

**NDA
AYA**

2017-21

National Diabetes Audit for
Adolescents and Young Adults
with type 1 diabetes:

**Are services providing effective
care for young people?**

Summary report 2017-21

The National Diabetes Audit for Adolescents and Young Adults with type 1 diabetes (AYA) measures the effectiveness of care provided to people with type 1 diabetes. The information in the audit is collected by GP practices and specialist services through the National Diabetes Audit (NDA) and from paediatric diabetes services by the National Paediatric Diabetes Audit (NPDA) in England.

This report includes information on 57,060 people with type 1 diabetes between the ages of 15 and 25 years old.

57,060



1 There were more males than females (55% vs. 45%)



2 More than expected lived in areas of social deprivation



3 The proportion of people who were living with overweight and obesity increased progressively from the age of 18 years old

Key findings

Why is this audit important?

Type 1 diabetes often starts in childhood. Diabetes is a very difficult condition to manage and can have a significant impact on a young person's life.










Supporting good lifelong management is vital to achieve positive health outcomes and a good quality of life. Regular contact with diabetes services is crucial to achieve this but young people are particularly at risk of disruption in care, with both short and long-term health effects. Many young people with diabetes do not get a good experience of transfer and so do not have such good management of their diabetes.

Care during this period needs collaborative support from medical, educational and psychological services. When paediatric and young adult services work together this ensures continuity of care and gives young adults confidence to continue to manage their diabetes. Falling short of this can lead to serious and lasting consequences.

What care should young people with type 1 diabetes receive?

Having diabetes can lead to health complications such as blindness, kidney failure, heart disease and stroke. All people with diabetes aged 12 years and over should receive healthcare checks every year. These healthcare checks are recommended in the [NICE Guidelines](#). The results of the checks can show whether someone is at risk of developing health complications.

Cholesterol is not a mandated care process for adolescents and young adults. Thyroid checks are a mandatory care process for adolescent and young adults. However, as the NDA does not collect this data this care process is not assessed in this report.

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| <p>1</p>  <p>HbA1c test to measure overall blood glucose levels over the past 8 to 12 weeks</p> | <p>2</p>  <p>Blood pressure measurement</p> | <p>3</p>  <p>Cholesterol test to check for levels of harmful fats in the blood</p> |
| <p>4</p>  <p>Eye screening (retinal screening) using a special, digital camera to look for any changes to the back of the eye (retina)</p> | <p>5</p>  <p>Foot examination – to check the skin, circulation and nerve supply of legs and feet</p> | <p>6</p>  <p>Kidney function (blood creatinine) – a blood test to measure how well the kidneys are working</p> |
| <p>7</p>  <p>Urinary albumin – a urine test to check for protein, which may be a sign of kidney problems</p> | <p>8</p>  <p>BMI(body mass index) measurement, to see if you are a healthy weight</p> | <p>9</p>  <p>Smoking review, including advice and support if you are a current smoker</p> |

Due to retinal screening data only being available from 2019-20 and due to blood creatinine and smoking checks not being included in the NPDA, this report is restricted to 6 of the 9 care processes.

➔ Six Care processes results

- ➊ For the majority of care processes, the **highest completion** rate occurred at ages **16** and **17 years** and the **lowest rates** occurred at ages **19** and **20 years**.
- ➋ **8%** of adolescents and young adults with **type 1 diabetes did not** have a **HbA1c care process check** when aged between **15** and **25 years**.
- ➌ The **percentage** of people receiving **all** their **care processes fell** during the **COVID-19** pandemic.

To find out more about the audit results for your local service please click [here](#).

What treatment targets should young people with type 1 diabetes be supported to achieve?

[NICE Guidelines](#) recommend treatment targets for glucose control. The target for young people with diabetes is HbA1c of 58 mmol/mol or less. This target is recommended because achieving it reduces the risk of future complications. If a person has prolonged periods of time with higher than normal glucose levels it can eventually cause problems.



- ➍ 85% of adolescents and young adults aged between 15 and 25 years with type 1 diabetes had a valid HbA1c level recorded.
- ➎ The lowest average HbA1c level was found in people aged 15 years old. The average HbA1c level then increased with age until it hits its peak in people aged 20 years old. After 20 years old the average HbA1c levels decrease with age.

A risk factor for complications related to diabetes – urinary albumin – is measured in this audit. Urinary albumin creatinine ratio (UACR) is a urine test that checks for protein, which may be sign of kidney problems. Tiny particles of protein, called ‘microalbumin’, appear during the first stages of kidney disease, as the kidneys become ‘leaky’ and lose protein. At this stage, kidney disease can often be treated successfully, so this test is very important.

- ➏ The target upper limit of microalbumin is 2.5mg/mol for males and 3.5mg/mol for females.
- ➐ 60% of adolescents and young adults with type 1 diabetes had their UACR measured between the age of 15 and 25 years. Of those 85% had a UACR level recorded.
- ➑ The percentage of adolescents and young adults with type 1 diabetes with abnormal UACR levels was lowest at 15 and 16 years old.
- ➒ This percentage increased with age, particularly so between the ages of 16 and 21 years. This may be due to longer diabetes duration.

Diabetic Ketoacidosis (DKA)

DKA mainly happens in people with type 1 diabetes when a severe lack of insulin means the body cannot use glucose for energy and switches to burning fatty acids. This produces acidic ketones which leads to an increase in urination, vomiting, dehydration, low blood pressure and collapse/coma. It can cause severe illness and even death.



-  The percentage of adolescents and young adults with type 1 diabetes who had **at least 1 hospital admission** with a diagnosis of **DKA increased** with age between the ages of **15 and 18 years**, from 5% and peaking at 9%. **After 18 years** old this percentage **steadily decreased** with age.
-  The majority of those who had at least 1 admission with a DKA diagnosis had only 1 admission but **multiple admissions** for **DKA** also **peaked** at age **18 years**.

Insulin pumps

[NICE guidelines](#) advise that there is no one insulin regimen that is suitable for all people with type 1 diabetes. Treatment should be individualized for each person. This should take account of lifestyle and cultural aspects of insulin therapy, including diet and exercise, alcohol intake, driving, holiday and travel, insurance, fasting, and shift work. Treatment should also aim to reduce the short term risks of hypoglycaemia and the long term risks of eye, kidney and foot complications and of cardiovascular disease.

Types of insulin regimen



Basal-bolus insulin treatment comprises background, slow acting (basal) insulin, self-injected once or twice daily, plus rapid acting (bolus) insulin at mealtimes.

-  **Pump** or **Continuous Insulin Infusion therapy** uses rapid acting insulin delivered under the control of a 'pump'. Background rates are programmed and mealtime boluses are added manually.
-  **'Fixed Mix'** insulin combines rapid and longer acting insulin at a fixed ratio. It is usually self-injected twice daily.

People with type 1 diabetes can be prescribed a flash glucose monitor or continuous glucose monitor (CGM) to help manage their diabetes. Flash glucose monitors and CGMs let you check your blood sugar levels without you having to prick your fingers.

Closed loop insulin infusion ('artificial pancreas') combines continuous glucose monitoring with an insulin pump. Currently not many people use closed loops but this is increasing.

The AYA audit results focus on use of insulin pumps.

-  **25%** of adolescents and young adults with **type 1** diabetes were on an insulin pump at some point during the audit period.
-  **82%** of adolescents and young adults with **type 1** diabetes who were on an insulin pump in paediatric services were **later also** on an insulin pump **in adult services**.

FIND OUT MORE

For more information on the National Diabetes Audit for Adolescents and Young Adults with Type 1 Diabetes 2017-21, you can download the [full report](#).

To find out more about the audit results for your local service please click [here](#).