

# Improving the management of adult inpatient hypoglycaemia - a Quality Improvement Project

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## Introduction

17% of all hospital inpatients in England and Wales have known diabetes with 20% of those patients still experiencing one or more hypoglycaemic episodes <4mmol/L and 8.4% <3mmol/L during their hospital stay. Studies have shown these are most likely to occur overnight or early morning. (1)

This data shows that hypoglycaemia is a common and dangerous but also easily treatable adverse event that occurs mostly out of hours, meaning correct and rapid treatment is crucial. Coinciding with the recent update of the guidance of hypoglycaemia management in adults of our trust, we took the opportunity to assess our trust-wide compliance and develop an action plan to target the areas requiring improvement.

## Aims

We aimed for 100% compliance to the new WUTH Adult Hypoglycaemia Management Guideline and, to reach this goal, we focused on:

- Improving awareness of the guideline and its essential points
- Educating all staff on the importance, symptoms, management and causes of hypoglycaemia in inpatients with diabetes
- Improving staff confidence, patient care and reduce adverse events.

## Method

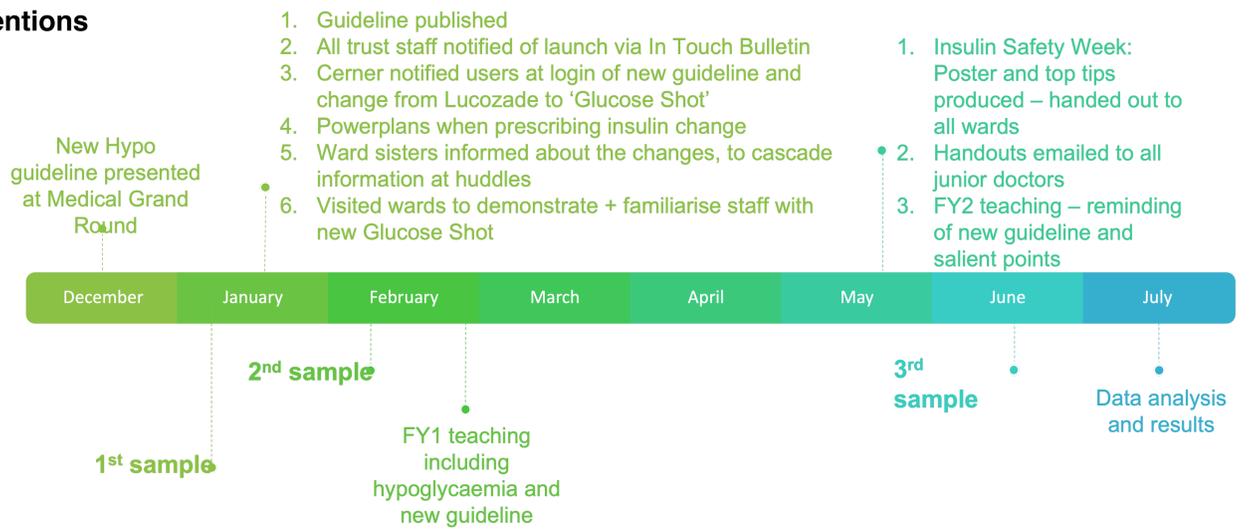
Retrospective data analysis of patients found to have a capillary blood glucose (CBG) <4mmol/L during their inpatient stay.

- A hypoglycaemic episode ended when a patient's CBG normalised at >4mmol/L.
- 150 patients total (50 x 3 samples) sampled during single weeks in the months January, February and June 2021
- Age 21- 96 years (median 69 years)
- 50% male , 50% female
- Paediatric patients and those actively dying were excluded.
- If a doctor provided a medically justified deviation from the guideline this was allowed.
- Interventions involved both IT solutions using the trust's paperless notes/prescription system, and in educational interventions mainly teaching sessions, and poster design / distribution via multiple avenues.

## Standards measured

- Prescription and signing of hypoglycaemia treatment
- Appropriateness of the initial treatment
- Timing of repeated CBGs (<20mins apart)
- Escalation to a doctor if >3 treatment cycles
- Long-acting carbohydrate administration post-treatment
- Documentation of cause of episode and review by medical team or DSN

## Interventions



## Results



## Discussion

Overall compliance to the guideline increased from 6% to 22% between January and June 2021 after our interventions. Pre-emptive hypoglycaemia prescriptions increased from 56% to 72%, whilst the signing of those prescriptions decreased. Visual and electronic cues proved effective particularly for junior doctors, but these impacted less on the nursing staff, leading to the relative reduction in prescriptions signed for.

The above result highlighted that a multi-modal approach must be taken in quality improvement projects that involve multiple staff roles. A limitation affecting our results is that 23% of the patients did not have a diagnosis of diabetes. Therefore, a pre-emptive prescription would not have been expected. 38% of these patients were on surgical wards which may suggest starvation/malnutrition/sepsis as a cause of their hypoglycaemia. Therefore, this cohort should be excluded or analysed separately when repeating the audit in the future.

Moving forwards, we aim to build on what we have learnt from this project by focusing on increasing education for ward staff. This should improve the compliance to the administration of the correct treatment and to the repetition of the CBGs within 20mins. The hypo management leaflet was distributed again at the junior doctor induction in August 2021, aiming to continue the improvement of the compliance with prescribing and reviewing the cause of the hypoglycaemic episodes.