

NPDA 2023-24 Report – Outlier Management and Identification

How we identify outliers

The National Paediatric Diabetes Audit (NPDA) has conducted an outlier analysis as part of the **2023-24 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 November 2024. Following the conclusion of the outlier identification and management process for 23-24, the results have been confirmed with the relevant PDUs and communicated to the Care Quality Commission (CQC) and Welsh Government in February 2025. No non-participation outliers were identified in 2023-24.

The full results of the 2023-24 NPDA Report on Care and Outcomes are available on our [website](#).

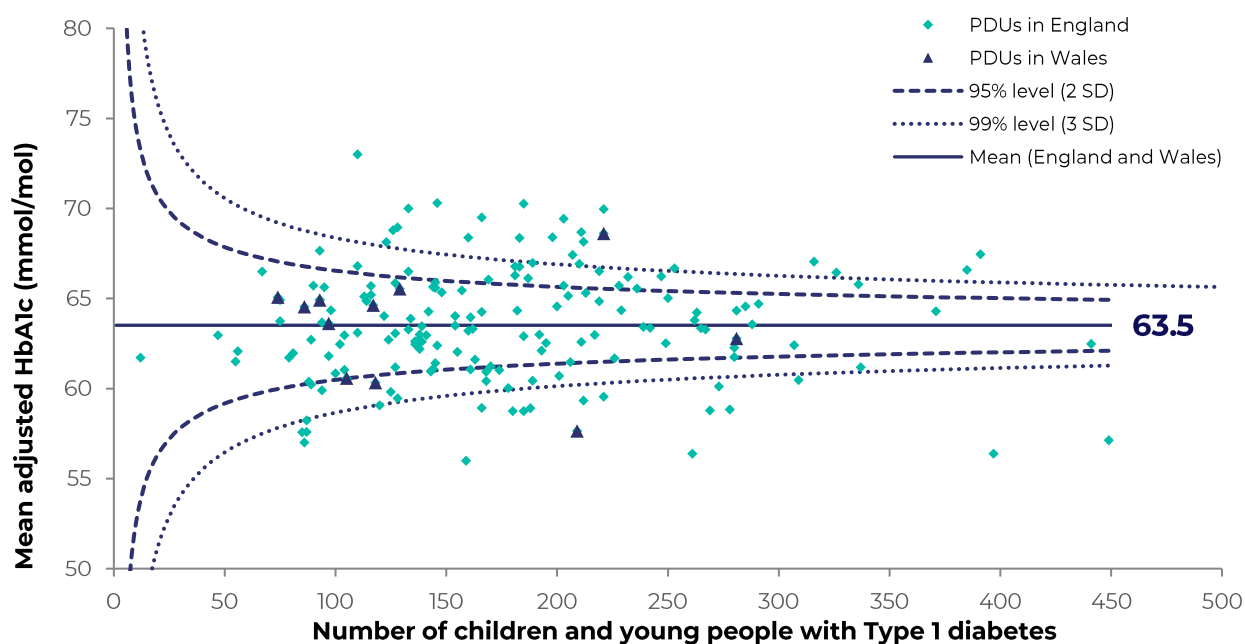


Figure 1 – Funnel plot of mean case mix adjusted HbA1c by PDU for children and young people with Type 1 diabetes.

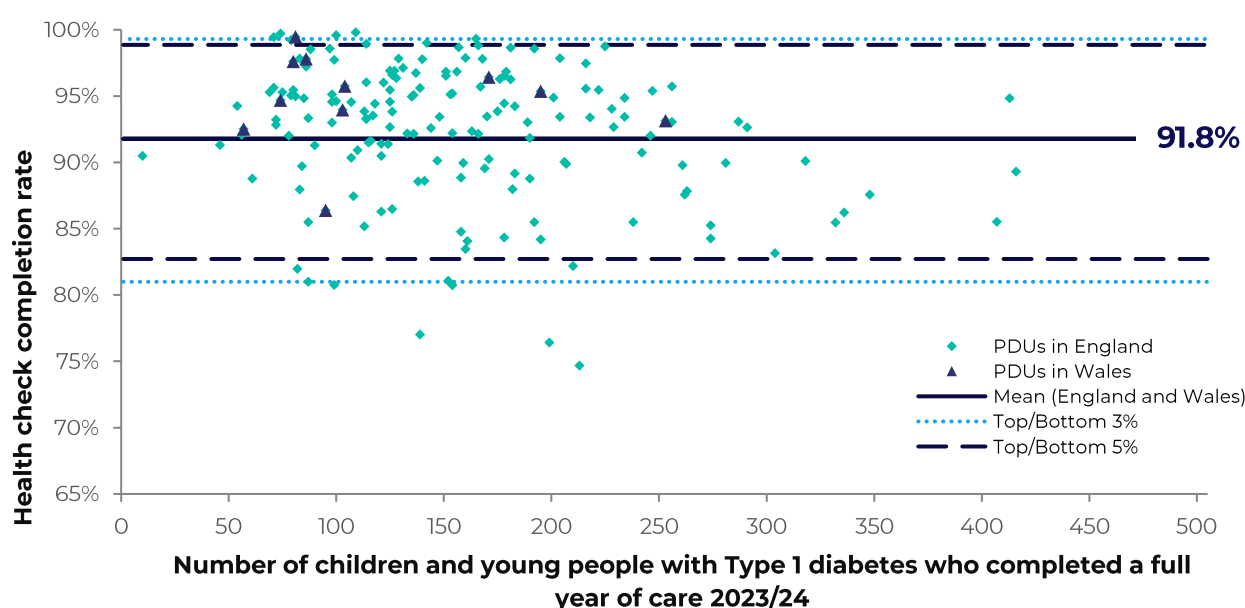


Figure 2 – Health check completion rate for children and young people with Type 1 diabetes who completed a full year of care

Table 1 – Outlier results for mean case mix adjusted HbA1c in 2023/24.

PZ code	Name of unit	Adjusted mean HbA1c	Outlier status 2023/24	Comments
PZ003	Pinderfields General Hospital and Pontefract General Infirmary	66.5	Alert	
PZ004	Northampton General Hospital	66.8	Alert	
PZ005	Derbyshire Children's Hospital	60.1	Positive Outlier	
PZ016	Bassetlaw District General Hospital	57.6	Positive Outlier	
PZ018	Worthing Hospital	68.1	Alarm	
PZ024	East Kent Hospitals University NHS Foundation Trust	67.5	Alarm	The trust was also identified as an outlier previously and have ongoing action plans.
PZ030	Leighton Hospital	68.8	Alarm	The trust was also identified as an outlier previously and have ongoing action plans.
PZ042	Nottingham Children's Hospital	56.4	Positive Outlier	
PZ050	Epsom & St Helier University Hospitals NHS Trust	65.7	Alert	
PZ055	Leicester Royal Infirmary	66.6	Alarm	The team have faced an increasing case load since the COVID-19 with no change in their workforce.
PZ059	The Royal London Hospital	58.8	Positive Outlier	
PZ060	Royal Devon and Exeter Hospital	67.4	Alarm	The trust was also identified as an outlier previously and have ongoing action plans.
PZ064	Chesterfield Royal Hospital	58.8	Positive Outlier	
PZ069	Stepping Hill Hospital	65.7	Alert	
PZ074	Alder Hey Children's Hospital	60.5	Positive Outlier	
PZ075	St Mary's Hospital, Isle of Wight	67.7	Alert	
PZ076	Colchester General Hospital	70.0	Alarm	
PZ080	Sunderland Royal Hospital	59.5	Positive Outlier	
PZ089	Northwick Park Hospital	66.9	Alarm	
PZ099	Queen Elizabeth II Hospital	66.4	Alarm	
PZ100	North Devon District Hospital	58.2	Positive Outlier	
PZ101	Leeds Children's Hospital	61.1	Positive Outlier	
PZ102	The Hillingdon Hospital	59.3	Positive Outlier	
PZ104	Royal Albert Edward Infirmary	68.4	Alarm	
PZ106	Victoria Hospital, Blackpool	70.3	Alarm	

PZ108	Birmingham Children's Hospital	58.8	Positive Outlier	
PZ112	Scarborough General Hospital	57.0	Positive Outlier	
PZ113	University Hospital of Wales	68.6	Alarm	The team have struggled with MDT staffing over the past 2 years and have had to pause their insulin pump programme.
PZ120	North Tyneside General Hospital	58.7	Positive Outlier	
PZ122	University Hospital, Coventry	66.2	Alert	
PZ127	James Paget Hospital	70.0	Alarm	
PZ128	Pilgrim Hospital	66.8	Alert	
PZ130	Chelsea and Westminster Hospital	70.3	Alarm	The team had previously identified that the mean HbA1c is skewed upwards due to a significant proportion of patients with high HbA1c who they are unable to give optimal support, due to lower than recommended staff to patient ratios.
PZ131	Peterborough City Hospital	66.7	Alarm	
PZ137	Musgrove Park Hospital	68.4	Alarm	The trust was also identified as an outlier previously and have ongoing action plans.
PZ140	Tameside General Hospital	73.0	Alarm	The trust was also identified as an outlier previously and have ongoing action plans.
PZ144	Good Hope Hospital, Sutton Coldfield	56.0	Positive Outlier	
PZ151	Queen Elizabeth Hospital, Woolwich	68.7	Alarm	
PZ156	Queen Elizabeth Hospital, Kings Lynn	66.5	Alert	
PZ157	Royal Free Hospital	57.6	Positive Outlier	
PZ164	Rotherham Hospital	59.1	Positive Outlier	
PZ174	Kettering General Hospital	67.0	Alert	
PZ176	St Peter's Hospital	66.3	Alert	

PZ179	Countess of Chester Hospital NHS Trust	66.1	Alert	
PZ180	Kings Mill Hospital	58.9	Positive Outlier	
PZ181	Ipswich Hospital	68.1	Alarm	The team have developed an action plan to address and monitor the mean HbA1c.
PZ182	West Middlesex University Hospital	66.1	Alert	
PZ186	Calderdale & Huddersfield NHS Foundation Trust	69.4	Alarm	
PZ199	North Middlesex University Hospital	58.9	Positive Outlier	
PZ203	University College London Hospital	57.1	Positive Outlier	
PZ213	East Surrey Hospital	66.2	Alert	
PZ215	Kings College Hospital, London	68.9	Alarm	
PZ218	Frimley Park Hospital	65.6	Alert	
PZ219	Sheffield Childrens Hospital	56.4	Positive Outlier	
PZ220	Bedford Hospital	69.5	Alarm	
PZ230	East Sussex Healthcare NHS Trust/Conquest Hospital	66.8	Alert	
PZ238	Queen Alexandra Hospital, Portsmouth	65.8	Alert	
PZ240	Russells Hall Hospital	68.4	Alarm	An action plan is in development.
PZ244	Hywel Dda University Health Board	57.6	Positive Outlier	
PZ246	The Northern Care Alliance NHS Foundation Trust (Rochdale, Bury & Oldham)	67.1	Alarm	

Table 2 – Outlier results for health check completion rate in 2023/24.

PZ code	Name of unit	Completion rate	Outlier status 2023/24	Comments
PZ016	Bassetlaw District General Hospital	99.4%	Positive Outlier	
PZ034	Royal Hampshire County Hospital	80.7%	Alarm	The team have been working to introduce improvements to their service, particularly the transition service.
PZ053	Scunthorpe General Hospital	99.8%	Positive Outlier	
PZ057	Kingston Hospital	77.0%	Alarm	The team have faced difficulties submitting data to the NPDA, resulting in errors in the health check data submitted.
PZ067	Royal Cornwall Hospital	99.3%	Positive Outlier	
PZ088	Royal Surrey County Hospital	81.1%	Alert	
PZ092	Princess of Wales Hospital, Bridgend	99.5%	Positive Outlier	
PZ096	Derriford Hospital	82.2%	Alert	
PZ112	Scarborough General Hospital	99.7%	Positive Outlier	
PZ121	George Eliot Hospital	99.6%	Positive Outlier	
PZ135	Royal Alexandra Hospital, Brighton	74.7%	Alarm	
PZ136	Royal Manchester Children's Hospital - Oxford Road Campus	76.4%	Alarm	
PZ157	Royal Free Hospital	82.0%	Alert	
PZ180	Kings Mill Hospital	80.7%	Alarm	
PZ247	North Manchester General Hospital	81.0%	Alarm	