

NPDA 2022-23 Report – Outlier Management and Identification

How we identify outliers

The National Paediatric Diabetes Audit (NPDA) has conducted an outlier analysis as part of the **2022-23 Report on Care and Outcomes**. The purpose of the outlier process is identify and highlight variation, enabled local review of the causes of that variation, and stimulate quality improvement.

In the 2022-23 analysis, 2 metrics have been used to define outlier status within the NPDA:

1. **Case mix adjusted mean HbA1c**

This is the mean HbA1c at PDU-level, accounting for the following characteristics: age, sex, ethnicity, duration of diabetes, and level of deprivation. This is the value we would expect to observe for a given set of characteristics.

The NPDA identifies **alert level** negative outliers between 1 and 3 standard deviations below the national mean, and **alarm level** outliers at 2 or more standard deviations below the national mean. PDUs performing 3 or more standard deviations above the national mean are identified as positive outliers.

2. **Health Check Completion Rate**

This is the percentage of expected health checks completed. All children and young people with Type 1 diabetes who have completed a full year of care should receive the following health checks: HbA1c, BMI, and thyroid screen. Additionally, young people with type 1 diabetes over the age of 12 should have the following health checks: foot examination, screening for albuminuria, and blood pressure.

The NPDA identifies **alert level** negative outliers as those in the bottom 5% of PDUs, and those in the bottom 3% as **alarm level** outliers. PDUs in the top 3 are identified as positive outliers.

Furthermore, non-participating paediatric diabetes units will be treated as alarm level outlier for all eligible metrics.

Further information on how these measures are calculated is available in the [NPDA Outlier Identification and Management Policy](#). This follows the [Healthcare Quality Improvement Partnership \(HQIP\) outlier guidance for England and Wales](#).

Results

PDU level reports of these data and provisional outlier notifications were shared with PDUs in March 2024. Following the conclusion of the outlier identification and management process for 22-23, the results have been confirmed with the relevant PDUs and communicated to the Care Quality Commission (CQC) and Welsh Government in May 2024. No non-participation outliers were identified in 2022-23.

The full results of the 2022-23 NPDA Report on Care and Outcomes are available on our [website](#).

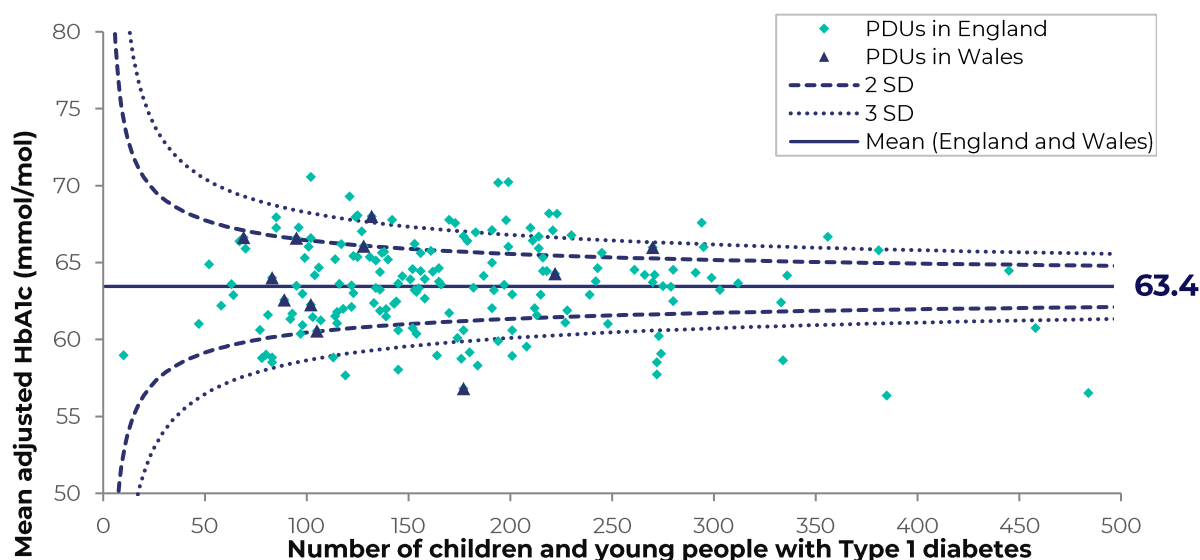


Figure 1 – Funnel plot of mean case mix adjusted HbA1c by PDU for children and young people with Type 1 diabetes.

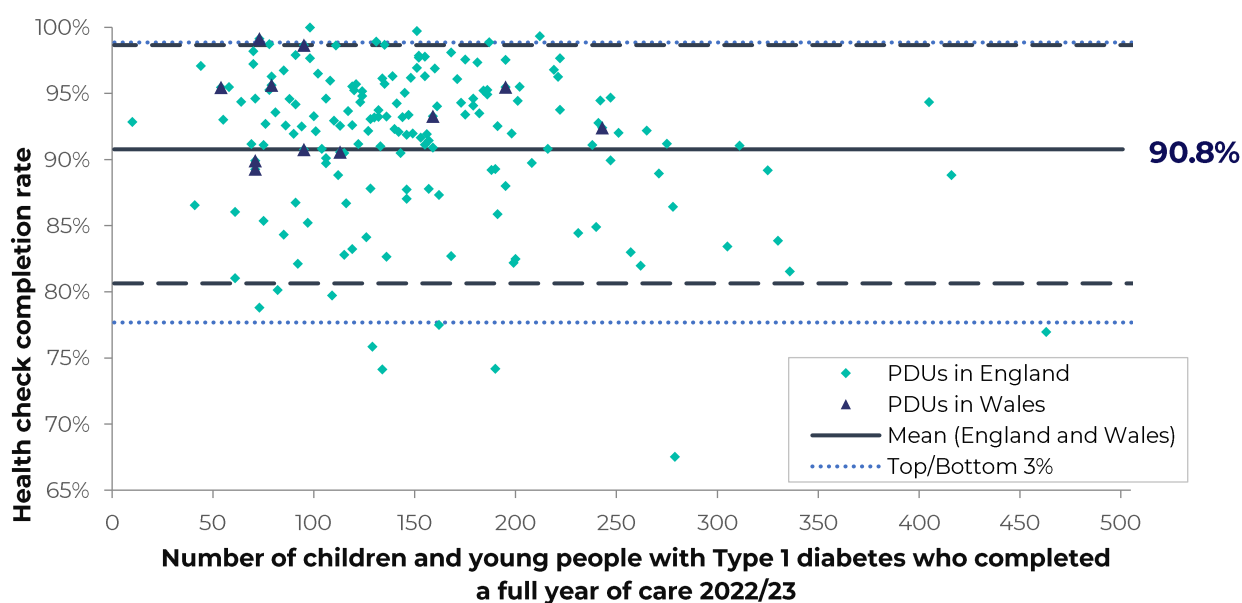


Figure 2 – Health check completion rate for children and young people with Type 1 diabetes who completed a full year of care

Table 1 – Outlier results for mean case mix adjusted HbA1c in 2022/23.

PZ code	Name of unit	Adjusted mean HbA1c	Outlier status 2022/23
PZ004	Northampton General Hospital	67.0	Alarm
PZ005	Derbyshire Children's Hospital	60.2	Positive Outlier
PZ010	Luton and Dunstable Hospital	67.1	Alarm
PZ011	Glan Clwyd District General Hospital	68.0	Alarm
PZ019	Basildon University Hospital	59.5	Positive Outlier
PZ020	Diana, Princess of Wales Hospital, Grimsby	57.7	Positive Outlier
PZ021	Wexham Park Hospital	59.9	Positive Outlier
PZ024	East Kent Hospitals University NHS Foundation Trust	66.7	Alarm
PZ030	Leighton Hospital	68.0	Alarm
PZ042	Nottingham Children's Hospital	56.4	Positive Outlier
PZ047	Airedale General Hospital, Keighley	67.3	Alert
PZ050	Epsom & St Helier University Hospitals NHS Trust	66.0	Alert
PZ055	Leicester Royal Infirmary	65.8	Alert
PZ059	The Royal London Hospital	58.5	Positive Outlier
PZ060	Royal Devon and Exeter Hospital	67.8	Alarm
PZ064	Chesterfield Royal Hospital	58.8	Positive Outlier
PZ073	Alexandra Hospital	66.6	Alert
PZ074	Alder Hey Children's Hospital	58.7	Positive Outlier
PZ075	St Mary's Hospital, Isle of Wight	67.3	Alert
PZ076	Colchester General Hospital	68.2	Alarm
PZ089	Northwick Park Hospital	65.9	Alert
PZ099	East and North Hertfordshire NHS Trust	66.0	Alert
PZ101	Leeds Children's Hospital	60.8	Positive Outlier
PZ106	Victoria Hospital, Blackpool	67.0	Alert
PZ108	Birmingham Children's Hospital	59.1	Positive Outlier
PZ122	University Hospital, Coventry	68.2	Alarm
PZ127	James Paget Hospital	68.1	Alarm
PZ130	Chelsea and Westminster Hospital	66.7	Alert
PZ131	Peterborough City Hospital	66.8	Alarm
PZ137	Musgrove Park Hospital	70.2	Alarm
PZ140	Tameside General Hospital	70.6	Alarm
PZ144	Good Hope Hospital, Sutton Coldfield	58.1	Positive Outlier
PZ146	Southend University Hospital	58.9	Positive Outlier
PZ151	Queen Elizabeth Hospital, Woolwich	70.3	Alarm

PZ161	Darlington Memorial Hospital	68.0	Alert
PZ164	Rotherham Hospital	58.8	Positive Outlier
PZ169	Salisbury District Hospital	66.2	Alert
PZ172	West Hertfordshire Hospitals NHS Trust	66.4	Alert
PZ176	St Peter's Hospital	66.4	Alert
PZ179	Countess of Chester Hospital NHS Trust	67.8	Alarm
PZ180	Kings Mill Hospital	59.2	Positive Outlier
PZ181	Ipswich Hospital	66.7	Alarm
PZ186	Calderdale & Huddersfield NHS Foundation Trust	67.3	Alarm
PZ199	North Middlesex University Hospital	58.3	Positive Outlier
PZ203	University College London Hospital	56.5	Positive Outlier
PZ213	East Surrey Hospital	65.6	Alert
PZ215	Kings College Hospital, London	69.3	Alarm
PZ218	Frimley Park Hospital	67.1	Alarm
PZ219	Sheffield Childrens Hospital	57.7	Positive Outlier
PZ220	Bedford Hospital	67.8	Alarm
PZ223	Sandwell General Hospital	59.0	Positive Outlier
PZ228	Prince Charles Hospital	66.6	Alert
PZ230	East Sussex Healthcare NHS Trust/Conquest Hospital	67.6	Alarm
PZ244	Hywel Dda University Health Board	56.8	Positive Outlier
PZ245	The Grange University Hospital	66.0	Alert
PZ246	The Northern Care Alliance NHS Foundation Trust	67.6	Alarm

Table 2 – Outlier results for health check completion rate in 2022/23.

PZ code	Name of unit	Completion rate	Outlier status 2022/23
PZ006	Doncaster Royal Infirmary	99.7%	Positive Outlier
PZ018	Worthing Hospital	79.7%	Alert
PZ053	Scunthorpe General Hospital	100.0%	Positive Outlier
PZ092	Princess of Wales Hospital, Bridgend	99.1%	Positive Outlier
PZ135	Royal Alexandra Hospital, Brighton	74.2%	Alarm
PZ136	Manchester University NHS Foundation Trust	67.5%	Alarm
PZ144	Good Hope Hospital, Sutton Coldfield	75.9%	Alarm
PZ161	Darlington Memorial Hospital	80.1%	Alert
PZ202	St Marys Hospital, Imperial College, London	98.9%	Positive Outlier
PZ203	University College London Hospital	77.0%	Alarm
PZ213	East Surrey Hospital	99.3%	Positive Outlier
PZ218	Frimley Park Hospital	98.9%	Positive Outlier
PZ220	Bedford Hospital	74.1%	Alarm
PZ221	Great Western Hospital	77.5%	Alarm
PZ247	North Manchester General Hospital	78.8%	Alert