University of Washington Medical Center 1959 NE Pacific Street. Seattle, WA 98195 Transfusion Services Laboratory Policies and Procedures Manual	Original Effective Date: 03-27-2021 Revision Effective Date:	Number: PC-0097.01
TITLE: **Blood Component Order Receipt and Processing**		

PURPOSE:
To describe the process by which blood component orders are received, routed, prioritized and completed.

PRINCIPLE & CLINICAL SIGNIFICANCE:
Timeliness and accuracy of the UWMC Transfusion Service Laboratory (TSL) can directly impact patient outcomes and customer satisfaction. Delays or inaccuracies can fail to prevent or may even cause morbidity and mortality.

POLICIES:
General Policies
- Timely communication must occur with clinical care staff:
  - To prevent delay when a specimen must be drawn to fill blood component orders
  - When patient test results are unexpected or incomplete and scheduled transfusion may be delayed or needs to be rescheduled
- Information entered in SQ should be scanned when possible and only manually keyed in when scanning is not available
  All orders are reviewed for attributes and new attributes entered in SQ and honored until reviewed by the TSL Medical Director or resident
- Release of platelet components are restricted to two per day except as approved by the TSL MD or cases of large volume blood loss

Test Requirements for Blood Component Orders

PRODUCT ORDER	TESTS REQUIRED
Red blood cells and granulocytes (crossmatched)	• Two ABO/Rh test (performed on two separately collected specimens) • Current in-date type and screen (TSCR, TXM, TSCREX) valid for 3 days from the date of collection (day 0) and additional RBC units may be added to the order during this time
Plasma, Platelets and Cryoprecipitate	• One ABO/Rh by UWMC TSL (may be historical)

Turnaround Times (TAT):

- The following schedule shows the published TAT for blood delivery at UWMC.

Turnaround Times for Blood at UWMC:

Emergency vs STAT vs Routine

Blood Product Order to Issue Turnaround Times (TATs) Tracked by Transfusion Service Laboratory (TSL) Time Stamps

Component	Emergency Release Uncrossmatched*	STAT		Routine	
		Current Type & Screen	No Current Type & Screen	Current Type & Screen	No Current Type & Screen
Red Blood Cells	5 minutes	30 minutes	1 hour	4 hours	
Plasma & Platelets	10 minutes				
Cryoprecipitate	20 minutes				

*Applies to Massive Transfusion Protocol (MTP), obstetric bleeding emergencies, and a la carte orders. If current testing has been performed crossmatched blood may be provided.

NOTE: Times do not apply if antibody screen is positive or if any of the following are needed: antigen matched components, rare components, or secondary processing (i.e. volume reduction / washing).

- In addition:
  - **Non-emergency blood component orders from OR, ED are considered STAT and components must be delivered within 20 minutes** from receipt of Blood Product Release Form (BPDR) in TSL.
    EXCEPTION: Cryoprecipitate can be thawed upon receipt of Blood Product Release Form

Inpatient Blood Component Orders

- Placed in EPIC and prints in TSL
- Order is received using SQ Blood Order Processing (BOP) function
- All product orders will require a history check
- **MTP and Emergency Orders**
  - Verbal orders may be received from patient care areas in emergent situations (during MTP and OB MTP) and prior to the order being placed in EPIC

Outpatient Blood Component Orders

- Placed in EPIC but will not print in TSL until “released” on day of appointment
- **SCCA Outpatient Orders (applies to Eastlake location only)**
  - Most orders are prepared from the DAR report prior to release of the order to provide the component in time for appointment
  - SCCA Transfusion Support Service (TSS) will release orders first thing in the morning for current day appointments
  - Add on same day orders will be released by the clinical team

- Outpatient orders can be reviewed in EPIC Department Appointments Report (DAR) TSL report
    - **EPIC Department Appointments Report (DAR) for Outpatient** – refer to Appendix C: Pulling Department Appointments Report (DAR) for Outpatients
    - Future product orders for outpatients do not print until day of transfusion appointment when the order is "released"
    - Three reports are available by appointment location
        - SCCA TSL Transfusion Advanced Prep Report -SCCA Eastlake
            - Used daily by each shift
            - Product orders placed in advance are released on the day of appointment by SCCA TSS at approximately 5 am
        - UW-ML TSL Transfusion Advanced Prep Report- Montlake Campus
            - Used for pending red blood cell exchanges
        - NW TSL Transfusion Advanced Prep Report - Northwest Campus
            - Use for pending red blood cell exchanges
    - The following information is found on the report
        - Patient name and MRN
        - Age/Sex
        - Date
        - Appt Time
        - Clinic
        - Visit Type
        - Product details
        - Current Patient Special Requirements
        - Provider
    - DAR is printed and reviewed by each shift to identify orders within the next 72 hours that need to be prepared– refer to sections Processing SCCA Outpatient Orders and
        - **Red Blood Cell Exchanges:** Look for these order 72 hours in advance to allow time to purchase and prepare blood components – pull DAR report by location

SPECIMEN REQUIREMENTS:

EDTA is preferred and if not tested soon after collection, should be stored at 1-6°C
Red top clotted blood samples are also acceptable
See SOP *Specimen Acceptability and Test Order Receipt*

REAGENTS/SUPPLIES/EQUIPMENT:

Reagents:	Supplies:	Equipment:
• NA	• Accession Labels • Requisition	• LIS • Bar-code reader • Time stamp

QUALITY CONTROL:

NA

TITLE: **Blood Component Order Receipt and Processing**	**Number: PC-0097.01**

INSTRUCTIONS:

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Appendix C: Pulling Department Appointments Report (DAR) for Outpatients

Order Acceptability and Receipt

<table>
<tr><th>STEP</th><th>ACTION</th></tr>
<tr><td>1</td><td>
<table>
<tr><th>If receiving</th><th>Then</th></tr>
<tr><td>EPIC requisition</td><td>• Go to next step</td></tr>
<tr><td>Manual requisition
UH3364- Transfusion Services Test & Blood Product</td><td>• Timestamp the requisition
• Go to next step</td></tr>
</table>
</td></tr>
<tr><td>2</td><td>Perform a history check in Sunquest (SQ) according to SOP Patient History Check (HXCK)</td></tr>
<tr><td>3</td><td>Scan the patient MRN from the order requisition – if no requisition, manually enter MRN</td></tr>
<tr><td>4</td><td>Select location HID: U for UWMC
Search found 2 patients matching "Patient ID=U9035893"
<table>
<tr><th>Name</th><th>Patient ID</th><th>HID</th><th>Date of Birth</th><th>Sex</th><th>Status</th></tr>
<tr><td>ZZTEST,FRI...</td><td>U9035893</td><td>U</td><td>10/23/1962</td><td>F</td><td>ACT</td></tr>
<tr><td>ZZTEST,FRI...</td><td>U9035893</td><td>H</td><td>10/23/1962</td><td>F</td><td>PRE</td></tr>
</table>
</td></tr>
<tr><td>5</td><td>Verify the patient name and MRN on component order matches in SQ
<table>
<tr><th>If Name and MRN</th><th>Then</th></tr>
<tr><td>Matches</td><td>Go to next step</td></tr>
<tr><td>Does not match</td><td>Resolve the discrepancy before proceeding:

Suggestions for resolution:
• Look up patient record in EPIC and compare with SQ and order
• Review Patient Profile/Demographic and look for alias names
Contact clinical care staff and verify patient name on armband</td></tr>
</table>
</td></tr>
<tr><td>6</td><td>Click on the ‘Accessions’ tab to display current orders</td></tr>
</table>

<table>
<tr><th>STEP</th><th>ACTION</th></tr>
<tr><td>7</td><td>Determine if a patient sample is required
<table>
<tr><th>If</th><th>Then</th></tr>
<tr><td>Not required</td><td>Go to next step</td></tr>
<tr><td>Required</td><td>
<table>
<tr><th>BBHOLD sample is</th><th>Then</th></tr>
<tr><td>Available</td><td>Order TXM using the BBHOLD specimen-refer to SOP Specimen Acceptability and Test Order Receipt

NOTE: Collection date and time for TXM must be the same as the collection date and time of the BBHOLD specimen</td></tr>
<tr><td>Unavailable</td><td>• Contact clinical care staff and request order and specimen collection
• Refer to SOP Specimen Acceptability and Test Order Receipt
• Retain order at front desk until the sample arrives

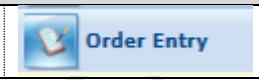
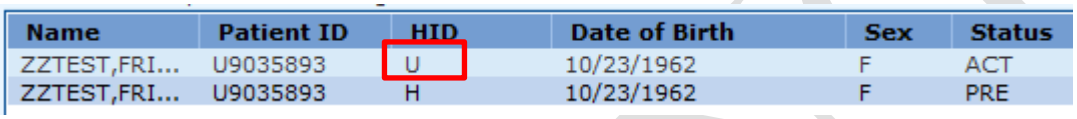
NOTE: Do not file blood component orders that are waiting for specimen collection</td></tr>
</table>
</td></tr>
</table></td></tr>
<tr><td>8</td><td>Review the requisition for any special attributes not listed on the patient’s record in Sunquest (i.e.: irradiation, volume reduction, washed, etc.)
<table>
<tr><th>If</th><th>Then</th></tr>
<tr><td>New attributes</td><td>• Add to the patient record in SQ
• Go to next step</td></tr>
<tr><td>No new attributes</td><td>• Go to next step</td></tr>
<tr><td>Discrepant attributes</td><td>• Clarify with TSL MD on call
• Update the BAD file as necessary to ensure the patient’s SQ record includes any attributes and special requirements
• Go to next step</td></tr>
</table></td></tr>
<tr><td>9</td><td>
<table>
<tr><th>If</th><th>Then</th></tr>
<tr><td>EPIC blood component requisition</td><td>Go to next step</td></tr>
<tr><td>Manual blood component requisitions</td><td>Go to section Sunquest Order Entry</td></tr>
</table></td></tr>
<tr><td>10</td><td>Open <Blood Order Processing> function in Sunquest</td></tr>
<tr><td>11</td><td>• Scan the MRN from the order
• Click <Search>
• Select location HID: U for UWMC
• Click <Select></td></tr>
</table>

<table>
<tr><th>STEP</th><th>ACTION</th></tr>
<tr><td></td><td>
Search found 2 patients matching "Patient ID=U9035893"
<table>
<tr><th>Name</th><th>Patient ID</th><th>HID</th><th>Date of Birth</th><th>Sex</th><th>Status</th></tr>
<tr><td>ZZTEST,FRI...</td><td>U9035893</td><td>U</td><td>10/23/1962</td><td>F</td><td>ACT</td></tr>
<tr><td>ZZTEST,FRI...</td><td>U9035893</td><td>H</td><td>10/23/1962</td><td>F</td><td>PRE</td></tr>
</table>
</td></tr>
<tr><td>12</td><td>Click <Order Selection> and highlight the appropriate order- refer to Appendix A: Sunquest Blood Component Orders Codes</td></tr>
<tr><td>13</td><td>Click <Select></td></tr>
<tr><td>14</td><td>Result patient history check (HXCK) refer to SOP: Patient History Check

NOTE: Appendix B: Test Codes in a Blood Component Order</td></tr>
<tr><td>15</td><td>Click <SAVE></td></tr>
<tr><td>16</td><td>
<table>
<tr><th>If</th><th>Then</th></tr>
<tr><td>TRBC (red blood cells)
TGRAN (granulocytes)</td><td>• Add or increase the number of components ordered to %UO under the active type and screen
• Go to next step</td></tr>
<tr><td>TPLT, TPLTN (platelets)
TFFP, TFFPN (plasma)
TCRY, TCRYN (cryoprecipitate)</td><td>Go to next step</td></tr>
<tr><td>TNRBC (neonate red blood cells)</td><td>Go to section Neonatal Red Blood Cell Orders (TNRBC)</td></tr>
<tr><td>TFFPX (plasma exchange)</td><td>• Verify volume of plasma required on order
• Contact ordering provider to confirm volume if order is for >3000 mL of plasma
• Select and prepare plasma per SOP Selection of Plasma Cryoprecipitate for Transfusion</td></tr>
<tr><td>Red Cell Exchange</td><td>• Go to section Processing Red cell Exchange orders</td></tr>
</table>
</td></tr>
<tr><td>17</td><td>
<table>
<tr><th>If order from</th><th>Then</th></tr>
<tr><td>Operating Room
and
Emergency Room</td><td>• Process order as STAT and notify clinical team if delay anticipated
• Allocate order STAT for red cells platelets and plasma- refers to SOPS Selection of Red Blood Cell and Granulocyte Components for Transfusion and Selection of Plasma and Cryoprecipitate for Transfusion
• Thaw cryoprecipitate and allocate when blood product release form is received – refer to SOP Selection of Plasma and Cryoprecipitate for Transfusion</td></tr>
<tr><td>SCCA Outpatient</td><td>Go to section Processing SCCA Outpatient Orders</td></tr>
</table>
</td></tr>
</table>

STEP	ACTION	
	Northwest Campus	• Allocate component per NW SOPs • Notify NW TSS when STAT orders are allocated

Sunquest Order Entry

STEP	ACTION
1	Open SQ Order Entry (OE) module 
2	Scan the patient MRN from the order requisition – if no requisition, manually enter MRN
3	Select correct location under HID: U  **IMPORTANT**: Order must be placed in the correct location. HID: U belongs to patient at UWMC and H belongs to patient at HMC
4	Select the correct "Event" (account#)
5	Enter date and time in the <Collect Date> and <Collect Time> field **If** / **Then** Product Order: Enter date and time from the timestamp on the requisition TXM: Enter collection date and time from the BBHOLD specimen
6	Enter the receive date and time from the time stamp on the requisition in the <Receive date> and <Receive time field>
7	Enter any additional info provided. (Physician 6 digit#, comments) **NOTE**: Enter UNK000001 if physician code not available or found
8	Enter diagnosis code **If patient is** / **Then the diagnosis code is** Outpatient or ER: • Required • Enter code from requisition Inpatient: • Not required • Enter NDX if no diagnosis is provided
9	• Enter the appropriate test code using the SQ code listed in Appendix A: Sunquest Blood Component Orders • Enter <S> in the modifier filed if order is STAT • Click <SAVE>
10	Click <Route> at the Container and Specimen Entry pop up window
11	• Accept the default physician instructions NONE • Enter number of components ordered (%UO) in the Result Entry box. • Click <SAVE>
12	Retrieve labels from printer and adhere the CID label to the requisition

STEP	ACTION
13	Go to section Order Acceptability and Receipt, step10

Neonatal Red Blood Cell Orders (TNRBC)

<table>
<tr><th>STEP</th><th>ACTION</th></tr>
<tr><td>1</td><td>Verify the patient meets the following requirements:
• Patient is < 4 months old
• Patient has a valid ABO/Rh and negative antibody screen on current admission
or
Patient has a valid ABO/Rh, no antibody screen but the mother has a negative antibody screen 72 hours prior to delivery or post-delivery

<table>
<tr><th>If patient</th><th>Then</th></tr>
<tr><td>Meets above requirements</td><td>• Receive the TNRBC order and provide RBCs according to SOP Selection of Red Blood Cell and Granulocyte Components for Transfusion
• Go to next step</td></tr>
<tr><td>Has Positive antibody screen

OR

Mother has a positive antibody screen 72 hours prior to or post-delivery</td><td>• Receive the TNRBC order
• Add %XM to the unit
• Perform an AHG crossmatch on the unit (in-date maternal specimen may be used for crossmatch)
• Add BBCS comment and list the accession number of specimens used for crossmatch and MRN of the mother if maternal specimen is used
• Refer to SOPs Antibody Identification and Selection of Red Blood Cell and Granulocyte Components for Transfusion for additional requirements)</td></tr>
<tr><td>Does not meet any of the above requirements and a peripheral blood specimen collection is not an option</td><td>Call the TSL MD on-call for guidance about specimen options for providing blood component (ie: extending cord blood or mom’s specimen, collect new neonatal specimen, etc.)</td></tr>
</table></td></tr>
<tr><td>2</td><td>Process order – refer to SOP Dividing Blood Components</td></tr>
</table>

Processing SCCA Outpatient Orders

<table>
<tr><th>STEP</th><th>ACTION</th></tr>
<tr><td>1</td><td>
<table>
<tr><th>If</th><th>Then</th></tr>
<tr><td>Same day add-on orders (requisition prints in lab)</td><td>Go to step 5</td></tr>
<tr><td>Future order(s)</td><td>Go to next step</td></tr>
</table>
</td></tr>
<tr><td>2</td><td>Log into EPIC</td></tr>
<tr><td>3</td><td>Pull and print DAR: SCCA TSL Transfusion Advanced Prep Report - refer to Appendix C: Pulling Department Appointments Report (DAR) for Outpatients</td></tr>
<tr><td>4</td><td>Identify blood component orders for the next 24-48 hours that need to be prepared in advance</td></tr>
<tr><td>5</td><td>
<table>
<tr><th>If order is for</th><th>Then</th></tr>
<tr><td>Red Blood cells</td><td>

RBC can be allocated when a specimen is available
Perform a history check in SQ for

Current in-date specimen for TSCR is available and testing complete
Attributes and special requirements such as ‘washed”
Antigen/antibody requirements

<table>
<tr><th>If Order for</th><th>Then</th></tr>
<tr><td>Same day</td><td>Allocate RBC from inventory at SCCA; if not available, allocate from TSL inventory</td></tr>
<tr><td>Next day</td><td>Allocate RBC from TSL inventory</td></tr>
</table>
</td></tr>
<tr><td>Platelet</td><td>

Fill order when the requisition prints

<table>
<tr><th>If Order is</th><th>Then</th></tr>
<tr><td>Same day add-on</td><td>Allocate platelet from inventory at SCCA; if not, allocate from TSL inventory</td></tr>
<tr><td>Released from DAR between 5-6 am by TSS</td><td>Allocate platelets from TSL inventory based on scheduled patient appointment and inventory levels</td></tr>
</table>

Perform a history check in SQ to identify

Acceptable platelet ABO/Rh
Attribute and special requirements such as HLA, washed, volume reduction

Prepare Platelet

NOTE: Special processing that reduces the component expiration such as washing, and volume reduction must be confirmed and started at least 2 hours prior to appointment date and time
</td></tr>
</table>
</td></tr>
</table>

STEP	ACTION
6	**If component allocated from** / **Then** SCCA Inventory: No further action TSL Inventory: **If order is** / **Then** Same day: Ship to SCCA in time for appointment– refer to SOP *Packing and Shipping Blood Components - Montlake* Future, next day: Place component in appropriate storage area until ready for shipment

Processing Red Cell Exchange Orders

STEP	ACTION
1	**If** / **Then** Filling order from same day printed requisition: Go to step 4 Filling future order(s): Go to next step
2	• Log in EPIC • Pull the DAR report by location – refer to Appendix C: Pulling Department Appointments Report (DAR) for Outpatients ○ NW TSL Transfusion Advanced Prep Report - Northwest Campus ○ SCCA TSL Transfusion Advanced Prep Report -SCCA Eastlake ○ UW-ML TSL Transfusion Advanced Prep Report- Montlake Campus
3	Review report and identify any red cell exchanges for the next 3 days
4	Perform a history check in SQ for • Attributes and special requirements, HgB S negative • Antigen/antibody requirements **NOTE:** Selection and testing of RBCs must be performed in advance to prevent delay on day of exchange **NOTE**: Refer to SOPs *Antigen Typing of Red Cells* and *Selection of Red Cell Components for Transfusion*
5	**If** / **Then** Current in date specimen available: • Update %UO in BOP • Select appropriate red cell components • Perform testing for antigen, Hgb S testing and irradiation as needed • Place component on appropriate storage No in date specimen available: • Order test PXMAG • Select appropriate red cell components

		• Perform testing for antigen, Hgb S testing and irradiation as needed • Place component on appropriate labeled shelf
6	**If Exchange at**	**Then**
	SCCA or NW	Pack and ship the RBCs to arrive prior to the scheduled procedure time - refer to SOP *Packing and Shipping Blood Components - Montlake*
	Montlake	Issue products when requested - refer to SOP *Issuing Blood Components*

CALIBRATION:
NA

PROCEDURE NOTES AND LIMITATIONS:
Each accession only allows allocation of 100 blood components. If additional RBC products are required, a duplicate order should be placed with a collection date/time one minute later than the original sample. *Transfer test results from original Accession, credit 2nd ABO/Rh and antibody screen and add BBC comment "Duplicate order for allocation purpose see accession XXXXX for original results".*

REFERENCES:
Specimen Management, Routing and Tracking User Guide, Misys Laboratory

RELATED DOCUMENTS:
SOP *Patient History Check (HXCK)*
SOP *Specimen Acceptability and Test Order Receipt*
SOP *Canceling Orders and Correcting Results in Sunquest*
SOP *Specimen and Unit Segment Management*
SOP *Selection of Plasma and Cryoprecipitate for Transfusion*
SOP *Selection of Red Blood Cell and Granulocyte Components for Transfusion*
SOP *Selection of Platelet Components*
SOP *Blood Component Processing*
SOP *Antibody Identification*
SOP *Packing and Shipping Blood Components - Montlake*
SOP *Issuing Blood Components*

UWMC SOP Approval:			
UWMC CLIA Medical Director	Mark H. Wener, MD	Date	
Transfusion Service Manager	Nina Sen	Date	
Compliance Analyst	Christine Clark	Date	
Transfusion Service Medical Director	Monica Pagano, MD	Date	
UWMC Biennial Review:			
		Date	
		Date	

03/27/21: Replaced SOP Order Processing PC-0059.02 retired on 03/27/21

APPENDIX:

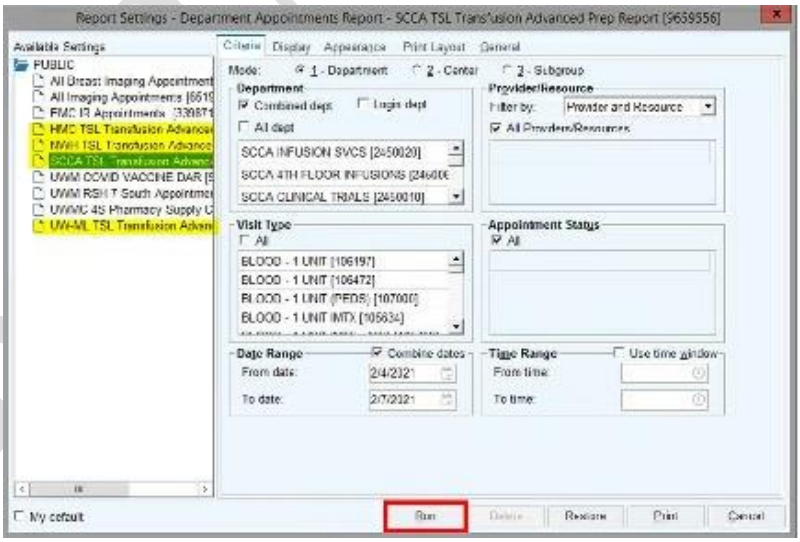
Appendix A: Sunquest Blood Component Order Codes

Sunquest Code	Description
TCRY	Transfuse Cryoprecipitate
TCRYN	Transfuse Cryoprecipitate, Neonatal
TCRYP	Transfuse Cryoprecipitate, Pediatric
TFFP	Transfuse Plasma
TFFPN	Transfuse Plasma, Neonatal
TFFPP	Transfuse Plasma, Pediatric
TFFPX	Transfuse Plasma, Plasma Exchange
TPRBC	Transfuse Pediatric RBCs
TRBC	Transfuse RBC
TNRBC	Transfuse Neonatal RBCs
TGRAN	Transfuse Granulocytes
TPLT	Transfuse Platelets
TPLTN	Transfuse Platelets, Neonatal
TPLTP	Transfuse Platelets, Pediatric
ER	Emergency Release

Appendix B: Tests Codes in Blood Component Order

Test Components	Description
%CT	Blood Component Type
%UQ	Units Ordered
HXCK	History Check
%PI	Physician Instructions
VOLREQ	Volume Required
ATT	Attributes
PRIOR	Transfusion Priority

Appendix C: Pulling Department Appointments Report (DAR) for Outpatients

STEP	ACTION
1	Log in EPIC
2	○ Enter 'DAR' in the Chart Search filed at the top right-hand corner of your Epic screen ○ Select <DAR- Dept Appts.> 
3	• Select the appropriate report from the list on the left of the DAR window Location / Select: SCCA — SCCA TSL Transfusion Advanced Prep Report Montlake Campus — UW-ML TSL Transfusion Advanced Prep Report NW Campus — NW TSL Transfusion Advanced Prep Report • Select the date range of appointments you wish to pull **NOTE**: The default Date Range is from T to T+3, but you can adjust this prior to running the report. • Click Run  **NOTE:** You can select the My default check box in the bottom left hand corner of the DAR window to automatically run a specific version of the DAR when you launch the activity
4	Print the report by clicking <Print> on the main Epic toolbar