

5.14.5 Pretransfusion Testing for Allogeneic Transfusion of Whole Blood, Red Blood Cell, and Granulocyte Components

There shall be two determinations of the recipient's ABO group as specified in Standard 5.14.1. The first determination shall be performed on a current sample, and the second determination by one of the following methods:

1. Comparison with previous records.
2. Testing a second sample collected at a time different from the first sample, including a new verification of patient identification.
3. Retesting the same sample if patient identification was verified using a validated electronic identification system.

Standards 5.11 and 5.27.1 apply.

Guidance

The purpose of this standard is to prevent transfusion of ABO-incompatible blood components due to incorrect identification of a patient during specimen collection or by errors made in pretransfusion testing.

Mislabeled patient blood samples at the time of collection (wrong blood in tube or WBIT) continues to be a concern. A study conducted at 20 hospitals showed that electronic patient identification was associated with 5-fold fewer errors (rate adjusted manual ID 1:3,046 vs. electronic ID 1:14,606) – Source *Transfusion* 2019;59:972-980. Errors in patient identification is one of the Joint Commission's National Patient Safety Goals (NPSG.01.03.01). A variety of approaches have been suggested to decrease misidentification of blood samples; these have been reviewed (*Transfusion Medicine Reviews* 2013; 27:197-205).

BB/TS Standards recognizes that there are several valid methods that can be used to reduce the risk of patient sample misidentification; these include:

- 1) comparison of results of a current ABO/Rh with previous hospital records,
- 2) a separate, independently-collected blood sample (i.e., two blood samples not collected during the same phlebotomy event),
- 3) an electronic identification verification system.

Unless an electronic identification verification system was used, the following does not meet the intent of the standard:

- Retesting of the same blood sample by the same individual, or a second individual
- Retesting a second blood sample collected at the same time
- Retesting of the same blood sample using a different methodology for testing

If a validated electronic identification system is in use, do facilities still need to perform a second ABO/Rh typing?

Yes.

The purpose of this standard is to prevent transfusion of ABO-incompatible blood components due to incorrect identification of a patient during specimen collection or errors made in pretransfusion testing of patients with no previous history. While an electronic identification system decreases the risk of patient misidentification it does not detect errors that could be made during pretransfusion testing. In order to ensure no technical error has occurred the ABO/Rh type must be verified by repeat testing of the same specimen. This repeat testing should be performed by a different technologist or can be performed by the same technologist using different reagents (e.g. manual and automated methods) to assure no discrepancies in ABO/Rh typing interpretation have occurred.

Does the requirement for a second type determination apply to all allogeneic transfusions (red cells, plasma, platelets, etc.)?

No.

Standard 5.14.5 applies only to the transfusion of Whole Blood, Red Blood Cell and Granulocyte components. Although ABO-incompatible non-red-cell-containing components can potentially be harmful, the risk is significantly less. This standard was not intended to address pretransfusion testing for plasma, platelets, or cryoprecipitate.

Does the use of a specific ‘Blood Bank’ wristband in addition to the hospital band meet the intent of this standard?

No.

If the wristband cannot be electronically read it will NOT meet the intent of the standard. However, if the Blood Bank wristband contains a barcode (e.g. 2D or linear) or radio frequency identification (RFID) that is electronically scanned/read and used to produce a label in the presence of the patient at the time of sample collection, the standard will have been met.

Can the patient serve as the second verifier for proper sample identification to avoid a separate phlebotomy when the patient does not have a historical record?

No.

A process where the patient serves as the second verifier does not meet the intent of the standard.

Must the testing performed on the second recipient sample (new patient without a transfusion history) include testing both the red cells and serum or plasma?

Yes.

The standard is written, “There shall be two determinations of the recipient’s ABO group as specified in Standard 5.14.1.” The intent is for both a forward and reverse type as per Standard 5.14.1. ABO is determined by testing the red cells AND the serum or plasma. Any exceptions to this should be defined in the facility’s policy or procedure in compliance with these *Standards* (e.g., forward type only on neonates).

If the initial type of the recipient is group O and therefore any RBC transfusions would be group O, do I need to perform a 2nd ABO on a 2nd sample from the recipient (when the patient does not have a historical record)?

Yes.

Once a second sample is obtained and the patient’s type confirmed, type-specific crossmatched blood should be given. The intent of the standard is to prevent a wrong blood in tube scenario; therefore, in absence of a patient history, or an electronic identification system, a second sample should be tested even when the initial sample type is group O. In situations where it is not possible to obtain a second sample before product is needed, group O RBCs could be provided following the facility’s defined process for emergent need.

Can the institution allow a variance for emergency situations [e.g., trauma patients, massive transfusion protocol (MTP) activation?]

Yes.

Standards 5.27 and 5.27.1 state that the BB/TS shall have a process for the provision of blood before the completion of the tests listed in Standards 5.14, 5.14.1, 5.14.2, 5.14.3, and 5.14.5. An institutional policy or process that allows for release of blood or components prior to the completion of required testing in an emergent situation (trauma or MTP) is appropriate.

If an outside laboratory or blood center is performing testing for a hospital client or customer (e.g., antibody identification), however not acting as the transfusion service, can the outside laboratory use the hospital’s records of ABO/Rh testing to comply with the second ABO/Rh determination?

Yes.

If the outside laboratory or blood center is acting as the transfusion service for a hospital client or customer can the outside laboratory use the hospital’s records of ABO/Rh testing to comply with the second ABO/Rh determination?

Yes.

The agreement between the two entities has to define the responsibilities of each party for conformance with Standard 5.14.5 (see standard 4.2 for more information on agreements).