

Annex A: Data Quality and Methods

- Validation
 - i. The Department of Health use a thorough process for inspecting and recording the information received on the forms in order to monitor compliance with the legislation and the extent to which best practice guidance from the Department of Health is followed. Selected forms are scrutinised by a medical practitioner who may request further detail from the patient's medical record via the terminating doctor. Further details of the checks that are made on the data are available on the ,GOV.uk web site at:

<https://www.gov.uk/government/publications/abortion-notification-forms-for-england-and-wales>
- Forms returned after the publication cut-off date
 - ii. The 2012 figures in this annual bulletin are based on a snapshot of the records taken about eight weeks prior to publication. A small number of notifications have been, and will continue to be, received after this cut-off date. Whilst these additional notifications are processed and the information retained in line with our retention policy, they are not included in future statistical releases. So, for example, figures for 2011 published in the 2011 bulletin have not be revised in this year's bulletin. This policy of not revising statistics is taken for three main reasons:
 - to prevent the disclosure of personal information arising from small differences in published tables;
 - to ensure consistency in published outputs over time; and
 - because the revisions would be small in scale and therefore of little value.

- iii. The scale of the effect is illustrated below for 2011. A further 513 notifications were received after the cut-off, equating to a quarter of one per cent of the published total. 7 of these late notifications related to abortions over 24 weeks. As the table below shows, the inclusion of this information would have resulted in no change in the percentage breakdowns by age group, gestation and grounds to one decimal place.

Table: Examples of the effect on the statistics of forms returned after the publication cut-off date

	Published 2011 figures	2011 figures incorporating notifications received after the publication cut-off
Total abortions	189,636	190,149
Gestation (weeks)		
3 to 9	77.7%	77.7%
10 to 12	13.4%	13.4%
13 to 19	7.4%	7.4%
20 or over	1.4%	1.4%
Not known	N/A	0.0%
Grounds		
E	1.2%	1.2%
Other	98.8%	98.8%
Age		
Under 20	18.4%	18.4%
20 to 34	67.3%	67.3%
35 or over	14.3%	14.3%

- **Incomplete information and imputation**

- iv. Incomplete and incorrectly completed forms are returned to practitioners for completion and clarification. In a very small number of cases (about one-quarter of one percent), the information remains unavailable at the time of publication. Date of birth was missing from 17 records in 2012, gestation information from 41, postcodes from 38 and grounds from 22.
- v. For the purposes of constructing statistics, values for missing items are imputed. Records with missing ages were assigned pro-rata to the 20-24 age group, as this is the modal age group, accounting for 30% of abortions. Missing gestations were imputed as 6, 7, 8, 9 or 10 weeks in equal distribution unless the method of abortion or diagnosis suggested otherwise. Missing postcodes were imputed with a random postcode from within the main PCOs of other residents attending the same hospital or clinic. Missing grounds were imputed as ground C.

- **Population estimates used for rates of abortion**

- vi. Abortion rates are calculated using the conventional age range for women in their child bearing years, 15 – 44.

- vii. Abortion rates per 1,000 women for 2012 at a national level and at CCG level were calculated using the mid-2011 population estimates for England, Wales, England and Wales, Clinical Commissioning Groups and Locality Office, as published at 9th February 2013¹. Rates for earlier years were calculated using the latest population estimates available at the time the relevant annual reports were produced and have not been revised, either by using population estimates for the year in question or by using updated population estimates.

- **Deriving age standardised rates of abortion**

- viii. Rates of abortion are standardised using the European Standard Population (EuSP). The EuSP is also used to calculate age-standardised National Statistics for cancer incidence and mortality within the United Kingdom and cause specific mortality in England and Wales. Over virtually the whole of the age range of women terminating pregnancies, the EuSP assumes equal populations at each single year of age. The formulae used to calculate the age-standardised abortion rates are given below.

For the analysis of trends in abortion rates for England and Wales:

$$\text{Rate} = \frac{\sum_{\text{all ages } i} \text{rate}_i \text{EuSP}_i}{\sum_{i=15}^{44} \text{EuSP}_i}$$

where EuSP_i is the population of women aged i in the European Standard Population.

For the area analyses in table 10b:

$$\text{Rate} = \frac{\sum_{i=15}^{44} \text{rate}_i \text{EuSP}_i}{\sum_{i=15}^{44} \text{EuSP}_i}$$

where the rate for women aged under 16 (rate 15) =

$$\frac{\text{number of abortions to women under 16}}{\text{population of 15 year olds}}$$

rate for women aged 44 and over (rate 44) =

$$\frac{\text{number of abortions to women aged 44 and over}}{\text{population of 44 year olds}}$$

¹ Available at <http://www.ons.gov.uk/ons/taxonomy/index.html?nscl=Population+Change>

- Confidence intervals

- ix. The figures recorded in this report are the outcome of a stochastic process – that is, they are influenced by chance or random processes such as fertilisation. Each recorded figure is only one of a range of results that could have occurred under the same circumstances if those random processes had led to different outcomes. It is often the underlying circumstances or process that is of interest and the actual value observed gives only an imprecise estimate of this ‘underlying risk’. For example, users are often interested in understanding whether there has been a change in rates of abortion, perhaps reflecting a change in the prevalence of risky sexual behaviour, a change in attitudes towards the options available in pregnancy or a change in access to services. To assess this, it is necessary to determine if the observed change is one that is unlikely to be the result of random fluctuation and therefore offers evidence that a real change has occurred.
- x. A confidence interval can be calculated around each observed value, which gives a range in which the expected or average value resulting from the underlying process is likely to fall. The 95 per cent confidence intervals have been calculated for some of the observed values in tables 10a, 10b and 11. These are known as such, because if it were possible to repeat the underlying process under the same conditions a large number of times (that is, ‘rerun’ the year over and over again), 95 per cent of the confidence intervals calculated in this way would contain the average value from those runs. When assessing the observed results for the year, it is usual to assume that there is only a 5 per cent chance that the expected or average value falls outside the 95 per cent confidence interval.
- xi. The confidence interval may be used to compare an estimate against a target or benchmark value. If the target or benchmark value is outside the confidence interval it can be inferred that the difference between the estimate and the target is statistically significant at the 95 per cent confidence level.
- xii. Confidence intervals are also often used to compare two observed values (for example, abortion rates within two regions.) Sometimes in such cases statistical testing is undertaken by seeing if the two confidence intervals overlap. This is quick and easy to do, but not necessarily conclusive: whilst it is safe to assume that non-overlapping confidence intervals indicate a statistically significant difference, it is not always the case that overlapping confidence intervals do not.
- xiii. The method for estimating a confidence interval varies depending on whether it is for a percentage, count, crude rate or standardised rate. The methods used are those detailed in the Association of Public Health Observatories’ Technical Briefing 3: Commonly used public health statistics and their confidence intervals.
- xiv. For example, the confidence interval associated with:
 - The figure of 185,122 for the total number of abortions of residents in England and Wales is 184,280 – 185,967 (Table 10a);
 - The age standardised rate of 16.5 abortions per 1000 resident women aged 15-44 in England and Wales is 16.5 to 16.6 (Table 10b);

- The figure of 80 per cent for the percentage of NHS funded abortions in NHS Eastern Cheshire CCG undertaken within 10 weeks gestation is 78 per cent to 81 per cent (Table 11).

- **Disclosure Control**

- xv. The Data Protection Act 1998 places a statutory obligation on the Department of Health to ensure that the statistics we release on abortion do not relate to a living individual who can be identified from those data alone or in conjunction with other available information, unless the conditions laid out in the Act are met. In recent years, the Department has attempted to meet this obligation by following the disclosure guidance for abortion statistics developed by the Office for National Statistics in July 2005. A judgment was handed down in 2011 by the High Court in a case relating to the release of information on principal medical condition for abortions performed under Ground E, showed that the disclosure controls set out in the guidance were overly cautious in some circumstances. The format of the tables in the annual report have therefore been revised, with a more limited degree of suppression applied, where still necessary to avoid the disclosure of personal data.

- **Geographical coding and naming**

- xvi. On 1st January 2011, the Government Statistical Service introduced a new coding and naming policy for statistical geographies. Nine-digit codes have been developed to ensure consistency when comparing geographical areas as the geographical area covered by an NHS organisation is susceptible to change. These unique markers have been added to the relevant tables within this publication.
- xvii. On the 1st April 2013 Clinical Commissioning Groups assumed commissioning of termination of pregnancy services under the health system reforms. Further information on the Coding and Naming for Statistical Geographies is available at:

<http://www.ons.gov.uk/ons/guide-method/geography/geographic-policy/coding-and-naming-for-statistical-geographies/index.html>

- **Rounding**

- xviii. Percentages are subject to rounding and totals may not agree with the sum of the component figures shown. Rates are also rounded.

- **Symbols**

- xix. The following symbols are used in the tables:
. = not applicable

Annex B: Further Information

- **Enquiries**

Enquiries about the data or requests for further information should be addressed to:

Abortion Statistics
Department of Health
Skipton House
80 London Road
London
SE1 6LH
e-mail: abortion.statistics@dh.gsi.gov.uk

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- **Links**

This bulletin for 2012, and previous bulletins for 2002 to 2011, can be found on the Department of Health website:

<http://transparency.dh.gov.uk/category/statistics/abortion>

Data for 1991 to 2001 can be sent by email on request.

Information on abortions carried out in Scotland can be found at:

<http://www.isdscotland.org/Health-Topics/Sexual-Health/Abortions>

Information about the release of abortion statistics in Scotland can be found at:

<http://www.isdscotland.org/Products-and-Services/Data-Protection-and-Confidentiality/Disclosure-Protocol-Version-2-2-WEBversion.pdf>

Facts and figures about abortion in the European Region can be found at:

<http://www.euro.who.int/en/what-we-do/health-topics/Life-stages/sexual-and-reproductive-health/activities/abortion/facts-and-figures-about-abortion-in-the-european-region>

Information on the incidence and recent trends in legal abortion worldwide can be found at:

<http://www.guttmacher.org/pubs/journals/3310607.html>

Conception statistics for England and Wales are available at:

<http://www.ons.gov.uk/ons/search/index.html?newquery=conception>

Statistics on the National Chlamydia Screening Programme are available at:

<http://www.chlamydiaSCREENING.nhs.uk/ps/data/index.html>

The British Isles Network of Congenital (BINOCAR) collect and publish data on terminations of pregnancy for fetal anomaly;

<http://www.binocar.org/Publications/Reports>