



2017/18

NATIONAL DIABETES
INSULIN PUMP AUDIT

**SUMMARY
REPORT**

DiABETES UK
KNOW DIABETES. FIGHT DIABETES.

National Diabetes Insulin Pump Audit: what are the outcomes for people using an insulin pump?

A summary report of the National Diabetes Insulin Pump Audit
for England and Wales 2017/18

nda
NATIONAL DIABETES AUDIT

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**Note: All results in this document
are taken from the National
Diabetes Insulin Pump Audit
2017/18 report**

Report at a glance 2017/18

The [National Diabetes Insulin Pump Audit](#) measures the quality of care provided to people with Type 1 diabetes who use an insulin pump. The information in the audit is collected and submitted by staff in specialist services in England and Wales.

The results

ENCOURAGING

INSULIN PUMP USAGE

 Increasing number of people using insulin pump

AVERAGE HBA1C

 lower for people using an insulin pump

TREATMENT GOALS

  meet treatment goals – reducing hypos and having better control of blood glucose levels

IMPROVEMENT NEEDED

KEY DATA RECORDED

 Decrease in key data recorded since 2016/17 audit

PRESCRIPTION OF INSULIN PUMPS

 Massive variation in percentage of people prescribed pump across different services

BLOOD PRESSURE, BLOOD GLUCOSE AND CHOLESTEROL TARGETS

 **1 IN 5** using an insulin pump achieving targets

EQUALITY OF ACCESS

 Greater equality of access to insulin pump needed for older people, males and people with higher levels of social deprivation

This report includes information on



15,000

PEOPLE WITH TYPE 1 DIABETES WHO USE AN INSULIN PUMP

WE SAY

The results of the 2017/18 audit shows that there have been some very encouraging improvements in the care for people with Type 1 diabetes using an insulin pump. But the audit also highlights that there is still a need for considerable improvements in many areas. There are big differences in prevalence of use and outcomes between:

-  different services
-  younger and older people with diabetes
-  males and females
-  people with different levels of social deprivation

Finding out why will be an important part of improving care for people with diabetes.

Background

In August 2019, NHS Digital published the National Diabetes Insulin Pump Audit report 2017/18. This report has been prepared by Diabetes UK and summarises the information in the NHS Digital report in a way that is more accessible for people with diabetes. This report is for anyone interested in the care of people with diabetes.

The aim of the audit is to measure care and outcomes for people with Type 1 diabetes who use an insulin pump. We try to answer the following questions:

- 🌐 How many people use an insulin pump?
- 🌐 What are the characteristics of people who use an insulin pump?
- 🌐 What are the reasons for people going on an insulin pump?
- 🌐 What outcomes are achieved since starting on an insulin pump?

This report is based on patient information collected from 89 specialist services in England and Wales 2017/18. It includes information on 15,000 people with Type 1 diabetes using an insulin pump.

As well as the national level report, NHS Digital has also published findings for each specialist service that took part. This means that staff from each service can look at the quality of care they provide, what they are doing well and what they need to improve on. In Wales this data is provided at Local Health Board level rather than individual services.

WE SAY

When services provide better, more complete data we are able to provide a clearer and more accurate picture of insulin pump use and outcomes. We would encourage all specialist services to participate in future audits.

About this report

This report summarises the key findings from the 2017/18 audit report and in the report we explain:

- 🌐 What the national guidelines say about who should be using an insulin pump
- 🌐 The main findings from the 2017/18 audit report
- 🌐 Recommendations for improvements to care for people with diabetes on an insulin pump

Before writing this summary report, we talked to people with diabetes to find out what information they wanted to see and how to present the findings.

At the back of the report we explain what the audit is and why it is important to look at care for people with diabetes. There is also a glossary and details of where to find more information.

Information about insulin pumps

What is an insulin pump?

An insulin pump is a battery-operated device that provides your body with regular insulin throughout the day. The insulin is provided via a tiny, flexible tube (cannula), inserted under the skin. The tube can be left in for two to three days before it needs to be replaced and moved to a different insulin injection site.

Who is suitable for an insulin pump?

The guidance states that insulin pump therapy is recommended as a treatment option for adults, and children 12 years and over, with Type 1 diabetes if:

 attempts to reach target HbA1c (average blood sugar) levels with multiple daily injections result in the person having 'disabling hypoglycaemia'

or

 HbA1c levels have remained high (69mmol, 8.5%, or above) with multiple daily injections despite the person and/or their carer carefully trying to manage their diabetes.

Insulin pump therapy is not recommended as treatment for people with Type 2 diabetes.

For more information on insulin pumps please visit the [Diabetes UK website](https://www.diabetes.org.uk).

WE SAY

If you are currently not using an insulin pump but feel that you meet the criteria, please speak to a member of your diabetes team about this.

The results

Prevalence

How many people are using insulin pumps?

In the 2017/18 audit 15,000 people with Type 1 diabetes were recorded as using an insulin pump. In England, 17.7% of people with Type 1 diabetes attending a specialist service use an insulin pump. In Wales, 5.8% of all people with Type 1 diabetes use an insulin pump. The apparent difference between England and Wales is likely to be due the way services submit their data to us. For England, the percentage is of those people with Type 1 diabetes being treated in a specialist service that participated in the pump audit. For Wales, the percentage is of all people with Type 1 diabetes in the local population.

Across England and Wales there is great variation in the percentage of people with Type 1 diabetes that are treated with pumps. In some services nearly 50% of people attending a specialist service use an insulin pump but in other services fewer than 5% of people use an insulin pump.

WE SAY

The massive variation between specialist centres in pump use by people with Type 1 diabetes suggests a lack of access for patients attending some services. It is crucial that this disparity of access should be investigated.

Characteristics

What are the characteristics of people who use an insulin pump?

The audit collects information about the age, gender and level of social deprivation of people using an insulin pump.

Younger people are more likely to use an insulin pump than older people.

Women are twice as likely as men to be on an insulin pump. Female pump users outnumber males in all age groups, except 70 to 79 years where the split is equal. The difference is most marked in the 30 to 39 years age group.

The number of people using pumps decreases with increasing levels of social deprivation.

WE SAY

Specialist services and commissioners should work with people with diabetes to ensure that there is equality of access to insulin pumps. There are many opportunities to reduce variation between:

-  **People of different ages**
-  **Males and females**
-  **People experiencing different levels of social deprivation**

The results

Goals

What are the reasons for people going on an insulin pump?

We record the reasons why people start using an insulin pump. The reasons for starting on an insulin pump are:

-  Reduction in hypoglycaemia
-  Blood glucose control
-  Other

This is not a required field in the collection so data on this is not available for everyone included in the audit. At least one reason for starting to use an insulin pump is recorded for over 9 in 10 people on pump in Wales but for England this figure is less than 6 in 10 people.

Do people on insulin pumps meet their treatment goals?

We also record whether people reached their treatment goals i.e. whether starting on pump meant fewer hypos and better blood glucose control. Again, this is not a required field in the audit so data on this is not available for everyone included in the audit.

Around 9 in 10 people reached their treatment goal of reducing hypos after starting to use an insulin pump.

Around 7 in 10 people reached their glucose control goal after starting to use an insulin pump.

The results

Outcomes

Are people on an insulin pump more likely to receive the NICE recommended healthcare checks than those not on an insulin pump?

All people with diabetes should receive the following healthcare checks at least once a year. These healthcare checks are recommended in the [NICE Guidelines](#).

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

We are unable to access information about eye screening so this report will refer to the 8 diabetes healthcare checks that we are able to report on.

The results

Having diabetes can lead to health complications such as blindness, kidney failure, heart disease and stroke. It is essential that everyone with diabetes receives the healthcare checks every year. The results of the checks can show whether someone is at risk of developing health complications or whether they have developed the early stages of health complications. For example, the blood pressure check will show if a person needs medication to bring their blood pressure level down.

The table opposite shows the percentage of people with diabetes having each one of the recommended checks in 2017/18. It compares the rates between those people with Type 1 diabetes using an insulin pump and those not using an insulin pump. Next to each healthcare check is an arrow that shows whether the percentage of people receiving the check is better for people on an insulin pump (green upwards arrow ) or worse for people on an insulin pump (red downwards arrow ). A blue line () means there is little or no difference in the percentage of people receiving the health care check, regardless of whether they use an insulin pump or not.

	ENGLAND		WALES	
	People on insulin pump	People not on insulin pump	People on insulin pump	People not on insulin pump
HbA1c	94.9 	91.7	73.9 	74.7
Blood pressure	94.4 	93.2	87.3 	83.3
Cholesterol	88.0 	86.0	59.5 	65.6
Kidney function	90.8 	89.1	70.5 	74.1
Urinary albumin	67.5 	63.2	32.4 	35.3
Foot exam	78.0 	78.2	56.1 	56.9
Body mass index (BMI)	89.0 	88.2	74.6 	66.2
Smoking review	94.2 	92.2	88.4 	82.4
All 8 healthcare checks	52.6 	51.8	21.0 	24.9

Care process completion in England is similar between people using an insulin pump and people not using an insulin pump. In Wales, care process completion is generally worse in pump users.

WE SAY

It is vital that all people with diabetes receive all 8 healthcare checks annually as this is the basis of effective diabetes care. There are many opportunities to reduce variations and improve diabetes care for people with Type 1 diabetes, whether they use an insulin pump or not.

The results

Are people on an insulin pump more likely to meet the NICE defined treatment targets than those not on an insulin pump?

NICE Guidelines recommend treatment targets for glucose control, blood pressure and cardiovascular disease (CVD) risk reduction. The treatment targets were updated by NICE in 2015-16.

OLD targets

HbA1c of 58mmol/mol or less

Blood pressure of 140/80 or less

Cholesterol below 5mmol/L

NEW targets

HbA1c of 58mmol/mol or less

Blood pressure of 140/80 or less

Prescribed statins for combined prevention of CVD

These targets are recommended because achieving them reduces the risk of future complications.

Target HbA1c reduces the risk of all diabetes complication (eyes, kidney and nerve damage) and reduces cardiovascular risk.

Target blood pressure reduces cardiovascular risk and reduces the progression of eye and kidney disease.

Statins reduce cholesterol and cardiovascular risk.

Next to each healthcare check is an arrow that shows whether the percentage of people achieving the treatment target is better for people on an insulin pump (↑) or worse for people on an insulin pump (↓). A blue arrow (↔) means there is little or no difference in the percentage of people achieving the treatment target, regardless of whether they use an insulin pump or not.

	ENGLAND		WALES	
	People on insulin pump	People not on insulin pump	People on insulin pump	People not on insulin pump
HbA1c	34.4 ↑	27.0	35.7 ↑	25.4
Blood pressure	72.6 ↑	69.9	71.5 ↔	71.7
Total cholesterol	73.0 ↑	70.2	72.8 ↑	69.0
Meeting all 3 treatment targets	20.8 ↑	15.3	20.0 ↑	15.0
Statins for combined prevention of CVD	64.6 ↔	65.8	64.6 ↓	67.4
Meeting all 3 OLD treatment targets	21.5 ↑	15.6	22.1 ↑	14.8

People with Type 1 diabetes using an insulin pump achieve all three treatment targets more often than those not using an insulin pump. However, overall the percentage of people with diabetes achieving all three treatment targets (blood glucose level, blood pressure and cholesterol) is low. 4 in 5 people with Type 1 diabetes are not achieving all three treatment targets, which can lead to an increased risk of developing complications.

WE SAY

A higher percentage of people using an insulin pump achieve their treatment targets than those who don't use an insulin pump. However, the majority of people with Type 1 diabetes do not achieve all three treatment targets, regardless of whether they are on an insulin pump or not. Healthcare professionals should work in partnership with people with diabetes to agree a personalised care plan to help them achieve the recommended targets.

Do people on an insulin pump have a lower mean HbA1c level than those not on an insulin pump?

HbA1c is your average blood glucose (sugar) levels for the last two to three months. The ideal HbA1c level for people with diabetes is 48 mmol/mol. The table below shows what the mean (average) HbA1c level is for all people with Type 1 diabetes on insulin pump and all people with Type 1 diabetes not on insulin pump.

		MEAN HbA1c
England	People on insulin pump	65.2 mmol/mol
	People not on insulin pump	70.7 mmol/mol
Wales	People on insulin pump	64.5 mmol/mol
	People not on insulin pump	71.2 mmol/mol

WE SAY

This data shows that insulin pumps may be helping people with diabetes to control their long term blood sugar levels. This suggests that more people with Type 1 diabetes should be considered for insulin pump therapy.

Further information

What is the National Diabetes Insulin Pump Audit?

The audit is a project that checks the quality of care provided to people with diabetes using insulin pumps in England and Wales. The first audit took place in 2013-15 and has collected information annually since then about the quality of care for people with diabetes. Specifically, we look at:

- How many people with diabetes are recorded as using an insulin pump
- The reasons why people start using an insulin pump
- Whether there are differences between the percentage of people on insulin pump and those not on insulin pump receiving their annual health checks
- Whether there are differences between the percentage of people on insulin pump and those not on insulin pump achieving treatment targets for blood glucose, blood pressure and cholesterol control

Why do we audit care for people with diabetes?

The National Institute of Health and Care Excellence produces guidelines for diabetes care, including the use of insulin pumps: <https://www.nice.org.uk/guidance/ta151>. All specialist diabetes services should follow these guidelines to provide good quality diabetes care. In the audit we check whether people with diabetes get the care and treatment recommended in the NICE guidelines.

The findings from the audit show specialist services how they compare with other services. The information collected helps highlight areas where diabetes care for patients is good and where there is a need for improvement and changes that will help specialist services raise their overall standards.

The audit findings are publicly available, so you can see the results for your local specialist service. You can find this on the [NHS Digital](#) website.

Further information

Where to go for more information

The National Diabetes Audit

Information about the National Diabetes Audit and copies of the full reports are available on the NHS Digital website <https://digital.nhs.uk/data-and-information/publications/statistical/national-diabetes-audit/national-diabetes-audit---insulin-pump-report-2017-18>

Diabetes UK

For more information about diabetes, including living with diabetes, go to www.diabetes.org.uk/guide-to-diabetes or call Diabetes UK's Helpline on 0345 123 2399 for advice and support.

For information about getting involved in making a difference to diabetes treatment and care, go to www.diabetes.org.uk/get_involved/campaigning/diabetes-voices

To find out more about Diabetes UK's activities in your area, go to www.diabetes.org.uk/in_your_area

National Institute for Health and Care Excellence (NICE) guidelines

For information about how NICE develops guidelines, go to www.nice.org.uk. Guidelines about diabetes care in hospital include:

[Diabetes in adults quality standard \(QS6\)](#)
[NICE Guidelines NG19](#)

Healthcare Quality Improvement Partnership (HQIP)

To find out more about clinical audits - and patient involvement in national clinical audits - you can visit the HQIP website at www.hqip.org.uk/involving-patients

Explanation of words used in this booklet

Audit

A way of gathering information and measuring local NHS organisations' performance and quality of care against national guidelines, from which come recommendations for improvements.

Blood glucose

The main sugar the body makes from the food we eat. Glucose travels in the bloodstream, providing energy to all the body's living cells. However, the cells cannot use glucose without the help of insulin.

Complications of diabetes

Harmful effects that may happen when a person has diabetes.

Some effects, such as hypos, can happen any time. Others develop when a person has had diabetes for a long time. These include damage to the retina of the eye (retinopathy), the blood vessels (angiopathy), the nervous system (neuropathy), and the kidneys (nephropathy).

Studies show that keeping blood glucose levels as close as possible to those of a person without diabetes may help prevent, slow, or delay harmful effects to the eyes, blood vessels, kidneys, and nerves.

Diabetes

Diabetes is the shortened name for the health condition called diabetes mellitus. Diabetes happens when the body cannot use blood glucose as energy because of having too little insulin or being unable to use insulin. See also Type 1 diabetes.

Further information

NICE

The National Institute for Health and Care Excellence (NICE) is the independent regulatory body providing national guidance to the NHS on new and existing medicines, treatments, and procedures.

Type 1 diabetes

Type 1 diabetes develops when the body permanently destroys its own insulin-producing cells. When this happens a person needs regular insulin, given either by injection or an insulin pump.

NDA PUBLICATIONS

NDA: National Diabetes Audit

Care processes and treatment targets

Complications and mortality

Insulin pump

Transition

NPID: National Pregnancy in Diabetes Audit

NDFA: National Diabetes Foot Care Audit

NaDIA: National Diabetes Inpatient Audit

NDPP: National Diabetes Prevention Programme Audit

We welcome
your views on how
we can improve
this report

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The National Diabetes Audit (NDA) is commissioned by the Healthcare Quality Improvement Partnership (HQIP) as part of the National Clinical Audit (NCA) programme. The NDA is managed by NHS Digital, formerly known as the Health and Social Care Information Centre (HSCIC), in partnership with Diabetes UK and is supported by the National Cardiovascular Intelligence Network (NCVIN), Public Health England. The NDA receives invaluable support from people with diabetes, clinical staff and other health professionals across England and Wales.

