HEY I Know Diabetes!

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FACT: One in six patients in hospital has diabetes[1]

Innovative solutions to the way we deliver urgent care and indeed prevent admissions is imperative as we are an ageing population that suffers from a variety of chronic diseases. Diabetes is no exception. The scale and cost of diabetes hospital admissions is enormous. There are currently 3 million people living with diabetes in the UK, and it is estimated that this number will rise by about 25% over the next 10 years. In addition to the daily challenges of living with diabetes it is a condition associated with an almost doubling of the risk of hospitalisation when compared to someone without diabetes[1]. Each year there are approximately 1 million admissions to hospital where diabetes appears as a diagnosis, costing an estimated £2.51billion (2009/2010 data)[2]. Of these admissions, about 250,000 are in excess of the numbers expected for an age adjusted population without diabetes. The estimated cost to the NHS of these excess diabetes admissions is in the region of £686 million each year, notwithstanding the personal cost to the individual. It is also worth noting that there is substantial variability between clinical commissioning groups in England and Acute Trusts in diabetes admission rates which cannot be explained by variations in diabetes prevalence alone suggesting that the pathways of care, or perhaps their absence, for people with diabetes must in some way be contributing to this unacceptable variability.

It is inevitable that the rising number of individuals being diagnosed with diabetes will be reflected in rising numbers of diabetes inpatients. Patients with diabetes are scattered throughout the hospital, around 90% of them having been admitted with diabetes rather than because of it. The vast majority of inpatients with diabetes are elderly, with a median age of 75 years, and around 87% admitted as an emergency[3,4]. Regardless of the reason for admission, people with diabetes experience a longer length of stay of up to 0.8 days (national average)[2], though some studies report this to be higher[5], irrespective of patient gender, age, mode of admission or socioeconomic status. It is difficult to know why those individuals with diabetes experience a longer length of stay but it is likely to be due to complications of their condition delaying recovery, and/or poor management of their diabetes. Most people with diabetes who present to hospital will know the management of their diabetes better than anyone else, but on admission, require a bit more support to cope with the illness and control of their blood glucose levels. The choice of anti-diabetic treatments for those with type 2 diabetes (T2DM) has increased significantly over the past 10 years, so that people with T2DM are being treated with more individualised but potentially more complex regimens that hospital staff may be unfamiliar with. The changing circumstance in hospital, for example, the development of acute kidney injury or the need for steroid medication, requires careful daily scrutiny of diabetes prescriptions and blood glucose monitoring charts.

At Hull and East Yorkshire Hospitals (HEYT) the prevalence of diabetes in our inpatient population is 13-14% which means that at any one time, there are approximately 150 inpatients across Hull Royal Infirmary and Castle Hill Hospitals with diabetes6. A bedside snapshot of diabetes inpatient care is taken each year across Acute Trusts in England – the National Diabetes Inpatient Audit (NaDIA) – which provides a benchmark of inpatient diabetes prevalence, along with a qualitative assessment of diabetes care using data captured from blood glucose monitoring charts, prescription charts and an anonymous patient-completed questionnaire ascertaining the views of patients on the diabetes care they have received including whether or

not the patient felt that the medical team caring for them were aware they had diabetes and how knowledgeable the staff appeared to be on diabetes. The Joint British Diabetes Societies Inpatient Group identified from the NaDIA (2010), the cause for errors in the management of patients with diabetes was frequently due to:

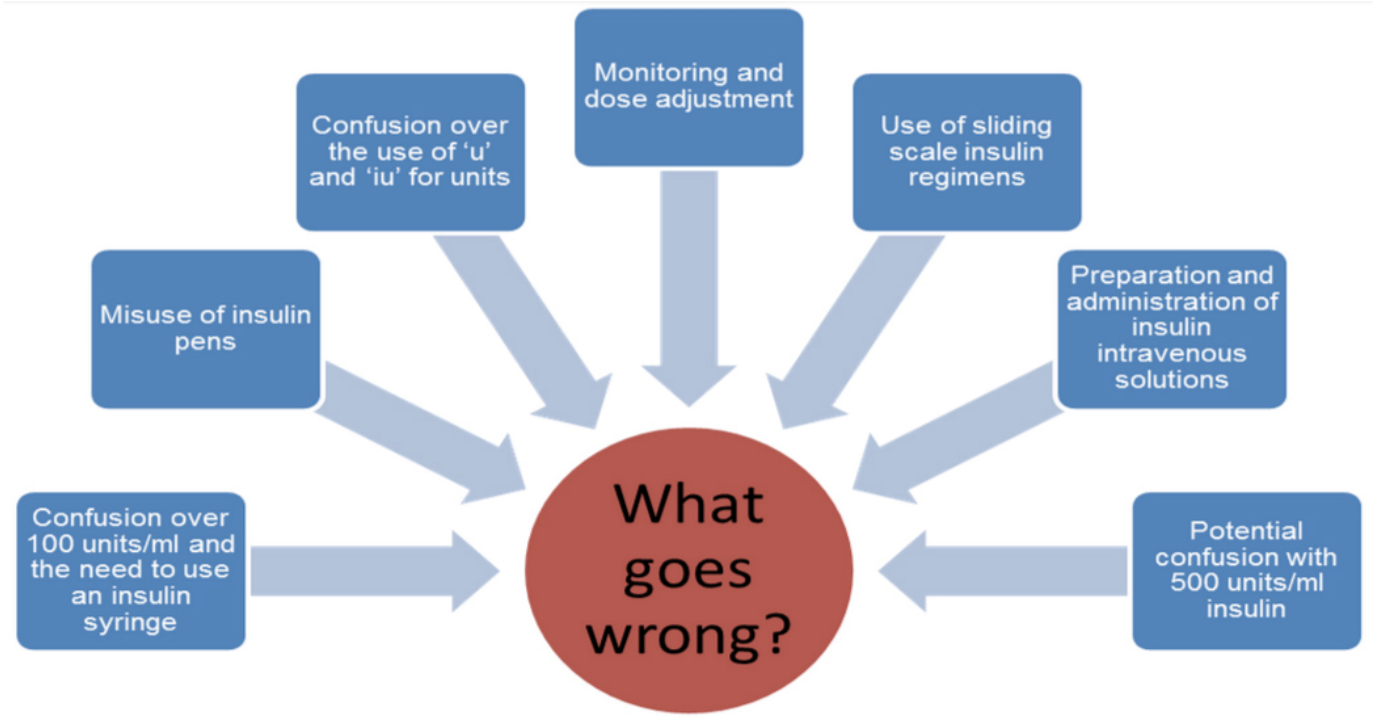
- Errors in the administration of insulin
- Errors of diabetes management
- Inappropriate content and timing of meals
- Mistreatment of hypoglycaemia
- Misuse of variable rate intravenous (IV) insulin infusions

FACT: Insulin is one of the top 5 most dangerous drugs to be prescribed in hospital. In HEYT around 35% of diabetes inpatients are treated with insulin (NaDIA, 2013).

Nationally, around 1 in 5 insulin errors is due to mis-prescribing and around two thirds are due to an administration error (Figure 1) (NPSA, 2010)7 and in a very small number of cases the errors have led to fatalities. It is sobering to think that in our NaDIA performance (2013), HEYT had a higher than national average rate of diabetes medication errors, and 1 in 5 of our insulin-treated inpatients experienced either a prescription or management error. When we consider 35.5% of diabetes inpatients on audit day were insulin-treated (of the total 148 diabetes inpatients audited that day this equates to 52 insulin-treated), this means that 10 patients suffered an insulin prescribing or management error. Let's consider, assuming that audit day was no different to any other day in the hospital, over the course of a week, this equates to 70 errors; over a month, 280 errors; over 1 year, 3360 errors relating to insulin. The NPSA published guidance (June 2010) with the aim of reducing insulin related errors:

- Insulin alert calling for staff training in use of insulin.
- Insulin passport to provide accurate information about insulin prescriptions.
- People with diabetes to be allowed to self-manage their diabetes during hospital admission wherever possible.

Figure 1. Numerous potential reasons for insulin errors.



FACT: "It is easier to manage an asthmatic patient as compared to managing a patient with Diabetes Mellitus. It is confusing as to what medication to be added or how to adjust insulin dosage" quote from one of our junior doctors.

The Trainees Own Perception of (Diabetes) Delivery of Care8 Survey identified that UK trainee doctors felt ill-prepared to manage diabetes on the wards citing it easier to manage acute asthma or angina than manage IV insulin, diagnose diabetes, adjust diabetes treatment or manage diabetic ketoacidosis. Many were reluctant to alter diabetes therapy to improve blood glucose levels feeling that they needed to consult the diabetes team before doing so, or felt that this was the role of the diabetes team. In conjunction with our NaDIA results, this points to a clear need for education of frontline staff, who are not diabetes specialists, to support them in their role delivering good basic diabetes care. The Diabetes Inpatient Team (DIT) developed an e learning programme - HEY I Know Diabetes! - in 2012 with the support of an educational grant (Sanofi) and funding from Hull Innovation. The e learning is accessible via www.hey247.nhs.net for Trust staff. It is in two parts; the first deals with a case scenario based on a fasting patient with type 1 diabetes awaiting surgery and the second part covers the basics of insulin prescribing, intravenous insulin infusions and the correct method of performing a foot assessment. There are also national programmes on other aspects of diabetes care and these are available from the Virtual College, depending on which hospital you work in; at present the Virtual College courses are not accessible via HEYT

FACT: Diabetes Inpatient Teams significantly reduce the excess length of stay for individuals with diabetes

Given the economic pressures the NHS finds itself under, it is imperative to find new ways of working that improve the quality of care and reduce costs. Diabetes inpatient teams have demonstrated significant reductions in excess length of stay for individuals (LOS) with diabetes2. The investment in a DIT and the development of an intuitive, interactive technology in the Cayder Board Virtual Diabetes Hospital (Figure 2), has led to a reduction in the excess length of stay for HEYT diabetes inpatients. The key is early identification of those with diabetes via Cayder and referring immediately those who require the skills of the DIT. Introduction of the Virtual Diabetes Hospital (2011) led to a reduction in LOS similar to that of someone without diabetes (Figure 3).

Figure 2. The Virtual Diabetes Hospital; a snapshot of the Cayder Board showing how to identify patients with diabetes early and referral to the Diabetes Inpatient Team.

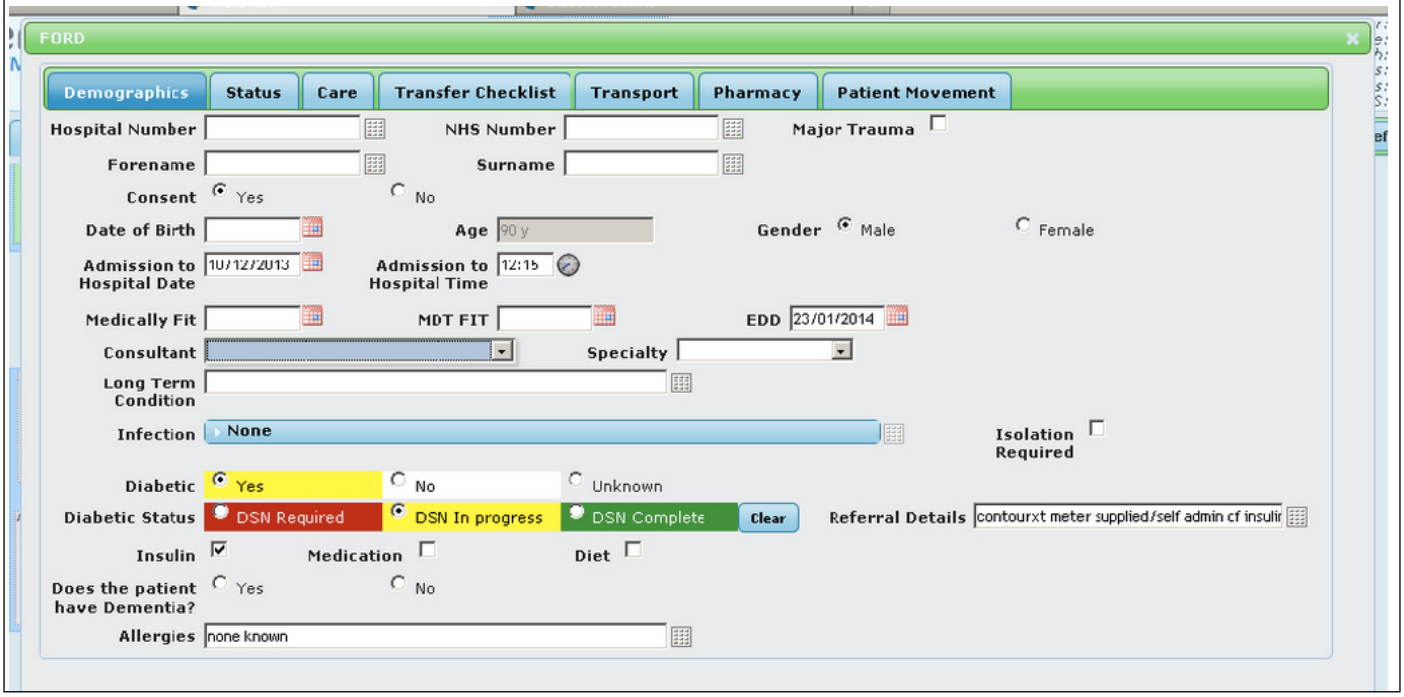
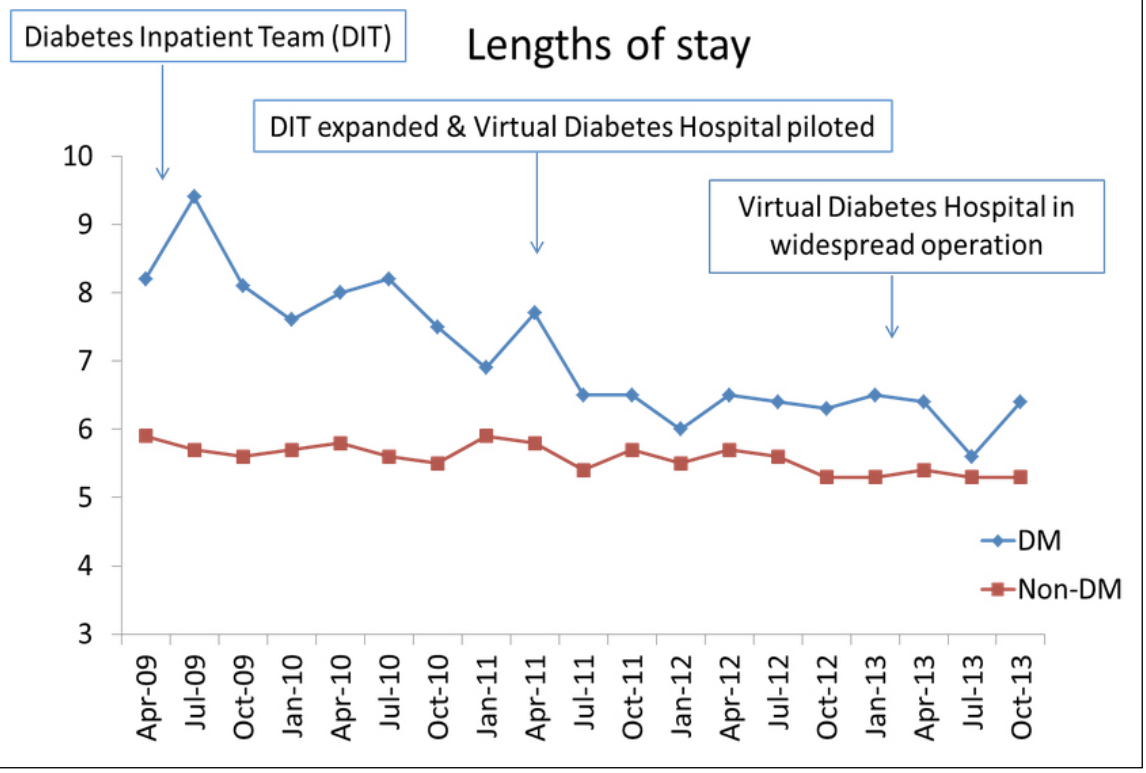


Figure 3. Impact of a Diabetes Inpatient Team and Cayder Board on length of stay in hospitalised diabetes inpatients.



SUMMARY

At HEYT we aim at having 'Great Staff – Great Care - Great Future' supporting patients through their illness both physically and emotionally to aid a faster recovery. What does this mean for an individual with diabetes?

• Daily review of blood glucose results and drug charts

• Aim for target blood glucose readings of 6-10mmol/L to avoid hypoglycaemia and hyperglycaemia which may delay recovery and extend hospital stay.

• Write all insulin prescriptions clearly with timings = mealtimes (not when the drug trolley goes round); make sure "UNITS" is written in full to reduce confusion. Try the e learning HEY I know Diabetes! on www.hey247.nhs.net.

• Maintain regular food times; have carbohydrate snacks available on the ward.

• Give patients autonomy to self –manage their diabetes if they choose and are well enough to do so.

• Refer patients to the DIT using the ThinkGlucose criteria – see the Diabetes Inpatient Guidelines – click 'D' on the intranet page, then 'Diabetes Hospital Inpatient Service', the guidelines are listed on the left hand side of the homepage.

• Examine the feet of patients with diabetes daily - many are likely to be elderly, frail with 'high risk' feet.

The DIT is available Monday-Friday 8am-6pm; there is a diabetes specialist registrar available Monday to Friday and an on-call endocrine consultant 24/7 for advice.

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