

Young People with Type 2 Diabetes, 2019-20

National Diabetes Audit

National Paediatric Diabetes Audit

England

12 August 2021

Contents: Navigation

| Chapter | Slide |
|---|------------|
| Executive Summary | <u>3-5</u> |
| Aims and Objectives | <u>3</u> |
| Key Findings | <u>4</u> |
| Key Recommendations | <u>5</u> |
| The cohort of young people diagnosed with Type 2 diabetes used in this report | <u>6</u> |
| What are the characteristics of young people diagnosed with Type 2 diabetes? | <u>10</u> |
| Are young people with Type 2 diabetes having care process checks and achieving treatment targets? | <u>16</u> |
| Additional Information | <u>22</u> |

Home button – available on slides to return to Contents: Navigation



Aims and Objectives



The **National Diabetes Audit (NDA)** and the **National Paediatric Diabetes Audit (NPDA)** provide a comprehensive view of diabetes care in England and Wales. They measure the effectiveness of diabetes healthcare against NICE Clinical Guidelines and NICE Quality Standards.



This is the first Young People with Type 2 Diabetes report.

It aims to document the number of people with type 2 diabetes up to the age of 40 years, their characteristics and the diabetes care they receive. This is important because adverse diabetes and cardiovascular outcomes are more common in people who develop diabetes at an early age and it is thought the numbers are increasing.

NDA data (people of all ages) has been linked to **NPDA data (children attending specialist paediatric diabetes clinics)** to create a cohort of young people with type 2 diabetes from both data sets. Where necessary, to confirm the diagnosis and type of diagnosis, HbA1c and prescription information were used.



Key Findings

- There are **122,780 children and young adults under the age of 40 years with type 2 diabetes**; of whom 1,560 (around 1.3 per cent) are under the age of 19 years.
- Compared with people aged 40 years and over who have type 2 diabetes, young people under the age of 40 years with type 2 diabetes are **more likely** to:
 - Be female;
 - Be of minority ethnicity (particularly Asian);
 - Be living in an area of social deprivation;
 - Be classified as overweight or obese.
- Compared with people aged 40 years and over who have type 2 diabetes, young people with type 2 diabetes aged 19 to 39 years are **less likely** to have:
 - All annual care processes;
 - An HbA1c less than or equal to the NICE standard of 58mmol/mol (7.5%*);

There is better attainment of the above in those aged under 19 years.



Key Recommendations

- 1. NHS commissioners and providers should develop and implement specific plans to improve the care of the large number of young people with type 2 diabetes.** The plans should be consistent with these young people being disproportionately female, of minority ethnic heritage and living in areas of social deprivation.
- 2. NHS commissioners and providers should ensure that weight management programmes, appropriate to young people with type 2 diabetes or at risk of type 2 diabetes are easy to access and widely used.** They may include existing National NHS programmes that support weight loss for those living with obesity and diabetes (for example the NHS Digital Weight Management Programme), that induce remission of type 2 diabetes (for example, the NHS Low Calorie Diet Programme) and that reduce the risk of developing type 2 diabetes (for example the NHS Diabetes Prevention



NDA 2019-20: Young People with Type 2 Diabetes

**The cohort of young people
diagnosed with type 2
diabetes used in this report**





Young People with Type 2 Diabetes Cohort

- The cohort of young people with type 2 diabetes used in this report differs from that used in NDA Core Report 1 2019-20.
- This cohort of young people with type 2 diabetes consists of people:
 - Recorded as having **type 2 diabetes in NPDA 2019-20** (April 2019 to March 2020).
 - Whose recorded diagnosis* and/or HbA1c and/or drug prescription information **indicates a person has type 2 diabetes in NDA 2019-20** (January 2019 to March 2020).
 - People in **England only**.
 - Aged **under 40 years**, split into following age groups:
 - Under 12 years
 - 12 to 15 years
 - 16 to 18 years
 - 19 to 25 years
 - 26 to 39 years

Table 1: Cohort - the number of young people with type 2 diabetes in England, by age group, 2019-20

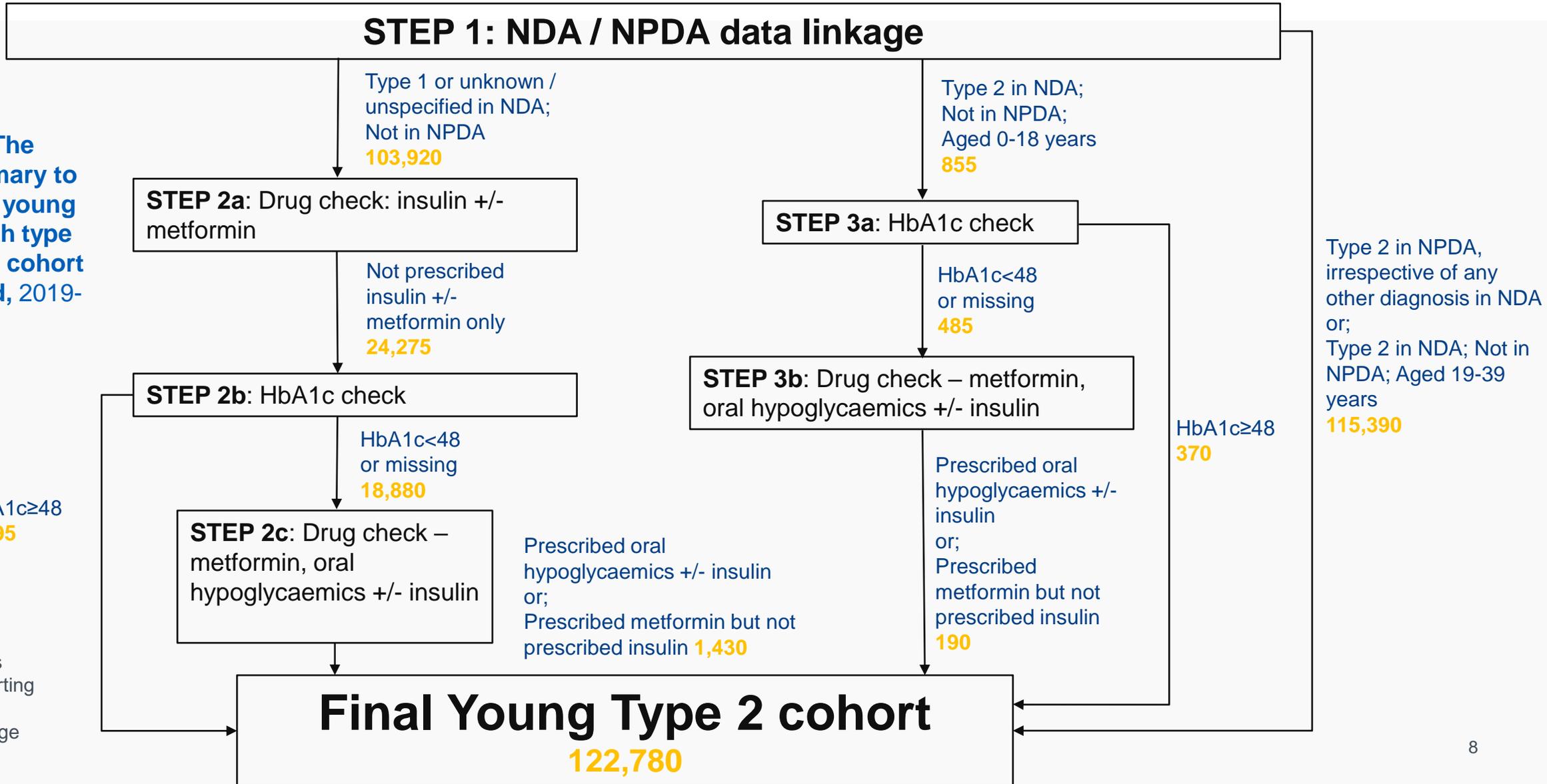
| Age group | Number of people |
|----------------|------------------|
| Under 12 years | 105 |
| 12-15 years | 545 |
| 16-18 years | 910 |
| 19-25 years | 8,245 |
| 26-39 years | 112,980 |
| Total | 122,780 |

* In the derived NDA central data set that uses all audit period data from 2003-4 to 2019-20 to select a person's diabetes type, based on a set of rules that have been agreed with lead clinicians.

Young People with Type 2 Diabetes Cohort: Step Summary



Figure 1: The step summary to define the young people with type 2 diabetes cohort in England, 2019-20

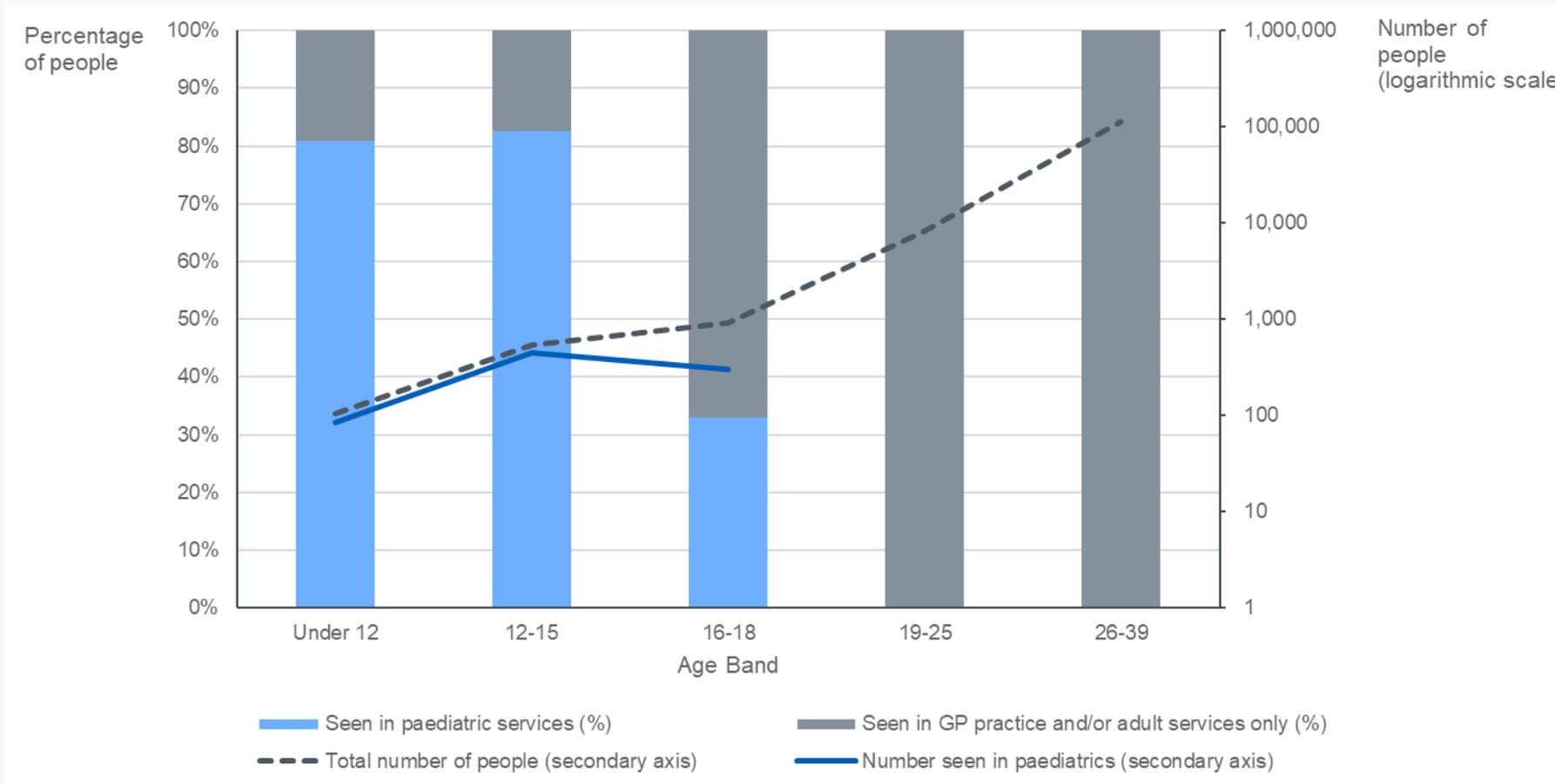


Please see this report's Supporting Information workbook for age breakdowns at each step

Where are Young People with Type 2 Diabetes Being Seen?



Figure 2: The numbers of young people with type 2 diabetes in England by age group and the percentages by care setting*, 2019-20



Around 1,560 under 19s have type 2 diabetes.

Around 80% of the 645 under 16s are seen in paediatric services; as are about a third of the 910 in the 'transition' 16 to 18 year age group.

* 'Seen in paediatric services' includes people who have attended paediatric services in 2019-20, irrespective of whether they have also been seen in a GP practice or adult specialist services. 'Seen in GP practice and/or adult services only' includes people who have only been seen in these services and have not attended paediatric service.



NDA 2019-20: Young People with Type 2 Diabetes

What are the characteristics of young people diagnosed with type 2 diabetes?

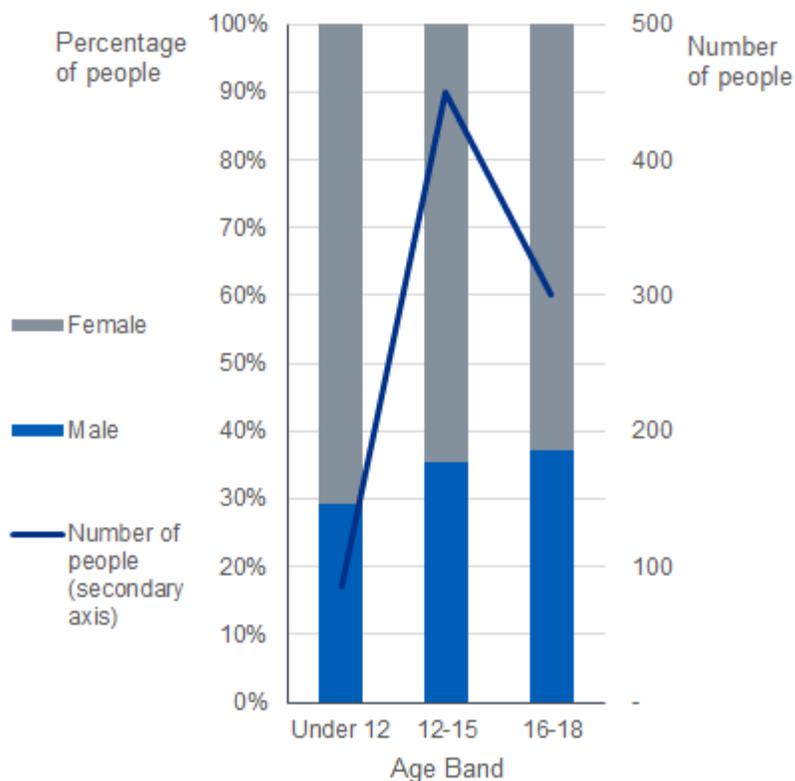




Young People with Type 2 Diabetes: Age and Sex

Figure 3: The percentage breakdown of young people with type 2 diabetes in England, by age group and sex, 2019-20

Paediatric Services

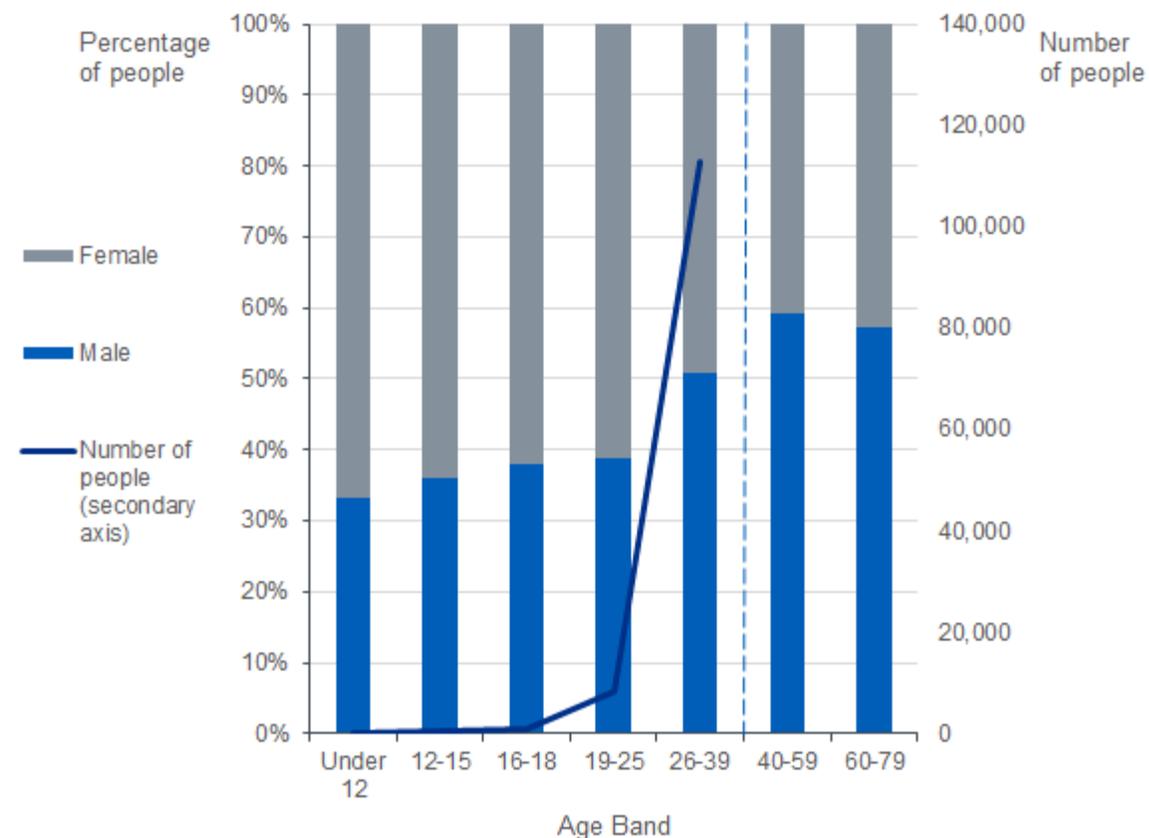


The numbers of people with type 2 diabetes increase rapidly from age 20 years.

Young people (aged under 40) with type 2 diabetes comprise about 4% of all people with type 2 diabetes.

Females predominate under the age of 25, whereas males predominate over 40 years.

All Care Settings

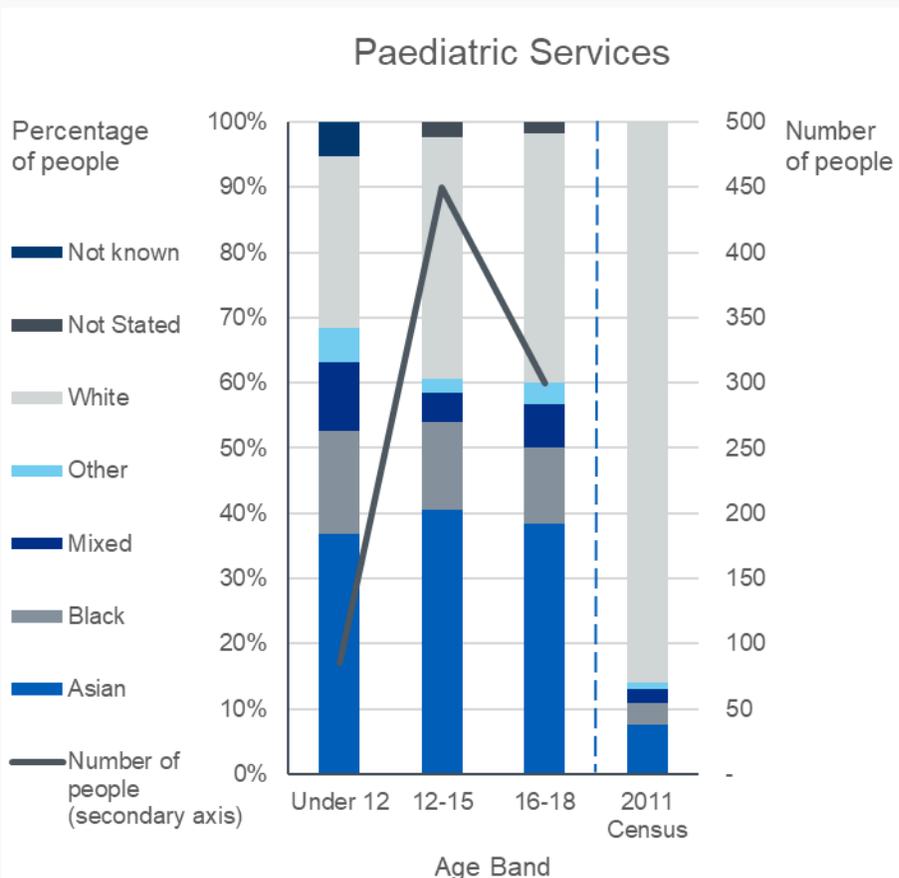


* 'Paediatric services' includes people who have attended paediatric services, irrespective of whether they have also been seen in a GP practice or adult specialist services. 'All Care Settings' includes everyone in the cohort, including people who have attended paediatric services.

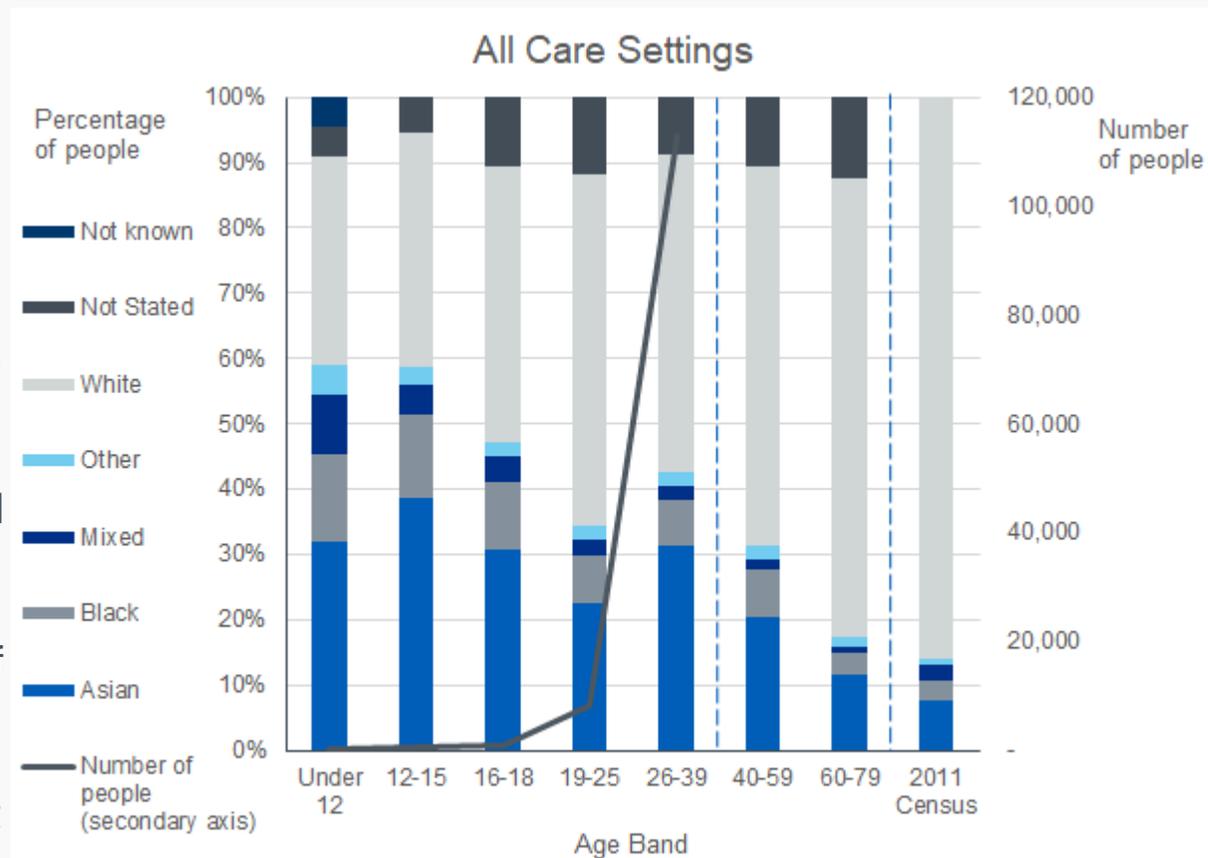
Young People with Type 2 Diabetes: Age and Ethnicity



Figure 4: The percentage breakdown of young people with type 2 diabetes in England, by age group and ethnicity, 2019-20



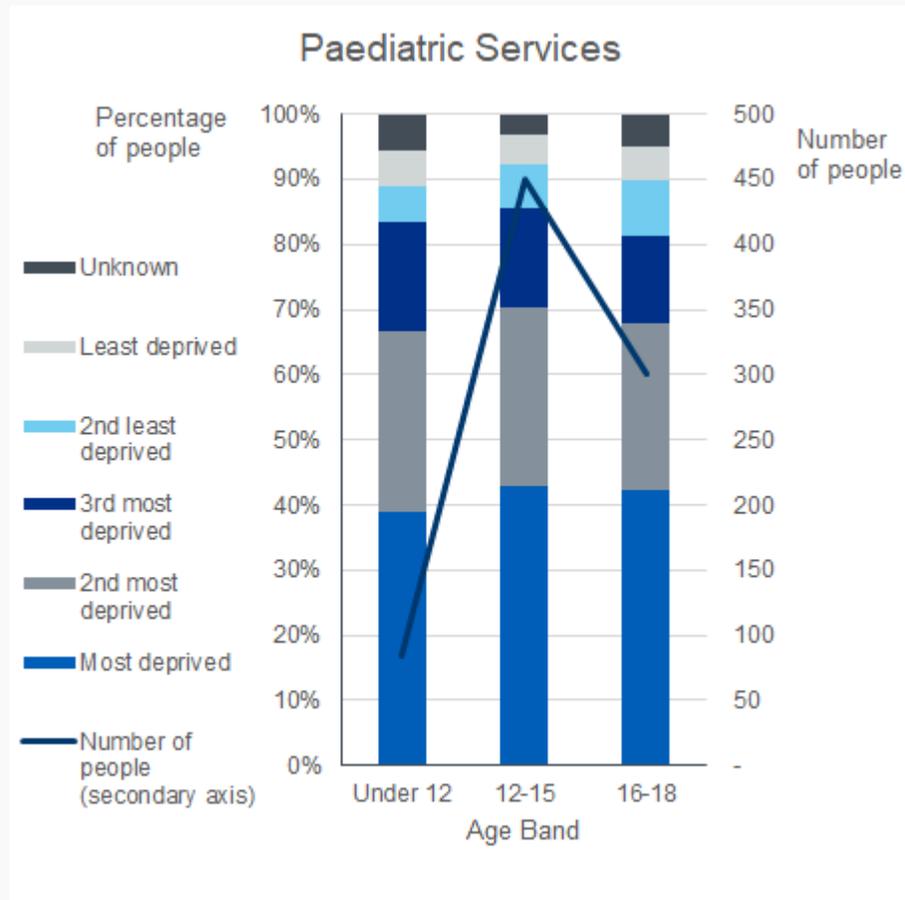
There is an over-representation of minority ethnic groups, particularly Asian people, across all younger age groups in comparison to the older age groups (40 to 79 years) and the overall England population (2011 Census). The highest proportions of people from minority ethnic groups are found in the youngest cohorts (under 19 years).



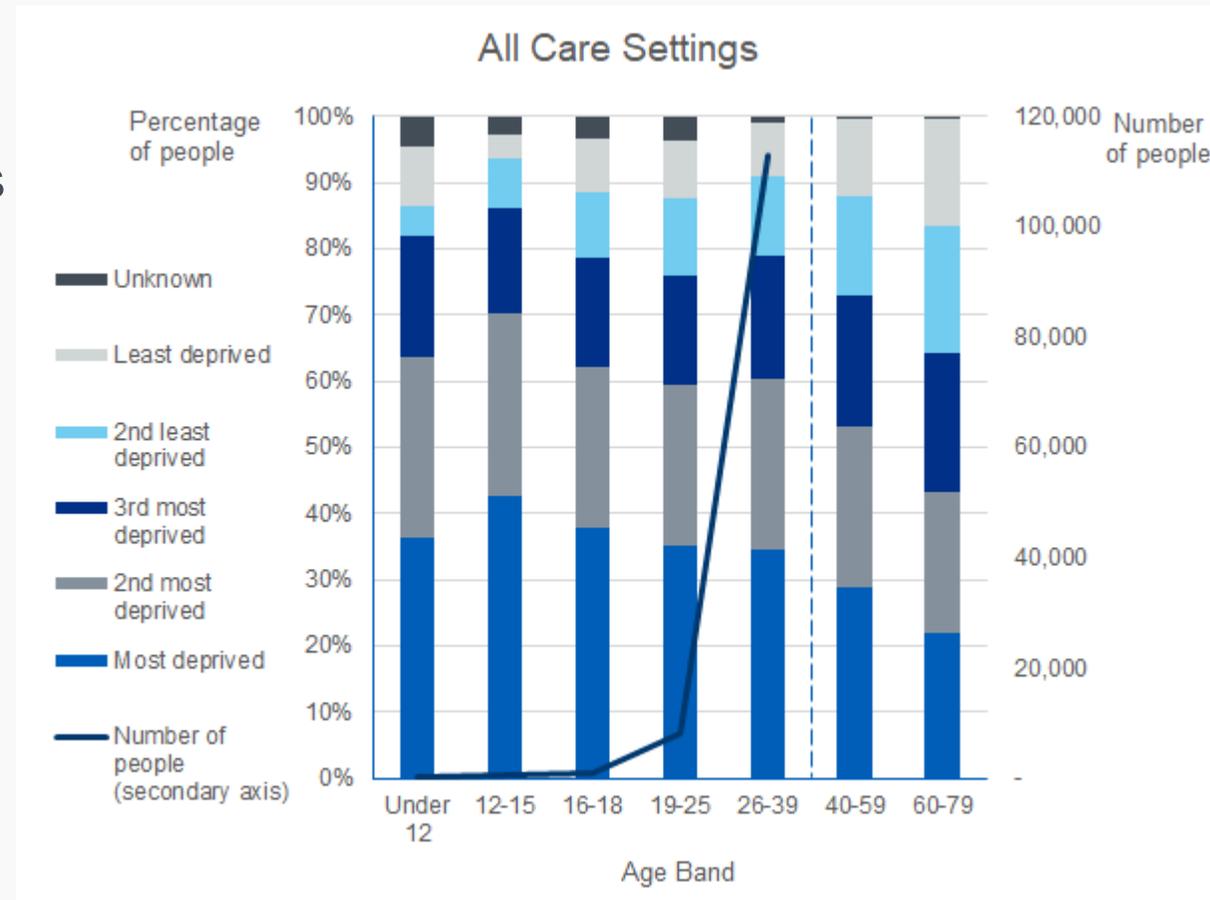
Young People with Type 2 Diabetes: Age and Deprivation



Figure 5: The percentage breakdown of young people with type 2 diabetes in England, by age group and deprivation quintile, 2019-20



The most deprived areas account for higher proportions of people in younger age groups.

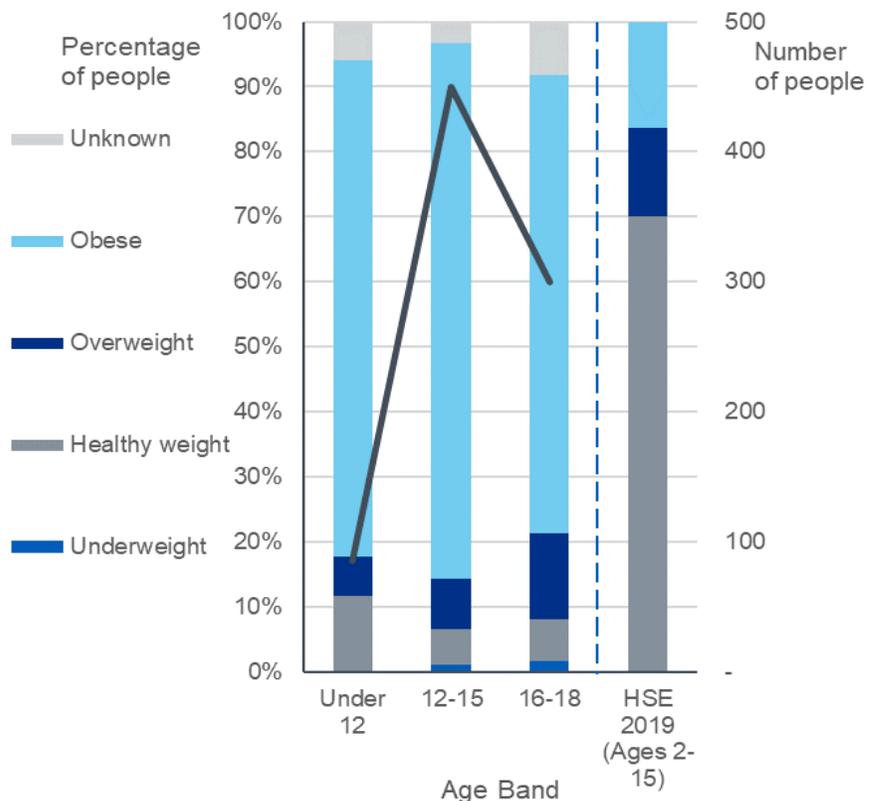




Young People with Type 2 Diabetes: Age and BMI

Figure 6: The percentage breakdown of young people with type 2 diabetes in England, by age group and BMI*, 2019-20

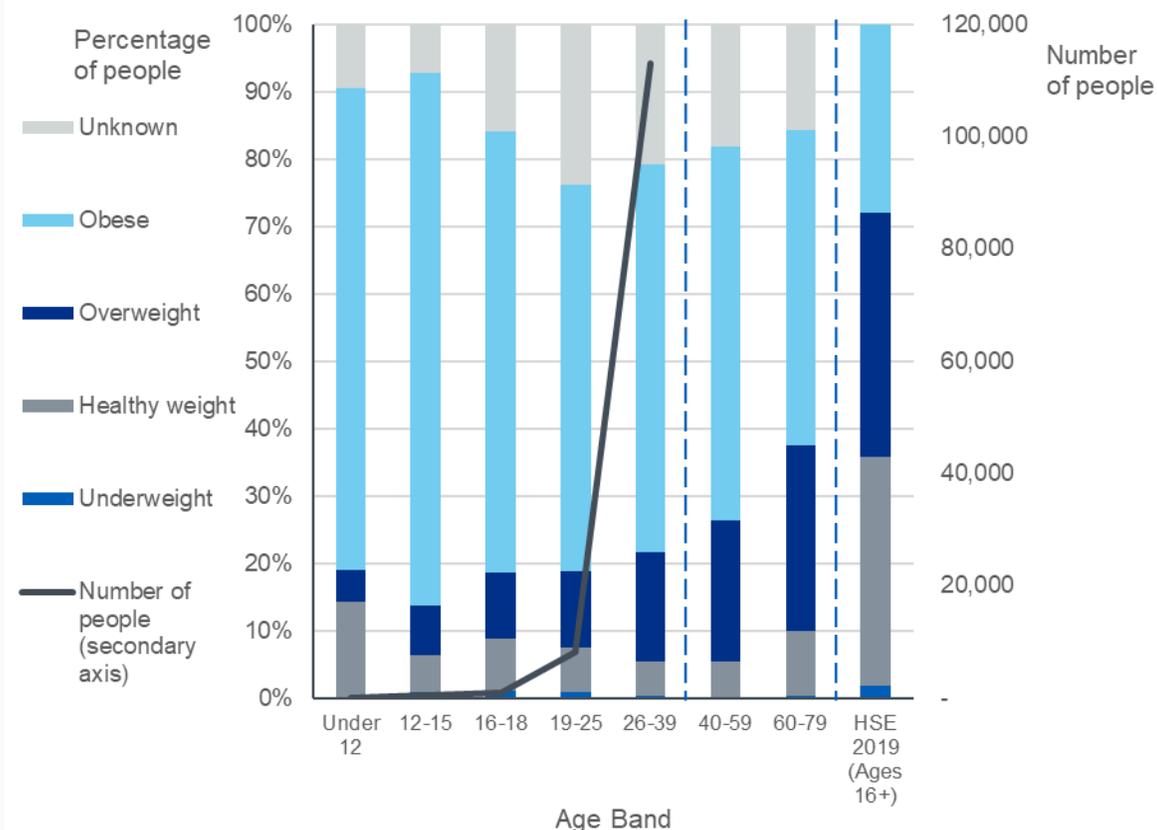
Paediatric Services



Obesity is the dominant category at all ages up to 60 years but especially so in younger people.

Please note the percentage of unknown BMIs differs by age band.

All Care Settings

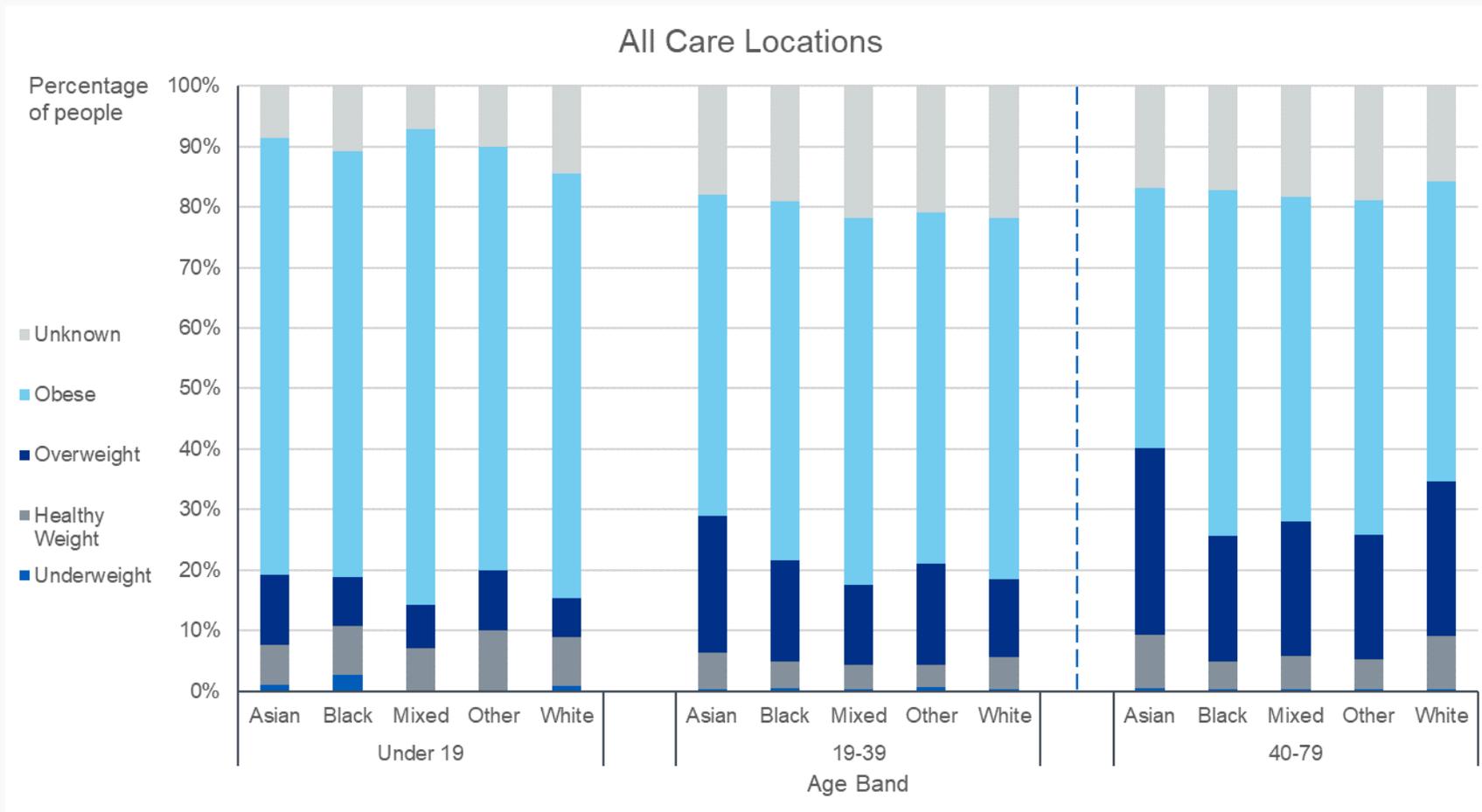


* The assignment of BMI categories differs for children (aged up to 18 years old) and adults. In adults, categories are assigned on BMI ranges and ethnicity group. See Definitions section for more information. The Health Survey for England (HSE) data are not adjusted for ethnicity and classify children as overweight, obese or neither overweight or obese. This last group is represented as 'Healthy weight' in the chart.

Young People with Type 2 Diabetes: Age, BMI and Ethnicity



Figure 7: The percentage breakdown of young people with type 2 diabetes in England, by age group, BMI* and ethnicity, 2019-20



Obesity is the dominant category in people across all ethnicity groups, especially those aged under 19 years.

* The assignment of BMI categories differs for children (aged up to 18 years old) and adults. In adults, categories are assigned on BMI ranges and ethnicity group. See Definitions section for more information.

NDA 2019-20: Young People with Type 2 Diabetes



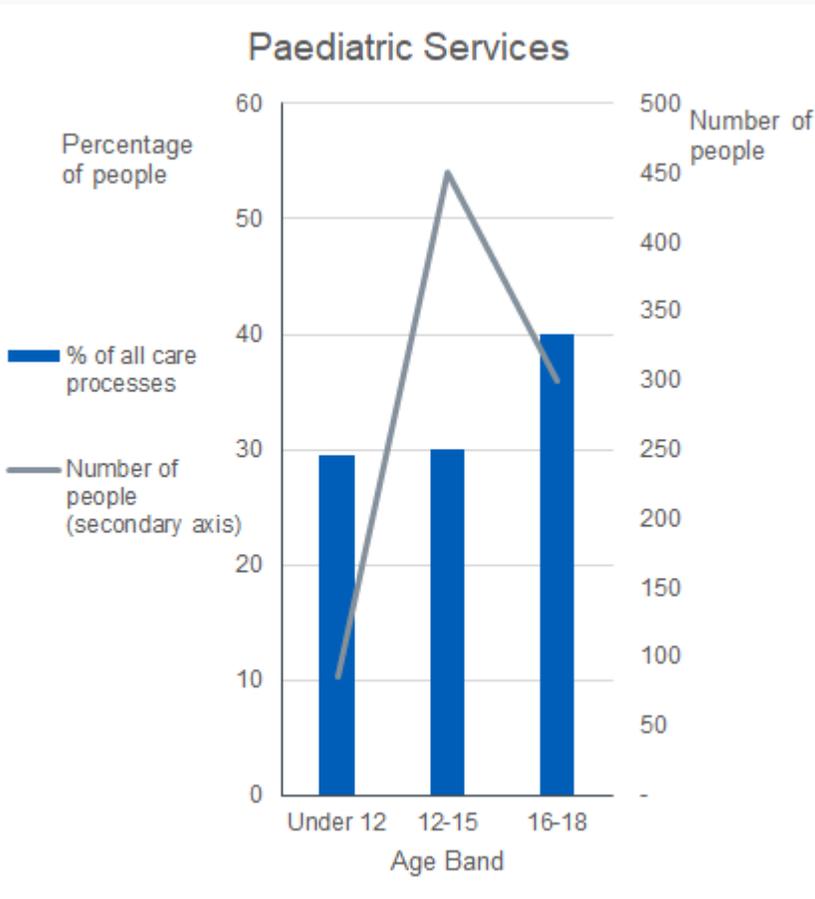
Are young people with type 2 diabetes having care process checks and achieving treatment targets?



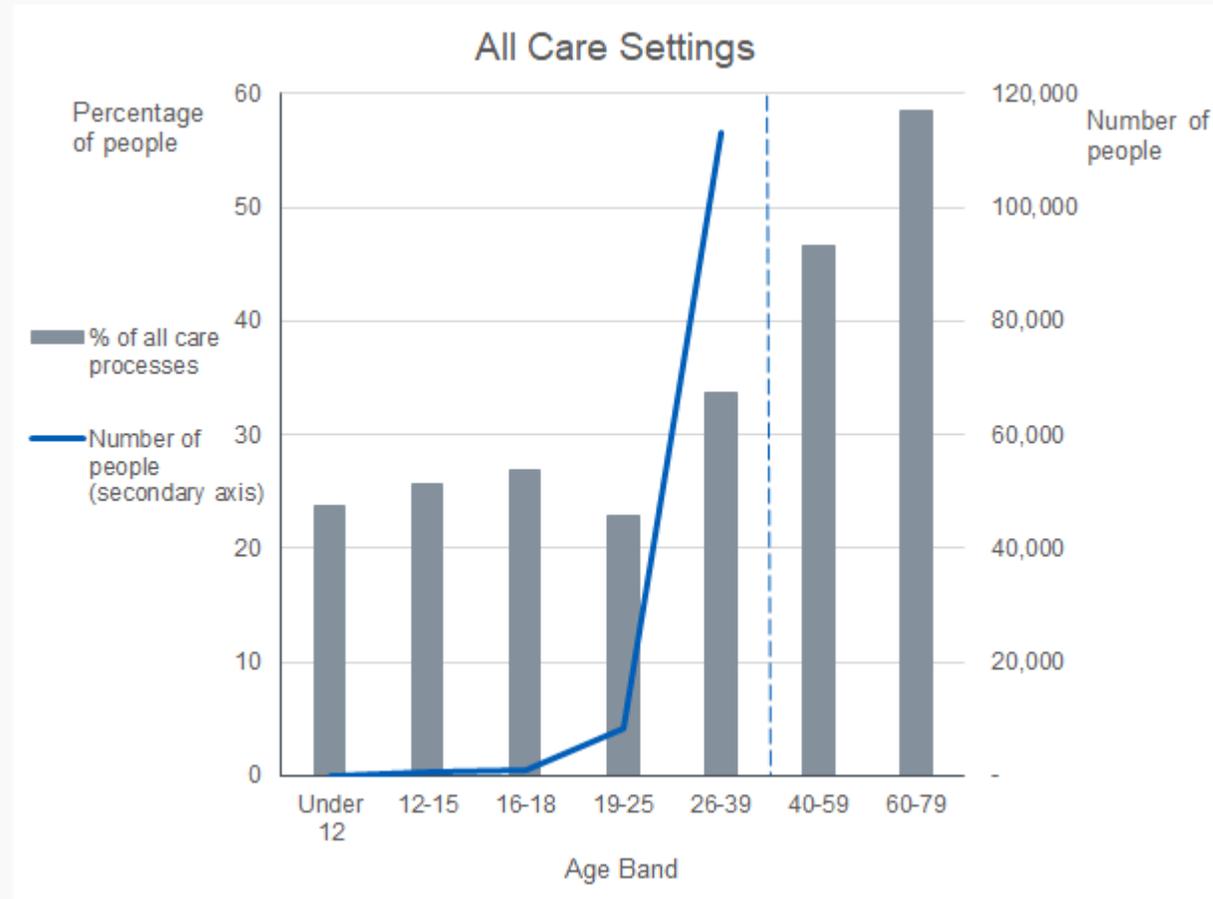
All Care Process Completion



Figure 8: The percentage of young people with type 2 diabetes in England who complete all of their diabetes care processes*, by age group, 2019-20



The findings show that there is lower completion of all care processes in younger age groups (aged less than 40 years) compared to older age groups (40 to 79 years).

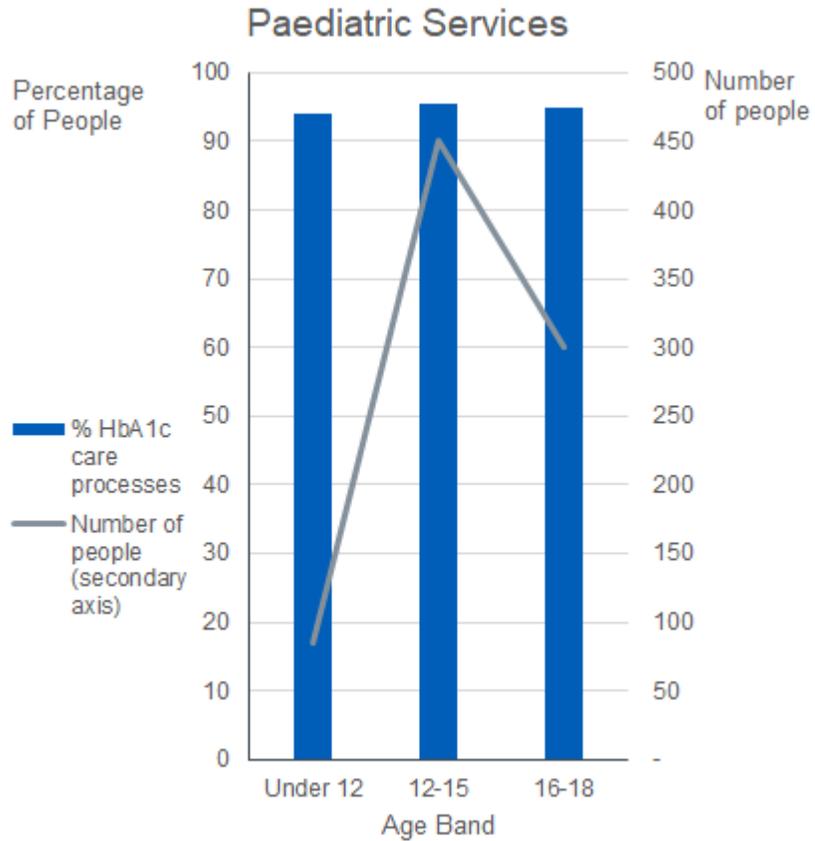


* Under 12s: HbA1c, BMI, cholesterol, blood pressure and albumin care processes.
 12-18 years: HbA1c, BMI, cholesterol, blood pressure, albumin, eye exam/retinopathy and foot exam care processes.
 19 years and over: HbA1c, BMI, cholesterol, blood pressure, albumin, eye exam/retinopathy, foot check, smoking status and creatinine care processes.

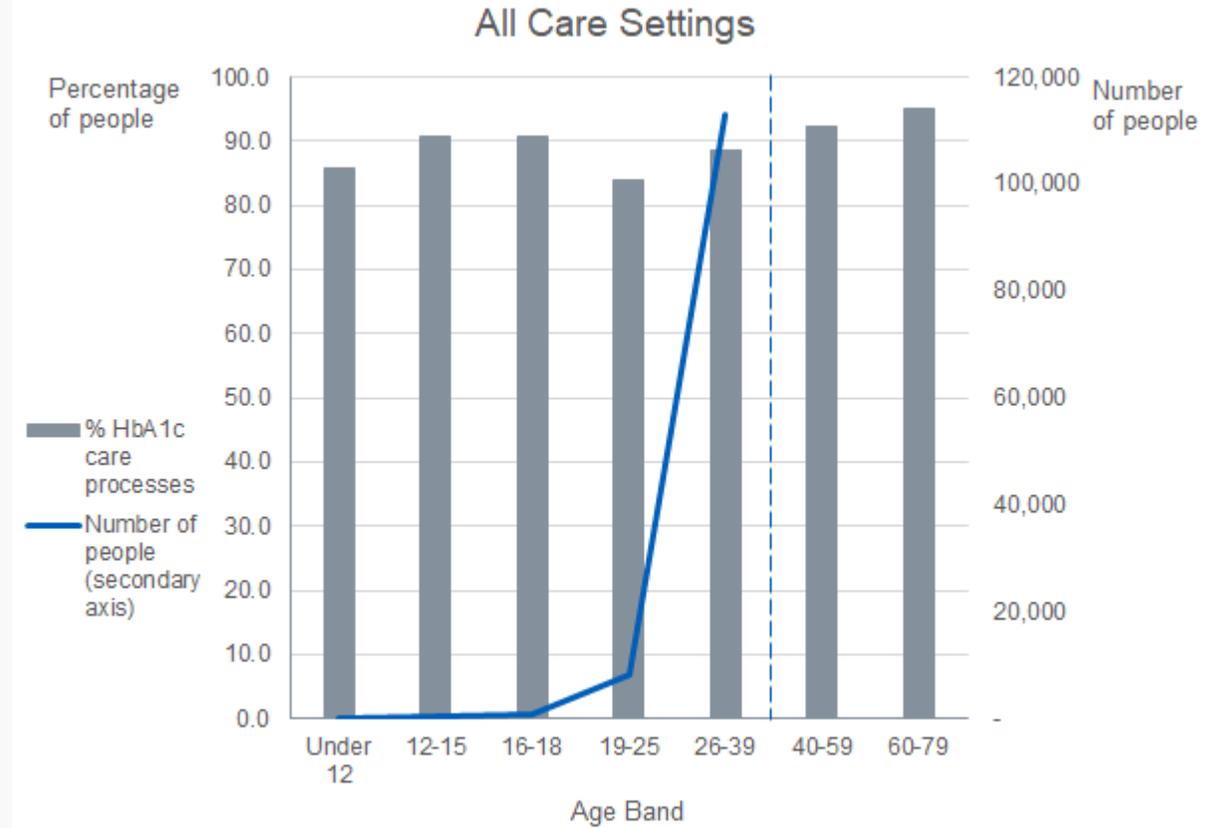
HbA1c Care Process Completion



Figure 9: HbA1c care process completion in young people with type 2 diabetes in England, by age group, 2019-20



HbA1c completion is slightly lower in people under 40 years, which aligns to consistent NDA findings for type 1 and type 2 diabetes. The exception is children attending paediatric clinics.

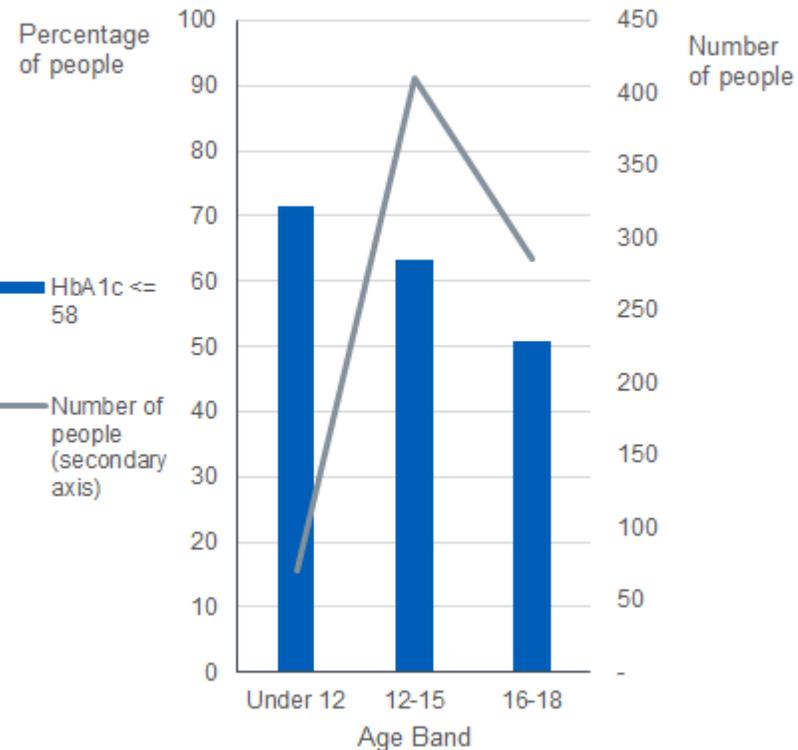


HbA1c ≤ 58 Treatment Target Achievement



Figure 10: HbA1c ≤ 58 mmol/mol achievement in young people with type 2 diabetes in England, by age group, 2019-20

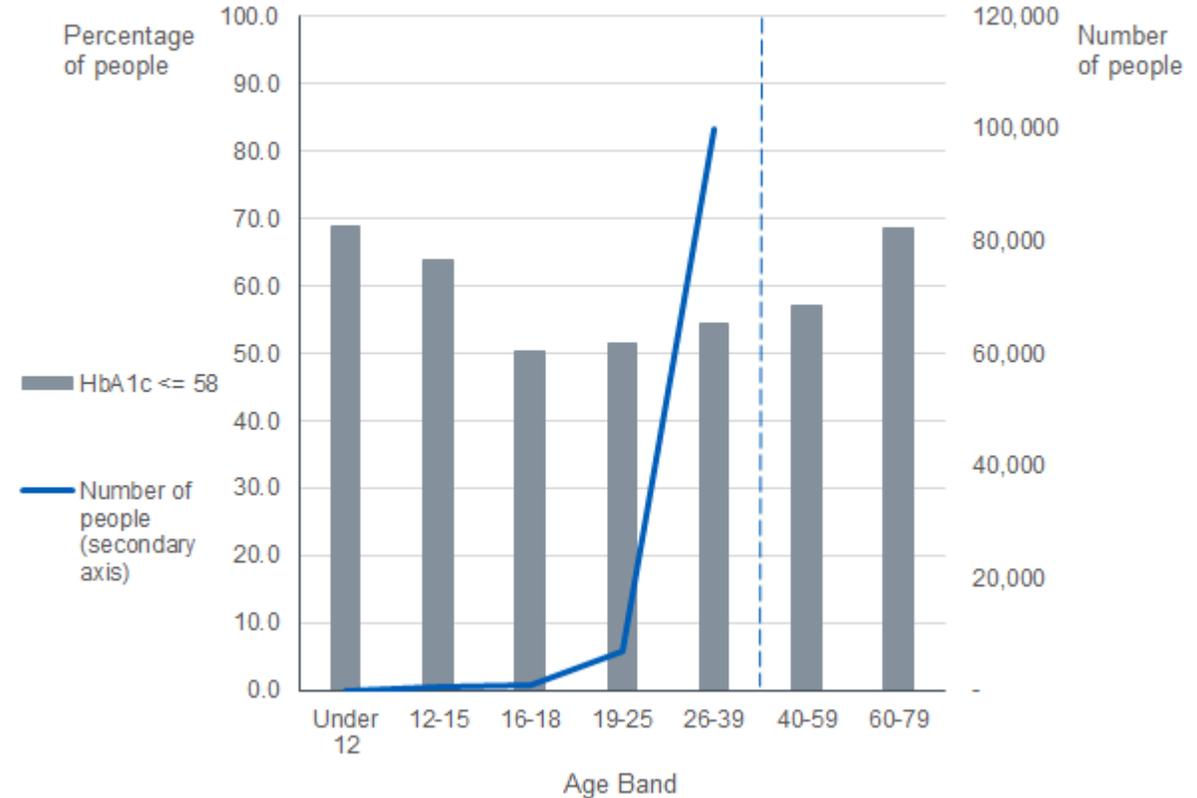
Paediatric Services



HbA1c ≤ 58 mmol/mol (7.5%) in children aged under 12 years is comparable to that in the 60 to 79 age group.

HbA1c ≤ 58 mmol/mol (7.5%) then falls in teenage age groups before increasing gradually but modestly up to age 59 years.

All Care Settings

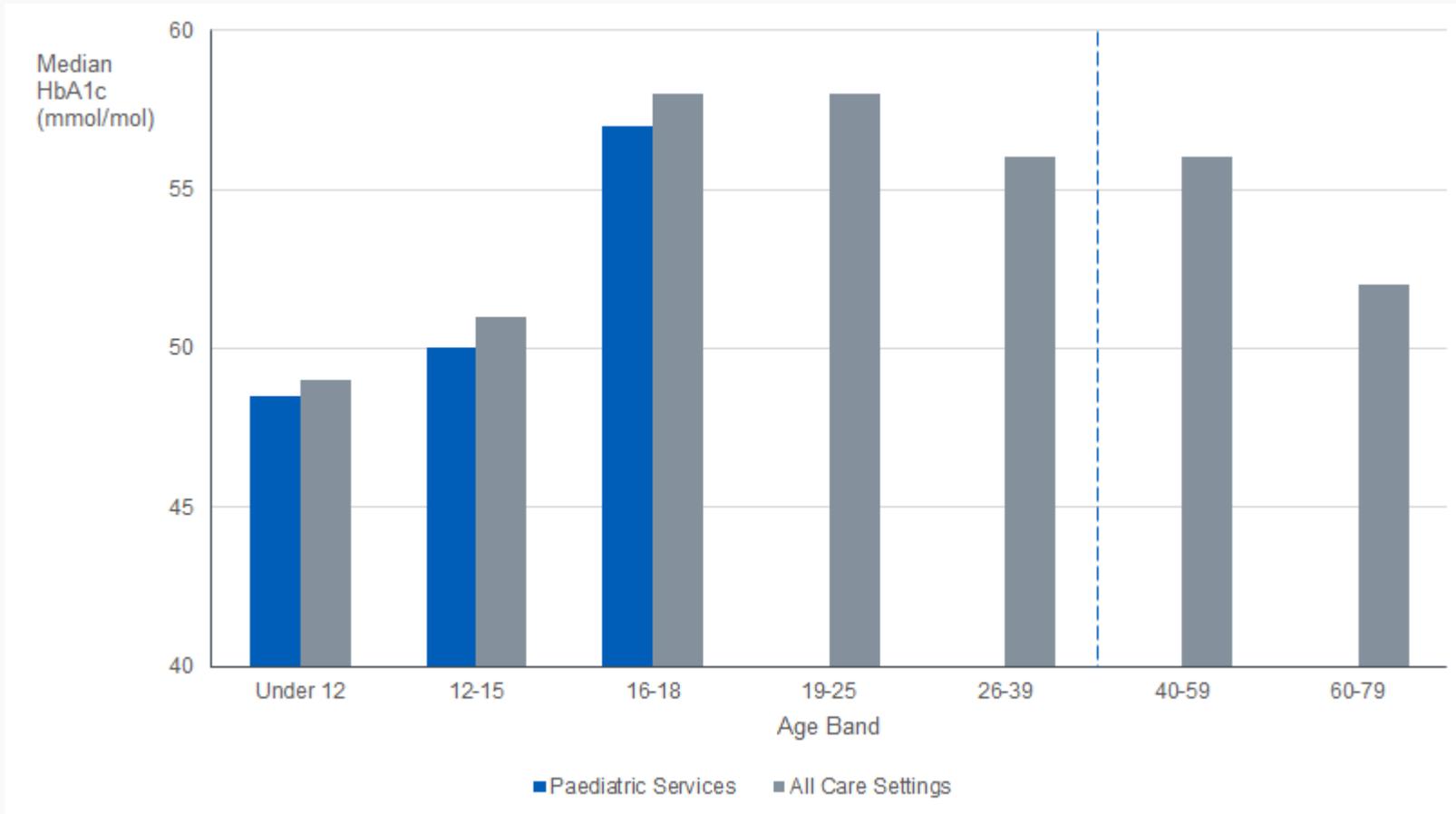


* Using the National Glycohemoglobin Standardization Program (NGSP) measurement unit.

Median HbA1c



Figure 11: Median HbA1c for young people with type 2 diabetes in England, by age group and care setting, 2019-20

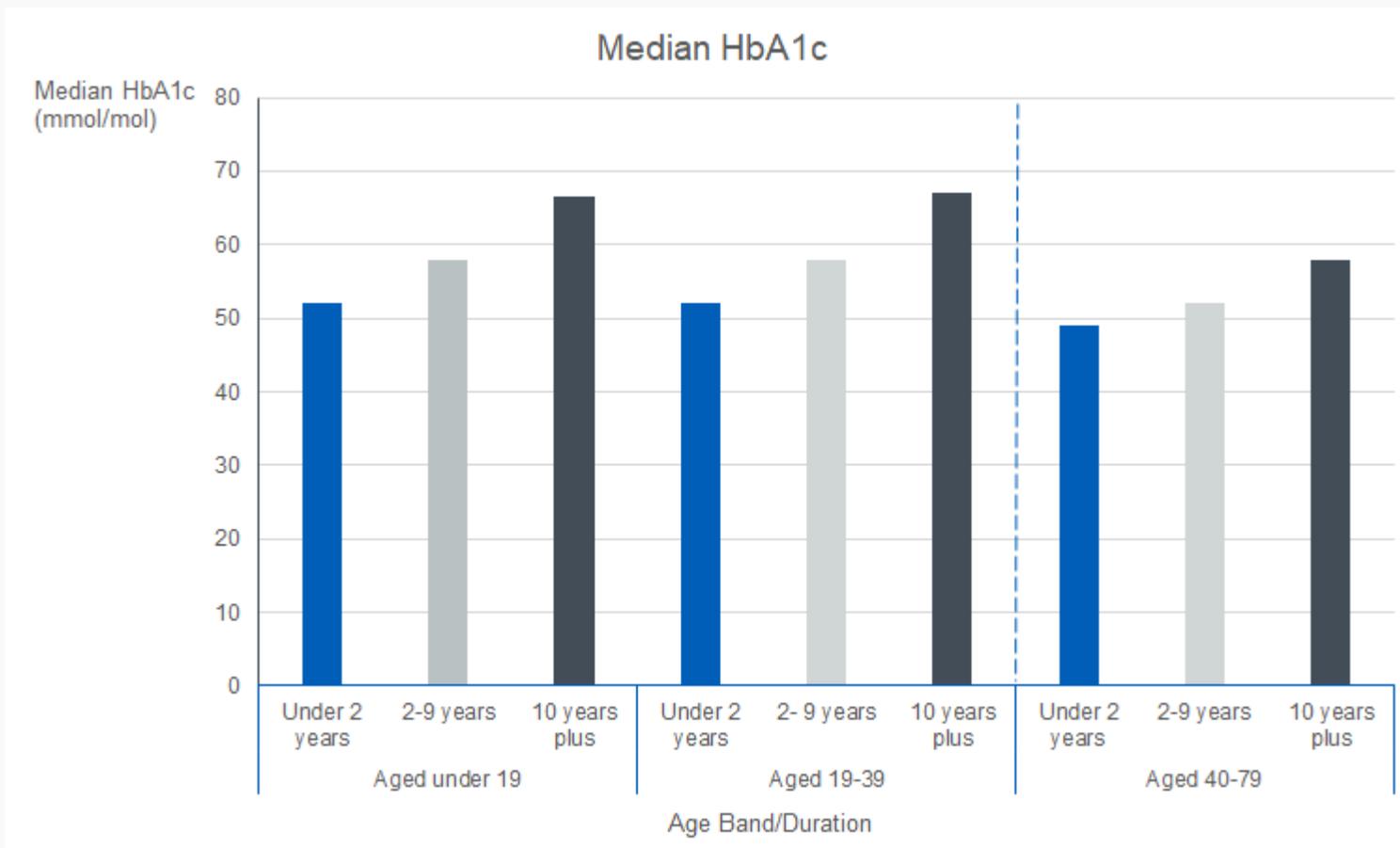


Median HbA1c is much higher in those aged 16 to 39 years than for children aged under 16 years.



Median HbA1c by Duration of Diabetes

Figure 12: Median HbA1c for young people with type 2 diabetes in England, by age group and diabetes duration, 2019-20



Median HbA1c increases with diabetes duration in all age groups.

Younger people (aged under 40) have higher median HbA1c levels at all durations of diabetes than the 40 to 79 year comparison group.

NDA 2019-20: Young People with Type 2 Diabetes



Additional information



Care Processes



All people with diabetes aged 12 years and over should receive all of the nine NICE recommended care processes and attend a structured education programme shortly after diagnosis. Because of differences in data collection and reporting between the NDA and the NPDA, the age ranges where care processes are treated as ‘should have occurred’ were consolidated and are shown against each care process below.

Table 2: Nine annual care processes for people with type 2 diabetes

| Responsibility of Diabetes Care providers | |
|--|--|
| 1. HbA1c [All ages] (blood test for glucose control) | 5. Urine Albumin/Creatinine Ratio [All ages] (urine test for risk of kidney disease) |
| 2. Blood Pressure [All ages] (measurement for cardiovascular risk) | 6. Foot Risk Surveillance [Aged 12+] (examination for foot ulcer risk) |
| 3. Serum Cholesterol [All ages] (blood test for cardiovascular risk) | 7. Body Mass Index [All Ages] (measurement for cardiovascular risk) |
| 4. Serum Creatinine [Aged 19+] (blood test for kidney function) | 8. Smoking History [Aged 19+] (question for cardiovascular risk) |
| Responsibility of NHS Diabetes Eye Screening (NHS England, Public Health England) | |
| 9. Digital Retinal Screening [Aged 12+] (photographic eye test for early detection of eye disease) | |

Definitions

Diabetes

Diabetes is a condition where the amount of glucose in the blood is too high because the pancreas doesn't produce enough insulin. Insulin is a hormone produced by the pancreas that allows glucose to be used as a body fuel and other nutrients to be used as building blocks. There are two main types of diabetes: Type 1 diabetes (no insulin); Type 2 diabetes (insufficient insulin).

Specialist Service

This is a service (often hospital based but sometimes delivered in a community setting) which includes diabetes specialists working in multidisciplinary teams. These teams usually comprise physicians (diabetologists), diabetes specialist nurses and dieticians; it may also include clinical psychologists.

Care Processes (NICE recommends all of these at least once a year)

Blood Pressure is a measurement of the force driving the blood through the arteries. Blood pressure readings contain two figures, e.g. 130/80. The first is known as the systolic pressure which is produced when the heart contracts. The second is the diastolic pressure which is when the heart relaxes to refill with blood.

BMI measurement – Body Mass Index is calculated from weight and height. Methods differ between children (up to 18 years old) and adults. In adults, categories are assigned on BMI ranges and ethnicity group. For children, their BMI is compared to reference values for children of the same sex and similar age that took part in national surveys. Assignments for both groups are:

| Category | Children (Centile) | Adults – (BMI value) White | Adults – (BMI value) Black, Asian & Minority Ethnic Groups |
|----------------|--|----------------------------|--|
| Underweight | Below the 2 nd centile | <18.5 | <18.5 |
| Healthy Weight | 2 nd to 85 th centile | 18.5 to 24.9 | 18.5 to 22.9 |
| Overweight | 85 th to 95 th centile | 25 to 29.9 | 23 to 27.4 |
| Obese | Above the 95 th centile | ≥30 | ≥27.5 |

Serum creatinine – this is a blood test used to measure kidney function.

Urinary albumin – this urine test detects the earliest stages of kidney disease.

Cholesterol - this blood test measures a type of fat that can damage blood vessels.

Foot check - this examination checks the blood supply and sensation (feeling) in the feet. Loss of either is a risk for foot disease.

Smoking Status - this records whether the person is a smoker. Smoking increases the diabetic risk for heart attacks and stroke.

HbA1c – this is a blood test for average blood glucose levels during the previous two to three months.

Treatment Targets (NICE defines target levels to reduce risks of complications for people with diabetes)

HbA1c - the closer this is to normal (less than 48mmol/mol) the lower is the risk of all long term complications of diabetes.

In this report only one treatment target attainment, HbA1c ≤ 58 mmol/mol (7.5%), is evaluated.

Attainment of all of the NICE treatment targets for the diabetes population as a whole is available in the NDA publications

Prepared in collaboration with:



The National Diabetes Audit is commissioned by the Healthcare Quality Improvement Partnership (HQIP) as part of the National Clinical Audit and Patient Outcomes Programme (NCAPOP). HQIP is led by a consortium of the Academy of Medical Royal Colleges, the Royal College of Nursing, and National Voices. Its aim is to promote quality improvement in patient outcomes, and in particular, to increase the impact that clinical audit, outcome review programmes and registries have on healthcare quality in England and Wales. HQIP holds the contract to commission, manage, and develop the National Clinical Audit and Patient Outcomes Programme (NCAPOP), comprising around 40 projects covering care provided to people with a wide range of medical, surgical and mental health conditions. The programme is funded by NHS England, the Welsh Government and, with some individual projects, other devolved administrations and crown dependencies www.hqip.org.uk/national-programmes



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The Royal College of Paediatrics and Child Health (RCPCH) is the membership body for paediatricians in the UK and around the world. Founded in 1996 and now with about 19,000 members in the UK and internationally, it plays a major role in postgraduate medical education, professional standards, research and policy.



Diabetes UK is the charity leading the fight against the most devastating and fastest growing health crisis of our time, creating a world where diabetes can do no harm.

Supported by:



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The National Cardiovascular Intelligence Network (NCVIN) is a partnership of leading national cardiovascular organisations which analyses information and data and turns it into meaningful timely health intelligence for commissioners, policy makers, clinicians and health professionals to improve services and outcomes.



National Diabetes Audit, 2019-20

Young People with Type 2 Diabetes

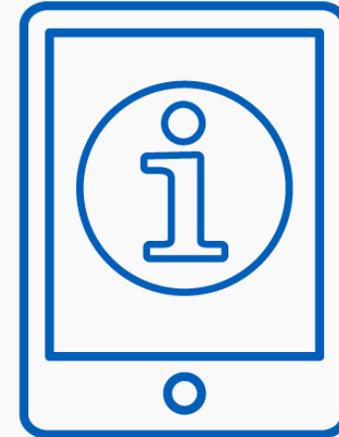
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