NHS
Blood and Transplant

Patient Blood Management

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What is PBM?

‘Patient Blood Management’

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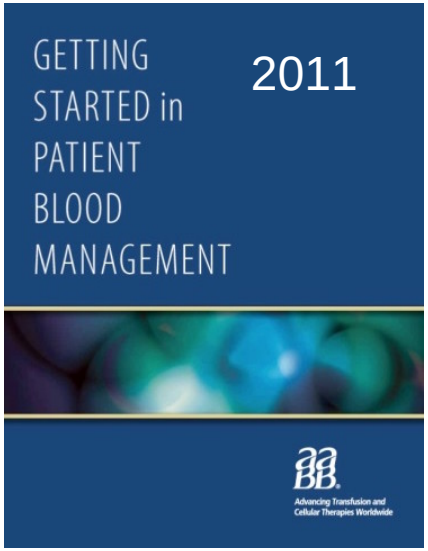
- Views the patient’s own blood as a valuable and unique natural resource that should be conserved and managed appropriately
- An evidence-based, multidisciplinary team approach to optimising the care of patients who might need transfusion
- Focuses on measures for blood avoidance as well as correct use of blood components when they are needed
- Improves patient care – optimises use of donor blood and reduces transfusion-associated risks
- International initiative ....

For example, PBM in the USA



And Australia

NATIONAL BLOOD AUTHORITY AUSTRALIA

Obstetrics
Paediatrics / Neonate
} modules are in development

World Health Organization

Sixty-third World Health Assembly

Date: 17–21 May 2010
Location: Geneva, Switzerland

The Sixty-third session of the World Health Assembly took place in Geneva during 17–21 May 2010. At this session, the Health Assembly discussed a number of public health issues, including:

WHA63.12 adopted by resolution May 21, 2010:

„Bearing in mind that **patient blood management means** that before surgery every reasonable measure should be taken to **optimize the patient's own blood volume, to minimize the patient's blood loss and to harness and optimize the patient-specific physiological tolerance of anaemia** following WHO's guide for optimal clinical use **(three pillars of patient blood management)**"

Australia and Austria refer to ‘3 pillars’:

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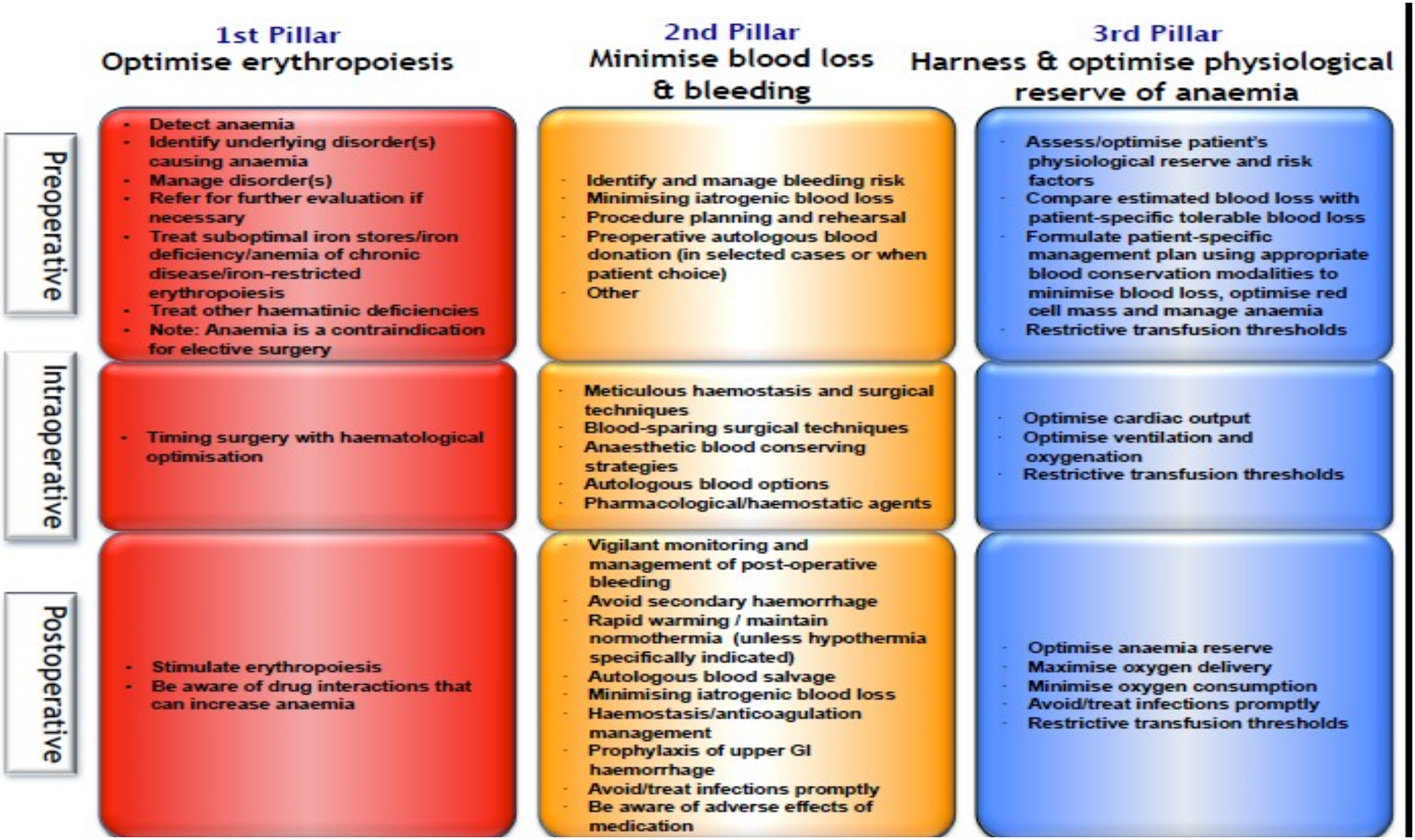


Detection and management of anaemia

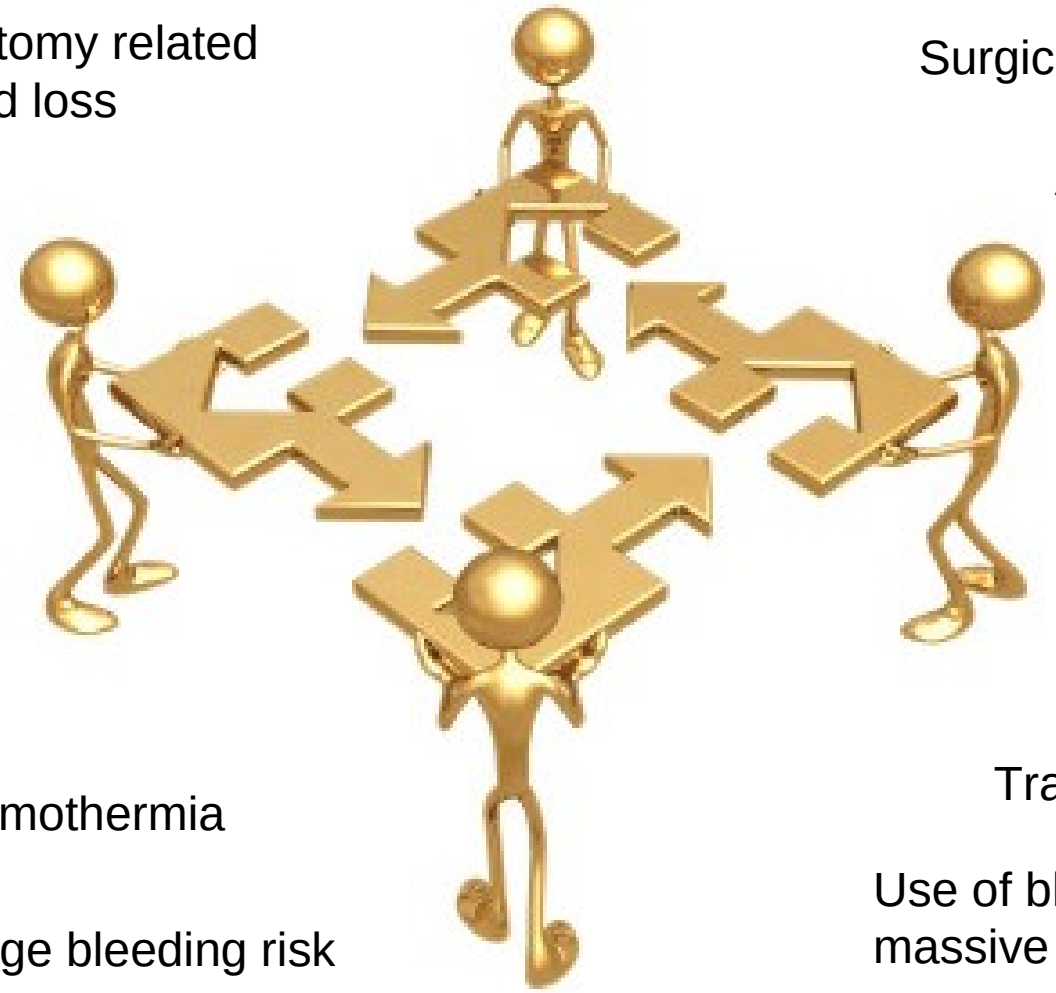
Minimise phlebotomy related (iatrogenic) blood loss

Surgical technique

Anaesthetic methods

Pharmacological approaches

Procedure planning



Intra-operative cell salvage

Vigilant monitoring and management

Post-operative cell salvage

Near patient testing

Maintenance of normothermia

Transfusion triggers

Use of blood components in massive transfusion

Identify and manage bleeding risk

Treatment of iron deficiency

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Patient Blood Management in England

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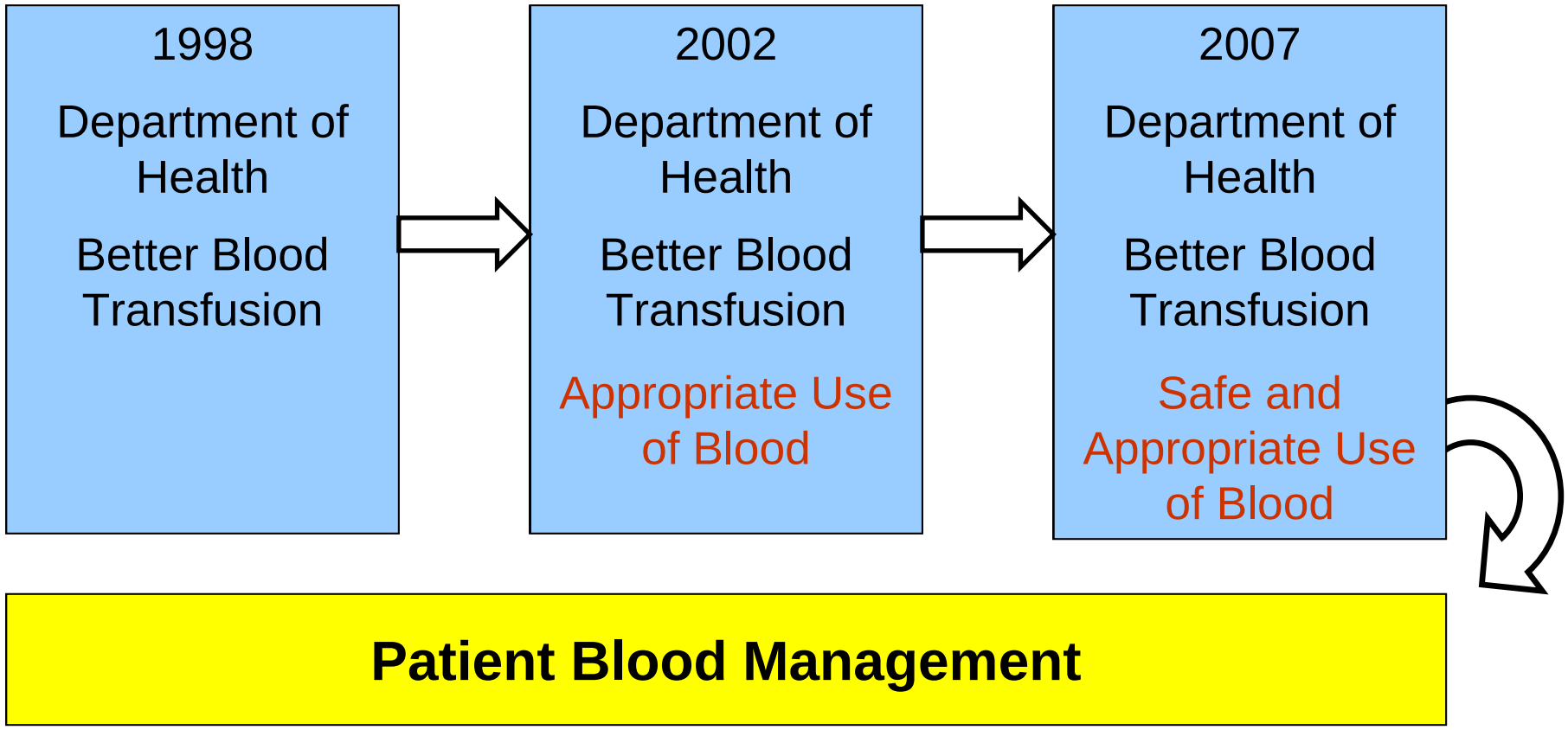
DH Department of Health

CMO's Health Service Circulars 'Better Blood Transfusion'



PBM was ‘launched’ in England in 2012

- PBM conference June 2012
- Conference opened by Sir Bruce Keogh
- Presentations and workshops looking at how PBM can be implemented going forward
- Recommendations due to be launched very soon

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Rationale for PBM

- Patient choice
- Blood supply issues
- Cost of blood
- Evidence of variable / inappropriate use
- Transfusion safety and effectiveness

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Patient choice

Patient choice

Q: Would you share body fluids with a complete stranger?

A: Only to save my life!

Public perceptions of the risk of transfusion

Consent for Transfusion

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SaBTO
Advisory Committee on the Safety of Blood, Tissues and Organs

DH Department of Health

Recommendations issued 2011

Prospective Information

Valid consent* should be obtained prior to any planned transfusion and documented in the patient's clinical record.

*Valid consent entails the provision of information on risks, benefits and alternatives available before asking the patient to give consent. This does not have to include a signature from the patient.

Retrospective Information

Patients treated in emergency setting where it was not possible to obtain valid consent pre-transfusion.

Patients who were told pre-procedure (e.g. pre-operatively) that they *might* require a transfusion then need to be informed whether they did/did not receive a transfusion.

Key issues to be discussed when obtaining valid consent

1. The following information should be discussed:
    - Type of blood / blood component
    - Indication for transfusion
    - Benefits of the transfusion
    - Risks of transfusion
    - Possible alternatives to transfusion
    - How the transfusion is administered and the importance of correct patient identification
    - Inform patient that following a blood transfusion they can no longer be a blood donor.
2. Provide written information.
3. Check if patient needs time to consider or requires further information.
4. Document the discussion in the patient's clinical records.

At discharge

1. If patient has had a transfusion, ensure that they have been informed.
2. Record information about the transfusion in the discharge summary, also stating that the patient has been informed.

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Will I need a blood transfusion?

Patient information

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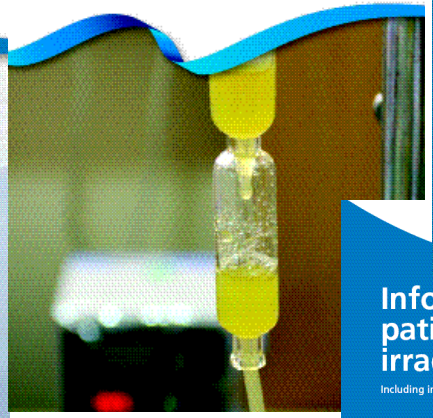
Will I need a platelet transfusion?

Patient information



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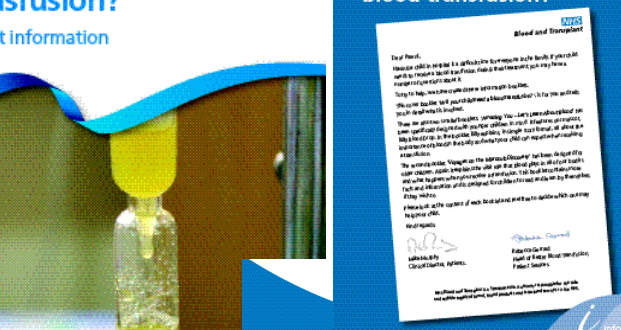
Will your child need a blood transfusion?



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Information for patients who have received an unexpected blood transfusion

Note: This leaflet should be read alongside the NHS Blood and Transplant patient information leaflet **'Will I need a blood transfusion?'**

While you were in hospital, it was necessary for you to receive a blood transfusion. There are many reasons why patients may need a transfusion, some of which are discussed in the 'Will I need a blood transfusion?' leaflet. However do please ask a member of your healthcare team about why you needed a blood transfusion. They will be able to answer any questions you may have.

Are blood transfusions safe?

Yes, the risk that a blood transfusion may make you ill is very low. More information about any potential infection risks, and all the measures that are taken to ensure your safety, is included in the leaflet 'Will I need a blood transfusion?'.

I'm a blood donor. Can I still donate?

As a precautionary measure to reduce the risk of transmitting variant Creutzfeldt-Jakob Disease (vCJD), people who have received a blood transfusion since 1980 are not currently able to donate blood.

Do I need to tell my doctor?

The hospital should include information in the discharge letter to your GP to tell them that you have had a blood transfusion, and to explain why it was [illegible] a copy of this letter; if they don't,

Information for patients needing irradiated blood

Including important patient card and patient record stickers

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Iron in your diet

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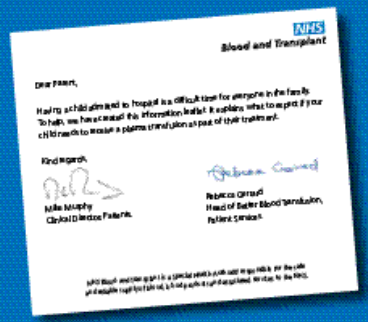
Will your child need a plasma transfusion?



IMPORTANT PATIENT INFORMATION

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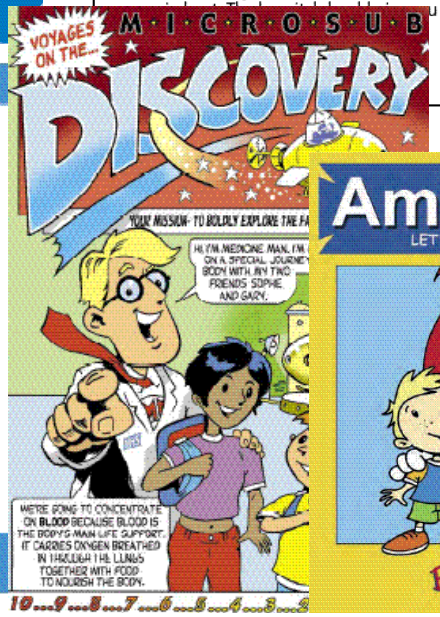
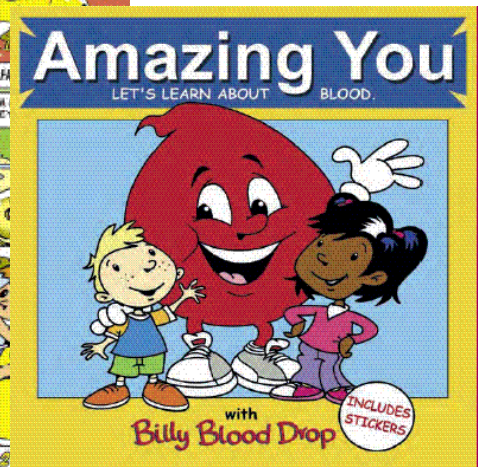
Blood Groups and Red Cell Antibodies in Pregnancy





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Blood supply issues

Blood demand and supply

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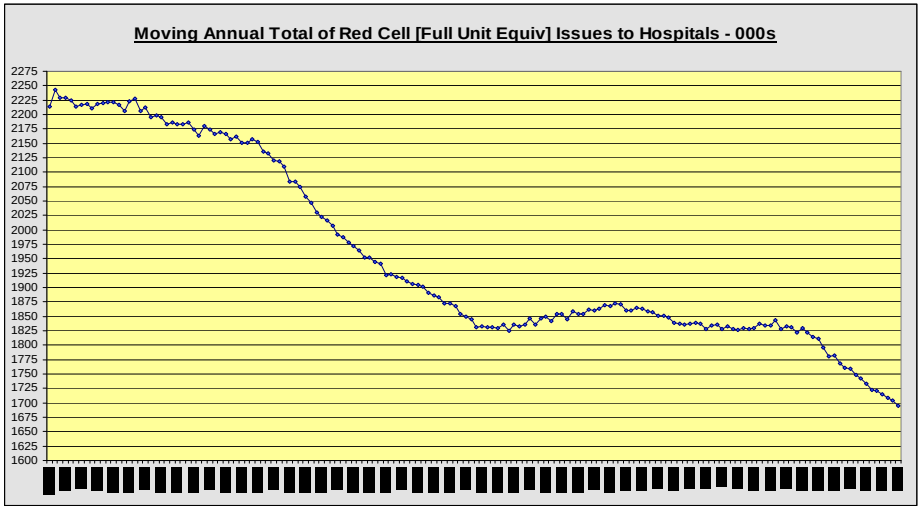
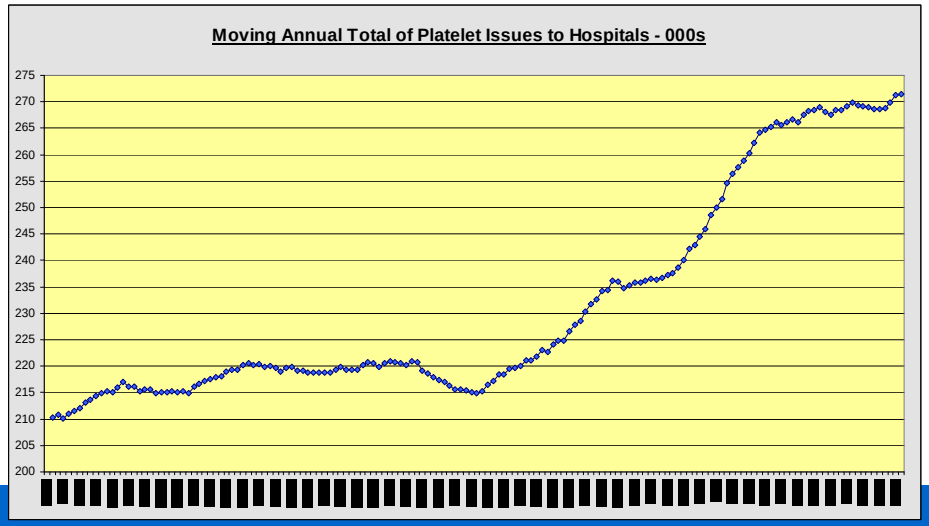
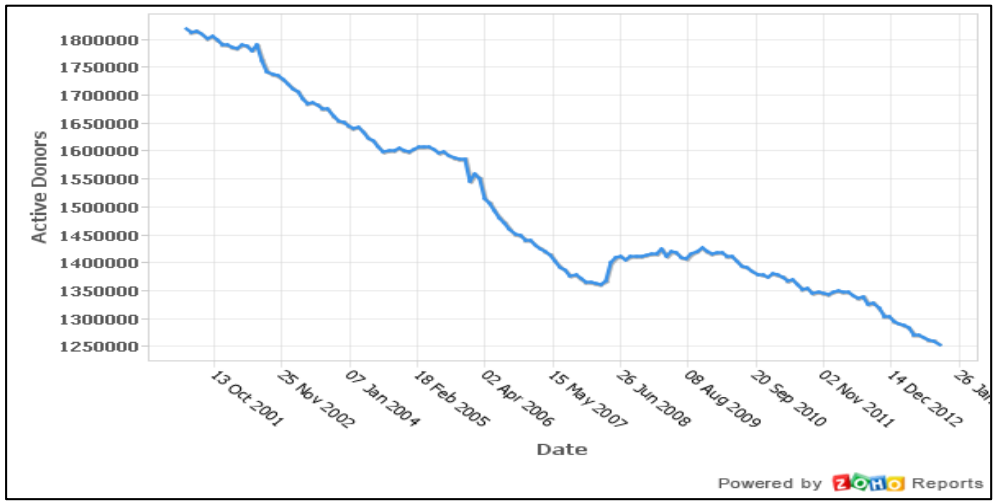
Red cells



Platelets



Active donor base



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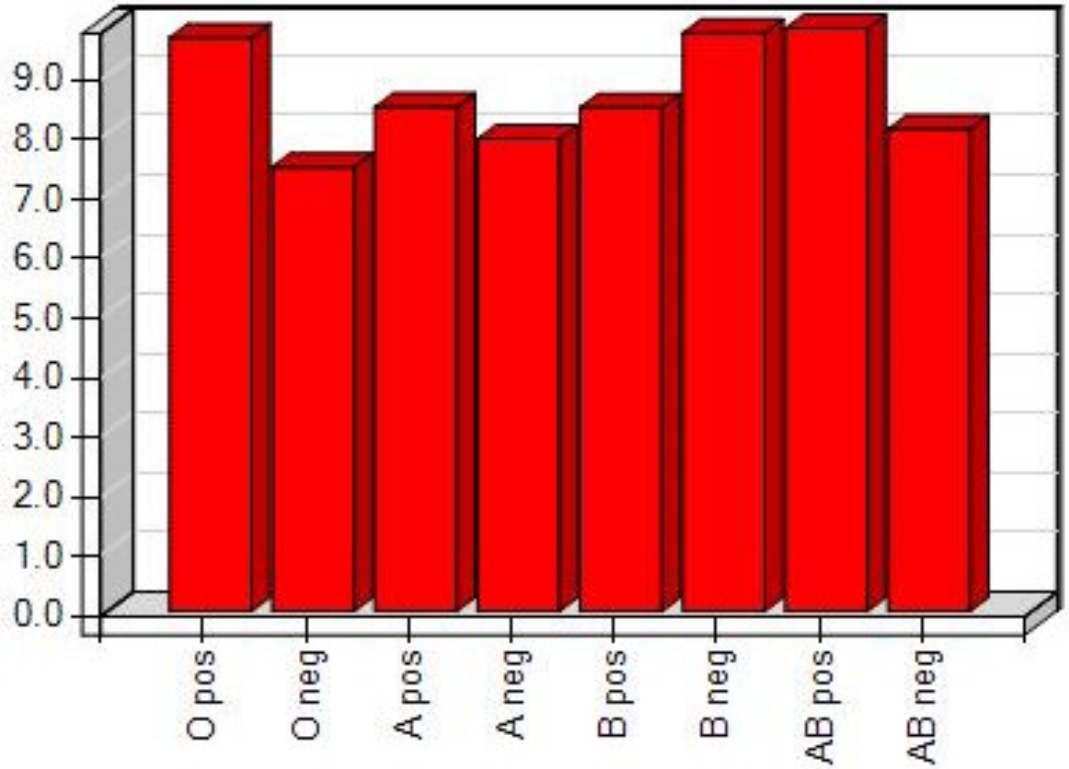
Red Blood Cell Stocks

(8th May 2014)



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Urgent Communication

An electronic copy of this fax can be found on the Hospitals & Science 'Home Page' via the urgent area highlighted in red- http://hospital.blood.co.uk/

12th March 2014

All Transfusion Laboratory Managers in hospitals served by NHS Blood and Transplant

Dear Colleague

Stocks of B RhD Negative and O RhD Negative Red Cells

NHSBT continually monitors stocks with the aim to maintain levels of all blood groups above 3 days. Due to an increase in demand, stocks of group B RhD negative and O RhD negative red cells have fallen, all other blood groups remain stable and it is not our intention to ask hospitals to activate their emergency blood management plan.

Action for Hospitals

In order to rebuild stocks, we have been encouraging more donors with these blood groups to donate and increased our processing activity. We will also need your support.

- O RhD negative red cells should only be used when necessary to prevent O RhD negative stock levels falling further. For B RhD negative we ask that hospitals use B RhD positive red cells as an alternative for suitable patients. In line with the established transfusion guidelines http://www.transfusionguidelines.org.uk/Index.aspx

We apologise for any extra work that this will cause. Efforts will continue to bring about an improvement at the earliest opportunity and will ensure that you are kept advised of progress.

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URGENT COMMUNICATION - PLATELET STOCKS

An electronic copy of this fax can be found on the Hospitals & Science "Home Page" via the urgent area highlighted in red - http://hospital.blood.co.uk/.

Date: 23 April 2014

To: All Transfusion Laboratory Managers in hospitals served by NHSBT

Dear Colleagues

Platelet Stock Levels - Group A RhD negative

We are currently experiencing low stock levels of group A RhD negative platelets. We anticipate that these low levels will result in some shortage of supply and the need for substitutions. We do have good supplies of other groups available for appropriate substitution and will work with you to supply to your needs. We will not be able to offer group A RhD negative platelets for non emergency cover. i.e. platelets with a long shelf life held to avoid additional deliveries.

We are taking action to bring stocks back to normal through increased donor and manufacturing activity. However, this situation is expected to continue for a week or more whilst stocks rebuild to normal levels.

We will continue to monitor progress and we will keep you updated on stock levels and deliveries.

Hospital Action:

1. Please avoid making requests for long dated group A RhD negative platelets.
2. When ordering group A RhD negative for clinical use, where possible please specify a substitution that would best meet your patient needs. If you do not specify a substitution Hospital Services will offer an appropriate substitution.
3. If you require A RhD negative platelets for clinical use please indicate the date and time you require the platelets for transfusion. Please let our Hospital Services team know immediately if the urgency of any order changes.
4. When platelets have been ordered they may not arrive on your routine round and may be sent by free ad-hoc at a later time. Your platelet order may arrive from a different

Some blood supply challenges....

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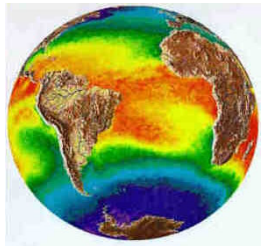

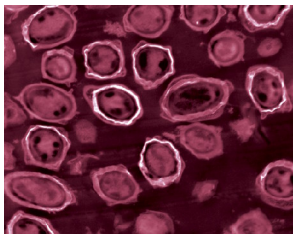

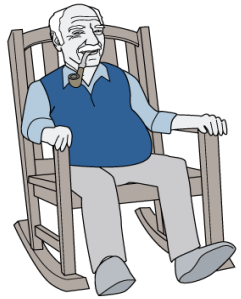

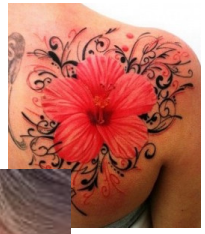

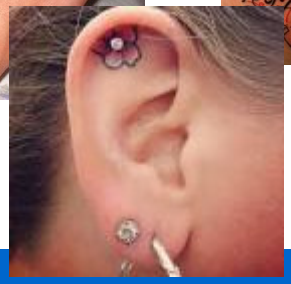

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Cost of blood

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Standard red cells	Platelets (ATD)
£121.85	£196.96

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Evidence of variable / inappropriate use

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Approx 60% of transfusions are for medical patients.

National Comparative Audit of Red Cell Use in Medicine (2011) indicated approx 13% are inappropriate!
(5% potentially reversible anaemia, 8% transfused above recommended thresholds)

NHSBT supplied approximately 1,700,000 adult units red cells 2013/14.

~132,000 units

in medicine alone

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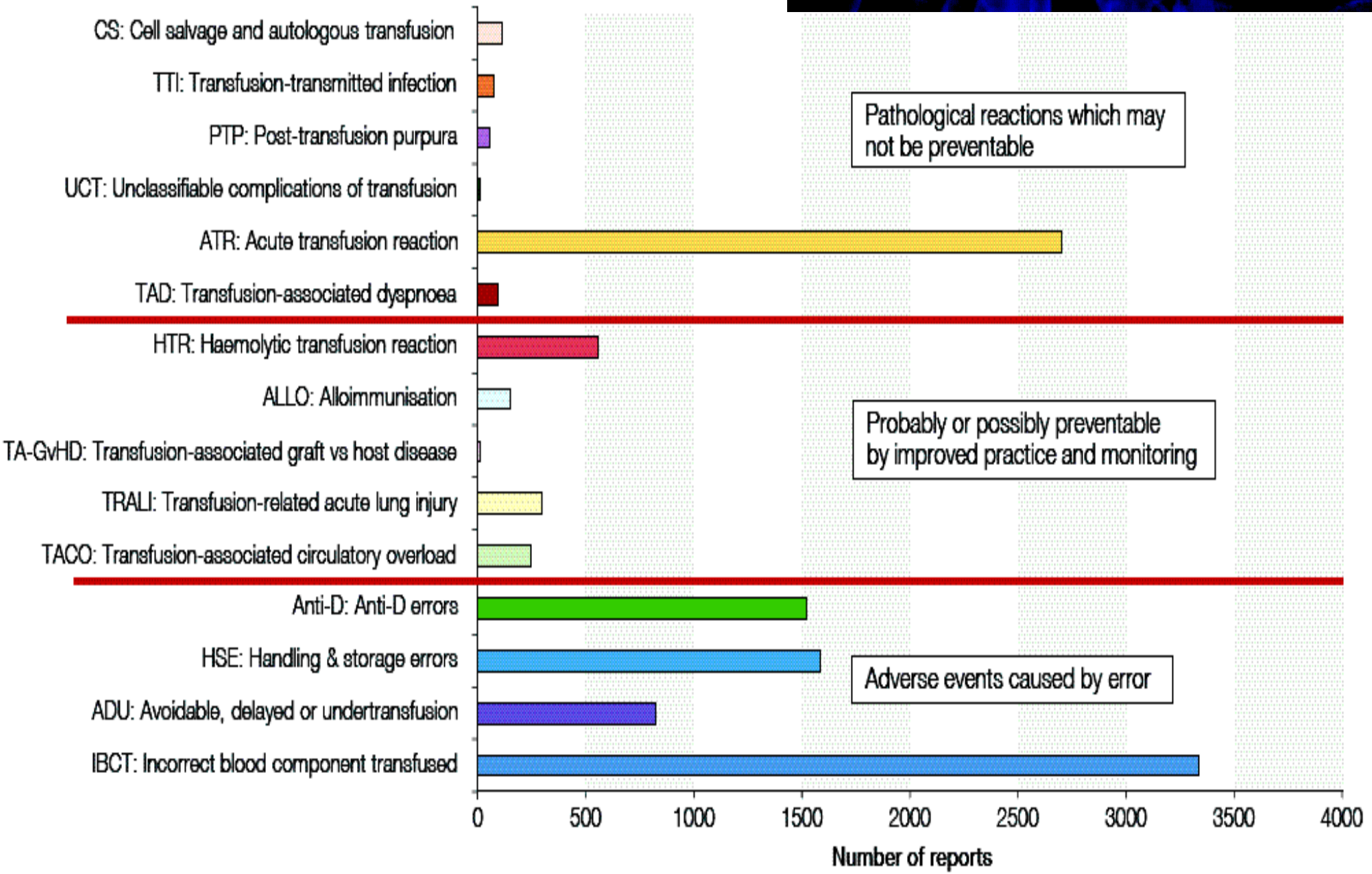
Transfusion safety and effectiveness

Figure 1: Cumulative data for SHOT categories 1996/7–2012 (n=11,570)

SERIOUS HAZARDS OF TRANSFUSION SHOT



CABG Outcomes PBMP vs Non-PBMP

Outcome	PBMP cohort (n=586)	Non-PBMP cohort (n=586)	P-value
% Transfused	10.6%	42.5%	<0.0001
Mortality	0.8%	2.5%	0.02
Serious complication	11.1%	18.7%	0.0002

Moskowitz et al. TheThe impact of blood conservation on outcomes in cardiac surgery: is it safe and effective?
Ann Thorac Surg 2010;90:451-9

The Journal of TRAUMA® Injury, Infection, and Critical Care

Allogeneic Blood Transfusion Increases the Risk of Postoperative Bacterial Infection: A Meta-analysis

Gary E. Hill, MD, William H. Frawley, PhD, Karl E. Griffith, MD, John E. Forestner, MD, and Joseph P. Minei, MD

Background: Immunosuppression is a consequence of allogeneic (homologous) blood transfusion (ABT) in humans and is associated with an increased risk in cancer recurrence rates after potentially curative surgery as well as an increase in the frequency of postoperative bacterial infections. Although a meta-analysis has been reported demonstrating the relationship between ABT and colon cancer recurrence, no meta-analysis has been reported demonstrating the relationship of ABT to postoperative bacterial infection.

Methods: Twenty peer-reviewed articles published from 1986 to 2000 were included in a meta-analysis. Criteria for inclusion included a clearly defined control group (nontransfused) compared with a treated (transfused) group and statistical analysis of accumulated data that included stepwise multivariate logistic regression analysis. In addition, a subgroup of publications that included only the traumatically injured patient was included in a separate meta-analysis. A fixed effects analysis was conducted with odds ratios obtained by using the conditional maximum likelihood method and 95% confidence intervals on the obtained odds ratios were determined using the mid-p technique.

Results: The total number of subjects included in this meta-analysis was 13,152 (5,215 in the transfused group and 7,937 in the nontransfused group). The common odds ratio for all articles included in this meta-analysis evaluating the association of ABT to the incidence of postoperative bacterial infection was 3.45 (range, 1.43–15.15), with 17 of the 20 studies demonstrating a value of $p \leq 0.05$. These results provide overwhelming evidence that ABT is associated with a significantly increased risk of postoperative bacterial infection in the surgical patient. The common odds ratio of the subgroup of trauma patients was 5.263 (range, 5.03–5.43), with all studies showing a value of $p < 0.05$ (0.005–0.0001). These results demonstrate that ABT is associated with a greater risk of postoperative bacterial infection in the trauma patient when compared with those patients receiving ABT during or after elective surgery.

Conclusion: These results demonstrate that ABT is an associated and apparently significant and frequently overlooked risk factor for the development of postoperative bacterial infection in the surgical patient. Allogeneic blood transfusion is a greater risk factor in the traumatically injured patient when compared with the elective surgical patient for the development of postoperative bacterial infection.

Key Words: Meta-analysis, Blood transfusion, Immunosuppression, Postoperative infection, Trauma.

J Trauma. 2003;54:908–914.

Why is PBM important worldwide?

Best practice: healthcare professionals want to ensure good outcomes for the patients/public they serve

Transfusion reduction potentially:

- shortens hospital length of stay
- reduces risk of infection, and or pulmonary complications
- reduces risk; product related infection, donor contamination, or human error of delivery of product

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The Telegraph

“Killed by a needless blood transfusion”

Judy Kenny, whose husband was the first to die from vCJD contracted via a blood transfusion, is campaigning for tighter controls over the procedure

'To this day I don’t know why Deryck needed that transfusion’ – Judy Kenny at home in Bournemouth, with a picture of her late husband Deryck
15 Oct 2012

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Question:

So is PBM all about reducing blood usage?

Answer:

No - not exactly....

‘Patient Blood Management’

NHS Blood and Transplant

- Views the patient’s own blood as a valuable and unique natural resource that should be conserved and managed appropriately
- An evidence-based, multidisciplinary team approach to optimising the care of patients who might need transfusion
- Focuses on measures for blood avoidance as well as correct use of blood components when they are needed
- Improves patient care – optimises use of donor blood and reduces transfusion-associated risks
- International initiative ....

Under or delayed transfused can result in major morbidity and mortality

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- Woman in mid-30's – ventouse-assisted vaginal delivery for fetal distress at term
- Complicated by massive haemorrhage from cervical lacerations
- Major haemorrhage protocol activated – 6 units of blood delivered and started within 5 minutes
- Transferred from delivery suite to theatre – bleeding controlled within 30 minutes
- Blood loss unclear – losses recorded in both delivery suite and theatre
- 2 hours later – she suffered cardiac arrest – received 12 units red cells and 3 units FFP
- She could not be resuscitated

(Possible previous unrecognised coagulation factor XI deficiency, but no previous medical history to suggest this).

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PBM – Key messages

- **Patient** - at the heart of decision making
- **Blood** – conserve patient's own blood, avoid transfusion where appropriate
- **Management** – organise and co-ordinate