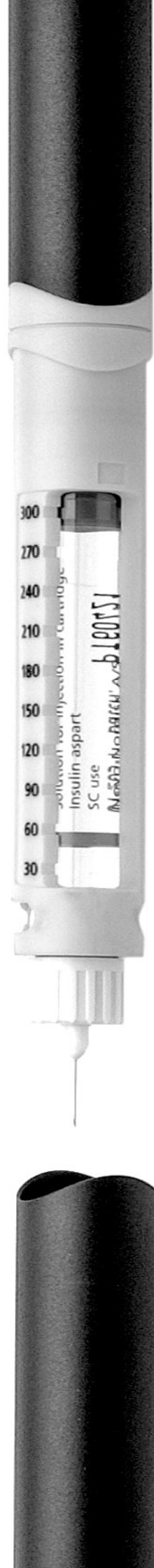


National Diabetes Paediatric Audit Report 2009-2010



National Diabetes Paediatric Audit Report 2009-2010

Key findings about the quality
of care for children and young
people with diabetes in England
and Wales

Report for the audit period
2009-2010

Prepared in partnership with:



The Healthcare Quality Improvement Partnership (HQIP) promotes quality in healthcare. HQIP holds commissioning and funding responsibility for the National Diabetes Audit and other national clinical audits.



The NHS Information Centre for Health and Social Care (The NHS IC) is England's central, authoritative source of essential data and statistical information for frontline decision makers in health and social care. The NHS IC managed the publication of the 2009-2010 annual paediatric report.



Diabetes UK is the largest organisation in the UK working for people with diabetes, funding research, campaigning and helping people live with the condition.



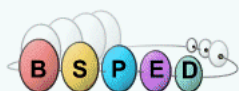
NHS Diabetes works to raise the quality of diabetes care in England by supporting and working with the healthcare community and people with diabetes. The team's role is to ensure the delivery of the Diabetes National Service Framework – a pledge to improve diabetes care in England across the board by 2013. In partnership with people with diabetes, we help develop and support new guidelines, standards and systems designed to improve care, and then encourage the widespread implementation of these new initiatives.



Diabetes Health Intelligence (a strategic programme of Yorkshire and Humber Public Health Observatory) has a commitment to support the diabetes community by providing timely, quality assured national diabetes health analysis and intelligence. Diabetes Health Intelligence actively uses national diabetes audit data throughout its products and tools.



The National Diabetes Information Service (NDIS) provides support to the NHS by providing streamlined access to a comprehensive suite of diabetes information products, datasets and tools. NDIS provides health commissioners, providers and people with diabetes with the necessary information to aid decision making and improve services on a local and national level.



The British Society for Paediatric Endocrinology and Diabetes (BSPED) aims to advance education in paediatric endocrinology and related subjects by promoting research in such areas and disseminating the useful results of such research.

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Foreword

This is the largest paediatric diabetes audit so far. There has been an excellent 25 per cent increase in the number of records submitted to the audit. Registrations now total 19,558 accounting for some 74 per cent of all children and young people with diabetes. Congratulations to everyone involved on this excellent progress.

Now the task is to use the audit to improve patient care. Last year we said:

“Shockingly, 96 per cent of children and young people with diabetes may not have received all the care processes recommended by NICE. Even if some of this can be explained by problems recording this information this figure is still extremely worrying. These processes identify potentially correctable risks for disability and death.”

So what has changed over the past year? Nothing! The figure is still 96 per cent. But what lies behind this? This report states “Records in paediatric units are still predominantly paper-based making data collection difficult and often incomplete.” Why are the records incomplete? And why, in the 21st Century, do organisations providing specialist paediatric diabetes services not provide staff with electronic resources for proper data recording and audit of care?

Most patients had an HbA1c measurement. So has this improved? Sadly, the proportion of children and young people with HbA1c levels within target has worsened.

But it is unfair to generalise. The data show that there is considerable variation in HbA1c and frequency of DKA. In some paediatric diabetes services over a quarter of patients have an HbA1c within target, in others none do. Similarly, some units are to be congratulated on having no children and young people with diabetes experiencing two or more episodes of DKA over the last 5 years, yet in other units more than 20 per cent of patients have experienced this. Inappropriate variation in care is unacceptable. All units have been sent their own benchmarked data to help them and their supporting organisations work on any local areas for improvement.

The good news is that the paediatric specialist diabetes units have joined local colleagues to form regional paediatric diabetes networks supported by NHS Diabetes. Their aim is to drive up the quality of care for all children with diabetes in England. Wales also has a quality initiative.

The management of diabetes in children and young people is complex and challenging. It requires readily accessible specialist paediatric diabetes multi-disciplinary expertise, patient and family engagement and education, and appropriate facilities. Experience in some centres in the UK and internationally shows that it is possible to achieve good results. All children and young people with diabetes and their families deserve such care.

DH Gateway reference number 16194

Dr Rowan Hillson MBE

National Clinical Director for Diabetes



Rowan Hillson

Dr Sheila Shribman CBE

National Clinical Director for Children, Young People and Maternity



Sheila Shribman

This is the seventh report for the National Diabetes Paediatric Audit (NDPA) which has been prepared by the NHS Information Centre (NHSIC). During this time there has been a steady increase in the number of centres submitting data to the NDPA and the NHSIC is to be congratulated in their efforts to maintain this increase to a point where the majority of children known to have diabetes now have some, though not all, data included within the audit, although this is still by no means approaching 100 per cent.

The NDPA has, from 2010-2011, been taken over by the Royal College of Paediatrics and Child Health (RCPCH) who will continue to liaise closely with the NHSIC in data submission and management. The most exciting development in the past year has been the recognition by the Department of Health of Paediatric Diabetes as a specialty in its own right and it is to be hoped that the forthcoming introduction of a Best Practice Tariff (BPT) from April 2012 that has resulted from this recognition will give an added incentive to those units who have so far not submitted data to do so, since otherwise they will not qualify for BPT. Hopefully, it will then be possible to approach 100 per cent ascertainment of data.

Several of the difficulties that have been identified relating to data submission, particularly in the availability of both computer hardware and software have continued to be a problem and it is to be hoped that these will be addressed over the next few years. It will then allow the scope of the audit to be expanded.

A new initiative from the NHSIC this year has been that individual reports have been sent back to units giving details of the analysis of their own results. This is something that is much appreciated by those who are participating as it gives them direct feedback about their own performance. Feedback is an important element of the audit process as it helps to maintain interest in data collection

The audit shows that there are still fewer than 15 per cent of all children whose data are submitted who achieve an HbA1c of <7.5 per cent as recommended by NICE and this figure remains essentially unchanged over the seven year period since the NDA audit by the NHSIC began. In addition, only a small proportion of children receive a 'full house' of key processes undertaken during the course of the audit year. The added incentives now in place will hopefully start to lead to improvements in outcomes and the NDPA will play a crucial part in measuring whether or not those improvements can be delivered over the next few years.

This is the last time I shall be writing a foreword as I have now handed over the reins to the capable hands of Justin Warner who will chair the committee from now on. I wish to take this opportunity to thank the NHSIC for all their sterling efforts in promoting the audit and for their achievements in producing the reports so efficiently. Lastly, I would like to wish Justin all the best for continuing the audit and developing its scope over the next three years.

Dr Jeremy Allgrove

Consultant in Paediatric Endocrinology and Diabetes,
Chair, National Diabetes Audit Paediatric Advisory Group



It is a pleasure once again to write this introduction to the National Diabetes Paediatric Audit (NDPA) on behalf of members of the Brecon Group (the all Wales Paediatric Diabetes interest group) for this audit period 2009-2010.

The centres looking after children and young people (CYP) with diabetes in Wales have participated in 6 out of the 7 audits managed by the Clinical Audit Support Unit (CASU) in the NHS Information Centre (NHSIC). Throughout this period centres in Wales have provided a 100 per cent participation rate. It is encouraging to see the number of registrations for 2009-2010 of 1,432 appear to have plateaued over the last 3 years and are very similar to our own prevalence survey in 2009 where 1,345 CYP aged 0-17 years with diabetes were recognised as being cared for in Wales. The discrepancy of ~100 patients is probably accounted for by the higher age cut for acceptance by the NDPA (0-24 years).

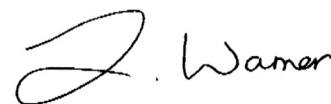
In England it is pleasing to see an increased participation rate across the nation with 18,126 registrations being a dramatic increase on previous years. However, this still falls somewhat short of the potential 22,947 CYP 0-17 years recognised by the 2009 RCPCH prevalence survey for England. From my own experience in Wales and feedback from other regions in England, participation has been aided by the existence of a paediatric diabetes network. The development of regional networks across the whole of England supported by NHS Diabetes should greatly enhance future participation.

Despite improved participation across the UK, outcome measures remain stubbornly disappointing with very little improvement over the years. The fall in the proportion of children achieving an HbA1c value of <7.5 per cent for 2009-2010 is worrying and there appears to be no clear explanation for this change from previous years. For Wales, using the online analysis toolkit, Performance Indicator Analysis Online (PIANO), I am able to demonstrate a slow but steady improvement in the proportion of CYP reaching this target, with 5 out of 14 centres showing steady improvements sustained over 3 years. The audit can only lead to improved outcomes and quality of care if utilised appropriately. Within your establishing regional networks I would encourage centres to take note of how services are delivered by others, particularly where outcomes are very good, and use this information to push up standards within your own centre.

Finally I would like to acknowledge Heather O'Connell who co-ordinates the submission to the NDPA from Wales and the Welsh Assembly Government who fund this post. Many of you will be aware that from 2011 the NDPA will be managed by the RCPCH. I would like to thank the NHSIC for their hard work over the last few years in analysing the data, producing the annual report and keeping the project on track. Links will certainly remain with the ongoing Adult NDA particularly around the area of transition. Finally I would encourage everyone to use PIANO toolkit to gain further information about your own unit. Only limited information is presented in this report but much more is available by interrogating the database.

Dr Justin Warner

Consultant in Paediatric Endocrinology and Diabetes,
Honorary Senior Lecturer, University Hospital of Wales



Summary of Key Findings

19,558 records on children and young people, (0-24 years of age), from 155 paediatric units, were submitted to the 2009–2010 audit. This is 25 per cent more than 2008–2009. There were 18,451 records from children aged 0-17 years of which 17,072 were from paediatric units in England. This equates to 74 per cent of the 22,947 children in England, aged 0-17 years, identified by the 2009 Royal College of Paediatrics and Child Health (RCPCH) survey¹. Please note, the key findings below are based on data submitted to the National Diabetes Audit from paediatric units in England and Wales. Due to the limitations paediatric units face when trying to submit complete data sets to the audit, care should be taken with the interpretation of care process data. Low results are very likely due to the absence of data rather than an indicator of practice.

- 94.3 per cent of children and young people are recorded with Type 1 diabetes and only 1.5 per cent with Type 2 diabetes.
- Slightly over half (52 per cent) of the children and young people with diabetes were male.
- 9.0 per cent of children and young people with diabetes experienced at least one episode of diabetic ketoacidosis (DKA) in 2009-2010. DKA was more frequent in girls than boys, more common in teenage years and often recurrent. There was a large variation in recurrence rates between treatment centres.
- 89.3 per cent of all children and young people with diabetes had a record of HbA1c measurement. But in children and young people over the age of 12 only 4.1 per cent had all the National Institute of Clinical Excellence (NICE) key processes of care recorded.
- Only 14.5 per cent of the HbA1c measurements achieved the NICE recommended HbA1c target of < 7.5 per cent (59 mmol/mol). Over 30 per cent of children and young people have a high risk (for future complications) HbA1c measure of > 9.5 per cent (82 mmol/mol).

Introduction

This is the seventh report prepared by the National Diabetes Audit (NDA) team, on behalf of the project board, based on information submitted by paediatric units in England and Wales. This report presents the main findings from analysis of the 2009 – 2010 paediatric audit.

The National Diabetes Audit (NDA) is commissioned and sponsored by the Healthcare Quality Improvement Partnership (HQIP) following advice to the Department of Health from the National Clinical Audit Advisory Group (NCAAG).

The audit is managed by the Clinical Audit Support Unit (CASU) in the NHS Information Centre and works in partnership with Diabetes UK with clinical and professional guidance from the NDA Project Board and Paediatric Advisory Group. Full membership lists can be found on the NDA website <http://www.ic.nhs.uk/ndaboard>

The Paediatric National Diabetes Audit covers four components of the National Service Framework (NSF)² for Diabetes:

- 1. Registrations:**
How many children and young people with diabetes are cared for in paediatric units?
- 2. Complications:**
What is the annual rate of ketoacidosis for children and young people registered with diabetes?
- 3. Care Processes:**
What proportion of children and young people with diabetes are getting the key processes of diabetes care?
- 4. Treatment Targets:**
What proportion of children and young people with diabetes achieve treatment targets?

The analysis within this report is based on voluntary submissions from specialist paediatric units caring for children and young people (CYP) with diabetes in England and Wales.

This report is supplemented by individual paediatric unit profile reports, the NDA online toolkit - Performance Indicator Analysis Online (PIANO), which allows in-depth unit level analysis and by the paediatric data tables which can be downloaded from www.ic.nhs.uk/ndaanalysis.

Records in paediatric units are still predominantly paper-based making data collection difficult and often incomplete. This must be taken into consideration when viewing the results within this report, particularly in respect of care processes and treatment targets.

Stratification of paediatric audit data for the analysis comprised in this report may lead to some results being based on a small number of patients. Care must be taken when assessing the significance of these results.

Participation

A total of 155 paediatric units from England and Wales successfully submitted data to the 2009-2010 audit (Figure 1).

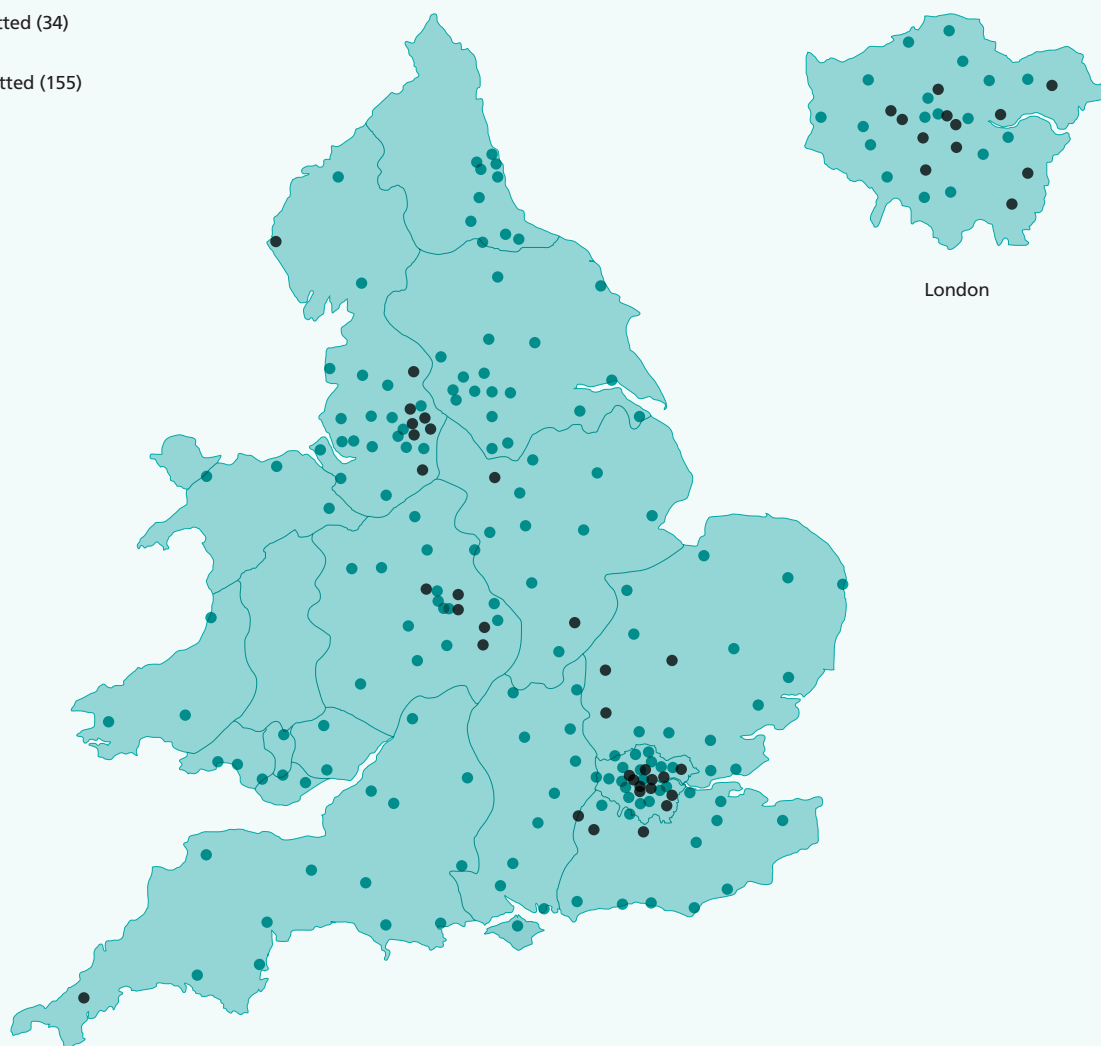
Data was received from 141 paediatric units in England, this represents 80.6 per cent (141/175) of the registered hospitals in England providing paediatric medical diabetes services.

Data was received from 14 paediatric units within 6 Welsh Health Boards, this represents 100 per cent of the hospitals in Wales providing paediatric diabetes medical services.

An overall increase of 31 units since the 2008-2009 audit, continues the annual upward participation trend. The main cause of non participation is almost always a lack of resources and technical infrastructure to aid in the collection and submission of the data.

Figure 1
Paediatric unit participation 2009-2010 audit

- Registered not submitted (34)
- Registered and submitted (155)



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Registrations

Records from 19,558 children and young people were submitted to the 2009-2010 audit up by 25 per cent compared with 2008-2009 (Figure 2).

Registrations and diabetes type

Over 99 per cent of the records submitted to the audit had a diabetes type recorded, of which, 94.3 per cent had Type 1 diabetes.

The number of children and young people with diabetes recorded with Type 2 diabetes has remained at under 2 per cent, in line with the results from the previous 6 audits (Figure 3).

Registrations and sex

19,533 records out of 19,558 had sex recorded. As per previous years, over half (52.36 per cent) of the number of registrations for children and young people are male. A higher percentage of females are recorded with Type 2

diabetes (2.24 per cent) than males (0.89 per cent). This is observed in both England and Wales (Table 1).

Registrations and age

19,555 out of 19,558 of records submitted to the audit included age. As found in the previous six audit periods, the 12–15 years age band comprises the largest percentage of children and young people with diabetes, 40.59 per cent (Figure 4).

Registrations and ethnicity

14,137 out of 19,558 records submitted to the audit specified ethnic origin. 99.23 per cent of records from Welsh paediatric units provide ethnic origin, whereas the corresponding figure from England is lower at 70.15 per cent (Table 2).

There are proportionally more children and young people with Type 2 diabetes from Black (8.70 per cent) and Asian (8.11 per cent) ethnic groups than there are from the White (0.91 per cent) ethnic group (Table 3).

Figure 2
Number of children and young people with diabetes by country over the seven audit periods (Wales were not part of the Audit in 2003-2004)

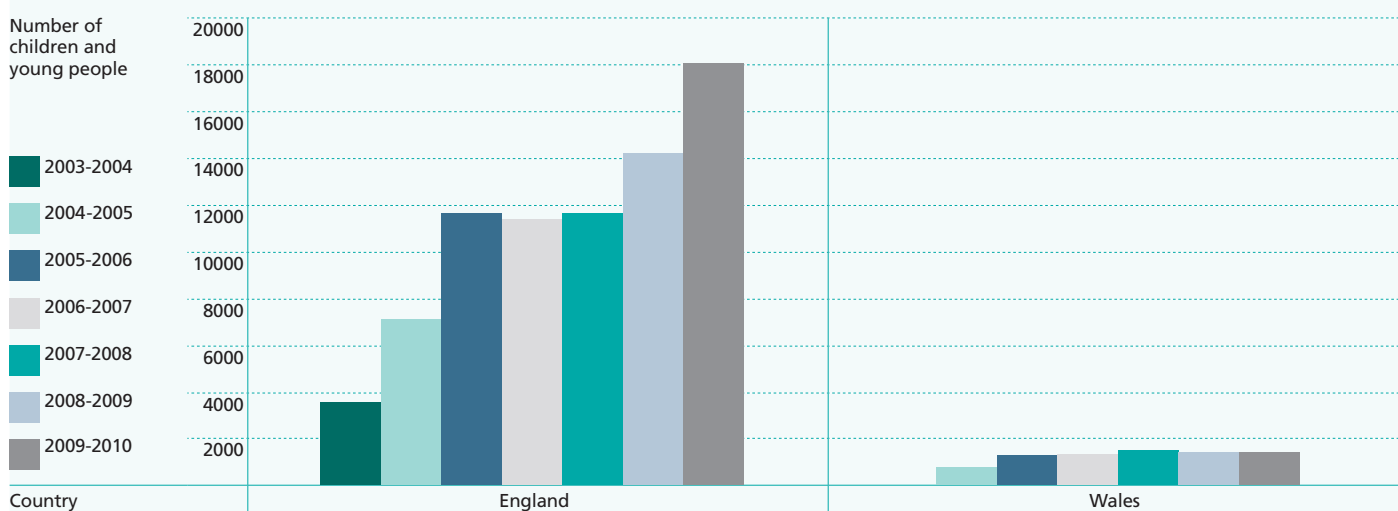


Figure 3
Percentage of children and young people with diabetes by diabetes type and audit period

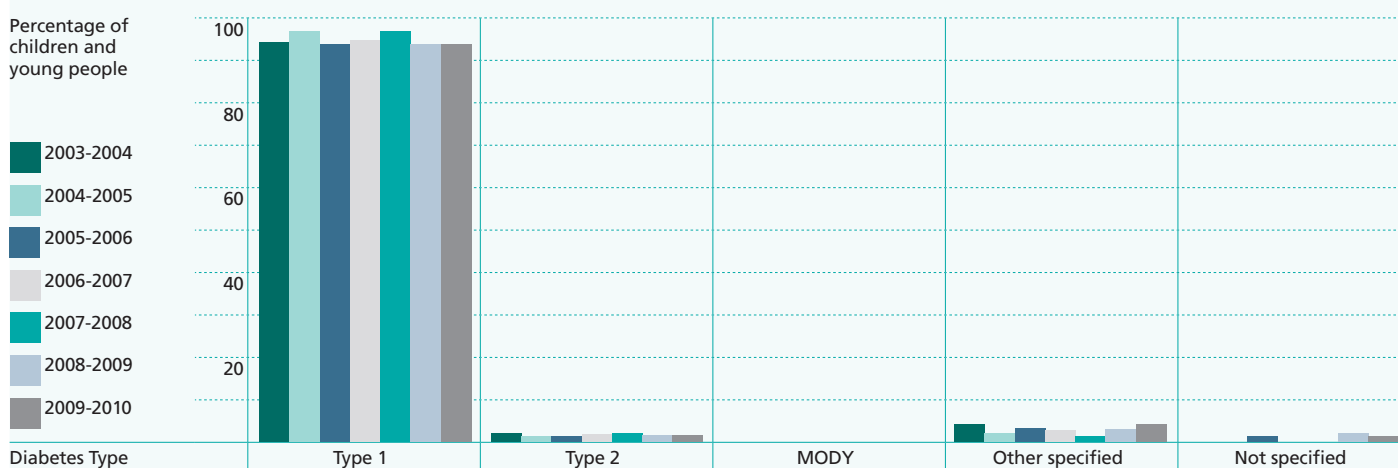


Table 1
Percentage of children and young people with diabetes by sex and diabetes type, for England and Wales, 2009-2010 audit period

Diabetes type	England		Wales	
	Male	Female	Male	Female
Type 1	94.25	92.28	96.89	95.24
Type 2	0.83	2.14	1.49	3.32
MODY*	0.22	0.24	0.41	0.00
Other specified	3.93	4.38	1.08	1.44
Not specified	0.77	0.96	0.14	0.00

* Mature Onset Diabetes of the Young (MODY)

Figure 4
Number of children and young people with diabetes by age band, for England and Wales combined, over the seven audit periods

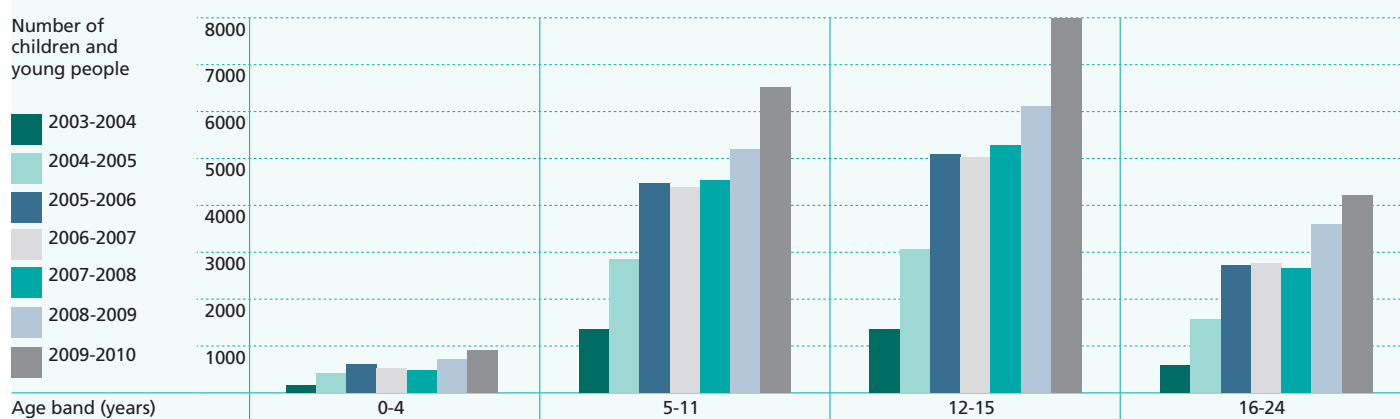


Table 2
Percentage of children and young people with diabetes by ethnic group and country, for 2009-2010 audit period

Ethnic group	England	Wales	National
White	63.06	96.51	65.51
Asian	3.46	0.98	3.28
Black	1.47	0.70	1.41
Other	2.17	1.05	2.09
Not stated	29.85	0.77	27.72

Table 3
Percentage of children and young people with diabetes by diabetes type and ethnic group, for the 2009-2010 audit period

Country	Diabetes type	Ethnic group				
		White	Asian	Black	Other	Not stated
England	Type 1	96.83	85.49	89.47	93.89	86.93
	Type 2	0.77	7.66	8.65	3.82	1.65
	MODY	0.20	0.48	0.38	0.76	0.22
	Other	1.93	5.42	0.75	0.51	9.09
	Not Specified	0.26	0.96	0.75	1.02	2.11
Wales	Type 1	96.38	71.43	90.00	93.33	100.00
	Type 2	2.10	28.57	10.00	0.00	0.00
	MODY	0.22	0.00	0.00	0.00	0.00
	Other	1.23	0.00	0.00	6.67	0.00
	Not Specified	0.07	0.00	0.00	0.00	0.00
National	Type 1	96.78	85.18	89.49	93.87	86.96
	Type 2	0.91	8.11	8.70	3.68	1.64
	MODY	0.20	0.47	0.36	0.74	0.22
	Other	1.86	5.30	0.72	0.74	9.08
	Not Specified	0.24	0.94	0.72	0.98	2.10

Diabetic Ketoacidosis in children and young people with diabetes

Data submitted to the NDA from paediatric units is linked to data from the Hospital Episode Statistics (HES) database for England and the Patient Episode Database for Wales (PEDW). Triangulation of the DKA data from these three sources allows the accurate assessment of DKA rates in children and young people with diabetes.

Data from children and young people diagnosed with diabetes within the audit year have been excluded because paediatric units cannot influence the prevention of DKA at diagnosis. However, public and healthcare professionals awareness campaigns remain an important part of trying to prevent this life threatening mode of presentation. 17.65 per cent of CYP who have been diagnosed within the audit year experience one or more episodes of DKA.

DKA prevalence is defined as the number of people who have had one or more records of a DKA episode over a defined time period - either one year (1 year prevalence) or five years (5 year prevalence).

DKA Incidence is defined as the total number of times a DKA episode has occurred within the defined time period - either one year (1 year incidence) or five years (5 year incidence).

During the 2009–2010 audit, 7.42 per cent of CYP with diabetes, who have been diagnosed for one year or more, experienced one or more episodes of DKA. The rates have not varied significantly in the past 4 years (Figure 5).

DKA continues to be more common in females (Table 4).

Figure 5
1 year prevalence (%) of DKA, by country, for the 2006-2007, 2007-2008, 2008-2009 and 2009-2010 audit periods

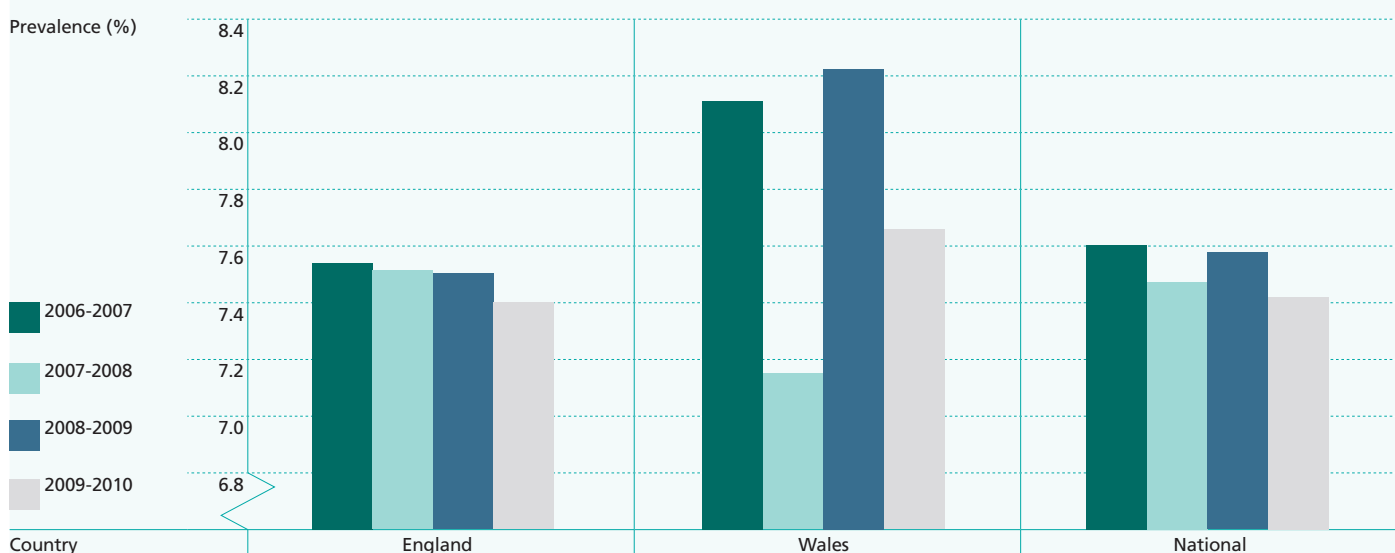


Table 4
1 year prevalence (%) of DKA, by sex and country, 2009-2010 audit period

Country	Male	Female
England	5.93	9.02
Wales	6.12	9.24
National	5.95	9.04

Table 5
Percentage of children and young people with diabetes having no, one or 2 or more episodes of DKA by age band, over 1 and 5 years for England and Wales combined.

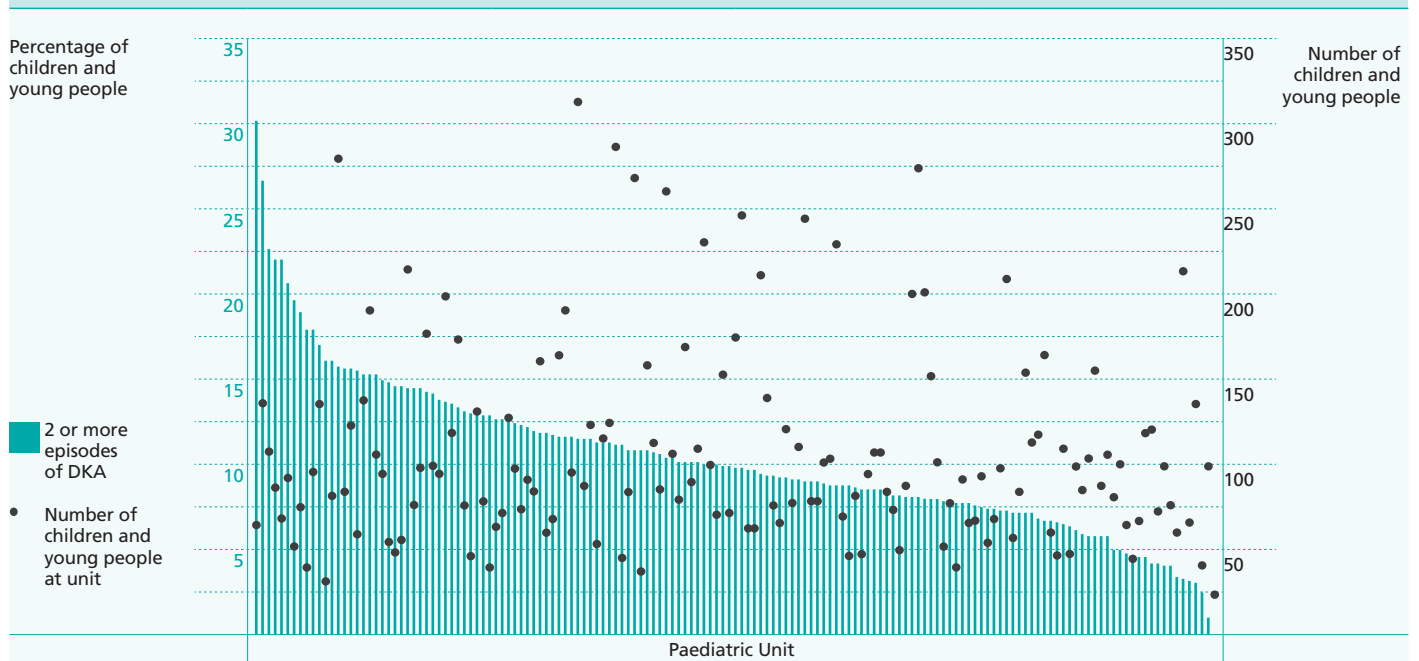
Time period	Age band (years)	Episodes of DKA		
		None	One	Two or more
1 year	0 - 4	93.89	5.43	0.68
	5 - 11	95.04	3.91	1.05
	12 - 15	91.93	5.27	2.80
	16 - 24	90.40	4.69	4.91
5 year	0 - 4	53.17	31.22	15.61
	5 - 11	77.13	16.74	6.13
	12 - 15	73.83	15.25	10.92
	16 - 24	73.00	12.48	14.52

Analysis of incidences of DKA episodes in children and young people with diabetes stratified by age band over a period of 1 year and 5 years presents a number of findings (Table 5).

- 15.47 per cent of children and young people have had one episode of DKA in the last 5 years
- 10.43 per cent of children and young people have had two or more episodes of DKA in the last 5 years
- During the last audit year, DKA occurred at least once in 8.64 per cent of the 12-24 years age group. The rate for the 0 – 11 year age group is 5.05 per cent

Across paediatric units, the percentage of children and young people having multiple episodes of DKA varies from 0 to over 30 per cent. There appears to be no association between number of patients at the paediatric unit and the percentage of patients with recurrent DKA (Figure 6).

Figure 6
Percentage of children and young people with diabetes having 2 or more episodes of DKA in last 5 years by unit, 2009-2010 audit period



Care Processes

The NDA collects information on the key care processes, recommended by the National Institute for Clinical Excellence (NICE), for children and young people with diabetes.

The audit measures the percentage of children and young people with diabetes who are receiving the key processes of care for diabetes which include:

- HbA1c
- Body Mass Index (BMI)
- Blood pressure
- Urinary albumin
- Blood creatinine
- Cholesterol
- Eye screening
- Foot exam

Key care processes are recorded to monitor diabetes management and detect long term complications at the earliest, treatable stage. Not all of the care processes outlined are recommended for children of all ages. Guidelines specify a starting age of 12 years for commencing most care processes, whereas HbA1c should be measured in CYP of all ages. The NDA incorporates data collection for the age relevant care processes for children and provides analysis on this information.

Due to the limitations specialist paediatric units face when trying to submit complete data sets to the audit, care should be taken with the interpretation of care process data. Low results are very likely due to the absence of data rather than an indicator of practice.

498 out of 12,204 (4.08 per cent) children and young people aged 12 to 24 years had all the care processes recorded. Therefore, as in previous years, 96 per cent of children and young people with diabetes may not have received all the care processes recommended by NICE. Stratifying by age, shows that the percentage of children, over the age of 12, with all care processes has fallen by 1.07 per cent since the 2008-2009 audit (Table 6).

- The percentage of CYP with diabetes, aged 12 years and over, receiving albumin and creatinine tests, BMI and BP measurements has increased by 4.28, 2.36, 4.25 and 1.73 per cent respectively
- Large variation exists in the recording rates of care processes received in CYP aged 12 years and over e.g. over 3 times as many CYP have an HbA1c recorded than have a foot exam
- There has been a decrease in the percentage of children and young people with diabetes who have had their cholesterol and eye exam care processes recorded compared to the previous audit years analysis

Table 6
Percentage of children and young people with diabetes, aged 12 years and over, having key age specific care processes recorded, over the seven audit periods

	Care processes recorded (%)						
	2003-2004	2004-2005	2005-2006	2006-2007	2007-2008	2008-2009	2009-2010
HbA1c	67.71	73.16	77.56	84.67	89.12	89.59	90.09
BMI	47.98	50.50	52.99	60.46	73.24	65.95	70.20
Blood pressure	46.30	44.05	40.58	53.26	60.07	57.09	58.82
Urinary albumin	21.56	18.71	23.29	30.31	34.11	32.18	36.46
Blood creatinine	26.11	20.07	20.64	26.77	33.75	30.68	33.05
Cholesterol	21.51	18.17	17.49	22.55	32.05	30.53	29.85
Eye screening	13.69	17.71	15.26	25.16	25.68	26.91	25.80
Foot exam	13.95	17.37	15.39	21.33	23.48	23.12	24.51
All care processes	0.61	1.95	2.64	3.55	5.00	5.15	4.08

HbA1c analysis

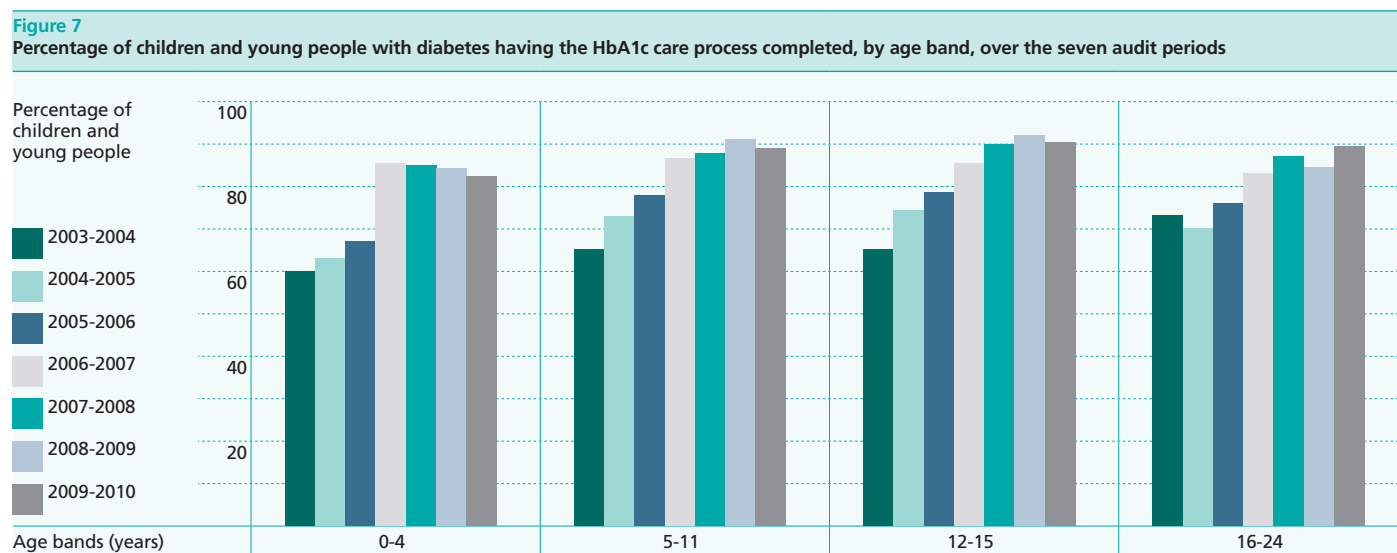
The following analysis examines the percentage of children and young people, of all ages, who have had their HbA1c checked and recorded. It must be noted that due to different methods of data collection and submission between centres there are variations in the HbA1c value recorded for patients. The NDA advises units to submit the latest record of HbA1c within the audit period. However, some units submit an average HbA1c value for the year. Therefore care must be taken when comparing results.

17,458 records submitted to the audit recorded that HbA1c had been measured. 17,300 records (88.45 per cent of all records) included an HbA1c value. This means that there were 158 records where the HbA1c care process had been recorded but the corresponding HbA1c value had not been supplied.

89.24 per cent (16,176/18,126) of children and young people with diabetes in England, of all ages, had their HbA1c measured during the 2009-2010 audit. The corresponding figure in Wales was 89.53 per cent (1,282/1,432).

Unit analysis regarding HbA1c recording can be downloaded from the NDA website at: <http://www.ic.nhs.uk/ndaanalysis>.

When the paediatric population is stratified according to age, the 12–15 years age band has the highest percentage of records with the HbA1c care process completed (90.39 per cent) as shown in (Figure 7) although the differences between age bands are less than in earlier years.



Treatment Targets

The NDA collects and analyses HbA1c and cholesterol care process target results for children and young people with diabetes. Where an HbA1c and cholesterol value is recorded, these are assessed against the recommended NICE guidelines. Records where no value was recorded were excluded.

HbA1c analysis

14.53 per cent, of those where an HbA1c value was recorded, achieved the NICE recommended HbA1c target of < 7.5 per cent. This is a slight decrease on the previous audit year (16.17 per cent). The target achievement rates were similar for both England and Wales, 14.51 per cent and 14.82 per cent respectively.

Effects of gender

In both England and Wales more males (14.92 per cent) than females (14.09 per cent) achieved the NICE recommended HbA1c target of < 7.5 per cent (Figure 8).

Effects of age

Achievement of HbA1c < 7.5 per cent was highest in the 0-4 years age band followed by the 5-11 years age band (Table 7).

Effects of ethnicity

The rate of HbA1c target achievement has decreased across all ethnic groups since 2006-2007 (Figure 9). The largest decrease in HbA1c target achievement is in the black ethnic group, from 19.86 per cent to 8.03 per cent.

Figure 8
Percentage of children and young people with diabetes achieving the NICE recommended HbA1c target of < 7.5 per cent, by sex and country, for the 2009-2010 audit period

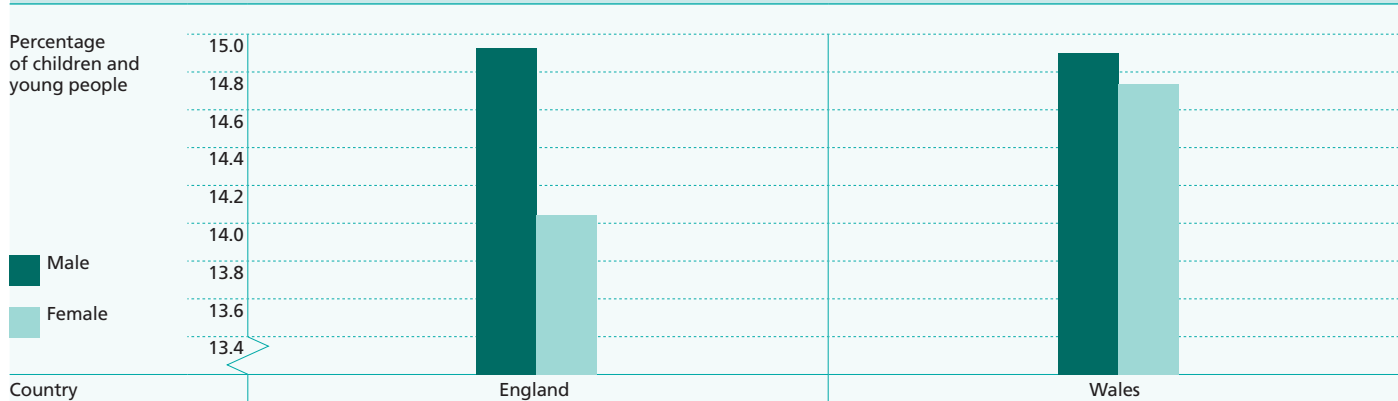
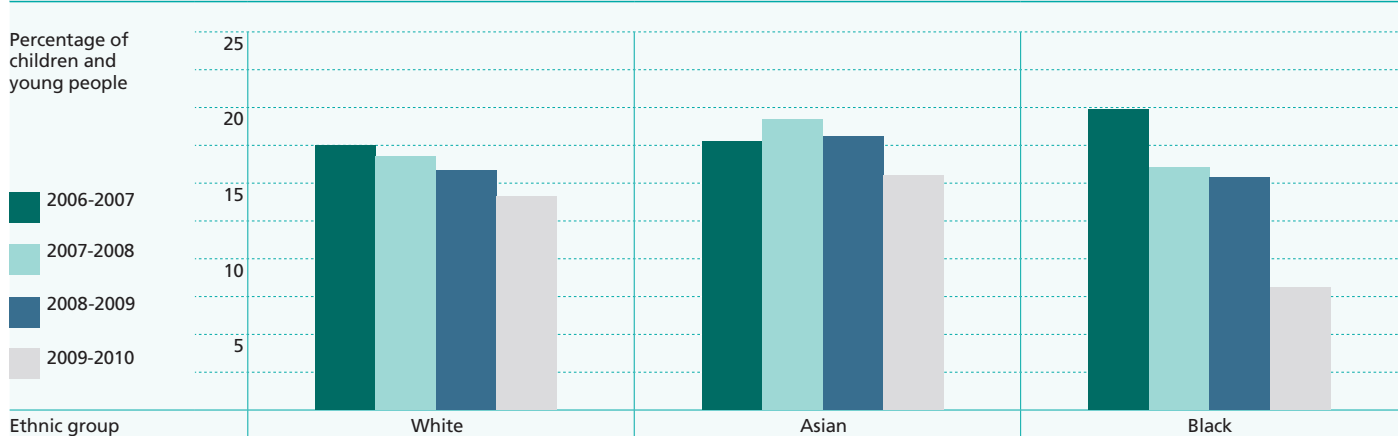


Table 7
Percentage of children and young people with diabetes achieving the HbA1c target of < 7.5 per cent, by age and country, for the 2009-2010 audit period

Age band (years)	England	Wales
0 - 4	17.98	19.23
5 - 11	15.27	16.58
12 - 15	14.15	14.12
16 - 24	13.38	13.07
National Value	14.51	14.82

Figure 9
Percentage of children and young people with diabetes with an HbA1c value of < 7.5 per cent, by ethnic group for the 2006-2007, 2007-2008, 2008-2009, 2009-2010 audit periods



HbA1c treatment target achievement bands

Over half (54.79 per cent) of children and young people with an HbA1c value recorded are within the HbA1c range ≥ 7.5 per cent to ≤ 9.5 per cent (Table 8). This is similar to previous audit years.

As highlighted in Figure 10 and Table 8, HbA1c treatment target achievement bands follow the same pattern for both England and Wales, with only small variations in percentages achieved.

In both England and Wales, over 85 per cent of children and young people have an HbA1c value ≥ 7.5 per cent. 30.68 per cent of children and young people with diabetes have very high risk glucose control (HbA1c of > 9.5 per cent).

In England there are more females with very high risk glucose control but in Wales it is the reverse (Figure 11).

Paediatric unit variation

The percentage of children and young people achieving the HbA1c target of < 7.5 per cent varies from 1.61 to 37.23. Units who provided less than 20 HbA1c values have been excluded from the following analysis, as their results may not be reliable. This resulted in 8 of the 155 paediatric units being excluded from the analysis.

There appears to be no association between the number of patients at the paediatric unit and the percentage of patients achieving the HbA1c treatment target (Figure 12).

Figure 10
Percentage of children and young people with diabetes by HbA1c target band achieved, for England and Wales, for the 2009-2010 audit period

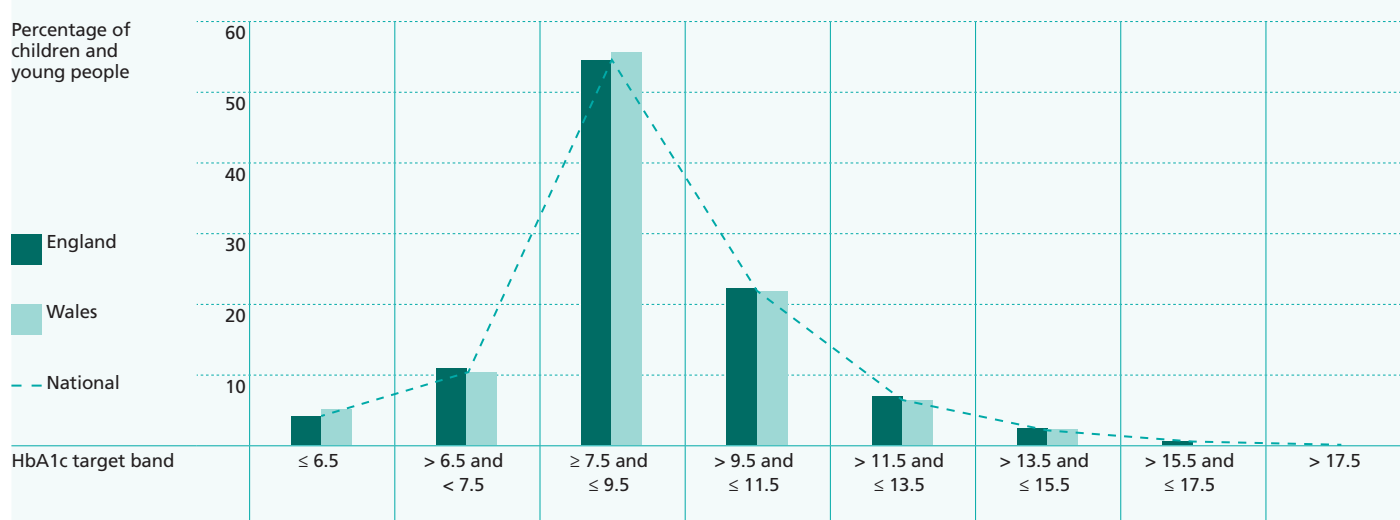


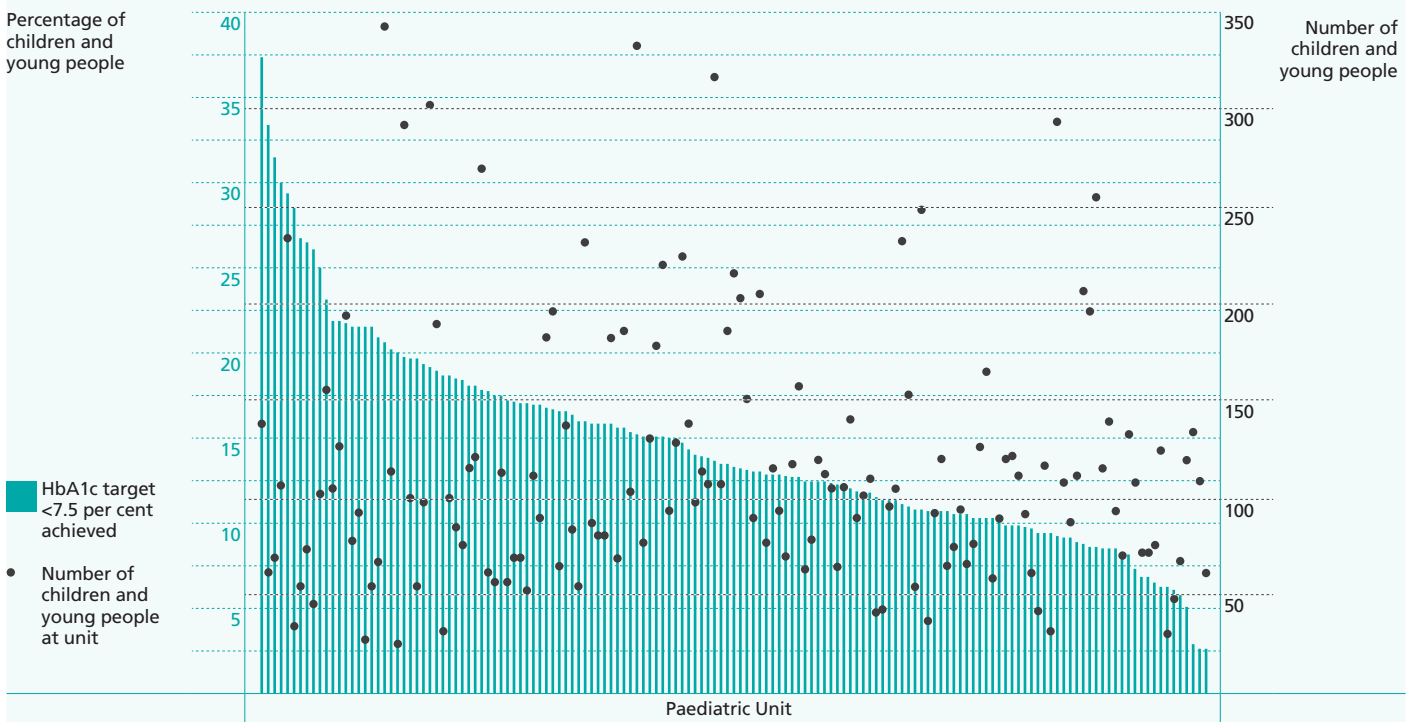
Table 8
HbA1c target band achieved (%) for England and Wales, for the 2009-2010 audit period

HbA1c target band	Percentage of children and young people with diabetes		
	National	England	Wales
≤ 6.5	4.14	4.10	4.60
> 6.5 and < 7.5	10.40	10.42	10.22
≥ 7.5 and ≤ 9.5	54.78	54.71	55.69
> 9.5 and ≤ 11.5	21.97	22.00	21.61
> 11.5 and ≤ 13.5	6.32	6.34	6.08
> 13.5 and ≤ 15.5	2.14	2.18	1.72
> 15.5 and ≤ 17.5	0.24	0.25	0.08
> 17.5	0.00	0.00	0.00

Figure 11
Percentage of children and young people with diabetes with an HbA1c > 9.5 per cent, by country, for the 2009-2010 audit period



Figure 12
Percentage of children and young people with diabetes achieving HbA1c value of <7.5 per cent by unit, 2009-2010 audit period



Cholesterol (children and young people aged 12 and above)

3,569 children and young people aged 12 years and above had their cholesterol measured and submitted a value to the audit. Of those, 2,702 (75.71 per cent) achieved the NICE recommended cholesterol target of <5.0 mmol/l.

In England more males were within the cholesterol target, whereas in Wales females exceeded males (Figure 13).

24.29 per cent of children and young people aged 12 years and above have a cholesterol level ≥ 5.0 mmol/l. As in the 2008-2009 audit, the Asian ethnic group has the highest percentage of records with a cholesterol measurement of ≥ 5.0 mmol/l (Table 9).

Figure 13
Percentage of children and young people with diabetes, aged 12 years and over, achieving the NICE cholesterol target of < 5.0 mmol/l, for England and Wales combined, for the 2009-2010 audit period

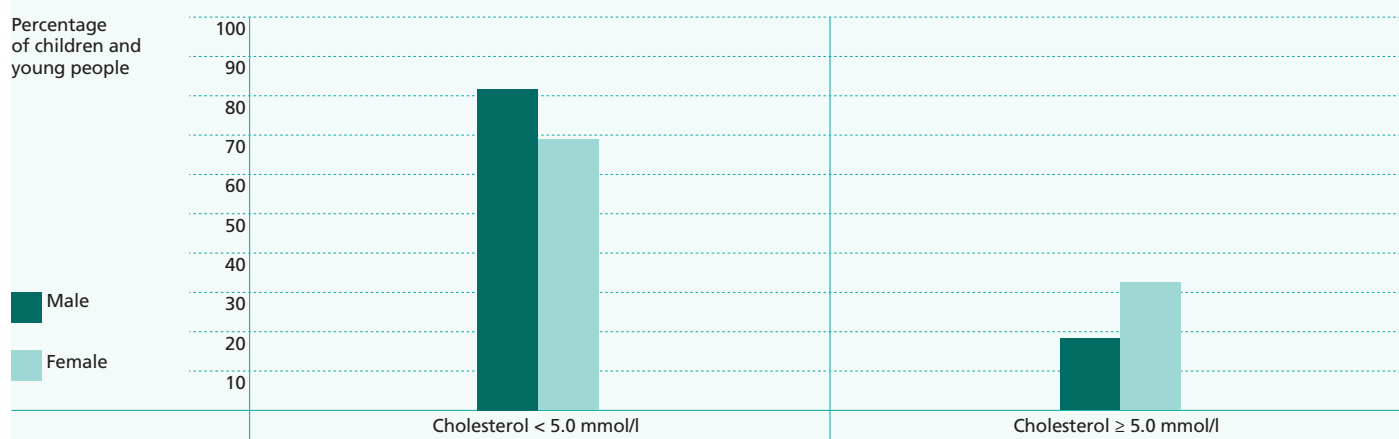


Table 9
Percentage of children and young people with diabetes, aged 12 years and over, by ethnic group, for the NICE cholesterol targets, for England and Wales combined, for the 2009-2010 audit period

Country	NICE cholesterol target	
	Cholesterol < 5.0 mmol/l	Cholesterol ≥ 5.0 mmol/l
White	75.36	24.64
Asian	70.69	29.31
Black	77.92	22.08
Other	75.68	24.32
Not stated	77.35	22.65

Conclusions

The increased participation in the Paediatric NDA testifies to the commitment of Childrens' Diabetes Services to improvement. It is disappointing therefore to find such stubbornly low levels of target glucose control and high levels of Diabetic Ketoacidosis (DKA).

In many respects this is probably due to the formidable difficulties for children, families and professionals of successfully managing diabetes in childhood. However, the variation in target glucose control and DKA between centres suggests that even though everyone is using the same basic treatment tools there are some approaches that are systematically more successful than others. So one would expect that if the more effective systems could be more widely adopted significant overall improvements would be achieved.

It is therefore encouraging to note the advent of regional paediatric diabetes networks over the past year. Their influence has undoubtedly contributed significantly to the increased NDA participation and will hopefully now extend to use of the results for activation and prioritisation of improvement projects, facilitated by sharing expertise and monitored by ongoing participation in the Paediatric NDA.

Online Analysis

This children and young peoples report presents the key findings from the seventh year of the National Diabetes Audit (NDA). It provides recommendations for paediatric units based on the analysis of the audit data.

This report is supplemented by individual paediatric unit profile reports, the NDA online toolkit - Performance Indicator Analysis Online (PIANO) - which allows in-depth unit level analysis, and by the paediatric data tables. For further information please visit the following webpages:

www.ic.nhs.uk/diabetesaudits

www.ic.nhs.uk/ndaanalysis

www.ic.nhs.uk/ndatoolkit

For further information about this report, the data tables, the NDA toolkit or the profile reports, please contact The NHS Information Centre's Contact Centre on 0845 300 6016 or email enquiries@ic.nhs.uk

References

1. Royal College of Paediatrics and Child Health (RCPCH) (March 2009), Growing up with Diabetes: children and young people with diabetes
2. Department of Health (2001), National Service Framework for Diabetes: Standards

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