

Evaluation of the effectiveness of DSNs attending A&E/EDU: Do DSNs facilitate safe and early discharge?

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Article points

1. In this audit, the outcomes of 35 people with diabetes who were seen by a DSN team in the Accident and Emergency department were evaluated.
2. Overall, 83% of the participants were discharged within 24 hours, and none were readmitted within 72 hours of discharge.
3. Most of these people presented with hypoglycaemia or hyperglycaemia and would previously have required an overnight stay in hospital.
4. On the assumption that an overnight stay costs around £400, the financial savings to the Trust could be substantial.

Key words

- Diabetes Specialist Nurses
- Emergency care
- Hospital admissions

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University Hospitals of Leicester Trust has a team of inpatient DSNs who proactively attend the Accident and Emergency department and Early Discharge Unit on a daily basis. This audit was conducted to assess the effectiveness of this system and to determine whether it facilitates safe and early discharge. A total of 35 people with diabetes who presented at these departments between January and September 2015 were reviewed. Results showed that the majority presented with either hypoglycaemia or hyperglycaemia, issues that historically would have required an overnight stay at hospital; however, they were able to be discharged within 24 hours. This reduction in admissions could not only save money for the Trust but also, arguably, improve patient experience. A treatment pathway has also been developed to assist with the management of people who present at hospital with hypoglycaemia.

The modern-day NHS has focussed on finding innovative approaches to handling the difficulties it faces, including costs, effectiveness, efficiency of interventions, health promotion, quality improvement and patient safety. Traditionally, nursing roles have reacted to such pressures and adapted as required to improve patient care. As a result, we have seen an increase in the need for specialist nurse roles across the health service.

Over the years, we have seen the emergence and growth of the inpatient Diabetes Specialist Nurse (DSN) role. Evidence highlights the benefits of inpatient DSNs in facilitating both early discharge (Cavan et al, 2001; Sampson et al, 2006; 2007) and financial savings (Ahmann, 2004; Kerr, 2011). The biggest driver has been the National Diabetes Inpatient Audit (Health and Social Care Information Centre, 2016). This enables hospital Trusts to benchmark their inpatient care of people with diabetes. It clearly

promotes granting people access to diabetes teams within the inpatient setting. Surprisingly, however, 30% of Trusts have no dedicated inpatient DSN. By investing in an inpatient DSN, hospital Trusts could reap the benefits of reduced length of stay and reduced harm to patients.

University Hospitals of Leicester (UHL) NHS Trust consists of three hospitals, with approximately 105 wards in total. The main site is the Leicester Royal Infirmary, which hosts the Accident and Emergency (A&E) department and the Early Discharge Unit (EDU). All inpatients with diabetes can be referred by any member of the multidisciplinary team. Currently, referrals are made electronically to the inpatient team, which is managed by the DSNs across the three hospitals. A&E and EDU are unable to refer electronically owing to differing computer software. Historically, the team were contacted via bleep.

To promote early and safe discharge, the inpatient DSN team now proactively visit A&E and the EDU on a daily basis. The Trust is concerned about increasing costs of hospital admissions, given that an overnight stay within UHL costs approximately £400 (UK Government, 2016). It seems sensible to suggest that if the DSNs could demonstrate the benefit of their specialist knowledge in these departments, and if this resulted in some patients being discharged earlier, not only would this save money for the Trust but patients would also, presumably, have a better experience in such a demanding environment. Consequently, it seems reasonable to audit the effectiveness of the service offered by the inpatient DSN to A&E and EDU.

Aim of this study

The aim of this audit was to assess the effectiveness of having the DSN inpatient team proactively visit A&E and EDU. We sought to determine whether this is an effective use of the DSN inpatient team and whether it facilitates safe and early discharge, thus preventing unnecessary readmissions to hospital.

Methodology

A review of people with diabetes seen in these departments and discharged within 24 hours was completed to establish whether the visit was effective and promoted early discharge. Discharge dates and times were analysed for any readmission within a period of 72 hours.

As there was no electronic referral available, the DSN team were tasked to complete a “diabetes assessment form”, in which recommendations for discharge were documented (Figure 1), and to place copies in the medical notes for the medical team to review the action plan. A copy of the form was also filed in the DSN team office. The diabetes assessment form, medical records and hospital software systems (to determine discharge dates and times), along with the local diabetes databases, were used for the analysis.

Results

This audit reviewed a total of 8 months (January to September 2015). In total, 35 people with

The form is titled "DIABETES ASSESSMENT - INPATIENT CARE" and is from University Hospitals of Leicester NHS Trust and Leicester Children's Hospital. It contains the following sections:

- Header:** University Hospitals of Leicester NHS Trust, THINKGLUCOSE (Inpatient care for people with diabetes), Leicester Children's Hospital.
- Form Fields:** Ward: _____, Date: _____, Time: _____, Patient ID Label (box).
- SITUATION:** State reason for admission: _____, State reason for review: _____.
- BACKGROUND:**
 - HbA1c: _____
 - DM medication: _____
 - Type 1 / 2: _____
 - Other: _____
 - Biochemistry: _____
 - CBG Readings Table:**

CBG Readings				
BB	BL	BEM	BB	Other
- ASSESSMENT:** Factors affecting CBG readings: e.g. feed / hypos / medication _____
- RECOMMENDATIONS:** _____
- MEDICATION CHANGES Table:**

Insulin	Strength	Dose	Timing	Medication	Dose	Timing
- FEET:**
 - BEST SHOT completed Yes No
 - Feet protected Yes No
 - Active foot problem Yes No N/A
- WARD TEAM TO REVIEW DIABETES DAILY:**
 - Re-refer if necessary
 - SPR on-call - LRI
 - DSN Bleep via switchboard
- Footer:** Reviewed by: Sign: _____ Print: _____ Bleep: _____

Figure 1. Diabetes assessment form used by the inpatient DSN team.

diabetes who presented at A&E and EDU were identified. Of these, 25 (71%) were seen in A&E and 10 (29%) were seen in EDU. Overall, 14 participants (40%) had type 1 diabetes and the remaining 21 (60%) had type 2 diabetes.

Of the 35 participants, 29 (83%) were discharged within 24 hours, having being reviewed by the DSN in A&E/EDU. Four (11%) required admission (two for urosepsis and one each for renal complications and end-of-life care). Diabetes was

Page points

1. Overall, 49% of the people reviewed in this audit presented at hospital with hypoglycaemia. Historically, this would have resulted in overnight hospital admission.
2. However, the DSN team's routine daily attendance at Accident and Emergency, along with a clear pathway guiding the management of such patients, meant that these people could be discharged within 24 hours.
3. Most of the people reviewed required additional advice and support to manage their blood glucose levels post-discharge.

Table 1. Reason for presentation at Accident and Emergency/Early Discharge Unit in 35 people with diabetes.

Reason for presentation	n
Hypoglycaemia	
Type 1 diabetes	5
Type 2 diabetes	12
Total	17 (49%)
Hyperglycaemia	
Type 1 diabetes	3
Type 2 diabetes	4
Total	7 (20%)
Foot ulceration/infection	
Type 1 diabetes	0
Type 2 diabetes	2
Total	2 (6%)
Diabetic ketoacidosis	
Type 1 diabetes	3
Type 2 diabetes	0
Total	3 (9%)
New diabetes diagnosis	
Type 1 diabetes	2
Type 2 diabetes	0
Total	2 (6%)
Diabetes not primary reason for presentation (admission was required)	
Type 1 diabetes	1
Type 2 diabetes	3
Total	4 (11%)

not the primary reason for presentation in these people. Common themes for DSN review were identified and matched to the type of diabetes (Table 1).

The majority of the patients were referred back to their normal diabetes healthcare provider. Overall, 24 (69%) were in primary care and 11 (31%) were in secondary care. For those in secondary care, appropriate follow-up was arranged either by telephone or via appointment with the consultant. Two people (6%) were referred to the community DSN team for hypoglycaemia management. Of the three whose reasons for admission were not related to diabetes, one died and two were managed on

medical wards. Nobody was readmitted within 72 hours of being discharged.

Discussion

It is not surprising that the majority of patients reviewed presented with hypoglycaemia. Five of these had type 1 diabetes and 12 had type 2 diabetes. Traditionally, such patients may have been deemed to require hospital admission. However, through collaborative working with the A&E team, a hypoglycaemia pathway has been developed and implemented (see Figure 2). This follows patients from admission to discharge and has clear guidance for the safe management of hypoglycaemia. Patients are discharged with information on the reason why they attended A&E and informed that their normal diabetes care provider will contact them the next working day. Seven (41%) of the 17 people presenting with hypoglycaemia were managed in secondary care, and review of the local diabetes databases showed that the hypoglycaemia pathway was followed in these patients. Consequently, four went on to attend a DSN outpatient appointment for further support. Of the remaining 10 patients, eight were referred back to their GP in accordance with the pathway and two were referred to the community DSN team owing to their home circumstances.

Most of the people reviewed required additional advice and support to manage their blood glucose levels post-discharge. Of the seven who presented with hyperglycaemia, five were successfully referred to their GP practice; the remaining two, who were in secondary care, were offered a DSN outpatient appointment.

The two people with diabetic foot disease were prescribed appropriate antibiotic therapy, their wounds were dressed and they were referred urgently to the local foot clinic, where they were reviewed by the multidisciplinary foot care team. None of these people required hospital admission.

Three people considered to be in diabetic ketoacidosis (DKA) were reviewed by the DSN. However, their diagnoses are questionable given their quick discharge only hours after their admission to A&E. Certainly, in one of

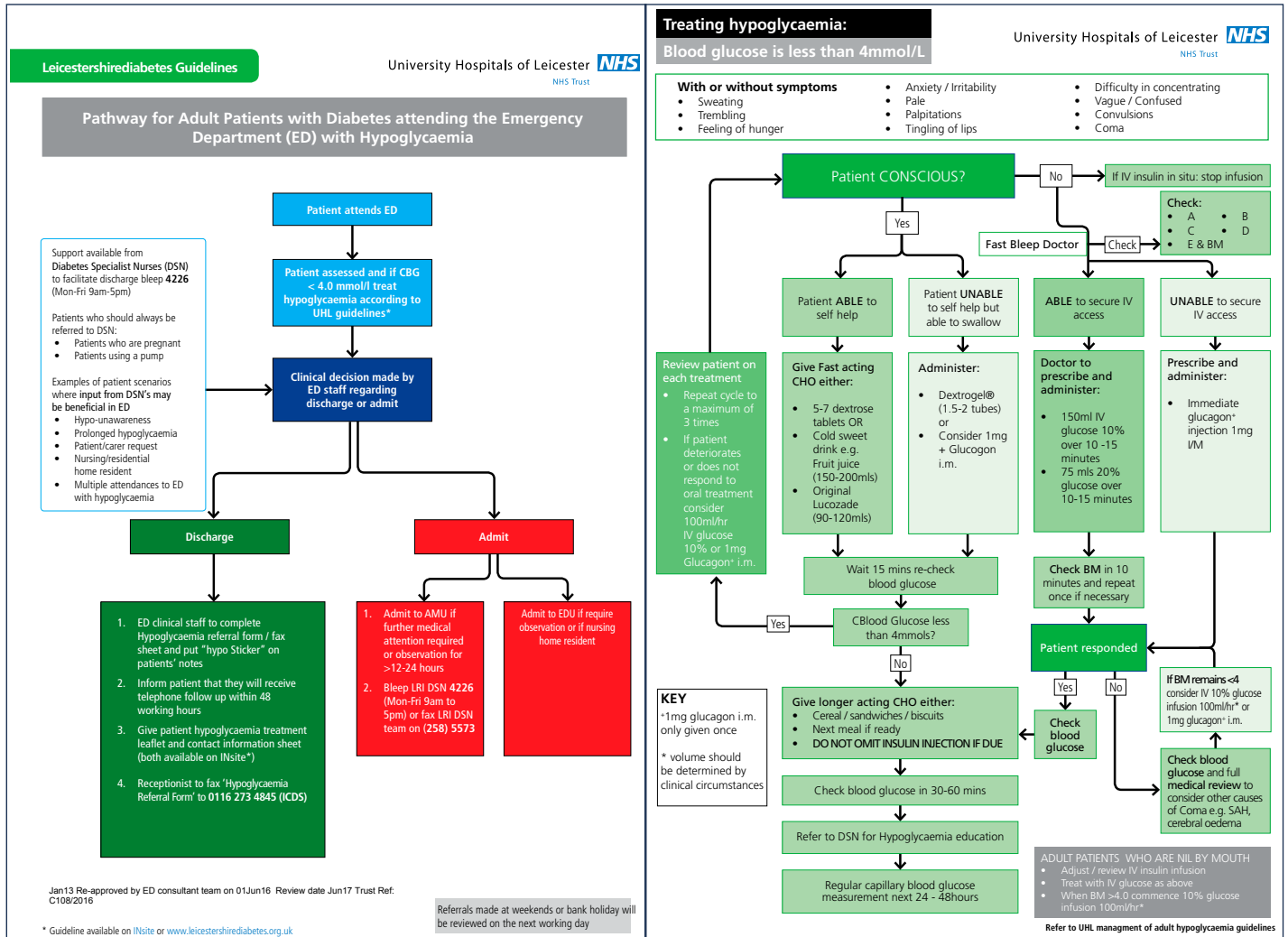


Figure 2. Hypoglycaemia pathway for all adults with presenting at University Hospitals of Leicester's Accident and Emergency department.

the three cases, clinical data and assessment suggested the individual was more likely to be hyperglycaemic. Regardless of this, the inpatient DSN put a management plan in place to ensure safe discharge. One patient lived out of the area and was given contact numbers for their GP, and the remaining two were offered consultant and DSN outpatient follow-up.

The two people who received a new diagnosis of type 1 diabetes were transferred to the diabetes outpatient clinic for appropriate follow-up.

Within the diabetes team, the DSNs reported that patients and relatives needed education on managing various aspects of their diabetes control, which could be time-consuming. Notably, in A&E, pressure to move patients was felt to affect the consultation.

Limitations of this audit

There was an observation that not all staff completed the diabetes assessment form, with some reporting that they often wrote directly into patients' A&E notes. Therefore, the numbers reported are not a true representation of the number of people seen.

Furthermore, the working hours of the inpatient DSN team did not take into account hospital admissions at the weekend, on a bank holiday or overnight. For people attending A&E with hypoglycaemia, the implementation of the hypoglycaemia pathway has helped to address this issue and improve the service overall.

Conclusions

From the information provided in this small

“From the information provided in this small audit, having the inpatient DSN team visit these two departments is beneficial, improving patient care and diabetes management.”

audit, having the inpatient DSN team visit these two departments is beneficial, improving patient care and diabetes management. Not only does this facilitate early discharge, but follow-up is timely and referral to appropriate clinics is actioned directly, ensuring earlier follow-up time after discharge. It seems sensible to suggest that the DSN inpatient team should continue to review patients in A&E and EDU.

Overall, patients benefitted from this service. They were seen quickly and by healthcare professionals who had an in-depth knowledge of diabetes and who were able to advise and offer appropriate management plans, enabling them to be discharged or treated in the most appropriate clinical setting. Where necessary, all patients were given a contact number for either their own GP or the diabetes helpline should further support have been required.

While it is difficult to estimate any financial savings, it is notable that 29 people were discharged within 24 hours. Historically, the 17 people attending with hypoglycaemia would have been admitted at least overnight for observation. In addition, the hyperglycaemic patients and those thought to be in DKA would have been commenced on intravenous insulin infusions and admitted. Working on the premise that an overnight stay costs £400, the DSN inpatient team could have saved £11 600 for the Trust, assuming they prevented all 29 patients from being admitted for one night. Regardless of the potential savings, the team also brought with them quality of care and, presumably, a better patient experience in such a demanding environment.

Further evaluation of the effects of having the DSN inpatient team visit these departments will continue, along with assessments of patient satisfaction. A clearer structure for documentation of these reviews is needed. This will give a better reflection of the number of patients seen and the benefits to them and the hospital.

In summary, this audit of the inpatient DSN role clearly demonstrates the value and benefits of having the team visit the A&E and EDU departments on a daily basis. ■

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