WebM&M
Morbidity and Mortality Rounds on the Web

Spotlight

"This is the wrong patient's blood!": Evaluating a Near-Miss Wrong Transfusion Event

AHRQ Agency for Healthcare Research and Quality
Advancing Excellence in Health Care

PSNet
PATIENT SAFETY NETWORK

Source and Credits

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

Case: “This is the wrong patient’s blood” (2)

- 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.

Case: “This is the wrong patient’s blood” (3)

- 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

AABB Closed-Loop Blood Delivery Pathway for Transfusion Safety

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