Strategies to avoid unnecessary transfusions

**In this article...**
- An overview of the Patient Blood Management initiative
- Evidence indicating inappropriate use of blood transfusions
- Benefits of PBM for patients who may need a transfusion

**5 key points**

1. Patient blood management is an evidence-based, multidisciplinary approach to care for patients who might need a transfusion of blood or blood components

2. PBM reduces complications, and shortens recovery times and hospital stay

3. The most important way to achieve a safe transfusion is to ensure patients receive the right blood

4. Using blood only when needed will save the NHS money

5. Nurses can help ensure patients are at the heart of making decisions about their treatment

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The Patient Blood Management initiative is an evidence-based, multidisciplinary approach to improve the care of patients who might need a transfusion of blood or blood components. It is an international initiative in best practice for transfusion medicine.

This final article in our five-part series on blood transfusion outlines the origin and implementation of the Patient Blood Management initiative in England, why it matters, how it works, how it can be put into practice and nurses’ role in supporting it.

The Patient Blood Management (PBM) initiative was launched in 2012, from the National Blood Transfusion Committee (NBTC) and NHS Blood and Transplant (NHSBT), with the endorsement of NHS medical director Professor Sir Bruce Keogh. Its aim was to build on the success of the Department of Health’s (2007; 2002; 1998) Better Blood Transfusion initiatives in England. These came in the form of specific DH objectives to improve the safety of blood transfusion with an action plan for hospitals to implement.

To promote and implement these recommendations, NHSBT had formed multidisciplinary hospital liaison teams in 2003. Their primary role was to work with hospital transfusion teams and practitioners to deliver the Better Blood Transfusion initiatives.

In June 2014, the NBTC PBM recommendations were published with the endorsement of NHS England (NBTC, 2014). The NHSBT hospital liaison teams continue to work with hospital transfusion teams promoting these recommendations, which supersede Better Blood Transfusion.

These transfusion strategies appear to have had a significant impact on the use of red blood cells in England and North Wales; this is evident in the reduced number of units requested by hospitals and supplied by NHSBT (Fig 1). Demand for red cell units increased steadily during the 1990s, then decreased substantially by about 18% between 2002-03 and 2007-08, with a slower but continuing decline since then (Goodnough, 2013). The reasons for these reductions are not entirely clear, but it is likely that they are associated with the following:

- Better evidence to inform restrictive strategies for red cell transfusion;
- An increase in the price of blood supplied to hospitals by NHSBT (Murphy et al, 2013).

While PBM can be viewed as an
extension of Better Blood Transfusion and involves many similar activities, it is not just about safe and appropriate use of blood; it is also about promoting strategies for blood-transfusion avoidance and increasing the use of alternatives. PBM firmly places the patient at the centre of a decision-making process that considers transfusion only when there is clear evidence that it is the best therapeutic treatment available and all other options have been used or systematically considered and excluded.

This move to PBM follows international recognition that it is a successful model (Murphy et al, 2013). It was adopted by the World Health Organization (2010) as a principle to improve transfusion safety, although few programmes have started in Europe to date (Shander et al, 2012; Spahn et al, 2012).

A PBM programme has been established for several years in Australia, where the National Blood Authority has developed guidelines (www.blood.gov.au/pbm-guidelines); the first tertiary hospital to establish a multidisciplinary PBM programme in 2008 showed a decline in rates of transfusion with red cells, platelets and plasma over a three-year period (Table 1) (Leahy et al, 2014).

Why does PBM matter?
When used safely and appropriately, blood transfusion saves and improves patients’ lives. Blood transfusion in the UK is safer now than it has ever been but, like all healthcare interventions, it is not risk free.

The risk that a blood transfusion will result in adverse complications is very low. Approximately three million components are issued annually by UK blood services and 2012 data from the UK haemovigilance scheme – Serious Hazards of Transfusion (SHOT) – shows that the risk of death and major morbidity per components transfused is as follows:

- Death – one in 322,570;
- Major morbidity – one in 21,413 (Bolton-Maggs and Cohen, 2013).

One of the most important ways of achieving a safe transfusion is to ensure patients receive the right blood. Correctly identifying patients at each stage of the transfusion process, by asking them to state their full name and date of birth, will help to reduce the risk of an incorrect blood component being transfused (Hurrell, 2014).

In addition to offering guidance on the correct use of blood when it is needed, PBM advises on measures for blood transfusion avoidance, with improved patient outcomes as a key aim. However, despite hospitals in England and north Wales showing a distinct reduction in red cell use – from 2.24 million units in 2000 to 1.71 million in January 2014 (Fig 1) – national, regional and local audits consistently show that inappropriate use of all blood components is continuing.

The NHSBT National Comparative Audit of Blood Transfusion suggests that, while much good work has been done on reducing unnecessary transfusions, there is still much more to do to ensure all blood components are used appropriately (National Comparative Audit of Blood Transfusion, 2013, 2011, 2009). Table 2 summarises some of the recent national comparative audits of blood component use that highlight inappropriate use.

The focus of PBM on avoidance of blood transfusion has two distinct benefits:

- Improved patient outcomes;
- Lower cost to the NHS.

**Improved patient outcomes**
Blood transfusions carry risks and are expensive (Goodnough et al, 2013). PBM benefits patients, leading to fewer complications, faster recoveries and shorter stays in hospital (Shander et al, 2012). The assumed benefits of blood transfusion are being challenged by the findings of recent trials that have shown restrictive transfusion practices are equivalent to or better than those that are liberal (Goodnough et al, 2013).

**Reduced costs to the NHS**
Previous BBT initiatives have been successful. By implementing PBM initiatives, it should be possible to reduce the current
high level of inappropriate blood component use (Table 2) further.

The health service will save money by collecting and using only the blood that patients need. A unit of standard red cells issued from NHSBT to hospitals in 2014-15 costs £211.85; however, potential savings are much greater than the cost of the blood component alone. Reducing associated costs such as of hospital stays, medication, nursing time and equipment as well as all the costs associated with readmissions can amount to huge savings (Kotze et al, 2012).

**PBM in practice**

In surgical patients, PBM relies on three approaches or “pillars”, which:

- Detect and treat perioperative anaemia;
- Minimise blood loss and bleeding intra-operatively;
- Optimise tolerance of anaemia postoperatively (Leahy et al, 2014).

In the medical or intensive care environment, different strategies can be applied to minimise the need for transfusion including:

- Minimising the volume and frequency of blood samples taken from patients to prevent iatrogenic anaemia;
- Using appropriate doses and thresholds for blood components by;
  - Using locally agreed triggers for transfusion based on national guidelines (NBTC, 2013) when requesting blood from the transfusion laboratory and prescribing blood components;
  - Transfusing one unit of one blood component at a time – for example, one unit of red cells or platelets in patients who are not bleeding – and reassessing their condition and in some cases with further blood counts to determine whether transfusion is required;
- Actively managing anaemia – iron-deficiency anaemia can usually be managed with oral iron, or intravenous iron can be used for functional iron deficiency (inadequate iron supply to the bone marrow).

**Implementing PBM**

Implementation of PBM in hospitals requires several strands of focused activity:

- Analysing the mix of patients and clinical services to determine the main targets for PBM;
- Identifying PBM champions to help educate staff and patients, and promote the PBM initiatives;
- Developing the hospital’s transfusion committee.

Everyone involved in blood transfusion needs to take responsibility for ensuring that blood components are used safely and appropriately. The successful implementation of PBM needs:

- Leadership and support at every level, including national and regional leaders;
- Hospital management;
- Maintaining transfusion competencies: nurses should maintain competency in line with local policy and attend training programs.

**BLOOD TRANSFUSION SERIES**

This series, produced by the Patient Blood Management team, comprises five articles:

- Gaining informed consent for blood transfusion (3 September, www.nursingtimes.net/bloodtransfusion)
- Processing, testing and selecting blood components (10 September, www.nursingtimes.net/bloodcomponents)
- Safe administration of blood components (17 September, www.nursingtimes.net/bloodcomponents-admin)
- Managing blood transfusion reactions (24 September, www.nursingtimes.net/trans-react)
- Patient blood management (1 October, www.nursingtimes.net/PBM)

**Nurses’ role in PBM**

“No decision about me, without me” was a key message of the government white paper *Equity and Excellence: Liberating the NHS* (DH, 2010). It further stated that the “vision is for patients and public [to be] at the heart of the NHS”.

Both of these statements support PBM initiatives. Nurses have a vital role to play in ensuring that patients are at the heart of decision-making regarding their treatment and that blood components are used safely and appropriately should they be needed.

Nurses should act as patients’ advocates and can fulfil this role in several ways:

**Challenging inappropriate requests for blood transfusion:** challenging requests that fall outside local or national guidelines and are not supported by an overriding clinical decision can reduce the number of transfusions a patient receives or mean transfusion is avoided altogether.

**Giving patients the necessary tools:** nurses can equip patients with the tools they need to be able to make an informed decision on transfusion and the alternatives. Patients should be involved in their own care wherever possible, and provided with information about the risks, benefits and alternatives to transfusion so they are better informed about their choices and how they can help themselves (for example, by making sure they eat a balanced diet that contains foods rich in iron).

To support this, a series of national patient information leaflets can be downloaded or ordered from NHSBT’s Hospitals and Science website (hospital.blood.co.uk). The health professional responsible for making the clinical decision and authorising blood component transfusions should also gain verbal patient consent for blood transfusions and record this in the patient’s medical records following guidance from the Advisory Committee on the Safety of Blood Tissues and Organs (2011). Patient information and consent for blood transfusion is discussed further in part one of this series (Whitmore, 2014).

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local and regional transfusion education sessions to support and maintain current, pertinent knowledge.

**Patient within PBM**

The “P” (patient) in PBM can happen only if patients:
» Are able to participate;
» Know how to be involved;
» Are willing to participate;
» Have been given both the opportunity and the resources to participate.

**Conclusion**

Several hospitals in England are beginning to build on BBT and formally adopt PBM initiatives; national guidance endorsed by NHS England has recently been published to support this (NBTC, 2014). These PBM recommendations may become part of treatment plans for your patients as the year progresses.

Pilot PBM projects include the active involvement of the patient in their care. Nurses should play a significant role in these initiatives; national guidance endorsed by NHS England has recently been published to support this (NBTC, 2014). These PBM initiatives; national guidance endorsed by NHS England have been given both the opportunity and the resources to participate.

**References**

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