Transfusion Training Checklist

for Haematology Specialist Trainees

**Aims of the Transfusion Training Checklist**

* The Transfusion Training Checklist for Haematology Trainees is aimed at integrating transfusion training provided by the UK Blood Services with clinical and laboratory training within hospitals. In England, NHS Blood & Transplant (NHSBT) organises Essential, Intermediate and Revision courses targeted towards different seniority of trainees.
* It is recognised that there is variability between services and expertise within hospitals so the provision of hospital based training should be considered within rotations as a whole. The relevant practical training covering key topics can be split between smaller general hospitals and teaching hospitals within the rotation.
* Some of this practical training can be undertaken within extended attachments to the blood service where available.
* The trainees in conjunction with the educational supervisor should agree time frames for completion of the different topics in the checklist.
* The topics are mapped to the Joint Royal Colleges of Physicians Training Board (JRCPTB) Haematology Curriculum 2010 (amendment 2012) available on the JRCPTB website [www.jrcptb.org.uk](http://www.jrcptb.org.uk).
* Examples for evidence for training collected such as case based discussion should be entered into the trainee’s Haematology ePortfolio.
* The checklist also includes examples of training resources available including e-learning modules
* In addition to gaining clinical and laboratory knowledge in Transfusion Medicine the topics in the checklist promote interaction with other disciplines within Haematology ie haemato-oncology, haemostasis, haemoglobinopathy as well as with other acute clinical disciplines eg surgery, obstetrics, anaesthesia, paediatrics etc. with the aim of developing essential liaison and communications skills.
* Some of the terminology in this checklist in particular in relation to blood services is applicable to England but can be amended if needed for other countries in the UK\*.

\*UK Blood services

* NHS Blood and Transplant (NHSBT)
* Scottish National Blood Transfusion (SNBTS)
* Welsh Blood Service (WBS)
* Northern Ireland Blood Transfusion Service (NIBTS)

**1. Introduction to the hospital transfusion service**

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| **Topic** | **Date** |
| Induction session with Consultant lead for Transfusion overview of Hospital Transfusion Service |  |
| Meet members of the Hospital Transfusion Team |  |
| Trust Protocols & Guidelines   * Transfusion Policy * Massive haemorrhage – including Obstetrics, trauma, surgery, GI bleed, use rVIIa including communication between lab and clinical teams * Warfarin reversal, Bleeding with Novel Oral Anticoagulants (NOACs) & antiplatelet agents * Special requirements for haemato—oncology patients eg Irradiated components * Policy for use of CMV negative components * MSBOS * Patients refusing blood transfusion |  |
| Introduction to Patient Blood Management |  |

**2. Basic Transfusion Laboratory techniques**

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| **Topic** | **Date** |
| * Routine ABO and RhD typing * Emergency ABO & RhD typing * Antibody screening & identification * Crossmatching |  |
| Electronic issue of blood components |  |
| Patient identification – correct labelling of samples  Reason for transfusion on requests  Communication between clinical teams and Transfusion laboratory |  |

**3. Use of blood and components**

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| **Topic** | **Date** |
| Storage, shelf-life, Indications/contra-indications and transfusion triggers for use of the following   * Red cells * Platelets * Fresh Frozen Plasma * Solvent detergent plasma * Methylene Blue Treated plasma * Cryoprecipitate * Fibrinogen concentrate   Specialist products, e.g. washed red cells, washed platelets, granulocytes |  |

**4. Clinical Transfusion practice**

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| **Topic** | **Date** |
| Attend meetings of the Hospital Transfusion Team  Hospital Transfusion Committee/Regional Transfusion Committee |  |
| Contribution to audit of blood usage - (local or national) |  |
| Trust Guidelines on   * Paediatric and Neonatal Transfusion * Anti D Prophylaxis * IVIG use * Plasma -exchange * Major incident plan |  |
| BCSH transfusion guidelines |  |
| Blood Conservation and transfusion alternatives   * Use of Intra-operative cell salvage * Pre-op haemoglobin optimisation * Tranexamic acid |  |
| Patient information and consent for transfusion  (Learn Blood Transfusion e learning module) |  |
| Haemato-oncology patients  Selection of blood and components for ABO mismatched SCT  Stem cell harvest and principles |  |

**5. Transfusion Laboratory and immunohaematology problems**

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| **Topic** | **Date** |
| Attendance in transfusion laboratory to observe the following:   * DAT testing * FMH Testing (Kleihauer) * Positive antibody screen with review of additional testing and if needed involvement reference centre |  |
| Review knowledge of following blood systems  ABO – A, B (and H) Rh – C, c, D, E and e  Kell – K and k Duffy – Fya and Fyb  MNS – M, N, S, s, (U) Kidd – Jka and Jkb  Others – rare blood groups |  |
| Emergency provision of blood to patients with red cells antibodies  How to source ‘rare’ units where blood not readily available |  |
| Criteria for selection of red cells for transfusion in sickle and thalassaemia patients  Principles of manual and automated red cell exchange transfusion |  |
| Neonatal and Paediatric components available and indications for use |  |
| Local Anti D prophylaxis regimes and system for traceability |  |

**6. Transfusion reaction and adverse events**

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| **Topic** | **Date** |
| Case-based discussion where there has been an adverse event |  |
| Review of recent cases reported to SHOT / SABRE from the hospital |  |
| Review main hazards involved in the transfusion of blood components- management and avoidance |  |
| Incorrect Blood Component Transfused  Acute haemolytic transfusion reactions (ATR)  Haemolytic transfusion reactions (HTR)  Transfusion-related acute lung injury (TRALI)  Transfusion-associated circulatory overload (TACO)  Transfusion-associated graft versus host disease (TA-GvHD)  Transfusion-transmitted infections (TTI)  Others – PTP, other SHOT categories |
| Learn Blood Transfusion elearning module on ‘Transfusion Reactions’ |  |

**7. Regulatory Aspects of Transfusion**

| **Topic** | **Date** |
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| Impact of BSQR on hospital transfusion practice   * Quality management system – review validation of recently acquired equipment * Training * Traceability – review systems used at hospital * Haemovigilance overview (SHOT/SABRE) * BSQR compliance reports * Role of MHRA |  |
| External Quality Assurance   * Review local Transfusion NEQAS reports * Discuss report with Consultant Lead for Transfusion where preventative and corrective action required (actual or hypothetical) |  |
| CPA – Review standards for compliance |  |

**8. Case review**

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| **Topic** | **Date** |
| Management of auto-immune haemolytic anaemia – investigation and provision of blood |  |
| A patient refractory to random platelet transfusions |  |
| Positive antenatal serology with risk of HDFN |  |
| Management of a case of intra-partum fetomaternal haemorrhage in a D negative mother |  |
| Management of the fetus / neonate in a case of HDFN  Neonatal exchange transfusion or intauterine transfusion |  |
| Investigation and management of suspected Neonatal Alloimmune Thrombocytopenia |  |
| Transfusion in a patient with sickle cell disease |  |
| Provision of blood and blood products to a patient who has undergone a recent allogeneic stem cell transplant |  |
| Management of a severe acute transfusion reaction (including ABO incompatibility, anaphylaxis, infected unit, TRALI etc) – review cases published in SHOT report |  |
| Case of therapeutic plasma exchange |  |
| Management of chronic transfusion programme in patient with thalassaemia and/ or patient with MDS |  |
| Massive transfusion in trauma, obstetrics or a GI bleed in a medical patient |  |
| Selection of blood and pre transfusion testing where there are multiple RBC antibodies |  |
| Management of patient refusing blood transfusion |  |

| **Additional cases** | **Date** |
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**Resources available:**

1. Handbook Transfusion Medicine 5th edition 2014 [www.transfusionguidelines.org](http://www.transfusionguidelines.org/)
2. Practical Transfusion Medicine 4th edition 2013 Wiley-Blackwell
3. BCSH Guidelines – various at [www.bcshguidelines.org](http://www.bcshguidelines.org/) ( inc Apps now available)
4. The UK Blood services ‘Red book’ [www.transfusionguidelines.org](http://www.transfusionguidelines.org)
5. NHSBT website for hospitals [www.hospital.blood.co.uk](http://www.hospital.blood.co.uk)
6. Learn Blood Transfusion elearning modules – various,ask Hospital Transfusion Team for access details
7. Patient information leaflets – various at <http://hospital.blood.co.uk/>
8. SHOT at <http://www.shotuk.org/>