National Diabetes Inpatient Audit: are hospitals providing good quality care?

A summary report of the National Diabetes Inpatient Audit for England and Wales 2017
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Note: All results in this document are of respondents to the 2017 audit
The National Diabetes Inpatient Audit measures the quality of care provided to people with diabetes when they are in hospital. The information in the audit is collected and submitted by hospital staff in England and Wales.

The results (of respondents to the 2017 audit)

**ENCOURAGING**

- **Seen by a Diabetes Specialist**: 72% where appropriate
- **Multidisciplinary Foot Care Team**: 80% of hospitals have a foot care team
- **Inpatient Satisfaction**: 84% satisfied with overall diabetes care in hospital

**IMPROVEMENT NEEDED**

- **Diabetes Inpatient Specialist Nurse (DISN)**: 28% without a DISN
- **Meal Choices**: 46% inpatients not satisfied with the suitability of meal choices
- **CONSIDERABLE IMPROVEMENTS NEEDED IN:**
  - Medication Management
  - Insulin Errors
  - Preventing DKA in Hospital Patients
- **HYPOS**: 26% experience at least one severe hypo during hospital stay

**WE SAY**

There have been some very encouraging improvements in inpatient care for people with diabetes. But there is still a need for considerable improvements in many areas. There are big differences in outcomes between different services and people with Type 1 and Type 2 diabetes. Finding out why will be an important part of improving care for people with diabetes when they are in hospital.

This report includes information on over 16,000 people with diabetes in hospital. 18% of all people in hospital had diabetes in some hospitals, 1 in 6 of all people in hospital had diabetes.
Background

In March 2018, NHS Digital published the **National Diabetes Inpatient Audit 2017 report**. This summary report has been prepared by Diabetes UK and summarises the information in the report in a way that is more accessible for people with diabetes. This report is also for anyone else interested in the quality of care for people with diabetes when they stay in hospital.

The aim of the audit is to measure the quality of diabetes care provided to people with diabetes while they are in hospital. We try to answer the following questions:

- How well did hospital staff manage people’s diabetes whilst they were in hospital?
- Did the patient experience complications as a result of their stay in hospital?
- What did patients say about their stay in hospital?
- Has the quality of care and patient feedback changed since the previous audits?

This report is based on patient information collected from 208 hospitals in England and Wales during September 2017. This means that over 97% of the hospital sites known to be eligible took part in the audit. Hospital staff collected information on the care given to 16,010 people with diabetes during their hospital stay. To support the information in this audit, 8,696 people with diabetes also completed a questionnaire about their experiences of the care they received during their stay in hospital.

As well as the national level report, we have also published findings for each hospital that took part. This means that staff from each hospital can look at the quality of care they provide, what they are doing well and what they need to improve on.

**About this report**

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

- What the national guidelines say about good quality care for people with diabetes when they are in hospital
- The main findings from the 2017 audit report
- Recommendations for improvements to care for people with diabetes whilst they are in hospital

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 when they are in hospital. There is also a glossary and details of where to find more information.

**DIABETES: THE BASICS**

**Type 1 diabetes** – this is a serious, lifelong condition where your blood glucose level is too high because your body can’t make a hormone called insulin. When this happens a person needs regular insulin given either by injection or an insulin pump.

**Type 2 diabetes** – this is a serious, lifelong condition where the insulin your pancreas makes can’t work properly, or your pancreas can’t make enough insulin. There are different ways of treating Type 2 diabetes. Some people can manage it by healthier eating, being more active and losing weight. Eventually most people will need medication to bring their blood glucose down to a safe level.

**Other types of diabetes** – In addition to Type 1 and Type 2 diabetes there are a range of other rarer types such as MODY (maturity onset diabetes of the young) and Wolfram Syndrome.

For more information about Type 1, Type 2 and other types of diabetes please visit the Diabetes UK website.

Note: When the data in the report refers to Type 2 this will also include data on the other types of diabetes (MODY etc).
In the 2017 audit, around 1 in 6 (18%) of all people in hospital had diabetes. In some hospitals over one in four (25%) of inpatients had diabetes. Despite the high number of people with diabetes in hospital, there has only been a slight increase in staffing hours since 2016.

**Staffing**

What specialist staff were available to look after people with diabetes in hospital?

> ‘People with diabetes need care from appropriately trained staff and access to a specialist diabetes team’
> NICE Quality Standard

Not everybody with diabetes needs to see the diabetes team when they stay in hospital. The **Think Glucose guidelines** provide hospitals with recommendations on when a person with diabetes should be seen by the diabetes team. Over one in four people (28%) who should have been seen by the diabetes team were not seen.

Staffing hours per patient may have increased since 2016, though changes to data collection could have affected the results.

The number of people in hospital who have diabetes is increasing. Inpatient diabetes teams must be adequately staffed to support other healthcare professionals and patients in the delivery of safe diabetes care.

You can view and download all the NICE guidelines for diabetes care, including summary guidance for the public [here](#).

Caring for people with diabetes in hospital requires specialist knowledge about treatments and medication. It is important that hospitals have enough staff with this knowledge to help to look after patients with diabetes and to support other ward staff in delivering good diabetes care.

The 2017 audit results show that the level of specialist diabetes staff in hospitals is much lower than recommended. More than one in four hospital sites (28%) reported that they had no diabetes inpatient specialist nurses (DISNs).
Blood glucose monitoring

Was blood glucose monitored appropriately?

Being unwell often affects blood glucose levels. When a person with diabetes goes into hospital it is important that their blood glucose levels are closely monitored.

The number of times a day that blood glucose levels should be tested depends on what type of diabetes the person has and how it is being treated. We use the following guidelines to make sure that blood glucose levels are being checked in the right way.

The 2017 audit found that blood glucose was being appropriately monitored the majority of the time (6.8 days out of 7).

In the audit we also looked at the number of ‘good diabetes days’, which is defined as:

- Number of tests per day followed the guidelines
- No more than one blood glucose reading of more than 11.0 mmol/L
- No blood glucose reading of less than 4.0 mmol/L

In the 2017 audit, less than half of the days that a person with insulin-treated diabetes stayed in hospital met the definition of a ‘good diabetes day’. For people with Type 2 diabetes treated by diet or by medication other than insulin e.g. metformin, 5.2 out of 7 days of an inpatient stay were ‘good diabetes days’.

**WE SAY**

The frequency of blood glucose monitoring has remained appropriate for inpatients with all types of diabetes. Despite that, fewer than half the days of a hospital stay of an insulin-treated patient are made up of ‘good diabetes days’.

Use of insulin infusions

Were insulin infusions used appropriately and safely?

People with diabetes sometimes need to receive their insulin by an infusion (using a drip). This may happen if a patient is extremely unwell, can have no food or is about to have an operation. If a person is given their insulin using a drip, it is important that they are monitored closely by hospital staff.

Insulin infusions should be used in hospital for short time periods and only when the person needs this. If a patient is on an insulin infusion for too long or when they don’t need to be, there is a greater risk of them experiencing complications or a medication error.

8% of patients in the audit had an insulin infusion during the previous 7 days. Of these, the audit shows that insulin infusions:

- Were considered inappropriate for 6% of patients
- Were used for too long for 7% of patients

The percentage of people on an insulin infusion has decreased since 2011. However, there has not been a significant reduction in the percentage of insulin infusions considered inappropriate or used for too long.

**WE SAY**

Monitoring of blood glucose levels for people on insulin infusions should happen regularly. Whilst the frequency of glucose monitoring has increased since 2011, there remains a percentage of patients in whom the monitoring is happening far too infrequently.
The results

Medication errors

How often did medication errors occur?

We collected information of two types of medication error:

- Prescription errors – e.g. medication wasn’t recorded on a patient’s notes or medication given at the wrong time
- Medication management – e.g. not adjusting medication when blood glucose was more than 11 mmol/L or stopping insulin inappropriately

In 2017, almost 1 in 3 people (31%) included in the audit experienced at least one medication error while in hospital. This is a reduction in errors from 38% in 2016.

Just under 1 in 5 inpatients (19%) with diabetes experienced one or more prescription errors. The number of prescription errors has reduced from 25% since the first comparable audit in 2011.

Just under 1 in 5 inpatients (18%) with diabetes experienced at least one glucose management error.

Almost 4 in 10 insulin-treated inpatients experience one or more insulin errors. The frequency of insulin errors has reduced by almost 20% since the first comparable audit in 2011.

WE SAY

To provide the right diabetes management for inpatients, hospital staff need knowledge, experience and confidence. Hospitals need to continue to improve the provision of ongoing training and support for hospital staff. This will help general medical staff reduce medication errors.

Hypoglycaemic episodes (hypos)

How often did people experience a hypo during their hospital stay?

A hypo is a drop in blood glucose level to below 4.0 mmol/L, which can lead to complications for the patient. Hospital staff should be helping inpatients to keep their blood glucose levels under control as much as possible to prevent hypos happening.

The table below shows the percentages of patient with diabetes having one or more hypos during their stay in hospital.

<table>
<thead>
<tr>
<th>Patients had one or more hypo (blood glucose of less than 4.0 mmol/L)</th>
<th>18%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Patients had one or more mild hypo (blood glucose of between 3.0 – 3.9 mmol/L)</td>
<td>17%</td>
</tr>
<tr>
<td>Patients had one or more severe hypo (blood glucose of less than 3.0 mmol/L)</td>
<td>7%</td>
</tr>
</tbody>
</table>

Note: some people may have had a mild hypo and a severe hypo so are included twice in the above percentages.
What makes it more likely for a patient to have a severe hypo?

Patients with Type 1 diabetes were more likely to experience a severe hypo than people with Type 2 diabetes. Just over 1 in 4 people (26%) with Type 1 diabetes experience one or more severe hypos during their hospital stay. The highest percentage of severe hypos took place in the early morning between 5am and 9am.

More work needs to be done to prevent hypos happening in the early morning, including giving people bed time snacks.

Complications

How many people develop complications (DKA/HHS) in hospital?

Diabetic ketoacidosis (DKA) and hyperosmolar hyperglycaemic state (HHS) are serious conditions which can have severe consequences for the patient. DKA/HHS are generally preventable and should not happen during a hospital stay.

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 can cause severe illness and even death.

The 2017 audit found that 1 in 25 inpatients with Type 1 diabetes develop DKA during their hospital stay.

HHS mainly happens in people with Type 2 diabetes who experience very high blood glucose levels. It can develop over the course of weeks through a combination of illness (e.g. infection) and dehydration. The 2017 audit found that 1 in 800 patients with Type 2 diabetes develop HHS during their hospital stay.

Improved diabetes management by hospital staff would have prevented these alarming results.

DKA and HHS are serious conditions which can have very serious consequences for the patient. They are preventable and should not occur during a hospital admission.
Foot care

**Do people with diabetes in hospital receive foot care that meets the guidelines?**

NICE has developed some specific guidelines about foot care for people with diabetes in hospital that all hospitals should follow. The guidelines state that all people with diabetes must have a foot assessment within 24 hours of admission to hospital.

The results of the 2017 audit show that fewer patients are having a specific foot risk examination than 2016. Less than 2 in 3 patients with active foot disease had a foot risk examination within 24 hours of being admitted.

There has been an increase in the percentage of hospitals that have a multidisciplinary foot team (MDFT). 1 in 5 hospitals (20%) do not have a MDFT. This is a reduction from over 2 in 5 hospitals (40%) without an MDFT at the first comparable audit in 2011.

Hospital teams need to do more to make sure people with diabetes get the foot care they need to prevent any problems getting worse. Patients in hospitals which use ‘Putting Feet First’ or NICE guidance are more likely to have a specific foot risk examination. We recommend that all hospitals use these guidelines to improve foot care for people with diabetes.

**WE SAY**

All patients with diabetes must have a foot assessment within 24 hours of admission and the multidisciplinary foot team (MDFT) must see any patient either showing signs of foot disease, or at a high risk of developing a foot ulcer while in hospital.

Views and experiences

**Did people with diabetes have a favourable experience of their stay in hospital?**

As part of the audit, people with diabetes were asked to comment on their diabetes care while in hospital. 8,579 people with diabetes provided their views in the 2017 audit.

5 out of 6 people (84%) who completed the survey said that they were ‘very satisfied’ or ‘satisfied’ with their overall diabetes care while in hospital. Most people (91%) felt satisfied with how the staff on the ward respected their wishes around diabetes care.

70% of people with diabetes said they were able to take control of their blood sugar management as much as they would have liked while in hospital. More than half (57%) of people with diabetes taking insulin were able to self-administer their insulin while in hospital.

Views about the choice and timing of meals worsened in 2015 and have not recovered. Just over half of people completing the survey (54%) were satisfied with the suitability of their meal choices. Nearly 2 in 5 people (38%) were dissatisfied with the timing of meals while they were in hospital.

There has been a slight fall in the percentage of people with diabetes feeling that staff were aware of their diabetes but still over 4 in 5 people (82%) are satisfied with this. Almost 2 in 3 (65%) people were satisfied with the level of knowledge staff had about diabetes. However, this means that around 1 in 3 people giving their views did not feel that staff knew enough about their condition.
Our recommendations

For people with diabetes

If you have diabetes and are going to stay in hospital it may be useful to:

- Bring an up-to-date list of your usual medications with you (or ask a relative to bring it), and the name and contact details of the healthcare professional who usually manages your diabetes care
- Take your own hypo treatments into hospital with you
- Take your own blood testing meter and test strips
- Tell your diabetes team that you are going into hospital as an inpatient
- Ask the hospital care team what plan they have to manage your diabetes while you are an inpatient
- Let a member of the ward staff know if you feel your diabetes care is not safe or could be better
- If you live in England, contact the Patient Advice and Liaison Service (PALS) if you are unhappy with your care
- If you live in Wales, contact your Community Health Council (CHC) if you are unhappy with your care

For diabetes teams within hospitals

While there are several improvements reported in the 2017 audit, some areas of diabetes care remain a concern. The recommendations to hospitals are that they should:

- Continue to participate in the valuable audit of diabetes care in hospitals, including the new continuous collection of diabetes harms
- Find out where electronic prescribing and the use of electronic records is working well and encourage your hospital to use them
- Encourage diabetes teams to involve their patients in planning their care
- Take action to prevent night-time hypos, including the introduction of bedtime snacks
- Make sure that there are enough staff on the diabetes team to provide support to other healthcare professionals and patients in the delivery of safe diabetes care
- Put procedures in place on wards to ensure that all appropriate patients are promptly referred and seen by the diabetes team
- Put procedures in place to improve foot examinations on admission and make sure that NICE guidance is implemented

Specific recommendations to diabetes teams within hospitals. They should:

- Continue to educate and support junior doctors and nursing staff to provide safe diabetes care
- Develop and test new systems to reduce prescribing and medication management errors
- Record all DKA and HHS cases that happen in hospital as serious incidents and analyse the causes of these incidents
- Continue to monitor the use of insulin infusions to make sure that they are used appropriately
Further information

What is the National Diabetes Inpatient Audit?

The audit is a project that checks the quality of diabetes care provided to people with diabetes when they stay in hospital as inpatients. This includes both people admitted to hospital because of their diabetes or for another medical reason. The first audit took place in 2010. Since then it has collected information each year about hospital stays for people with diabetes. Specifically, we look at whether:

- The diabetes treatment and care given to patients minimises the risk of further medical complications whilst in hospital
- The hospital’s management of patients’ diabetes puts patients at risk from possible harm
- People with diabetes have a reasonable experience during their hospital stay

Why do we audit inpatient care for people with diabetes?

The National Institute for Health and Care Excellence (NICE) produces the guidelines for the treatment if people with diabetes in hospital. All hospitals should follow these guidelines to provide good quality diabetes care to people in hospital. The findings from the audit shows hospitals how they compare to other hospitals. 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 hospitals raise their overall standards.

The audit’s findings are publicly available, so anyone can see their local hospital’s results. You can find your hospital’s audit findings on the NHS Digital website.

Where to go for more information

The National Diabetes Audit

Information about the National Diabetes Audit and copies of the full report is available on the NHS Digital website http://digital.nhs.uk/diabetesinpatientaudit

Diabetes UK

For more information about diabetes, including living with diabetes, go to https://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
National Diabetes Inpatient Audit: 2017

Further information

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

Patient Advice and Liaison Service (PALS)
If you have a question about local health services or an enquiry about health matters, you can contact PALS. Find more information or your local PALS at www.nhs.uk

Community Health Councils (CHC) in Wales
If you need help and advice about NHS Services in Wales, you can contact CHC. Find out more at www.wales.nhs.uk/sitesplus/899/home

NHS Choices (England)
NHS Choices provides information about your health, including finding and using NHS Services in England. Find out more at www.nhs.uk/pages/home.aspx

NHS Wales
NHS Wales provides information about your health, including finding and using NHS Services in Wales. Find out more at www.wales.nhs.uk

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 and Type 2 diabetes.
Diabetic Ketoacidosis (DKA)
DKA is a dangerous complication that happens when the body of a person with diabetes starts running out of insulin. During DKA, when the body has no insulin to use, it switches to burning fatty acids. This produces acidic ketones, which can cause severe illness and death.

While DKA mostly happens to people with Type 1 diabetes, DKA can also develop in people with Type 2 diabetes.

Insulin infusion
An insulin infusion sends insulin into the body through a needle inserted under the skin. It is often called a sliding scale because it can steadily deliver insulin at a set rate throughout the day, with increased doses when needed, for example, at meal times.

Hypoglycaemia
In people with diabetes, the balance of insulin, food and physical activity sometimes isn’t right and blood glucose levels drop too low. This is called a hypoglycaemia or hypo. In the audit data collection, a mild hypo is a blood sugar reading of 3-3.9 mmol/L and a severe hypo is a blood sugar reading below 3 mmol/L.

Multidisciplinary team
A team comprising different kinds of healthcare professionals working together to provide a patient’s care. For example, a multidisciplinary foot care team normally comprises:
- A diabetologist (a consultant who specialises in diabetes)
- A surgeon with expertise in managing foot problems related to diabetes
- A podiatrist (someone trained to look after your feet, and sometimes called a chiropodist)

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.

Type 2 diabetes
A condition in which the body either makes too little insulin, or cannot use the insulin it produces to turn blood glucose into energy. Diet and exercise is often enough to control a Type 2 diabetes condition, but some people also need diabetes medication or insulin.
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.

NDA PUBLICATIONS

NDA: National Diabetes Audit
- Care processes and treatment targets
- Complications and mortality
- Insulin pump
- Learning disability
- Severe mental illness
- Transition

NPID: National Pregnancy in Diabetes Audit

NDFA: National Diabetes Foot Care Audit

NaDIA: National Diabetes Inpatient Audit

We welcome your views on how we can improve this report

Please contact:
Alex Berry
Diabetes UK
Wells Lawrence House
126 Back Church Lane
London E1 1FH

T: 020 7424 1013
E: alex.berry@diabetes.org.uk