

## NHS Beds

This report covers the processes leading up to the publication of the NHS Beds statistics and also considers issues of quality such as: coverage, strength and limitations of the data, relevance and comparability.

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## What are these statistics?

The NHS Beds statistical first release provides data on bed use in NHS hospitals in Wales. The data is presented at Wales and local health board (LHB) level for average daily available beds, average daily occupied beds and occupancy rates. The data covers all beds in NHS hospitals in Wales.

Each bed and patient attendance is classified by specialty. Information by specialty can be found on [StatsWales](#), and are aggregated to align with specialty groups presented in the [NHS Wales Data Dictionary](#). A number of specialties are excluded from the totals for average daily available beds, average daily occupied beds and percentage occupancy. These are:

- Special Care Baby Unit
- High Dependency Care
- Intensive Care
- Paediatric Intensive Therapy Unit
- Bone Marrow Unit

Data for these are included under the appropriate specialty but aren't included in totals.

The 'average daily available beds' is worked out using the following formula =

$$\frac{M1 + M2 + M3 + M4 + M5 + M6 + M7 + M8 + M9 + M10 + M11 + M12}{12}$$

Where M = Monthly data. The same methodology is applied to the annual average daily occupied beds.

This formula is used from 2013-14, a different methodology was used before this, see the [Comparability](#) section for more information.

Prior to 2012-13, additional measures were published alongside available and occupied beds. These were:

- Average duration of stay – The length of time, on average, each inpatient physically occupied a bed (in days). Calculated by multiplying 'average daily occupied beds' by 365 and dividing by 'inpatient cases'. Care should be taken when using these figures if the corresponding 'inpatient cases' is small, because this may result in a large value due to the calculation performed.
- Bed use factor – Average number of patients using each bed during the period under review. Calculated by dividing 'inpatient cases' by 'average daily available beds'. Care should be taken when using these figures if the corresponding 'average daily available beds' is small, because this may result in a large value due to the calculation performed
- Inpatient cases (deaths and discharges) - All inpatients who have gone through the full admission procedure as an emergency or those admitted electively with the intention of staying in hospital at least one night and who have subsequently been discharged (or

transferred to another hospital) or have died in hospital. Infants born in a maternity department, healthy persons accompanying inpatients and sick staff treated in their own quarters are not included.

- Turnover interval - The average length of time, in days, that the bed is empty between each patient. Calculated multiplying 'average daily unoccupied beds' by 365 and dividing by 'inpatient cases'. On some occasions, 'average daily occupied beds' may exceed 'average daily available beds', leading to a negative value for 'turnover interval'. Care should be taken when using these figures if the corresponding 'inpatient cases' is small, because this may result in a large value due to the calculation performed.

These are no longer calculated as they used data on deaths and discharges which is no longer collected via the QS1 return. The data can be derived from the Patient Episode Database for Wales (PEDW) for 2012-13 onwards but data quality issues arose in relation to assessment unit (AU) activity reporting in QS1 and in PEDW and how this should be treated in the data. It was identified that there is inconsistency in the reporting of assessment units, with some LHBs reporting AU activity within their beds data, and others omitting them. This inconsistency in the reporting of AU activity is also likely to affect historic data.

Each bed and patient attendance is classified by the specialty of the consultant responsible for the care of the patient. Specialties have been aggregated into the following groups for use on

[StatsWales](#):

**Surgical acute:**

General surgery  
Urology  
Traumatic and orthopaedic surgery  
Ear, nose and throat  
Ophthalmology  
Oral surgery  
Restorative dentistry  
Paediatric dentistry  
Orthodontics  
Neurosurgery  
Plastic surgery (non-burns)  
Plastic surgery (burns)  
Cardiothoracic - Cardiac surgery  
Cardiothoracic - Thoracic surgery  
Paediatric cardiac surgery  
Paediatric surgery  
Accident and emergency  
Anaesthetics  
Pain management

**Medical acute:**

General Medicine  
Gastroenterology  
Endocrinology  
Clinical Haematology

Clinical Physiology  
Clinical Pharmacology  
Audiological Medicine  
Clinical Genetics  
Rehabilitation Service  
Palliative Medicine  
Paediatric Cardiology  
Cardiology  
Dermatology  
Thoracic Medicine  
Infectious Diseases  
Spinal Injuries  
Other Neurology  
Clinical Neurophysiology  
Genito-Urinary Medicine  
Nephrology  
Medical Oncology  
Nuclear Medicine  
Rheumatology  
Paediatrics  
Paediatric Neurology  
Dental Medicine

**Other acute:**

Gynaecology  
GP other than Maternity  
Clinical Oncology  
Radiology

**Maternity:**

Obstetrics  
GP maternity  
Antenatal Clinic  
Midwifery Service

**Mental illness:**

Adult Mental illness  
Child and adolescent psychiatry  
Forensic psychiatry  
Psychotherapy  
Old Age Psychiatry

**Pathology:**

General Pathology  
Chemical Pathology  
Non- Clinical Haematology  
Medical Microbiology

**Geriatric medicine**

**Learning disability**

**Community Medicine**

**Occupational Medicine**

**Nursing Activity**

**High Dependency Care**

**Paediatric Intensive Therapy Unit**

**Special Care Baby Units**

**Bone Marrow Unit**

**Intensive Care**

## Well-being of Future Generations Act (WFG)

The Well-being of Future Generations Act 2015 is about improving the social, economic, environmental and cultural well-being of Wales. The Act puts in place seven well-being goals for Wales. These are for a more equal, prosperous, resilient, healthier and globally responsible Wales, with cohesive communities and a vibrant culture and thriving Welsh language. Under section (10)(1) of the Act, the Welsh Ministers must (a) publish indicators (“national indicators”) that must be applied for the purpose of measuring progress towards the achievement of the Well-being goals, and (b) lay a copy of the national indicators before the National Assembly. The 46 national indicators were laid in March 2016.

Information on the indicators, along with narratives for each of the well-being goals and associated technical information is available in the [Well-being of Wales report](#).

Further information on the [Well-being of Future Generations \(Wales\) Act 2015](#).

The statistics included in this release could also provide supporting narrative to the national indicators and be used by public services boards in relation to their local well-being assessments and local well-being plans.

## Users and uses

An understanding of trends in NHS Bed availability and occupancy is useful for those involved in planning and decision making at the national and local level.

We believe the key users of statistics are:

- Ministers and their advisors
- Assembly members and Members Research Service in the National Assembly for Wales
- Officials within the Department for Health and Social Services at Welsh Government
- NHS Wales
- Students, academics and universities
- Other areas of the Welsh Government
- Other government departments
- Media
- Individual citizens.

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

- Advice to Ministers
- To assess, manage and monitor NHS Wales Activity
- To inform service improvement projects for areas of focus and opportunities for quality improvement
- By NHS Local Health Boards, to benchmark themselves against other Local Health Boards
- To help determine the service the public may receive from NHS Wales.

If you are a user and do not feel the above list adequately covers you please let us know via [stats.healthinfo@gov.wales](mailto:stats.healthinfo@gov.wales).

## Using administrative data for statistical purposes

The QS1 return uses administrative data held by hospital systems within local health boards. As detailed in the following paragraphs, the health boards submit aggregate data to the NHS Wales Informatics Service (NWIS), who then provides the data to Welsh Government for publication. The aggregate data is subject to validation checks as detailed in the sections that follow.

We have used the guidance provided by the UK Statistics Authority's [Administrative Data Quality Assurance Toolkit](#) to carry out an initial assessment of the risk profile of the aggregate data used to produce the NHS Beds release.

We consider the data to be medium risk in terms of data quality, and low profile in terms of public interest. The reasons for this are that there are well defined standards and definitions in place for the data collected, but the data are collected from multiple hospital sites across local health boards and there may be some variation in how the data are collected and processed at different sites.

According to the UK Statistics Authority toolkit, this suggests we should be seeking basic or enhanced assurance (A1/A2) in areas such as the collection process, communication with data suppliers, quality assurance methods and documentation.

## Strengths and limitations of the data

### Strengths

- There are clear, well defined standards, definitions and accompanying guidance in place in the [NHS Wales Data Dictionary](#), helping to ensure consistency in data submitted by all LHBs across Wales.
- Outputs have a clear focus on Wales and have been developed to meet the internal and external user need in Wales.
- Efficient use has been made of administrative data sources to produce outputs. The administrative data source used is the patient administration system which collects demographic data, medical records and diagnostic information for patients at Welsh hospitals.
- Detailed statistics are published via our StatsWales website by LHB, hospital site and speciality.
- The data includes all beds in NHS hospitals in Wales.
- Data has been published since 1989-90 so users can see a long term trend on bed use.

## Limitations

- The data collection uses administrative data held by hospital systems. This means that the data have been collected for administrative purposes and not statistical purposes. Therefore, despite the safeguards in place there may be some data quality issues. Please see the section on [Accuracy](#) for more information.
- Data provided to NWIS is aggregated, which limits the validation that can be carried out by NWIS.
- The StatsWales information has little explanation to enable other users to interpret the data appropriately. However, it is intended for a more informed audience.
- Because of the devolved administrations and differing policy, there is little scope for UK comparisons (see [Coherence](#) later in the document).

## Data processing cycle

### Data collection

The information presented in this release is derived from the QueSt 1 (QS1) return. Details of the submission can be found in the [NHS Wales Data Dictionary](#). The QS1 return, introduced in 1996, provides aggregate data on bed availability and occupation in NHS hospitals in Wales. In this release we compare current figures with figures for 1996-97 as this was the first financial year since the introduction of the QS1. Data are collected from individual local health boards in Wales by NHS Wales Informatics Service (NWIS) and are subject to validation checks centrally prior to publication. It is the responsibility of these organisations to ensure that the figures have been compiled correctly in accordance with central definitions and guidelines.

There were changes to the collection in 2012-13, see [Comparability](#) for details.

### Validation and verification

NWIS validate the data as it is loaded into their switching service database. This includes checks, such as whether valid codes are submitted for all the fields, month on month changes at LHB level and comparisons at a service level, and allows LHBs to do an initial check and correct their data. Further information on the quality assurance work that NWIS undertake on data used to produce Official and National Statistics can be found in [NWIS Data Quality Assurance](#).

Once the Health Statistics and Analysis Unit, in Welsh Government, receive the data, it goes through further checks and any queries are sent to NWIS and/or LHBs. This allows the LHBs to check and correct or comment on their data, to provide contextual information where unexpected changes have occurred. The Welsh Government does not input any data to the submissions and any changes are made by the LHB and the data resubmitted via NWIS.

## Publication

The statistics published by the Health Statistics and Analysis Unit are produced by summarising the information provided by the LHBs. This is a semi-automated process but key points and commentary are produced separately. Prior to publication the information is checked against the data supplied. The information presented on StatsWales is produced automatically.

Data is published annually in a Statistical First Release alongside interactive tables on StatsWales.

## Revisions

Notes at the end of the release inform the users whether the outputs have been revised or not (denoted r). We will also give an indication of the size of the revision between the latest and previous release. Revisions to data occur for a number of reasons such as: late returned data, incorrect estimates or revised back data.

In the unlikely event of incorrect data being published, revisions would be made and users informed in conjunction with the our [Revisions, errors and postponements](#) arrangements.

## National Statistics status

The statistics in this release are published in accordance with the Statistics and Registration Service Act 2007 and signifying compliance with the Code of Practice for Statistics, however they are not badged as National Statistics. These statistics have not been recently assessed by the Statistics Authority and limitations of the data are explained [here](#).

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 UK Statistics 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 Welsh Government'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.

## Disclosure and confidentiality

While there are some small numbers in the data collected and presented, the information is not considered to be sensitive in nature and there is no identifying information presented.

We adhere to our [statement on confidentiality and data access](#) and the Data governance principle of the Trustworthiness pillar in the [Code of Practice for Statistics](#).

## Quality

Health Statistics and Analysis Unit adhere to a [quality strategy](#) and the Quality pillar of the Code of Practice for statistics.

Specifically, the list below details the six dimensions of the European Statistical system and how we adhere to them.

### Relevance

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

We encourage users of the statistics to contact us to let us know how they use the data. It would not be possible to provide tables to meet all user needs, but the tables published in the release and StatsWales aim to answer the common questions.

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 regularly review all our outputs and welcome feedback.

### Accuracy

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

Accuracy can be broken down into sampling and non-sampling error. Non-sampling error includes areas such as coverage error, non-response error, measurement error, processing error.

This is an established collection based on 100% data i.e. not a sample.

For most months, all local health boards are able to supply data and no estimation of the figures is needed. If an estimate were to be used, because an LHB was unable to supply data for a particular month, this will be clearly outlined in the release.

We haven't investigated non-sampling errors. However, processing errors could occur where clerks in hospitals incorrectly input data into their administrative systems, or measurement errors could occur from staff in hospitals having different interpretations of definitions. To reduce non-sampling errors, standards and guidance are provided about the data collections, to try to ensure that LHBs submit information according to an agreed specification. Standards relating to this data collection have been reviewed and passed by the [Information Standards Board](#). 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. More information on the definitions, collection and interpretation of nationally agreed data standards adopted by the NHS in Wales can be found in the [NHS Wales Data Dictionary](#).

The outputs include key quality information on coverage, timing and geography.

There are quality assurance procedures in place to understand and explain movements in the data and to check that the computer system is calculating the published statistics correctly.



## **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

All outputs adhere to the Code of Practice by pre-announcing the date of publication through the [Upcoming calendar](#). Furthermore, should the need arise to postpone an output this would follow the our [Revisions, errors and postponements](#) arrangements.

We publish releases as soon as practicable after the relevant time period. Data is collected monthly by NWIS and published annually by Knowledge and Analytical Services (KAS), Welsh Government. This allows for the significant validation by LHBs, NWIS and KAS. In addition, as we publish annually, it is unlikely that late submissions would greatly affect the publication.

## **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. We also publicise the outputs on [Twitter](#). Simultaneously the release is also published on the National Statistics Publication Hub. 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 [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@gov.wales](mailto:stats.healthinfo@gov.wales)

We aim to use Plain English in our outputs and they 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 in each release or via [stats.healthinfo@gov.wales](mailto:stats.healthinfo@gov.wales).

## **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.

Agreed standards and definitions within Wales provide assurance that the data is consistent across local health boards.

The QS1 return changed in January 2013, as detailed in [DSCN 2013 \(02\)](#) when the reporting of bed usage and clinic information went from being a quarterly requirement to a monthly submission. QS1 data items that were able to be derived from other NHS Wales datasets (such as patient level datasets) were retired from this point onwards. The main impact of this change is that the data for deaths and discharges (used in calculations for average length of stay, turnover interval and bed use factor) will be derived from the [Patient Episode Database for Wales \(PEDW\)](#) for 2012-13 data onwards.

However, for each LHB, the PEDW data needs to be matched to the QS1 data in order to ensure that Assessment Unit (AU) activity is reported on the same basis. For example, if an LHB includes AU activity within the QS1 bed data, the PEDW data will need to be derived so that AU activity is included within the deaths and discharges figure, so that the indicator can be calculated on a consistent basis.

This exercise of matching the PEDW data to the QS1 data requires data quality work, and therefore this release only presents those indicators derived from QS1 alone, i.e. average available daily and occupied beds.

Despite the fact that this release only presents data from the QS1 return on average available daily and occupied beds, the quality assurance has highlighted that not all LHBs have reported AU activity in the same way for their beds data. Although this inconsistency in the reporting of AU activity was identified for the 2012-13 release, it is likely that historic data could also be affected.

Due to the data quality issues, users are advised to use caution when making data comparisons, particularly at LHB level.

There is a different methodology for calculating the average annual available and occupied daily beds in order to take into account of the change from the reporting of quarterly QS1 information to monthly in January 2013. From 2013-14, the methodology is as follows:

Annual average daily available beds =

$$\frac{M1 + M2 + M3 + M4 + M5 + M6 + M7 + M8 + M9 + M10 + M11 + M12}{12}$$

Where M = Monthly data. The same methodology is applied to the annual average daily occupied beds.

In 2012-13, the methodology was:

$$\text{Annual average daily available beds} = \frac{Q1 + Q2 + Q3 + ((M10 + M11 + M12)/3)}{4}$$

In previous years, when the QS1 was collected quarterly the methodology was:

$$\text{Annual average daily available beds} = \frac{Q1 + Q2 + Q3 + Q4}{4}$$

Where Q = Quarterly data, M = Monthly data. The same methodology was applied to the annual average daily occupied beds.

## **Mental health beds in Powys**

From 1 April 2010, Powys Teaching LHB transferred mental health services to Aneurin Bevan LHB, Betsi Cadwaladr University LHB and Abertawe Bro Morgannwg University LHB. From 1 December 2015 the management of mental health services for Powys was transferred back to Powys from Abertawe Bro Morgannwg and Betsi Cadwaladr. This does not affect how the data is presented in this release or on StatsWales, as the data for the relevant hospitals affected by this in Powys have always been shown against Powys LHB (individually and in the LHB total), rather than against the LHB that the management of the service has been transferred to.

## **Coherence**

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

Beds data are available from other UK countries (see below) but note that because of the devolved administrations and differing policy, there is little scope for comparisons.

### **Data collected by other UK countries:**

#### **England**

NHS England publishes quarterly data on [Bed Availability and Occupancy](#). Data is available for overnight beds and day use only beds.

#### **Scotland**

The Information Services Division (ISD) in NHS Scotland publishes statistics on [Bed Availability and Occupancy](#) on their website.

#### **Northern Ireland**

In Northern Ireland, the Department of Health publish [Inpatient and day case activity](#) which includes available beds, occupied beds, occupancy rates, average length of stay, theatre activity and hospital births. All data are presented by health and social care trust, hospital and speciality.

## **Useful links**

[NHS Wales Data Dictionary](#)

[NHS Wales Data Dictionary: pages on QS1](#)

[Patient Episode Database for Wales \(PEDW\)](#)

[NHS Beds Annual Statistical First Release](#)

[StatsWales](#)

[Information Quality Improvement](#)

[NHS Information Standards](#)

[Local Health Board Data Quality Policies](#)

[UK Statistics Authority: Quality Assurance of Administrative Data](#)

## Evaluation

We always welcome feedback on any of our statistics. Please contact us on [stats.healthinfo@gov.wales](mailto:stats.healthinfo@gov.wales)

Produced by Knowledge & Analytical Services, Welsh Government

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