Sandwell and West Birmingham Hospitals NHS Trust

Inpatient diabetes – easy-to-emulate IT solution to support and enhance the 'Think Glucose' project

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Background

Figure 3. Section on the form for safety data

Diagnosis/areas of concern/comments newly diagnosed type 1, initial bicarb 14.4. Following DKA protocol

'Think Glucose' is a national initiative led by the NHS Institute for Innovation and Improvement. It aims to improve inpatient diabetes care including effective use of the inpatient diabetes specialist team (IPDST). The national initiative developed a comprehensive 'traffic light' system to give guidance to medical and nursing staff as to which patients should be referred to IPDST. The traffic lights include 31 types of cases – 16 types of 'always-refer' cases (red), 8 types of 'sometimesrefer' cases (amber) and 7 types of 'rarely-refer' cases (green) (Figure 1). It is difficult for busy clinical staff to keep all these possibilities in their heads, and even with reminder cards, leaflets and posters, staff do not have these readily at hand when needed. Previously, referral to IPDST required phone, fax or internal mail, with their built-in delays and patients being missed.

Figure 1. The 'Think Glucose' traffic light system **Fraffic light system** 'HINKGI UCOSE" Inpatient care for people with diabetes Early referral to diabetes team **Referral to diabetes team Referral to diabetes team** not normally required recommended may be required Admission for urgent or major elective • Minor, self treated hypoglycaemia • Intravenous insulin infusion with good Transient hyperglycaemia surgical procedure glucose control Acute coronary syndrome • Nil by mouth more than 24 hours post surgery Simple educational need Diabetic ketoacidosis/hyperosmolar/ Routine dietetic advice Significant educational need • Well controlled diabetes hyperglycaemic state • Persistent hyperglycaemia • Possible type 2 diabetes Good self-management skills Severe hypoglycaemia Sepsis • Stress hyperglycaemia Routine diabetes care • Poor wound healing Vomiting • Steroid therapy Impaired consciousness Unable to self manage • Parenteral or enteral nutrition • Foot ulceration Newly diagnosed type 1 diabetes



CONNECT, Trust's internal website; DKA, diabetic ketoacidosis; SU, sulphonylurea

Figure 4. The 'Think Glucose' NHS mailbox





IT solution

Most NHS Hospital Trusts have an internal, on-line, electronic system to order investigations. Depending on the test being ordered, this brings up a form to be filled in and, on completion, sent electronically to the laboratory or imaging department concerned. We used our Trust's investigation ordering system (iSoft Clinical Manager [iCM]) to develop an electronic form for 'Think Glucose' assessment and mandated all clinical staff to ensure the assessment was carried out on all diabetes patients as soon as possible after admission. The quick-andeasy form incorporates the 31 traffic light cases with simple tick boxes for those which apply (Figure 2). There is also a section for safety data on glucose and feet assessment within 4 hours of admission (Figure 3). Once submitted, the form appears instantly in a generic NHS email account that can be accessed by the IPDST (Figure 4). From the referrals, administrative staff can easily add those needing to be seen to daily IPDST ward round lists in the iCM.

Figure 2. The traffic light system reproduced as an iCM electronic form Sandwell and West Birmingham Hospitals NHS SWRH ICM electronic version of



Results

Over the year following implementation, the number of patients seen by the IPDST increased from 83/month to 452/month, whilst at the same time ensuring that the patients seen are only those requiring it according to the national traffic light criteria.



Figure 5. 'Think Glucose' activity data month by month

Think Glucose Assessment - Xxtest, Bill		
Order: Think Glucose	Order ID: 001BGLZHG	
Requested By: Ryder, REJ		
Messages: Please check for a previous assessment in the 0	Inders Tab before creating a net on the	
Conditional Order Condition	Template Nag	
· ALWAYS REFER	· SOMETIMES REFER	
Urgent/Major elect surg procedure (DSN)	IV insulin infus - good gluc cntrl (DSN) 🗖	
Acute coronary syndrome (CON) 🔽	NBM > than 24 hours post surgery (DSN)	
DKA / HONK (CON)	Significant educational need (DSN)	
Severe hypoglycaemia (DSN) 🗖	Persistent hyperglycaemia (CON) 🔽	
Sepsis (CON)	Possible type 2 diabetes (CON)	
Vomiting (CON)	Stress hyperglycaemia (DSN) 🗖	
Impaired conciousness (CON)	Poor wound healing (DSN)	
Unable to self manage (DSN) 🗖	Steroid therapy (DSN) 🗖	
Previous IP Diabetes problems (DSN)		
IV insulin infusion - gluc > limit (CON)		
IV insulin for over 48 hours (CON)	Minor self treated hypoglycaemia (TGC)	
Parenteral or enteral nutrition (DSN)	Transient hyperglycaemia (TGC)	
Foot ulceration (LUN)	Simple educational need (TGC)	
Newly diag Type Tdiabetes (CUN)	Houtine dietetic advice (TGU)	
Newly diag type 2 diabetes (LUN)	Well controlled diabetes (16U)	
Fatient request (USIN)	Cooo sei management skiis (TCC)	
Last HDATC26% (if not last 3mths) (LUN)]	Houtine diabetes care (160)	

CON, consultant; DKA, diabetic ketoacidosis; DSN, diabetes inpatient specialist nurse; HONK, hyperglycaemic hyperosmolar non-ketotic syndrome; NBM, nil by mouth; SWBH ICM, Sandwell and West Birmingham Hospitals iSoft Clinical Manager; TGC, Think Glucose Champion (ward nurse with extra training in diabetes)

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All hospitals with electronic test ordering systems could easily emulate our system.

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