#### Investigating a Suspected Immediate Transfusion Reaction

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| Purpose | The purpose of this procedure is to provide instructions for the completion of the suspected transfusion reaction process. |

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| Policy | * Transfusion reactions must be reported by nursing to the Transfusion staff **immediately (within 15 minutes of initial symptoms)**.
* Suspected transfusion reactions are considered STAT and MUST be completed without delay.
* The appropriate transfusion reaction workup MUST be completed prior to issuing any additional products.
1. At SMCS and SRMC when a pathologist is not on site, completed Allergic or Febrile Transfusion Reaction workups with no unusual findings can be submitted for pathology review on next regularly scheduled shift. Additional products may be issued in the interim, as requested.
2. Workups with symptoms suggestive of Hemolytic, Anaphylactic, TRALI or TACO require a pathologist review. If a pathologist is not available on site, the review may be conducted by telephone. Use BBCNC to document pathologist notification and verbal findings with date and time. Units on hold for patients in this category who had unusual findings must be **crossmatched on a POST transfusion banded sample.**
* Record tests performed for extended Hemolytic, Anaphylactic, and TRALI workup on pg. 2 of the Transfusion Reaction worksheet.
* Refer to “Report of Suspected Transfusion Transmitted Diseases” for additional instructions for handling a suspected post transfusion Hepatitis like reaction.
* Suspected cases of TRALI or bacterial contamination must be reported to the blood supplier.
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|  | * Refer to “Investigation of a Suspected Hemolytic Transfusion Reaction” procedure for instructions to work up a delayed transfusion reaction.
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| Procedure | The sections below define the procedure that must be followed to perform the Suspected Transfusion Reaction process. |

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| Notification of Suspected Reaction | Follow the steps below once the notification of a possible transfusion reaction is called to the Transfusion Service.

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| Step | Action |
| 1 | Advise the nurse to complete the following tasks:* Follow the nursing procedures and stop the transfusion immediately if not already done
* Complete the transfusion reaction sections of the blood administration flow sheet in EPIC
* Notify the patient’s physician
* Send all blood products and infusion sets to the Transfusion department ASAP (do not send via the pneumatic tube system). Collect a post EDTA specimen for reactions other than mild allergic
 |
| 2 | Quarantine all allocated blood products.*Note: All allocated located remotely (i.e. surgery, infusion or coolers) must be returned IMMEDIATELY*. |
| 3 | **Print a copy of the signs, symptoms and transfusion details of the suspected transfusion reaction from EPIC. Refer to “Viewing and Printing an EHR Transfusion Reaction Report” SOP.** |
| 4. | Review the symptoms indicated on the eHR Transfusion Reaction Report.

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| Mild Allergic | Febrile | Hemolytic, Anaphylactic, TRALI, TACO |
| * Hives/Uticaria
* Pruritis
 | * >38C(100.4F) AND a change of >1C(2F) from pre-transfusion value
* Chills with or without rigors
* Rash
* Flushing
* Nausea/Vomiting
* Anxiety
 | * Respiratory distress, ,including wheezing, coughing, dyspnea, SOB, cyanosis
* Hypotension/shock (decrease in SBP >30mm HG and SBP <80mm Hg)
* Hypertension (increase of SBP >30mm Hg if baseline SBP >140mm Hg)
* Pain in chest, back, flank, abdomen, IV site
* Frothy exudates in endotracheal tube
* Dark or bloody urine
* Decreased urine output
* Generalized/Abnormal bleeding
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| Step | Action |
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| If reaction occurred at… | Then… |
| SMCS and SRMC | Proceed to step 6. |
| SAFH and SDH | * Notify the pathologist immediately if signs and symptoms marked are in the 3rd column of the list above.
* Proceed to step 6.
 |
| SAH | * Notify the pathologist immediately of all reactions.
* Proceed to step 6.
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| 6. | Verify theTRXN2 battery is in the Laboratory Information System on patient with suspected reaction.  |

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| Clerical Check  |

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| Step | Action |
| 1. | Perform a clerical check of the documentation for the unit(s) that has been transfused during the potential reaction and document results under Transfusion Services Review section on form. Compare patient’s full name, MRN, unit number for product(s) to the following items:* Patient’s pretransfusion laboratory information system results
* Unit compatibility tag and bag label
* Pre and/or Post transfusion specimen (if applicable)

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| If error detected…. | Then…. |
| No | * Proceed to the next section
 |
| Yes, ABO/Rh incompatibility with unit | * Immediately notify the nurse and pathologist.
* Pathologist will notify the attending physician.
* Proceed to the next section.
 |
| Yes, clerical discrepancy | * Document and investigate the source of the discrepancy.
* Call the nurse and pathologist if patient safety has been affected.
* Proceed to the next section.
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| Sample and Unit Verification | Follow the steps below to perform a verification/recheck of the sample and unit. **Refer to “Reporting Transfusion Reaction Investigations” procedure to report results obtained in this section.**

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| Step | Action |
| 1 | Is this reaction other than mild allergic?

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| If… | Then… |
| No | * No further workup necessary.
* Submit to a Pathologist for review.
 |
| Yes | * Proceed to step 2.
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| 2 | * Visually examine the Pre and Post Transfusion specimens for evidence of hemolysis and icterus.
* Document findings for samples in laboratory information system.
 |
| 3 | Is hemolysis or icterus greater in the post specimen than the pre specimen?

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| If… | Then… |
| No | Proceed to step 5. |
| Yes | Proceed to step 4. |

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| 4 | Does hemolysis appear to be due to collection technique?

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| If… | Then… |
| No | * Proceed to step 5.
* Document results in the laboratory information system.
 |
| Yes | Recollect the specimen and reevaluate for hemolysis. |

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| Step | Action |
| 5 | * Visually examine the component bag for evidence of hemolysis, clots, abnormal color or possible bacterial contamination (gas bubbles).
* Document findings for each component in the laboratory information system.
 |
| 6 | Are the bag, attached tubing and solutions suspect?Note: Only acceptable solution is saline.

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| If… | Then… |
| No | * Perform ABO/Rh and polyspecific DAT testing on post transfusion reaction specimen.
* Proceed to “ABO/XM Recheck” section.
 |
| Yes | * Notify the nurse and pathologist.
* Consult with the pathologist to determine need for culture.
* Perform ABO/Rh and polyspecific DAT testing on post transfusion reaction specimen.
* Proceed to “ABO/XM Recheck” section.
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| ABO/XM Recheck | Perform patient history check and verify the information listed below.

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| Step | Action |
| 1 | Does the post specimen ABO/Rh agree with historical ABO/Rh?

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| If… | Then… |
| No | * Repeat the ABO/Rh on the pre transfusion specimen (if available).
* Proceed to step 2.
 |
| Yes | Proceed to step 3. |

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| Step | Action |
| 2 | Does the pre and post specimen ABO/Rh match?

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| If… | Then… |
| No | * Repeat ABO/Rh on another specimen.
* Follow laboratory specific history discrepancy protocol.
 |
| Yes | Proceed to step 3. |

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| 3 | Is the ABO/Rh compatible with the unit(s) transfused?

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| If… | Then… |
| No | * Notify the Pathologist immediately.
* Proceed to step 4.
 |
| Yes | Proceed to step 4. |

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| 4 | Is the post transfusion sample polyspecific DAT negative?

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| If… | Then… |
| No | * Perform a polyspecific DAT on the pre transfusion specimen.
* Proceed to step 5.
 |
| Yes | Proceed to step 5. |

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| Step | Action |
| 5 | Review the reaction report for fever, dyspnea and hypotension or dyspnea and hypertension or frothy exudates in endotracheal tube. Are symptoms present?

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| If… | Then… |
| No and Post DAT negative | * No further work up necessary.
* Evaluate for need to culture.
* Submit to a Pathologist for review.
 |
| No and Post DAT positive | * Proceed to step 6.
 |
| Yes | * Proceed to step 6.

**AND*** Suspect possible TRALI/TACO reaction.
* Report immediately to a Pathologist who is responsible for contacting the attending physician.
* Notify blood supplier, if directed by pathologist, after initial review. Call Blood Source Medical Office. If after hours, leave message with hospital name, contact number, patient name, DOB and suspected reaction.
* ***If a reasonable possibility exists that this adverse event was due to TRALI, consider obtaining patient specimens for subsequent HLA and/or related testing to be performed by BloodSource.  This determination should be made in concert with BloodSource’s on-duty physician***
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| Step | Action |
| 6 | Is the strength of the post DAT stronger than the pre-transfusion DAT sample?

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| If… | Then… |
| No | * No further work up necessary.
* Evaluate for need to culture.
* Submit to a Pathologist for review.
 |
| Yes | * Perform elution or send out.
* Proceed to step 7.
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| 7 | * Perform an antibody screen on patient pre and post transfusion sample.
* Record test results on the “Transfusion reaction worksheet/compatibility testing” form (backside only).
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| 8 | * Perform an AHG crossmatch on each donor red cell unit transfused in the last 4 hrs using pre and post transfusion reaction specimen.
* Record test results on the “Transfusion reaction worksheet/compatibility testing” form (back side only).
 |
| 9 | Is there an unexpected positive crossmatch or change in thepattern of the antibody screen in the post transfusion specimen?

|  |  |
| --- | --- |
| If… | Then… |
| No | * No further work up necessary.
* Evaluate for need to culture.
* Submit to a Pathologist for review.
 |
| Yes | * Repeat **ALL** tests on **pre** transfusions specimen.
* Perform antibody identification panel on post transfusion specimen.
* Proceed to step 10.
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| 10 | Is any unit incompatible with the pre and/or post transfusionspecimen?

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| If… | Then… |
| No | * Evaluate for need to culture.
* If no other discrepancy, submit to a Pathologist for review.
 |
| Yes | Proceed to step 11. |

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| **Culture Workup** |

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| 11 | Was a new antibody identified?

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| If… | Then… |
| No | * Perform DAT on unit.
* Proceed to step 12.
 |
| Yes | Proceed to step 13. |

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| 12 | Is unit DAT positive?

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| --- | --- |
| If… | Then… |
| No | * Consider a low incidence antibody.
* Refer to a Pathologist for interpretation.
 |
| Yes | * Notify blood supplier.
* Submit to a Pathologist for review.
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| 13 | Perform antigen typing on transfused units for newly identified antibodies. |
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| 14 | Is antigen typing positive for suspected antibody?

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| If… | Then… |
| No | * Consider a low incidence antibody.
* Refer to a Pathologist for interpretation.
 |
| Yes | * Suspect a HTR.
* Notify a pathologist immediately.
* Collect a new banded sample and use to crossmatch additional units as needed.
* Collect and test a post urine sample for free Hgb –if pre is available test as well.
* Collect and test 6 hr post T. Bili. Perform a pre T. Bili test if sample is available.
* Proceed to ancillary testing as directed by the Pathologist.
* Submit findings to the Pathologist for review.
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| Step | Action |
| 1 | Are any of the following observed:* Temperature rise of greater than 2°F and 100.5° F or 1°C and >38°C
* Symptoms noted in the 3rd column of step 4 “Notification of Suspected Reaction” section
* Blood products appearance is abnormal
* Platelet or Autologus unit

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| If … | Then… |
| Yes | * Assign SLA to order TRX, process component for gram stain and culture. Refer to “Processing Suspected Transfusion Reaction Blood Components” procedure.
* Read Gram stain in-house
* Store product bag on Transfusion Reaction shelf of refrigerator until final report is signed by the pathologist.
 |
| No | Refer to “*Reporting Transfusion Reaction Investigations*”. |

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| Associated Documents | * Processing Suspected Transfusion Reaction Blood Components
* Reporting Transfusion Reaction Investigations
* Report of Suspected Transfusion Transmitted Diseases
* Investigating a Suspected Delayed Transfusion Reaction
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| Forms | Transfusion Reaction Worksheet TS.POST12.05-F:A-RV.02 |

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| Attachments | Suspected Immediate Transfusion Reaction Flowsheet – Document # TS.POST12.05-A:A-RV.02 |