



One stop 'Fast Track' management of patients with poorly controlled Diabetes Mellitus presenting for elective surgery

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Background

- The incidence of Diabetes Mellitus (DM) in Singapore is 11.3%. This is expected to double by 2030.
- In our institution, a high fasting blood glucose (BG) level on the day of surgery is a common cause of case cancellation. This is based on the knowledge that poor glycaemic control worsens the patient's surgical outcome.
- Henceforth, we implemented a 'fast track' pre-operative management workflow on diabetic patients presenting for elective surgery, aiming to optimize the patient's BG level on the day of surgery.

Methods

- October 2014: An audit (DM1) was done to assess the baseline pre-operative glycaemic control of elective surgical patients in our institution.
- The HbA1c and random BG were recorded for all elective surgical patients with DM attending the Pre-Anaesthesia Assessment Clinic (PAAC).
- Fasting BG was then recorded on the day of surgery.
- After DM1 was complete, a PAAC 'fast track' referral pathway was developed in collaboration with the Endocrinologists, based on DM1's results. (Figure 1)

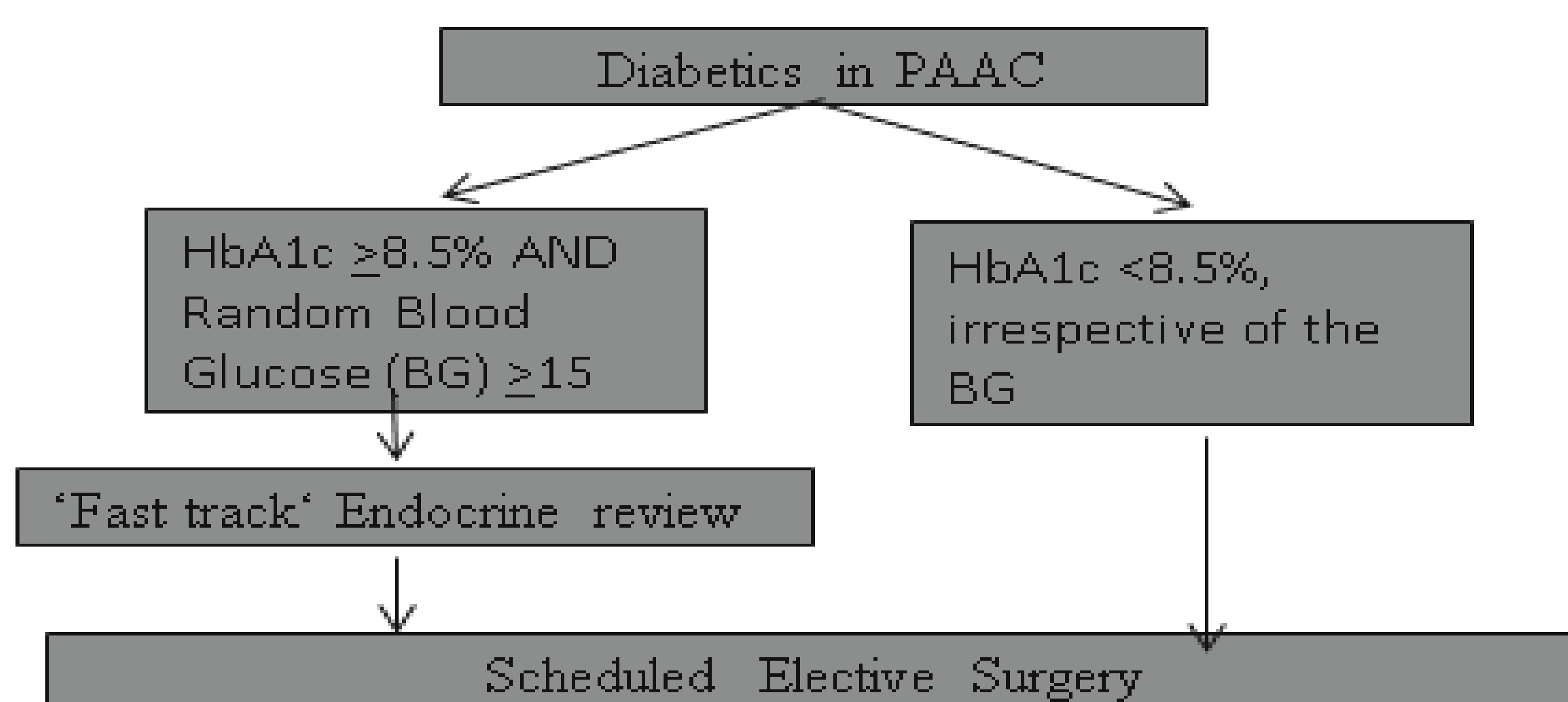


Figure 1

- All elective surgical patients with DM had their HbA1c and BG measured during the PAAC consultation.
- Patients with a HbA1c $\geq 8.5\%$ and a BG $\geq 15\text{mmol/L}$ were referred to the Diabetic Nurse Educator (DNE) in the same setting.
- Advice was offered and dose adjustments were made to facilitate the control of the diabetic management.
- March 2015: A repeat audit (DM2) was performed to assess the impact of the 'fast track' referral pathway.

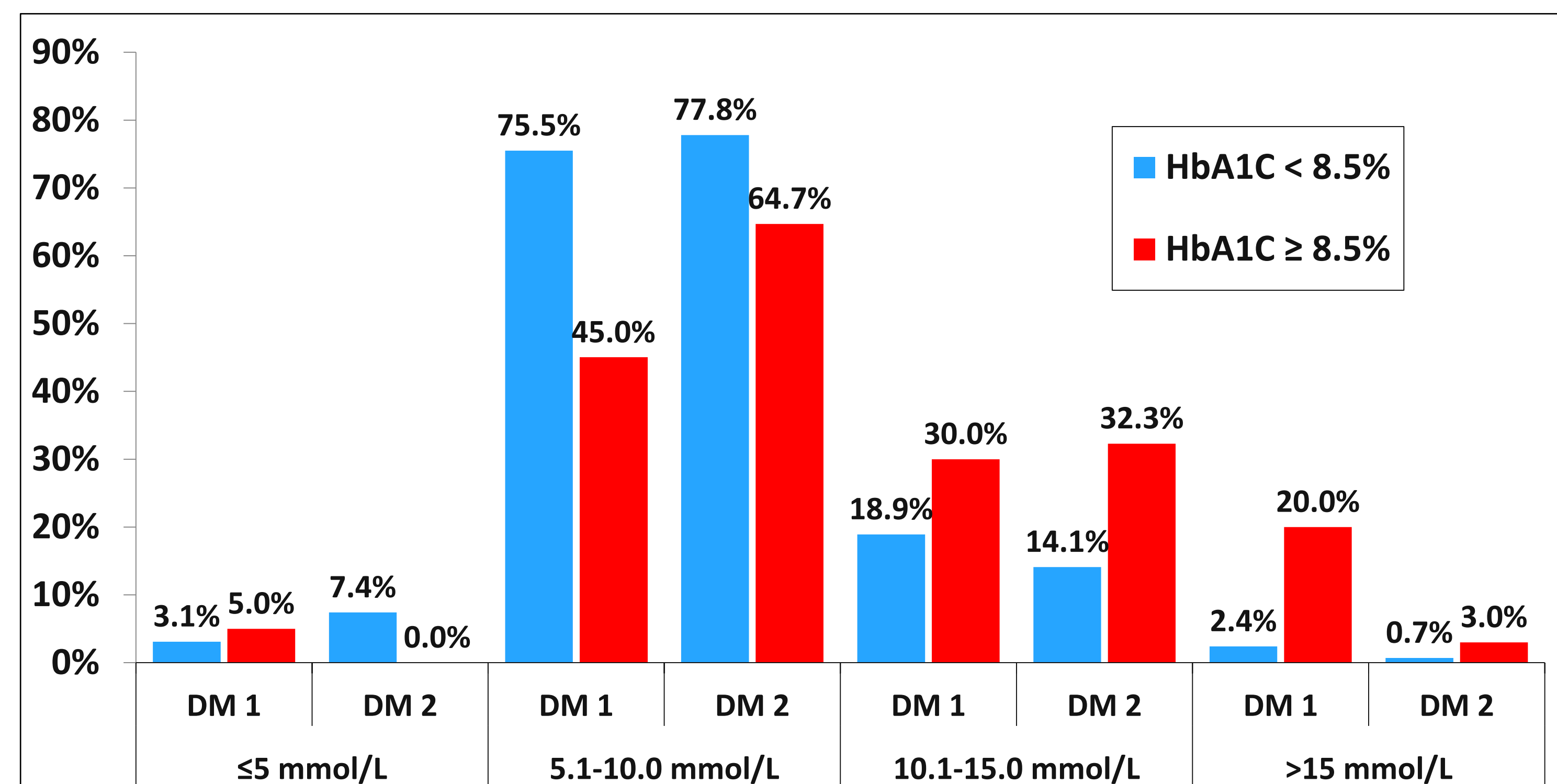
Results

- There was a 45% increase in the number of poorly controlled DM patients presenting to the PAAC in the 2nd audit as 20.1% of the patients had a HbA1c $\geq 8.5\%$.
- The follow up rate by the DNE was 100%.

With the 'fast track' referral service, of the patients with a HbA1c $\geq 8.5\%$:

- there was a 42.2% increase in the number of patients presenting for surgery with the desirable blood glucose range of 5.1- 10.0 mmol/L.
- there was a 85.5% decrease in the number of patients presenting for surgery with the undesirable blood glucose range of $\geq 15\text{mmol/L}$.

	First Audit (DM1)	Second Audit After Implementation Of The 'Fast Track' Referral Pathway (DM2)
Number of patients	147	169
% of patients		
HbA1c $\geq 8.5\%$	13.9	20.1
Fasting BG on day of surgery of 5- 10 mmol/L	45	64
Fasting BG on day of surgery of $\geq 15\text{mmol/L}$	20	2.9



Discussion

- Despite a higher proportion of poorly controlled diabetics in the second audit, there was a significant improvement in the blood glucose levels on the day of surgery.
- This was possibly due to the 'one-stop assessment' that enabled patients to be seen by the DNE in the same setting as the PAAC consultation.
- These patients were closely followed up until the day of operation.
- The limitations were:
 - the sample size was small.
 - the impact of the tighter peri-operative blood glucose management on surgical outcome was not assessed.

Conclusion

- Implementation of the 'fast track' pre-operative management of Diabetes Mellitus workflow resulted in a tighter peri-operative glycaemic control. This led to a zero case cancellation rate due to high BG values.