Making hospitals safe for people with diabetes



DIABETES UK
KNOW DIABETES. FIGHT DIABETES.

Authors: Emily Watts and Professor Gerry Rayman

Foreword

Over a million people with diabetes were admitted to hospital in England in 2017.

We know that 92%[1] of them were not admitted because of their diabetes. A hospital stay for a person with diabetes can be a frightening experience and it is easy to understand why. In 2017, an estimated **9,600 people** required rescue treatment after falling into a coma following a severe hypoglycaemic attack. An unacceptable **2,200 people** suffered from Diabetic Ketoacidosis (DKA) due to under treatment with insulin[2].

We can and must do better for people with diabetes in hospital.

Inpatient care for diabetes costs the NHS **£2.5 billion**. That's 11% of the entire budget spent on inpatient care[3]. Much of this could be saved by having the right workforce in place. It has been estimated that an investment of £5 million on new diabetes inpatient specialist nursing services in 54 trusts[4] would yield approximately £14 million savings per year, resulting in net savings of **£9 million**[5].

The National Diabetes Inpatient Audit, launched in 2010, shows that some hospitals have made year-on-year improvements in diabetes care but it also highlights the huge variations in care. Everything we recommend in our report exists in hospitals across England, but crucially not in all hospitals.

We need to stop working alone and start learning from each other.

1 Health and Social Care Information Centre. National Diabetes Inpatient Audit 2017 – National Report
2 Health and Social Care Information Centre. National Diabetes Inpatient Audit 2017 – National Report
3 Kerr, M (2011). Inpatient Care for People with Diabetes – The Economic Case for Change
4 In 2017, 57 Trusts had no diabetes inpatient specialist nurse
5 NHS England Diabetes Programme Team. 'Savings evidence summary' 2017

Our report has been developed through conversations with people with diabetes, diabetes inpatient teams, healthcare professionals working in hospitals and hospital managers. It highlights the challenges facing diabetes inpatient services and shows what should be in place in all hospitals. We know fully resourced, proactive diabetes inpatient teams and an educated inpatient workforce lead to improved patient experience and shorter lengths of stay. We also know that when proper systems are in place, healthcare professionals can manage their workload better and make sure they are prioritising those most in need. Change can be difficult but with the right support and team structures it is possible.

Every stay for someone with diabetes in hospital should be safe.
At the moment it's not.

Let's change that.





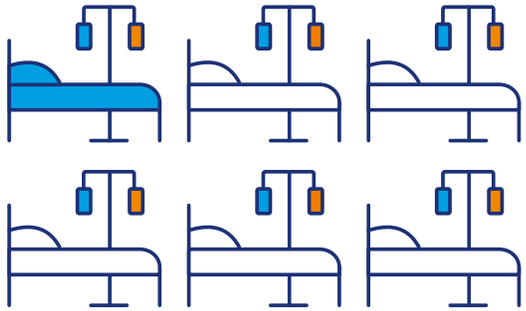
Professor Gerry Rayman
Consultant Diabetologist and Diabetes GIRFT Clinical Lead

Chris Askew
Chief Executive Diabetes UK

Introduction

Our vision is to create a world where diabetes can do no harm. So it's not acceptable that people with diabetes don't feel safe in hospital. Currently one in six hospital beds is occupied by someone with diabetes and by 2030 it is predicted this will rise to one in four. In hospital, people with diabetes have high infection rates, longer lengths of stay – one to three more days than patients without diabetes – and increased mortality (6.4% higher)[6]. In 2017, **260,000 people** with diabetes experienced a medication error which could have resulted in serious harm or even death, and **58,000** an episode of severe hypoglycaemia[7].

Our report has been created by an alliance of groups and individuals striving to improve hospital care for people with diabetes. Thorough engagement with diabetes inpatient teams, ward staff, people with diabetes and hospital management means we now understand the depth of the challenges facing the NHS in improving diabetes inpatient care. For our report we visited hospitals across the country and we found out what works.



One in six

people in a hospital bed has diabetes.

6 Holman N, Hillson R, Young RJ. Excess mortality during hospital stays among patients with recorded diabetes compared with those without diabetes. Diabetic Medicine 2013;30:1393-1402 Doi: 10.1111/dme.12282

7 Health and Social Care Information Centre. National Diabetes Inpatient Audit 2017 – National Report

For people with diabetes to be safe in hospital we need:



multidisciplinary diabetes inpatient teams in all hospitals



strong clinical leadership from diabetes inpatient teams



knowledgeable healthcare professionals who understand diabetes



better support in hospitals for people to take ownership of their diabetes



better access to systems and technology

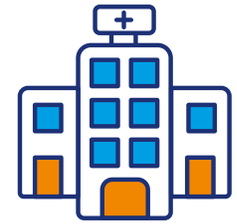


more support to help hospitals learn from mistakes.

Our report outlines these points in more detail and highlights what needs to be in place in all acute hospitals across England to make sure every stay for someone with diabetes is safe.

These recommendations are based on models from across the UK which have been shown to improve care.

Multidisciplinary diabetes inpatient teams in all hospitals



Diabetes inpatient teams reduce length of stay and improve patient experience, and yet a quarter of sites still don't have a diabetes inpatient specialist nurse[8]. Hospitals are struggling to recruit into specialist posts with many going unfilled. At the same time, the number of trainee doctors choosing to specialise in diabetes is going down, leaving a void in the future consultant workforce.

In 2017, **235,000 people** with diabetes who were in hospital and should have been seen by the diabetes inpatient team (based on the 'think glucose' referral criteria), were not[9]. This is partly due to under staffing. But it's also due to lack of processes in place that identify all inpatients with diabetes along with the use of systems to alert the diabetes inpatient team to those most at risk. In addition, commitments to general medicine have increased for diabetes consultants and their trainee specialists – impacting on their involvement in inpatient diabetes care.

It may not be necessary that all patients are seen by the diabetes inpatient team but it is essential that those at high risk of harm have access to specialist support, and that all people with diabetes are treated by knowledgeable healthcare professionals.

Fully resourced teams that are available seven days a week are essential. How the diabetes inpatient team works together and across the hospital is equally important. Teams who share office space have reported closer working ties and improved communication. Teams who have improved patient care meet regularly and include staff from across the hospital to create joint ownership for diabetes care.



28% of people
needed to see a specialist diabetes team during their hospital stay but didn't[10].

8 Health and Social Care Information Centre. National Diabetes Inpatient Audit 2017 – National Report
9 Health and Social Care Information Centre. National Diabetes Inpatient Audit 2017 – National Report
10 Health and Social Care Information Centre. National Diabetes Inpatient Audit 2017 – National Report

Our goal

Everyone with diabetes in hospital has access to a range of healthcare professionals who can care for their complex needs. From their admission to discharge, they know they can contact the diabetes inpatient team if needed and will be cared for regardless of what day of the week it is.

Recommendations

- All hospitals should have a fully staffed diabetes inpatient team, made up of the following [11]:
  - diabetes consultant
  - sufficient diabetes inpatient specialist nurses to run a daily and weekend service
  - access to a diabetes specialist podiatrist, pharmacist and dietitian and access to psychological support
  - a projects and implementation lead and admin support

  The team should meet regularly, have access to shared office space and administrative support.
- Hospitals should also have a perioperative diabetes team with representation from surgery, pre-admission, anaesthetic department, recovery nursing and analytic team.
  The responsibilities of the team should include:
  - implementing and monitoring the perioperative pathway
  - meeting monthly to review reports, complaints, plan service improvements and audit the service.

11 Work is being done now to update the recommended numbers of staff per inpatient team



Strong clinical leadership from diabetes inpatient teams



Diabetes inpatient teams that have made progress and improvements in care demonstrate exceptional leadership.
Those that have driven change consistently show resilience, courage and influence. It is essential that diabetes is championed at a local level and that leaders are in place to ensure diabetes is on the trust's agenda, and that ownership is felt by staff across all hospitals.

Diabetes inpatient teams are being supported by leadership at a national level to improve care for people with diabetes through a number of initiatives.

- The NHS England's Transformation Fund which has supported approximately 96 whole time equivalent diabetes inpatient specialist nurses and related staff who will be funded in approximately 70 hospital sites across 46 providers [12].
- The Getting it Right First Time (GIRFT) programme that aims to bring higher quality care in hospitals, at lower cost, by reducing unwanted variations in services and practices [13].
- The Joint British Diabetes Society (JBDS) aims to improve inpatient diabetes care across the UK through development and use of high-quality, evidence-based guidelines and inpatient care pathways [14].
- In 2018, the National Diabetes Audit Quality Improvement Collaborative provided quality improvement support to 20 diabetes inpatient teams looking to improve their levels of hypoglycaemia and medication errors.

12 www.england.nhs.uk/diabetes/diabetes-prevention/diabetes-transformation-fund/

13 www.gettingitrightfirsttime.co.uk

14 www.diabetes.org.uk/joint-british-diabetes-society

Our goal

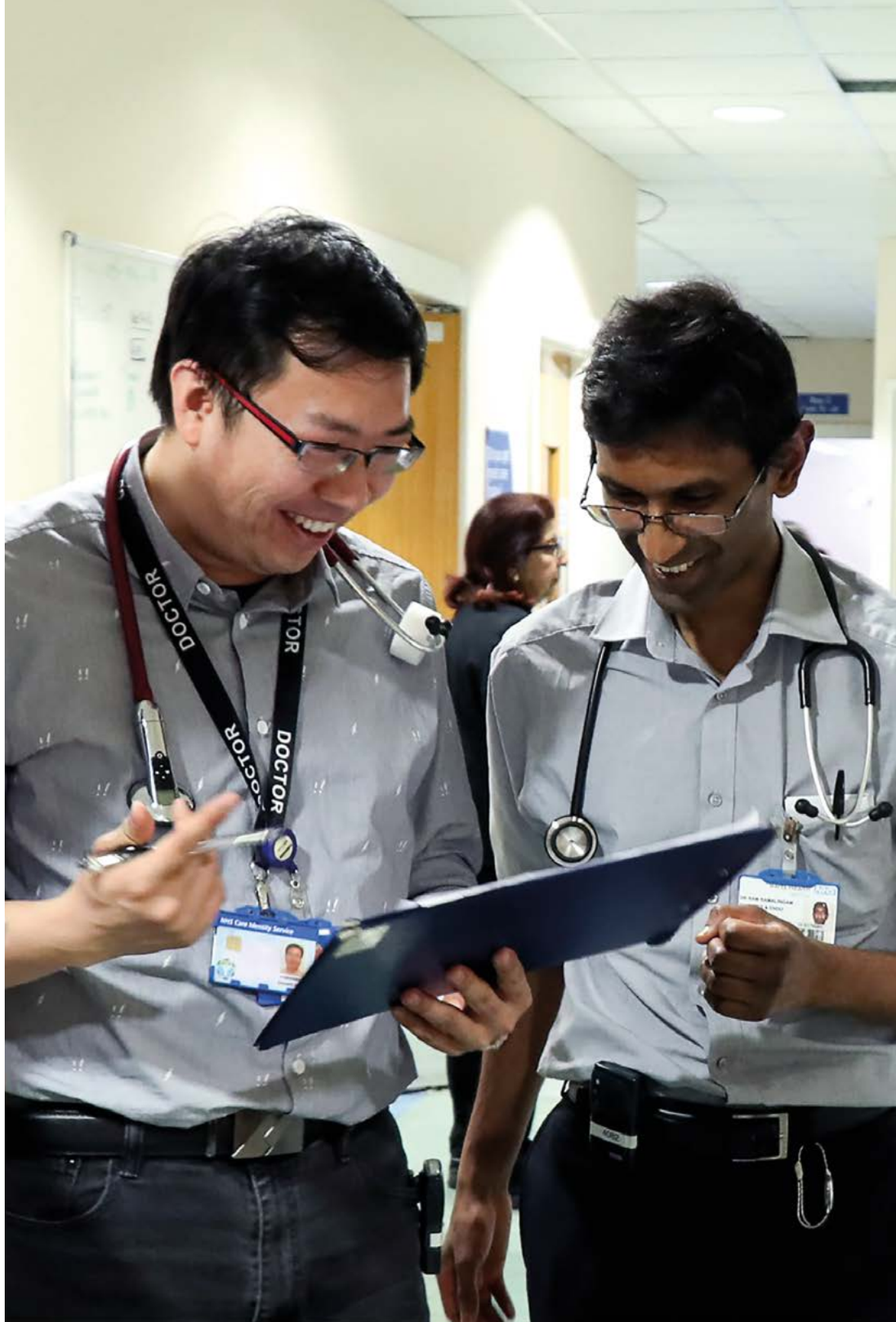
People with diabetes get good care in all hospitals—because diabetes is treated as a priority and they have teams and individuals championing their care.

Recommendations

- All diabetes inpatient teams should host quarterly diabetes and insulin safety and strategy board meetings. Representation should include a member of the hospitals' safety committee, the executive board and IT and analytic teams.
- All diabetes inpatient teams should meet weekly to discuss:
  - incident reports and complaints
  - monthly and other audits
  - the service and innovations
  - upcoming teaching.
- Appropriate members of the diabetes inpatient team should be supported in getting leadership training. Information about Diabetes UK's leadership programmes, Tomorrow's Leaders and Clinical Champions is available online [15].
- Guidelines recommended by the Joint British Diabetes Societies should be in place and easy to find [16].

15 www.diabetes.org.uk/Professionals/Resources

16 www.diabetes.org.uk/joint-british-diabetes-society



Knowledgeable healthcare professionals who understand diabetes



Trainee doctors lack confidence in the management of diabetes, are unlikely to take the initiative to optimise glycaemic control and report a need for further training – and that's according to their own perception of delivery of care survey (TOPDOC)[17]. This low level of confidence and knowledge in trainee doctors as well as other frontline staff has been raised as a major concern by healthcare professionals and people with diabetes. In the 2017 NaDIA audit, patient satisfaction with the level of staff awareness and knowledge of diabetes varied by over **75%**. Inpatient perception of this has got worse since 2011. Patient involvement plays an integral part in keeping people safe in hospital yet we hear from people with diabetes that they are too often not involved in their own care.

Healthcare professionals are under immense pressure and pre-registration training, for nurses and doctors, doesn't always support a sound knowledge in diabetes. Ward pressures also mean that many staff cannot access the training on offer. High staff turnover and use of agency staff also make the sustainability of training by the diabetes inpatient team difficult.

> "It's a continuous battle to educate ward staff about my diabetes management and requirements. It feels like I am always in confrontational mode, which make my stays in hospital less than comfortable."

Good practice

Diabetes UK Clinical Champion, Ruth Miller, has created a 10 point training programme in recognition of the fact that many of the most complex patients have their care delivered by non-experts. The aims of the training is to recognise that all clinicians must possess a set of core competencies in order to keep their patients safe. You can find this training at:
www.diabetes.org.uk/professionals/resources/resources-to-improve-your-clinical-practice/diabetes-10-point-training

Microguide (previously available as DiAppbetes) is a free app available for healthcare professionals. Clinical decision support is provided on managing hyperglycaemia, issues to consider when managing the older person with diabetes, patients on steroids, discharge planning in diabetes and a full section on insulin, that covers types, safe prescribing tips, dose calculation and adjustment and insulin infusion use notes. You can make the app bespoke for your hospital by emailing **microguide@horisonsp.co.uk**

Diabetes UK has a free e-learning module, Diabetes in Healthcare, for non-specialists at **www.diabetesinhealthcare.co.uk**

> "I feel that, outside the realm of healthcare professionals who specifically work in diabetes care, there is a real lack of basic knowledge about diabetes across many people within the NHS."

17 www.ncbi.nlm.nih.gov/pubmed/21511736

Our goal

No one with diabetes feels unsafe in hospital. Everyone with diabetes in hospital feels confident that those caring for them understand their needs. And healthcare professionals receive the training they need to offer the best care possible.

Recommendations

- All hospitals should support healthcare professionals to involve people with diabetes in their own care.
- Basic training on the safe use of insulin and the main diabetes harms and how they can be prevented should be mandatory for all healthcare professionals caring for people with diabetes.
- Training should be provided to all undergraduate doctors and nurse trainees in the important aspects of inpatient diabetes care.
- Training in the areas featured in the tables over the page should be available for the listed healthcare professionals across all hospitals [18].

18 Note: the level of training will vary for different healthcare professional, for example healthcare assistants would only require a basic understanding of what could go wrong when managing an insulin infusion and managing DKA.



Kingston Hospital has developed a Diabetes Ward Champions programme for qualified ward nurses who have an interest in diabetes and want to make a real difference to diabetes care on their ward.

Knowledgeable healthcare professionals who understand diabetes



	Who to refer to the DISN	Safe use of insulin	Managing insulin infusions	Managing hypoglycaemia	Managing DKA & HHS
All medical consultants	✓	✓	✓	✓	✓
Junior doctors	✓	✓	✓	✓	✓
Nurses	✓	✓	✓	✓	✓
Healthcare assistants	✓	✓	✓	✓	✓
Dietitians	✓	✓	✓	✓	✓
Pharmacists	✓	✓	✓	✓	✓
Podiatrists	✓	✓		✓	
All surgical and anaesthetic consultants	✓	✓	✓	✓	✓
Surgical nurse	✓	✓	✓	✓	✓

Note: the level of training will vary for different healthcare professional, for example healthcare assistants would only require a basic understanding of what could go wrong when managing an insulin infusion and managing DKA.

	Managing diabetes for those on steroids	Managing those on artificial nutrition	Foot protection and foot referral pathways	Perioperative diabetes care
All medical consultants	✓	✓	✓	
Junior doctors	✓	✓	✓	✓
Nurses	✓	✓	✓	
Healthcare assistants			✓	
Dietitians	✓	✓		
Pharmacists	✓	✓		
Podiatrists			✓	
All surgical and anaesthetic consultants	✓	✓	✓	✓
Surgical nurse	✓	✓	✓	✓

Note: the level of training will vary for different healthcare professional, for example healthcare assistants would only require a basic understanding of what could go wrong when managing an insulin infusion and managing DKA.

Better support in hospitals for people to take ownership of their diabetes



We talked to thousands of people with diabetes about their priorities for the future in our Future of Diabetes report [19]. Many of them expressed concern about inpatient care. They wanted to know that more is being done to make sure they're safe if they are admitted to hospital.

Inpatient perception of meal choice, meal timing and staff awareness of diabetes has got worse since 2011. Too often people are unable to determine the amount of carbohydrate in their food, and the choice of meals is poor. Snacks are not always readily available leading to hypoglycaemia, particularly at night.

> "Even though I asked many times I was never given the carb content of the meals on the menu, I had to guess."

> "I asked for something for low blood sugar and they gave me one digestive biscuit, I had to ask for some more, they were not very helpful and told me I shouldn't really eat biscuits."

Patients also expressed concern and fear over not being able to self-manage their condition whilst in hospital and having their insulin taken away from them on admission. On too many occasions they felt those caring for them did not understand their needs and that they weren't listened to.

> "I was not given the ability to make my own decisions about my insulin and was made to follow instructions given by healthcare professionals who did not specialise in diabetes."

Good practice

The Wessex Academic Health Science Network has produced a guide to support self-administration of insulin in hospital. It supports trusts through the process of setting up safe and robust arrangements for routine self-administration of insulin. Part 1 helps trusts to make a case for change and Part 2 provided step-by-step guidance on how to implement and measure self-administration of insulin throughout a hospital.

You can access the guide on the Diabetes UK Shared practice Library: **www.diabetes.org.uk/professionals/resources/shared-practice/inpatient-and-hospital-care**

19 www.diabetes.org.uk/get_involved/campaigning/the-future-of-diabetes

Our goal

People with diabetes know what care to expect in hospital and feel able to ask for it. People are able to self-manage their diabetes where appropriate and have access to the right food at the right time during their stay.

Recommendations

- All patients with a diagnosis of diabetes should be supported to self-manage their diabetes where appropriate. Hospitals should have systems and training in place that supports this.
- All patients with a diagnosis of diabetes should benefit from a care plan – developed in collaboration between healthcare professionals and the patient – that is activated on admission to hospital.
- Diabetes inpatient teams should work with catering staff to make sure meal times and meal quantities are appropriate for people with a diagnosis of diabetes.
- All hospital menus should have carbohydrate content available.
- All patients with diabetes should have easy access to appropriate snacks and drinks throughout their inpatient stay.



Better access to systems and technology



New hospital systems have revolutionised the way diabetes specialist teams work. Effective systems enable diabetes inpatient teams to identify people with diabetes on admission to hospital and to monitor those at risk throughout their stay.

Identifying people with diabetes on admission to hospital

The ability of diabetes inpatient teams to identify people with diabetes on admission to hospital is transformational. We know from patients that having a care plan in place from the start of their stay is what they want. It also minimises the chance of complications further down the line. In York Hospital they are able to identify all people with diabetes on admission through links with their retinal screening service[20].

Point of care testing

The use of web-linked blood glucose and ketone meters enables diabetes inpatient teams to identify people out of range for their blood sugar and has been shown to help teams prioritise their workload. In Ipswich Hospital the use of an alert system through point-of-care testing, alongside bedtime snacks and actively reducing basal insulin, produced a fall in severe hypoglycaemia of 46%[21]. In contrast some teams have been overwhelmed by the sheer volume of patients out of range and this has resulted in the meters being turned off. Far from increasing workload, this system is an opportunity for diabetes inpatient teams to target their resource where it will be most effective.

Electronic prescribing and electronic patient records

Electronic prescribing and the use of electronic patient records when properly configured have the potential to reduce medication errors dramatically but in 2017 only 17% of sites used both[22]. At Derby Royal Hospital, the introduction of electronic prescribing and medicines administration (EPMA) in 2012 helped to reduce prescription errors from 33.9 % to 14.9% by avoiding never events such as the use of written abbreviations (U, IU)[23]. With almost one in three people with diabetes suffering a medication error, introducing new systems to improve these outcomes is fundamental to making care better for people with diabetes who are in hospital.

Good discharge planning

When patients leave hospital they need the appropriate support to help them care for their diabetes and to avoid a further hospital stay. Good discharge planning involves making sure those who require support with their glucose control in the immediate period after leaving hospital are identified prior to discharge. These patients should be contacted at an appropriate frequency to review their blood glucose results and alter treatment where necessary until it is safe to stop this support. This service may be provided either by the community diabetes service, general practice or diabetes specialist team, if necessary working with the district or community nurses.

All these systems require the diabetes inpatient team to have strong working relationships with the hospital IT team and, in many cases, support from clerical staff. This enables diabetes inpatient teams to get on with the job at hand whilst systems are used that enable them to work effectively.

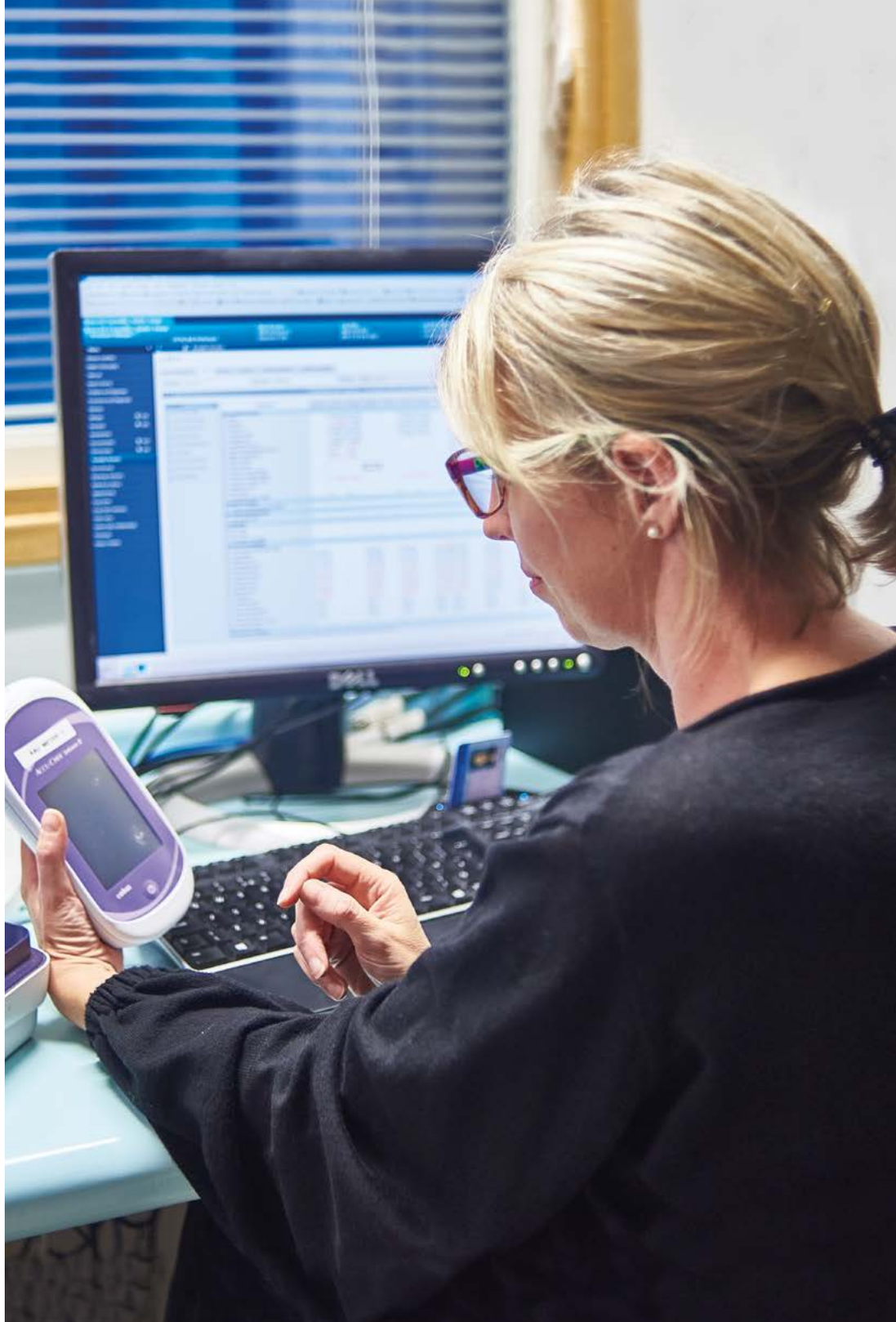
20 www.diabetes.org.uk/professionals/resources/shared-practice/inpatient-and-hospital-care
21 www.diabetes.org.uk/professionals/resources/shared-practice/inpatient-and-hospital-care
22 Health and Social Care Information Centre. National Diabetes Inpatient Audit 2017 – National Report
23 www.diabetes.org.uk/professionals/resources/shared-practice/inpatient-and-hospital-care

Our goal

Systems are in place that allow the diabetes inpatient team to identify people with diabetes and assess their risk, responding to those most in need. So that people with diabetes experience fewer harms.

Recommendations

- All hospitals should have systems in place that identify patients with a diagnosis of diabetes on admission. There should be electronic pathways to refer patients to the diabetes inpatient team, which are audited for timeliness of review.
- Effective electronic prescribing system for detecting, recording, and avoiding insulin and oral hypoglycaemic agent (OHA) prescribing errors should be used across hospitals.
- Web-linked blood glucose and ketone meters should be actively used to alert the diabetes inpatient team to out of range glucose values and to monitor glucometrics across the trust and at ward level.
- All hospitals should have an electronic safe discharge checklist that can be audited.
- Systems should be in place to prevent readmissions due to unstable diabetes control.



More support to help hospitals learn from mistakes



One in 25 people with Type 1 diabetes experienced hospital induced diabetes ketoacidosis as a result of under treatment with insulin in 2017[24]**.** This should not happen in hospital. Since it is not always reported as a serious harm it is routinely downgraded, and training and learning from the event isn't established. Diabetes inpatient teams have expressed grave concerns that little is being done to address diabetes errors because, put simply, patients don't always die. It is not acceptable that some trusts are seeing patient harm and death as the only reason for improvement.

DKA is not the only harm that is not always reported. Diabetes inpatient teams are concerned that due to lengthy processes and inconsistencies in follow up, other diabetes harms are not being reported. If systems are not being used that can inform diabetes inpatient teams of errors occurring across the trust, then there will be no clear picture of the state of diabetes care. In high performing trusts, a culture of error reporting is encouraged and errors are followed up by the appropriate course of action.

Trusts which have made the greatest improvement have done so by regular audit of key performance indicators, benchmarking the results against their previous results and against other trusts. The National Diabetes Inpatient Audit has benchmarked the nation and demonstrated year-upon-year improvements – however it's a snapshot audit which only occurs once a year. Although it has driven individual trusts to improvements in several areas, more frequent regular audits are better at driving local improvements and are essential to alert the team to drifts away from targets.



1 in 25 inpatients
with Type 1 diabetes develop DKA during their hospital stay.

24 Health and Social Care Information Centre. National Diabetes Inpatient Audit 2017 – National Report

Our goal

People with diabetes experience fewer harms in hospital because when errors occur, they are reported and action taken so they don't happen again. The diabetes inpatient team has processes in place to make sure mistakes are owned, understood and managed by the clinical teams involved.

Recommendations

- Hospitals should agree on local key indicators, like frequency of hypoglycaemia, hospital acquired foot ulceration and insulin errors to audit and have methods in place that ensure data collection is robust and the data is subjected to rigorous analysis.
- With audit and data analytic support, trusts should use their Hospital Episode Statistics to determine whether they are outliers with regards to length of stay, readmission rates and mortality.
- All hospitals should have reporting systems in place for collecting patient harms including hospital acquired foot lesions, DKA, HHS and severe hypoglycaemia requiring injectable therapy.
- All hospitals should participate in the NaDIA and continuous monitoring of harms audits and report the results to the trust's Clinical Governance Committee.
- All diabetes inpatient teams should host mortality and morbidity meetings.



What now?

The NHS is under immense strain and diabetes is just one of the complex issues competing to be a priority across a myriad of conditions. But what is encouraging is we know the challenges raised in our report are already being solved by trusts across the UK. So now we need to spread this learning and bring people together to share their ideas and successes.

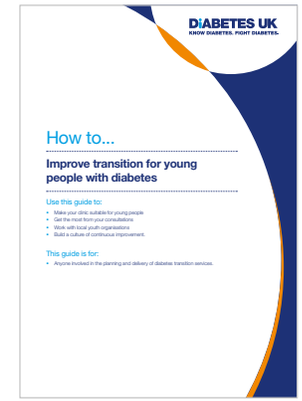
Diabetes UK has a number of resources available for hospitals to access:

- **The Shared Practice Library** is a bank of good practice examples in diabetes care with a specific page for hospital care: **www.diabetes.org.uk/professionals/resources/shared-practice/inpatient-and-hospital-care**
- **The Clinical Champions and Tomorrow's Leaders programmes** give diabetes professionals the personal development and leadership skills to improve their local health systems: **www.diabetes.org.uk/professionals/training--competencies/courses**

There are a number of external resources that you can access to improve care:

- **The Diabetes Inpatient Specialist Nurse (DiSN) Network** has an annual conference and regular updates for DiSNs. DiSNs can join the group for free by emailing: **DISN@nnuh.nhs.uk**
- **The Joint British Diabetes Society for inpatient care (JBDS)** develop high quality, evidence based guidelines and inpatient care pathways that can be accessed here: **www.diabetes.org.uk/joint-british-diabetes-society**









Diabetes UK
Clinical Champions



Notes



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The Improving Inpatient Care Programme is supported by a grant from Sanofi.

The British Diabetic Association operating as Diabetes UK, a charity registered in England and Wales (no. 215199) and in Scotland (no. SC039136). 1466 1034EINT/919