UNOS MPSC Presentation

Donor ID [redacted]

ABO Incompatibility Event

Admission and Donation Course

11/24/2019 @ 21:08

- 24 y/o female admitted s/p motorcycle accident with multi-system organ trauma – liver laceration, multiple fractures, CHI. Transfusions started immediately upon arrival in the ED.

11/25/2019 @ 16:34

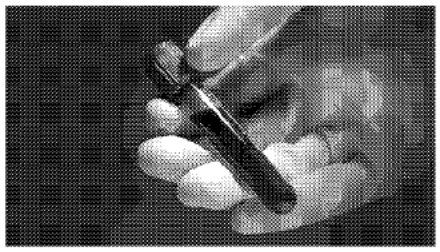
- Pt was declared brain dead with clinical exam and apnea testing

11/25/2019 @ 18:50

- SHSC obtained authorization for donation and assumed care of the patient

ABO Determination – *What We Saw*

- SHSC begins process of ABO determination & donor care
  - No Pre-transfusion sample available – Sample hemolyzed
  - 11/24/2019 @ 2309 **Hospital** ABO # 1 resulted as **Blood Group O**
  - 11/25/2019 @ 1900 – **SHSC** ABO # 2 resulted as **Indeterminate**
    - ***Forward 0 Reverse A***
- ***Now what?***



ABO Determination – *What We Did*

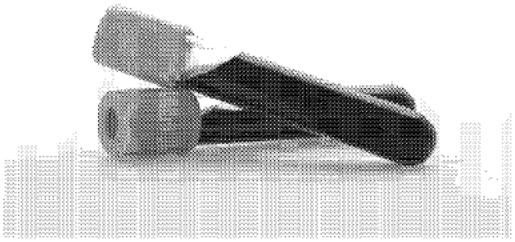
- SHSC staff escalates the Indeterminate Result to the AOC.
- SHSC AOC decision is to re-run the ABO or find another hospital result with a different draw date and time.
  - No escalation to the Medical Director
- SHSC Coordinator finds another hospital ABO result.
  - The hospital's blood bank requested an ABO after the patient's name change.

- 11/25/2019 @ 1950 – Hospital ABO # 3 resulted as **Blood Group O.**

ABO Determination – *What We Saw*

- **Hospital ABO # 1** resulted as **Blood Group O.**
- **SHSC ABO # 2** resulted as **Indeterminate.**
- **Hospital ABO # 3** resulted as **Blood Group O.**

- **ABO # 3 verifies ABO # 1**

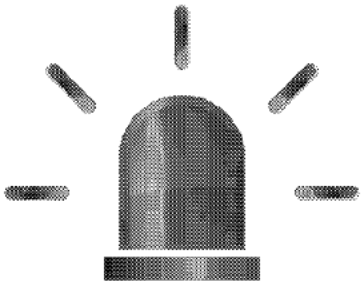


ABO Determination – *When We Knew*

- 11/28/2019 @ 00:52
  - Pancreas transplant center notifies SHSC that their confirmatory testing is showing Blood Group A.
  - SHSC AOC notifies transplant centers of this finding.
    - Thoracic transplant recipients deteriorating.
    - Abdominal transplant recipients are ok.
  - SHSC halts pancreas and one kidney transplant.
  - SHSC requests ABO typing by MUSC Blood Bank.
    - MUSC uses sample obtained at the time of the OR.
  - **Donor ABO is Blood Group A**

Sentinel Event – *What We Did*

- Sentinel Event – Emergency meeting of leadership team.
  - Developed our investigation & response plan with the team.
  - Conducted literature search for any standards/guidelines regarding hemodilution and ABO determination.
  - Immediate chart review with senior recovery leadership to identify gaps and/or process and policy errors.



Sentinel Event – Immediate Containment Plan

- Immediate Containment Plan
  - ANY indeterminate ABO result immediately escalated to the Medical Director for review.
  - Consider any Indeterminate ABO result a HARD STOP until Medical Director discussion and resolution.

Sentinel Event – *What We Did*
Education & Notification

- Contacted Director of the MUSC Blood Bank to review the event.
  - Discussed Forward and Reverse Typing results.
  - Discussed potential future testing possibilities i.e., molecular testing.
  - Requested any standards/guidelines for ABO determination in the presence of hemodilution.
- Contacted **Medical Director(s)** and **AOC(s)** staff to review containment plan and educate on Forward and Reverse Typing.
- Reported to UNOS

Sentinel Event – *What We Did*
Education & Notification

- Discussed this case with clinical staff and discussed the impact of ABO incompatibility transplants.
  - Clinical Donation Coordinators (CDC)
  - Clinical Allocation technicians (CAT)
- Reviewed Containment Plan with CDC and CAT staff.
- Notified UNOS of the Containment Plan.

Sentinel Event – *What We Did*
Root Cause Analysis

- Continued the RCA to establish root cause of the event.
  - **SHSC & MUSC Blood Bank Meeting**
    - Reviewed case with the Director of MUSC Blood Bank to obtain expert opinion on potential gaps and/or process improvements in ABO determination in massive transfusions.
    - Assessed availability of any standards and guidelines for ABO Determination in Hemodilution or Massive Transfusion Protocols.
    - Reviewed and confirmed understanding of "Forward and Reverse typing."
  - **SHSC & Donor Hospital Meeting**
    - Reviewed ABO testing practices and policy guidelines with donor hospital.

Sentinel Event – *What We Did*
Process & Policy Development

- Developed new processes and guidelines:
  - **SHSC Hard Stop Process**
    - HARD STOP in the event of ANY indeterminate ABO result.
    - Escalation to AOC and Medical Director.
    - OPO must re-run another ABO in order to verify.

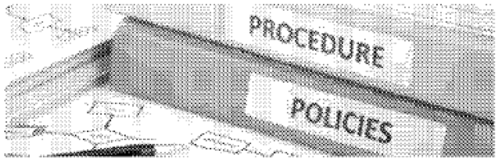
  - **ABO Determination & Hemodilution Playbook**
    - SHSC definition of Massive Transfusion Protocol for SHSC Donors.
    - Require ABO performed on pre-transfusion sample (when available).
    - Qualify samples used for ABO determination.
    - Develop **Worksheet** to guide clinical staff in the new process.
  - **Donor ABO Algorithm**
    - Process map for identifying & resolving ABO determination in hemodilution and massive transfusion protocols.

Sentinel Event – *What We Did*
Staff Training & Education

- Acute and ongoing training resulting from the Sentinel Event.
- **Completed**
  - SHSC Containment Plan
  - Hard Stop Process
  - ABO Determination & Hemodilution Playbook
  - Medical Directors and AOCs – Forward and Reverse Typing
- **Pending**
  - Lunch & Learn with [redacted] - MUSC Blood Bank
    - ABO Determination and the Impact of Transfusions
  - ABO Determination & Hemodilution Algorithm
- Plans to enhance our standard introductory clinical training to include this event.

Sentinel Event – *What We Did*
Policy Revision

- Ongoing policy revision to include these new and enhanced processed.



Thank You