Improving Insulin Safety in the Clinical Decision Unit

A three month project
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The Case for Change

The Clinical Decision Unit (CDU) at QEQM hospital is a busy, 31 bedded unit accepting patients from GP's, A&E and Ambulatory Care.
NaDIA data suggests that up to 1:4 people in hospital have diabetes, and in CDU it is not uncommon for this to be up to 1:3.
The unit has adopted a new 'acute medical model' – part of this model are daily multi-disciplinary 'board round' meetings in the morning and in the afternoon. The In-Patient DSN attends CDU prior to the morning meeting to review those patients with diabetes. As with many acute medical admission wards, the unit has a high turnover of patients, and is a high risk area particularly around insulin.

1. Insulin Safety

Some of the most common confusions that lead to insulin errors in hospitals include:

1.1 Staff having difficulty reading the prescribed numerical dose due to the figures or an instruction not being written clearly enough.
1.2 Mixing up of the words 'units' and 'mls' when abbreviations such as 'u' or 'iu' are used.
1.3 Misreading the name of the insulin product on the chart or product item. There are many different types of insulin and different devices that may look or sound alike and lead to the prescription of incorrect medications.

To try and minimize the risks associated with insulin administration Diabetes UK recommended the five following checks when prescribing insulin:

1.4 The date of prescription is clearly written
1.5 The prescriber's signature and contact details are included
1.6 Use of the brand name and written in full
1.7 The word 'units' is written in full with no abbreviations
1.8 The form of dosage, ie cartridge, pen or vial, is clearly written.

Insulin Safety was identified as needing improving on CDU, with the following factors contributing to risk:

1.9 Poor identification of these patients on the ward board
1.10 Inappropriate timings of insulin
1.11 Poor prescribing or instructions for patients on insulin or medication
1.12 Unnecessary omission of insulin by nursing staff

2. Making the Change

The aims of the project needed to be clear to achieve any significant, sustainable change. These aims needed to be cascaded and shared with all staff, including doctors, nurses and other allied health professionals.

The three month project would identify impact of improvement through the changes, with the project then being reviewed and evaluated. Findings of the project would be shared with other Ward Managers, Matrons and Senior Matrons with further action plans being set. and the action plan set.

To improve patient care and patient safety, and to have a measurable project the following aims were set:

2.1 Increase the number of patients with diabetes who are assessed by a member of the Diabetes Team within 24 working hours of admission
2.2 Improved identification of patients with diabetes
2.3 Improved discharge and transfer planning for patients with diabetes
2.4 Identification of insulin errors through the Trust DATIX system
2.5 Improve the management of patients with diabetes

3.Outcomes – Reviewing the Action Plan

All of the outcomes were measured against the baseline in the Action Plan and used to set standards to audit practice against.

3.1 *Identification of patient with diabetes on the ward board*

Since the project was commenced, the Ward Manager and a designated Band 6 have considered several ways of identifying patients with diabetes and ensuring that information is handed over effectively. Patients with diabetes are now identified in the following ways:

3.1.1 Through a red triangle on the main ward board (once a magnetic board is available this will be a Think Glucose magnet)
3.1.2 On the nurses handover (completed by the night staff) patients with diabetes are indentified in RED – if they are on insulin they name of the insulin is written on the handover e.g '*Type 1diabetic on Lantus*'
3.1.3 A 'prompt' in drug trolleys (Appendix 2) outlining all of the main insulins, their timings and usual regime. As well as being a good learning tool for trained staff it also gives nursing confidence to challenge poor prescribing or timing of insulin
3.1.4 Just by identifying patients with diabetes helps nursing staff prioritise their workload, ensuring that patients who are on insulin or mealtime medication receive this at the correct time.

3.2 ***DATIX reporting of every incident of poor prescribing or instructions***

3.2.1 DATIX reporting is very poor – staff report it is time consuming, doesn't have any impact and does not address the issue there and then. Therefore, only 'serious' incidents have been reported in the past.

3.2.2 During the project, there have been three DATIX reports – all related to safe use of insulin. This includes prescribing, omission of insulin and use of 'stat' doses of insulin to treat hyperglycaemia. These relate to both nursing and medical staff.

3.2.3 Nursing staff (those in charge and in individual bays) to identify patients on insulin and prioritise administration of insulin

3.2.4 As well as the handover sheet, all drugs charts of those patients with diabetes now have a highlighted orange stripe on the front of the drug chart to highlight diabetes.

3.2.5 If the patient is on insulin, the insulin name and timing of insulin is also highlighted within the drug chart.

3.2.6 Identification of these patients is the responsibility of all staff including nurses, doctors and pharmacists

3.2.7 The nurse is charge of the shift is able to monitor the timing of insulin through the drug keys – if it is noticed that insulin is late then this is challenged

3.4 Training and Education of nursing and medical staff in the management of patients with diabetes

The Think Glucose project is a Nationwide development, to improve insulin safety in hospital settings. The programme was implemented in East Kent in 2011, with the main essence of the project being the development of a 3-day training programme, developed by the In-Patient Diabetes Specialist Nurse at the QEQM site. This programme had had continuous development and evaluation and is now delivered across all three acute sites by all three In-Patient DSN's. The principles of the programme are also developed on one day HCA days and are used in medical training.

By improving staff knowledge, patient assessment, management of patient medication and meals, this not only improves the baseline standard of care by those who have attended the course, but also encourages sharing practice which has an effect on length of stay for those patients.

In September four staff from CDU – including the Ward Manager and Band 6 - attended the Think Glucose Programme. The TREND competency framework was used to assess staff competencies before, immediately after the course and 12 weeks after completion. All staff were extremely positive about the programme, with feedback as follows:

- *Encourage correct use of insulin*
- *Much better understanding of diabetes in general*
- *Increased awareness of diabetic foot screening*
- *Educate other team members "mini sessions"*
- *Empower self administration of insulin - Monitor administration of insulin (technique)*
- *Check kidney function with Metformin*
- *Feel more confident in challenging bad practice or understanding of diabetes*

Because the Ward Managers and Senior nurses can see the benefit and impact of the Think Glucose programme they are more keen to encourage staff to attend the programme. The staff have used the resources given to them during the programme including

3.4.1 Development of 'Patient Packs' to be kept on the ward and given to patients who are newly diagnosed
3.4.2 Consideration of an 'discharge checklist' for patients who have commenced insulin whilst in hospital
3.4.3 Use of an insulin template highlighting the times of insulin – including the difference between IV and SC insulin (this is used in the drug trolleys and for teaching colleagues)
3.4.4 Mini teaching sessions for junior staff and student nurses – delivered by those staff that have attend the Think Glucose programme
3.4.5 Improved patient care – particularly in those patients who are newly diagnosed with diabetes (see Case Study, Appendix 2)
3.4.6 Those of us who have attended the course now have more confidence approaching doctors

The staff on CDU have been the change agents in this project, facilitated by the In-Patient DSN to look at improving patient care. The In-Patient DSN routinely visits CDU every morning to review all patients with diabetes prior to the Board Round, and share any concerns with other members of the MDT. This helps to:

3.4.7 See patients at the 'front door' and put a plan in place for admission or discharge
3.4.8 Review the drug charts (with the pharmacy team) and ensure the patient has the correct medication or insulin prescribed and available
3.4.9 Identify any gaps and liaise with MDT caring for the patient
3.4.10 Support nursing and medical staff in caring the diabetic patient who is acutely unwell.

5. Evaluation of Project

The project has exceeded the initial expectations of the Action Plan, with an evident increase in staff knowledge (nurses and doctors) which has been primarily led by the Ward Manager and Band 6 who attended the Think Glucose programme.

The project has been successful because of the commitment of the Ward Manager and nursing staff, the IPDSN and pharmacy support. The changes made and implemented have not had any financial or time burdens attached to them – the changes have just increased smarter working. Any slight increase in handover time has reduced the risk of incorrect timing of insulin which in the long term saves time.

When evaluating the project, four key areas were identified with these being turned into standards that could be audited on in the future:

5.1.1 ***Identification of patients with diabetes***

All patients with diabetes should be identified on the ward board, on the handover sheet and on their drug chart

5.1.2 ***Attendance on the Think Glucose programme***

All ward managers (Band 7) and junior sisters (Band 6) should attend the Think Glucose course within 12 months of their appointment

5.1.3 ***Sharing practice***

Information on the drug trolley – to teach junior staff and students and use to challenge poor practice

5.1.4 ***DATIX reporting***

Reporting of incidents for the following:

- Omission of insulin without a valid reason given
- Use of 'stat' or PRN insulin without Diabetes Team advice
- Omission of long acting insulin in the management of DKA

Appendix 1 - Action Plan

Action	Person/people involved	Process	Timeline
1. Identification of patient with diabetes on the ward board	Ward Manager All nursing staff	▪ Ensuring diabetes status is documented on handover sheet ▪ Night staff to update the board every morning ▪ Staff to be responsible when admitting a patient to identify those with diabetes	At start of project and throughout
2. DATIX reporting of every incident of poor prescribing or instructions	Ward Manager All nursing staff Medical Staff In-Patient DSN Pharmacy Clinical Governance team	▪ DATIX to be completed for poor prescribing, poor instructions, omission of insulin without a reason or delayed insulin ▪ IPDSN to review each DATIX ▪ Communication with those involved as a learning process ▪ Summary report at the end of three months	At start of project and throughout Evaluation and report December 2016 Action Plan by December 2016
3. Nursing Staff (those in charge of ward and individual bays) to identify patients on insulin and prioritise administration of insulin	Ward Manager All nursing staff PSA (SERCO)	▪ Identification of patients on insulin at start of each shift ▪ Ensure insulin given at right time and liaise with PSA staff regarding mealtimes ▪ Referral to IPDSN if concerns or queries about insulin regimes or doses	At start of project and throughout
4. Training and Education of nursing and medical staff in the management of patients with diabetes	IPDSN Ward Manager All nursing staff All medical staff Pharmacy	▪ Attendance at Think Glucose course for at least two staff ▪ 'Ten Minute Teaching' sessions to learn from DATIX reports and other issues or concerns – delivered by IPDSN and Think Glucose staff ▪ Encouraging staff to complete e-learning (six steps for insulin safety) www.diabetesonthenet.com	Think Glucose September 2016 Think Glucose February 2017 FY1 and FY2 teaching October Ten minute teaching throughout project

5. Evaluation of project and sharing outcomes	IPDSN Ward Manager Matrons and senior matrons Other ward areas and directorates Patient Safety Board QI Hub	▪ Review of DATIX reports ▪ Staff feedback ▪ Measuring outcomes ▪ Set standards to audit against	January 2016

Appendix 3

Case Study

Mr V – a 21yr old male – who was admitted over the Christmas Bank Holiday weekend with osmotic symptoms and diagnosed with DKA secondary to new diagnosis of Type 1 diabetes.

As it was over the Christmas holiday period, there were no members of the Diabetes Team available to see the patient, so all of his care was undertaken by the acute medical team and the nursing staff on CDU.

Since completing the Think Glucose course the Ward Manager (Band 7) and one of the Junior Sisters (Band 6) had developed an information pack for newly diagnosed diabetes (Type 1 and Type 2) which included blood glucose meters, patient information (Diabetes UK) and helpline numbers. All staff on CDU are aware of these packs and where to find them.

Once Mr V had been treated for DKA he was ready for discharge. With her increased knowledge and awareness of safe discharge, she was able to educate Mr V sufficiently enough for him to feel confident in self monitoring and self administration of insulin and he was discharged 24hrs after admission. Standard information was given through the patient information pack which have been developed since the Think Glucose training.

Mr V saw the In-Patient DSN 4days later. He had read the information given to him, managed to give his insulin and self monitor and was happy to have avoided a lengthy hospital stay.

This is one example of direct impact on patient length of stay – by increasing staff knowledge enough to ensure a safe discharge meant that the patient did not have to stay in hospital until reviewed by the Diabetes Team.

Think Glucose – Audit Standards

Standard	Details	Responsibility
1. Identification of patients with diabetes	• Patients to have Think Glucose logo or red triangle next to name on board • Patients identified in RED on the handover sheet • Orange highlighter on drug chart • Orange highlighter on prescribed insulin	Ward Manager to implement Nurse in Charge Individual trained nurses
2. Attendance at Think Glucose programme	• All Band 7 and Band 6 to attend Think Glucose course within 12 months of commencing in post • At least one member of staff in attendance at each Think Glucose course • Think Glucose champions/Link Nurses to be responsible for diabetes resources	Ward Manager to implement Individual nurses (through CPD, revalidation, appraisal)
3. Sharing Practice	• Insulin template (laminated) in every drug trolley • All staff to be encouraged to complete the 'Six Steps to Insulin Safety' training • Attendance at Link Nurse meetings and Hub updates	Ward Manager to implement All staff
4. DATIX reporting	DATIX reports for • Omission of insulin without reason • Use of 'stat' or 'prn' insulin without diabetes team involvement • Omission of long acting insulin in the management of DKA	All staff including medical staff and pharmacists