



University of Washington Medical Center 1959 NE Pacific Street. Seattle, WA, 98195 Transfusion Services Laboratory Policies and Procedures Manual	Original Effective Date: 03-11-16	Number: PC-0006.02
	Revision Effective Date:	
TITLE: Electronic Crossmatch		

PURPOSE:

To provide instructions for performing electronic crossmatch (EXM) to detect ABO/Rh incompatibility between recipient and donor red blood cell and granulocyte components

PRINCIPLE & CLINICAL SIGNIFICANCE:

Principle

The LIS (Sunquest) is programmed to detect ABO/Rh incompatibility between recipient and donor. This method of crossmatching can be used in place of a serologic crossmatch when the patient and donor meet the following requirements:

- Recipient requirements
 - Two consecutive concordant ABO/Rh results on file
 - One from an non-expired crossmatch eligible battery (TSCR, TSCREX, TXM) with no pending tests
 - Second ABO/Rh from an independent collection with testing performed by the UWMC TSL
 - Current antibody screen is negative
 - No history of clinically significant antibodies
 - Electronic crossmatch eligibility (EXM Elig) is NOT set to “NO”
- Donor requirements
 - ABO/Rh serologically confirmed and the results entered into the LIS
 - No clinically significant antibodies (any antibodies will be listed on the unit label or an attached tag and these units are not accepted by the UWMC TSL)
 - Component is in an available status with no pending tests
- Patient and donor test results and interpretations used by the computer for crossmatching are reviewed and verified by a TSL technologist at the time of testing

Clinical Significance

Advantages of the electronic crossmatch include: reduced sample volume, decreased workload, efficient use of blood inventory, reduced time for providing red blood cell or granulocyte components for transfusion, and reduced exposure of personnel to blood specimens.

SPECIMEN REQUIREMENTS:

Current (in-date) specimen includes a current ABO/Rh and negative antibody screen testing (see requirements under ‘Principle’ above)

REAGENTS/SUPPLIES/EQUIPMENT:

Reagents:	Supplies:	Equipment:
NA	NA	Sunquest BB Module

TITLE: Electronic Crossmatch	Number: PC-0006.02
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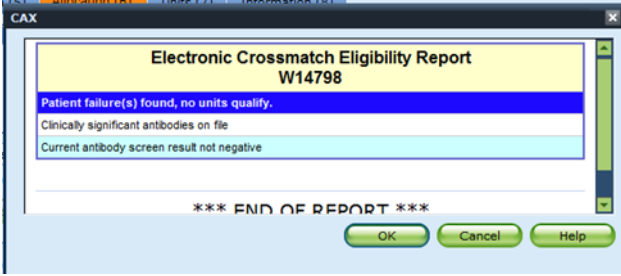
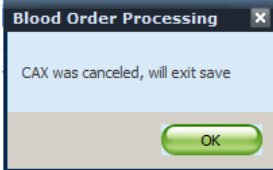

QUALITY CONTROL:

Sunquest is validated to ensure the system contains logic to alert the user to ABO/Rh incompatibility between the recipient and the donor unit

INSTRUCTIONS:

STEP	ACTION										
1	Log into Sunquest using the inventory location where the component is located and the Transfusion Record will print										
	<table border="1"> <thead> <tr> <th>If component is located at</th> <th>Then log in at</th> </tr> </thead> <tbody> <tr> <td>UW-TSL</td> <td>BB</td> </tr> <tr> <td>UWMC 2nd Floor</td> <td>BB2</td> </tr> <tr> <td>SCCA</td> <td>SA1</td> </tr> <tr> <td>NW</td> <td>NWBB (HaemoBank) NWBB2 (non HaemoBank)</td> </tr> </tbody> </table>	If component is located at	Then log in at	UW-TSL	BB	UWMC 2 nd Floor	BB2	SCCA	SA1	NW	NWBB (HaemoBank) NWBB2 (non HaemoBank)
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	UW-TSL	BB									
	UWMC 2 nd Floor	BB2									
SCCA	SA1										
NW	NWBB (HaemoBank) NWBB2 (non HaemoBank)										
2	Open the Blood Order Processing (BOP) module										
3	Scan/enter the MR# from the product order or delivery request NOTE: The order may also be accessed by scanning the CID on the patient sample if performing an electronic crossmatch in conjunction with other patient testing										
4	Click on the <Order Selection> tab and double click on the order line with the appropriate crossmatch eligible battery										
6	Perform a patient history check (HXCK)(refer to SOP <i>Patient History Check</i>) NOTE: Carefully review information under the ‘Problems’ and ‘Comments’ tabs because any information listed there that disqualifies the patient for electronic crossmatch will not automatically disqualify the patient for electronic crossmatch										
7	Select and allocate the red cell component <ul style="list-style-type: none"> • Click on <Allocation> tab • Click on <Blood Inventory Search...> button 										
8	Enter UR (University Routine) in the ‘Search Function’ field to view All ‘available’ red cell components (RBCG) in all UW TSL inventory locations NOTE: Inventory search can be further refined by location:										
	<table border="1"> <thead> <tr> <th>To search for red cell components in</th> <th>Enter</th> </tr> </thead> <tbody> <tr> <td>2nd floor OR inventory only</td> <td>BB2 in the “Unit Location” field</td> </tr> <tr> <td>SCCA inventory only</td> <td>SA1 in the “Unit Location” field</td> </tr> <tr> <td>NW inventory only</td> <td>NWBB in the “Unit Location” field</td> </tr> </tbody> </table>	To search for red cell components in	Enter	2 nd floor OR inventory only	BB2 in the “Unit Location” field	SCCA inventory only	SA1 in the “Unit Location” field	NW inventory only	NWBB in the “Unit Location” field		
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10	<ul style="list-style-type: none"> • Enter any additional search criteria as necessary to restrict the search to components ABO/Rh compatible with the patient and matching any additional required attributes and antigens • Click <Search> 										

STEP	ACTION																														
11	<p>Select appropriate unit(s) by checking the box at the left of the unit row</p> <table border="1" style="width: 100%; border-collapse: collapse; margin-bottom: 10px;"> <thead> <tr style="background-color: #cccccc;"> <th>Flag</th> <th>HID/Area</th> <th>Unit Number</th> <th>Comp</th> <th>Dv</th> <th>AB</th> </tr> </thead> <tbody> <tr> <td style="text-align: center;"><input checked="" type="checkbox"/></td> <td>U</td> <td>W1416 01 000585</td> <td>E0181</td> <td>00</td> <td>O/I</td> </tr> <tr> <td style="text-align: center;"><input type="checkbox"/></td> <td>U</td> <td>W1416 01 000520</td> <td>E0332</td> <td>A0</td> <td>O/I</td> </tr> <tr> <td style="text-align: center;"><input type="checkbox"/></td> <td>U</td> <td>W1416 01 000522</td> <td>E0336</td> <td>A0</td> <td>O/I</td> </tr> <tr> <td style="text-align: center;"><input type="checkbox"/></td> <td>U</td> <td>W1416 01 000523</td> <td>E0332</td> <td>00</td> <td>O/I</td> </tr> </tbody> </table> <p>NOTE: Units are normally selected based on shortest expiration which sort to the top of the screen</p>	Flag	HID/Area	Unit Number	Comp	Dv	AB	<input checked="" type="checkbox"/>	U	W1416 01 000585	E0181	00	O/I	<input type="checkbox"/>	U	W1416 01 000520	E0332	A0	O/I	<input type="checkbox"/>	U	W1416 01 000522	E0336	A0	O/I	<input type="checkbox"/>	U	W1416 01 000523	E0332	00	O/I
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12	<p>Click <OK> to complete the allocation</p> <p>WARNING: If any QA warnings appear, the electronic crossmatch cannot be completed</p>																														
13	<p>Verify the components selected appear in the <u>Compatibility Testing</u> field and “Pend” appears in the XM And TS fields</p>																														
14	<p>Click <Save></p> <p>WARNING: If any QA warnings appear, the electronic crossmatch cannot be completed</p>																														
15	<p>Review the “Electronic Crossmatch Eligibility Report”</p> <table border="1" style="width: 100%; border-collapse: collapse; margin-bottom: 10px;"> <thead> <tr style="background-color: #cccccc;"> <th style="width: 30%;">If Patient is</th> <th>Then</th> </tr> </thead> <tbody> <tr> <td style="vertical-align: top;">Eligible for electronic crossmatch</td> <td> <p>The unit number will appear under the “Unit(s) to be resulted” on the Electronic Crossmatch Eligibility Report</p> <div style="border: 1px solid black; padding: 5px; margin-bottom: 10px;"> <p style="text-align: center; background-color: yellow;">Electronic Crossmatch Eligibility Report W14799</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr style="background-color: #0000ff; color: white;"> <th>Unit(s) to be resulted</th> </tr> </thead> <tbody> <tr> <td>W1416 01 000365 E4527:00</td> </tr> </tbody> </table> <p style="text-align: center;">*** END OF REPORT ***</p> <p style="text-align: right;"> <input type="button" value="OK"/> <input type="button" value="Cancel"/> <input type="button" value="Help"/> </p> </div> <ul style="list-style-type: none"> Click <OK>. The crossmatch grid will be automatically populated (see table below) and the Transfusion Record will print at the location selected in Step 1 <table border="1" style="width: 100%; border-collapse: collapse; margin-bottom: 10px;"> <thead> <tr style="background-color: #cccccc;"> <th>Field</th> <th>Result</th> </tr> </thead> <tbody> <tr> <td>XM</td> <td>ECMP</td> </tr> <tr> <td>TS</td> <td>OK</td> </tr> </tbody> </table> <p>NOTE: Refer to ‘Procedure Notes’ below if the Transfusion Report prints at the wrong location</p> </td> </tr> </tbody> </table>	If Patient is	Then	Eligible for electronic crossmatch	<p>The unit number will appear under the “Unit(s) to be resulted” on the Electronic Crossmatch Eligibility Report</p> <div style="border: 1px solid black; padding: 5px; margin-bottom: 10px;"> <p style="text-align: center; background-color: yellow;">Electronic Crossmatch Eligibility Report W14799</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr style="background-color: #0000ff; color: white;"> <th>Unit(s) to be resulted</th> </tr> </thead> <tbody> <tr> <td>W1416 01 000365 E4527:00</td> </tr> </tbody> </table> <p style="text-align: center;">*** END OF REPORT ***</p> <p style="text-align: right;"> <input type="button" value="OK"/> <input type="button" value="Cancel"/> <input type="button" value="Help"/> </p> </div> <ul style="list-style-type: none"> Click <OK>. The crossmatch grid will be automatically populated (see table below) and the Transfusion Record will print at the location selected in Step 1 <table border="1" style="width: 100%; border-collapse: collapse; margin-bottom: 10px;"> <thead> <tr style="background-color: #cccccc;"> <th>Field</th> <th>Result</th> </tr> </thead> <tbody> <tr> <td>XM</td> <td>ECMP</td> </tr> <tr> <td>TS</td> <td>OK</td> </tr> </tbody> </table> <p>NOTE: Refer to ‘Procedure Notes’ below if the Transfusion Report prints at the wrong location</p>	Unit(s) to be resulted	W1416 01 000365 E4527:00	Field	Result	XM	ECMP	TS	OK																		
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STEP	ACTION							
	<p>Not eligible for electronic crossmatch</p>	<p>The Electronic Crossmatch Eligibility Report will list the reason(s) for the electronic crossmatch failure</p> <p>Example:</p>  <ul style="list-style-type: none"> • Click <Cancel>. The Blood Order Processing box will appear with the message “CAX was canceled, will exit save”  <ul style="list-style-type: none"> • Click <OK> • Investigate and resolve the cause of the failure • Proceed to serologic crossmatch testing if the patient does not qualify for electronic crossmatching <p>NOTE: Any QA failures on the component or the patient will fail the electronic crossmatch</p>						
16	<p>Click on the appropriate button when the “Call BPI” (Blood Product Issue) pop up box appears:</p>  <table border="1"> <thead> <tr> <th>If the component will be issued</th> <th>Then click on</th> </tr> </thead> <tbody> <tr> <td>Immediately</td> <td><Issue> (refer to SOP <i>Issuing Blood Components</i>)</td> </tr> <tr> <td>Later or at a different location</td> <td><No></td> </tr> </tbody> </table>		If the component will be issued	Then click on	Immediately	<Issue> (refer to SOP <i>Issuing Blood Components</i>)	Later or at a different location	<No>
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CALCULATIONS/INTERPRETATIONS/RESULTS REPORTING/NORMAL VALUES/CRITICAL VALUES

CALIBRATION:
NA

PROCEDURE NOTES AND LIMITATIONS:**Procedure Notes**

- The presence of rouleaux is not associated with antibody formation and does not disqualify a patient from electronic crossmatch
- Electronic Crossmatch may not be used on patients when the Electronic crossmatch eligibility (EXM Elig) is set to NO in Blood Bank Administrative Data Entry. This safeguard is used when there is some question regarding unexplained reactions with the patient's plasma thought to be due to developing antibodies that may be clinically significant and prevents electronic crossmatching
- To reprint a Transfusion Record printed at the wrong location, log into 'Blood Order Processing' (BOP) using the correct inventory/print location and use code ;UR in the 'Add Unit Test (x)' field for the selected blood component
- If the patient does not qualify for electronic crossmatch, refer to the appropriate SOP for serologic testing or issuing uncrossmatched blood as appropriate
- Electronic crossmatch is also referred to as computer-assisted crossmatch (CAX) in Sunquest

Limitations

- Patients lacking two consecutive ABO/Rh types in agreement are not eligible for electronic crossmatch until a second matching ABO/Rh is resulted. This will occur following any ABO/Rh tests resulted as 'BBCAN'. Rh negative patients receiving Rh positive units will not qualify for the electronic crossmatch
- Patients in SQ BAD file listed as NTD Pos/Neg and NTD interpretation in the specimen ABO/Rh test result are not eligible for electronic crossmatch. A serologic crossmatch must be performed
- Only RBCs in "Available Status" without pending testing are eligible for electronic crossmatch
- Serologic crossmatch must be performed on units issued during computer downtime

REFERENCES:

- Technical Manual. Bethesda, MD: AABB Press, current edition
- Standards for Blood Banks and Transfusion Services. Bethesda, MD: AABB Press, current edition
- Guidance for Industry: "Computer Crossmatch" (Computerized Analysis of the Compatibility between the Donor's Cell Type and the Recipient's Serum or Plasma Type) U.S. Department of Health and Human Services, Food and Drug Administration Center for Biologics Evaluation and Research, April 2011
- Guidelines for Implementing an Electronic Crossmatch. Bethesda, MD; AABB, 2003

RELATED DOCUMENTS:

SOP *Sample Acceptability & Order Receipt*
SOP *Issuing Blood Components*

APPENDIX:

NA

TITLE: Electronic Crossmatch	Number: PC-0006.02
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UWMC SOP Approval:	
UWMC CLIA Medical Director	_____ Date _____
	Mark H. Wener, MD
Transfusion Service Manager	_____ Date _____
	Nina Sen
Compliance Analyst	_____ Date _____
	Christine Clark
Transfusion Service Medical Director	_____ Date _____
	Monica Pagano, MD
UWMC Biennial Review:	
	_____ Date _____
	_____ Date _____

REVISION HISTORY:
01/15/21: Add NW Sunquest login and inventory locations