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| **Laboratory:** | **Document Type:** | **Original Date Adopted:** | **Previous Document:** |
| Transfusion Services | Procedure | 04/05/2010 | TRCP-25 Revision 7 |

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| **\*Approval and Acknowledgements\*** |
| Refer to QPulse system and Document Details report for laboratory directors(s)’ electronic signature approval, employee acknowledgment and effective date. |

**1***.* **POLICY**

* 1. It is the policy of the Transfusion Service to have processes in place in the event of a laboratory/hospital computer system downtime.

1. **PURPOSE OF DOCUMENT**
   1. In the event that a laboratory or hospital computer system is down, this document describes what to do to ensure that before blood components are issued for transfusion, interpretations of current test results are compared with patient records to detect possible discrepancies or potentially dangerous situations.
2. **SCOPE OF DOCUMENT**
   1. This procedure applies to all Transfusion Service personnel, regardless of position.
   2. A username and password must be assigned to the user by the Laboratory Information Systems department in order for the user to access the laboratory computer system.
3. **RESPONSIBILITY** 
   1. The Medical Director, Transfusion Service is responsible for:
      1. Ensuring that policies, processes, and procedures are in place to govern the proper use of the laboratory computer system by Transfusion Service personnel.
   2. The Manager, Compliance Officer and Lead Technologists, Transfusion Service or their designee are responsible for:
      1. Implementing, validating, and maintaining the laboratory computer system.
      2. Developing and maintaining the policies and procedures governing the proper use of the laboratory computer system.
   3. Transfusion Service personnel are responsible for:
      1. Following the written procedures for the proper use of the laboratory computer system.
      2. Preventing unauthorized access to patient information.
4. **PROCESS**
   1. Computer malfunctions and downtime that may impact the Transfusion Service are:
      1. Ortho Vision computer system
      2. Hospital Information System
      3. Laboratory Information System
      4. Blood Bank Information System
   2. If computer access is not functional during downtime, use the IHIS Business Continuity Access PC (BCA).
      1. This computer is identified by a red keyboard.
         1. At Main, the BCA computer is in manual workstation 2.
         2. At East, the BCA computer is in the central processing area.
      2. Click start button>Epic folder>BCA Downtime Software
      3. To log in to the application enter your OSUMC user ID and password.
         1. After logging in you will be able to access and print the outstanding list.
      4. Refer to the Specimen Processing section for information about using IHIS Downtime and the SoftBank Downtime Database.
   3. An LIS Systems Manager is on duty 24 hours a day for the laboratory computer system.
      1. In the event that the laboratory computer system will be undergoing a scheduled period of downtime, the LIS Systems Manager will notify the Transfusion Service so that preparations for computer downtime can be made, if needed.
      2. If a problem with the laboratory computer system occurs outside of scheduled downtime, contact the Help Desk (3-HELP) to open a ticket and have the LIS on-call personnel paged.
   4. Selected sections from this procedure are hyperlinked below for ease of use.

* [Specimen processing](#SpecimenProcessing)
* [Vision processing](#VisionProcessing)
* [Manual testing](#Manuals)
* [Crossmatching](#Crossmatching)
* [Blood Component sign-in](#ComponentSignIn)
* [Frozen component preparation](#Thawing)
* [Review of Orders for Blood Components and RhIg](#OrderReview)
* [Selection of components](#Selecting)
* [Issuing of components](#Issuing)
* [Return of components](#componentreturn)
* [Quality Control](#QC)
* [IHIS downtime](#IHIS)
* [After the downtime](#AFTER)
  1. Nursing units are responsible for placing orders for testing on the Transfusion Specimen Requisition and sending completed forms to the Transfusion Service.
  2. The Transfusion Specimen Requisition must accompany the specimens when sent to the Transfusion Service.
  3. Patient specimens will be triaged and worked up based on the following:
     1. Patient status (Inpatient or Outpatient)
        1. If the specimen is an outpatient specimen and marked STAT, call the location (if open), and verify that the specimen is indeed STAT.
        2. Explain the situation and determine if the specimen may be processed less urgently.
     2. Patient location
     3. Severity of need
     4. Transfusion Service staffing
  4. During a laboratory computer system downtime, approved Transfusion Service forms must be used to document all of the patient’s information and to record the reactions of all testing performed.
     1. See the Table of Contents in the form’s binders for a list of manual forms that can be used.
  5. **Specimen Processing:**
     1. All specimens received during a computer system downtime must meet criteria for specimen acceptability. Refer to Guidelines for Acceptable Specimens and the Acceptable Specimen Guidelines chart.
        1. If a sample is collected via electronic verification just prior to a computer system downtime but is received in the Transfusion Service after IHIS goes down, check to see if the collection information is visible in IHIS downtime. The IHIS downtime backup runs every 15 minutes.
           + Access IHIS downtime via the VMware Horizon Client application or by searching for the application on the computer.
           + Select the IHIS Downtime App from All Applications
           + If the collection information is visible in IHIS downtime, the sample may be processed.
           + If the collection information is not visible, results from that sample may not be released until IHIS is functional and the sample is deemed acceptable.

Testing may be performed on the sample as long as no results or units are released, unless units are released as uncrossmatched.

If results or units are needed before the system comes back up, a new sample should be collected following downtime procedures.

* + 1. When processing specimens during a laboratory computer system downtime, thoroughly check and verify that the patient does not already have a current specimen that has been worked up.
       1. IHIS downtime may be used to see when the patient’s last sample was tested but the sample’s expiration date should be retrieved from the Softbank Downtime Database.
       2. Perform a patient history check by utilizing the Softbank Downtime Database.
          - If a patient has a sample that was processed after the last Softbank Downtime Database update, locate the sample, and attempt to find the sample results on the Visions. If results can be obtained, the sample may be utilized to perform crossmatches.
          - If sample results cannot be located, the patient should be treated as if they do not have a current sample.
          - The database is available on the BCA computer.

From the desktop, click on the ‘This PC’ icon.

Select the Local Disk (C:) drive

Select the ‘SoftBank Downtime’ file

Select edit > find to search for the patient

Note: while searching for a patient, if the database says ‘no data found’ or produces a similar message, you may need to close and reopen the database and try searching again.

* + - 1. Write the patient’s history on the Transfusion Service Downtime Worksheet.
         * A screen shot may also be printed and attached to the downtime testing worksheet
      2. Look in the columns “last specimen” and “specimen outdate” in the database to determine if the patient has a current sample.
      3. Review the list of current patients.
         * If the report needs to run manually and Soft is operational, open the report from Soft

Go to Management > Report Print

An internet explorer window will open

Go to Reports and Categories > SoftBank > BB\_Management\_Reports

Select the report for in date specimens

* + - 1. If the check for a current specimen is being performed as part of preparation for the next day’s surgery schedule, specimens from the previous thirty (30) days must also be reviewed.
    1. If a current sample is found, determine if the new sample should be processed.
       1. If the patient has a current type and cross that will expire within 24 hours, process the sample. Release any crossmatched units from selection prior to working up the new sample.
       2. If the patient has a current type and cross that will not expire within the next 24 hours, do not process the sample. If not already completed, complete the Transfusion Service Downtime Worksheet by recording the following.

Patient’s full legal name, MRN, and date of birth

The specimen collection date/time

The specimen outdate

The interpretation of the ABO/Rh typing in the appropriate box.

The interpretation of the Antibody Screen in the appropriate box.

Patient history including all antibodies, special attribute requirements, comments, and notes. A screen shot may be printed and attached to the Downtime Worksheet.

* + 1. Once the history check has been completed, record the received date and time and tech initials on the Transfusion Service Downtime Worksheet.
    2. Testing samples on the Ortho Vision Analyzers:
       1. If the **Ortho Vision is operational**, proceed with processing the specimen as stated in Specimen Processing on the Ortho Vision except:
          - When IHIS is down, barcode labels will not be available to process specimens on the Ortho Vision and the sample ID numbers will need to be manually entered into the Ortho Vision by:
          - Starting the instrument as a normal process
          - Selecting the type of testing to be performed
          - Clicking on the Samples tab at the top of the box
          - A diagram of the specimen carousel should appear
          - Double clicking on each tube holder in use
          - The Ortho Vision will ask for manual identification of the specimen.
          - Carefully, enter the patient’s medical record number for the specimen identity.

If the sample has a barcoded label, the barcode may be scanned instead of using the patient’s MRN

* + - * + The Ortho Vision will ask for reconfirmation of the specimen identity.
        + Carefully, re-enter the patient’s medical record number.
        + **Note: Transplant patients who have two specimens drawn during their outpatient visit should not be processed simultaneously during an IHIS downtime as the Ortho Vision will not start a run that has the same specimen identification number present more than once.**
        + Select the sample and create the order for the Vision to perform testing
        + Print out the Ortho Vision results.
      1. Record technologist’s initials and the date on each of the print-outs from the run. If the **Ortho Vision is non-operational**, process specimens as detailed in the following procedures:
         * ABO/Rh Tube Typing and Patient/Donor Reconfirmation
         * Antibody Detection/Identification by Gel Card Test Method
         * Exception: At East if the Vision is non-operational all specimens will be sent to UH by STAT Courier.
      2. Record all test results on Transfusion Service Downtime Worksheet.
      3. Patient’s that are candidates for Rh Immune Globulin are to have “This Patient is a RhIG Candidate” written on the Transfusion Service Downtime Worksheet.
         * Once the cord blood or heelstick sample arrives and is tested, the mother’s Transfusion Service Downtime Worksheet is marked with the results of the neonate’s testing and whether or not the mother is/is not a RhIG candidate.
         * Refer to steps 5.10-5.17 for additional processing of RhIG candidate samples and selection of RhIG.
    1. Antibody Identification:
       1. Results must be recorded on:
          - Antibody Identification Worksheet Initial Patient Testing
          - Antibody Identification Worksheet Additional Testing/Alternative Techniques
          - Manufacturer’s panel antigrams corresponding to the specific lot number of panel cells
    2. Direct Antiglobulin Testing (DAT):
       1. Record the results, interpretations, and technologist’s initials, where required, on the following:
          - Antibody Identification Worksheet Initial Patient Testing, when performed as part of antibody identification
          - Transfusion Service Downtime Worksheet when a DATO was ordered
    3. Cord Blood/Heelsticks:
       1. Record results on the Transfusion Service Downtime Worksheet
          - For cord blood samples, complete the section for mom’s blood type and antibody screen/identification
          - For heelstick samples, complete the section for mom’s MRN, blood type and antibody screen/identification
    4. Elutions:
       1. Record the results on the following:
          - The manufacturer’s panel antigram corresponding to the specific lot number of panel cells used to test the eluate
          - Eluate last wash results are recorded on Antibody Identification Worksheet Additional Testing/Alternative Techniques
          - Eluate interpretations are recorded on Antibody Identification Worksheet Initial Patient Testing
    5. Antigen Typing (antigen typing is performed both on patients and on donor units):
       1. Antigen Typing of Patients:
          - Record results on the following:

Antibody Identification Worksheet Initial Patient Testing

Extended Red Cell Antigen Typing Worksheet, if performing a full patient phenotype

* + - 1. Antigen Typing of Donor Units:
         * Record the results on the following:

Antigen Typing Tag

Computer Downtime Red Cell Unit Antigen Typing Worksheet

* + 1. Crossmatching:
       1. Electronic crossmatches cannot be performed while the laboratory computer system is in downtime.
          - Units that were crossmatched, including electronically, prior to downtime do not need any additional testing prior to being issued during a downtime.
       2. Group O units should be crossmatched for **all** patients during downtime.
          - Non-group O units that were crossmatched prior to the downtime may still be issued if all testing was completed prior to the start of downtime.
       3. If the antibody screen is negative and the patient has no history of clinically significant antibodies, then an immediate spin (IS) crossmatch must be performed.
       4. If the antibody screen is positive or the patient has a history of clinically significant antibodies, an IS-AHG crossmatch must be performed.
       5. Record crossmatch reactions and interpretations on the Transfusion Service Downtime Worksheet
          - Record the donor identification number, product code, expiration date/time and the ABO/Rh of the red blood cell unit being crossmatched in the appropriate column.
          - Record the reaction results of the crossmatch performed in the IS, 37°C, and AHG columns (as appropriate to the type of the crossmatch performed).
          - Record the interpretation of the crossmatch in the “Interp” column.
          - Record “C” in the column if the crossmatch is compatible.
          - Record “I” in the column if the crossmatch is incompatible.
          - Record the date and initials of the testing technologist and in the column marked “Tech/Date”.
          - Note antigen negative units by using a symbol (■, \*, etc.) and denoting what the symbol indicates.
    2. TYPEC:
       1. If a TYPEC is required on the specimen, indicate the need for a TYPEC on the Transfusion Service Downtime Worksheet
          - If a TYPEC is still needed when the computer system comes back up, order one in Beaker.
          - TYPECs do not need to be requested during a downtime since only group O red cells will be given.
    3. Transfusion Reactions:
       1. Record results, interpretations, pathologist instructions and technologist’s initials on the following:
          - Report and Investigation of Transfusion Reaction form
          - Pathologist instructions regarding future transfusion should be recorded on the Transfusion Service Downtime Worksheet.
    4. Fetal Screens:
       1. Record the results on the Transfusion Service Downtime Worksheet.
    5. Kleihauer-Betke Test (K-B):

b. Record the testing and controls on the Kleihauer-Betke Quality Control Form

* + 1. Cold Agglutinin Titer:
       1. Record the results on Cold Agglutinin Screen and Titer Worksheet
    2. Antibody Titer:
       1. Record results on the Antibody Titer Worksheet
    3. Results of any additional testing are recorded on approved Transfusion Service worksheets.
    4. Record any comments or notes that would have been made in the laboratory computer system on the Transfusion Service Downtime Worksheet along with the technologist’s initials and date.
  1. **Blood Component Sign-in:**
     1. All blood components received during the blood bank computer system downtime must be signed into inventory using the following protocol.
     2. Check and verify the following information between the actual unit and the packing slip:
        1. The donor identification number
        2. The ABO/Rh
        3. The expiration date
        4. Component product code
     3. After verifying the information on each unit, place a check mark next to the donor identification number on blood supplier’s shipping document.
        1. For plasma, platelets, and cryoprecipitate record the unit volumes on the packing list, if not present on the packing list
     4. Record the comment “not entered into the computer” on the packing slip and initial, date and time.
     5. Place all non-red blood cell components into the appropriate temperature monitored storage device.
     6. Pull segments for red blood cells.
        1. For each batch of red blood cells signed in, label 2 pieces of tape with the ABO/Rh(D), your initials, date, and time the batch was completed.
     7. Place the red blood cells in the appropriate temperature monitored storage device.
     8. For each batch, complete a Computer-Down ABO/Rh(D) Reconfirmation Worksheet with:
        1. Donor identification number
        2. Label ABO/Rh(D) type
        3. Product code
     9. Test the segments.
        1. Record the test results, interpretation, technologist’s initials, and date on Computer-Down ABO/Rh(D) Reconfirmation Worksheet.
     10. Have a second technologist review both the Computer-Down ABO/Rh(D) Reconfirmation Worksheet and the packing slip.
         1. The technologist reviewing the worksheet and the packing list must date and record their initials by each entry on the Computer-Down ABO/Rh(D) Reconfirmation Worksheet.
     11. After testing has been performed and the results reviewed, place the red blood cell units on the appropriate inventory shelves for availability.
  2. **Blood Component Preparation:**
     1. All blood and blood components prepared during the blood bank computer system downtime must be documented using the following protocols depending on the type of component.
     2. Frozen Component Preparation:
        1. Thaw and label the component.
           + All frozen plasma products may have the expiration date/time updated by use of a date/time label gun or legibly handwriting on the base label. If handwriting the new expiration date, use the SLIDE rule to cross out the original expiration date and write the new expiration date/time directly below with indelible ink.
           + Cryo will be given a 6 hour outdate from the thaw time. Thawed Fresh Frozen Plasma and Thawed Plasma will be given a 24 hour outdate from the thaw time.
        2. Record the donor identification number, the product code (E code and V0, A0, B0 etc), the ABO/Rh, date, thaw time, and thawing technologist’s initials on the Frozen Blood Component Thawing Worksheet.
        3. A second technologist should complete a blood label check and record their initials in the

“Blood Label Check Tech initials” column.

* + - * + The blood label check should include ensuring the correct outdate is present and that the Frozen Blood Component Thawing Worksheet has been completed.
      1. Once SOFT is operational the thawed products will be changed in SOFT and relabeled using the original thaw date/time from the Frozen Blood Component Thawing Worksheet.
         * If there is extended downtime and thawed Fresh Frozen Plasma or thawed Plasma units have reached the 24 hour outdate without being issued, the units will be quarantined until they may be relabeled in SOFT.
         * In the event of extended downtime there is a limited supply of pre-printed thawed product labels available. Contact the on-call lead or Manager to determine if use of pre-printed labels is appropriate.

Refer to Blood Bank Component Definitions to determine the correct product code for the thawed product and ensure the appropriate label is available in the downtime box.

The technologist re-labeling the products should place the appropriate label directly on the face label in the lower left quadrant with the mls filled in using indelible ink. Leave the label flagged so a second technologist can perform a Blood Label Check. The technologist re-labeling the product will also update the expiration date/time using the original thaw date/time from the Frozen Blood Component Thawing Worksheet to calculate the new outdate. The technologist will indicate the unit was re-labeled on the Frozen Blood Component Thawing Worksheet by slashing their initials with the original tech.

A second technologist should complete a blood label check as stated in step 5.10.2.c and slashing their initials with the original blood label check tech.

* 1. **Review of Orders for Blood Components and RhIG:**
     1. On the order for blood components or RhIG, record the date and time the order was received and the technologist’s initials.
     2. Look at the patient’s history using the Transfusion Service Downtime Worksheet, printout from the Softbank Downtime Database, or by performing a history check using the Softbank Downtime Database and documenting on the downtime worksheet.
     3. If the order matches the patient’s special needs, check to see if the patient has a current specimen as in 5.8.2.
        1. If the patient has a current specimen and it was drawn afterthe start of laboratory computer system downtime, locate the patient’s Transfusion Service Downtime Worksheet.
        2. If the patient has a current specimen and it was drawn before the start of the laboratory computer system downtime, then there will not be a Transfusion Specimen Requisition or Transfusion Service Downtime Worksheet.
           + In this case, obtain a Transfusion Service Downtime Worksheet and record the following on it:

Patient’s full legal name, MRN, and date of birth

The specimen collection date/time

The specimen expiration date

The interpretation of the ABO/Rh typing in the appropriate box.

The interpretation of the Antibody Screen in the appropriate box.

Document the patient’s history per step 5.8.2.c

* + - 1. If the patient does not have a current specimen, notify the RN, document the date/time, and place the transfusion order in the appropriate “orders pending” folder in the Vision area rolling cart file at UH or place the transfusion order on the Transfusion Service counter at East.
      2. If the order does not match the patient’s special needs, contact the patient’s clinical care provider to correct the order.
    1. Once the order for transfusion matches the patient’s special needs history and the patient has a current sample tested, blood components can be selected.

* 1. **Selecting Blood Components:**
     1. Selecting Red Blood Cells
        1. Record the red blood cell unit information on the Transfusion Service Downtime Worksheet
        2. **All red blood cells selected during a computer downtime must have a serological crossmatch performed, unless the red blood cells are for a newborn that would not have required a crossmatch during normal operations.**
           + Units that were crossmatched, including electronically, prior to downtime do not need any additional testing prior to being issued during a downtime.
           + Only group O red cells will be selected during downtime. Non-group O units that were crossmatched prior to the downtime may still be issued if all testing was completed prior to the start of downtime.
        3. Complete a crossmatch label for each selected unit per step 5.13.
           + If crossmatching a red blood cell for a neonate, complete the crossmatch tag for the parent unit
           + No aliquots of red blood cells will be made during this time. If a transfusion is needed for a neonate, issue the entire red cell unit appropriate for the neonate.
        4. Perform a Technical Label Check per step 5.14.
     2. Selecting Non-Red Blood Cell Components and RhIg
        1. Record the non-red blood cell component or RhIg information on Transfusion Service Downtime Worksheet
           + For RhIg include the lot number and expiration date
        2. Complete a crossmatch label for each selected unit per step 5.13.
        3. Perform a Technical Label Check per step 5.14

* 1. **Complete a crossmatch label:**
     1. For blood and blood components, record the following in the appropriate section of the crossmatch label:
        1. Patient’s full legal name
        2. Medical record number
        3. Patient’s date of birth (DOB)
        4. Patient’s blood type in the space marked “Pt ABO/Rh”
        5. Donor identification number in the space marked “Unit”
        6. Unit’s product code
        7. Unit’s blood type in the space marked “Unit ABO/Rh”
        8. Record the interpretation of the crossmatch (Comp or Incomp) or ‘ND’ in the space marked “Crossmatch” as appropriate for the component being tagged.
        9. Write required unit comments (such as ‘use blood warmer’) in a blank area on the label.
        10. The technologist selecting the unit will write their initials on the TLC line.
     2. For RhIg, record the following on the blank RhIg label in the appropriate section:
        1. Patient’s full legal name in the space marked “Pt”
        2. Medical record number
        3. Patient’s date of birth (DOB)
        4. Patient’s blood type in the space marked “Pt ABO/Rh”
        5. Lot number of the RhIg
        6. Expiration date of the RhIg
        7. Record “RhIg” in the space marked “Component”
        8. Record the number of vials in the space marked “Amount”
        9. Record “Give IM or IV” in the space marked “Comments”
  2. **Perform a Technical Label Check (TLC):**
     1. Check all the items listed in step 5.13. In addition, the following items must be present during the TLC in order to be able to thoroughly check the patient’s history and special needs that the patient may have (i.e., irradiated, CMV negative, freshest products available, etc.):
        1. The Blood and Blood Component Order.
        2. The Transfusion Service Downtime Worksheet
     2. The technologist performing the TLC will also put their initials on the TLC line on the crossmatch label.
     3. Call the patient’s current location to inform them that the component is ready for pick-up.
     4. The patient’s last location can be found in IHIS Downtime.
        1. Open the patient’s chart.
        2. The patient’s location will be listed in the column on the left of the screen.
     5. Record the following on the transfusion order:
        1. The date and time that the floor was called
        2. The name of whom answered the call
        3. The number of products ready, if not in the amount specified on the order
        4. The initials of the technologist placing the call
     6. Paperclip the transfusion order to the Transfusion Service Downtime Worksheet and file the transfusion order in the appropriate “orders ready” folder of the rolling cart file at the front desk at UH or in the “transfuse” file at East

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* 1. **Issuing of Blood Components and RhIG:**
     1. A Blood/Blood Component Request Form-Down Time with the patient’s full legal name, medical record number, date, time, the quantity, and type of component that is to be given must be delivered to Transfusion Services. IHIS release forms (Transfuse [blood product name]) are acceptable to use if IHIS is not affected by the down time.
     2. Carefully, compare the transfusion order, the Blood/Blood Component Request Form- Down Time or IHIS release form and the patient’s history as recorded on the Transfusion Service Downtime Worksheet by checking:
        1. The patient’s full legal name
        2. The patient’s medical record number
        3. The patient’s special needs
        4. The patient’s history and typing problems
        5. The patient’s ABO/Rh type
        6. The patient’s antibody screen and/or antibody identification
     3. If there is any discrepancy between the information on the Blood/Blood Component Request Form-Downtime or IHIS release form and the information on the other Transfusion Service documents (i.e., Blood and Blood Component Order form, Transfusion Specimen Requisition, Transfusion Service Downtime Worksheet), the discrepancy must be resolved prior to the release of blood components.
     4. Record the initials of the technologist issuing the unit, date, and time the component was issued on the crossmatch label
     5. To document units were issued, complete the “Status/Tech/Date/Time” column for the units being issued on the Transfusion Service Downtime Worksheet (Ex: Issued DP 1/1/2020 1547)
     6. If issuing a unit that was selected and crossmatched prior to the start of downtime:
        1. Record the unit information on the Transfusion Service Downtime Worksheet.
        2. Record “NA” in the columns intended for crossmatch results
        3. Record the crossmatch interpretation from the crossmatch label in the “Interp” box
        4. Indicate on the Transfusion Service Downtime Worksheet that the unit was prepared prior to the downtime by placing an asterisk (\*) next to the unit number and marking on the form (\*unit prepared prior to downtime).
        5. Record your initials in the Tech/Date column and complete the Status/Tech/Date/Time column
     7. Record the following information on the transfusion order:
        1. Number of units being issued
        2. The name of the blood component issued
        3. Date and time unit was issued
     8. The unit can now be tubed to the floor or given to the courier at the window

* 1. **Return of Blood Components and RhIG:**
     1. Perform the following steps to return and reissue blood components when the computer system is down. Refer to Return and Reissue of Blood Components procedure for the criteria of acceptable products.
        1. Document in the “Status/Tech/Date/Time” column on the Transfusion Service Downtime Worksheet the return of any units (Ex: Returned DP 1/1/20 1605).
        2. If the units were issued prior to the start of computer downtime:
           + Physically separate (quarantine) the blood component or RhIG and notify a Lead Technologist.
           + A Lead Technologist will ensure the proper status update is made to the unit following the laboratory computer downtime.
  2. **Record Keeping:**
     1. Once testing has been completed, the Transfusion Specimen Requisitions and Transfusion Service Downtime Worksheet are to be kept separated in an organized fashion, until the computer system is operational, and all testing can be entered into the computer system.
        1. Separate the Transfusion Service Downtime Worksheet of RhIG candidates into a separate section.
           + When the patient is determined to no longer be a RhIG candidate, the patient’s Transfusion Specimen Requisition can be filed as complete. If the patient is to receive RhIG, paperclip the patient’s RHEV Transfusion Specimen Requisition to the Transfusion Service Downtime Worksheet until the vial of RhIG is issued, then the RHEV Specimen Requisition can be filed as complete.
        2. Separate the Transfusion Service Downtime Worksheet of patients who will need a TYPEC collected.
           + When the computer system is back up, order a TYPEC in Beaker.
           + TYPECs do not need to be requested during a downtime
     2. Once testing has been performed on the PAT specimens, the Transfusion Service Downtime Worksheet are kept separated in an organized fashion until the computer system is operational and all testing can be entered into the computer system.
     3. Orders for transfusion that are waiting for sample collection should be placed in the testing area file at UH and on the Transfusion Service counter at East.
     4. Orders for transfusion that have been completed or cancelled are to be filed in the appropriately labeled file.
     5. Depending on the length of the laboratory computer system downtime, it may be necessary to review the Transfusion Specimen Requisition files nightly to pull expiring specimens.
        1. Once the expiring Transfusion Specimen Requisitions have been removed, there are several steps that need to be performed:
           + Withdraw any units still selected to these expired requisitions.
        2. Place the expired Transfusion Specimen Requisitions in alphabetical order by the first letter of the patient’s last name in a Lead Technologist’s (whoever has been assigned to perform the review) mailbox for review.
        3. The Lead Technologist will place the Transfusion Specimen Requisitions in the proper location after the review is completed.
     6. Any problems that would normally require a Laboratory Release-Unacceptable Specimen or Occurrence Report to be completed must have the appropriate form completed during a laboratory computer downtime.
  3. Updating patient demographics or caution window during downtime:
     1. If a patient’s demographics or caution window needs to be changed while the laboratory computer system is down, the following must be done:
        1. The tech making the changes will record them on the Transfusion Service Downtime Worksheet
        2. Once the laboratory computer system downtime has ended, the changes must be entered into the laboratory computer system via **PATIENT > EDIT > DEMOGRAPHICS** or **PATIENT > EDIT > MESSAGES** as appropriate.
        3. Once the demographics or caution window has been updated, the Downtime worksheet should be initialed, dated, and timed by the person making the update.
        4. A second technologist should review the update and also sign, date, and time the worksheet.
  4. Quality Control
     1. All QC should be completed using the downtime QC procedures during a laboratory computer system downtime.
        1. Document daily QC on the Daily Quality Control and Blood Inspection Worksheet
        2. Document antigen typing QC on the Rare Antigen Typing Quality Control or Rh Phenotype Gel Card QC forms, as appropriate
  5. IHIS Computer Downtime:
     1. There may be instances when only IHIS or Beaker is down. If orders are not able to be placed in IHIS by the clinician or specimens are unable to be received in Beaker, all testing must be completed using downtime procedures. Refer to steps 5.6-5.19.
     2. When IHIS or Beaker are down, IHIS Downtime may be used to look up some information, such as notes, lab results, patients’ locations, and specimen inquiry.
     3. Floors are responsible for completing the Transfusion Specimen Requisition and sending completed forms and specimens to the Transfusion Service
     4. If the blood bank computer system is functional, test results may be entered if the specimen was received prior to the start of downtime.
        1. Units may be selected and issued in the laboratory computer system
     5. If the blood bank computer system is functional and there is not a current specimen received, all testing must be completed using downtime procedures. Refer to steps 5.6-5.19
        1. Patient history checks may be performed using the laboratory computer system.
        2. Patient demographics and caution windows can be updated in the laboratory computer system, if needed.
        3. Units must be selected and issued using downtime procedures.
     6. Any test results entered in the blood bank computer system will not cross over into other hospital patient information systems.
        1. The Transfusion Service must call the following results to the floors:
           + Any Transfusion Service Critical Values.
           + DAT results on BMT specimens drawn 30 minutes post infusion.
           + Bone marrow or other hematopoietic progenitor cell products listed in the ABO/Rh(D) Typing and Crossmatch for BMT Service and Laboratory procedure.
           + Recipient samples for crossmatching with bone marrow or other hematopoietic progenitor cell products.
           + ABO/Rh typing for LOOP specimens.
        2. The Blood Product Administration module in IHIS will not function if either the laboratory computer system or the hospital information system is not running.
     7. The floor must be notified of any delay in the availability of red blood cells in the event that a patient’s antibody screen result demonstrates a new unexpected antibody or if the antibody identification is not complete when orders to transfuse arrive.
     8. If the blood bank computer system is also experiencing downtime, refer to steps 5.6. through 5.19. of this procedure.
  6. Results and interpretations of all testing, component receipt, component preparation, component selection, and component issuing must be entered into the laboratory computer system once the downtime has ended.
     1. Samples collected during downtime will need ordered in IHIS/Beaker. Either contact the patient’s care team to order an XM or, if a physician’s signature is present and legible on the sample requisition, an XM may be ordered via requisition entry in Beaker.
        1. The BB-BLBK (Participating) submitter may be used.
     2. The sample should be ‘collected’ in Beaker using the date, time, and signature of the collecting personnel from the sample requisition.
  7. All results and interpretations entered into the laboratory computer system following a laboratory computer system downtime must be reviewed by a Lead Technologist or designee for completeness and accuracy.
  8. Downtime supplies should be replenished after the downtime is over as needed.
     1. Print new XM or RhIg labels.
        1. Log in to Soft.
        2. Press shift+F11.
        3. Select Print Jobs Menu.
        4. Press enter when the search box opens.
        5. Scroll to find XM\_Blank or RH\_Blank.



* + - 1. Click the one you wish to print.
      2. Click the P-Print function button.
      3. Select the printer you wish to print to.
      4. Only one label can be printed at a time. Repeat steps g-h for each label you with to print.
    1. If more supplies, such as stickers, labels, or downtime forms, need to be ordered, notify a lead tech or manager.

1. **REFERENCES** 
   1. AABB. Technical Manual. Bethesda, MD: AABB, Current Version
   2. AABB. Standards for Blood Banks and Transfusion Services. Bethesda, MD: AABB, Current Version
   3. College of American Pathologists. Transfusion Medicine Checklist. Northfield, IL: CAP, Current Version
   4. FDA. Code of Federal Regulations. Rockville, MD: FDA, Title 21, Parts 200 and 600, Current Version
   5. Blood Bank and Transfusion Service Information Management System for SoftBank, Version 25.5.4, 02/2018
2. **RELATED DOCUMENTS**
   1. Refer to QPulse System or Document Detail Report for related Laboratory Policies, Procedures, and Master Forms