

# PLATELET TRANSFUSION IN NORTHERN IRELAND



## A Regional Audit by the Northern Ireland Transfusion Committee

### INTRODUCTION

Platelet transfusions can be lifesaving when used appropriately to prevent or treat bleeding due to a low platelet count (thrombocytopenia) or when a patient has impaired platelet function. Donated platelet concentrates can be stored for only 7 days, so supply and demand must be closely matched to avoid shortages.

This GAIN sponsored regional audit, which was coordinated by the NI Transfusion Committee, was designed to ascertain whether the increasing clinical use of platelet transfusions in NI complies with national recommendations<sup>1,2</sup>.

### AUDIT DESIGN

It was planned to audit a minimum of 400 adult patients who received platelet transfusions in NI Healthcare Trusts in 2011. Trained data collectors audited clinical notes against six key standards and completed proformas were then reviewed by at least two clinical experts.

**Audit Sample:** Platelet transfusions are most frequently administered to haematology patients. However in order to obtain sufficient information on platelet use in different hospital specialties in each Trust:

- Only **one audit episode** - defined as the transfusion of any number of adult therapeutic doses of platelets during a single 24-hour period, was considered for each patient
- Haematology cases were limited to a maximum of 60% of all episodes audited in each Trust
- Exactly 50 Cardiac surgery patients were included in the 200 audit sample in Belfast Health and Social Care Trust
- A minimum of 50 patients were included in each of the other four Trusts

### RESULTS

The final sample size of 402 audit episodes comprised 164 Haematology, 50 Cardiac Surgery and 188 Miscellaneous patients. The Miscellaneous category consisted of 51% surgical patients, 40% medical patients and 9% ICU and Oncology patients.

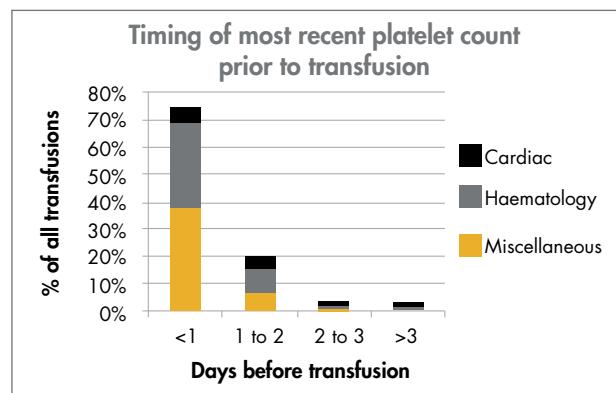
<sup>1</sup> British Committee for Standards in Haematology, Guidelines for the Use of Platelet Transfusions. British Journal of Haematology, 2003; 122: 10-23.

<sup>2</sup> British Committee for Standards in Haematology, Guidelines on the Management of Massive Blood Loss. British Journal of Haematology, 2006; 135: 634-641

## STANDARD 1: PRE-TRANSFUSION PLATELET COUNT

**All patients should have a pre-transfusion platelet count performed at an appropriate time prior to platelet transfusion.**

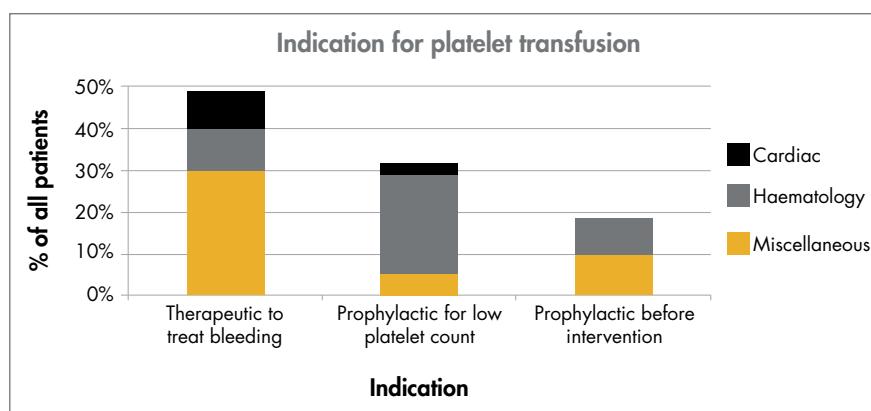
An up to date platelet count is essential to determine whether platelet transfusion is necessary and also to determine if more than one adult therapeutic pack may be required. In 75% of audit episodes the pre transfusion platelet count was checked on the same day as transfusion.



## STANDARD 2: DOCUMENTATION OF INDICATION FOR TRANSFUSION

**The rationale for the decision to give a platelet transfusion should be clearly documented in a patient's clinical notes.**

The most common indication in the Cardiac and Miscellaneous categories was for the treatment of bleeding, whereas the majority of Haematology patients were transfused platelets to increase a low platelet count. The indication for platelet transfusion was not evident in more than 30% of episodes audited in the Haematology and Miscellaneous subgroups.

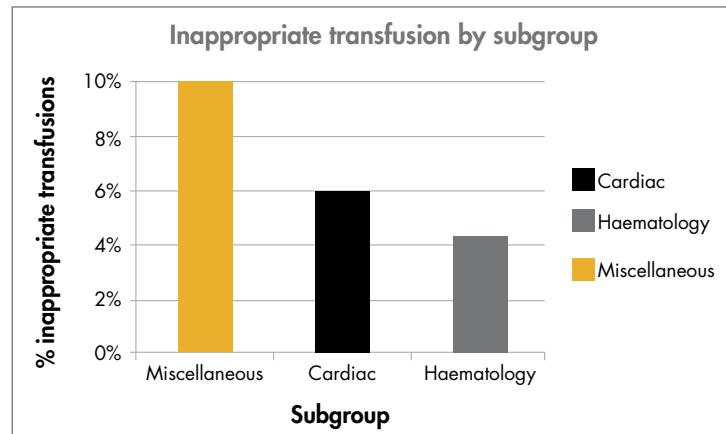


There should be clear documentation concerning the clinical response to platelet transfusion, to guide other clinicians in a patient's further management. This documentation was not evident in 63.7% of cases.

## STANDARD 3: INDICATION FOR TRANSFUSION<sup>1, 2</sup>

**There should be an appropriate indication for the platelet transfusion.**

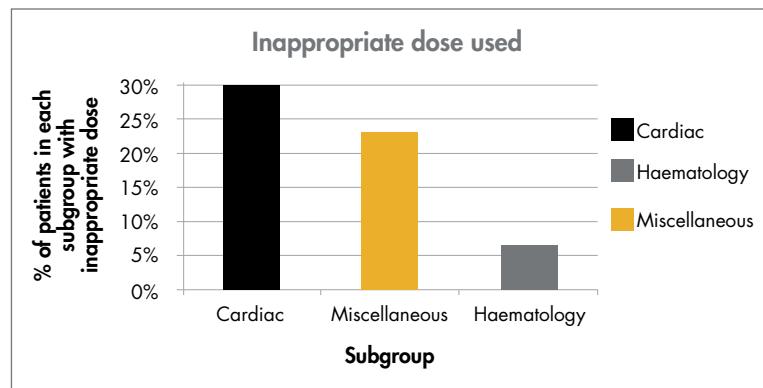
The overall rate of inappropriate transfusion was 7.3 % across the entire audit sample. This varied in the subgroups from 10% in the Miscellaneous group to 4.3% in the Haematology Group.



## STANDARD 4: PLATELET DOSE

**The dose of platelets administered should be appropriate for the clinical condition.**

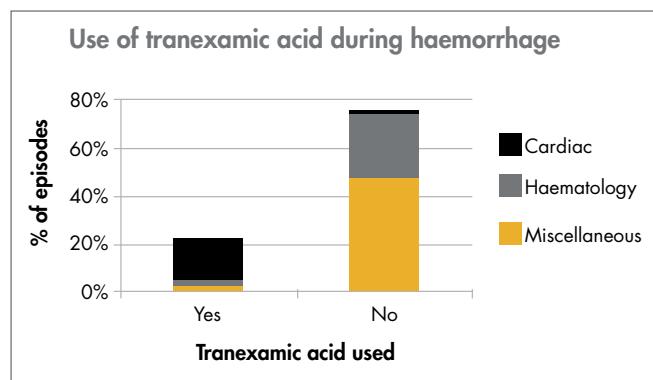
The number of packs of platelets administered was considered to be excessive in 15.9% of cases and inadequate in 1.6% of cases. Transfusing an excessive dose of platelets exposes a patient to additional transfusion risk without any clinical benefit and is wasteful of a scarce resource.



## STANDARD 5: TRANEXAMIC ACID

**In the case of significant bleeding, when red cell transfusion is required, coagulation factors and antifibrinolytic agents should be given as appropriate, to minimise ongoing blood loss and potentially reduce requirement for platelet transfusion.**

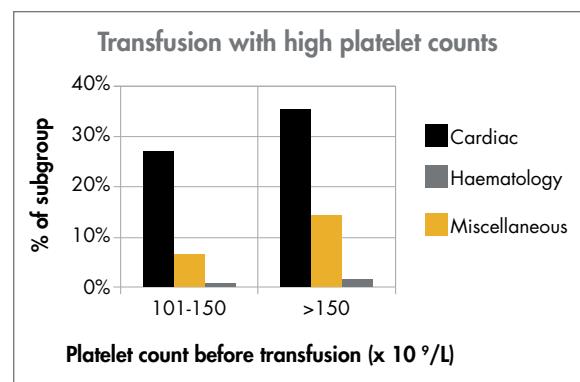
Tranexamic acid was administered to only 23% of the 197 (49%) cases where at least two units of red cells were transfused for the treatment of haemorrhage. Administration of this drug was almost universal when bleeding occurred in Cardiac Surgery but it was almost never used in the treatment of haemorrhage in the Miscellaneous and Haematology subgroups.



## STANDARD 6: PERIOPERATIVE ADMINISTRATION OF DRUGS THAT AFFECT PLATELET FUNCTION

**Anti-platelet medication should whenever appropriate, be discontinued before surgery, to reduce blood loss and the requirement for platelet administration.**

There was good evidence that Aspirin, NSAIDs and other anti platelet drugs were usually discontinued for an adequate period of time before elective surgery. The degree of urgency for non-elective surgery was the main factor in determining whether such medications were discontinued ahead of surgery.



Thromboelastography, which can be used to assess platelet function, was employed in 81% of Cardiac Surgery cases. Platelet transfusion may have been unnecessary in up to two thirds of the cases where it was not used, since the pre transfusion platelet count was greater than  $100 \times 10^9/L$ .

## KEY RECOMMENDATIONS

1. All patients should have a pre-transfusion platelet count performed at an appropriate time prior to platelet transfusion.
2. The clinical indication for platelet transfusion and the clinical response achieved should be documented in the patient's clinical notes.
3. Hospitals should have guidelines for the use of platelet transfusions. Platelets should only be transfused for an appropriate indication agreed in local guidelines.
4. The dose of platelets transfused should be appropriate for the clinical condition and the underlying defect in haemostasis. In bleeding patients, the response to each transfused pack of platelets should be clinically assessed prior to further transfusion. In non-bleeding patients where further doses of platelets are being considered e.g. before an invasive procedure, the platelet count should be re-measured.
5. Tranexamic acid should be administered to all cases of major haemorrhage to reduce blood loss and potentially reduce the requirement for platelet transfusion, unless it is specifically contraindicated.
6. Clinicians should continue to assess whether Aspirin, NSAIDs and other anti platelet medication should be discontinued prior to elective surgery, by careful risk benefit analysis of requirement for optimal haemostasis versus prophylaxis of arterial thrombotic events.
7. Thromboelastography should be employed whenever possible, to guide platelet therapy when platelet dysfunction is suspected in the presence of moderate to normal platelet counts.