Spotlight

“This is the wrong patient’s blood!”: Evaluating a Near-Miss Wrong Transfusion Event
Source and Credits

• This presentation is based on the January 2020 AHRQ WebM&M Spotlight Case
• Commentary by: Sarah Barnhard MD
  o Medical Director of Transfusion Services at UC-Davis Health
  o Editors in Chief, AHRQ WebM&M: Patrick Romano, MD, MPH and Debra Bakerjian PhD, APRN, RN
  o Spotlight Editors: Ulfat Shaikh, MD; Jacqueline Stocking, PhD
  o Managing Editor: Meghan Weyrich, MPH
Objectives

At the conclusion of this educational activity, participants should be able to:

• Identify the key aspects of the closed-loop blood delivery pathway and how they ensure transfusion recipient safety.

• Differentiate the human and technologic roles involved in delivering the correct blood to the correct patient.

• Recognize the potential system areas of risk.

• Identify areas to focus on for continuous quality improvement to ensure safe transfusion practices.
“THIS IS THE WRONG PATIENT’S BLOOD!”

Evaluating a Near-Miss Wrong Transfusion Event
Case: “This is the wrong patient’s blood”

A 74-year-old male with a history of hypertension, hyperlipidemia, paroxysmal atrial fibrillation, coronary artery disease, congestive heart failure, stage I chronic kidney disease and gout presented for a total hip replacement. His home medications included lisinopril, metoprolol, colchicine, sertraline, acetaminophen and oxycodone as needed, and warfarin, which was held appropriately prior to the surgery.
• Patient was seen by surgical and anesthesia teams in the preoperative holding area the morning of surgery.

• An intravenous (IV) line was placed and "type and cross for blood" request was sent with baseline laboratory tests.

• At this hospital, an initial blood sample is sent in a purple tube from the holding area and then the blood bank will request a second confirmatory sample in a pink tube.

• The anesthesiologist marks the first tube with a patient sticker, date, time, initials.

• The blood bank then sends a pink tube with pre-made labels to the operating room (OR) for a second blood sample.
The patient quickly became hypotensive and vasopressors were initiated.
The patient's pink tube for a confirmatory blood sample was delivered.
Anesthesiologist filled pink tube with blood and returned it to blood bank.
After one hour, significant bleeding was encountered and a blood transfusion was needed.
Patient information on the blood bags was checked per institution policy and it was quickly discovered the blood delivered contained the wrong labels.
The blood bank was notified, the blood returned, and a new blood sample sent.
As the patient was persistently hypotensive and still bleeding, a massive transfusion protocol was initiated to rapidly get blood to the room.
Uncrossed universal donor blood was administered, and the patient's hemodynamic parameters recovered appropriately.
“THIS IS THE WRONG PATIENT’S BLOOD!”

Evaluating a Near-Miss Wrong Transfusion Event

The Commentary

By Sarah Barnhard MD
GENERAL RESPONSE
General Response

• Errors noted in this scenario revealed multiple opportunities for improvement
  – Hospital-based transfusion services must have a clear Quality Management System to ensure closed-loop transfusion safety.
  – Labeling blood samples at the bedside rather than sending remotely pre-labeled empty containers to the bedside is "best practice."
  – Confirmation that the container label matches the patient’s primary identification source is required.
  – Two-person verification is required at the point of issuing blood components and in the presence of the patient prior to transfusion.
SIGNIFICANT ERRORS
Significant Error 1: Opportunities for Improvement

- The wrong labeled tube was sent by the blood bank to the operating room resulting in a ‘wrong blood in tube’ phlebotomy
  - Standard of care is to label the blood container at the bedside
  - Labeling a sample container remotely and then transporting it to the bedside to collect the sample increases the risk of a "wrong blood in tube" event
  - A clear procedure for bedside sample labeling that ideally incorporates bedside barcode scanning and bedside label printing significantly reduces the risk of a wrong blood in tube event
Significant Error 2: Opportunities for Improvement

- Failure to check the sample container with the patient’s primary identification source before sending to the laboratory for testing
  - When drawing a patient sample, the label on the container must always be confirmed with the patient’s primary identification source, typically the patient’s wrist band. Two independent identifiers are required.
  - A clear procedure for bedside sample label verification that ideally incorporates bedside barcode scanning significantly reduces the risk of a "wrong blood in tube" event
USEFUL TOOLS
Paraphrased AABB Standards:

- **5.11.1** All requests for blood contain two independent identifiers of the intended recipient.
- **5.11.2** All patient blood sample labels include two independent identifiers and (5.11.2.1) the label is affixed to the container before the person who obtained the sample leaves the bedside.
- **5.12** The ABO group of each donor unit of red blood cells is confirmed through serologic testing before being placed in stock inventory.
- **5.14.1** The ABO group of the patient is determined by comparing the ABO antigens detected with the presence of expected anti-A and anti-B antibodies.
AABB Closed-Loop Blood Delivery Pathway for Transfusion Safety (2)

Paraphrased AABB Standards:

- 5.16.1 Before issue, a crossmatch demonstrates ABO compatibility.
- 5.16.2 If a computer crossmatch technique is used, two determinations of the recipient’s ABO group must be made before transfusing non-group O red blood cell units.
- 5.14.5 The recipient’s historical records for ABO group are reviewed before every unit issued.
- 5.23 At the time a unit is issued, two people verify the recipient ABO group and the donor ABO group.
- 5.28.3 After issue and immediately before transfusion, two people verify the ABO group of the recipient and the donor ABO group and confirm recipient identification in the presence of the recipient.
- 5.14.1 If a discrepancy is identified in the ABO testing, only group O red blood cells are transfused until resolution.
Response to a Near Miss High Risk Transfusion Event

- Broad root cause analysis
- Evaluate standard operating procedures (SOPs)
  - Are they confusing?
  - Are they misleading?
  - Interview the staff involved
  - What aspects of the system failed?
- Document a corrective and preventative action plan
  - Keep available for laboratory inspections
- Staff education
  - Re-training by reading standard operating procedures (SOPs)
  - Competency evaluation through direct observation of process
- Monitoring plan
  - Typically audits
TAKE HOME POINTS
Take-Home Points

- This case highlights how critical each step in the closed-loop blood delivery pathway is for transfusion safety.
  - Risk of error in the blood delivery pathway is significantly higher than risk of transfusion-transmitted HIV or hepatitis; the highest risk is in bedside patient identification.
  - No matter how urgent, all steps in the closed-loop blood delivery pathway must always be followed to protect patients from fatal ABO-mismatched transfusion.
  - In critically ill patients requiring transfusion who cannot wait for verified, crossmatched blood to be available, only group O red blood cells should be transfused.
  - Transfusion services are highly regulated, with state and federal oversight.
  - The appropriate response to a near miss high risk transfusion event includes
    1) report the event to accreditation/regulatory agencies as required
    2) perform a root cause analysis
    3) develop a corrective and preventative action plan
    4) monitor the system