

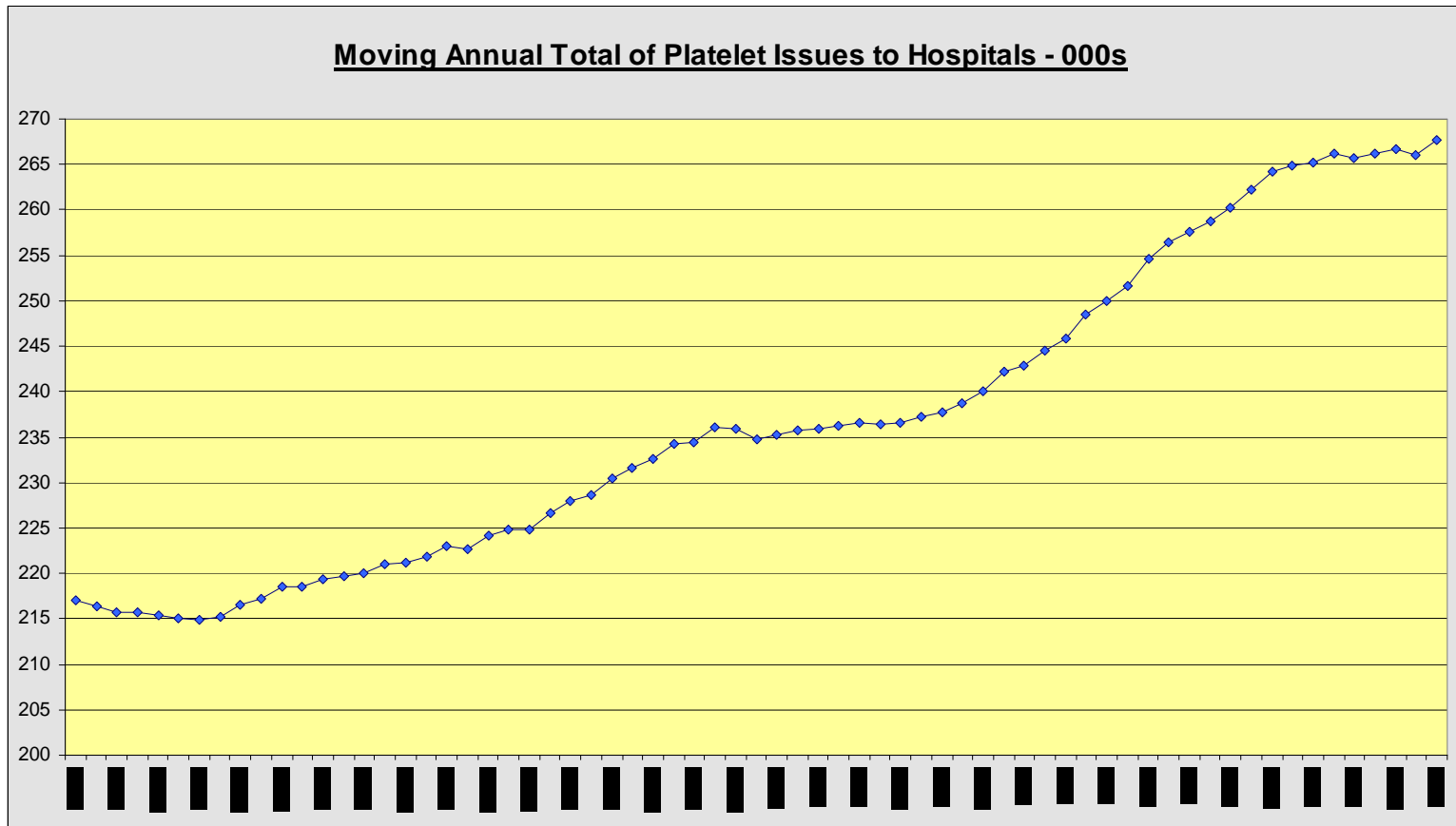
# Platelet Transfusion – scope to improve practice

Facts and Figures for Healthcare  
Professionals

# Introduction

- Increasing platelet demand causing concern
- Indications for platelet usage
- National Audit data
- Risks of platelet transfusion
- Improving practice
- Educational tools

# A steep rise in demand



# The contributing factors

- An ageing population
- Changes in medical treatments
  - advances in treatments and options
- The introduction of trauma packs/ major haemorrhage packs
- Inappropriate use
- However there is increasing evidence that use could be more tailored to ensure that supply can continue to meet demand. How?.....

# When are platelet transfusions necessary?

- Platelets are used in 2 distinct situations and both have clear national guidelines for deciding if a transfusion is required
  - Prophylactic to prevent bleeding
  - Therapeutic to treat active bleeding

# Indications

- Prophylactic use
- Prophylactic use pre-procedure (except eyes and brain intervention)
- Prophylactic use pre-procedure (pre eye or brain procedure)
- Therapeutic Use

For further information please see the factsheet for doctors and senior nurses: 'Platelet transfusion: principles, risks, alternatives and best practice' at

[http://hospital.blood.co.uk/safe\\_use/platelet\\_education\\_resources/](http://hospital.blood.co.uk/safe_use/platelet_education_resources/)

# The Evidence:

## Scope for improving practice

- In 2010 a national re-audit of the use of platelets in haematology was undertaken
  - One of the largest known platelet audits in the world
  - A total of 3,296 transfusion episodes were audited
- So what was learnt?

# 2010 Re-audit of platelet use in haematology

- The main lesson
  - **915 (28%)** platelet transfusions out of **3,296** could potentially have been avoided
- Note:
  - Use was audited against the BCSH guidelines for the use of platelet transfusions (2003)
  - Other factors were taken into account before deeming that potentially the transfusion could have been avoided
  - Cost for 915 units in 2010 was £210,806



# Audit 2010:

## Prophylactic transfusions

- 69% of all transfusion episodes were prophylactic
- 34% were considered transfusions that fell outside the guidelines and potentially could have been avoided
- 26% were transfused above guideline thresholds
- **10% were double dose** – recent randomised controlled trial has shown no difference in incidence of bleeding between single and double dose transfusions  
(Slichter SJ, Kaufman RM, Assmann SF, et al., 2010)

# Audit 2010:

## Pre-procedure transfusions

- 15% of all transfusion episodes
- 23% were considered inappropriate
  - 14% transfused above threshold
  - 9% transfused prior to a bone marrow aspirate/trephine
- Only 30% of cases had a post transfusion platelet count prior to the procedure

# Improving Practice – Pre procedure

- The transfusion should be given close to the procedure to obtain maximum benefit
- However time must also be allowed to take a post transfusion platelet count to assess the response to the transfusion
- **Note:** A platelet count to assess response can be taken 10 minutes after the completion of the transfusion

# Can a platelet transfusion be avoided?

- A platelet transfusion is not required:
  - routinely prior to bone marrow aspiration/trephine
  - prophylactically in stable patients with long term bone marrow failure
  - as a double dose – give one standard adult pack and assess outcome

# Don't double the trouble

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## Platelets Don't use two...



## ...when **one** will do

For prophylactic use in a 70kg adult, one adult therapeutic dose (ATD) typically gives an immediate rise in platelet count of

**approximately 20 - 40 x 10<sup>9</sup>/l**<sup>(1)</sup>

Do not administer double dose platelets for prophylactic transfusions as this practice does not decrease the risk of bleeding<sup>(2)</sup>

Request and administer one unit/ATD, then reassess your patient.

A platelet increment can be obtained 10 minutes after completion of the transfusion<sup>(3)</sup>

1. McClelland DBL (Ed) (2006) Handbook of Transfusion Medicine 4th Edition, The Stationery Office

2. Slichter SJ, Kaufman RM, Assmann SF, et al. Dose of prophylactic platelet transfusions and prevention of haemorrhage. *N Engl J Med* 2010;362:600-13.

3. O'Connell B, Lee EJ, Schiffer CA. The value of 10-minute post transfusion platelet counts. *Transfusion* 1986; 26: 66-67.

Further copies available from NHSBT.CustomerService@nhsbt.nhs.uk December 2011 V.1

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# Could a platelet transfusion cause harm?

- Yes!
- Platelets should only be given to patients with Thrombotic Thrombocytopenic Purpura (TTP) in life threatening haemorrhage as they may make the condition worse
- Acute thrombosis could result from platelet transfusion in patients with Heparin Induced Thrombocytopenia (HIT)

# What are the risks to the patient?

- Platelets have a higher incidence of certain transfusion reactions which include:-
  - A higher risk of TRALI (Transfusion Related Acute Lung Injury) associated with platelets than red cells
  - Allergic reactions are more common with plasma rich components including platelets
  - Febrile reactions are more frequent
- Transfusing platelets can reduce the effectiveness of future transfusion
  - Due to alloimmunisation (the patient makes antibodies to platelet specific antigens)
  - However, even in patients who do not have alloimmunisation the platelet increment reduces as the number of platelet transfusions increase

# Weighing up when to transfuse

The benefit  
of  
transfusing  
the patient  
today

Versus



The benefit  
of a more  
effective  
transfusion  
in the  
future



# What are the alternatives?

General measures	Specific patient populations
Stop all anti-platelet agents whenever possible	Liver disease – give vitamin K
Apply surface pressure after superficial procedures	Uraemia – dialyse, correct Hct to 30%, consider DDAVP
Treat any surgical cause for bleeding	Inherited platelet function disorders – specialist haematology advice required. Consider DDAVP
Consider tranexamic acid to treat bleeding	Splenomegaly/hypersplenism – consider splenectomy or splenic irradiation

Note: Follow local policy

# Reducing demand by reducing wastage

- Platelets must be stored:
  - between 20°C and 24°C on a platelet agitator
    - the agitator gently rocks the platelets and prevents aggregation (clumping)
- Platelets must never be stored:
  - in any fridge as they will not prevent or stop bleeding if transfused
- If platelets have been ordered for a patient and no longer required please let the laboratory know straightaway to avoid them being wasted
- Adult therapeutic dose (ATD) cost around £230
- HLA selected platelets cost more than £400

# Best Practice

- **Prior to the platelet transfusion consider:**
  - What are the indications for transfusion in this patient?
  - Has the indication been documented in the patient's record and on the request?
  - Has the patient consented to receive a platelet transfusion?
  - Are there alternatives which could be used in preference to platelet transfusion? Contact your Haematologist for advice

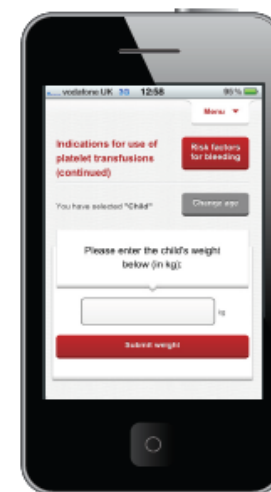
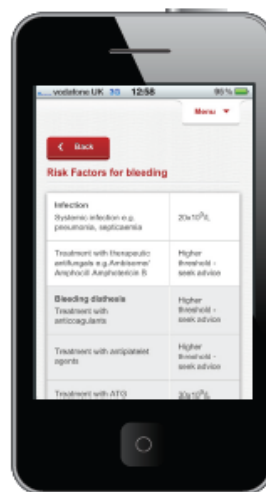
# Accessing platelet guidelines the easy way

## Prescribing Platelets?

The platelet transfusion mobile site is designed to give quick, easy access to national guidelines on platelet transfusion and is specifically designed for smartphones and tablets.

Features include:

- Platelet transfusion thresholds prior to common procedures
- Reasons why prophylactic threshold can be increased
- Contraindications to platelet transfusions
- A paediatric dose calculator.



# Accessing platelet guidelines the easy way

## Access Platelet Transfusion guidelines the easy way!

Scan the code below or visit <http://goo.gl/sO7fh>



As this site is specifically designed to work on mobile devices, it may not function correctly in all standard browsers.



# References

- National Comparative Audit, NHS Blood and Transplant (2011), Re-audit of the use of platelets in Haematology, [http://hospital.blood.co.uk/library/pdf/Platelet\\_Re-audit\\_report-St\\_Elsewheres\\_NHS\\_Foundation\\_Trust\\_2010.pdf](http://hospital.blood.co.uk/library/pdf/Platelet_Re-audit_report-St_Elsewheres_NHS_Foundation_Trust_2010.pdf)
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- Slichter SJ, Kaufman RM, Assmann SF, et al. Dose of prophylactic platelet transfusions and prevention of haemorrhage. N Engl J Med 2010; 362: 600-13.