

## Birth Statistics from the National Community Child Health Database (NCCHD) Quality Report

### What are these statistics?

These statistics are derived from the National Community Child Health Database (NCCHD) which is Wales' national community child health database and consists of anonymised records for all children born, resident or treated in Wales and born after 1987. The database brings together data from local Community Child Health System databases which are held by Local Health Boards (LHBs) and used by them to administer child immunisation and health surveillance programmes. The statistics here are based on the data recorded on the NCCHD at birth and the intention of the release is to provide statistics on where and when babies were born, their birth weight, whether they were pre-term and about their mothers - their age and whether the babies were breastfed. It aims to provide an overview of Welsh births and to inform the delivery of maternity services and strategy.

### Source of the data

The source of the data is the NCCHD, held and maintained by the NHS Wales Informatics Service (NWIS). It is a national database established in 2004 and created by pulling together selected information from the locally managed community child health databases. NCCHD is an anonymised national database which is used to produce maternal and child statistics for the whole of Wales. More information about NCCHD can be found on the [NWIS Information and Statistics website](#)<sup>1</sup> and details of the source database at: [Community Child Health System](#). The NCCHD is also used as the source of published coverage statistics for child immunisations (see [immunisations](#) theme page and [Public Health Wales child immunisation statistics](#).)

### Coverage

The statistics cover data items which are recorded at birth and are of sufficient quality to publish. It is not meant to replace Office for National Statistics birth registration statistics which should be used for basic births statistics for Wales (see below).

The statistics relate to live births born to Welsh residents during the relevant calendar year. The analyses are for live births only and do not include stillbirths. However births occurring **in** Wales (whether to Welsh or non Welsh residents) can also be counted by the NCCHD and these are shown by maternity unit in a StatsWales table [here](#).

### Published Statistics on births in Wales

We currently publish 3 main annual outputs on births and deliveries in Wales. These utilise different sources of data and will be used in different circumstances:

The current statistics are published annually as *Births in Wales: data from the National Community Child Health Database*: The statistical release summarises birth data items on the NCCHD including data which is not available for Wales from other sources such as births by gestation and breastfeeding. See [Community Child Health](#) theme page.

*Births and Infant Mortality Statistics*: This bulletin summarises registered births and infant mortality statistics produced by the Office for National Statistics. It should be used as the main source of birth statistics for Wales. See [Birth and Infant Mortality Statistics](#) theme page.

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<sup>1</sup> Website in process of being updated

*Maternity Statistics: Method of Delivery:* This release summarises deliveries occurring in Welsh hospitals by method of delivery. The data source is PEDW (Patient Episode Data Wales) and is for hospital deliveries only. The release includes information on length of stay, inductions, complications and so on. See [Maternity Statistics](#) theme page.

### **Health Maps Wales:**

NWIS's Health Maps Wales is an interactive tool that can be used to explore a variety of health indicators. The maps allow the user to explore data at their geographic area of choice (where available), to look at trends and to compare areas against a Wales comparison figure. Indicators are available at Middle Super Output Area (MSOA), Upper Super Output Area (USOA) and Unitary Authority (UA) level subject to rules of disclosure and small numbers. Data from the NCCHD include indicators for birth and baby information such as birthweight, maternal age, gestational age and breastfeeding. See [Health Maps Wales](#)

Data from the NCCHD is also used by the **All Wales Perinatal Survey** to analyse early child deaths; their latest annual report is available [here](#).

### **Users and uses:**

The aim of these statistics is to present data which is available from a routine administrative source in an accessible format providing a summary of birth statistics trends over time and patterns across Wales.

We believe the key users of these statistics are:

- Ministers and the Members Research Service in the National Assembly for Wales;
- Local Health Boards;
- the research community;
- students, academics and universities;
- those concerned with maternal health, individual citizens and private hospitals;
- NHS organisations;
- voluntary birth organisations.

The statistics are used in a variety of ways. Some examples of the uses include:

- Advice to Ministers;
- to inform debate in the National Assembly for Wales and beyond;
- to make publicly available data on birth statistics in Wales;
- providing data for monitoring service delivery and specifically to provide evidence and indicators for the Maternity Strategy;
- policy development;
- providing advice on birth choices.

If you are a user and do not feel the above list adequately covers you, or if you would like to be added to our circulation list, please let us know by e-mailing [stats.healthinfo@wales.gsi.gov.uk](mailto:stats.healthinfo@wales.gsi.gov.uk)

### **Strengths and Limitations of the data**

#### **Strengths**

- By presenting key birth statistics the outputs aim to meet the varying requirements of the wide range of users referred to above.
- The information is processed and published regularly and in an ordered manner to enable users to see the statistics when they are current and of greatest interest.
- Outputs have a clear focus on Wales and have been developed to meet the internal and external user need in Wales. They aim to contribute to the statistical context for current strategy in the area of maternity services in Wales.
- Recent versions of the release include counts of births in Welsh maternity units as well as to Welsh residents which should provide a greater range of statistics for users.
- Efficient use has been made of administrative data sources to produce outputs.

- Detailed statistics are provided via our StatsWales website.

## Limitations

- Some crucial pieces of information which would add to the understanding the profile of births in Wales are not useable from this source, mostly for reasons of completeness; data items on the details of delivery (eg onset of labour, method of delivery) and mothers' characteristics (eg whether the mother smokes) are incomplete. We are working with NWIS and LHBs to improve the quality of specific data items.
- The StatsWales information is intended for a more informed audience, with little explanation to enable other users to interpret the data appropriately.
- The fact of having several sources of birth data may be confusing for users. Work arising out of the recent [Maternity Strategy in Wales](#) is trying to rationalise the data sources available and the data used centrally for analysis. The value of utilising more than one source of birth data was demonstrated in a [Statistical Article](#) published in 2010 which presented analyses of linked anonymised birth records with the relevant hospital delivery records.

## Definitions

NCCHD data items are listed in the [NHS Wales Data Dictionary](#). The main data items used in these statistics are defined as followed:

### NCCHD data items used in published birth statistics

Data item	Data item description
Welsh birth	Indicator for a birth which occurred to a mother normally resident in Wales at time of birth, regardless of where in the country the birth occurred; recorded values are Y or N.
Stillbirth	Indicator for a stillbirth derived from status codes on the Child Health System record.
Sex	Gender of the child
LHB	The Local Health Board with responsibility for the child based on residence.
Number Born	The number of births (live or still born) at a particular delivery (values of 1-5, 6+, 9 (unknown) are recorded)
Birth Weight	First weight of baby following delivery, recorded preferably in the first hour of life; measured in grammes.
Age of Mother	Mother's age at time of birth; measured in years and derived from date of birth of mother.
Breast Feeding at Birth <sup>2</sup>	Breast feeding (either wholly or partially) intention recorded at birth. Included is any breast feeding or giving of breast milk to infants; recorded values are Y or N.
Gestational Age	Best estimate of gestation at time of delivery, normally based on post menstrual age but may be modified on the basis of ultrasound scan; measured in completed weeks.
Place of Birth	Actual place of child's birth, i.e. hospital number or home Organisation code - For a hospital birth DOM = Home birth AMB = Born in ambulance
Time of Birth	Time of birth of child recorded in hours and minutes
Apgar 02	Apgar score of baby recorded at 5 minutes after birth. Value is integer between 0 and 10.

## Data processing cycle

**Data collection** – Data relating to children resident in Wales from the local child health databases is extracted by NWIS every quarter. A grouping process is then applied to the dataset by utilising valid anonymised NHS numbers so that records relating to the same child can be identified. From this the NCCHD database is built with the aim of obtaining maximum record completeness.

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<sup>2</sup> Note that it is likely that there is an inconsistency in recording practices between LHBs as to whether actual breastfeeding or intention to breastfeed is being recorded. Work is currently underway to improve the quality of infant feeding data (see below).

NWIS update the national database quarterly (end January, April, July and October). The Health Statistics and Analysis Unit of the Welsh Government, receives an extract of data from NWIS annually in May (based on the April refresh) for births occurring in the previous calendar year. The extract is of individual anonymised birth records.

**Validation and verification** – Data is submitted on EXCEL spreadsheets via Afon, the Welsh Government secure web data transfer system. The data is stored and analysed using an ACCESS database. Following routine consistency checks any queries are discussed with the NCCHD and Community Child Health teams in NWIS, Welsh Government colleagues and clinicians.

**Publication** - The statistics published by the Health Statistics and Analysis Unit are produced from the data provided by NWIS. The release is produced by updating the information from the previous edition. The information on the releases is checked against the data supplied independently. Summary data associated with the release is also updated on [StatsWales](#), our interactive web based tool. Birth data from NCCHD is also published on [Health Maps Wales](#).

**Disclosure and confidentiality** - NCCHD is a database containing information about individual children in Wales and it is paramount that their confidentiality be protected. The possibility of identifying confidential information about individuals from this data has been considered. Some data items may be of a sensitive nature and as a result published tables are designed so as to not contain many dimensions and low cell counts.

Users are directed to published data initially but may request additional tabulated data from the NCCHD team in the Information Services Department in NHS Wales Informatics Service (NWIS). In order to ensure the correct data is supplied users will be asked to refine the request and describe the use they intend to make of the data. They also may be asked to collapse groups if the team fear that the resulting table may be disclosive e.g. aggregated age groups rather than single years of age. Any requests for data that the team feels may be potentially disclosive are referred to the database Caldicott Guardian. Extract of micro-data (individual record level data) are available in a limited way and only when sufficient reassurance has been received that access, confidentiality and disclosure issues have been fully addressed by the potential user. All such requests will initially be referred to the Caldicott Guardian and will all require the user to complete a Data Access Agreement.

We adhere to our [statement on confidentiality and data access](#), issued in conformance with the requirements set out in Principle 5: Confidentiality of the Code of Practice for Official Statistics.

## Key Quality Information

National Statistics are produced to high professional standards set out in the Code of Practice for Official Statistics. They undergo regular quality assurance reviews to ensure that they meet customer needs. They are produced free from any political interference.

## Quality

Health Statistics and Analysis Unit adhere to a [quality strategy](#) and this is in line with Principle 4 of the [Code of Practice for Official Statistics](#). Specifically, the list below provides information according to the European Statistical System's six dimensions of quality.

## Relevance

*The degree to which the statistical product meets user needs for both coverage and content.*

The statistics provide an overview of key birth indicators in Wales. There is a recognition, however, that there are a number of sources of birth and maternity data which are not integrated (see "Coverage" above). Work to improve, rationalise and better integrate birth statistics in Wales have

been ongoing for some time and in the context of the Maternity Strategy, we are working with policy colleagues to make plans for improved maternity data collection and statistical publication. The value of integrating available sources via data linkage has been discussed above (see Statistical Article mentioned under “Strengths and Limitations”) and is being demonstrated by a data linkage project led by City University and reported on in [Health Statistics Quarterly no 49](#). The project is currently investigating the quality of data resulting from linkage of birth registration (“NHS Numbers for Babies - NN4B”) data to PEDW and NCCHD records.

On our [Health and Social Care theme page](#) we provide background to our statistics and information for users. We encourage users of the statistics to contact us to let us know how they use the data.

We consult with key users prior to making changes, and where possible publicise changes on the internet, at committees and other networks to consult with users more widely. We aim to respond quickly to policy changes to ensure our statistics remain relevant.

We actively review all our outputs and welcome feedback; if you would like to make any comments, please e-mail [stats.healthinfo@wales.gsi.gov.uk](mailto:stats.healthinfo@wales.gsi.gov.uk)

## Accuracy

*The closeness between an estimated result and an (unknown) true value.*

The number of live births to Welsh residents recorded on NCCHD compares well with those recorded in birth registration statistics by ONS. This emphasises the completeness of the NCCHD data at the all-Wales level.

As an example, the tables below show percentage comparisons between NCCHD and ONS registered live births for 2008-11:

### Live births by mother's age

*% of births with stated mother's age*

Mother's age	2008		2009		2010		2011	
	NCCHD	ONS	NCCHD	ONS	NCCHD	ONS	NCCHD	ONS
Under 16	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.1
16-19	8.4	8.4	8.1	8.0	7.6	7.5	6.8	6.6
20-24	22.9	22.9	23.4	23.4	23.1	23.0	22.7	22.7
25-29	27.7	27.8	28.7	28.8	28.7	28.9	28.8	28.9
30-34	23.8	23.8	23.5	23.5	24.4	24.4	25.5	25.6
35-39	14.0	14.1	13.2	13.3	13.0	13.0	12.9	13.0
40-44	2.7	2.7	2.8	2.8	2.8	2.9	3.0	2.9
45 and over	0.1	0.1	0.1	0.1	0.2	0.2	0.1	0.2
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Total stated	35,746	35,650	34,858	34,937	36,024	35,952	35,678	35,598



## Live births by birthweight

*% of births with stated birthweight*

Birth weight	2008		2009		2010		2011	
	NCCHD	ONS	NCCHD	ONS	NCCHD	ONS	NCCHD	ONS
Under 2000g	2.6	2.7	2.5	2.6	2.5	2.7	2.4	2.6
2000-2499g	4.5	4.4	4.6	4.6	4.3	4.3	4.3	4.2
2500-2999g	15.6	15.6	16.0	16.0	15.5	15.6	15.7	15.8
3000-3999g	65.4	65.3	65.3	65.2	65.5	65.4	65.6	65.6
4000g or more	12.0	11.9	11.5	11.5	12.1	12.0	11.9	11.8
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Total stated	35,688	35,500	34,801	34,652	35,954	35,475	35,643	35,337

A [study](#) published by ONS on Linking Maternity Data for Wales commented on the good completeness and quality of birth data from the NCCHD<sup>3</sup>. With the exception of breastfeeding data and Apgar scores, items in the statistics were more than 99% complete. The database includes other data items which are potentially of interest and in an attempt to improve both these and the currently used data items data quality work continues, guided by a service board of NHS, Welsh Government, and academic colleagues.

Introduction of new breastfeeding definitions: from September 2012 Health Boards started to record infant feeding data on to the Child Health System according to revised definitions which should provide more detailed breastfeeding data in future. While the change is being made from the old recording method to the new NWIS have combined the data fields to utilise as much data as possible.

The charts and tables in the statistics may include categories for not stated data. Calculated percentages exclude not stated values from the denominator unless otherwise stated. The quantity of missing data for each data item is referred to throughout the text.

Following each quarterly refresh of the database, completeness tables for key variables are posted on the NHS Wales Intranet for LHBs to review.

Non-sampling error is reduced by standards and guidance is provided about the data collections (see above). Where non-sampling error affects the data, we provide full information for users to allow them to make informed judgements on the quality of the statistics, particularly if there are limitations of the data.

NCCHD is a live database and is refreshed quarterly. If reports are run from subsequent versions of the database counts will differ from published figures. Historical data is not revised unless errors are discovered. In the case of incorrect data being published, revisions would be made and users informed in conjunction with the Welsh Government's [Revisions, Errors and Postponements Arrangements](#). This happens infrequently but occasionally does happen, for example the 2009 data in these statistics were revised following the discovery that a small number of live births had been omitted from the 2009 dataset when first published. The subsequent re-run of the data resulted in a net addition of 126 live births; this revision was highlighted in the 2010 release and the associated StatsWales tables revised.

### Timeliness and punctuality

*Timeliness refers to the lapse of time between publication and the period to which the data refer. Punctuality refers to the time lag between the actual and planned dates of publication.*

<sup>3</sup> <http://www.ons.gov.uk/ons/rel/hsq/health-analysis/linking-maternity-data-for-wales--2005-07--methods-and-data-quality/linking-maternity-data-for-wales.html>

The Health Statistics and Analysis Unit of the Welsh Government receives an extract of data from NWIS annually in May for births occurring in the previous calendar year. The NCCHD is refreshed from local Child Health System databases every quarter (end January, April, July and October) and, in order to allow for any late recording of births, the April refresh rather than the January refresh is utilised.

All outputs adhere to the Code of Practice by pre-announcing the date of publication through the [Due Out Soon](#) web pages. Furthermore, should the need arise to postpone an output this would follow the Welsh Government's [Revisions, Errors and Postponements](#) arrangements.

We publish releases as soon as practical after the relevant time period. Births in Wales: Data from the National Community Child Health Database is published annually in July.

### **Accessibility and clarity**

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

The statistics are published in an accessible, orderly, pre-announced manner on the Welsh Government website at 9:30am on the day of publication. An RSS feed alerts registered users to this publication. Simultaneously the releases are also published on the National Statistics Publication Hub. We also publicise our outputs on [Twitter](#). All releases are available to download for free.

More detailed data is available at the same time on the [StatsWales](#) website and this can be manipulated online or downloaded into spreadsheets for use offline.

We aim to use Plain English in our outputs and all outputs adhere to the Welsh Government's [accessibility policy](#). Furthermore, all our headlines are published in Welsh and English.

Further information regarding the statistics can be obtained by contacting the relevant staff detailed on the release or via [stats.healthinfo@wales.gsi.gov.uk](mailto:stats.healthinfo@wales.gsi.gov.uk)

NWIS run a request service from the National Community Child Health Database:

Contact details:

e-mail: [Louise.Richards7@wales.nhs.uk](mailto:Louise.Richards7@wales.nhs.uk)

### **Comparability**

*The degree to which data can be agreed over both time and domain.*

Where there are changes to the data provided, this is shown clearly in the outputs. Where advance warning is known of future changes these will be pre-announced in accordance with Welsh Government arrangements.

Other countries do not have an equivalent national community child health database although they do publish statistics on related areas, for example [Department of Health publishes infant feeding data for England](#).

The [ISD publishes information for Scotland on child health](#) and on [maternity & births](#).

Northern Ireland statistics on public health are available from the [Northern Ireland Public Health Agency](#) and demography statistics from the [Northern Ireland Statistics & Research Agency \(NISRA\)](#).

All countries publish maternity statistics; more information on their comparability across the UK is provided in the [Maternity Statistics Quality Report](#).

## **Coherence**

*The degree to which data that are derived from different sources or methods, but which refer to the same phenomenon, are similar.*

Every year the data are all collected from the same source and adhere to the national standard; they will also be coherent within and across health organisations. However work continues to improve consistency of standards and definition guided by a steering group for the database.

## **National Statistics**

The United Kingdom Statistics Authority has designated these statistics as National Statistics, in accordance with the Statistics and Registration Service Act 2007 and signifying compliance with the Code of Practice for Official Statistics. Designation can be broadly interpreted to mean that the statistics:

- meet identified user needs;
- are well explained and readily accessible;
- are produced according to sound methods, and
- are managed impartially and objectively in the public interest.

Once statistics have been designated as National Statistics it is a statutory requirement that the Code of Practice shall continue to be observed.

## **Dissemination**

All the data is of sufficient quality following the processes outlined above to justify publication. The high level messages are published on the first page of the relevant release and high level charts are included in the release. All the actual data provided is published on our interactive website [StatsWales](#).

## **Evaluation**

We always welcome feedback on any of our statistics. If you would like to make any comments, please e-mail us at [stats.healthinfo@wales.gsi.gov.uk](mailto:stats.healthinfo@wales.gsi.gov.uk)

Produced by the Knowledge and Analytical Services, Welsh Government

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