the number estimates series are published from 2003 onwards. Number estimates before 2003 are not shown because the change in weighting means a different calculation must be used for the confidence intervals, as described in the technical annex.

Non-response weighting brings the profile of the survey sample very close to the profile of the total population. Estimates for the 2018 prevalence trends have been computed on a non-response weight based on 2018 mid-year population estimates. Similarly, the number estimates have been computed using a grossing-up factor calculated from the ONS mid-year population estimates; for the 2012 number estimates, the grossing-up factor was calculated from the 2011 census.

---

5 The ONS mid-year population estimates for those aged 65+ were adjusted to remove the proportion in that age group who were living in institutions according to the 2011 Census. See Chapter 7 of the HSE 2018 Methods report for a full description of how the HSE data are weighted. [https://digital.nhs.uk/pubs/hse2018](https://digital.nhs.uk/pubs/hse2018)


7 Until 2014, up to two children per household were interviewed, and in households with three or more children, two were selected at random. From 2015, up to four children per household can be interviewed. Therefore weighting is required to ensure that children in larger households are not under-represented in the sample. The non-response weighted estimates from 2003 onwards include the necessary adjustment for child selection.

8 [https://www.ons.gov.uk/peoplepopulationandcommunity/populationandmigration/populationestimates](https://www.ons.gov.uk/peoplepopulationandcommunity/populationandmigration/populationestimates)
The adult population of England living in private households has increased from around 39.7 million in 2003 to 44.9 million in 2018. For any given category in the tables, changes in the projected population numbers from one year to the next will be affected by changes in the population size as well as changes in prevalence (i.e. the percentage of the population) for that category. These population figures should be read in conjunction with the key trends in the health of adults and children since 1993, to see whether changes in numbers are due to changes in estimated proportions for that category or merely reflect the change in the overall population over time.
Technical annex

Introduction

This section provides a technical description of the methods used to calculate the number estimates and accompanying margins of error, including a worked example. The method used is valid only from the introduction of non-response weighting into the HSE series and so number estimates are presented from 2003 onwards.

Number estimates

For each indicator, the prevalence data presented in the trend tables were multiplied by a scaling factor to estimate the number of people with particular characteristics or behaviour (for example, the number of obese adults, or the number of children who ate five or more portions of fruit and vegetables in the preceding day).

The scaling factor was based on two figures. The first was the ONS mid-year population estimate for the relevant year, adjusted to represent the population living in private households.

The second was an estimate of the proportion of people in the relevant age-sex group, for example, the percentage of the adult population who were men aged 16 to 24. The proportions in each age-sex group were calculated from the weighted HSE data. Different estimates of the proportions in each age-sex group were calculated for each table, based on the respondents to the relevant questions. This means that the age-sex distribution shown in the tables and estimated from HSE data does not correspond exactly to the age-sex distribution estimated by the ONS.⁹

---

⁹ For example, the estimates of usual weekly alcohol consumption were based on respondents who answered questions about whether they drank alcohol, how often they did so and what they drank in a typical week. There was some non-response to each of these questions among survey participants, which was not corrected for by the weighting applied to interview data (which corrected for overall survey non-response). The age profile for the achieved sample with a valid estimate of weekly alcohol consumption in 2018, shown in the table below, differed from the ONS population estimates for 2018 (adjusted for institutional populations), shown in the shaded column.

Age profiles for ONS household population and bases for HSE estimates of weekly alcohol consumption

<table>
<thead>
<tr>
<th>Age group</th>
<th>ONS 2018</th>
<th>HSE 2018</th>
</tr>
</thead>
<tbody>
<tr>
<td>16-24</td>
<td>13.4</td>
<td>11.5</td>
</tr>
<tr>
<td>25-34</td>
<td>16.9</td>
<td>16.9</td>
</tr>
<tr>
<td>35-44</td>
<td>15.8</td>
<td>16.3</td>
</tr>
<tr>
<td>45-54</td>
<td>17.2</td>
<td>17.7</td>
</tr>
<tr>
<td>55-64</td>
<td>14.7</td>
<td>15.2</td>
</tr>
<tr>
<td>65-74</td>
<td>12.3</td>
<td>12.6</td>
</tr>
<tr>
<td>75+</td>
<td>9.6</td>
<td>9.8</td>
</tr>
</tbody>
</table>
This method allows the prevalence estimates to be re-created from the number estimate tables.

The weighting variable can be denoted as \( w_{ij} \) where \( i \) denotes the age-sex group of the HSE respondent (e.g. men aged 16 to 24) and \( j \) denotes the respondents to the question within each age-sex group.

Then the weighted number of respondents to the question can be expressed as:

\[
W = \sum_{i,j} w_{ij} \tag{1}
\]

and the weighted number of respondents of a particular age-sex group as:

\[
W_i = \sum_j w_{ij} \tag{2}
\]


If the overall ONS mid-year population estimate (men and women combined) is labelled as \( P \), then the HSE estimate of the number of persons belonging to age-sex group \( i \) (labelled \( M_i \)) can be expressed as:

\[
M_i = P \left( \frac{W_i}{W} \right) \tag{3}
\]

This is the scaling factor described above: the ONS mid-year population total (\( P \)) multiplied by the estimate of the proportion of people in the relevant age-sex group. Note that due to item non-response (refusals and don’t knows) the proportion will be slightly different for each table.

Finally, if the number estimate for age-sex group \( i \) and health indicator \( k \) is labelled \( N_{ik} \), and the corresponding prevalence estimate is labelled \( \phi_{ik} \), then the number estimate can be derived as follows:

\[
N_{ik} = P \frac{W_i}{W} \phi_{ik} \tag{4}
\]

In other words, the estimated number of, for example, men aged 16 to 24 who did not drink alcohol can be expressed as the overall ONS population estimate \( P \), multiplied by the proportion of respondents with a valid estimate of alcohol consumption who were male aged 16 to 24, multiplied by the estimated prevalence of non-drinking for men aged 16 to 24.

Using this calculation method allows the estimates in the prevalence trend tables to be reproduced from the number estimates, ensuring consistency between the two sets of tables. Consequently, the only ONS mid-year population estimate that can be reproduced from these figures is the overall population figure, \( P \) (i.e. total population aged 16 and over in the relevant year). The proportion of people in the relevant age-sex group is taken from the HSE data, and is not based on the ONS estimates; the prevalence estimates cannot (and should not) be derived by dividing the number
estimate for each age-sex group by the corresponding ONS age-sex population estimate. For prevalence estimates users are advised to consult the prevalence trend tables.

**Margin of error**

The margin of error (MoE) of the number estimates is calculated by multiplying the MoE of the prevalence by $M_i$, the scaling factor used to create the number estimates. If $E_{ik}$ is the MoE for a number estimate and $\varepsilon_{ik}$ is the MoE of the associated prevalence, then:

$$E_{ik} = \frac{PW_i \varepsilon_{ik}}{W}$$

[5]

The standard error of the prevalence is calculated using SPSS and taking into account the complex sample design. The MoE is then calculated by multiplying the standard error by 1.96.

In order to use equation 5, it must be assumed that no further uncertainty is added to the number estimate when the prevalence is multiplied by the scaling factor, in other words that the scaling factor $P \frac{W_i}{W}$ is constant. It is assumed that the ONS estimates $P$ have small enough variance to discount.

The same assumption can be made for the factor $\frac{W_i}{W}$. This assumption is justified by considering that $\frac{W_i}{W}$ is the weighted proportion of respondents for a particular age-sex group. The purpose of the weighting is to correct the figures for non-response. The weighting scheme uses several variables including age and sex. The weighting is chosen to make $\frac{W_i}{W}$ approximately equal to a fixed value, taken from the ONS population estimates. That is, although the age-sex distribution of the sample is prone to sampling error, the weighting 'fixes' the values of $\frac{W_i}{W}$ to be approximately equal to the ONS population estimates.

It should be noted that the variance of $\frac{W_i}{W}$ is not exactly zero. Due to the impact of other variables included in the weighting and differential item non-response the value of $\frac{W_i}{W}$ is not exactly the same for all possible samples. This means the assumption causes a slight underestimate in the value of the MoE. However, the variation is small and the assumption allows considerable computational efficiency gains.

---

See footnote 9 for details.
Worked example

This worked example illustrates the method used to convert the prevalence estimates in some of the standard trend tables into estimates of the numbers of people in the population in England that they represent. The example used is the proportions of non-drinkers among men using HSE 2018. Table A shows the calculation of the number estimates; Table B the calculation of the margin of error. After each table the detailed calculations behind the numbers are explained.

Table A: 2018 number estimates (men who do not drink alcohol)

<table>
<thead>
<tr>
<th>Age group</th>
<th>ONS population estimate P</th>
<th>Prevalence of not drinking alcohol $\phi_{ik}$</th>
<th>Weighted number of respondents w</th>
<th>Weighted number of respondents of age-sex group $w_i$</th>
<th>HSE number estimate age-sex group $M_i$</th>
<th>Estimated number of non-drinkers $N_{ik}$</th>
</tr>
</thead>
<tbody>
<tr>
<td>16-24</td>
<td>44,872,351</td>
<td>0.225</td>
<td>7,921</td>
<td>460</td>
<td>2,608,471</td>
<td>586,825</td>
</tr>
<tr>
<td>25-34</td>
<td>44,872,351</td>
<td>0.127</td>
<td>7,921</td>
<td>662</td>
<td>3,751,432</td>
<td>476,321</td>
</tr>
<tr>
<td>35-44</td>
<td>44,872,351</td>
<td>0.142</td>
<td>7,921</td>
<td>642</td>
<td>3,639,379</td>
<td>515,293</td>
</tr>
<tr>
<td>45-54</td>
<td>44,872,351</td>
<td>0.136</td>
<td>7,921</td>
<td>692</td>
<td>3,917,888</td>
<td>533,846</td>
</tr>
<tr>
<td>55-64</td>
<td>44,872,351</td>
<td>0.112</td>
<td>7,921</td>
<td>590</td>
<td>3,342,429</td>
<td>375,421</td>
</tr>
<tr>
<td>65-74</td>
<td>44,872,351</td>
<td>0.119</td>
<td>7,921</td>
<td>481</td>
<td>2,726,715</td>
<td>323,451</td>
</tr>
<tr>
<td>75+</td>
<td>44,872,351</td>
<td>0.187</td>
<td>7,921</td>
<td>343</td>
<td>1,942,168</td>
<td>363,338</td>
</tr>
</tbody>
</table>

Data in columns 2, 3 and 4 have been rounded, and the numbers shown are not exact.

- Column 1 shows the overall ONS population estimate for adults, showing 44.9 million adults aged 16 and over living in private households in England on 30 June 2018.
- Column 2 shows the estimated proportions of non-drinkers for each of the seven age groups. 22.5% of men aged 16 to 24 reported that they didn’t drink alcohol, compared with 18.7% of men aged 75+.
- Column 3 shows the weighted number of HSE respondents who answered the questions about alcohol consumption.\(^\text{11}\) Note that not all adults who took part in the interview answered these questions (7,921 did so, compared with 8.178 adults who were interviewed).

\(^{11}\) Using the non-response main interview weight, scaled to the achieved sample size, which results in the weight being standardised around an average of one. Weighted totals may not sum to a whole number.
• Column 4 shows the weighted number of HSE respondents in each age-sex group. Of all HSE 2018 respondents aged 16 and over (with valid information about alcohol consumption), about 5.8% were men aged 16 to 24 (column 4 divided by column 3).

• Column 5 shows that applying the proportion of HSE respondents in each age-sex group to the ONS population estimate P gives an HSE estimate of the number of persons in the population in each age-sex group: equation [3] above.

• Applying the proportion of HSE respondents who were male aged 16 to 24 (460/7,921 = 0.058) to the ONS population estimate gives an estimated number of 2,608,471 men aged 16 to 24.\(^{12}\)

\[
\text{HSE estimate}_{\text{men,16-24}} = 44,872,351 \left(\frac{460}{7,921}\right) = 2,608,471
\]

• Column 6 shows the number estimate of men in England who did not drink alcohol in 2018, which can be calculated using equation [4].

As an illustration, for men aged 16 to 24, the estimate of the number who did not drink alcohol can be calculated as follows:

\[
nondrink_{\text{men,16-24}} = 44,872,351 \left(\frac{460}{7,921}\right) 0.225 = 586,825 \text{ (rounded to 587,000)}
\]

• The number in the population estimated to be non-drinkers can be expressed as the prevalence (0.225 for men aged 16 to 24) multiplied by a scaling factor equal to the ONS mid-year population estimate (44.9 million) multiplied by the HSE estimate of the proportion of people in the male 16 to 24 category (460/7,921 = 0.058).\(^{13}\)

• Note, therefore, that the HSE estimate of the proportion of the population in England in each age-sex group does not match exactly the equivalent ONS mid-year estimate (see footnote Error! Bookmark not defined.). The only ONS mid-year population estimate that can be reproduced is the overall population figure.

\(^{12}\) Numbers shown in column 5 are based on unrounded figures and consequently differ slightly from those produced by using the rounded figures shown here. Using the latter, 4,631,378*(452/7,736) totals to 2,607,728. There are similar discrepancies between rounded and unrounded calculations for other age groups.

\(^{13}\) Numbers shown in column 6 are based on unrounded figures and consequently differ slightly from those produced by using the rounded figures shown here. Using the latter, 4,631,378*(452/7,736)*0.246 totals to 641,501. There are similar discrepancies between rounded and unrounded calculations for other age groups.
Table B: Estimated margin of error

<table>
<thead>
<tr>
<th>Age group</th>
<th>Prevalence of not drinking alcohol</th>
<th>Estimated standard error ( \phi_{ik} )</th>
<th>HSE number estimate (age-sex group)</th>
<th>Standard error of estimated number of non-drinkers</th>
<th>Margin of error (unrounded)</th>
</tr>
</thead>
<tbody>
<tr>
<td>16-24</td>
<td>0.225</td>
<td>0.032</td>
<td>2,608,471</td>
<td>83,041</td>
<td>162,761</td>
</tr>
<tr>
<td>25-34</td>
<td>0.127</td>
<td>0.020</td>
<td>3,751,432</td>
<td>74,362</td>
<td>145,750</td>
</tr>
<tr>
<td>35-44</td>
<td>0.142</td>
<td>0.016</td>
<td>3,639,379</td>
<td>57,740</td>
<td>113,169</td>
</tr>
<tr>
<td>45-54</td>
<td>0.136</td>
<td>0.017</td>
<td>3,917,888</td>
<td>65,851</td>
<td>129,069</td>
</tr>
<tr>
<td>55-64</td>
<td>0.112</td>
<td>0.013</td>
<td>3,342,429</td>
<td>43,363</td>
<td>84,992</td>
</tr>
<tr>
<td>65-74</td>
<td>0.119</td>
<td>0.013</td>
<td>2,726,715</td>
<td>36,224</td>
<td>70,998</td>
</tr>
<tr>
<td>75+</td>
<td>0.187</td>
<td>0.020</td>
<td>1,942,168</td>
<td>39,725</td>
<td>77,861</td>
</tr>
</tbody>
</table>

- Columns 1 and 2 show the estimated prevalence of not drinking alcohol and accompanying standard error (SE) respectively (both expressed as a proportion).

- Column 3 shows the HSE estimate of the number of residents in England in each age-sex group (described above).

- Column 4 shows the SE of the estimated number that did not drink alcohol. It is calculated by multiplying the SE of the prevalence by the estimated number of people in the relevant age-sex group (column 2 \( \times \) column 3).

For men aged 16 to 24, the estimated SE of the number who were non-drinkers can be calculated as follows:

\[
SE_{number\ nondrink_{men,16-24}} = 0.032 \times 2,608,471 = 83,041
\]

- Column 5 gives the margin of error (MoE): the estimated SE of the number estimate multiplied by 1.96.

For men aged 16 to 24 the MoE is as follows:

\[
MoE_{number\ nondrink_{men,16-24}} = 83,041 \times 1.96
= 162,761 \ (rounded\ to\ \pm\ 163,000)
\]
Note that in these two worked examples, all figures based on survey estimates or weighted survey data have been rounded and so the estimated population projections and margins of error cannot be exactly calculated step-by-step as presented here.