

Guidelines for the Blood Transfusion Services

13.4: Antibody quantification and titration

<http://www.transfusionguidelines.org/red-book/chapter-13-patient-testing-red-cell-immunohaematology/13-4-antibody-quantification-and-titration>

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Antibody quantification and titration is performed in RCI laboratories on patients' samples, to support the prediction and management of HDFN and ABO mismatched organ transplant.

13.4.1: Antibody quantification of anti-D, and anti-c for management of HDFN

In UK laboratories it is standard practice to quantify anti-D and anti-c by continuous flow analyser against standard anti-D and anti-c preparations. In doing so, laboratories must:

- procure and maintain fully validated and supported quantification equipment
- procure and maintain fully validated dilution equipment
- prepare calibration curves from standard antibodies
- ensure operation consistency by running archive samples in parallel with all alloimmune anti-D and all anti-c samples where available (the repeat archive test result value should be within 10% of its original reported value)
- participate in the NHSBT's Antibody Quantification Quality Assurance Scheme, regularly review the results and act on the findings

13.4.2: Antibody titration of antibodies capable of causing HDFN

RCI laboratories undertake IAT titration to assess all antibodies capable of causing HDFN other than anti-D and anti-c. Protocols for these tests should focus on achieving reproducible results by:

- specifying the phenotype of red cells for use with each antibody specificity
- describing the dilution medium and method
- using calibrated pipettes for dilution and dispense of reagents
- using IAT for titration, typically column technology
- establishing means of consistently identifying the endpoint for titration
- using parallel titration of previous archive samples from the patient where available

- managing cases where there is a difference between the current and archive sample endpoints
- participate in NEQAS BTLP antibody titration scheme, regularly review results and act on the findings

13.4.3: Antibody titration in ABO mismatched transplant

RCI laboratories undertake titration of ABO antibodies to allow clinical assessment of the feasibility of ABO mismatched transplant, and monitoring of treatment to reduce antibody titre in preparation for ABO mismatched transplant. Protocols for this procedure should consider all the previously listed elements of titration, and in addition:

- the use of the organ donor's cells for titration
- inactivation of the IgM component of ABO antibodies (e.g. dithiothreitol (DTT) treatment)
- participate in NEQAS BTLP ABO titration scheme, regularly review results and act on the findings