

Key Messages and Recommendations 4

Authors: Shruthi Narayan and Mark Bellamy

Transfusions continue to be very safe in the United Kingdom (UK): with approximately 2.3 million blood components issued in the UK in 2018, risks for transfusion as calculated per 100,000 components issued translates to a risk of death close to 1 in 117,000 and of serious harm close to 1 in 21,000 components issued. Pulmonary complications post transfusion and delays in transfusion continue to be the leading causes of death. The number of transfusion-associated circulatory overload (TACO) cases reported to SHOT have increased steadily over the last few years. Key recommendations in this area from the recent SHOT reports including the need to undertake a formal pre-transfusion risk assessment for TACO whenever possible and using weight-adjusted red cell dosing to guide the appropriate number of units required for all nonbleeding adult patients (Bolton-Maggs et al. 2018 and Grey et al. 2018) continue to be applicable.

Since SHOT (the UK confidential haemovigilance reporting scheme) began in 1996, the key messages and the recommendations have been vital in improving transfusion safety and have impacted practices right from the selection and management of donors to changes in hospital practices with improvements in education and training. However, despite these measures, most incidents continue to result from mistakes, often multiple, in the transfusion process. Similar themes emerge in the incidents reported with poor communication among staff, gaps in knowledge and training, instances of poor clinical decision making, deviations from standard procedures, staffing issues and overall prevalent culture in teams and organisations that prevent learning from experience and inhibit improving transfusion and patient safety.

It is time to have a holistic approach towards achieving safer systems in healthcare. Rather than solely focussing on safety of particular processes, there is a need to rethink strategy and consider the people involved, addressing their behaviours, attitudes, relationships and culture. It is important to decentralise safety, empower professional judgement in all staff and see people as resources to harness not problems to control. While recording, reporting and trending are important, we need to actively move from a reactive system to a proactive system. Recording and learning from 'near misses' is a step in this direction and such events continue to account for a large proportion of the incidents reported to SHOT (1451/3326, 43.6%) and have increased in 2018, n=1451, compared to n=1359 in 2017. Identifying and investigating near misses is a key element to finding and controlling risks before actual harm results. These can significantly improve transfusion safety and enhance the safety culture within healthcare.

The long term aims of an incident reporting system, such as SHOT, is to help reduce incidents that result in harm while moving towards increased reporting of near miss events for future learning.



Key SHOT messages

- **Learning from near misses:** Identifying and investigating near misses is a key element to finding and controlling risks before actual harm results. These can significantly improve transfusion safety and enhance the safety culture within healthcare
- **Investigating incidents:** Investigations must be systematic and thorough, proportionate to the risk and impact and identify systems-based corrective and preventative actions. It is important to review whether the corrective actions were successful in improving patient safety. Systemic and organisational problems should be fully investigated, as staff related amendments are less likely to resolve underlying systemic issues
- **Rethinking transfusion education:** Transfusion training with technology enhanced learning for all healthcare professionals should be geared towards delivering a high quality patient care as members of a multidisciplinary team, in addition to a thorough and relevant knowledge base in transfusion, clinical and laboratory staff must be trained in patient safety principles with recognition of human factors and quality improvement approaches. Multiprofessional learning leads to better collaborative working, better teamwork between health professionals improves patient/donor outcomes and helps overcome any perceived barriers that can hinder communication (McPherson 2001)
- **Staffing challenges:** These are often quoted as contributory in many events reported to SHOT. Staffing levels must be appropriate in all areas involved in transfusion. Staff should not be permitted (let alone instructed) to undertake tasks for which they have not been competency-assessed. This is a systemic or management issue, not an individual one. Addressing this key issue will help towards reducing and capturing human error. Under-reporting of incidents reduces learning opportunities and is a problem if understaffing means known incidents are not reported
- **Standard operating procedures (SOP):** Many incidents reported to SHOT appeared to result from failure to follow correct procedures. The types of reported deviations include: not following stipulated steps; skipping steps; accidental omissions; performing activities without authorisation; doing additional activities; inadequate processes; wrong procedure being performed. SOP need to be simple, clear, easy to follow and explain the rationale for each step. This will then ensure staff are more engaged and more likely to follow the SOP

Recommendations

Transfusion is a complex multistep process involving members of several different professional groups i.e. nurses, doctors, laboratory scientists as well as the donors and recipients. The key recommendations from the previous Annual SHOT Reports remain pertinent. All healthcare organisations involved in transfusion are encouraged to continue implementing these and ensuring measures have been effective. The following system based strategies will help improving transfusion and overall patient safety.

The framework of a just and learning culture

There is an urgent need to have a culture shift, a significant change from a culture using an approach to deal with system errors punitively. It is one that has prevented learning, listening, openness, honesty, excellence in care and ultimate patient safety. NHS organisations need to continuously develop systems that 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. Staff should encourage each other to see errors as events and those events as opportunities to learn, which in turn will improve understanding while encouraging one another to be honest in disclosure without fear of retribution in every learning and supportive organisation. The framework of a just culture ensures balanced accountability for both individuals and the organisation responsible for designing and improving systems in the workplace. The NHS Improvement's

'A Just Culture guide' provides a powerful tool to help promote cultural change in organisations or teams where a blame culture is still prevalent (NHSI 2018). Such a culture will help empower employees to proactively monitor practices at the workplace and ensure safety. Risk reduction will be achieved by focusing on human behaviours and redesigning systems.

The Institute for Healthcare Improvement's (IHI) 'Leading a Culture of Safety: A Blueprint for Success' (IHI 2017) suggests that leaders seeking to transform their organisation's culture would do well to commit focused attention on six key areas:

- Establishing a compelling vision for safety
- Building trust, respect, and inclusion
- Educating and engaging board members in patient and workforce safety issues
- Emphasising safety in the development and recruitment of clinical leaders and executives
- Adopting just culture principles to focus on systems flaws over individual blame when things go wrong
- Setting and modelling behaviours such as transparency, active communication, and civility as expectations for all

In healthcare, while each of these is an essential element for leaders to address, they are also interdependent. It is critical for health leaders to recognize that safety (transfusion safety, medication safety and overall patient safety) — or the lack of it — impacts many other elements within their organisations, from reputation to financial health to staff retention. Safety must become a core value in all organisations.

When things do go wrong, patients and their families expect three things: to be told honestly what happened, what can be done to deal with any harm caused, and to know what will be done to prevent a recurrence to someone else. All healthcare professionals have a duty of candour. The General Medical Council (GMC) and Nursing Medical Council (NMC) have provided guidance applicable to all doctors, nurses and midwives registered with GMC and NMC across the UK. These can be accessed using the following links:

<https://www.gmc-uk.org/ethical-guidance/ethical-guidance-for-doctors/candour---openness-and-honesty-when-things-go-wrong> and <https://www.nmc.org.uk/standards/guidance/the-professional-duty-of-candour/read-the-professional-duty-of-candour/>. Every healthcare professional must be open and honest with patients when something that goes wrong with their treatment or care causes, or has the potential to cause, harm or distress. They must also be open and honest with their colleagues, employers and relevant organisations, and take part in reviews and investigations when requested. In addition, they must be open and honest with their regulators, raising concerns where appropriate. Staff must support and encourage each other to be open and honest, and not stop someone from raising concerns. It is only through this approach that healthcare professionals can work together with patients to make systems safer and restore the confidence that the public places in our healthcare services.

Main recommendation 1

- 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

Action: Hospital Chief Executives and Medical Directors, National Blood Transfusion Committee, Hospital Transfusion Teams

Human factors

Human factor approaches should underpin all patient safety and quality improvement practices, offering an integrated, evidence-based and coherent approach to safety, quality and excellence of care provided. For the last few years SHOT has highlighted the importance of human factors and ergonomics (HFE) when reporting transfusion incidents. Since 2016 a human factors investigation tool (HFIT) has been linked to the SHOT online reporting database and lessons learned from those questions have been published in the last two Annual SHOT Reports (Bolton-Maggs et al. 2017 and 2018). From January 2017 a self-learning package was made available to help reporters consider all human factors aspects of adverse incidents <https://www.shotuk.org/reporting/human-factors-tuition-package/> and in January 2018 a link to a simple animated video demonstrating healthcare human factors was also added <https://t.co/qTeUoPiUlq>. However, the uptake has been disappointing with difficulties in IT access and WiFi availability among the reported factors.

All staff in the NHS must be familiar with HFE concepts. To truly improve transfusion and overall patient safety, we need much more than just awareness of these principles. HFE concepts need to be integrated into all healthcare systems. In 2004, the National Patient Safety Agency (NPSA 2004) recommended the use of Human Factors as part of the 'Seven Steps to Patient Safety'. There has been good progress since then including a National Concordat bringing together several NHS organisations. SHOT support the NPSA/National Concordat recommendations and all hospitals should consider how these are implemented with respect to transfusion.

There is an increasing momentum to widely adopt HFE approaches in the NHS. These include a national recommendation for accredited healthcare tailored HFE education (HEE 2016, Hignett et al. 2016) and engagement with HFE expertise for the review of incidents (Department of Health 2015). The Healthcare Safety Investigation Branch (HSIB) Annual Review 2017/18 states that their investigation model is based on a deep knowledge of human factors (HSIB 2018, p.2). The Care Quality Commission (CQC) document Quality Improvement in Hospital Trusts encourages a systems approach to quality improvement in hospitals (CQC 2018a, p34) and their analysis of Never Events in 2017-18 highlights that the overwhelming majority require human factors based solutions (CQC 2018b, p4). The GMC has published plans to embed human factors into the investigations of adverse events by rolling out human factors training to all the fitness to practise decision makers, case examiners and clinical experts (GMC 2018). The NMC first included reference to human factors in their code of conduct published in 2015 and this was recently updated in October 2018 (NMC 2018, p17).

SHOT strongly encourages all staff involved in transfusion to attain as much knowledge as possible about HFE principles that can be incorporated into their day-to-day work. Understanding HFE would be particularly useful when investigating serious incidents in order to identify system and organisational problems, which could lead to more effective corrective and preventative actions. It will be of great help to encourage the contribution of professional (qualified) Ergonomists & Human Factors Specialists via consultation and employment.

HFE expert facilitated systemic incidents analysis with healthcare stakeholders can potentially enable effective and efficient patient safety incident investigation identifying remedial actions on underlying system issues beyond individual issues. HFE practitioners could assist at organisational and/or regional level.

Main recommendation 2

- 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

Action: Hospital Chief Executives, Hospital Risk Managers and Hospital Transfusion Teams

Making better transfusion decisions

It is evident from several reported cases in the Annual SHOT Report that fundamental errors are being made in making transfusion decisions, see Chapter 10, Avoidable, Delayed or Under/Overtransfusion (ADU). There are continued reports of transfusions in patients with haematinic deficiency without any evidence of bleeding or haemodynamic compromise. There were 27 cases of avoidable O D-negative red cells, a precious and limited resource. Delays in transfusion continue to be of concern. Delays in recognition of gastrointestinal bleeds and errors in communication are common. TACO reports continue to rise, while this could be due to increased awareness and therefore higher reporting, clinicians need to be vigilant and assess patients and have a holistic approach individualised to each patient when taking transfusion decisions. As recommended previously, using a TACO checklist will help identify and potentially address risk factors in a timely manner. Basic errors such as clinicians acting on erroneous blood results (see Chapter 23, Paediatric Cases) have resulted in transfusion errors. It is of paramount importance that personnel interpreting blood results understand potential variables which will make laboratory tests unreliable.

Tools such as the one below are a simplistic approach to promote better decision making in day-to-day transfusion practice thus improving patient blood management and patient safety. ABC and its variations are initialism mnemonics for essential steps used in resuscitation when dealing with a patient. A similar ABCDE approach to facilitate decision making in transfusion is proposed which will promote evidence-based decisions and safer patient care (see Figure 4.1).

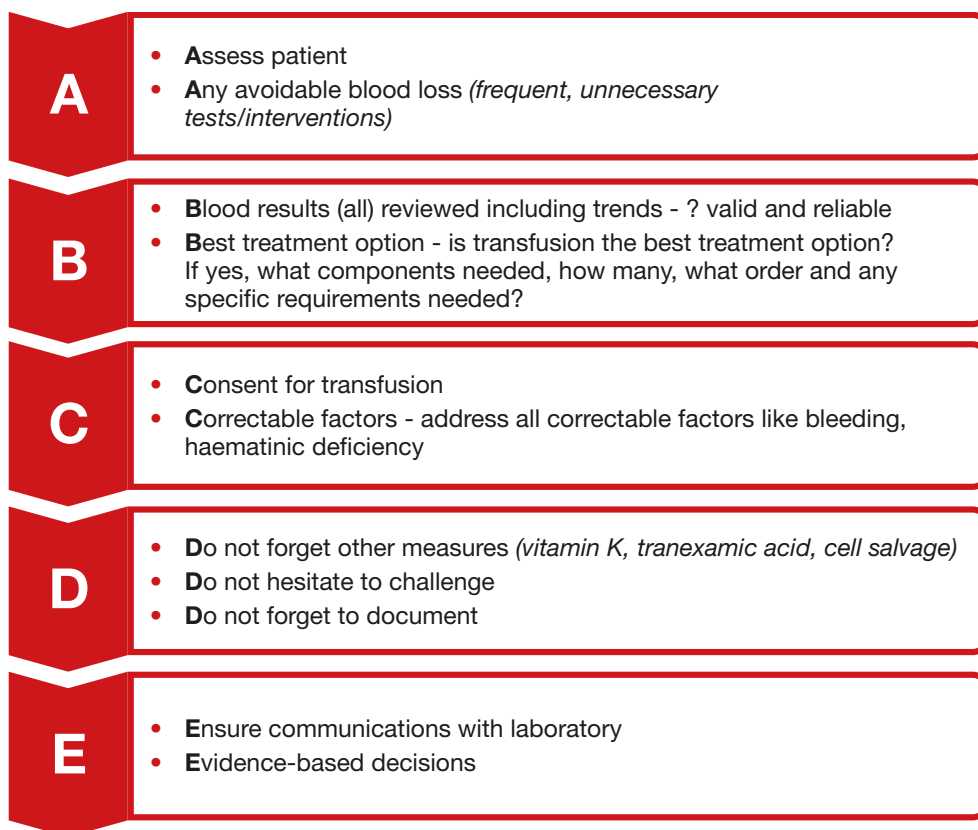


Figure 4.1:
The A-E Decision Tree to facilitate decision making in transfusion

All transfusion decisions must be made after carefully assessing the risks and benefits of transfusion therapy and clinicians should base their decision whether to transfuse blood components on the patient's complete clinical picture and not quantitative criteria only. Transfusing patients when medically necessary and not delaying transfusions when clinically warranted is key to promoting patient safety. All patients should be assessed prior to transfusion so that optimal measures can be undertaken to prevent and manage potentially preventable complications such as TACO.

Main recommendation 3

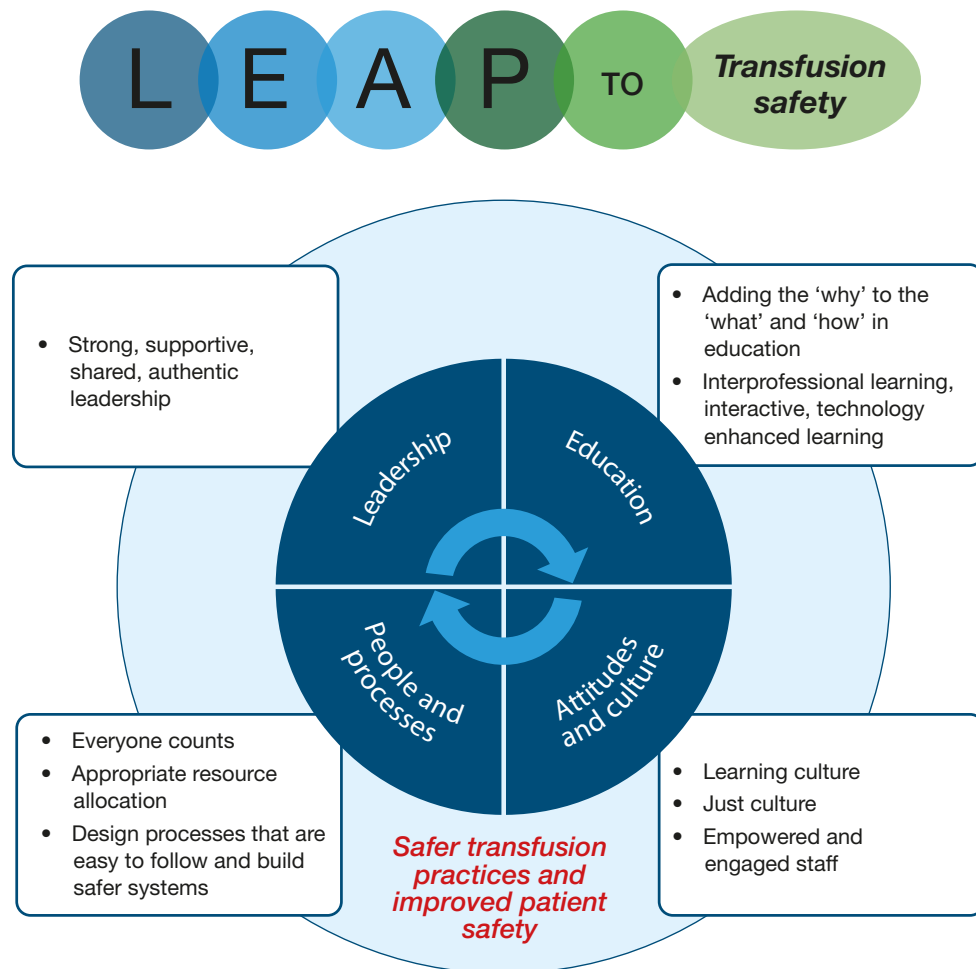
- All transfusion decisions must be made after carefully assessing the risks and benefits of transfusion therapy. Clinical and laboratory staff must work collaboratively and in a co-ordinated fashion to be able to deliver individualised, holistic, patient-centred care

Action: All staff involved in transfusion practice

Bringing these all together

Based on the above key messages and recommendations, the following matrix covers all the key aspects to improving transfusion safety and overall patient safety. Improvements need to be focussed in all these areas to be effective.

Figure 4.2:
LEAP to
transfusion
safety



References

- Bolton-Maggs PHB (Ed), Poles D et al. (2017) on behalf of the Serious Hazards of Transfusion (SHOT) Steering Group. The 2016 Annual SHOT Report. <https://www.shotuk.org/shot-reports/> [accessed 30 May 2019].
- Bolton-Maggs PHB (Ed), Poles D et al. (2018) on behalf of the Serious Hazards of Transfusion (SHOT) Steering Group. The 2017 Annual SHOT Report. <https://www.shotuk.org/shot-reports/> [accessed 30 May 2019].
- CQC (2018a) Care Quality Commission: Quality improvement in hospital trusts: sharing learning from trusts on a journey of QI. <https://www.cqc.org.uk/publications/evaluation/quality-improvement-hospital-trusts-sharing-learning-trusts-journey-qi> [accessed 30 May 2019].
- CQC (2018b) Care Quality Commission: Opening the door to change, NHS safety culture and the need for transformation. https://www.cqc.org.uk/sites/default/files/20181224_openingthedoor_report.pdf [accessed 30 May 2019].
- GMC (2018) General Human Factors training to be rolled out for investigators. <https://www.gmc-uk.org/news/news-archive/human-factors-training-to-be-rolled-out-for-investigators> [accessed 30 May 2019].
- Grey S, Farrar K, et al. (2018) A web-App for weight-adjusted red cell dosing: post-development implementation and clinical effectiveness. *Br J Haematol* 2018;**181** Suppl 1:146.
- HSIB (2018) Healthcare Safety Investigation Branch Annual Review 2017/18. https://www.hsib.org.uk/documents/46/HSIB_Annual_Review_July_2018_0lw8VVx.pdf [accessed 30 May 2019].
- HEE (2016) Health Education England: Improving Safety through Education and Training. <https://www.hee.nhs.uk/sites/default/files/documents/Improving%20safety%20through%20education%20and%20training.pdf> [accessed 30 May 2019].
- Hignett S, Lan A, Pickup L, et al. (2018) More holes than cheese. What prevents the delivery of effective, high quality, and safe healthcare in England? *Ergonomics* 2018;**61**(1):5-14.
- Human Factors in Healthcare: A Concordat from the National Quality Board. <https://www.england.nhs.uk/wp-content/uploads/2013/11/nqb-hum-fact-concord.pdf> [accessed 30 May 2019].
- IHI (2017) Leading a Culture of Safety: A Blueprint for Success. Boston, MA: American College of Healthcare Executives and Institute for Healthcare Improvement. <http://www.ihl.org/resources/Pages/Publications/Leading-a-Culture-of-Safety-A-Blueprint-for-Success.aspx> [accessed 30 May 2019].
- NHSI (2018) NHS Improvement: A just culture guide. <https://improvement.nhs.uk/resources/just-culture-guide/> [accessed 30 May 2019].
- NMC (2018) The Code. Professional standards of practice and behaviour for nurses, midwives and nursing associates. <https://www.nmc.org.uk/globalassets/sitedocuments/nmc-publications/nmc-code.pdf> [accessed 30 May 2019].
- NPSA (2004) National Patient Safety Agency: Seven steps to patient safety. <https://www.publichealth.hscni.net/sites/default/files/directorates/files/Seven%20steps%20to%20safety.pdf> [accessed 30 May 2019].