

UK TRANSFUSION GUIDANCE IN RESPONSE TO THE SHORTAGE OF BLOOD COLLECTION TUBES

The aim of this document is to provide guidance to optimise the use of blood collection tubes for transfusion testing, during the current and any subsequent shortages. This is also to ensure existing stocks are managed in a coordinated and equitable way regarding blood transfusion practice in response to the [NHSE and NHSI guidance and letter issued 10th August and 26th August 2021 respectively](#). This guidance has been written in collaboration with the National Blood Transfusion Committee Emergency Planning Working Group, Serious Hazards of Transfusion, Transfusion Specialty Advisory Committee of the Royal College of Pathologists and reviewed by the British Society for Haematology Transfusion Task Force.

The blood tube shortage is being managed as a UK wide approach. The impact and degree of shortage may vary across the UK. This guidance should be used in conjunction with guidance emerging from the devolved nations and local organisational policies. The provision of safe and timely blood components remains a priority.

This document is for guidance only, it is intended to aid organisations respond to the severe national shortage of blood sample tubes. The guidance provided does not indicate an exclusive course of action.

This guidance does not replace the need for application of local risk assessment, clinical and laboratory judgement, consideration of individual patient factors and local practices. Patients must be involved in the decision making where possible.

Any actions taken during the blood tube shortage that are outside national and/or local policies or agreed current practices must be appropriate to the level of shortages, subject to risk assessment and covered by local procedures relating to deviation from standard operating procedures and/or concessionary release.

Actions listed below have been categorised as low, medium or high risk according to extent of deviation from recommended practice and potential impact on transfusion safety.

Risk Assessment

A full risk assessment should be undertaken on the actions considered for safe service provision during a shortage.

All actions should have fully documented change control and validation in line with local arrangements and in keeping with regulatory requirements ([Blood Safety and Quality Regulations](#), [Good Practice Guidelines for blood establishments and hospital blood banks](#) and [ISO 15189](#))

Communication Plan

A collaborative, co-operative effort with front line clinicians and all key stakeholders is vital to ensure safe transfusion practices especially during periods of shortage. Healthcare organisations must have a communication plan ready to enable activation and step down of contingency plans at short notice. Clear communication to all teams is essential to review and ensure that only essential samples are taken, decision making may need to involve senior clinicians. Use established organisation wide communication routes where possible. Step down of local contingency plans must be communicated organisation wide when supply of tubes returns to normal.

Best practice

1. Organisations will still need to meet the local requirements regarding the number of group and screen samples required. Hospitals requiring two group and screen samples as per British Society of Haematology (BSH) guidance, should continue this practice for patient safety. It is not recommended that the tube shortage is a trigger for hospitals requiring two samples to risk assess and move to a one sample rule.
2. Where results would affect clinical management (e.g., antibody quantification for obstetric patients at high risk of haemolytic disease of foetus and newborn (HDFN)) blood testing should continue.
3. Continue antenatal group and screen testing according to NICE Guideline [NG201]¹
4. Clinical teams are advised to check whether group and screen samples have already been taken and are still valid to avoid unnecessary duplicate testing. Ensure instructions on how to check if samples remain valid are readily available for clinical teams.
5. Use of expired sample collection tubes for blood transfusion testing is not currently recommended by the manufacturers.
6. Ensure that the correct decision regarding the need for a transfusion is made as per NBTC² indication codes, Choosing wisely guidelines³, NICE⁴ and BSH guidelines⁵.
7. If Point of Care (POC) testing is available and validated to measure haemoglobin instead of a formal laboratory full blood count this can be used to guide transfusion decisions, including checking increment as part of single unit transfusion policies.
8. Antenatal serology testing is time-sensitive and should not be delayed. Fetal blood group genotyping used to predict fetal D, c, C, E blood groups from 16 weeks and Kell (K1) from 20 weeks gestation must continue when maternal antenatal screening identifies maternal red cell alloantibodies D, c, C, E or Kell.
9. The cell free fetal deoxyribonucleic acid (cffDNA) RHD screening test to prevent unnecessary administration of anti-D Ig prophylaxis should be continued at present. Local processes should be reviewed to avoid unnecessary testing during the tube shortage.
10. Community and hospital sites involved in preoperative assessment should continue to take samples appropriately in accordance with maximum surgical blood ordering

schedules to support recovery of waiting lists and avoid unnecessary delay of surgery in the absence of appropriate testing.

11. Organisations should ensure that patient blood management principles are maintained to avoid unnecessary transfusion and associated testing.

Actions for consideration:

Low risk

1. Clinical staff should avoid sending group and screen samples where blood transfusion is unlikely to be required or where results would not affect clinical management e.g., for low bleeding risk surgery or other invasive procedure, e.g., obstetric patients at low risk for post-partum haemorrhage (PPH), unless known to have antibodies.
 - a. Additional communication to clinical areas previously identified with high levels of red cell returns (i.e., where red cells requested but not used and returned to blood transfusion) to ensure measures in place to reduce unnecessary testing and ordering of red cells
 - b. Appropriate monitoring and feedback should be in place to ensure compliance.
2. When samples are required for further referral testing (red cell immunology, Histocompatibility and Immunogenetics testing, etc), laboratory staff should check with the referral laboratory regarding the volumes required to avoid unnecessary sampling.
3. Ensure availability of agreed change control including validation requirements needed if planning to use tubes from alternatives sources.

Medium risk

1. For networks with multiple sites with appropriately interfaced IT, the acceptance of cross-site checks to confirm blood group and antibody results (current and historical) for patients moving between hospitals so that two group and screen samples are no longer required for a patient requiring blood transfusion who has transferred from one site to another site within the network.
2. Tests to monitor clearance of fetal cells (Kleihauer and Flow Cytometry) from maternal circulation following fetomaternal haemorrhage must not be delayed. The post-delivery maternal group and screen sample can be used to avoid double tube practice. Kleihauer testing should be performed prior to sample centrifugation for group and screen testing.

High risk

1. Laboratories should have a policy on the acceptance and rejection of blood samples and requests, which includes acceptable labelling and actions to be taken if minimum requirements are not met. Under exceptional situations, samples missing non patient

- core identification information (e.g., date, time, signature) may be acceptable on an interim basis. Verification of the date and time that the sample was taken is recommended to comply with local two sample rules.
2. Consider extending the validity of group and screen samples for patients suitable for electronic crossmatch
 - a. This could be undertaken for patients who have not been transfused within 3 months, which will potentially reduce the need to have an additional sample of patients undergoing surgery on admission. The length of time for consideration may vary depending on local arrangements for sample storage.
 - b. Consideration may also be given to extending the sample validity for patients who have received a recent transfusion or have been recently pregnant. The sample validity for this group of patients is currently 3 days but may be increased to 7 days as per BSH⁵ guidelines for chronically transfused patients. Consider local arrangements for risk assessment or concessionary release on individual patients.
 3. Where blood is required urgently and there is no current valid group and screen, emergency stock will be provided. Group specific blood components may be provided where multiple historical groups and negative antibody screen results are available for the patient. Monitor and increase emergency stock of blood components if necessary, to meet the potential increase in demand.

References:

1. NICE guideline (NG201) Antenatal Care 2021
<https://www.nice.org.uk/guidance/ng201>
2. National Transfusion Committee indication codes 2020 [for transfusion](https://hospital.blood.co.uk/the-update/revised-nbtc-indication-codes-for-transfusion-are-now-available/)
<https://hospital.blood.co.uk/the-update/revised-nbtc-indication-codes-for-transfusion-are-now-available/>
3. Choosing Wisely recommendations for Blood Transfusion 2018
<https://www.rcpath.org/uploads/assets/678b956f-8329-4c67-9939f630ad8d1dab/246d4e22-c89c-4ab5-95c47618941e7610/Choosing-Wisely-Summary-of-Recommendations-Leaflet-Transfusion-Medicine.pdf>.
4. NICE guideline (NG24) Blood transfusion 2015
<https://www.nice.org.uk/guidance/NG24>
5. British Society for Haematology 2013 [Guidelines for pre-transfusion compatibility procedures in blood transfusion laboratories](https://www.bsh.org.uk/guidelines-for-pre-transfusion-compatibility-procedures-in-blood-transfusion-laboratories) - - 2013 - Transfusion Medicine - Wiley Online Library
<https://www.bsh.org.uk/guidelines-for-pre-transfusion-compatibility-procedures-in-blood-transfusion-laboratories>

Other information:

<https://www.rcpath.org/profession/on-the-agenda/supply-disruption-of-bd-vacutainer-blood-specimen-collection-tubes.html>