## I. CASE HISTORY

LC is a 36 year old white female who is scheduled for a tubal ligation. Upon receipt of the preoperative sample in the Transfusion Services Department, a patient history check reveals that she has previously been admitted to your facility with the following results on file:

ABO/Rh(D) – A POSITIVE
Antibody Screen – Negative

Preoperative sample results:
ABO/Rh(D) – O POSITIVE
Antibody Screen – Negative

Since there is a discrepancy between the historical record and the preoperative sample results, a request is made for a new sample to be collected.

Samples received:
EDU-01 Patient Red Cells
EDU-02 Patient Serum

## II. EXPECTED RESULTS

| Sample | ABO | Rh(D) | Antibody Screen |
|---|---|---|---|
| EDU-01<br>Patient Red Cells | A | POS | |
| EDU-02<br>Patient Serum | A | | NEG |

## III. DISCUSSION

**Wrong Blood in Tube**

Wrong blood in tube (WBIT), defined as an event when the blood sample in the tube is not from the patient identified on the label, is a serious problem with potentially catastrophic consequences. In the United States, a single center study published in 2011 showed an incidence rate of 1 in 2283 samples collected.[1] Other international studies have demonstrated incidence rates as high as 1 in 1000 samples.[2,3] Recently, accreditation organizations such as AABB and the College of American Pathologists (CAP), have made significant changes to their assessment or inspection criteria to address this issue. In one study, mistransfusion of of ABO-incompatible blood accounted for 37% of all reported fatalities associated with transfusion in the United States, thus posing a greater risk to recipients than infectious disease transmission.[4] Since these errors may go undetected if no transfusions are required, the statistics may not reveal the true risk of mistransfusion due to WBIT errors.[5,6]

**AABB Standards**[7]

The AABB *Standards for Blood Banks and Transfusion Services* includes a requirement that patient samples are labeled with a minimum of two unique identifiers in addition to collection date and a mechanism for identifying the person who collected the sample to address proper identification of samples received into the blood bank or transfusion services.

More recently, the 31st edition of Standards requires two determinations of a patient's ABO grouping be performed prior to transfusion. While this standard is not new, it previously only

applied to cases where an electronic crossmatch would be utilized. The change to the standard to make it universal was done in an effort to strengthen industry practice and mitigate potentially fatal transfusion errors.

In the 31st edition, Standard 5.14.5, pre-transfusion testing for allogeneic transfusion now reads:

> *"There shall be two determinations of the recipient's ABO group as specified standard 5.14.1. The first determination shall be performed on a current sample and a second determination by one of the following methods:*
> *1) Testing a second current sample.*
> *2) Comparing with previous records.*
> *3) Retesting the same sample if patient identification was verified using an electronic ID system or another process validated to reduce the risk of misidentification."*

**CAP Transfusion Medicine (TRM) Checklist**[8]

Like AABB Standards, CAP requires that samples submitted for pre-transfusion testing are labeled, in the presence of the patient, with: first and last name, unique ID number, date of collection, and a method to identify the phlebotomist.

Similar to the changes in the AABB *Standards*, CAP checklist item TRM.30575, Misidentification Risk, has also been revised to require that facilities have a system in place to reduce risk of mistransfusion, rather than a plan as required in previous checklist versions. The checklist provides the following examples to achieve compliance:

> *"Among options that might be considered are:*
> *(1) Verifying the ABO group of the intended recipient on a second sample collected at a separate phlebotomy (including the recording of the result in the institution's historical record).*
> *(2) Utilizing a mechanical barrier system or an electronic identification verification system that ensures that the patient from whom the pre-transfusion specimen was collected is the same patient who is about to be transfused."*

Instituting a second sample collection policy or electronic verification system in the transfusion service presents a host of challenges including but not limited to, SOP changes and staff training, health care provider training, proper collection timing and documentation in the blood bank computer system. While the challenges can be many, patient safety is of the utmost importance and the guidelines above help ensure a safe transfusion.

**References**


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8. CAP Transfusion Medicine Inspection Checklist. Version 08.21.2017.