Northern Ireland Blood Transfusion Service	POLICY DOCUMENT

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CROSS REFERENCES

This Policy refers to the following documents:

Doc Type	Doc. No.	Title
FORM	DD:545	NIBTS Blood Group Serology Request Form
FORM	DD:807	NIBTS Phenotyped Blood Request Form
Guideline	GUI EXT GD002	Guidelines for Pre Transfusion Compatibility Procedures in Blood Transfusion Laboratories

Key Change From Previous Revision:

This is a new policy.

1. STATEMENT

1). The Reference Laboratory provides a red cell and platelet serology service to the five hospital trusts throughout Northern Ireland. An on-call service is available to provide emergency cover outside routine working hours.

2).The Reference Laboratory is a referral lab for complex serological cases with routine serological work being carried out in hospital blood banks throughout the province. Twenty four hours notice must be given when referring potentially complex samples. i.e. investigation of samples containing underlying warm autoagglutinins. The notice period is even more important if crossmatched blood is required.

3). Urgent samples will be prioritised with all other samples being treated as non-urgent and batch tested with the use of automation **(telephone communication is required for all crossmatches and urgent samples)**.

4). In order to optimise and improve efficiency of the lab and ensure there is no unnecessary delay to the treatment of patients, it is important that hospital blood banks carry out appropriate investigations and provide the Reference Lab with the necessary completed documentation (see checklist on Page 2 of FORM:DD:545)

2. OVERVIEW

This Policy outlines the appropriate referral of samples from Hospital Blood Banks. Reference Lab staff, on request, can provide guidance on appropriate investigations to be performed at the Hospital Blood Banks. Guidance is also provided on the necessary documentation required with a referral.

3. RESPONSIBILITY

Biomedical Scientists in the Reference Laboratory will prioritise urgent samples to be tested. Any samples not identified as urgent will be tested in batches on an automated testing platform in the first instance and any further manual testing (if required) will be performed.

Biomedical Scientist staff in the Reference Laboratory are responsible for carrying out all laboratory processes in compliance with written laboratory procedures.

It is the responsibility of the referring hospital blood bank to have performed the necessary preliminary testing on referred samples, to provide the requested information on the blood group serology request form and to inform NIBTS Biomedical Scientists prior to dispatch of urgent samples.

4. POLICY

Requests for investigations and crossmatching must be made using the Blood Group Serology Request Form, DD:545 (issued to hospital blood banks and document controlled).
It is important that the information given on request forms and blood samples should conform to specifications described in the current BSH Guidelines for the administration of blood components. Failure to do so will result in the samples being rejected for testing and a request for further samples. Forms must be completed in full, including the patient's previous transfusion and obstetric history (where applicable).

Please note: BSH Guidelines for pre-transfusion compatibility procedures in blood transfusion laboratories, states the following: Serological studies should be performed using blood collected no more than 3 days in advance of actual transfusion when the patient has been transfused or pregnant within the preceding 3 months.

Samples

Unless otherwise agreed with Reference Lab staff or on-call staff two full 6 ml EDTA samples are required for each referral (for red cell serology).

Request forms must accompany every sample (phlebotomist form (copies are acceptable) and fully completed DD:545). Request forms are the basis to establish the correct identification of the patient. The points of identification on the request form must match the information provided on the sample. The laboratory will reject samples with inadequately completed request forms or incomplete sample labelling.
The following information is mandatory on samples:

- Surname
- Forename in full
- Date of birth (not age)
- Hospital number or Health & Care number
- Date of venepuncture
- Signature of phlebotomist

The following additional information is required on the request form:

- Requesting hospital
- Known risk sample
- Type of investigation required
- Crossmatch requests (quantity, date required, etc.)
- Any special blood requirements (CMV antibody negative, gamma irradiated, K-, etc.)
- Transfusion history / obstetric history
- Details of work completed

Samples and request forms **must** be signed.

Further clinical and laboratory information may assist in the selection of appropriate testing and expedite reporting and crossmatched blood issue.

Any samples marked as urgent referred without telephone communication will be treated as non-urgent and processed by batch testing. All urgent samples must be prioritised and transported to NIBTS as soon as possible. If the referring hospital does not endeavour to refer samples urgently they will be treated as non-urgent by NIBTS staff and not processed until the next working day.
Samples which are deemed to be inadequate for testing, adulterated, contaminated or haemolysed (unless the haemolysis is immune-mediated) and samples over 7 days will not be accepted for testing.

Key factors that may affect testing :

- Samples storage and transportation temperature: in general, samples should be stored at 2-8^{o}C and transported at ambient temperature.

- Sample type and volume

Samples referred to the Reference Lab must have as a minimum an ABO & RhD blood group performed in addition to an antibody screen. As antibody titres often decline, including warm and cold autoagglutinins, it is vital that each sample prior to referral is investigated by hospital blood banks (unless otherwise agreed with Reference Lab staff).

Note: Samples will not be tested without the results of basic serological tests, unless otherwise agreed with Reference Lab staff. Following advice from laboratory staff it may be agreed that in complex serological cases testing prior to referral could cause an unnecessary delay in provision of crossmatched blood and the referral of samples without testing is appropriate (these will be assessed on an individual basis and must be agreed).

All result printouts from analysers and results from manually performed serological tests must accompany the referred samples and a copy of antigen profile sheets are required. Hospital Blood Bank results are a necessity as they not only avoid repetition of unnecessary work, but often influence the decisions made by Biomedical Scientist staff regarding the next laboratory tests to be performed.

For patient samples being referred to the Reference Laboratory, with no historical blood group record, a previously performed blood group from the referring laboratory is required to facilitate the 'two sample rule' outlined in BSH guidelines (the blood group must be transcribed onto the DD:545 by the referring hospital). In the absence of a previously confirmed blood group (from either hospital or NIBTS records), if blood is requested group O blood will be selected and crossmatched.

The nature of serology requests may vary but is usually covered by one of the following four options:

1) Provision of phenotyped blood (a fax must be sent & receipted)
2) Confirmation of antibodies, issue of report and blood group card.
3) Request for investigation and provision of crossmatched units.
4) Platelet antibody request

Provision of phenotyped blood

During the hours of 9am – 5pm (Monday to Friday), requests for R_1R_1, rr or K negative phenotyped red cells should be made by fax to the Hospital Services Department, fax number: (028) 90534611 using FORM:DD:807 'Phenotyped Blood Request Form' (issued to hospital blood banks).

All other phentoyped requests will be fulfilled by the Reference Lab.
Any special requirements must be completed on the DD:807 'Phenotyped Blood Request Form'.

On occasions, requests for blood of rare phenotypes may not be met from NIBTS current stocks. In these circumstances, following advice from an NIBTS consultant, specific local blood donors may need to be identified, bled and tested; or alternatively requests for blood units from NHS Blood and Transplant (NHSBT) may need to be made, in very rare cases, the National Frozen Blood Bank may need to be contacted. Each of these options will delay the provision of blood, but NIBTS will endeavour to minimise the delay and provide appropriate advice in the interim.

Confirmation of antibodies

Confirmation of routine antibodies, subsequent issue of reports and blood group cards will be treated as non-urgent and these samples will be batch tested (between 9 am -5 pm) using automated techniques. Test results will only be released upon completion of batch testing. Depending on the workload and the requirement to prioritise urgent samples this process may take up to 72 hours to complete.
These samples are processed by the Reference Lab with the intention to update the LIMS. The purpose is to maintain a central database of antibody information for Northern Ireland patients.

Request for investigation and provision of crossmatched units.

Crossmatch requests must be accompanied by a phone call either to the Reference Laboratory or the on-call Biomedical Scientist as appropriate. Crossmatches will not be prioritised if no communication is made with NIBTS (they will be treated as non-urgent and assigned for batch testing the next working day).
NB. It is the responsibility of the referring hospital to take into account the age, gender and transfusion requirements of the patient and request the appropriate blood when completing the DD:545 (Blood Group Serology Request Form).
Prior notification facilitates selection of appropriate blood in some instances and can expedite the provision of the requested blood. Communication is also essential during hand-over periods to other staff and preparation work can often be performed prior to receipt of samples and prior to the start of on-call sessions.

Every effort should be made by the requesting hospital blood bank to focus referral of samples during normal routine hours. During normal hours adequate staff are available to provide the full and detailed serological work required to investigate complex serological cases. Out of hours the serology service is covered by a lone worker and only medically urgent cases should be referred.

A minimum of 24 hours' notice **must** be given when referring complex samples, such as investigation of samples with underlying warm autoagglutinins, samples containing multiple antibodies, etc. Adequate notice is required to enable staff working 9am -5pm to perform full and detailed serological investigations on these samples, to serologically match such patients to extended types and provide the safest blood components possible. Referral of such samples to an out of hours lone worker is inappropriate and sometimes results in a reduced level of testing being performed (If blood is requested for complex serological cases with less than 24 hours' notice due to medical emergency this must be agreed with an NIBTS medical consultant).

For complex cases, the on-call Biomedical Scientist will not always perform extensive serological testing. On some occasions further work is performed on samples the following day. It is acceptable for interim reports to be issued out-of-hours and for the

antibody screen result to be entered on DSS as 'POSITIVE' without resolution of specificity, with additional work to be completed during the routine working day. In such cases the on-call Biomedical Scientist will be confident that the selection of blood is appropriate and safe prior to release. A full report with an update of the antibody status will follow.

Known complex serological cases (including samples containing multiple alloantibodies) will not be investigated on a routine basis – these samples will only be investigated when crossmatched blood is required. Investigation of such samples is particularly time consuming and when blood is requested a full serological investigation is performed.

Patients who present with a positive DAT do not always involve complex serological cases and may be dealt with in Hospital Blood Banks. Every effort should be made to resolve these samples locally and hence referral is not always necessary. After performing routine serology tests, and only if such samples remain unresolved, should samples require referral to a Reference Centre. Reference Lab staff will indicate on the final report if testing can be performed in the future by hospital blood banks.

Antibodies directed against low frequency antigens (unless easily identifiable with available commercial red cell panels) will not be exhaustively investigated as this requires the use of rare red cells, which are a finite resource. In keeping with BSH guidelines Biomedical Scientists will advise the use of IAT crossmatch compatible blood.

Crossmatch requests will not be facilitated by the Reference Laboratory for routine non-complex serological cases. In these scenarios, upon confirmation of antibodies, it is appropriate for the hospital blood bank to perform the crossmatch. It is the responsibility of the referring hospital to either retain a sample or request additional samples to facilitate crossmatching. Unnecessary crossmatch requests inevitably delay the processing of the urgent complex referrals.

Platelet Antibody Testing

Platelet referrals require one EDTA sample and one clotted sample (samples must be less than 48 hours from bled date prior to testing).

Investigations for platelet autoantibodies are indicated in immune thrombocytopenic purpura (ITP).
Investigations for platelet alloantibodies are indicated in the investigation of Foetomaternal Alloimmune Thrombocytopenia (FMAIT), platelet refractoriness, some platelet transfusion reactions and post-transfusion purpura (PTP).

These are specialised tests undertaken during the routine working day (9 am to 5 pm, Monday to Friday). Testing takes a minimum of four hours, therefore, samples requiring a result on the same day must be received before 1 pm on the day in question.

Limited platelet antibody serology is completed out of hours, such as the request for investigation of cases of Foetomaternal Alloimmune Thrombocytopenia (FMAIT). All platelet antibody requests must be coordinated through the NIBTS medical team.

Sample Referral to NHSBT:

Samples may be referred onwards from the Reference Laboratory for further testing, confirmation of antibody specificities or for platelet phenotyping by DNA techniques. These samples will be sent, with the permission of the requesting hospital, to the NHS Blood & Transplant, North Bristol Park, Filton, Bristol, BT34 7QH, UK. A copy of the subsequent report will be forwarded to the requesting hospital as quickly as possible after reception.

Code of Confidentiality

All patient test results are treated in strictest confidence. NIBTS medical consultants and Biomedical Scientist staff comply with a professional code of confidentiality.

5. EQUALITY SCREENING OUTCOME

This policy has been drawn up and reviewed in light of the statutory obligations contained within Section 75 of the Northern Ireland Act (1998). In line with the statutory duty of equality, this policy has been screened against particular criteria. If, at any stage in the life of the policy, there are issues within the policy which are perceived by any party as creating adverse impacts on any of the groups under Section 75, that party is free to bring these to the attention of the Head of HR & Corporate Services.

6. TRAINING REQUIREMENTS

- All Biomedical Scientist staff in the Blood Group Reference Laboratory and on call staff must participate in appropriate, external quality assurance schemes, proficiency testing and any other appropriate testing as determined by the Laboratory Training Officer and/or the Reference Laboratory Manager.

- Proper and complete training and assessment records must be maintained for all staff.

- All NIBTS Blood Group Reference Laboratory and on call staff and Hospital Blood Bank staff must read and understand this policy.