

NPDA Results Online: User Guide

Overview

The National Paediatric Diabetes Audit (NPDA) collects data from all paediatric diabetes units (PDUs) in England and Wales about the care they have provided to all children and young people using their services. The aim is to provide information that leads to improved quality of care for children and young people with diabetes.

Each year, key national findings are summarised and published. The results from each PDU, region and clinical commissioning group (CCG)/Local Health Board (LHB) are presented within [NPDA Results Online](#), our interactive reporting tool. This website allows you to see and compare the results of all participating PDUs in each audit year. The results shown within NPDA Results Online are for children and young people with Type 1 diabetes as numbers with other types of diabetes are usually too small at each PDU to provide useful data for comparison.

[A user guide for parents](#) is also available.

How to use the website

The side bar on the left shows the options available for viewing results (please note this will only display when the browser window is maximised)



- ← View and download the full annual report for your clinic
- ← View and compare clinic results for measures of your choice
- ← View and compare overall results for your [CCG](#) or [LHB](#)
- ← View and compare overall results within each regional diabetes network
- ← Compare clinics based on four key performance measures (see page 8)

Annual Reports

National Paediatric Diabetes Audit

Select from the criteria below to view an annual summary report of 2014-15 or 2015-16 NPDA results for any given Paediatric unit, region or CCG/LHB

Choose Data Year:

2016-17

Choose specific Unit:

Select a Unit/Hospital

View report

To view your annual report:

To display the annual report for a chosen PDU.

- Choose Data Year – choose which audit year results you wish to look at
- Choose specific unit – This refers to the PDU of interest
- Click “View report”
- Your annual report will appear as per below



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National Paediatric Diabetes Audit 2016/17

Final summary results for University Hospital of Wales (code PZ113) in the Wales region

Introduction

The National Paediatric Diabetes Audit (NPDA) was established in 2003 to support professionals, families and commissioners in improving the provision of care provided by paediatric diabetes units (PDU). The NPDA is commissioned by the Healthcare Quality Improvement Partnership (HQIP), funded by NHS England and the Welsh Government, and is delivered by the Royal College of Paediatrics and Child Health (RCPCH). All paediatric diabetes units in England and Wales participate in the audit, which involves submission of data relating to the care processes provided to, and diabetes outcomes achieved by, all children and young people under the age of 25 being cared for within these services.

This report summarises the results against the NPDA audit measures from data submitted to the audit collected between 01 April 2016 and 31 March 2017. In accordance with information governance rules, any data based on a number less than five have been suppressed and is shown as an “N/a” in the charts presented.

Results related to diabetes outcomes and care processes reported in this summary relate solely to children and young people with Type 1 diabetes, as numbers of children and young people with other types of diabetes are too small at a unit level to report. Please refer to the National Report, for summaries of outcomes and care processes received by all children and young people with Type 1 or Type 2 diabetes in England and Wales.

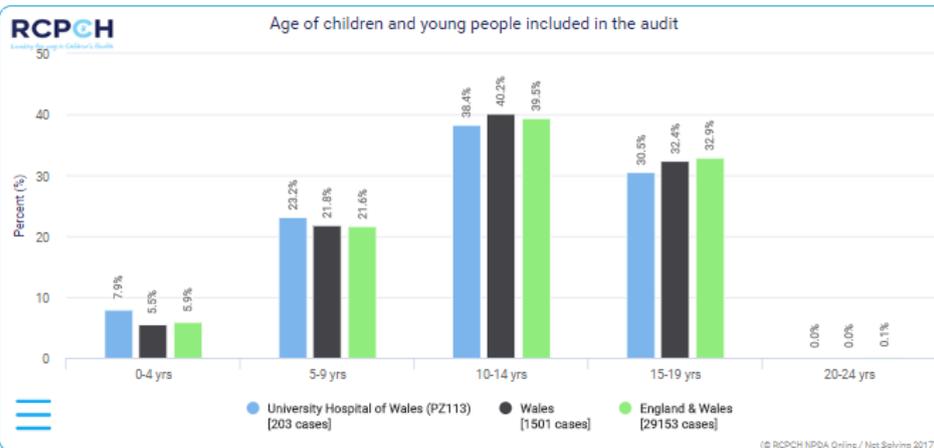
All previous national reports, lay summaries and data set information can be found at www.rcpch.ac.uk/npda.

Characteristics Care Processes HbA1c Treatment Microvascular Disease Macrovascular Risk Factors Education and Psych Support

Thyroid & Coeliac Disease

Clinic characteristics

A total of 203 children and young people (CYP) with diabetes who received treatment at University Hospital of Wales were included in the 2016/17 audit. A small number of people for whom data was provided were not included in the audit as they did not meet the audit criteria or did not have the minimum demographic data required. The charts below show the age and type of diabetes distribution.



Age Group	University Hospital of Wales (PZ113) [203 cases]	Wales [1501 cases]	England & Wales [29153 cases]
0-4 yrs	7.9%	5.6%	5.9%
5-9 yrs	23.2%	21.8%	21.6%
10-14 yrs	38.4%	40.2%	39.8%
15-19 yrs	30.5%	32.4%	32.9%
20-24 yrs	0.0%	0.0%	0.1%

Navigating the annual report

Introduction

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The [menu tabs](#) can be selected so that the relevant results can be viewed.

Menu Tab	Function
Characteristics	Displays the age, ethnicity breakdown and diabetes type of children attending a particular PDU
Care Processes	Discusses the completion of key health checks for children and young people with Type 1 diabetes. This includes the recommended seven key care processes (for children 12 years and older), four or more HbA1c measurements taken within the audit year, as well as screening for thyroid and coeliac disease within 90 days of diagnosis.
HbA1c	Shows a summary of HbA1c results for children and young people with Type 1 diabetes for a particular PDU. These results include a breakdown of HbA1c targets, the adjusted mean HbA1c, as well as the adjusted percentage of children and young people with a median HbA1c target of less than 58 mmol/mol and greater than 80 mmol/mol.
Treatment	Displays the percentage of children and young people with Type 1 diabetes receiving a particular treatment regime for a chosen PDU.
Microvascular disease	Shows the percentage of young people 12 years and older with Type 1 diabetes who have received screening for eye and kidney disease (urinary albuminuria).
Macrovascular Risk Factors	Shows the percentage of young people 12 years and older with Type 1 diabetes who have received screening for macrovascular risk factors such as blood pressure, cholesterol, and body mass index (BMI).
Education and Psychological Support	Displays a breakdown of children and young people with Type 1 diabetes for a chosen PDU who have received a psychological screening, received a structured education programme, and required further psychological support. It also displays any missing data on psychology services.
Thyroid and Coeliac Disease	Shows the percentage of children and young people with Type 1 diabetes who have been screened for thyroid and coeliac disease within 90 days of diagnosis.

Downloading an Annual Report

Choose Data Year:

Choose specific Unit:

[View report](#)

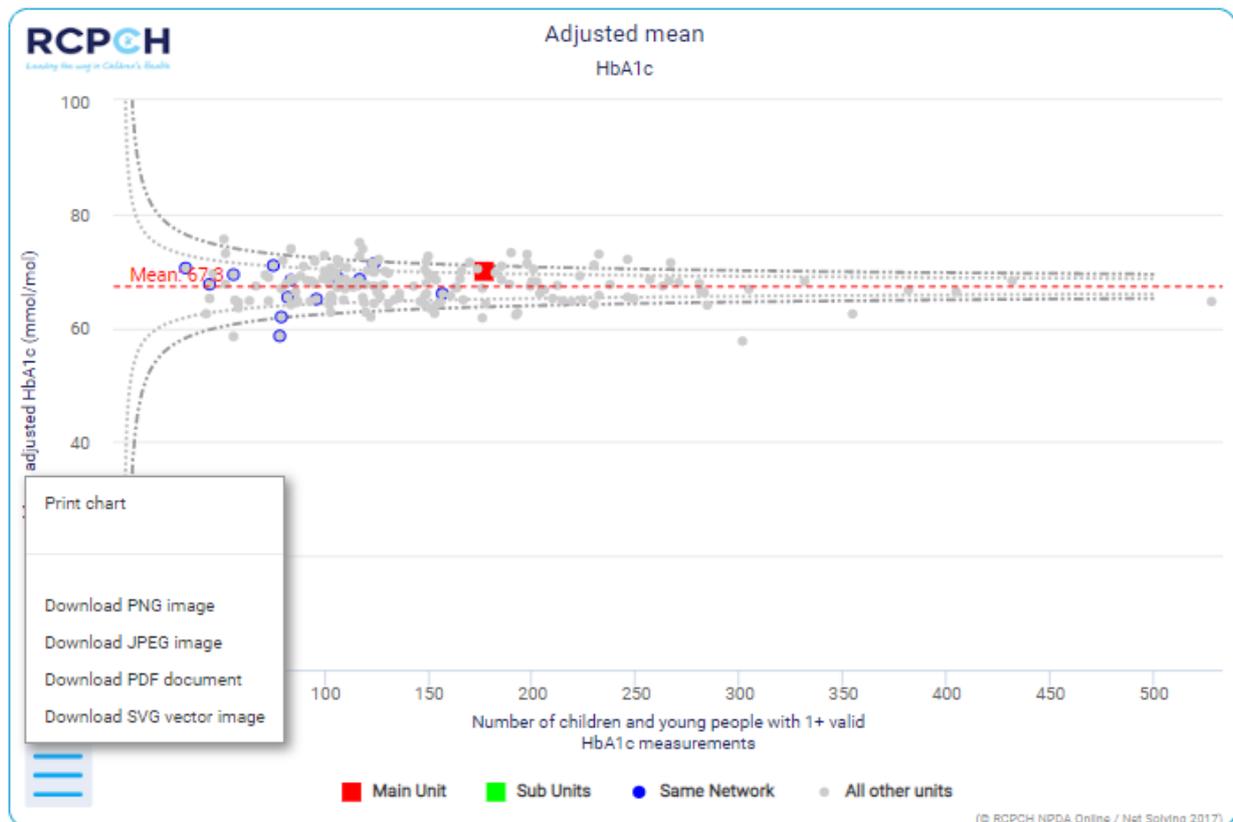
[Download all data below as a PDF](#)

Click the [above link](#), to download a copy of a PDU's Annual Report in PDF format.

Saving a chart

You can save any chart by downloading it directly from NPDA Results Online.

- Click on the three blue horizontal lines in the bottom left hand corner of the graph you wish to download.
- Select which format you would like to save your chart as
- Once selected, this will automatically download the chart image to your default downloads folder.



Unit/Regional Network/CCG/LHB Data

Individual audit measures are comparable at PDU, regional network and CCG/LHB level within the tool. 'Audit measures' refer to the data collected by the NPDA, such as the percentage of children and young people who have received particular health checks. The example below shows the interface when unit data is selected from the tabs on the left-hand side (the interfaces for reviewing regional network/CCG/LHB are very similar).

Regional network results are aggregated from all individual PDUs within each region within the National Children and Young People's Diabetes Network:

- East Midlands
- East of England
- London and South East
- North East
- North West
- South Central
- South West
- Wales
- West Midlands
- Yorkshire and Humber

CCG/LHB data is aggregated based on the patients' GP code, or home postcode when the former is missing.

Unit Data

(Please select your criteria below)

Audit Measures:	<input type="text" value="Select a specific audit measure"/>		
Chart Type:	<input type="text" value="Select a Chart Type"/>		
Primary Unit/Hospital:	<input type="text" value="Select a primary Unit/Hospital"/>		
2nd Unit/Hospital:	<input type="text" value="Select a second Unit/Hospital (OPTIONAL)"/>		
3rd Unit/Hospital:	<input type="text" value="Select a third Unit/Hospital (OPTIONAL)"/>		
4th Unit/Hospital:	<input type="text" value="Select a fourth Unit/Hospital (OPTIONAL)"/>		
Data year range from:	<input type="text" value="2015-16"/>	To Data year:	<input type="text" value="2015-16"/>

ALSO DISPLAY:

- Region Average National Average

[Help](#)

[View Chart](#)

Criteria	Function
Audit measures	Select which specific audit measure you wish to look at from a drop-down list
Chart type	Choose what type of chart/graph you'd like to display (see the glossary for descriptions of these)
Primary unit/hospital	Select which PDU you would like to review
2nd - 4th unit/hospital	Select any other PDUs that you would like to compare with your primary PDU.
Data year range	Select which year(s)'s results you are interested. Please note with a caterpillar chart, you can only view one audit year at a time.
Regional and national averages	Tick these if you would like to compare the results of your chosen PDU(s) with the regional and/or national results.
View chart	Once all fields have been filled, click this to see your graph.

Outlier Data

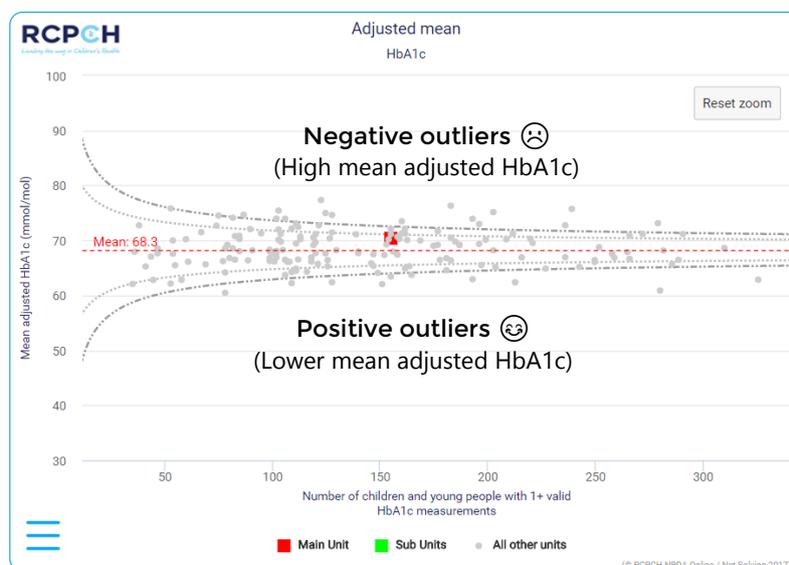
In this menu, the results of individual PDUs are displayed in funnel plots. These give an indication of national variation within the results against these measures. These also indicate which units are positive or negative outliers for each measure.

The NPDA has four key measures which define outliers:

- 1) Completion rate of health checks for those aged 12+
- 2) Adjusted mean HbA1c
- 3) Adjusted percentage of children and young people with an HbA1c less than 58 mmol/mol
- 4) Adjusted percentage of children and young people with an HbA1c more than 80 mmol/mol

For the NPDA, a PDU is an outlier when their result falls outside of three standard deviations from the mean. The light grey (dotted) line within the funnel plot represents two standard deviations from the mean (average) national result, while the dark grey (dotted and dashed) line represents three standard deviations.

Depending on the measure, units falling outside of the uppermost 3 standard deviation cut off line will be considered positive or negative outliers. In the example below (unit mean adjusted HbA1c), a lower adjusted HbA1c reflects better PDU diabetes outcomes. PDUs falling outside the top limits of the funnel would be considered negative outliers and those underneath the bottom limits are considered to be positive outliers. The reverse would be true for the completion rate of health checks for those aged 12+, as a higher rate of checks represents better care.



Interpreting the Results

Care process completion



The NPDA looks at how many children and young people with Type 1 diabetes receive key health checks or care processes recommended by the National Institute for Health and Care Excellence (NICE) within an audit year. Three of these are recommended for children of all ages (HbA1c, height and weight and thyroid). The other four health checks are recommended for children aged 12 years and above. Only children and young people with a complete year of care (i.e, who did not transition to adult services and were not diagnosed within the audit year) are included.

How is this determined?

The care process is considered complete if the young person has been checked at least once during the audit period. Below are the seven key care processes that have been recommended to be completed annually by NICE.

- 1) HbA1c
 - At the time of measurement, HbA1c indicates average blood glucose levels over the previous six to eight weeks.
- 2) Body Mass Index (BMI)
 - Helps to determine if someone is a healthy weight for their height
- 3) Blood pressure
 - To check for hypertension
- 4) Urinary albumin
 - The urinary albumin to creatinine ratio is checked for signs of kidney disease.
- 5) Thyroid
 - To check the risk of developing thyroid disease
- 6) Eye screening
 - Eyes are checked for signs of retinopathy
- 7) Foot Examination
 - Foot examination checks for neuropathy or damage to blood vessels

Other care completion audit measures

- **Completion of all 7 key care processes** –the actual percentage of children and young people with Type 1 diabetes and aged 12+ who have received all seven key care processes (mentioned above) within ythe PDU, CCG/LHB or regional network,
- **Care process completion: Overall health check completion rate for young people aged 12+** – the overall percentage of key care processes that were completed for the above population within the PDU, CCG/LHB or regional network.

$$\frac{\text{Total number of key care processes completed}}{(\text{Total number of young people 12+}) \times 7}$$

What do the results mean?

- Higher percentages are better than lower ones because they reflect higher numbers of children and young people receiving the recommended checks.
- Lower health check completion rates may reflect a need for improvement in recording of health checks, poorer engagement with the children and young people or families using the service, or inadequate staffing or service design.

Please note: The audit collects data from visits to PDU between the 1st April and 31st March the following year, and some children and young people’s annual checks may fall slightly outside of these dates. not have their annual review before the end of the audit year. This means that completion rates of 100% are unlikely.

Health check screening at diagnosis



NICE guidance also recommends for children and young people with Type 1 diabetes to be screened for thyroid and coeliac disease when they are diagnosed.



Who is included?

For this measure, the NPDA includes any child or young person who:

- Has Type 1 diabetes
- Has been diagnosed within the audit period (1st April till 31st March of the following year)

How is this determined?

These health checks are considered as completed if screening for coeliac disease and thyroid disease are completed within 90 days of diagnosis of Type 1 diabetes (regardless of the child or young person’s age)

HbA1c



NICE guidance recommends an HbA1c of 48mmol/mol (6.5%) or lower to reduce the risk of diabetes-related complications. NPDA results show that low numbers of children and young people with Type 1 diabetes are meeting this target, although this number is increasing year on year.

NPDA Results Online breaks down the percentages of children and young people achieving current and previous NICE-recommended HbA1c targets.

What are adjusted HbA1c results?

- The HbA1c results are statistically adjusted using a logistic regression model to ensure a fairer comparison between PDUs, CCGs/LHBs and networks/regions. This accounts for some variation in patient characteristics, including as age, gender, deprivation, duration of diabetes and ethnicity. Full details of the model used can be found on the Transparency and Open Data page of the NPDA website. [LINK](#)
- The model used to adjust the data only accounts for 8-12% of the variance in patients' HbA1c results, as it is limited to the patient characteristics recorded within the audit. There will be additional patient characteristics outside of PDUs' influence that may affect their HbA1c

Who and which results are included?

- All children and young people who have Type 1 diabetes.
- All valid HbA1c values (i.e collected within the audit year, within a given range).
- Values measured more than 90 days following diagnosis (measurements collected prior to this are likely to be higher and skew the results).
- Where there are more than one HbA1c measurements recorded within the audit year, the median value per patient is taken through to analysis.

Examples

A PDU has 100 patients who have had their HbA1c measured at least once within the audit year, outside of 90 days of their diagnosis.

The PDU's mean HbA1c = $\frac{\text{Sum of individual median HbA1c values}}{100 \text{ patients}}$

The PDU's median HbA1c = *Median (middle) value of the individual patient median HbA1c values within the service*

Which results should I look at to compare the performance of a particular PDU?

- To compare the same PDU's results over time, we recommend comparing the median HbA1c value year on year. This is less likely to be skewed by extreme HbA1c values and thus provides a more consistent measure for comparison.
- When comparing results between PDUs within the same audit year, we recommend looking at the adjusted mean HbA1c, as this takes some account of the local patient populations.