

NPDA 2019/20: Health disparities and worsening access to diabetes technology based on ethnicity and deprivation

The recently published National Paediatric Diabetes Audit (NPDA) 2019/20 report (Royal College of Paediatrics and Child Health [RCPCH], 2021) has shown sustained improvements in HbA_{1c} and national outcomes, and improving rates of completed diabetes health checks from 2012/13 to 2019/20. The audit included 168 of the 173 (96%) paediatric diabetes units in England and Wales, and reported on 29 242 children and young people (CYP) up to 24 years of age under the care of a consultant paediatrician between 1 April 2019 and 31 March 2020.

Incidence

There was a trend for higher numbers of CYP with type 2 diabetes (T2D) being cared for by paediatric diabetes services. Type 1 diabetes (T1D) prevalence in CYP has remained stable at 27 653, while the number of cases of T2D has risen to 866. There were 2799 CYP aged 0–15 years who were newly diagnosed with T1D in England and Wales in 2019/20, with an estimated incidence of 25.6 per 100 000 general population within this age group. The UK has one of the highest incidence of T1D in Europe (Iacobucci, 2013).

HbA_{1c}

The 2019/20 national CYP mean and median HbA_{1c} were 65.0 mmol/mol (8.1%) and 61.5 mmol/mol (7.8%), respectively, and the percentage of those aged 12 years and above with a complete year of care receiving all seven recommended health checks for T1D was 54.4% in 2019/20.

Psychological need

The proportion of CYP with T1D who required additional psychological support increased from 39.1% in 2018/19 to 43.9% in 2019/20, with adolescent girls requiring more additional

psychological support compared with adolescent boys. CYP with T1D who required additional psychological support were also more likely to have higher HbA_{1c}.

Health inequalities in access to diabetes technology

This year's NPDA reports that use of real-time continuous glucose monitoring systems (rt-CGM) and insulin pumps technology was associated with better HbA_{1c} outcomes, even when other factors were adjusted. It is very concerning, however, that inequalities in health are evident. For example, the use of diabetes technologies in CYP living in the most deprived areas and of non-white ethnicity is lower than in other groups. The report shows that the gaps in diabetes device usage among CYP of different ethnic groups and between those CYP living in the most and least deprived areas has widened from 2014 to 2020.

The audit report shows that children of black ethnicity with T1D had highest HbA_{1c} compared to any other ethnic group year on year (*Figure 1, overleaf*), and there is a consistent trend of higher HbA_{1c} associated with those CYP with T1D living in more deprived areas.

The NPDA also reported the lowest use of insulin pumps or rt-CGM systems among CYP of black ethnicity, while children of white ethnicity had the highest use of these devices (*Figure 2, overleaf*). There were 39.8% of CYP of white ethnicity who were using an insulin pump compared to 26.7% among those of black ethnicity, while 20.2% of CYP of white ethnicity were using rt-CGM compared to 11.7% of CYP of black ethnicity. The gap between pump usage amongst CYP living in the most and least deprived areas has widened over the past 6 years, from 18.4% versus 26.3% (a difference of 7.9 percentage points) in 2014/15, to 31.7% versus 44.3% (a difference of 12.6 percentage points) in 2019/20.



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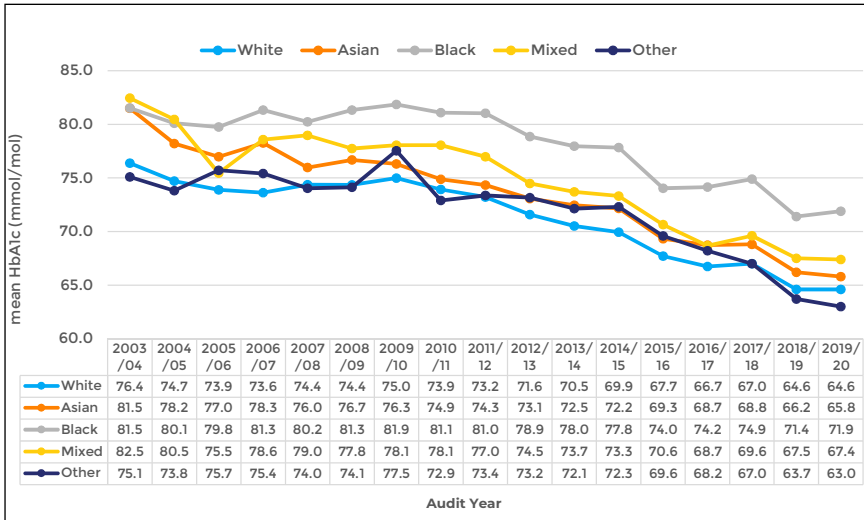


Figure 1. Mean HbA_{1c} for children and young people with type 1 diabetes in England and Wales by ethnic group, 2003/04 to 2019/20 (RCPC, 2021).

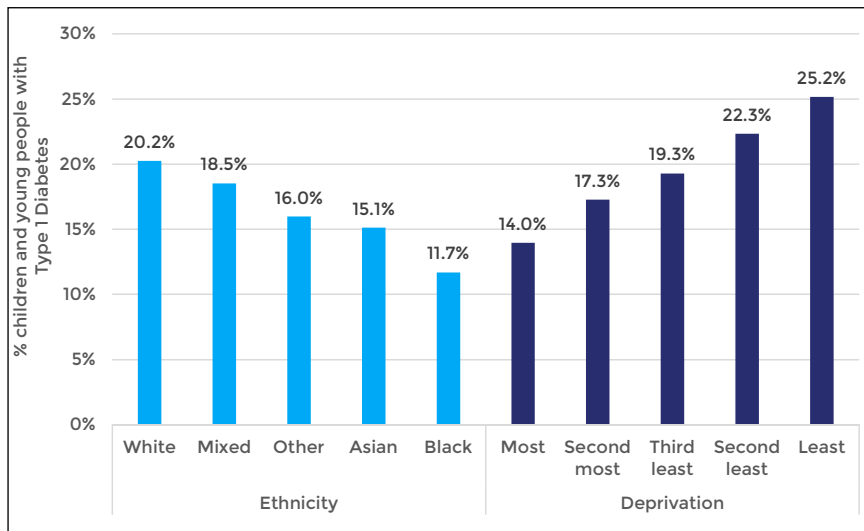


Figure 2. Percentage of children and young people with type 1 diabetes using real-time continuous glucose monitoring by ethnicity and level of deprivation (RCPC, 2021).

Worryingly, despite a modest increase seen in use of diabetes technologies such as pumps and rt-CGM in all quintiles of deprivation, the gap between the most and least deprived areas has also widened over time, while the use of rt-CGM has been associated with achieving a lower HbA_{1c} target compared to those who were not using rt-CGM, irrespective of mode of insulin delivery.

Widening health inequalities

Diabetes care is complex and there is clear evidence that access to diabetes technologies such as insulin pumps and rt-CGM can positively impact health (Lawton et al, 2016). There is a sustained variation in glycaemic outcomes achieved by paediatric diabetes units across England and Wales, even after patient characteristics have been controlled for (Lawton et al, 2020). The increasing trend of widening health inequalities year on year is unacceptable and does a disservice to families entitled to the same levels of care under the NHS.

The NHS wants people to have more equal access to diabetes technology, yet to date very little is known about the challenges or barriers of accessing diabetes technology (Lavizzo-Mourey et al, 2021). The views of CYP with T1D are under-represented, while healthcare professionals' attitudes are a neglected aspect of this dilemma. We should be looking at why this is happening and how we should be reducing variations in care.

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Lavizzo-Mourey RJ, Besser RE, Williams DR (2021). Understanding and mitigating health inequities – Past, current, and future directions. *N Engl J Med* **384**:1681–4

Lawton J, Kirkham J, Rankin D et al (2016). Who gains clinical benefit from using insulin pump therapy? A qualitative study of the perceptions and views of health professionals involved in the Relative Effectiveness of Pumps over MDI and Structured Education (REPOSE) trial. *Diabet Med* **33**: 243–51

Lawton J, Kimbell B, Rankin D et al (2020). Health professionals' views about who would benefit from using a closed-loop system: a qualitative study. *Diabet Med* **37**: 1030–7

Royal College of Paediatrics and Child Health (2021) *National Paediatric Diabetes Audit. Annual report 2019-20*. RCPC, London. Available at: <https://bit.ly/3d63xt5> (accessed 24.06.21)