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Serologic Confirmation of ABO Group and Rh Type - Blood Bank

Document Type: Procedure

I. PURPOSE AND OBJECTIVE:

The document provides the Blood Bank staff with instructions for confirming the ABO/Rh types for patients.

II. PRINCIPLE:

A. Serologic confirmation is meant to provide an additional verification of the ABO and Rh of a specimen, as an additional safety measure. Non-group O patients whose blood types cannot be confirmed with a complete second ABO/Rh typing on a separate collection or by sample collection by Positive Patient Identification (PPID) will be transfused with group O red blood cells. A complete confirmatory ABO/Rh and reverse typing must be performed before crossmatching or issuing a non-group O unit of red cells for transfusion to a non-group O patient with only one blood type on file or with no previous record. The computer system has logic which alerts the staff when a second blood type is not on file and prevents the issue of type specific blood.

B. A serologic confirmation or Patient ABORh rechecks, consisting of a forward ABO determination and Rh typing only, will be used to confirm the ABO/Rh of Blood Bank specimens used for crossmatching RBCs during a computer downtime.

III. DEFINITIONS/ACRONYMS:

1. PPID: Positive Patient Identification
2. HIS: Hospital Information System; the hospital-wide computer system.
3. NPR: No Previous Result

IV. POLICIES:

A. Requirement for Two Separate ABO/Rh Typings

1. All pre-transfusion samples (samples with wristband numbers) must have two (2) complete, separate sets of ABO/Rh results in the Blood Bank computer before RBCs are crossmatched.
2. The source of these two (2) separate typings may be:
    a. Two test tube typings of the current sample performed by two different technologists, or
    b. Two Vision™ typings of the current sample, or
    c. One test tube typing and one Vision™ typing of the current sample
    d. Testing of a current sample and testing of a historical sample (by either the tube method or Vision™).

B. Blood Bank Computer Test Codes

1. To manage the requirement for two separate ABO/Rh typings, two different test codes are used. The Blood Bank computer has been configured to compare the results obtained from testing by both of these methods, and to compare results of current testing with the historical records.
    a. ABORh: This is the code for the patient's group and Rh results. These results will interface to the hospital information system and appear on the patient's health record.
    b. NPR (No previous record): This code is ordered by the Blood Bank staff for any patient who does not have a previous record in the Blood Bank computer. The results of the NPR do not interface to the HIS. If both types are performed by the test tube method, the NPR test should be resulted first.

C. Serological Confirmation During Computer Downtime

1. Serologic confirmation with a forward confirmatory typing must be performed during blood bank computer downtimes on every patient sample that is crossmatched.
2. Serologic confirmation must be performed each time that a sample is retrieved from storage for crossmatching during blood bank computer downtime.
3. CONF is the Blood Bank computer test code used to capture the Patient rechecks in the

system. It is for blood bank purposes only and does not interface to the hospital chart.

D. Policies Relating to ABO and Rh(D) Discrepancies

1. Any ABO or Rh grouping discrepancy that may be encountered during routine ABO/Rh testing must be resolved before confirmatory testing is performed. Refer to Transfusion Medicine policy, Resolution of ABO and Rh Discrepancies.
2. The following ABO and Rh results must be in agreement when testing patient samples:
    a. ABO/Rh confirmatory testing, and
    b. Routine ABO and Rh typing results from current sample, and
    c. Historical ABO and Rh results, if available.
    d. If these results are not in agreement, do not crossmatch non-group O RBCs until the discrepancy is resolved.

E. Rh(D) typing and Weak D Testing

1. It is generally not required to perform weak D testing as part of serologic confirmatory testing. However, confirmatory test results must be in agreement with historical test results, as indicated above. In some cases, weak D testing may be required to resolve a Rh(D) Discrepancy.
2. The Ortho BioClone Anti-D or Immucor Anti-D reagent will be used for confirmatory testing. An Rh(D) control is not required when performing serologic testing with the Ortho BioClone Anti-D reagent. However, if a confirmatory type appears to be AB positive, a 7% bovine albumin control or Immucor Gamma-clone control must be tested and must be non-reactive.

V. SPECIMEN COLLECTION AND HANDLING:

1. The preferred specimen when confirming the ABO/Rh during computer downtimes is a 6ml EDTA sample with affixed identifying label. See Transfusion Medicine policy, Triaging and Identifying Acceptable Samples for Testing

VI. REAGENTS/EQUIPMENT/SUPPLIES:

1. Table top centrifuge
2. Lighted viewing mirror
3. Commercial reagents:
    a. Ortho Anti-A
    b. Ortho Anti-B
    c. Ortho BioClone Anti-D
    d. Immucor Anti-D
    e. Immucor Gamma-clone control
4. Disposable pipettes

5. 10 x 75 mm test tubes or 12 x 75 mm test tubes

VII. PROCEDURE:

A. NPR Test

1. Confirm the patient sample is properly labeled in accordance with Transfusion Medicine policy, Triaging and Identifying Acceptable Samples for Testing.
2. If the patient does not have a historic ABO/Rh type and the sample is collected using PPID then order an **NPR** (No Previous Record) test in Softbank.
    a. Samples known to not be collected using PPID should have an ABO Confirmation (ABOCN test) ordered. The ABOCN is performed on a different properly labeled second specimen.
    b. If a sample arrives with a chart/mylar label and the collection is not complete in Beaker, an ABOCN is ordered. If the sample can be verified as collected in Beaker (Band number present in Beaker) and the label is due to a hardware error, an NPR is ordered.
3. Label one tube with the patient's last name for the patient's cell suspension.
4. Prepare a 3 - 4% suspension of the red blood cells to be tested. Refer to Transfusion Medicine policy, Making a Test Red Cell Suspension.
5. Label one set of six (6) test tubes for the blood type with the patient's last name and the following information:
    a. Tube 1, also label as "A" (Anti-A)
    b. Tube 2, also label as "B" (Anti-B)
    c. Tube 3, also label as "D" (Anti-D)
    d. Tube 4, also label as "C" (Control)
    e. Tube 5, also label as "a" (A reverse cells)
    f. Tube 6, also label as "b" (B reverse cells)
6. Add two (2) drops of patient plasma to tube #5 and #6.
7. Add one (1) drop of A1 reverse cells to tube #5 and one (1) drop of B reverse cells to tube #6.
8. Add one (1) drop of each reagent anti-sera to corresponding tubes. Anti-sera should be added to the test tubes prior to patient's cells.
9. Add one (1) drop of appropriate control to tube 4.
    a. Use 7% BSA control if using the Ortho BioClone Anti-D reagent.
    b. Use Gamma Clone Control if using the Immucor Gamma Clone Anti-D.
10. Add one (1) drop of 3-4% suspension of patient red cells to tube 1, 2, 3, and 4.
11. Mix all tubes gently and centrifuge according to calibrated time.
12. Examine the plasma overlying the cell button on each tube for hemolysis.

13. Completely suspend the cell button using gentle agitation and read macroscopically for agglutination with an optical aid. Refer to Transfusion Medicine policy, Reading, Grading, and Recording Test Reactions.
14. Record graded reactions in the Blood Bank computer or on the patient downtime worksheet.
15. Verify that the confirmatory testing interpretation agrees with the initial ABO/Rh results before releasing results.
    a. If the results do not correlate, a third specimen must be obtained to determine the patient's blood type.

B. CONF Test

1. Ensure the patient sample is properly labeled. Refer to Transfusion Medicine policy, Triaging and Identifying Acceptable Samples for Testing, for proper labeling requirements.
2. Label one tube with the patient's last name for the patient's cell suspension.
3. Prepare a 3 - 4% suspension of the red blood cells to be tested. Refer to Transfusion Medicine policy, Making a Test Red Cell Suspension.
4. Label one set of three (3) test tubes for the blood type with the patient's last name and the following information:
    a. Tube 1, also label as "A" (Anti-A).
    b. Tube 2, also label as "B" (Anti-B).
    c. Tube 3, also label as "D" (Anti-D).
5. Add one (1) drop of each reagent anti-sera to corresponding tubes. Anti-sera should be added to the test tubes prior to patient's cells.
6. Add one (1) drop of 3-4% suspension of patient red cells to tube.
7. Mix all tubes gently and centrifuge according to calibrated time.
8. Examine the plasma overlying the cell button on each tube for hemolysis.
9. Completely suspend the cell button using gentle agitation and read macroscopically for agglutination with an optical aid. Refer to Transfusion Medicine policy, Reading, Grading, and Recording Test Reactions.
10. Record graded reactions on the patient downtime worksheet. Note: Once Blood Bank system is available the CONF test code is used to document this testing.
11. Verify that the confirmatory testing interpretation agrees with the initial ABO/Rh results before performing any further testing.
    a. If the results do not correlate, a third specimen must be obtained to determine the patient's blood type.

VIII. INTERPRETATIONS:

A. ABO and Rh Discrepancies

1. Before interpretation of test results, correct and investigate any ABORh discrepancy. If necessary, refer to Transfusion Medicine policy, Resolution of ABO and Rh Discrepancies.
2. Discrepancies include but are not limited to:
    a. Confirmatory testing results that do not correspond to an appropriate interpretation.
    b. Confirmatory testing results that are not valid, graded reactions.
    c. Confirmatory testing results that are not in agreement with results from a current patient sample or historical results.

B. Results

1. Negative Test Result: No agglutination or hemolysis of RBCs
2. Positive Test Result: Agglutination and/or hemolysis of RBCs

IX. NOTES:

1. Platelets and plasma transfusion selections are not affected by this policy.
2. The Medical Director does not need to be notified when type O blood is to be transfused to a non-group O patient.
3. If a second ABO specimen is required but not available and type O blood is allocated to the patient, periodic attempts must be made to check for an additional specimen to minimize the amount of type O blood transfused to non-type O patients.

X. REFERENCES:

1. AABB, Technical Manual, current edition

Approval Signatures

Step Description	Approver	Date
Policy and Forms Steering Committe (if needed)	Gail Juleff: Project Mgr Policy	Pending
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