

Triggers & Targets:

Preventing Inappropriate Transfusion In Orthopaedic Surgery

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Defining the Problem

Blood is an expensive and precious resource. In 2014, almost 3 million units of red blood cells were transfused in the UK, predominantly in orthopaedic surgery [1]. Although transfusions undoubtedly benefit the recipients, they are not without hazards, and inappropriate or inadequate transfusion is common.

The **AAGBI and the National Blood Transfusion Committee** have established a **'Trigger and Target'** policy, recommending transfusion when haemoglobin is less than 70g/l, or less than 80g/l in cardio-respiratory or symptomatic patients, and to re-check haemoglobin level after a single unit transfusion [2]. We assessed compliance with this at Barnet General Hospital.

Aims

1. Assess current peri-operative transfusion practice provided to patients undergoing elective and emergency orthopaedic surgery across Barnet General & Chase Farm Hospitals.
2. To investigate if introducing a **'Trigger & Target'** policy improves quality of care, transfusion administration, and patient outcome.

Standards

Based on AAGBI and the National Blood Transfusion Committee: **Transfusion of red cells triggered only when HB is less than 70g/l, or less than 80g/l in cardio-respiratory or symptomatic patients.**

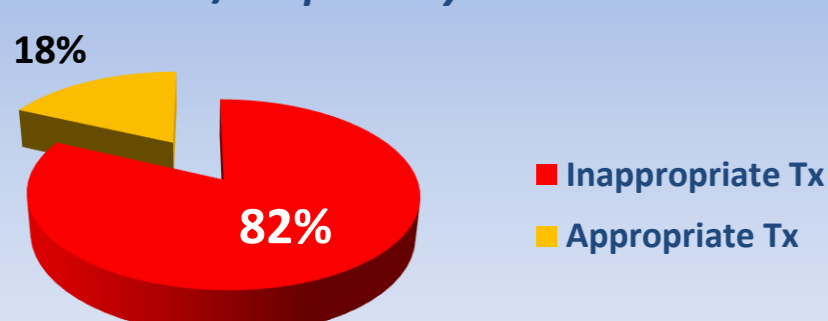
Methods

Retrospective opening cycle clinical audit of 30 patients admitted for orthopaedic surgery, receiving a blood transfusion from September to December 2014. Following introduction of our **'Trigger & Target'** policy, prospective review of transfusion practice provided for all patients.

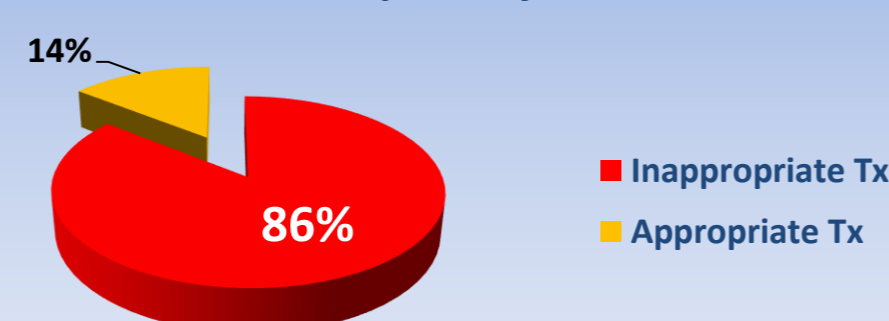
Pre-Intervention Results

1. **Poor compliance with 'Trigger' policy**
 - **Nine out of 11 patients with Cardiorespiratory disease inappropriately transfused blood**
 - **16 out of 19 patients without Cardiorespiratory disease inappropriately transfused blood**
 - **Pessimistically, a total of 63 units transfused when only 13 units were required**
2. **Poor compliance with 'Target' policy**
 - **Four of 30 patients had documented transfusion Target HB**
3. **Poor compliance with 'Test' policy**
 - **Zero patients having repeat HB check after single unit transfusion**

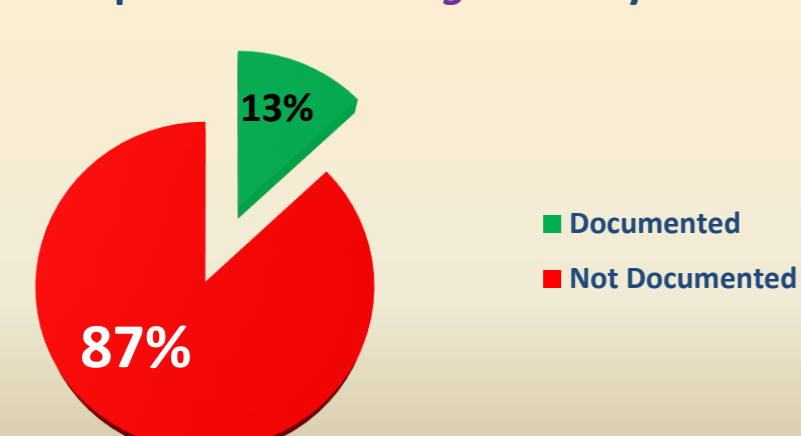
Compliance with 'Trigger' Policy - Cardio/Respiratory Patients



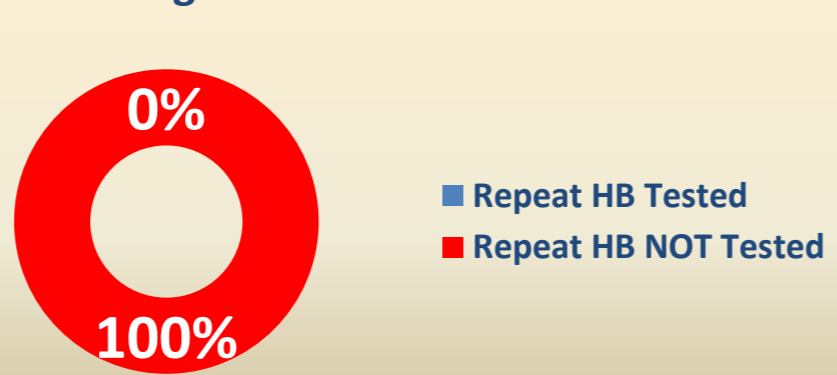
Compliance with 'Trigger' Policy - Non-Cardio/Respiratory Patients



Compliance with 'Target' Policy



Compliance with 'Test' HB after Single Unit Transfusion



Fixing the Problem

1. **Presentation of preliminary audit results to all anaesthetists and orthopaedic surgeons within trust; education regarding importance of knowledge of national transfusion guidelines**
2. **Introduction of a new electronic prompt blood transfusion prescription, highlighting 'Triggers, Targets & Testing' policy**
3. **Design of a novel blood transfusion screensaver, distributed on all computers across Royal Free Hospital NHS Foundation trust**

TRANSFUSING BLOOD?

TRIGGER

What is your patient's **trigger** for transfusion?
 - Hb <70g/L
 - Hb <80g/L & Cardio-respiratory disease
 - **Symptomatic anaemia**

TARGET

What is your patient's **target Hb** for transfusion?
 - Hb 70-90g/L
 - Cardio/respiratory disease: Hb 80-100g/L

TEST

Reassess your patient clinically and **Test Hb after each unit**

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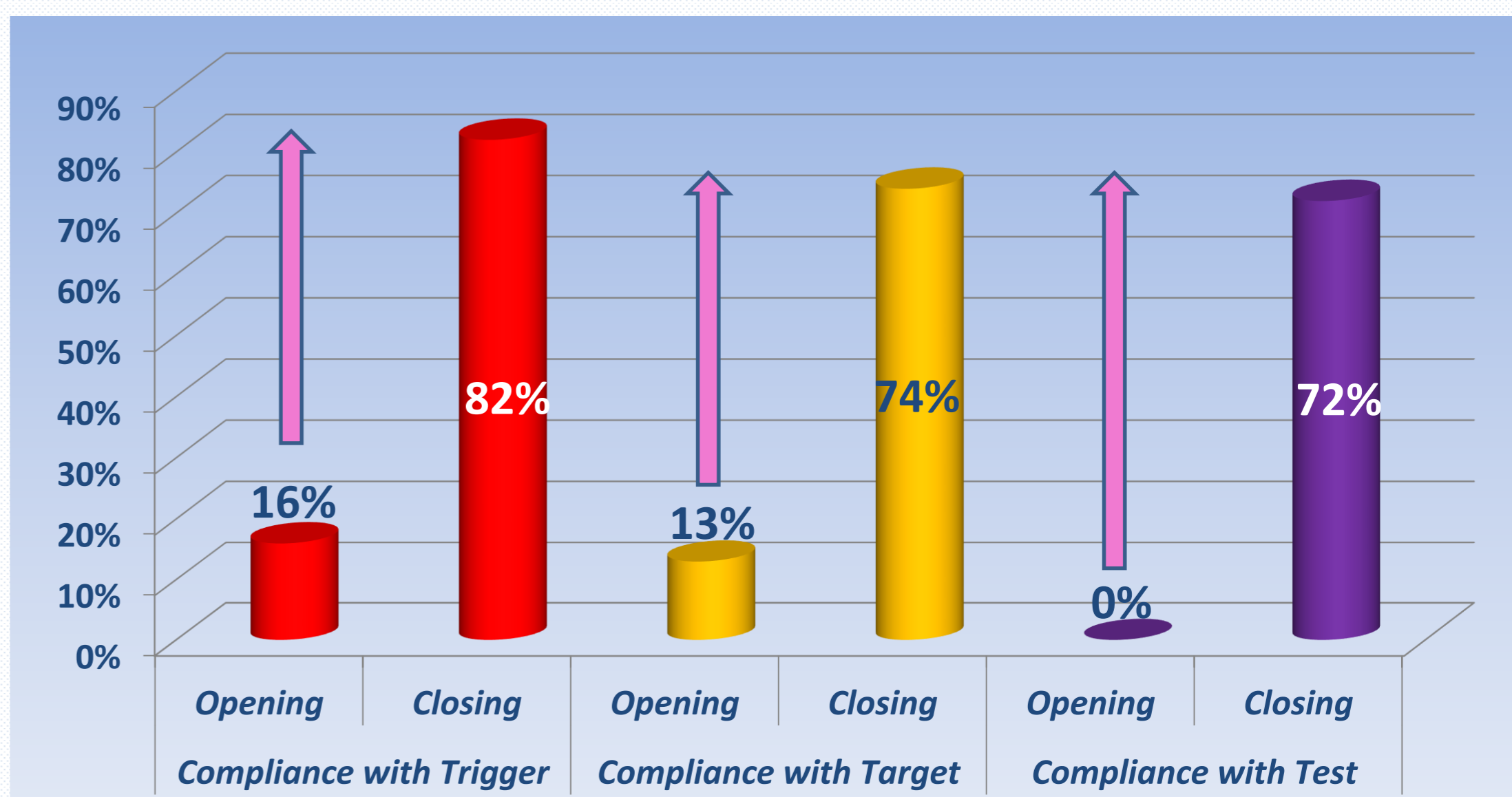


*NB: Not applicable in Acute Haemorrhage

NICE (2015): NICE Transfusion Guideline: Methods, Evidence and Recommendations. National Clinical Guideline Centre, 2015
 Dr Samuel Miranda, Dr Raj Shah, Dr Sagar Saha, Department of Anaesthetics & Intensive Care Medicine

Post-Intervention Results

1. **IMPROVEMENT:** Awareness of national transfusion guidelines
2. **IMPROVEMENT:** Compliance with **'Trigger'** Policy
3. **IMPROVEMENT:** Compliance with **'Target'** Policy
4. **IMPROVEMENT:** **Reduction in BOTH Inappropriate, and overall units transfused**



The Future

Complications associated with unnecessary blood transfusion are well recognised. Our audit demonstrates that simple interventions to promote compliance with a national **'Trigger and Target'** policy can significantly prevent inappropriate use of blood products, minimize the associated hazards, and save hospitals significant financial costs associated with blood transfusion.

1. **Staff Education:** Regular reminders to all medical professionals involved in prescription and administration of blood products.
2. **Regular Re-Audit:** Encourage staff to regularly re-audit transfusion practice, to prevent inappropriate

References:

1. Salpeter et al. Impact of more restrictive blood transfusion strategies on clinical outcomes: a meta-analysis and systematic review. Am J Med 2014 Feb;127(2):124-131
2. Blood Transfusion and the Anaesthetist. Red Cell Transfusion 2. AAGBI June 2008