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Delayed Transfusion Reaction: How To Investigate And Report

Purpose

To recognize and report suspected delayed transfusion reactions.

Policy

- A possible delayed hemolytic transfusion reaction (DHTR) or a delayed serologic transfusion reaction (DSTR) will be reported to the Transfusion Service Medical Director in the following situations:
  - A new clinically significant red cell antibody and/or a newly positive direct antiglobulin test (DAT) is detected in a patient between 24 hours and 28 days after a transfusion.
- All possible delayed transfusion reactions are reported to the patient's physician.
  - The patient's physician will be notified by the blood bank staff to request a Transfusion Reaction workup in Health Connect, this will document the Delayed Transfusion Reaction workup on the patient's medical record.

Definitions

Delayed Hemolytic Transfusion Reaction Case Definitions:

Definitive Case:
Positive DAT for antibodies developed between 24 hours and 28 days after cessation of transfusion
AND EITHER
Positive elution test with alloantibody present on the transfused red blood cells
OR
Newly-identified red blood cell alloantibody in recipient plasma/serum
AND EITHER
Inadequate rise of post transfusion hemoglobin level or rapid fall in hemoglobin back to pretransfusion levels
OR
Otherwise unexplained appearance or spherocytes.

Probable Case:
Newly-identified red blood cell alloantibody demonstrated between 24 hours and 28 days after cessation of transfusion
BUT
Incomplete laboratory evidence to meet definitive case definition criteria
NOTE: Patient may be asymptomatic and have symptoms that are similar to but milder than Acute Hemolytic Transfusion Reaction; symptoms are not required to meet case definition criteria.

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Delayed Transfusion Reaction: How To Investigate And Report, Continued

Definitions con't

Possible Case:
Delayed Serologic Transfusion Reaction is suspected, but reported symptoms, test results, and/or available information are not sufficient to meet the criteria defined above. Other, more specific adverse reaction definitions do not apply.

Delayed Serologic Transfusion Reaction Case

Definitive Case:
Absence of clinical signs of hemolysis
AND
Demonstration of new, clinically-significant antibodies against red blood cells
BY EITHER
Positive DAT
OR
Positive antibody screen with newly identified RBC alloantibody.

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Delayed Transfusion Reaction: How To Investigate And Report, Continued

Procedure

Follow the steps below to recognize and report a suspected delayed transfusion reaction

Step	Action
1.	Determine if this case is a suspected delayed transfusion reaction. • On all cases where there is a new clinically significant antibody identified, **and**/or a newly reported positive direct antiglobulin (DAT) test-(typically mixed field). • Check the patient's history for recent red blood cell transfusions.
2	**IF** the patient / **THEN** Has **not** been transfused within the past 28 days → • Proceed with routine work-up of positive antibody screen. • No Delayed Transfusion Reaction workup needs to be initiated. Has been transfused within the past 28 days. → • Notify the Transfusion Service manager or designee and the Transfusion Service MD as soon as it is evident that a DTR has occurred, even if all testing has not been completed. • Go to Step 3
3	• The Transfusion Service will contact the provider and request the order of Transfusion Reaction to be placed in Health Connect. ○ If additional samples are required for testing (Antibody ID, eluates, etc.) either by the medical center or for send out, request the orders for these samples as well. • The transfusion service will start completion of the *Transfusion Reaction: Investigation of Suspected Reaction* Form, writing "Delayed" and N/A for appropriate sections (i.e. Transfusion Record, clerical check)
4.	Upon completion of the Antibody ID • In Result Entry add the comment "The laboratory has identified a new antibody in a recently transfused patient" to the Antibody ID result(s).

New antibody or positive DAT

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Delayed Transfusion Reaction: How To Investigate And Report, Continued

Procedure con't

Step	Action
5.	Testing of implicated transfused red blood cells units • Segments from the suspected red blood cell units transfused shall be tested for the offending antigen(s) identified. • Document results of Unit Ag testing on Additional Testing Column on *Transfusion Reaction: Investigation of Suspected Reaction* Form. • Document all Antigen testing on product DIN in Cerner • Also document as described in Attachment A in Cerner
6.	Additional testing • For positive DAT results on the current sample, an eluate shall be sent to an Immunohematology Reference Laboratory for elution studies. • Pathologist may request additional testing on pre-transfusion samples if available
7.	Enter results in Cerner for the Transfusion Reaction order as shown in Attachment A.

Non-Controlled Documents

The following non-controlled documents support this procedure.

- AABB Standards, current ed.
- CAP Requirements, checklist, current ed.
- Fung, Mark K. Ed. Technical Manual, 19th Ed. AABB, 2017
- National Healthcare Safety Network (NHSN) Biovigilance Component, Hemovigilance Module Surveillance Protocol, v2.4, January 2017

Controlled Documents

The following controlled documents support this procedure.

- Attachment A: RESULT ENTRY FOR DELAYED TRANSFUSION REACTION WORKUP IN CERNER
- Transfusion Reaction: Investigation of Suspected Reaction Form
- Result Entry: Resulting Routine Tests and Products in Cerner
- How to Investigate a Suspected Transfusion Reaction

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Delayed Transfusion Reaction: How To Investigate And Report, Continued

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Reviewed and approved by:

Electronically signed	February 11, 2004
Virginia Vengelen-Tyler, MBA, MT,ASCP(SBB), CQA(ASQ) Regional Blood Bank Compliance Officer	Date
Signature Collected Electronically	December 12, 2003
Michael Bonin, MD, Ph.D. Medical Director- San Diego –SA	Date
Signature Collected Electronically	January 29, 2004
Gary Gochman, MD, Medical Director –Tri-Central SA	Date
Signature Collected Electronically	December 30, 2003
Peter Rogers, MD. Medical Director –San Fernando Valley SA	Date
Signature Collected Electronically	January 14, 2004
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DOCUMENT HISTORY PAGE
Effective Date: February 11, 2004

Change type: new, major, minor etc.	Changes Made to Document – Describe	Signature responsible person/Date	Med. Dir. Reviewed/ Date	Lab Manager reviewed/ Date	Date change Imp.
New					
Minor	Changed to conform to ILIDS-TS flowchart. Eliminated the transfusion reaction workup unless ordered by a physician.	Ginny Tyler 01/27/09	N.A	N.A.	
Minor V. .02	Added the Canned comment to be entered in RE.	Ginny Tyler 12/23/10	N.A.	N.A.	

IMP = Implemented

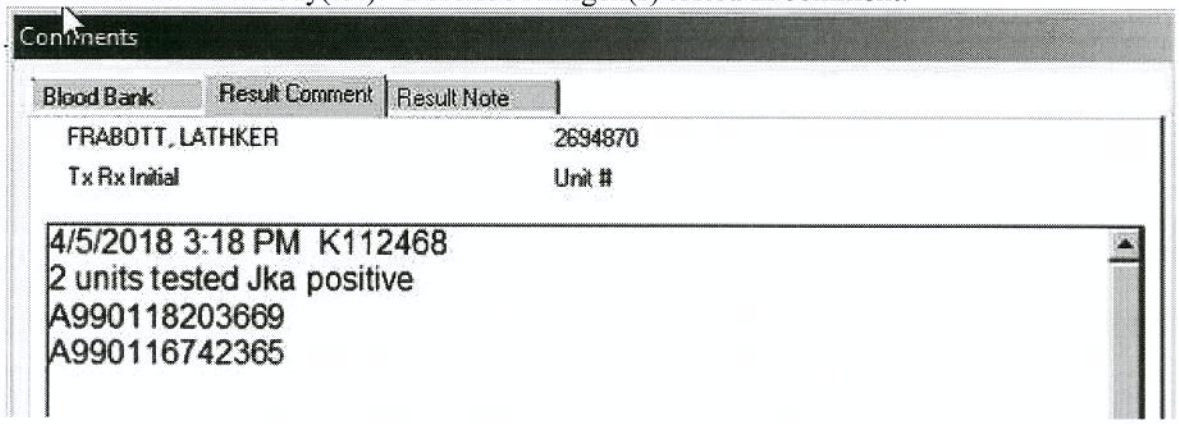
Master Control History of Change:		
Change type: new, major, minor etc.	**Version #**	**Description of Change**
Major	4	Added NHSN definitions, updated detection period from within a week to between 24 hours and 28 days after a transfusion as defined by CDC/NHSN-see uncontrolled documents. Clarified steps in procedure section. Added Cerner flowchart for Result Entry.

Delayed Transfusion Reaction: How To Investigate And Report, Continued

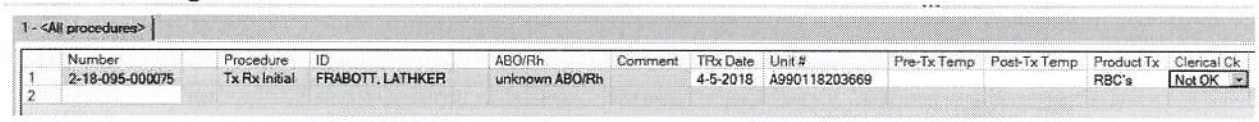
ATTACHMENT A

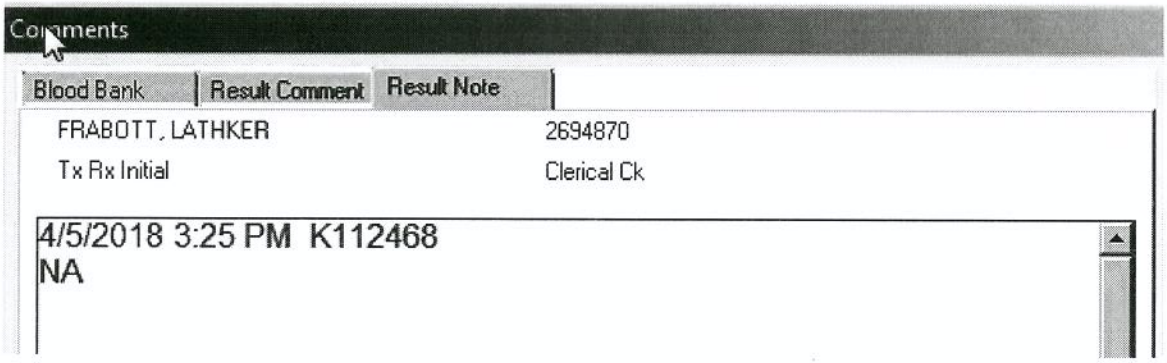
RESULT ENTRY FOR DELAYED TRANSFUSION REACTION WORKUP IN CERNER

1. Enter date of workup and an implicated unit number.
2. Add result comment for implicated unit number and any additional unit numbers positive for new antibody(ies). Describe Antigen(s) tested in comment.



3. Add "Not OK" for clerical check
4. Add Result Note of "NA" to document not applicable for delayed transfusion reaction investigation.





5. Cancel the following tests in Cerner:
   TRXN DAT POST TRNF &TRXN ABORH POST TRNF

NOTE: Patient displayed in Cerner Screenshots is a test patient from the testing environment.

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