

Driving paediatric diabetes care forward in the UK: Improvements in outcomes in the North West following national initiatives

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Introduction and Aim

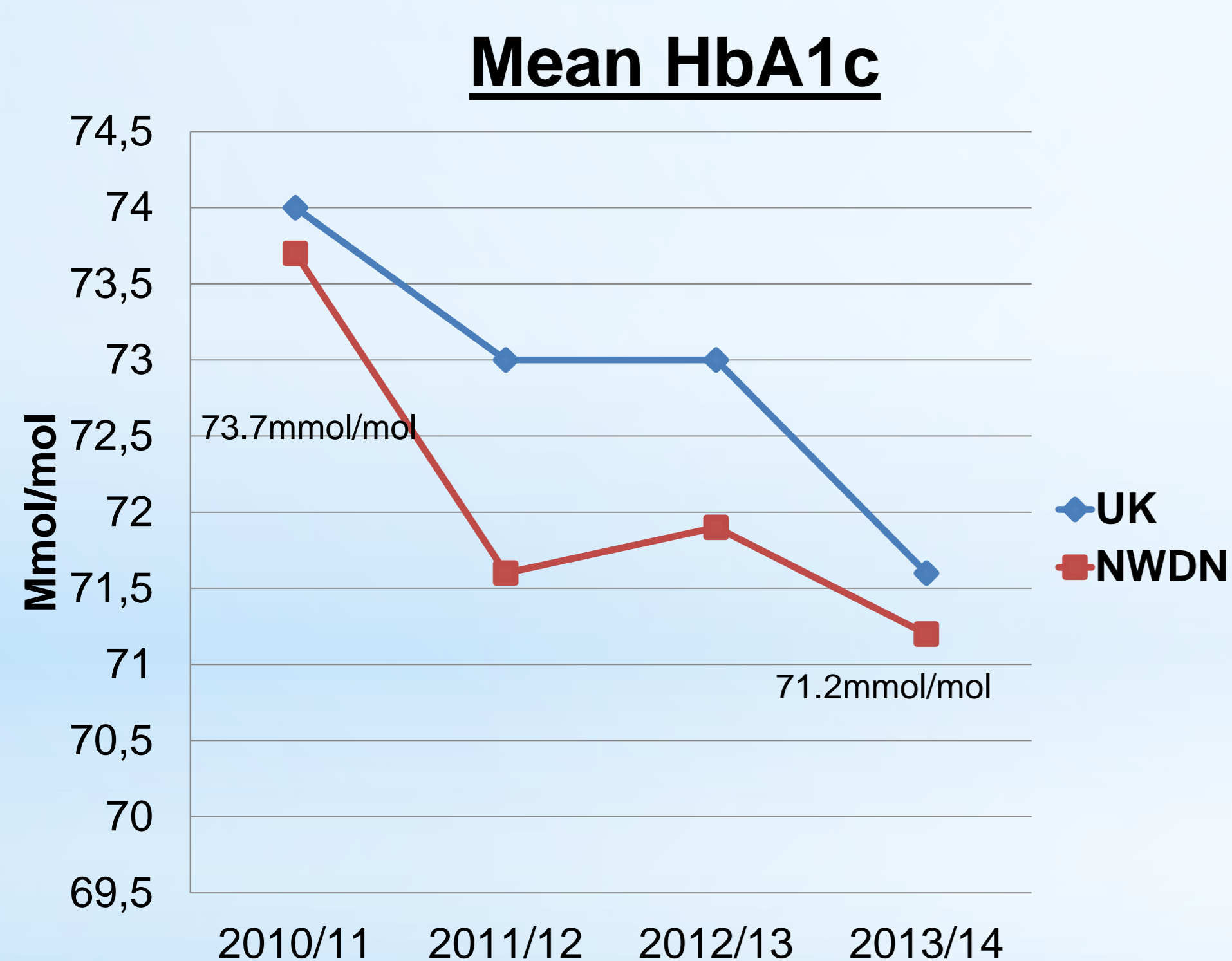
Type 1 diabetes mellitus (T1DM) continues to pose serious health risks with devastating long-term complications. The UK has the highest prevalence of T1DM in children in Europe, with a figure of 19,800 children with T1DM reported in the international diabetes federation atlas in 2015 (1); and an annual incidence of 22.6 new cases per 100,000 reported by the national paediatric diabetes audit in the 2013/2014 report (2). However, despite this, the figures for HbA1c are considerably worse when compared to similar countries. For example in 2009 the mean HbA1c in Germany and Austria was 65mmol/mol (8.1%) compared to 73.8mmol/mol (8.9%) in the UK (3,4). This year Baxter et al (5) estimated that just a 0.4% reduction in mean HbA1c (so a reduction of 5mmol/mol) would save £995 million over the next 25 years.

In order to standardise care and improve outcomes in the UK, the best practice tariff was introduced in April 2012 and a national peer review programme implemented by DQuINs, the diabetes quality improvement network system, between October 2013 and November 2014. With this in mind our aim was to explore trends in paediatric diabetes care in the Children and Young People's North West Diabetes Network in the UK and assess impact of BPT and DQuINs.

Method

Data was collected from each paediatric diabetes unit (PDU) in the region and extracted from the National Paediatric Diabetic Audit (NDPA) from 2010-2014. We compared staffing before and after the national initiatives, and values for mean HbA1c and percentage of patients with HbA1c <58mmol/mol. Data was analysed using paired student T-tests.

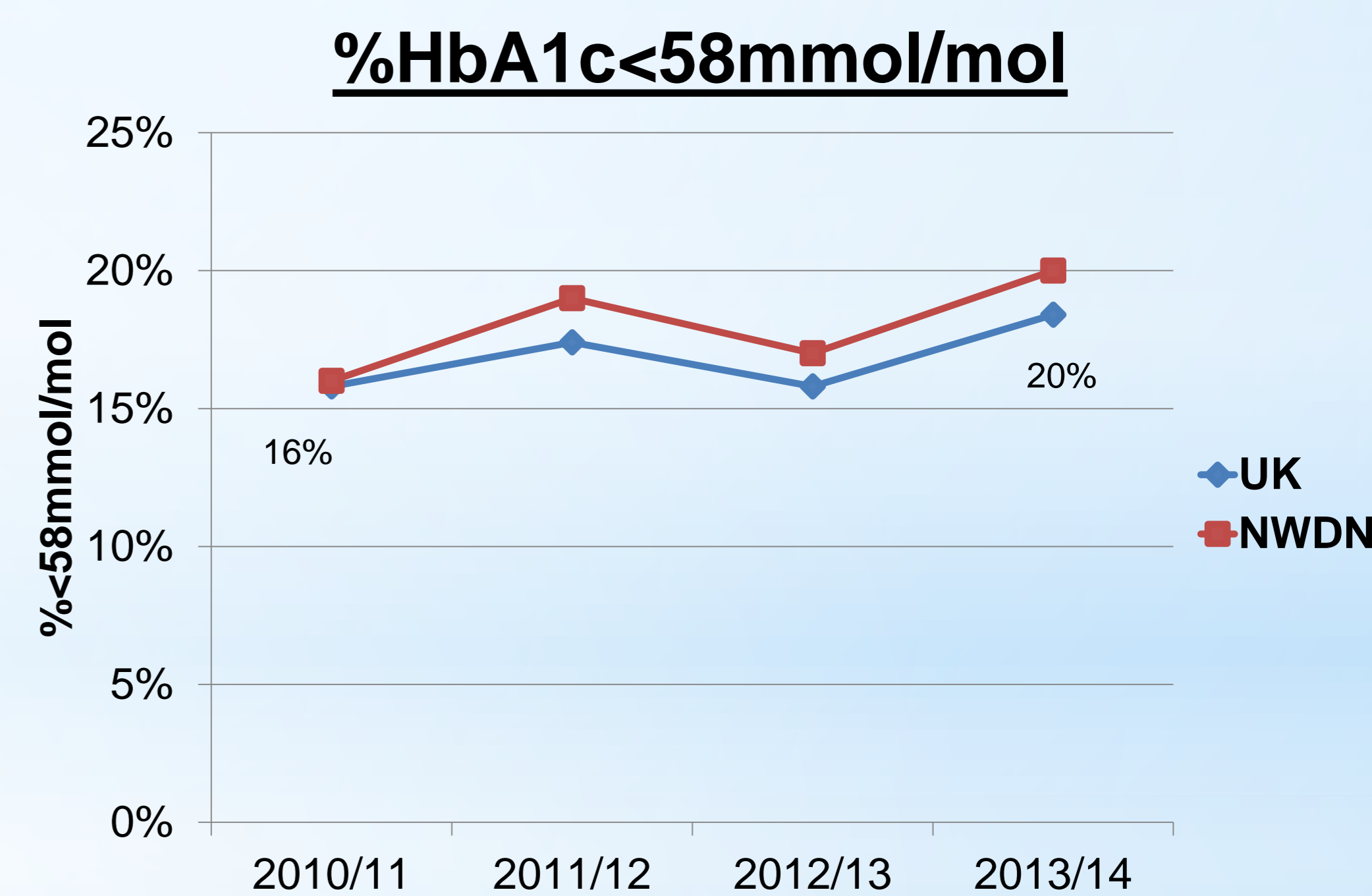
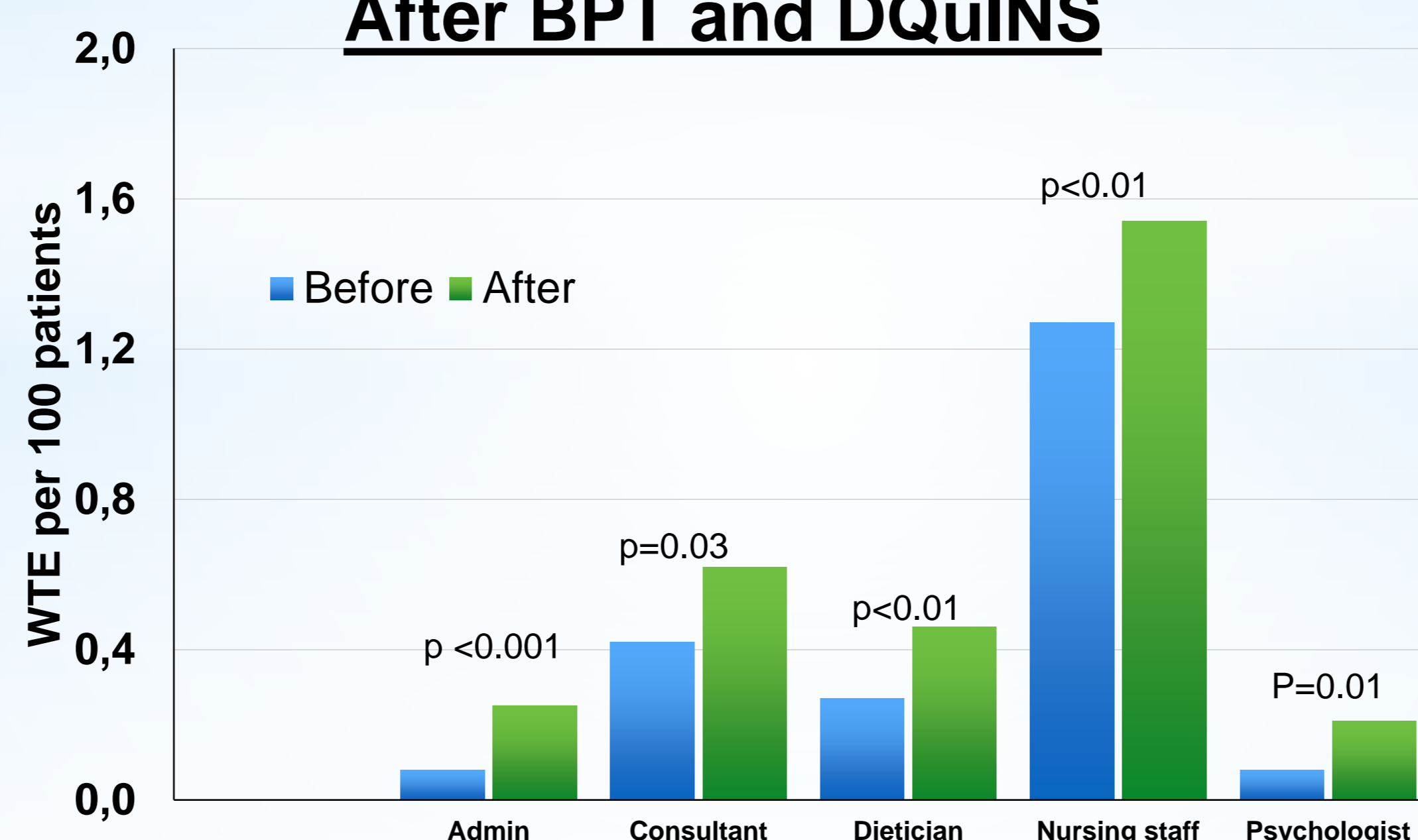
Results



Mean HbA1c	2010/11	2011/12	2012/13	2013/14
p Value (2010/11)	-	<0.001	<0.01	<0.01
P Value (previous Year)	-	<0.001	0.4	0.24

- 3,284 patients
- 28 PDUs (20 Hospital Trusts)
- Exclusions
 - 2 units from staffing data
 - 5 units from HbA1c data

Staffing across the North West Diabetes Network - Before and After BPT and DQuINs



%HbA1c < 58mmol/mol	2010/11	2011/12	2012/13	2013/14
P value (2010-2011)	-	<0.01	0.23	<0.01
P Value (previous year)	-	<0.01	<0.01	0.03

Discussion & Conclusion

The Children and Young People's North West Diabetes Network is the largest regional diabetes network in the UK. Our results have shown that since the introduction of BPT and implementation of DQuINs there has been a significant improvement in the level of staffing across all staff groups, in practical terms this means that each group can spend more time dedicated to the care of children with diabetes. For example for the dieticians this would mean that they are able to have one-to-one consultations with patients as well as taking part in multi-disciplinary clinics, exposing each patient to more education on carbohydrate counting and leading to improved accuracy of insulin dosing.

We have also seen a significant decrease in our mean HbA1c and the % of patients with HbA1c less than 58mmol/mol, which is reflective of the rest of the UK since the introduction of the national initiatives. This mirrors results seen by Rosenbauer et al in Germany and Austria in 2012 (3) when they examined trends in metabolic control of children and adolescents with T1DM over a 15 year period. Rosenbauer et al (3) noted the improvement across all insulin regimes, leading them to the conclusion that it was the development of the multidisciplinary care team and improvements in structural quality of diabetes care and patient education which led to these results.

From our observations we have shown that set standards for paediatric diabetes care and appropriate staffing levels are critical to delivering a good service and improving health outcomes.

References

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5. Baxter M, Hudson R, Mahon J, Bartlett C, Samyshkin Y, Alexiou D, Hex N. Estimating the impact of better management of glycaemic control in adults with Type 1 and Type 2 diabetes on the number of clinical complications, and the associated financial benefit. Diabet Med. 2016 Jan 16.