

## Key Recommendations from previous Annual SHOT Reports 2002-2019

Year first made	Action	Recommendation	Progress
2019	Hospital chief executives and medical directors, National Blood Transfusion Committee (or the equivalent for the devolved countries), hospital transfusion teams	Accurate patient identification is fundamental to patient safety. Organisations must review all patient identification errors and establish the causes of patient misidentification. Recognising gaps in existing processes, use of electronic systems, empowerment of patients and staff will reduce these errors	<p>81.8% of organisations have processes in place to review patient identification errors to recognise gaps in practice and 70.5% achieve empowerment of staff. Only 19.3% use electronic systems for patient identification, with 43.2% working towards implementation. 42.0% of organisations stated they had achieved empowerment of patients, with 35.2% working towards achievement.</p> <p>Information above is taken from the SHOT Recommendations survey, full results can be seen on the website <a href="https://www.shotuk.org/wp-content/uploads/myimages/2019-Recommendations-Survey.pdf">https://www.shotuk.org/wp-content/uploads/myimages/2019-Recommendations-Survey.pdf</a></p>
2019	National Blood Transfusion Committee (or the equivalent for the devolved countries), hospital transfusion teams and all teams involved in educating staff	Clinical and laboratory staff should be trained in fundamentals of transfusion, human factors, cognitive biases, investigating incidents and patient safety principles. Such a holistic approach will ensure safe, high-quality, patient-centred care and help embed an organisation-wide culture of learning from patient safety incidents	<p>Holistic training is in place and completed for nursing staff in 17.0% of organisations, clinical staff in 12.5% and scientific staff in 25.0%. Most organisations stated that training was available for staff (38.6% for nursing staff, 40.9% for clinical staff and 39.8% for scientific staff). 2.3% of organisations stated that training was not available for nursing staff, 4.5% for clinical staff and 1.1% for scientific staff.</p> <p>Information above is taken from the SHOT Recommendations survey, full results can be seen on the website <a href="https://www.shotuk.org/wp-content/uploads/myimages/2019-Recommendations-Survey.pdf">https://www.shotuk.org/wp-content/uploads/myimages/2019-Recommendations-Survey.pdf</a></p>
2019	Hospital chief executives and medical	All healthcare organisations should incorporate the principles of both Safety-I and Safety-II	The majority of organisations have processes for identification of improvements from unsafe/suboptimal care (71.6%), although

	directors, National Blood Transfusion Committee (or the equivalent for the devolved countries), hospital transfusion teams	approaches to improve patient care and safety. Healthcare leaders should proactively seek signals for improvement from unsafe, suboptimal as well as excellent care	8.0% stated that they had no plans to implement this. 51.1% of organisations stated that they had processes in place for identification of improvements from excellent care, with 25.0% working towards this goal and 13.6% had no plans to implement.  Information above is taken from the SHOT Recommendations survey, full results can be seen on the website <a href="https://www.shotuk.org/wp-content/uploads/myimages/2019-Recommendations-Survey.pdf">https://www.shotuk.org/wp-content/uploads/myimages/2019-Recommendations-Survey.pdf</a>
2019	Hospital chief executives	Healthcare management must recognise that safety and outcomes are multifaceted, a linear view of safety does not fully acknowledge the interdependencies of resources including their leadership, adequate staffing and knowledge. Healthcare leaders should ensure these are all in place to improve patient safety	Leadership roles were in place in 50% of organisations, with 31.8% working towards this. 23.9% stated that there were adequate staff, with 39.8% working towards this goal and 34.1% experiencing difficulties with achieving adequate staffing. Staff knowledge was achieved in 40.9% of organisations with 40.9% working towards achievement.  Information above is taken from the SHOT Recommendations survey, full results can be seen on the website <a href="https://www.shotuk.org/wp-content/uploads/myimages/2019-Recommendations-Survey.pdf">https://www.shotuk.org/wp-content/uploads/myimages/2019-Recommendations-Survey.pdf</a>
2018	Hospital Chief Executives and Medical Directors, National Blood Transfusion Committee, Hospital Transfusion Teams	All National Health Service (NHS) organisations must move away from a blame culture and towards a just and learning culture. This is vital to ensure that NHS organisations recognise and deal with people in a just way, acknowledging through learning to support the changes required when people make errors. Sometimes those errors can be human, or behavioural choices and some through system error	The Key Recommendations survey was circulated 6 months after the annual report to understand progress with implementing Key SHOT Recommendations in NHS Trusts/Health Boards. 59.8% respondents stated that their organisation had never had a blame culture. 51.6% respondents stated the SHOT recommendations influence practice toward moving to a just and learning culture. Opportunities were identified for collaboration, sharing and learning through the survey. Full survey results can be viewed here: <a href="https://www.shotuk.org/resources/shot-surveys/">https://www.shotuk.org/resources/shot-surveys/</a> We are aiming to contact chief executives and medical/nursing directors, to

			raise awareness about transfusion related issues and help make transfusion safety a priority.
2018	Hospital Chief Executives, Hospital Risk Managers and Hospital Transfusion Teams	All clinical and laboratory staff should be encouraged to become familiar with human factors and ergonomics (HFE) concepts. All healthcare organisations should consider employing a qualified HFE professional and encourage healthcare professionals to collaborate with HFE experts and quality improvement professionals - this approach will help develop and embed sustainable system level improvements and maximise learning opportunities from adverse incidents	HF training is available online and SHOT. 66% of survey respondents had seen the HF video but Trust/Health Board IT issues and difficulties with media platforms have influenced accessibility. Full survey results can be viewed here: <a href="https://www.shotuk.org/resources/shot-surveys/">https://www.shotuk.org/resources/shot-surveys/</a> Recommendations have encouraged more take-up. HF training is rarely mandatory with much variation in access, delivery and target-audience. We are in the process of developing increasing amounts of HF educational resources including SHOT Bites/ a human factors video/Podcasts and potentially an overarching toolkit.
2018	All staff involved in transfusion practice	All transfusion decisions must be made after carefully assessing the risks and benefits of transfusion therapy. Clinical and laboratory staff must work collaboratively and in a co-ordinated fashion to be able to deliver individualised, holistic, patient-centred care	The A-E transfusion decision tree and SHOT administration checklist have been developed as resources. The 2019 report will further strengthen the recommendation of holistic patient centred care.
2017	Hospital Chief Executives and Medical Directors, National Blood Transfusion Committee, Hospital Transfusion Teams	Training in ABO and D blood group principles is essential for all laboratory and clinical staff with any responsibility for the transfusion process. This should form part of the competency assessments	Laboratory staff have made good progress with implementing ABO and D blood group training into competency assessments. Uptake among nursing and medical staff is lower. Barriers to implementation are described as competing priorities, paucity of financial resources and lack of staff engagement
2017	Hospital Chief Executives, Hospital Risk Managers and Hospital Transfusion Teams	All available information technology (IT) systems to support transfusion practice should be considered and these systems implemented to their full functionality. Electronic blood management systems should be considered in all clinical settings where transfusion takes place. This is no longer an innovative approach to safe	63% responded that full systems were in place across all relevant areas. Barriers to implementation were cited as cost/time and competing priorities

		transfusion practice, it is the standard that all should aim for	
2017	All staff authorising transfusion	A formal pre-transfusion risk assessment for transfusion-associated circulatory overload (TACO) should be undertaken whenever possible, as TACO is the most commonly reported cause of transfusion-related mortality and major morbidity	41% respondents have implemented the TACO checklist with a further 40% in the process of implementing. Barriers to implementation included competing priorities and lack of engagement.
2016	Trust/Health Board Chief Executive Officers and Medical Directors responsible for all clinical staff	<p>A checklist must be used at the patient's side as a final administration check prior to transfusion as standard of care. The checklist must include positive patient identification (forename, surname, date of birth and hospital number or other unique identifier). It should also confirm that the component is correct, ensure that it includes any specific requirements and that it has been prescribed for transfusion to this patient at this time. Errors are made with both one-person and two-person checks. Use of a verification process (two people working together, with challenge and response) may be more effective.</p> <p>Whatever bedside system is in place (including electronic systems) it should be assessed and include a validation step where someone has to sign to say that all steps have been followed.</p> <ul style="list-style-type: none"> <li>• Patients should be formally assessed for their risk of transfusion-associated circulatory overload (TACO) whenever possible since TACO is the most commonly reported cause of death and major morbidity. A revised checklist is shown in Chapter 18b (TACO) Figure 18b.1</li> </ul>	<p>This recommendation was endorsed by the Chief Medical and Nursing Officers for England with a CAS alert circulated in November 2017</p> <p>The TACO checklist continues to be a key recommendation as pulmonary complications remain the most frequent cause of death and major morbidity. The National Comparative Audit of TACO in 2017 demonstrated that risk factors are not being noted, nor all cases of TACO reported to SHOT</p>

2015	Trust/Health Board Chief Executive Officers and Medical Directors responsible for all clinical staff	<p>Be WARM – work accurately and reduce mistakes</p> <ul style="list-style-type: none"> <li>• A formal pre-transfusion risk assessment for transfusion-associated circulatory overload (TACO) should be performed whenever possible as TACO is the most commonly reported cause of death and major morbidity. An example is given in Chapter 13, Pulmonary Complications (Figure 13b.5)</li> <li>• Use a 5-point practice improvement tool (checklist) at the patient’s side immediately prior to connection of the transfusion. Never do this away from the patient. Two examples are illustrated below. Practice should be audited prior to introduction and regularly afterwards to demonstrate improved and safer practice</li> </ul>	As above. A new double challenge and response checklist has been piloted in a single hospital and others are invited to express interest in this. The new checklist will not be released until satisfactory pre and post-introduction audits demonstrate its effectiveness
2014	Trust/Health Board Chief Executive Officers, Hospital Transfusion Teams, Medical Directors responsible for all clinical staff	<ul style="list-style-type: none"> <li>• Transfusions should be given with the same attention to patient observations whatever the time of day or night</li> <li>• Transfusions at night must proceed where there is a clear clinical indication, and may be given as long as the staffing is sufficient to permit transfusion according to the standards defined in the BCSH guideline on administration of blood components 2009 (BCSH Harris et al. 2009). These standards include adequate pretransfusion assessment, observations at 15 minutes after the start of each component and regular visual observation throughout the transfusion</li> </ul>	

		<ul style="list-style-type: none"> <li>• Decisions to transfuse should not be made simply on the basis of the haemoglobin result, but taking into account the full medical history, the patient's current medical condition and the wishes of the patient. Junior medical staff should review the patient, consult the case notes and take advice from senior medical staff before deciding to transfuse at night, particularly when the team concerned are not familiar with the patient's case and are not responsible for the overall management plan</li> </ul>	
2014	UK Blood Services	<p>UK Blood Services should avoid the use of female donor plasma in the production of cryoprecipitate whenever possible</p> <ul style="list-style-type: none"> <li>• All UK Blood Services are encouraged to refer cases of suspected transfusion-related acute lung injury (TRALI) to the independent TRALI intensive care experts for assessment before laboratory investigations are initiated</li> </ul>	All blood services now use only male donor plasma to make cryoprecipitate
2013	National Blood Transfusion Committees, working with Regional and Hospital Transfusion Committees in association with NHS England patient safety domain and equivalent organisations in the devolved countries and	Process redesign: Annual SHOT data consistently demonstrate errors to be the largest cause of adverse transfusion incidents. In line with human factors and ergonomics research it may be better to redesign the transfusion process by process mapping and audit at local and national level, to design out the medical errors	We have held discussions with the National Clinical Audit (England) team and with the England National Blood Transfusion Committee chair. Audit of the transfusion process in a small number of large hospitals is planned as a pilot, to see why and how people make workarounds and take short cuts. A vein to vein audit is planned for the 3rd-4th quarter of 2018.

	the National Comparative Audit Programme		
2013	NHS England, patient safety domain	All ABO incompatible red cell transfusions to be included as 'never events': ABO incompatible transfusions may be fatal and are absolutely preventable. The two thirds that do not result in harm should be included as reportable 'never events'	NHS England, patient safety domain has published a revised 'Never Events' list (March 27th 2015). This includes 'transfusion of ABO-incompatible blood components or organs' but 'excludes where ABO-incompatible blood components are deliberately transfused with appropriate management' and 'excluded are scenarios in which clinically appropriate ABO-incompatible solid organs are transplanted deliberately'.  <a href="http://www.england.nhs.uk/wpcontent/uploads/2015/03/never-evnts-list-15-16.pdf">http://www.england.nhs.uk/wpcontent/uploads/2015/03/never-evnts-list-15-16.pdf</a>
2013	Care Quality Commission	Management of blood and blood component transfusion to be included as a specific standard by the Care Quality Commission. This should include the same subset of standards as currently apply to medicines (Outcome 9)	Discussions are in progress with the Care Quality Commission. Discussions have taken place between CQC and SHOT as to how SHOT data could be used by CQC to help understand transfusion practices. Reported benchmarking data will be shared with CQC to examine how this information can support inspections. CQC fully understand that rates of reporting vary considerably and for different reasons but guidance will be provided by SHOT to ensure these data are interpreted correctly and used appropriately during inspection to discover how Trusts manage risks and learn from errors. These questions are already in place for other areas
2013	Trust/Health Board Chief Executive Officers and Medical Directors responsible for all clinical staff	Don't give two without review: Transfusion associated circulatory overload is a significant hazard particularly when elderly or other patients at risk (renal impairment, cardiac disease, obstetric haemorrhage, gastro-intestinal haemorrhage) receive several units of blood without review and a check on the Hb level	Preliminary audit of hospitals shows that this is considered an important recommendation to action, but is difficult.

		This advice is inspired by a campaign devised by NHSBT's Patient Blood Management team	
2013	Trust/Health Board Chief Executive Officers and Medical Directors responsible for all clinical staff	Advice for patients: Day case or outpatient transfusions: with the increased emphasis on day case and community care, patients receiving transfusions need to be given printed advice, be advised to report any symptoms or complications and provided with a 24-hour contact number	This advice has been previously recommended in British Committee for Standards in Haematology (BCSH) guideline on the administration of blood components (BCSH Harris et al. 2009).
2012	Hospital, Trust and Health Board Chief Executive Officers, Risk Managers, Pathology Laboratory Managers and all staff involved in blood transfusion	Patient identification: Correct and positive patient identification at every step remains absolutely essential, and is the responsibility of every member of staff. Hospitals/Trust Boards should review their identification procedures to ensure that patients are safely identified throughout their hospital journey. All UK patient safety programmes should take the identification agenda forward as part of patient-centred care	
2013	Hospital Transfusion Team (HTT) Hospital Trust and Health Board Pathology Managers, supported by Chief Executive Officers	A zero-tolerance policy is recommended for the identification of all pathology specimens. In other words, samples should not be accepted by the laboratory for analysis without the standard 4 identifiers used for transfusion samples, first name, surname, date of birth and an identity number, ideally the National Health Service (NHS) number. All pathology samples should be taken only after confirmation of identity, and be labelled at the patient's side	
2012	All clinical and laboratory staff in Hospitals, Trusts and Health Boards, General Practice and Community Hospitals	Communication and handover: Hospital and primary care staff should work at building relationships to improve communication and handover. Communication failures within hospitals, between hospitals and between hospital and primary care are all responsible for adverse	



		incidents. Good communication is required between laboratories and clinical staff and vice versa to ensure specific requirements are met, and correct results communicated to clinical areas	
2011	Trust/hospital/Health Board Chief Executive Officers (CEOs); for formal consideration by the General Medical Council (GMC); Nursing and Midwifery Council (NMC)	Correct patient identification should be a core clinical skill. Errors of identification impact on every area of medicine. This should be given formal consideration by the GMC and NMC	SHOT staff met with Vicky Osgood from the GMC who made several useful suggestions and contacts. These will be followed up.
2011	Hospital Transfusion Team (HTT)	The use of a transfusion checklist across the complete transfusion process is recommended to ensure correct completion of each step. A model template can be found on the SHOT website at <a href="http://www.shotuk.org/resources/currentresources">www.shotuk.org/resources/currentresources</a>	
2011	UK Transfusion Laboratory Collaborative (UKTLC), UK National External Quality Assessment Service for Blood Transfusion Laboratory Practice (UK NEQAS BTLP), Education subgroup of the National Blood Transfusion Committee (NBTC)	Education and competency in blood transfusion safety remains a key issue in patient safety. Competency assessment must be underpinned by an adequate and assessable knowledge base for both laboratory and clinical staff at every level	The UKTLC have undertaken two laboratory surveys in 2011 and 2013 and a report is in preparation, together with updated laboratory standards.
2011	For formal consideration by the General Medical	Knowledge of transfusion medicine and prescribing of blood components is an essential core requirement for any practitioner (medical and	The education subgroup of the NBTC is making recommendations for changes to several curricula based on their

	Council (GMC) and Nursing & Midwifery Council (NMC)	nursing) who prescribes or authorises blood components	review of all undergraduate, foundation year and specialist curricula.
2011	Trust/hospital/Health Board Chief Executive Officers (CEOs), General Practitioners (GPs)	<p>Clinical and transfusion laboratory handover templates should be improved to include information about diagnosis (particularly haemoglobinopathies), irregular antibodies and special requirements.</p> <p>Patients are vulnerable with the increase in shared care between hospitals, within a hospital particularly between shifts, and between hospital and community. (A handover tool kit for acute care is available at <a href="http://www.rcplondon.ac.uk/resources/acutecare-toolkit-1-handover">http://www.rcplondon.ac.uk/resources/acutecare-toolkit-1-handover</a>)</p>	
2010	NBTC, Trust/hospital chief executive officers (CEOs)	There should be a review of the practical aspects of the implementation of NPSA SPN 14 and other national transfusion competency initiatives with a view to new guidance being issued and that Trusts should ensure that individual transfusion practitioners are fully supported with the allocation of additional link nurses in the escalation of training and assessment.	Education in transfusion practice and the practical aspects of SPN14 have been reviewed by subgroups of the National Blood Transfusion Committee (NBTC), further work is underway, and competency is further discussed in Chapter 4 of the 2011 Annual SHOT Report.
2010	BCSH, Transfusion Taskforce	The existing British Committee for Standards in Haematology (BCSH) guidelines for the Administration of Blood Components should be supplemented by an amendment dealing with measures to avoid the development of TACO and over-transfusion, particularly in vulnerable patients, including pre-transfusion clinical assessment, rate of transfusion, fluid balance, regular monitoring of Hb and prescription of diuretics.	An amendment to the BCSH guidelines on blood administration <sup>14</sup> on measures to avoid TACO has been published.

2010	NHSBT	There should be a systematic review of the application of weight-related empirical formulae or algorithms in prescribing for low body weight adults	
2010	Education Working Groups of national transfusion committees	Transfusion medicine must be part of the core curriculum for doctors in training.	See above; this work is progressing well.
2010	Trusts/hospitals	To avoid inappropriate and unnecessary transfusions due to lack of adequate clinical handover, decisions made concerning the need for transfusion support should be documented in the clinical handover templates.	Following a meeting with the President of the Royal College of Physicians and colleagues SHOT will prepare the key messages for dissemination in various formats (e.g. 'top tips', a 'concise guideline'). In addition, a teaching slide set will be prepared that can be downloaded from the SHOT website.
2010	Hospital transfusion teams (HTT)s	All under- and delayed transfusions that have a significant impact on patient outcomes should be reported to SHOT.	An increase in reporting of delayed or under-transfusion has occurred in 2011 in keeping with the 2010 recommendations. The importance of this is demonstrated by the death of one patient caused by under-transfusion reported in Chapter 9 of the 2011 Annual SHOT Report.
2010	SHOT team	The Dendrite database should be enhanced to fully capture the salient clinical features and details of the timeliness of blood component support.	The SHOT Database has been enhanced in order to capture reports of delayed transfusions.
2010	Trusts/hospitals	Trusts should implement the recommendations of the UK Transfusion Laboratory Collaborative	The UK Transfusion Laboratory Collaborative (UKTLC) met in January 2012 and discussed the concerns about competency particularly as the number of laboratory errors has increased in 2011 (see Chapter 7). The UKTLC plan to address this in association with UK National External Quality Assessment Service for Blood Transfusion Laboratory Practice (UK NEQAS BTL). Case-based scenarios will be developed and recommendations will be made to encourage the wider use of root cause analysis when incidents and near miss events occur. The UKTLC also plan to assess the applicability of their published recommendations <sup>23</sup> to the developing 'hub and spoke' models for transfusion. Concerns about the reliability of point of care testing for Hb

			assessments have begun to be addressed by a pilot study undertaken by UK NEQAS (General Haematology). A preliminary study of blood gas analysers and HemoCue machines has demonstrated a wide variation in results obtained and therefore a need for wider training and QC assessments (B. De la Salle, Scheme Manager UKNEQAS General Haematology, personal communication).
2010	Manufacturers of laboratory IT systems	Work should continue with suppliers of LIMS to improve the capability of IT systems to generate warning flags and implement component selection algorithms based on data incorporated in the component label. These improvements should be in line with the recommendations of the BCSH guidelines on laboratory IT systems currently in preparation.	
2009	CMOs' Blood Transfusion Committees in England, Wales, Scotland and Northern Ireland working with stakeholders, blood transfusion services, clinical and laboratory specialists and manufacturers	Hospital transfusion laboratories need to liaise closely with manufacturers to develop and implement standard, detailed specifications for electronic systems in the laboratory, at the bedside and at the clinical-laboratory interface. An education package including minimum knowledge and skills, the appropriate use of these systems, and appreciation of their limitations should be a part of this joint project.	The IT subgroup of the NBTC is currently surveying hospitals' use and/or plans for implementation of IT including transfusion laboratory systems, barcoded wristbands, wireless bedside IT, electronic blood fridges and electronic laboratory requesting. It will also seek to standardise requirements for blood transfusion in preparation for the implementation of the Clinical Records Service and take opportunities to link with other national patient safety initiatives using similar bedside technology
2009	SHOT and its reporters, UK blood services and their R&D directorates	All pulmonary complications of transfusion should be recorded and reported to haemovigilance systems even if they do not fully fit existing criteria.	A pulmonary complications subgroup convened by SHOT has considered various approaches and the following have been proposed:

		Research should be initiated to evaluate the current inclusion and exclusion criteria, especially for TRALI and TACO. A register of possibly implicated donors should be kept by the blood services.	<ol style="list-style-type: none"> <li>1. Firstly, validation of the current approach of categorising cases of TRALI;</li> <li>2. Constitution of a second expert panel to review potential TAD and TACO cases on a regular basis since their distinction from ATR and/or TRALI can be difficult;</li> <li>3. It has been accepted that a Dendrite enhancement will be required to capture adequate information on all pulmonary cases to facilitate their correct classification, and that changes to this aspect of the database should be trialled during 2011.</li> </ol>
2009	NBTC, DH, Trust / Hospital CEOs	A patient education campaign should empower recipients of blood transfusion, and all patients undergoing tests, procedures and surgery, or receiving drugs and therapies, to ask the staff before they carry out the intervention; 'Do you know who I am?'	A national patient education campaign was released in 2012. In addition, the Department of Health in its current list of "never events" has included "Death or severe harm as a result of administration of the wrong treatment following misidentification due to a failure to use standard wristband (or identity band) identification processes"
2009	DH, trust CEOs	Trusts must implement the use of a documented handover tool, such as the one recently developed by the Royal Colleges, as part of a formal patient handover system.	It is well recognised that clinical handover carries risks arising from poor communication and systematic error. The Royal College of Physicians (RCP) conducted a survey of fellows and members in 2010, which was followed by a workshop dedicated to handover. From this work, a simple and pragmatic toolkit has been devised, which following consultation will be made available on the website. This toolkit will contain standards for the structure and content of a handover document developed by the RCP in 2008. The standards are evidence and consensus based and templates and related implementation tools (e-learning tools, audit tools) are available at <a href="http://www.rcplondon.ac.uk/resources/clinical/medical-recordkeeping">http://www.rcplondon.ac.uk/resources/clinical/medical-recordkeeping</a> .
2008	HTTs	Awareness of criteria for reporting adverse events & reactions. Reporting organisations should ensure that all members of the hospital transfusion team and the broader staff involved in	SHOT has been active in producing and publicising reporting criteria via the website, newsletters, the Annual Report, and local, regional and national meetings. In 2009 there was again a marked increase in reporting to SHOT, and more importantly a

		<p>the transfusion process are fully aware of the criteria for reporting adverse events and reactions to SHOT (and MHRA) including the reporting of cell salvage and Near Miss events. Details of what to report and how to report it are readily available on the SHOT and MHRA/SABRE websites as well as in the annual SHOT Report &amp; Summary</p>	<p>reduction in the number of reporting organisations sending very few reports or reports in only a few categories. SHOT will continue its programme of activities in 2010, and in particular the SHOT Transfusion Liaison Practitioner will be working closely with HTTs through the hospital liaison network in the English regions. It is anticipated that the new Dendrite-based system will facilitate even greater participation in SHOT reporting now and in the future.</p>
2008	<p>NBTC, and equivalents in Scotland, Wales &amp; Northern Ireland. Developers of software for laboratory IT systems</p>	<p>A national specification for transfusion laboratory IT systems. A national specification for transfusion laboratory IT systems should be developed with minimum standards, which should be met by all hospital transfusion laboratories participating in any way in pretransfusion testing or issuing of blood components for transfusion. The national transfusion committees should lead this initiative in collaboration with the UK Transfusion Laboratory Collaborative, BCSH and BBTS. Liaison with software developers is essential to enable safety initiative to be effectively incorporated into existing systems</p>	<p>The IT subgroup of the National Blood Transfusion Committee has been reconvened in 2010 and will be developing a minimum IT specification for hospital laboratories, working with key stakeholders at NHSBT, NPSA and the Transfusion Managers Working Group. It will also prepare the way for working relationships with manufacturers of laboratory computer systems.</p>
2008	NPSA	<p>Competency assessment and standardised, transferable competency certification of all staff involved in transfusion. Hospitals and Trusts are in the process of rolling out competency assessments for all staff involved in the transfusion process as a result of the NPSA recommendation (SPN 14) and the MHRA requirements for laboratory competencies. Comprehensive competency frameworks have been developed by NPSA which are used within trusts as a basis for local training and competency assessments. However, a standard, nationally transferable, checklist of</p>	<p>The NPSA has produced further clarification and guidance about the implementation of SPN 14 (November 2006) sent in the form of a letter to Nursing Directors and Medical Directors.<sup>13</sup> In addition there have been further enhancements of the toolkit available on the website</p>

		minimum requirements for certification for staff involved in transfusion needs to be developed, agreed and disseminated. The NPSA should initiate this project in collaboration with relevant stakeholders.	
2007	NBTC, GMC, PMETB, Royal Colleges, Deaneries	Transfusion Medicine must be part of the core curriculum for doctors in training.	The Royal Colleges and the Specialist Societies sub-group of the NBTC is addressing this.
2007	NBTC, UKTLC, BBTS, IBMS, Trust/hospital CEOs	Professional, accredited staff must take responsibility for transfusion safety in the laboratory and in clinical practice.	The UKTLC has published minimum standards for hospital transfusion laboratories. <sup>10,11</sup>
2007	NBTC, BCSH, RCM, RCOG, RCGP, HTTs and HTCs	Obstetricians and midwives must be familiar with the anti-D prophylaxis programme and its rationale.	Educational days have taken place and been well attended. There appears to be a knowledge gap and educational programmes must continue to address this.
2007	DH, MHRA, SHOT, CEOs, HTCs, BTS	Participation in haemovigilance must be improved as it is mandatory in the UK and the rest of Europe.	Reporting to SHOT increased by 85% between 2007 and 2008, and a further 23% in 2008–2009
2006	Hospital CEOs, NTLC, BBT network, RCN, BBTS	Speciality accredited laboratory and clinical staff in all hospitals	The UKTLC has delivered recommendations to the DH.
2006	Trust/hospital CEOs, SHOT, consultants with responsibility for transfusion, HTT, HTC	Comprehensive reporting to SHOT by all hospitals.	SHOT reporting has definitely increased in 2008 and 2009, with increased reports, more participating organisations and more reports sent per organisation
2005	Consultant haematologists with responsibility for transfusion, HTTs, HTCs	Appropriate use of blood components.	Overall reduction in red cell usage > 15% in last 5 years nationwide. National Comparative Audit (NCA) platelet audit showed widespread inappropriate use of platelets and nonadherence to guidelines ( <a href="http://www.nhsbtaudits.co.uk">www.nhsbtaudits.co.uk</a> ).
2004	RTCs and user groups	The RTC structure provides a potential forum for debate and sharing of problems and solutions in a supportive environment with expert clinical input. SHOT reportable incidents should be a standing agenda item for regional BMS forums and TP	NBS Hospital Liaison Teams focused support on RTCs in 2005. RTCs set up working groups in 2006. Realignment of RTCs with SHA regions in 2007.

		meetings. The RTCs should support translation of guidelines into local practice.	
2002	Trust CEOs	HTTs must be established and supported.	Survey in 2004 (Murphy & Howell) showed 70% of Trusts had HTT but only 30% were supported. A further survey in 2006 (Murphy & Howell) stated that 97% of Trusts had an HTC and 96% a TP.
2002	Medical Royal Colleges, Universities	Blood transfusion should be in the curriculum of specialist trainees, especially anaesthetists and critical care nurses.	The Royal Colleges and the Specialist Societies subgroup of the NBTC was established in 2007.
2002	GMC, PMETB, Undergraduate Deans, NMC	Blood transfusion must be in the curriculum for student nurses, medical undergraduates and newly qualified doctors.	An education subgroup of the NBTC has been established in 2007. SNBTS training package <a href="http://www.learnbloodtransfusion.org.uk">www.learnbloodtransfusion.org.uk</a> endorsed in Scotland, Wales and NI.