ISBT Science Series
An affiliated publication to Vox Sanguinis

ISBT Science Series (2017) 12, 410–417

CONGRESS REVIEW 2B-03-01

The role of the National Blood Transfusion Committee

M. F. Murphy[1] & K. Pendry[2]

[1]NHS Blood & Transplant, The National Institute for Health Research (NIHR) Oxford Biomedical Research Centre, Oxford University Hospitals & University of Oxford, Oxford, UK

[2]NHS Blood & Transplant, Central Manchester University Hospitals NHS Foundation Trust, Manchester, UK

Many countries have established national blood transfusion services in line with World Health Organization (WHO) guidelines and recommendations. However, according to WHO, few countries have developed policies and guidelines on the clinical use of blood and products which are being effectively implemented. This review outlines the WHO recommendations for a National Committee on the Clinical Use of Blood and describes the establishment of a National Blood Transfusion Committee (NBTC) in England and the first 16 years of its work. Although it is difficult to document the value of the NBTC with certainty, the improvements in transfusion safety in hospitals and the marked reduction in blood use across a large country would almost certainly not have happened to the same extent without it. The inclusive membership of the NBTC of Royal Colleges, professional organizations, National Health Service (NHS) Blood & Transplant as the national blood supplier and NHS senior management has been key to providing impetus to the implementation of the output of the NBTC. The linkage to hospital transfusion practice via the RTCs and HTCs has proved very beneficial for the dissemination of its work. Despite the excellent progress, there is much for the NBTC to do in the future to ensure that transfusion practice is as safe and as effective as possible.

Key words: appropriate use of blood, blood transfusion, Hospital Transfusion Committee, National Transfusion Committee, Patient Blood Management, Transfusion Committee, transfusion safety

Introduction

Many countries have established national blood transfusion services in accordance with World Health Organization (WHO) guidelines and recommendations [1]. However, few countries have developed policies and guidelines on the clinical use of blood which are being effectively implemented. There are also wide variations in the content of national guidelines. WHO has developed recommendations to assist the development, implementation and monitoring of national policies and guidelines on the clinical use of blood and to ensure active collaboration between the blood transfusion service and clinicians for the management of patients who may require transfusion [1]. The recommendations include a section on the effective clinical use of blood, emphasizing that one of the key elements to develop consistently effective clinical transfusion practice is a National Committee on the Clinical Use of Blood working with Hospital Transfusion Committees (HTCs) at local level to implement, regularly review and update the national policy and guidelines.

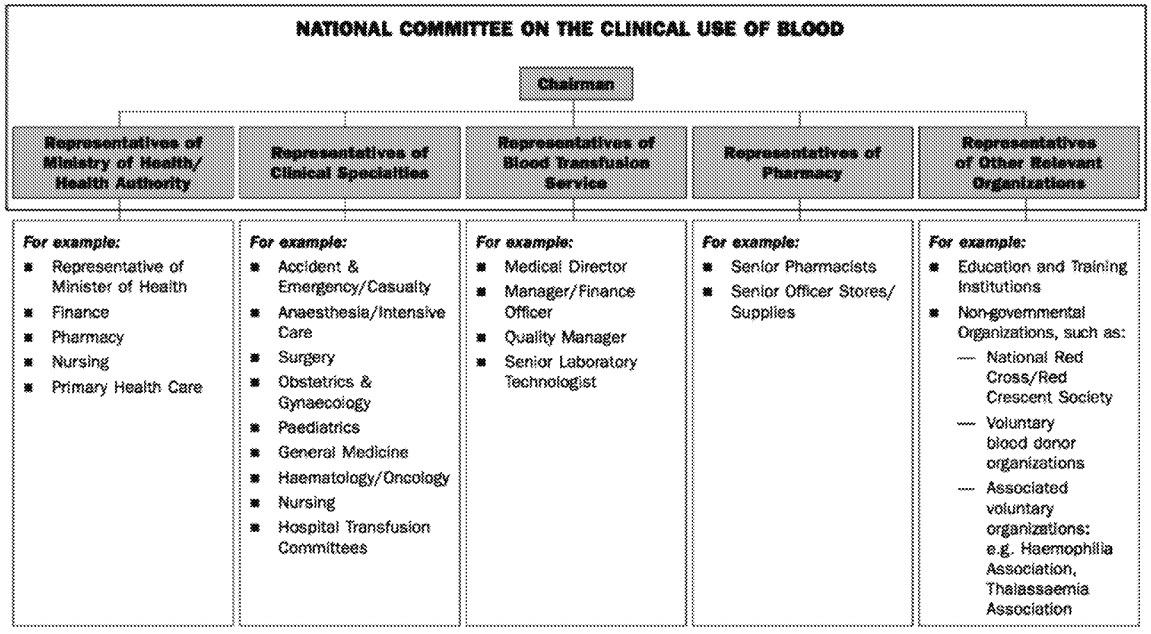
This review will outline the WHO recommendations for a National Committee on the Clinical Use of Blood and describe the establishment of a National Blood Transfusion Committee (NBTC) in England and the first 16 years of its work. We were unable to find information on other national transfusion committees; they probably do exist in several different formats, but we were unable to identify them.

Correspondence: Michael F. Murphy, NHS Blood & Transplant, John Radcliffe Hospital, Oxford OX3 9BQ, UK.
E-mail: mike.murphy@ GRO-C

The authors certify that they have no affiliation with or financial involvement in any organization or entity with a direct financial interest in the subject matter or materials discussed in this manuscript (e.g. employment, consultancies, board membership, stock ownership, honoraria).

Table 1 Suggested organizational structure for a National Committee on the Clinical Use of Blood [1]

Possible organizational structure for a National Committee on the Clinical Use of Blood



WHO recommendations for a National Committee on the Clinical Use of Blood

A National Committee on the Clinical Use of Blood requires authority and support to ensure the effective implementation of the national policy and guidelines. A suggested organizational structure is shown in Table 1, and the principal functions are shown in Table 2 [1]. These recommendations provide an excellent framework for the establishment of a national transfusion committee and were of value when establishing the NBTC in England.

National Blood Transfusion Committee (NBTC) in England

The NBTC in England was established in September 2001. It was created as a consequence of two major events in blood transfusion in the 1990s in the UK: the reorganization of Blood Services in England and the United Kingdom (UK) Chief Medical Officers' (CMOs') '*Better Blood Transfusion*' initiative. Further information about these developments is presented in chronological order below; the establishment of the NBTC and its early work have been summarized previously [2].

Establishment of the National Blood Authority and National Blood Service

The National Blood Authority (NBA) was established in April 1993 and took over responsibility in England for what was previously known as the National Blood Transfusion Service (NBTS) in April 1994. This development sought to change a regionally based service into a national one. In September 1994, the NBA published its proposals for the future of the Regional Blood Transfusion Services, now to be called the National Blood Service (NBS). The proposals included the establishment of three administrative zones to replace the previous regional structure. Many concerns were raised about these proposals during the consultation period.

When the Department of Health finally approved the NBA's revised plans in November 1995, an independent National Blood Service User Group (NBUG) was set up to monitor the services provided by the NBS, to bring to the attention of the NBA problems which could not be resolved at local level and to report annually to the Secretary of State. Zonal Blood User Groups (ZBUGs) were established in each of the three zones of the NBS to inform the work of the NBUG by seeking the views of those using the services provided by the NBS.

Table 2 The principal functions of the National Committee on the Clinical Use of Blood [1]

1 Ensure the national policy and guidelines on the clinical use of blood are disseminated to hospitals at all levels of the health system.
2 Provide guidance on the establishment of Hospital Transfusion Committees and their roles and responsibilities in implementing and monitoring the national policy and guidelines.
3 Ensure that a standard blood request form, developed by the blood transfusion service, is available and used uniformly in all hospitals.
4 Promote the development and use of an appropriate blood ordering schedule in each hospital in which surgical procedures are performed.
5 Ensure that standard operating procedures for all stages of the clinical transfusion process are available and used uniformly in all hospitals.
6 Promote the development of an education and training programme for personnel at all levels who are involved in the prescription and administration of blood and blood products.
7 Establish a system to monitor and evaluate the pattern of blood usage, the implementation of the national policy and guidelines, and the effectiveness of the education and training programme.
8 Regularly review and, where necessary, update the national policy and guidelines and the strategy for their implementation.

1998 Blood Transfusion Seminar and Health Service Circular

In July 1998, the four UK CMOs (England, Scotland, Wales and Northern Ireland) held a seminar on '*Evidence-based Blood Transfusion*' in London attended by a multidisciplinary audience including blood users, representatives of blood services, NHS managers and patients. The factors leading to this initiative included concerns about the blood supply in the face of increases in the demand for blood and intermittent blood shortages, increases in the cost of blood associated with universal leucocyte reduction of blood components and nucleic acid testing, data from the Serious Hazards of Transfusion (SHOT) scheme showing that the safety of transfusion should be improved, and concerns about the transmission of variant Creutzfeldt–Jakob disease by blood transfusion.

After wide consultation, the Health Service Circular (HSC) '*Better Blood Transfusion*' (HSC 1998/224) was issued in December 1998 [3] and was based on recommendations from the seminar. It detailed actions required of NHS hospitals and clinicians to improve transfusion practice, including the:

- Establishment of HTCs to oversee all aspects of transfusion at a local level
- Participation in the SHOT scheme
- Development of agreed and disseminated local protocols for transfusion practice, based on national guidelines and supported by in-house training
- Consideration of the use of autologous transfusion, particularly peri-operative cell salvage

The publication of the HSC was intended to be the first step towards safer and more effective blood transfusion in the NHS, and it was envisaged that the implementation of the recommended actions would be reviewed after about 2 years.

National management structure for the National Blood Service and the establishment of the National and Regional Transfusion Committees in England

In 1999, the NBS zones were integrated into a new national management structure for the NBS, and the ZBUGs were disbanded. There continued to be a need for a formal mechanism for interaction of the NBS with blood users, and it was proposed that Regional Transfusion Committees (RTCs) should be established. It was also proposed that a National Transfusion Committee be established to replace the NBUG on the lines of recommendations by the WHO for National Committees on the Clinical Use of Blood [1]. The remit of these committees would be primarily focused on improving transfusion practice in hospitals, and supporting the implementation of the actions recommended in the HSC '*Better Blood Transfusion*', although they retained the role of the ZBUGs and NBUG in monitoring the performance of the NBS.

An Interim National Transfusion Committee met on three occasions in 2000/2001 with the remit of establishing the Regional and National Transfusion Committee structure by September 2001. Its membership included the ex-Chairmen and blood transfusion laboratory manager members of the NBUG and ZBUGs, providing a useful link with the previous User Group structure.

2001 Blood Transfusion Seminar and the 2nd Health Service Circular

A second UK CMOs' seminar on blood transfusion '*Better Blood Transfusion*' was held in London on 29 October 2001. It was attended by an invited multidisciplinary audience. The objective of the seminar was to set the

agenda for NHS transfusion services for the next three years, focusing on the following:

- Providing better information to patients
- Avoiding unnecessary transfusion
- Making transfusion safer
- Ensuring '*Better Blood Transfusion*' is an integral part of NHS care

An audit of the implementation of the HSC 1998/224 *Better Blood Transfusion* was presented showing that most hospitals had established HTCs, participated in the SHOT scheme and had protocols for the administration of blood [4]. However, there was evidence of poor provision of training for clinical staff and patient information, few protocols for the appropriate use of blood, few audits of transfusion practice and limited use of autologous transfusion.

Following a series of workshops and presentations, a new set of recommendations were agreed and subsequently published in a Health Service Circular *Better Blood Transfusion – Appropriate Use of Blood* (HSC 2002/2009) in July 2002 [5]. These included an action plan and an ongoing programme for *Better Blood Transfusion* to be taken forward in each hospital.

The establishment of the CMO's National Blood Transfusion Committee (NBTC) in England and RTCs was announced at the seminar. The other UK countries were invited to send representatives to the NBTC.

Initial meetings and work of the National Blood Transfusion Committee in England

The NBTC held its first meeting in December 2001. The NBTC membership included the Chairmen of the 10 RTCs, and representatives of the Royal Colleges, SHOT, National Patient Safety Agency (NPSA), NBS, patients and the Department of Health. Its initial primary remit was to support the *Better Blood Transfusion* initiative, but the identification of problems in any aspect of blood transfusion including the delivery of services by the NBS remains within the remit of the NBTC. Members were generally invited to represent their respective organizations because of a known interest in transfusion medicine. The additional work undertaken by the members of the NBTC is unpaid although their employers usually grant time away from their duties which are mainly in NHS hospitals.

In 2005, NHS Blood & Transplant (NHSBT) was established by the amalgamation of NBS with UK Transplant. A further *Better Blood Transfusion* Seminar was organized by the NBTC and held in 2007, following an audit of the implementation of the recommendations of HSC 2002/2009 [6]. The recommendations of the 3rd *Better Blood Transfusion* Seminar were published in a Health Service Circular *Better Blood Transfusion – Safe and Appropriate Use of Blood* [7].

Patient Blood Management

In 2012, the focus of the NBTC switched from *Better Blood Transfusion* to *Patient Blood Management* (PBM). A *Future of Blood Transfusion* conference was held in June 2012 [8]. The event was jointly hosted by the Department of Health, the NBTC and NHSBT and supported by the NHS Medical Director.

The aim of the multidisciplinary conference was to share views on how blood transfusion practice could be improved to do the following:

- Build on the success of previous *Better Blood Transfusion* initiatives and to further promote appropriate use of blood components.
- Improve the use of routinely collected data to influence transfusion practice.
- Provide practical examples of high-quality transfusion practice and measures for the avoidance of transfusion, wherever appropriate.
- Consider the resources needed to deliver better transfusion practice including support from NHSBT.
- Understand the patient perspective on transfusion practice.

Following the conference, the NBTC developed recommendations for the implementation of PBM [9].

Objectives and working arrangements for the NBTC

The NBTC's overall objective is to promote good transfusion practice by providing a framework to do the following:

(1) Channel information and advice to hospitals on best practice and performance monitoring with the aims of:
   - Improving the safety of blood transfusion practice
   - Improving the appropriateness of clinical blood transfusion
   - Exploring and facilitating the implementation of methods to reduce the need for allogeneic blood transfusion
   - Listening to and informing patient concerns about blood transfusion
   - Promoting the highest quality and consistency in transfusion practice

(2) Consult with national groups developing guidelines in transfusion medicine to determine best practice

(3) Review the performance of the services provided by NHSBT.

(4) Identify service development needs and provide assistance, as required, with the work of the National Commissioning Group for Blood (which sets blood

prices) and the Blood Stocks Management Scheme (which monitors blood wastage in NHSBT and hospitals)

(5) Identify and respond to patients' perceptions about the provision of transfusion services

(6) Provide advice on all aspects of transfusion practice to the NHS Medical Director and also to the CMO or other DH officials.

(7) Provide information on and support delivery of appropriate education and training of blood transfusion.

There are two meetings of the NTBC each year. The work of the committee between meetings is carried out by an Executive Working Group comprising the Chairman, five members of the committee, two NHSBT representatives, a patient representative and one from NHS England. Current working groups are established for Education and Training, Patient Involvement, Transfusion Laboratory Managers, Patient Blood Management (PBM) and Transfusion Request Specification. The members of the Royal Colleges and specialist professional organizations meet before each NBTC meeting to share experience about current issues and how best to engage and inform their respective memberships.

The RTCs are key to the promotion of better transfusion practice acting as a focus for activity and a conduit between the HTCs and the NBTC. There are 10 RTCs which were realigned in 2006/2007 to reflect the boundaries of the ten Strategic Health Authorities, and these boundaries have continued despite further NHS reorganizations, and HTCs value the current structure. Continuing concerns expressed by RTC Chairs from their membership include the effect on transfusion laboratories and transfusion practice of pathology modernization initiatives focussed on high-throughput pathology services and cost saving and the challenge of engaging hospitals in PBM.

The NBTC has an annual work plan setting out objectives and actions to support the NBTC strategy; the working groups also develop individual work plans which are available on the NBTC website www.transfusionguidelines.org.

Main outcomes of the work of the NBTC

The focus on *Better Blood Transfusion* and PBM over the 16 years of the NBTC has resulted in the following:

- low mortality and morbidity related to transfusion in the UK (respectively, 1·01 and 6·44/100 000 blood components issued in 2015) [10]
- 30% reduction in the use of red cell transfusions in England; current usage equates to red cell issues of 28·5 per 1000 population (Fig. 1).
- a stabilization in the growing demand for platelets (Fig. 2)

As with previous national recommendations promoting appropriate blood use, it is a major task to disseminate them to the many staff prescribing blood in the NHS and implement them effectively. Their integration into more general initiatives for reducing '*too much medicine*' and variation in clinical practice may increase the likelihood of success. In this respect, it was exciting to see that the Academy of Medical Royal Colleges brought the international *Choosing Wisely* campaign to the UK [11]. The NBTC took the opportunity to put forward recommendations for inclusion in the campaign, and four were selected and published in 2016 [12], including the latter one directed to patients:

- Use restrictive thresholds for patients needing red cell transfusions and only one unit at a time except when the patient has active bleeding
- Only consider transfusing platelets for patients with chemotherapy-induced thrombocytopenia where the platelet count is $<10 \times 10^9$/l except when undergoing a procedure with a high risk of bleeding
- Only transfuse O RhD-negative red cells to O RhD-negative patients and in emergencies for females of childbearing potential with unknown blood group
- 'You should be provided with information about the benefits and risks of blood transfusion and have the opportunity to ask questions.'

Other activities of the NBTC

- Support for the National Comparative Audit of Blood Transfusion programme [13]. National audits are conducted each year, covering the whole range of transfusion practice; for example, in relation to transfusion safety, five audits of bedside transfusion practice were conducted over 15 years with objective quality improvement in patient identification and in the monitoring of transfused patients. Large audits of blood use involving many thousands of patients in clinical scenarios such as cardiac surgery, haematology, upper and lower gastrointestinal haemorrhage, hip surgery and medical patients have found that 20–30% of transfusions are given outside the recommendations in national guidelines. These data indicate the potential for further blood reduction even though red cell usage in England has fallen by 30% in the last 16 years.
- The NBTC conducts surveys of transfusion practice. For example, surveys of hospitals in 2013 [14] and 2015 [15] about their PBM practices indicated

Fig. 1 Reduction in red cell usage in England (1999–2016).

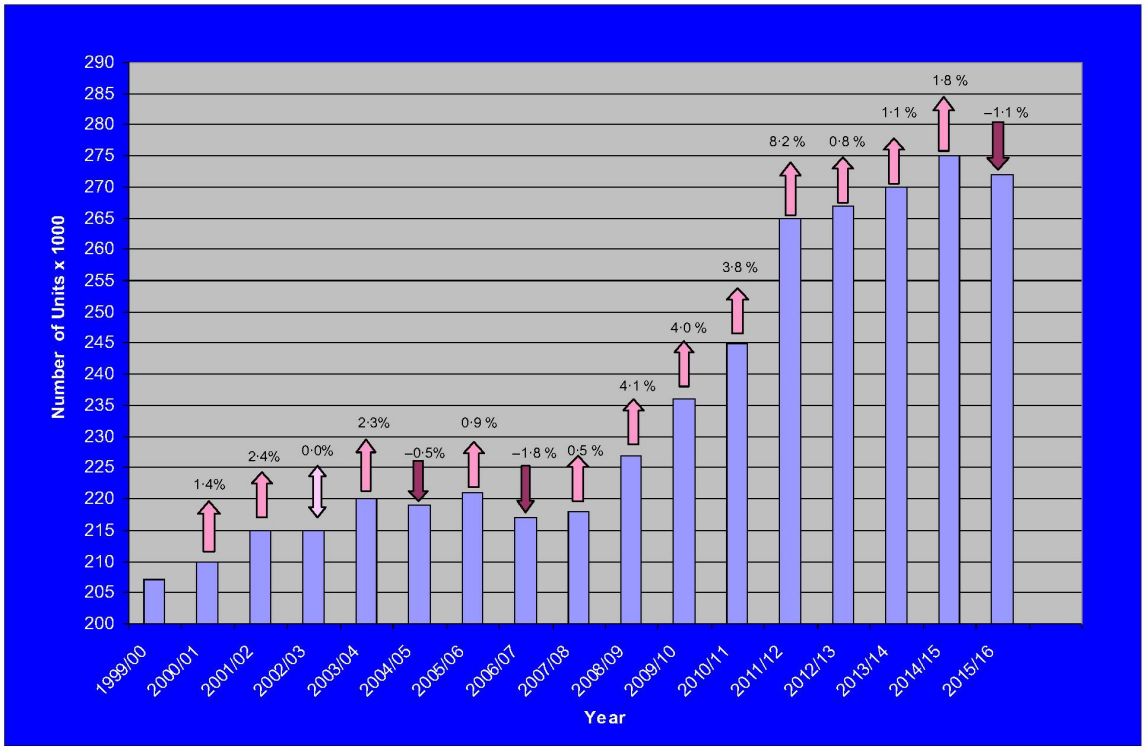


Fig. 2 Stabilization in platelet usage in England in recent years after a period of considerable increase.

considerable potential to increase PBM activities such as preoperative anaemia management, the use of intra-operative cell salvage and the use of tranexamic acid in surgery. Between 2013 and 2015, there had been some progress in the delivery of education and training to clinicians and provision of information to patients; however, such surveys have highlighted problems in implementing *Better Blood Transfusion* and PBM such as lack of staff, poor information technology and lack of engagement by senior managers and clinicians in improving transfusion practice.

- The provision of administrative support for the RTCs, the combination of the website and the administrative support has facilitated much more effective communication from the NBTC to the RTCs and to HTCs.
- The NBTC has developed national standards and requirements for training and assessment for all staff involved in the transfusion process following the abolition of the National Patient Safety Agency (NPSA).
- The NBTC has developed a series of indication codes abstracted from national guidelines and regularly updated; these are used by many hospitals to guide appropriate decision-making at the time of transfusion requesting. The NBTC is working towards the development of a national transfusion request specification that can be used in electronic order comms systems to support best practice.
- The NBTC works closely with NHSBT to ensure appropriate stakeholder engagement when NHSBT is making decisions about new components for development (e.g. whole blood for trauma) and new safety initiatives (e.g. pathogen inactivation).
- The NBTC has worked with NHSBT to develop agreed action plans for hospitals and NHSBT in the event of shortages of red cells and/or platelets.
- The NBTC is working with the National Transfusion Laboratory Managers group, the UK Transfusion Collaborative and NHSBT to explore opportunities for closer integration between NHSBT and hospital transfusion laboratories to ensure that safe practice can continue to be delivered in the face of pathology reorganizations and loss of experienced laboratory staff.
- Sections have been established for the NBTC and RTCs on the www.transfusionguidelines.org.uk website to facilitate dissemination and sharing of information. The RTCs are responsible for delivering one or two educational symposia for their regions each year. These events reach many hundreds of multidisciplinary staff involved in blood transfusion.

Summary

This review has described WHO recommendations for establishing a National Transfusion Committee and the experience gained from the first 16 years of having such a Committee in England. Although it is difficult to document the value of the NBTC, the improvements in transfusion safety in hospitals and the marked reduction in blood use across a large country would almost certainly not have happened to the same extent without it. The inclusive membership of the NBTC of Royal Colleges, professional organizations, NHSBT as the national blood supplier and NHS senior management have been key to providing impetus to the implementation of the output of the NBTC. The linkage to hospital transfusion practice via the RTCs and HTCs has proved very beneficial for the dissemination of its work. Continuing challenges include holding the attention of clinicians and senior NHS and NHSBT managers to further improve transfusion practice following the excellent progress made so far, and monitoring the activities of NHSBT so that clinical needs are given priority when considering changes to NHSBT services. Despite the excellent progress, there is much for the NBTC to do in the future to ensure that transfusion practice is as safe and as effective as possible, and it would be interesting to learn from the experience of other countries where National Transfusion Committees or similar bodies have been established.

References

1 World Health Organization: *Developing a National Policy and Guidelines on the Clinical Use of Blood*. Geneva, World Health Organization, 2001 (WHO/BCT/BTS/01.3)
2 Murphy MF, Robinson EAE, Gordon-Smith EC: The Chief Medical Officer's National Blood Transfusion Committee. In: SHOT annual report 2001/02. p 43–46. 2003. https://www.shotuk.org/shot-reports/ [Last accessed 6 March 2017]
3 NHS Executive, Health Service Circular 1998/224. 'Better Blood Transfusion'. 1998. http://www.transfusionguidelines.org.uk/uk-transfusion-committees/national-blood-transfusion-committee/better-blood-transfusion [Last accessed 6 March 2017]
4 Murphy MF, Edbury C, Wickenden C: Survey of the implementation of the recommendations in the Health Service Circular 1998/224 'Better Blood Transfusion'. *Transfus Med* 2003; 13:121–125
5 Department of Health, Health Service Circular 2002/009 'Better Blood Transfusion – Safe and Appropriate Use of Blood'. 2002. http://www.transfusionguidelines.org.uk/uk-transfusion-committees/national-blood-transfusion-committee/better-blood-transfusion [Last accessed 6 March 2017]
6 Murphy MF, Howell C, on behalf of the National Blood Transfusion Committee: Survey of the implementation of

the recommendations in the Health Service Circular 2002/009 'Better Blood Transfusion'. *Transfus Med* 2005; 15:453–460

7 Department of Health, Health Service Circular 2007/001 'Better Blood Transfusion – Safe and Appropriate Use of Blood'. 2007. http://www.transfusionguidelines.org.uk/uk-transfusion-committees/national-blood-transfusion-committee/better-blood-transfusion [Last accessed 6 March 2017]

8 Patient Blood Management - the future of blood transfusion conference. 2012. http://www.transfusionguidelines.org.uk/uk-transfusion-committees/national-blood-transfusion-committee/patient-blood-management/conference [Last accessed 6 March 2017]

9 National Blood Transfusion Committee Recommendations for the Implementation of Patient Blood Management. 2012. http://www.transfusionguidelines.org.uk/uk-transfusion-committees/national-blood-transfusion-committee/patient-blood-management [Last accessed 6 March 2017]

10 Bolton-Maggs PHB, Thomas D, Watt A, on behalf of the Serious Hazards of Transfusion (SHOT) Steering Group, *et al.*: The 2015 annual SHOT report. 2016. https://www.shotuk.org/shot-reports/ [Last accessed 6 March 2017]

11 Academy of Medical Royal Colleges. Choosing Wisely. 2016. http://www.choosingwisely.co.uk/ [Last accessed 6 March 2017].

12 Murphy MF: The Choosing Wisely campaign to reduce harmful medical overuse: its close association with Patient Blood Management initiatives. *Transfus Med* 2015; 25:287–292

13 The National Comparative Audit of Blood Transfusion. 2016. http://hospital.blood.co.uk/audits/national-comparative-audit/national-comparative-audit-reports/ [Last accessed 6 March 2017]

14 Murphy MF, Gerrard R, Babra P, *et al.*: National patient blood management survey. 2013. http://www.transfusionguidelines.org.uk/uk-transfusion-committees/national-blood-transfusion-committee/patient-blood-management [Last accessed 6 March 2017]

15 Sherliker L, Pendry K, Hockley B: National patient blood management survey. 2015. http://hospital.blood.co.uk/media/28341/2015-survey-of-patient-blood-management.pdf [Last accessed 28 April 2017]