

# The InDiGO Project: Colouring outside the lines of conventional diabetes management

Dr Justin Bui<sup>1</sup>, Pixie Barrie<sup>1</sup>, Rachael Critchell<sup>1</sup>, Dr P. Gerry Fegan<sup>1</sup>

<sup>1</sup> Department of Endocrinology, Fiona Stanley Fremantle Hospital Group, Perth, Western Australia, Australia

Email: justinb.perth@gmail.com

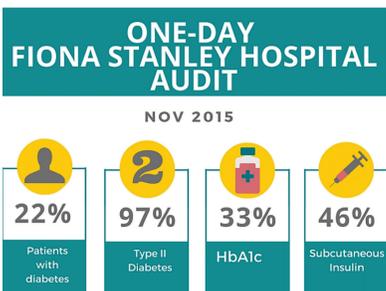


Figure 1

## Background

Diabetes is the 6<sup>th</sup> leading cause of death in Australia according to the Australian Bureau of Statistics.<sup>1</sup> A single day audit was conducted at Fiona Stanley Hospital (excluding intensive care and obstetric beds) in November 2015 to assess the prevalence of diabetes within our hospital, with findings presented in the figure 1.<sup>2</sup>

The treatment of diabetes in the inpatient settings has been shown to have benefit for patients with concomitant medical issues. In conditions such as acute coronary syndrome, concurrent management of hyperglycaemia during inpatient admission is associated with more than 50% relative risk reduction of mortality at 7 and 30 days.<sup>3</sup>

## Aims

The InDiGO (Inpatient Diabetes and Glucose Optimisation) initiative aims to establish the current management of inpatient diabetes within a tertiary hospital centre as well as subsequently developing and implementing strategies for improvement.

## Methods

Using the Define-Measure-Analyse-Improve-Control (DMAIC) methodology, the InDiGO initiative sought to identify issues and make systematic changes in relation to conventional management of inpatient diabetes. All inpatients with diabetes related admission or diabetes as a concurrent diagnosis were included within the scope of the project. At each stage of the process, a multidisciplinary approach was taken to identify the problems with our current process, the root causes of these issues as well as brainstorming potential solutions to implement. Our focus group sessions were well attended by junior doctors, ward nurses, nurse managers, diabetic educators, registrars, consultants, research fellows, psychologists and dieticians.

## Results

### Junior doctor survey

A junior doctor survey was completed involving twenty interns and residents. This survey investigated if JMOs a) used criteria for identifying patients with diabetes requiring referral, b) their confidence level in identifying these patients as well as c) preferred management options when asked to review a patient for hyperglycaemia. The findings included:

- 75% of junior doctors do not use a criteria for determining which patients with diabetes require referral to the endocrinology service
- 50% of junior doctors rate their level of confidence 3 out of 5 in knowing which patients require referral.

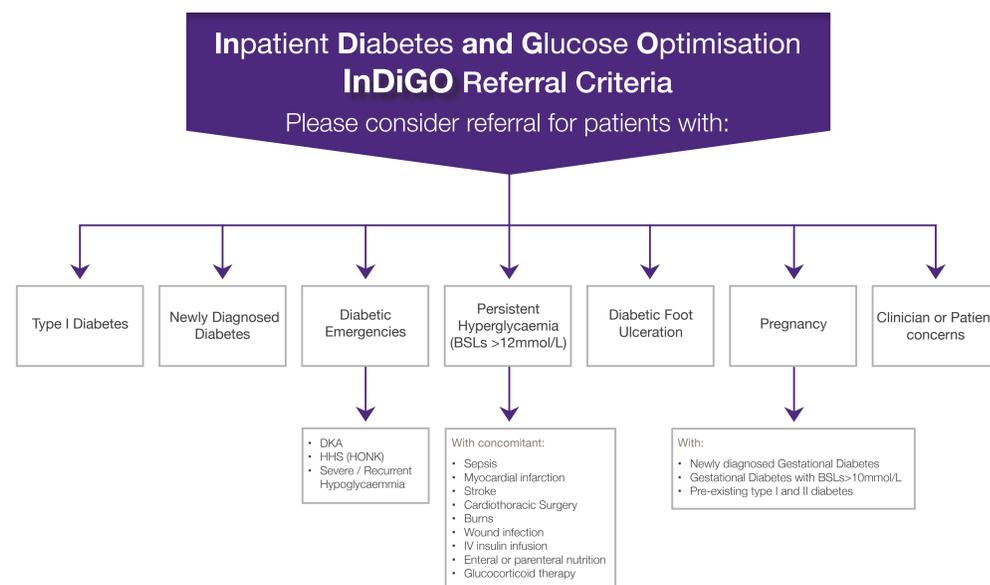
### Audit of diabetes related referrals

A key issue raised was the timeliness of diabetes related referrals to the specialist team. An audit was undertaken of thirty-five diabetes related referrals finding that:

- 64% of patients with diabetes were referred in the final third of their inpatient admission
- 82% of referred patients are seen within the first 24 hours of referral.

### Development of the InDiGO Criteria

The development of a referral criteria was in response to the overwhelming results from the junior doctor survey that suggested that there was little guidance on identifying high risk diabetes that required specialist input. The balance that was required in devising a criteria was the clinical need for input versus the resource capacity of the endocrinology service to provide consultation. The endocrinology service at Fiona Stanley Hospital taking into consideration the suggestions of junior doctors, other medical teams and best practice guidelines developed the InDiGO referral criteria. The criteria details seven patient categories that medical teams should consider early referral for management of diabetes.



## Implementation

### HbA1c and Process changes

Measuring HbA1c for all inpatients admissions been recommended as best practice.<sup>4</sup> This allows the opportunity to capture previously undiagnosed diabetes as well as identify patients with known diabetes that have poor control in the community and would benefit from more rigorous glycaemic control.

The InDiGO project has encouraged the routine measurement of HbA1c in all patients with diabetes in the inpatient period. This has been promoted through the introduction of a diabetes specific segment of the medical admission proforma where HbA1c, identification of diabetes (and type) and admission BSL can be recorded.

### Education

The InDiGO project will be promoted within the Fiona Stanley & Fremantle Hospital Group through presentations at:

- Hospital Grand Rounds
- Diabetes management workshops
- JMO teaching
- Annual IMPROVE- Quality improvement and Service redesign conference

An education package has been introduced aimed at medical and nursing staff to cultivate a change from reactive management of inpatient diabetes management to a more proactive approach.

## Conclusion

Diabetes is a prevalent chronic medical condition within our inpatient population and management is largely variable based on clinician decisions and capabilities. The InDiGO project has attempted to provide more structure and support for identification of high-risk diabetes and instigate a shift towards early referral and optimising management of diabetes during the inpatient admission.

### References

1. Statistics ABo. Causes of Death, Australia, 2013: Australian Bureau of Statistics; 2013 [updated 7 March 2016; cited 2016].
2. Catherine Li KF, Pixie Barrie, Gerry Fegan. Diabetes in hospitalised patients; a whole of hospital single day evaluation. ADS/ADEA; Gold Coast 2016.
3. Weston C, Walker L, Birkhead J, Project NAOmI. Early impact of insulin treatment on mortality for hyperglycaemic patients without known diabetes who present with an acute coronary syndrome. Heart. 2007;93(12):1542-6.
4. Umppierrez GE, Hellman R, Korytkowski MT, Kosiborod M, Maynard GA, Montori VM, et al. Management of hyperglycemia in hospitalized patients in non-critical care setting: an endocrine society clinical practice guideline. The Journal of clinical endocrinology and metabolism. 2012;97(1):16-38.