

Let the Fasting Games Begin!

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Introduction

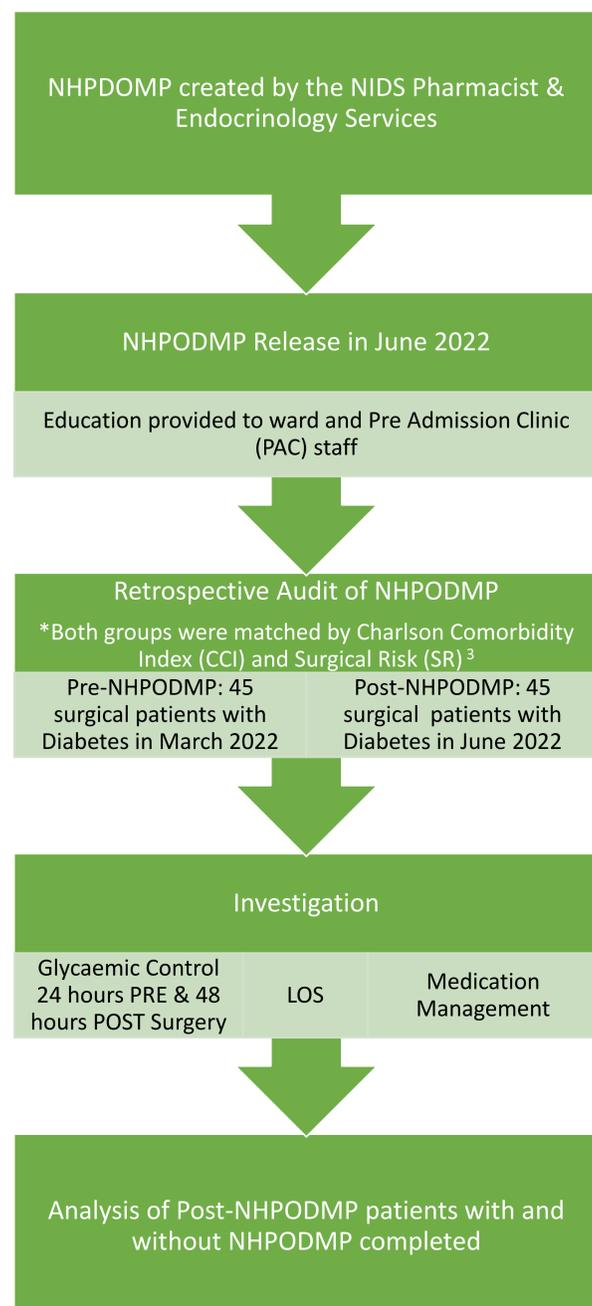
- Patients with diabetes are at higher risk of developing complications during the perioperative period and more likely to require admission to hospital to undergo surgeries¹.
- The metabolic impact of surgery, prolonged fasting, and interruption of usual medication treatments greatly contribute to poor glycaemic control².
- Compliance with Northern Health's Diabetes Management procedure is poor due to limited accessibility increasing the risk of poor glycaemic control.
- To address this, the Northern Inpatient Diabetes Service (NIDS) team developed a simplified paper-based form called 'Northern Hospital Perioperative Diabetes Management Plan' (NHPODMP).
- This created an alternative medium for information delivery and provides specific therapeutic recommendations for perioperative diabetes management.

Aim

To investigate if the NHPODMP has an affect on:

- Dysglycaemic events in surgical patients with diabetes.
- Length of hospital stay (LOS) in surgical patients with diabetes.
- Medication errors in surgical patients with diabetes.

Methods

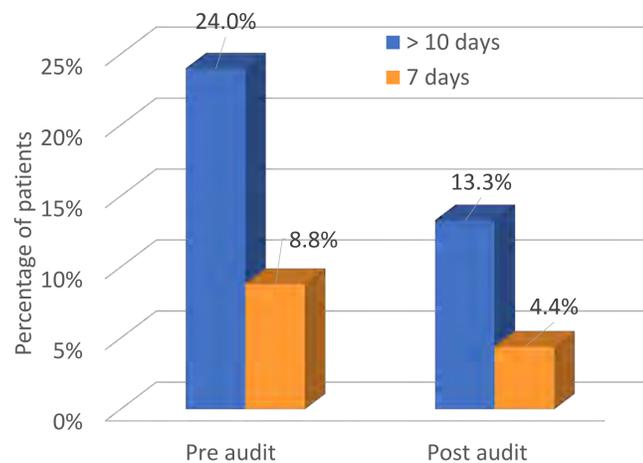


Results

There were no statistically significant differences noted between the pre and post groups for CCI ($p=0.145$) or SR ($p=0.525$). However, there were a higher number of CCI factors and intermediate surgeries demonstrated in the post group.

There was no statistically significant difference for overall glycaemia control in the 24 hours pre-surgery and 48 hours post surgery for the pre and post audit groups .

Graph 1 : Length of Hospital Stay Pre and Post the NHPODMP



Graph 2: Medication errors in Pre and Post audit patients

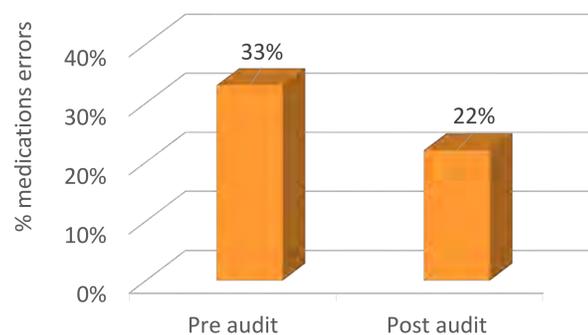
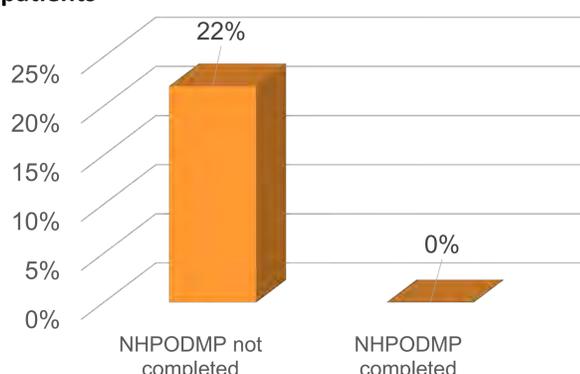


Table 1 Dysglycaemic events in Post-NHPODMP patients

Adverse Glycaemia (BGL <4 or >15)	Glucose control 24 hours prior to surgery	Glucose control 48 hours after surgery
Post with NHPODMP completed	8%	8%
Post with NHPODMP not completed	13%	27%
P-Value	0.99	0.25

Graph 3: Medication errors in Post-NHPODMP patients



Discussion

Although there was no statistically significant difference found for LOS ($p = 0.23$) between the Pre and Post NHPODMP groups (Graph 1), there was a meaningful trend noted for decreased length of long stay patients (>10 days). This trend holds relevance as a higher proportion of intermediate risk surgeries was noted in the post group.

Post audit patients had a clinically meaningful decrease in medication errors, indicating positive change associated with NHPODMP education (Graph 2).

On closer analysis of the Post-NHPODMP group, patients who had a completed NHPODMP had:

- A clinically important, but not statistically significant, reduction in dysglycaemic events (Table 1).
- No medication errors (Graph 3). This is a statistically significant finding ($p=0.04$). Patients with no medication errors had less dysglycaemic events regardless of their glycaemic control before the surgery.

Overall, the initial findings of the NHPODMP were positive as they demonstrate a promising forecast for the educational effects of the NHPODMP. This audit supports the practice of a well-structured perioperative diabetes management plan improving perioperative diabetes care, glycaemic control and the safe use of diabetes medications.

Limitations

- Overall completion rates of NHPODMP were low likely due to the release of the form coinciding with data collection.
- There was no pharmacy support in PAC at the time of the study. NHPODMP compliance would likely increase with support from a PAC pharmacist which will be introduced in early 2023.
- The study was conducted over a short period of time and included a small number of patients.

Conclusion

The results of the initial release of the NHPODMP are positive including reductions in dysglycaemic events, length of hospital stay and medication errors. Education, guidance and motivation to complete NHPODMP are required to support the ongoing benefits of the form.

A larger scale study is required to better analyse the effects of the NHPODMP.

References

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2. Australian Diabetes Society. Peri-operative Diabetes Management Guidelines. [Internet]. 2012. Available from: <https://diabetessociety.com.au/documents/PerioperativeDiabetesManagementGuidelinesFINALCleanJuly2012.pdf>
3. ESC Guidelines on non-cardiac surgery: cardiovascular assessment and management [Internet]. European Society of Cardiology. 2022. Available from: <https://www.escardio.org/Guidelines/Clinical-Practice-Guidelines/ESC-Guidelines-on-non-cardiac-surgery-cardiovascular-assessment-and-managem>