The Future of Inpatient Diabetes Care

ALL PARTY PARLIAMENTARY GROUP FOR DIABETES

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The All-Party Parliamentary Group for Diabetes (APPG Diabetes) is a nonpartisan cross-party interest group of UK parliamentarians who have a shared interest in raising the profile of diabetes, its prevention and improving the quality of treatment and care for people living with diabetes.

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Chair's Introduction

One in six hospital beds are occupied by a person with diabetes[1]. With a person being diagnosed with diabetes every two minutes, this is only likely to increase in future. Adding pressure on an already struggling hospital system.

The National Inpatient Diabetes Audit (NaDIA) has been a remarkable achievement in ensuring the visibility of inpatients with diabetes. But it has also made evident how slowly and modestly change is being achieved. We need to challenge the widespread acceptance of poor outcomes for inpatients with diabetes.

Despite improvements, 1 in 4 hospitals still do not have a diabetes specialist team. Almost 3 in 10 inpatients with diabetes suffer avoidable harm due to medication errors, an increase since 2011. As a result, 1 in 5 patients will have a hypoglycaemic episode[2] and 1 in 25 suffer from Diabetes Ketoacidosis[3], which can lead to a coma or even death[4].

The APPG has received evidence from distressed patients who report that their lives and long-term health were endangered as a result of sub-standard care. Inpatients with diabetes, like myself, are still facing the same problems today as six years ago.

As well as the impact on individuals, these mistakes also lead to longer lengths of stay and devastating complications that are costly to the NHS.

Around 11 per cent of the total NHS expenditure on inpatient care goes to people with diabetes, about £2.4 billion a year. Of which, an estimated 30 per cent (£686 million) is excess expenditure on diabetes[5].

It is time to improve care, and reduce costs, by ensuring that every person with diabetes admitted to hospital across the UK can feel safe and confident that their health will improve. The good news is that this goal is achievable.

The APPG has heard from healthcare professionals about effective interventions being developed and implemented to improve the quality of inpatient care. Change is possible, but success requires the will and investment of hospitals and clinical leadership.

This report details the picture painted by patients and healthcare professionals with direct experience of care, and the measures that are urgently needed to guarantee that the future of inpatient diabetes care is a bright one.

Rt Hon Keith Vaz MP

Chair of the APPG for Diabetes

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[1] NHS Digital (March 2017). National Diabetes Inpatient Audit (NaDIA) – 2016.
[2] Lower than normal level of blood sugar.
[3] Consistently high blood glucose levels.
[4] JBDS (2013). The hospital management of hypoglycemia in adults with diabetes mellitus.
[5] Diabetes UK (2014). The cost of diabetes report.

The Evidence Session

The APPG for Diabetes held an evidence session at the House of Commons on Wednesday 19th April 2017 into the Future of Inpatient Diabetes Care.

The meeting was chaired by the Rt Hon Keith Vaz MP and attended by the APPG for Diabetes members Jim Shannon MP and Mary Glindon MP.

Evidence was heard from patient Lesley Doherty; Prof Mike Sampson, Chair JBDS-IP; Gerry Rayman, Lead National Inpatient Diabetes Audit; Dr Mayank Patel, University Hospital Southampton; Dr Kath Higgins, University Hospital Leicester NHS Trust; Dr Partha Kar, Associate National Clinical Director for Diabetes at NHS England.

Written evidence and comments were also submitted by over 50 patients and healthcare professionals.

The Problem

The Government and NHS England have begun to recognise the need for improvement in inpatient diabetes care. Creating or expanding diabetes inpatient nursing services (DISNs) was one of the four key areas for the NHS Transformation Funding for diabetes. In total, twenty-three CCGs received funding for their projects, 15 per cent of the successful bids. Whilst an achievement, this still leaves many more areas in need of improvement.

While there is still a need to increase the profile of inpatient care, funds alone are not enough to bring about change. The APPG heard from healthcare professionals who have made bold improvements in their local area with few resources. The evidence we heard shows how it can be done. It starts with leadership, accountability, a long-term vision and a patient-centred approach. Then, changes can be made that improve inpatient diabetes care, including:

- Access to knowledgeable healthcare professionals;
- Integrated processes;
- Support for self-management.

Leadership

The APPG has heard from a wide range of people with diabetes and healthcare professionals. There are some interesting and cost-effective strategies being implemented to improve quality of care. There is no quick fix, but good practice is out there ready to be shared and reproduced across willing hospitals.

Throughout the evidence a common theme emerged as the main enabler in successful improvement: the need for strong and far-sighted leadership. People who recognise the seriousness of diabetes and are prepared to invest time and resources to make change happen.

Without a change in mind-set, it is challenging to improve inpatient care. Hospitals must be persuaded of the scale of the problem and management teams must work with dedicated diabetes inpatient teams to implement hospital-wide safety practices for inpatient diabetes care.

Change needs to start with a commitment driven by hospital leaders to provide a high level of care, geared towards the needs of the patient.

Governance

When faced with the need to improve staff knowledge and competence to manage diabetes, University Hospitals of Leicester NHS Trust started by developing internal leadership. They developed a hospital-wide strategy for safe use of insulin and a Diabetes Inpatient Safety Committee with an agreed governance structure that ensures the committee's accountability and links to relevant boards.

As a result, this guaranteed diabetes was embedded into the Trust Safety agenda and the Trust Quality commitment, highlighting the leadership's investment and responsibility for the safety and quality of care of inpatients with diabetes.

"For years now these issues have been seen as 'the diabetes team problems', but this is a whole Trust problem and we will not be able to tackle the harm associated with inpatient diabetes care without engaging whole Trust buy-in."

Kath Higgins, University Hospitals of Leicester

National level

At a national level, there are some initiatives that highlight the importance of inpatient diabetes care and inspire leadership towards change. But there is no sustainable way to challenge poor practice and champion good practice at a national level.

The NaDIA helps identify Trusts where there is a particular problem. In terms of accountability, the recent addition of inpatient diabetes as one of the specific areas of focus during CQC inspections intends to help hospital management teams to recognise the issue and be persuaded into action. This is a potential motivator for change, but not a solution on its own.

NHS England recently added diabetes as a speciality area on the 'Getting it right the first time' (GIRFT) programme. GIRFT was designed to improve clinical quality and efficiency within the NHS by identifying differences in service delivery and encouraging sharing of best practice, with a primary focus on safety and good patient outcomes.

"There's no amount of money that will improve diabetes in hospital. It takes leadership and help from the people on the ground. It takes good leadership and a desire to improve on what we have, not rely on others to do so."

Partha Kar, Associate National Clinical Director for Diabetes at NHS England

Access to knowledgeable healthcare professionals

Diabetes is a complex condition that demands specialist advice, regardless of the reason for admission. Admitting, treating and discharging patients without a diabetes specialist team is unsafe and can increase the risk of readmission and long-term complications[6]. Studies show the longer the delay to be seen by a Multi-disciplinary footcare team (MDT), the more likely ulcers will develop and that an amputation will be needed[7].

Improving inpatient care starts with investing in the people who deliver the care. Specialist inpatient diabetes teams reduce errors and improve patient outcomes. Consequently, this reduces average length of stay and leads to fewer complications for patients. Studies show these teams save up to three times their cost[8], and an average of £400 per admission, with MDTs expected to save over four times their cost. The Department of Health estimates that investing in a specialist diabetes team and general staff education could improve patient outcomes and cut the excess of poor care by over £500 million.

Every hospital must meet minimum recommended staffing levels and have an inpatient diabetes specialist team in place. However, right now, 1 in 4 inpatients will not have access to a dietitian, podiatrist, a Diabetes Inpatient Specialist Nurse (DISN) or an MDT. Only two thirds (69 per cent) requiring referral will actually be seen by a specialist. This is unacceptable.

Moreover, less than 1 in 10 inpatients will be under the care of a diabetes consultant, meaning most inpatients with diabetes will rely completely on ward staff for their care. Worryingly, in 2016, less than 65 per cent of inpatients thought that the staff looking after them knew enough about diabetes. This is an all-time low and a stressful situation for inpatients with diabetes. Considering almost 4 in 10 inpatients will be unnecessarily harmed by a medical mistake, the data suggests that they often have good reason to be concerned.

Other specialisms such as general ward staff, junior doctors and healthcare assistants are under significant pressure. They are also in an essential position to identify if someone has diabetes when admitted, conduct foot checks, check blood sugar levels, and ensure the correct meal is served at the correct time. They are responsible for managing insulin or ensuring the patient is self-managing correctly, identifying early signs of complications and knowing when to refer to a specialist. To do these tasks, they can often need wider support and training. Without this essential knowledge, mistakes happen. All healthcare staff should know how to care for and keep inpatients with diabetes safe in hospital. Specialist teams are well placed to provide this education and guidance.

Specialist teams can provide their direct specialist care and also play an important lead role educating and supporting ward staff.

"I was admitted to hospital in June 2016 for an unrelated issue to my diabetes. I was not allowed to test my own blood sugar levels or administer my insulin, which I always do myself. I was having frequent hypos whilst in hospital. In one instance the nurse tested my blood sugars and just walked away, not recognising the hypo and helping me. There was no DSN available and my doctor was from

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[6] JBDS (2012). The management of diabetic ketoacidosis in adults; Management of the hyperosmolar hyperglycaemic state (HHS) in adults with diabetes.

[7] Diabetes UK (2016). State of the nation: Time to take control of diabetes.
[8] Diabetes UK (2014). The cost of diabetes report.

another specialty, so seemed to have no knowledge about insulin."

Mark

Shared learning

The APPG heard from a few areas that are tackling this issue systematically.

NHS University Hospital Southampton is an example of how training and support from the specialist team can help ward staff to provide effective diabetes care. They have adopted a reflective approach to talking to staff about errors, a supportive attitude across teams, and used internal leadership to create and share content.

Through diabetes education evenings for junior doctors and inpatient diabetes study days for nursing staff, they have managed to increase confidence in providing diabetes care among ward staff. Part of the specialist team's role is to deliver training. They also appointed the first diabetes pharmacist, who trained other pharmacists and pharmacy staff about diabetes in hospital. Overall the strategy contributed to fewer errors, decreased lengths of stay, and increased patient and staff satisfaction.

The staff at the Queen Elizabeth The Queen Mother Hospital have also provided training and educating for nursing and medical staff in the management of patients with diabetes. Using the education materials and guidance provided by The Think Glucose project for safe use of insulin, a 3 day training programme was developed and delivered across all three acute sites by DISNs to qualified nurses, associate practitioners and other Allied Health Professionals. The enhanced staff knowledge improved patient assessment, management of medication and meals, as well as raising the baseline standard of care.

The Royal Devon & Exeter NHS Foundation Trust showed that specialist teams can also have a role in supporting each other. The Trust formed a peer-support group for the specialist diabetes inpatient podiatrists in the area. The South West Podiatry Inpatient Skills Set Group (PIPSS)provides continued and tailored professional development, shares good practice and identifies areas of improvement.

Education Tools

Healthcare teams have also developed education tools to support staff learning. University Hospital of Leicester NHS Trust adopted a robust pathway for reviewing diabetes (REACT diabetes) and 'rapid response' targeted education with shared learning. This systematic approach focuses on empowering staff to recognise, challenge and take action to resolve poor practice or patient experience.

NHS University Hospital Southampton developed an e-learning tool, a smartphone app and a Diabetes Ketoacidosis (DKA) booklet to support inpatient care. All tools focus on key areas of diabetes management and act as a decision support tool, guiding staff on the most common problems they might encounter.

Integrated Processes

Currently almost 2 in 5 (37.9 per cent) inpatients will be unnecessarily harmed by a medication, prescription or management error. An increase on 2011[9]. This is extremely dangerous. Insulin is a high-risk medicine that can deteriorate patients' health, cause severe patient harm or even death when given incorrectly[10]. Moreover, less than one third of inpatients are given a foot risk examination within 24 hours, as is recommended by NICE, putting them at increased risk of amputation.

The frequency of these errors becomes even more frustrating when it is shown that the causes are minimal. Prescription and medication errors often happen due to misspelling and misinterpretation of what is written in the charts. Misinterpretation has led to some patients being given 10 times or 100 times the intended dose of insulin[11].

Furthermore, in patients with diabetes are often not assessed by a specialist team nor do they receive recommended checks, because they are not identified as having diabetes on admission, making their presence and their needs invisible.

While it is essential that inpatients have access to knowledgeable healthcare professionals, another strategy that can help reduce errors and improve inpatient care is the implementation of policies and easy-to-follow hospital-wide procedures.

"After my right leg amputation, I was left to lie on a pressurised mattress without any further protection under my left foot. I developed a severe pressure sore in the heel of my left foot making it extremely painful for me to learn to walk again after the amputation. The only thing that the nurses had to do was to put a pillow under the sole of my left foot. Thousands of pounds are then wasted providing nurses to dress these pressure sores and dealing with further amputations on other limbs."

Janet

Ensuring identification

The NHS Think Glucose campaign highlighted early identification of people with diabetes as a key area for improvement in the care of inpatients with diabetes[12]. An easy solution is to have an identifier in the medical record for all inpatients with diabetes. This has also been shown to provide time and cost savings, reducing the average length of stay by 0.61 days. This was found to save £411,000 for the Dudley Group of Hospitals NHS Trust.

The Queen Elizabeth The Queen Mother Hospital, managed to achieve significant and sustainable change by simply identifying patients with diabetes and ensuring information was handed over effectively. This included identifying inpatients with diabetes on the main ward board, on the nurses handover and on drug charts. They also had a prompt to highlight insulin usage and timings on the drug chart and drug trolleys. With no financial or time burden, these changes increased care efficiency and reduced errors.

[9] Diabetes UK (2016). State of the nation: Time to take control of diabetes.
[10] National Patient Safety Agency (2010). Safer administration of insulin.
[11] JBDS (2016). Management of adults with diabetes undergoing surgery and elective procedures: Improving standards.
[12] JBDS (2016). Management of adults with diabetes undergoing surgery and elective procedures: Improving standards.

Integrated Technology

Considering the damaging risk of misspelling and misinterpretation, it is no surprise that using Electronic Patient Records has already been reported to reduce errors. The Royal Derby Hospital took this forward by modifying the electronic prescription to restrict prescription times of relevant insulins to exclusively meal times; alert for common prescription errors; allow recording of all dispensing and dosage given; include daily foot checks; and refer electronically to DISNs, ensuring prompt action. For 2017, they are working on developing the system to flag up hypoglycaemic risks in relation to insulin.

With leadership, guidelines, training and monitoring, and without any additional resources, The Royal Derby Hospital was able to significantly reduce errors and severe hypoglycaemic episodes, as well as increase the uptake of foot risk assessments in only two years.

Similarly, University Hospitals of Leicester NHS Trust is looking into developing a system to monitor diabetes harms continuously. They have invested in the Nervecentre, an electronic task management system where patient observations are uploaded electronically, automatically generating tasks, alerts, escalations and overdue reminders. The Trust is working on designing condition-specific recommendations and escalations, as well as attempting to connect the system to blood glucose meters.

A similar strategy was implemented by City Hospitals Sunderland, who upgraded their Trust-wide IT system to incorporate Electronic Medical Records (EMR) and combined it with a glucose monitoring system. The aim was to easily identify, track, and allow remote monitoring of patients from admission to discharge. The system also alerts the inpatient team whenever a patient with diabetes is admitted and triggers a clinical review. As a result, there was reduction in 100 bed days per month. There was also a reduction in readmissions for Type 1 diabetes patients with DKA, hospital errors, and an improvement in patient satisfaction and target achievements.

"The main problem here was inconsistency. They were monitoring my blood with tests at least six times a day but these were at really odd times, more than once while I was actually eating my lunch, which totally defeats the objective. Some nurses would automatically tell me the result of the blood test, some would rush out of the room. No foot checks were carried out. The blood glucose levels were all over the place, but consistently higher than normal and I didn't realise at the time that this was because the checks were random."

Helen

Support for self-management

No access to specialists, untrained ward staff and a lack of integrated processes lead to errors. As a result, 1 in 5 inpatients will suffer a hypoglycaemic attack during their hospital stay, a number that has only decreased 3.4 per cent since 2011. At this rate of improvement, inpatients will only be free from hypos and safe in hospital by 2037. Change clearly needs to happen much quicker.

One last essential element of improving care in hospitals, is to allow inpatients with diabetes to self-manage their condition if they are able and willing to do so. This can include measuring their own blood glucose levels and administering their own insulin. 95 per cent of diabetes management is

self-management[13] and, with time and experience, patients become the greatest experts in their own diabetes. However, still 4 out of 10 inpatients are not allowed to manage their own diabetes in hospital, a number that has not changed since 2015.

The APPG heard evidence from patients who were not allowed to self-manage and were constantly being put through preventable hypoglycaemic or hyperglycaemic attacks. At best, these errors lead to dissatisfaction and longer lengths of stay; at worst, there could be a serious harm to their long-term health and even their lives.

Inpatients are put in a vulnerable position when they have to relinquish control and trust that the healthcare staff will have the knowledge and processes in place to ensure their diabetes is managed well. To witness powerlessly as this trust is broken can be frustrating and traumatic. Patients said that they feel their concerns are dismissed and that their diabetes knowledge and experience is not respected.

As a result, patients spoke of how often they are left with no option but to break the rules by stopping treatments, smuggling in hypo treatments or hiding self-management tools, all because they fear for their lives.

"I was told I had to hand all meds over and if I didn't they would get the doctor. I refused and hid all relevant items between my legs under the bed clothes on the basis that they would have to assault me to remove them."

Anita

Ward staff are frequently reluctant to allow the patient to make their own decisions for fear of their own accountability[14]. But unless there is a specific reason, inpatients should be supported to self-manage their diabetes whilst in hospital[15]. This is essential to improve safe insulin use[16], minimise errors and reduce length of stay.

Moreover, even when inpatients with diabetes are allowed to self-manage, hospitals can create an extra obstacle to their success through hospital meals. Carbohydrate content shown on the hospital menu is essential for inpatients with diabetes to estimate the amount of insulin needed; avoiding hypoglycaemic and hyperglycaemic attacks. However, almost half (45.6 per cent) of inpatients said they did not have suitable meal choices and 36.6 per cent said they received their meal at unsuitable times.

The APPG heard from patients about how often hospital staff enforce stereotypical misconceptions of diabetic dietary needs that do not match the patients' requirements and can be potentially dangerous. For example, not allowing a Type 1 patient carbohydrates. Once again, patients should be listened to and have their experiences respected. They should be allowed to make their own choices, unless on the guidance of a dietitian.

"I have been admitted to hospitals twice and both times I end up in the intensive care unit with DKA. I was not allowed to manage my diabetes and none of the consultants or nurses were particularly knowledgeable about managing Type 1 diabetes. Recently I was admitted to hospital and allowed to manage my diabetes. I was out of hospital within two days. Although the consultants still didn't really understand my diabetes, I do."

Francesca

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[13] Diabetes UK (2009). Improving supported self-management for people with diabetes.
[14] Diabetes UK (2009). Improving supported self-management for people with diabetes.
[15] JBDS (2012). Self-management of diabetes in hospital.
[16] National Patient Safety Agency (2010). Safer administration of insulin.

Recommendations

The APPG for Diabetes has heard evidence that indicated there is an urgent need to improve the care given to inpatients with diabetes.

The APPG has heard inspiring examples of how hospitals and trusts have worked to improve care standards and outcomes for patients with diabetes. From the evidence submitted to this inquiry, the APPG makes the following recommendations:

Clinical Commissioning Groups

- Should commission NHS Trusts to meet minimum staffing levels for Diabetic Inpatient Specialist Nurses (DISNs), Multi-Disciplinary Footcare Teams (MDTs), diabetologists, dietitians, podiatrists and clinical psychologists.

NHS Trusts

- In partnership with clinical specialist champions, the executive board should provide leadership in monitoring and reviewing patient safety standards to implement improvements, working across all parts of the hospital.

- Should ensure there are processes in place to quickly identify and easily manage patients with diabetes. For example, using Electronic Patient Records.

- Should ensure inpatients with diabetes are given the choice of, and receive the necessary support for, self-monitoring and managing their own insulin;

- Should ensure all food is appropriate and administered in a timely manner, adequately to the patient’s needs.

National Diabetes Inpatient Audit (NaDIA)

- Should include the involvement of the Executive Board, or the existence of a champion for diabetes in the audit.

CQC

- Ensure the current inpatient diabetes inspection framework works well and build on the current inclusion of inpatient diabetes in a CQC inpatient inspection.

Past publications:

Safety and Inclusion of Children with Medical Conditions at School (2017)
Industry Action on Obesity and Type 2 Diabetes (2017)
Levelling up: Tackling Variation in Diabetes Care (2016)
Taking Control: Supporting People to Self-Manage their Diabetes (2015)

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