

# Pre operative blood screening protocol in major gynaecological surgery – A pilot study

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## Introduction

Iron deficiency and poorly controlled diabetes are common causes of increased surgical morbidity among gynaecology patients. Patients with iron-deficiency anaemia are at an increased risk of requiring blood transfusion, surgical complications and death(1). Iron therapy is quick, safe and has been shown to reduce these risks in other surgical specialties.(2). However, there is currently insufficient evidence to confirm that perioperative iron therapy reduces rates of post-operative blood transfusions in colorectal/gynaecological surgery and more research is needed.

Western Health services a population with a large burden of diabetes, one third of inpatients have known diabetes and a greater number are likely to be undiagnosed. Poorly controlled diabetes is a well-established risk factor for poor outcomes including a 50% increase in mortality, and a doubling of surgical site infection and respiratory complications(3). Improved glycaemic control for orthopaedic surgical patients can decrease mortality, infection rates and lead to shorter lengths of stay(4).

Within our service patients are confirmed for surgery 1 month prior and attend pre-admission clinic several weeks before their surgery, which doesn't allow time for optimisation of their medical conditions. Current consensus guidelines recommend that the treatment of a naemia and iron deficiency should commence as early as possible pre-operatively (5). Optimising diabetic control in patients with HbA1c >8% can take up to several months and may require non urgent surgery to be delayed (4).

The National Blood Authority recommends that full blood count (FBC), iron studies (IS) and c-reactive protein (CRP) be performed on all patients having major elective surgery where substantial blood loss is anticipated(1). The Australian Diabetes Society recommends that HbA1c be used as a screening tool for diabetes as well for monitoring of patients with known diabetes(6).

## Methods

In September 2017 a new practice standard was implemented at Sunshine Hospital, all patients >40 years waitlisted for major gynaecological surgery received a request form for FBC, IS, CRP and HbA1C when placed on the surgical waitlist and results were reviewed and treated as per current clinical guidelines (see below). A retrospective clinical audit was conducted to audit the findings and perioperative outcomes associated with the perioperative screening for glycaemic control and iron deficiency anaemia in patients over 40 waitlisted for major gynaecological surgery at Sunshine hospital between 24/08/2017 -24/08/2019

Test Result	Interpretation	Refer to
Hb < 120 g/L and one of: Ferritin < 30 mcg/L Ferritin < 100 mcg/L & raised CRP	Iron Deficiency Anaemia	Arrange iron infusion If gynaecological bleeding not responsible for anaemia, refer back to gynaecological clinic Retesting in 1 month
HbA1c 6.5-9% (no known diabetes)	New diagnosis of diabetes	Send letter to GP requesting management
HbA1c 6.5-9% (known diabetic patient)	Reasonable diabetes control	No referral needed
HbA1c > 9% (no known diabetes)	New diagnosis of poorly controlled diabetes	Rapid access diabetes clinic
HbA1c > 9% (known diabetic patient)	Poorly controlled diabetes	Rapid access diabetes clinic

## Results and conclusions

526 patients were wait listed for major surgery during the 24-month time period, of these 416 were included in the audit. Of those ineligible 72 did not proceed with their surgery, 27 were not registered at the time of booking and 11 patients were still awaiting surgery at the time of audit. Of the 416 eligible patients 270 (64.9%) undertook pre operative screening. Of those who underwent screening 238 returned normal results (88.2%) and 32 (11.8%) had abnormal findings.

24 patients were found to have iron deficiency anaemia at the time of screening (8.9%). The incidence of iron deficiency anaemia at the time of pre admissions clinic was found to be the same for both the screening and the non-screening group (7.7% and 7.5% respectively). Of those who underwent management for iron deficiency anaemia there was an average improvement in haemoglobin from screening to preadmission clinic of 23.8 points (t= 6.78, p<0.05).

Three patients were found to have poorly controlled diabetes (1.1%), of these two declined referral. One patient engaged with diabetes services and had an improved in HbA1C from 10.2 to 7.1.

Our pilot study showed good uptake of a pre-operative screening protocol. The incidence of pathology in this population is low but early management of a naemia can improve pre-operative haemoglobin. Further data collection is in progress to determine if the protocol can reduce perioperative morbidity. A cost-benefit analysis is also planned.

### References

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