A whole systems approach to improving safety in hospital for people with diabetes

Dr Parijat De, Consultant in Diabetes and Endocrinology at Sandwell & West Birmingham NHS Trust discusses how a collective strategy can improve inpatient care.

We know that inpatient diabetes care is less than satisfactory across hospitals and our Trust was no different. Results from our National Diabetes Inpatient Audit (NaDIA) in 2013/2014 highlighted poor hypoglycemia management. We had 42 insulin incidents in 2014-15 relating to the wrong dose, wrong insulin given, as well as staff prescribing errors. A Root Cause Analysis of insulin incidents in January 2015 revealed numerous insulin errors, hyperglycemia mismanagement and highlighted significant deficits in diabetes knowledge amongst nursing staff and junior doctors.

It became apparent that insulin errors and how we manage Diabetes Ketoacidosis (DKA) & Hypoglycemia was a significant clinical risk in our hospital and needed addressing.

Following a series of meetings with the nursing directorate, clinical risk department, IT services and the executive board, we formulated a collective strategy and timeline to introduce the following:

1) April 2015 – an in-hospital risk reporting system (Ulysses Safeguard) for all insulin errors/incidents. We used this in our monthly Quality Improvement directorate meetings.
2) May 2015 – a new insulin chart alongside bringing back insulin passports.
3) August 2015 - a new condensed DKA management protocol, aided by a new DKA App to further help junior doctors.
4) August 2015 - use hospital IT system SAFEGUARD for junior doctors to notify the diabetes team of individual insulin errors
5) Dec 2015 – a daily hypoglycemia email alert for our Diabetes Inpatient Specialist Nurses to prioritise problematic wards.

6) December 2015 – encourage all junior doctors and nurses to do the "6 steps to insulin safety" online module.

7) 25th January 2016 – present our findings at the "Grand Round", a Trust wide event to raise awareness of all the new changes.

8) January/May 2016 - Two Aston University pharmacist-led insulin audits.

It was criticial to keep all staff engaged in the change we were implementing.

We had nurse and junior doctor surveys to collect feedback. We ran regular hospital communications in forums such as our Trust newsletter and used exsting meetings such as junior doctor inductions and Think Glucose champion meetings to update staff.

From the quality improvement and safety initiatives introduced we saw that:

1) The new insulin chart (with pre-prescribed insulin units), had reduced insulin incidents (wrong insulin, wrong dose, prescribing errors and missed/delayed insulin) by 50% in first year. There continues to be a steady decline: 89 in 2015, 49 in 2016 (45% reduction) and 43 in 2017 (12% reduction).

2) The new DKA protocol (National Guidance shortened from 10 to 2 pages) and DKA App has made it much easier for staff to understand and follow. An audit of 27 DKA patients before and after this was introduced showed significant improvements; admission to diagnosis was reduced by 52 minutes, admission to insulin start by 103 min, admission to fluids initiation by 15 minutes and crucially, this has **reduced length of stay by 3.2 days.**

3) The "6 steps to insulin safety" online module is now essential for all nurses & junior doctors with 114 nursing staff and 220 FY/CMT doctors having completed the module successfully. Our CCG has recently introduced this successful module for all care home staff.

4) The daily hypoglycemia email alerts have helped highlight wards that need more support. This support includes a revamped and simpler hypoglycaemia

protocol, HYPO boxes (now part of the resuscitation trolley), specified Think Glucose champions on every ward and newly introduced "diabetes accredited" wards certificate scheme throughout the Trust.

5) The monthly junior doctor insulin/prescription error alert now mandates individual reporting and case discussions with Educational Supervisors helping them reflect and learn from mistakes (errors down from 42 in 2015 to 34 in 2016 (19% reduction) and 29 in 2017 – a 15% reduction).

For more information email: inpatientcare@diabetes.org.uk

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