PURPOSE

To continue operation of the Transfusion Service when the laboratory computer system is unavailable. Computer downtime procedure details the actions to be taken when the system is unavailable during both scheduled and unscheduled downtime.

EQUIPMENT

A. Blood Bank Computer Downtime Binder (contains forms, blank chart copies and specimen labels)
B. Downtime Box
C. Blood Bank Downtime Recovery PC (BBDRPC)

CONTROL

A. Review 100% computer entries after recovery.
B. Review 100% manual results as soon as tests are completed.
C. Day shift checks to ensure that the PTC Export File is the most current (today's date and successful injection) every morning.

PROCEDURE(S)

A. **Scheduled Millennium Downtime**

Before the Scheduled Downtime:

1. Print a current autologous and directed unit report as close as possible to the downtime.
2. Log off from each workstations (except the Blood Bank Downtime Recovery PC).

B. **Unscheduled Millennium Downtime:**

1. Record the time and date of the downtime on the Variance Log. Notify the Blood Bank Supervisor and RILIS System Coordinator if both are on site. Check with the General Lab Supervisor/In-charge if the problem has been reported and find out how long the downtime will be.

C. **Preanalytical phase when the computer is Down**

1. **Specimen Tracking**
   a. Record all specimens except Hold BB and Hold Cord samples on the Downtime Patient History Monitor Log.
   b. Clip together all Hold BB requisitions and place on the front counter with a note 'HOLD BB'.
   c. Clip together all Hold Cord requisitions and place on the front counter with a note 'HOLD CORD'.

2. **Specimen Racks**
   a. Create a new specimen rack to file downtime samples in the fridge.
   b. Create another specimen rack to file downtime cord samples according to the last digit of MRN in the fridge.

3. **Patient History Inquiry**
   a. Check CIPS.
   b. Check KPHC if CIPS is not available. See Procedure Notes.
   c. Check the last successful injection of the PTC Export File on the Blood Bank Downtime Recovery PC (BBDRPC) before using.

      To view the injection log files, perform the following:

      i. Click on ▸ File Explorer on task bar. If not, right click on the Start menu or icon to find File Explorer.
      ii. Click on ▸ This PC to open folder.
      iii. Click on ▸ Local Disk (C:) to open folder.
      iv. Click on ▸ Millennium Downtime to open folder.
      v. Click on Logs.
      vi. Double click on the current month's log file to view.

Example log file

```
Fri 08/01/2014  2:45:00.24: Received bbpte14073123003800.xml from CNSFODRPC001
Fri 08/01/2014  2:45:06.59: Injecting bbpte14073123003800.xml into  "C:\Millenium Downtime\ptcxml.mdb"
Fri 08/01/2014  2:45:06.59: Success!
Fri 08/01/2014  2:46:12.63: Backing up  "C:\Millenium Downtime\ptcxml.mdb" to bcaweb-SFO.ca.kp.org
C:\Millenium Downtime\ptcxml.mdb -> \\bcaweb-SFO.ca.kp.org\Cerner\ptcxml.mdb
1 File(s) copied
Fri 08/01/2014  2:47:02.01: Finish backing up  "C:\Millenium Downtime\ptcxml.mdb" to bcaweb-SFO.ca.kp.org
Sat 08/02/2014  2:45:10.44: Received bbpte14080123003700.xml from CNSFODRPC001
Sat 08/02/2014  2:45:16.36: Injecting bbpte14080123003700.xml into  "C:\Millenium Downtime\ptcxml.mdb"
Sat 08/02/2014  2:45:16.36: Success!
Sat 08/02/2014  2:46:23.96: Backing up  "C:\Millenium Downtime\ptcxml.mdb" to bcaweb-SFO.ca.kp.org
```

      vi. If the file received does not have today's date or the injection does not indicate "Success!", contact System Coordinator or Corona Help Desk. **NOTE:** You can still use the PTC Export File but be cognizant of the age of the data based on the last update.

   d. Check patient's history using the PTC Export File on the Blood Bank Downtime Recovery PC (BBDRPC) for blood type, Rh phenotype, antigens, antibodies, transfusion requirements and Blood Bank comments. NOTE: When the file is injected correctly, the data is current up to 2300 of the previous day.
      i. Click on the Cerner Millennium PathNet PTC Export Viewer icon OR Click on the Start menu or icon.
      ii. Click on Cerner BloodBank Downtime.
      iii. Click on Cerner Millennium PathNet PTC Export Viewer.
      iv. Wait for program to load.
      v. The ptcxml Access database opens. 'Enable Content' will appear

on top of screen for first time users. Click on it.

vi. Enter MRN into the MRN field.

vii. Click Search **once**. You will see 'Running query…..' on bottom right of screen.

viii. Make sure the demographics are correct then click **once** to highlight the person row that displays. Enter the MRN again if the person row does not appear.

NOTE: If there is a discrepancy in the demographics, check HealthConnect to verify the information and write a Variance Log.

person_id	name	dob	gender
6526749	BLOODBANK, MEK106	20/SEP/1982 00:00	Female

ix. You will see 'Calculating…..' on bottom left of screen. Wait for patient's information to populate.

x. Patient information displays.

xi. Scroll down for more information if scroll bar appears on the right side of any of the sub windows.

xii. Document pertinent information on the requisition.

4. **Receive Blood Products**

a. Record RBC units delivered from Blood Supplier on the Unit Testing Worksheet when time permits.

b. If things are hectic and units are not immediately needed, store the RBC units on the unconfirmed refrigerator shelf with a message indicating that they need to be received in the computer system and leave the shipping papers on the front counter.

5. **Receive Auto / DD Units**

a. Update Autologous/Directed list when Auto/DD units are delivered from Blood Supplier.

6. **Add-On Tests**

a. When an Add-on to a Hold BB request is received, locate the requisition from the 'HOLD BB' pile and sample from the downtime rack.

b. When an Add-on to a Hold Cord request is received, locate the requisition from the 'HOLD CORD' pile and sample from the downtime Cord samples rack.

c. When Add-on crossmatch request is received, locate the initial requisitions and worksheets in the Downtime box. **NOTE:** If the original **30 Day Pre-Op** Type & Screen specimen is older than 17 days, obtain a new specimen for ABORh and crossmatch.

D. **Analytical phase when the computer is Down**

1. **Specimen Processing**
   a. Affix preprinted downtime barcoded accession labels if available onto specimens to be tested, otherwise, manually enter MRN and the first 3 characters of patient's last name in the Analyzer.

2. **Analyzer Results**
   a. Print the Analyzer results and affix an aliquot accession label (if using) or write the patient's full name and MRN on the printout.

3. **Manual Patient Testing**
   a. Whenever Manual Testing is performed, the results must be recorded as they are being read on the Supplemental Worksheet. Affix an aliquot accession label (if available) on the worksheet.
   b. A second CLS need to review the manual test results and interpretations for completeness and accuracy as soon as tests are done. This second CLS need to initial and date the review.

4. **Faxing Patient Test Results**
   a. If provider requests for patient test results, carefully transcribe the interpretations from Analyzer printout or manual worksheet onto **TF0033 DT BB Results Report.**
   b. **Transcribed results must be verified by a second CLS for accuracy before faxing to provider.**
   c. Fax completed TF0033 to the requesting provider. **NOTE:** Report can only be faxed to a KP fax number. Include a completed Fax Cover Sheet when faxing to Medical Offices NOT located within the hospital.

5. **Manual Unit Testing**
   a. Record ABORh unit confirmation on the Unit Testing Worksheet and donor/patient antigen typing on the Unit/Patient Antigen Worksheet.
   b. ABORh unit confirmation and Unit/Patient Antigen Typing can be recorded on the back page of the Supplemental Worksheet when the tests are performed for a specific patient.
   c. A second CLS need to review the manual test results and interpretations for completeness and accuracy as soon as tests are done. This second CLS need to initial and date the review.

6. **Use Barcoded Unit# Stickers**
   a. Affix barcoded Unit# sticker(s) or write the Unit# including check digit on all the worksheets.
   b. Affix barcoded Unit# sticker(s) on donor samples for Analyzer crossmatch.
   c. Affix barcoded Unit# sticker(s) or write the Unit# including check digit on both the white and yellow copies of the Crossmatch/Component Chart Copies.

7. **Crossmatch**
   a. Before crossmatching units, check for patient's second ABORh, special requirements and Autologous/Directed list .
   b. Do not crossmatch if there is **NO** 2nd ABORh.
   c. 30 Day Pre-Op Specimen
      i. If the original Type & Screen specimen is older than 17 days, obtain a new specimen for ABORh and crossmatch.
      ii. If transfusion is urgent, use the original specimen for serological crossmatch until a new specimen is received.
      iii. **NOTE:** Due to RBCs degradation during prolong storage, specimen older than 17 days frequently exhibits hemolysis.
   d. Perform **serological crossmatch** (electronic crossmatch is not available), record on the Supplemental Worksheet and fill out blank Crossmatch Chart Copies.
   e. Refer to SFOWI-0105 Neonatal Transfusion for babies less than 4 months old. Write 'Neonate' for Crossmatch Interp on the Crossmatch Label and Chart Copy.
   f. Make a copy of the Unit Face Label if the crossmatched units had arrived during downtime from Blood Supplier. Attach the copy to the shipping papers.

8. **Thaw and Assign Plasma products**
   a. Check for 2nd ABORh. Request for another sample and document on the requisition if no 2nd ABORh. Process the order if situation is urgent while waiting for the DBCK sample.
   b. Document component processing on the Downtime Component Processing Log. **NOTE:** Do not pool cryoprecipitate.
   c. FFP expires 24 hours after thawing. Closed system cryoprecipitate expires 6 hours after thawing.
      i. Cross out the original expiration date and time on the unit face label.
      ii. Write the new expiration date and time and initial.
   d. Set up individual FFP, cryoprecipitate and platelet using blank Component Chart Copies.
   e. Make a copy of the Unit Face Label if the assigned units had arrived during downtime from Blood Supplier. Attach the copy to the shipping papers.

9. **Aliquot RBC or Platelets for Infants**
   NOTE: Do not aliquot if possible. Use tri-pack RBC or dispense the entire unit unless it is rare, DD, crossmatched platelets or HLA matched platelets. Suggest dry platelets (dry crossmatched or dry HLA matched) to MD as alternative to platelet aliquot if transfusion is not urgent.
   a. Check for 2nd ABORh. Request for another sample and document on the requisition if no 2nd ABORh. Process the order if situation is urgent while waiting for the DBCK sample.

b. Document component processing on the Downtime Component Processing Log.
c. Refer to SFOWI-0072 Prepare RBC Aliquots or SFOWI-0078 Platelet Transfusion for aliquoting instructions.
d. Complete pages 1 and 2 of the Aliquot Label Check form.
e. Make a copy of the Unit Face Label if the assigned units had arrived during downtime from Blood Supplier. Attach the copy to the shipping papers.

10. **Crossmatch/Component Label and Chart Copy Check**
    a. A second CLS should perform Crossmatch/Component Label and Chart Copy Check as soon as set up is completed.
    b. Compare the patient name, MRN, unit number, ABORh, component type, expiration date, crossmatch results, and special attributes on the following documents:
        i. Unit face label
        ii. Unit tag
        iii. Component/Crossmatch Chart Copy
        iv. all the appropriate paperwork: Requisitions, Analyzer printouts, Worksheets and Logs.
    c. Second CLS initials, writes date and time on the Downtime Patient History Monitor Log and Downtime Component Processing Log when checking is finished and no discrepancy is found.

11. **Massive Transfusion**
    a. Refer to SFOWI-0110 Massive Transfusion SOP for detailed instructions on the component and number of blood products to be set up.
    b. Perform serological crossmatch on the first 12 units of PRBCs (first 3 MTP sets).
        i. Serological crossmatch can be omitted for subsequent units of PRBCs until the MTP is discontinued.
        ii. Resume crossmatch per protocol when LIS recovers.
    c. Use TF0031 MTP Product Chart Copy to record the units to be issued at the same time.
        i. For **Product**: write **R** for RBC, **F** for FFP, **C** for Cryoprecipitate, and **P** for Platelets.
        ii. For **E code**: write all **8 alphanumerics** e.g. E2121VC0.
        iii. A second CLS must review the Product Chart Copy for accuracy and completeness as soon as the form is filled out. The second CLS must initial on the form for the review.
        iv. Photocopy the completed form.
    d. At the time of dispense, issuer and runner must document on both the original and photocopied Product Chart Copy. Retain the photocopy for Blood Bank record.

12. **Emergency Release**
    a. Refer to SFOWI-0113 Urgent requirements for Blood and Components SOP.

13. **File Completed Paperwork**
    a. Attach completed requisition(s) and Crossmatch/Component Chart Copies to Worksheet(s) and/or Analyzer printout(s) and file in the Downtime file box.

E. **Postanalytical phase when the computer is Down.**

1. **Telephone Inquiries**
    a. Check Requisitions/Worksheets in the Downtime file box.

2. **Dispensing Blood products**
    a. **Do not rewrite** another Transfusion Service Crossmatch/Component Chart Copy when reissuing a unit after it has been returned. Use the original paperwork for reissue documentation and specify second/third dispense.
    b. Review the **Analyzer printouts and Supplemental Worksheets** to check if tests are complete, accurate and units are compatible.
    c. Check **CIPS** or KPHC for second ABORH.
    d. Check patient's history using the **PTC Export File** on the Blood Bank Downtime Recovery PC (BBDRPC) for ABORh, antibodies, transfusion requirements and Blood Bank comments. **NOTE:** When the file is injected correctly, the data is current up to 2300 of the previous day.
        i. Click on the Cerner Millennium PathNet PTC Export Viewer icon

        OR

        ii. Click on the Start menu or  icon.
        ii. Click on All Programs.
        iii. Click on Cerner BloodBank Downtime.
        iv. Click on Cerner Millennium PathNet PTC Export Viewer.
            - Wait for program to load.
            - The ptcxml Access database opens. 'Enable Content' will appear on top of screen for first time users. Click on it.
            - Enter MRN into the MRN field.
            - Click Search **once**. You will see 'Running query…..' on bottom right of screen.
            - Make sure the demographics are correct then click **once** to highlight the person row that displays. Enter the MRN again if the person row does not appear.

              NOTE: If there is a discrepancy in the demographics, check HealthConnect to verify the information and write a Variance Log.

person_id	name	dob	gender
6526749	BLOODBANK, MEK106	20/SEP/1982 00:00	Female

- You will see 'Calculating…..' on bottom left of screen. Wait for patient's information to populate.
- Patient information displays.
- Scroll down for more information if scroll bar appears on the right side of any of the sub windows.
- Document pertinent information on the requisition.

e. Check **Autologous/Directed** list.
f. Perform **crosscheck** with runner, the patient's full name, MRN, ABORh, unit#, and unit ABORh, carefully to detect transcription errors on the face label, unit tag, pick-up slip and Crossmatch/Component Chart Copy.
g. Attach the retained yellow copy with all the other paperwork on the patient and return them to the Downtime file box.

3. **Return Blood products**
   a. Attach the white copy to the yellow copy and document on the Return Record section of the Crossmatch/Component Chart Copy.
   b. File with all the other paperwork on the patient in the Downtime box.
   c. **Do not rewrite** another Transfusion Service Crossmatch/Component Chart Copy for reissuing unit.

F. Post Computer Downtime Recovery

Use **BF0027 Post Computer Downtime Validation** form.

Tip for Millennium: By typing = preceding unit#, check digit will automatically populate. The = will not appear on screen after you typed it.

1. **Instrument - Millennium – CIPs – KP HealthConnect Interface Verification**
   The interface for each testing instrument must be verified as operational. There are two options:
   a. Using actual patients' tests labels (minimum one test for each instrument)
      i. DOE and run the test ordered on instrument.
      ii. When test is completed, print instrument results then transmit.
      iii. Match instrument print-out to transmitted results in Millennium Result Entry screen.
      iv. Print Result Entry before verification.
      v. Print screen ORV.

vi. Match instrument print-out to ORV print screen.
v. The interface is operational if everything matches. Otherwise, contact RILIS.
vi. Staple all print-outs together, initial and date.

b. Using Validation tests labels (when actual patient samples are unavailable)

Scheduled downtime

i. One CLS will be assigned to preprint Validation tests labels for the laboratory before the downtime.

Unscheduled downtime

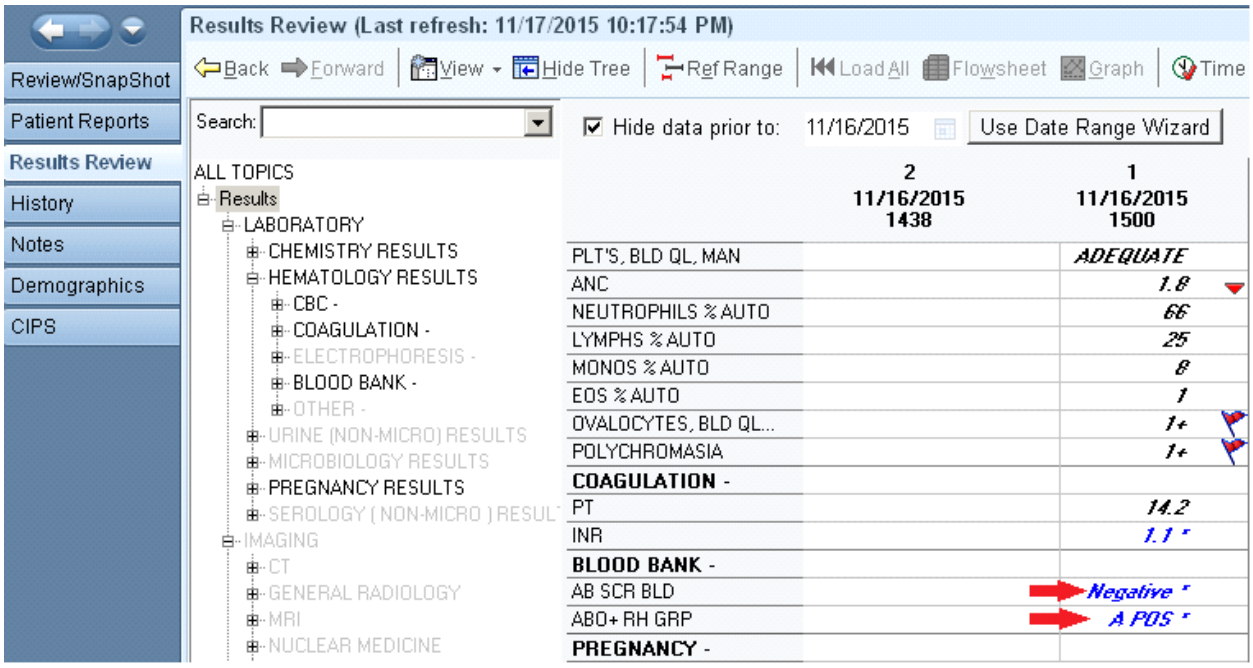
ii. One CLS will be assigned to generate Validation tests labels using Validation MRNs provided by RILIS for the laboratory.

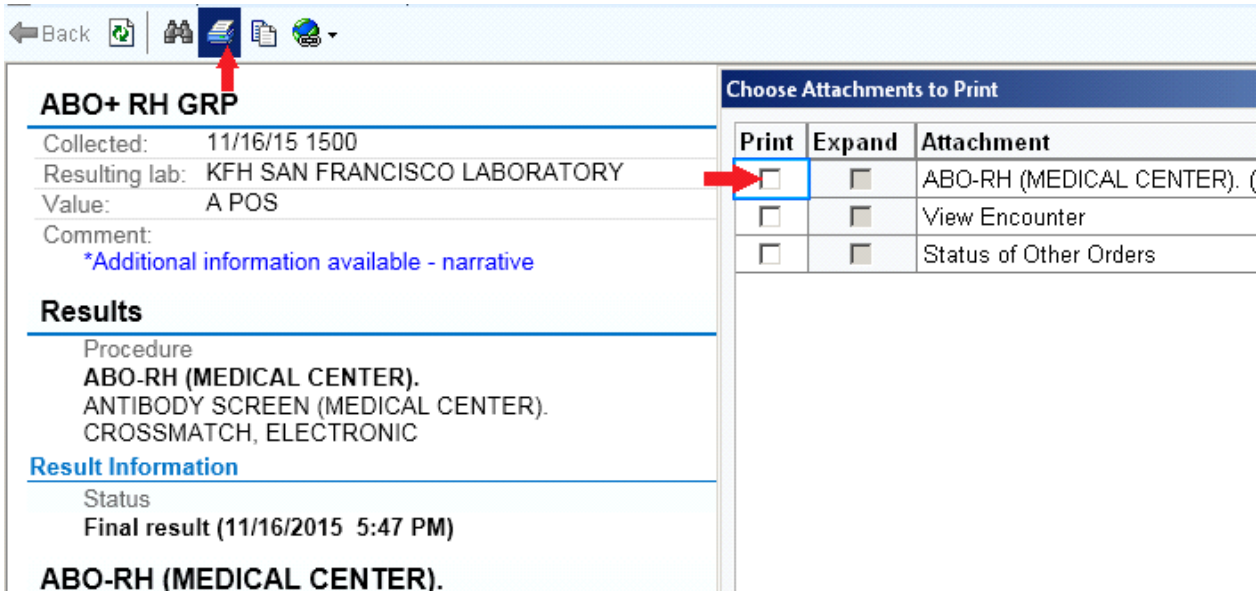
Running the Validation tests labels

i. Affix each label to a randomly selected patient sample that was previously tested.
ii. Run one sample on each instrument. Print instrument results then transmit.
iii. Match instrument print-out to transmitted results in Millennium Result Entry screen.
iv. Print Result Entry before verification.
v. Print screen ORV.
vi. Match instrument print-out to ORV print screen.
vii. The interface is operational if everything matches. Otherwise, contact RILIS.
viii. Staple all print-outs together, initial and date.

2. Verify Millennium-CIPs and Millennium-KPHC interface

a. Print screen results from CIPs and match against interpretations on ORV printout.
b. Print results from KPHC and match against interpretations on ORV printout. Go to Results Review and double click on the cell(s) containing the Blood Bank result, then click on the printer icon.
c. The information should agree 100%.





3. **Data Integrity Check**

   a. Scheduled downtime

   Data Integrity Check does not need to be performed at the facility after the Scheduled Downtime. The Kaiser Regional RILIS Group runs an automatic script/program which checks for data/file corruption of the system after each Scheduled Downtime. If a problem is detected, the Regional RILIS Group will take the appropriate action to resolve it before allowing user access.

b. Unscheduled downtime

i. **Select a patient MR# from the day's or previous day's Patient Results Activity Report:**
- Print screen the Millennium Patient Registration/Demographics and ORV results.
- Compare demographic information item by item on the Millennium print screen against printouts of demographics from CIPS and Health Connect.
- Compare ORV result interpretations against printouts of results from CIPS and Health Connect.
- The demographics and result interpretations should agree 100%.

ii. If the downtime occurred while entering results, print screen the ORV results for that patient(s). Match reactions and/or interpretations against the Analyzer printout, CIPs printscreen and KPHC printout. They should agree 100%.

iii. Perform unit inquiry (Complete Product History) on a unit that you recently used in the system if applicable. Print or print screen.

iv. If no error messages/codes displays, then the system is intact and the files were not corrupted.

v. If error messages/codes displays:
- Notify the RILIS System Coordinator if on site, otherwise call the Kaiser National Help Desk at 8-330-1143 and request for RILIS Millennium support.
- Do not continue using the computer until notified to do so by RILIS group.

4. **Order tests and Enter results**

a. From the requisitions, worksheets and Downtime Patient History Monitor Log, order and enter tests performed. For specimens with downtime accession labels, scan the barcode into the Manual Assign Accession field in DOE. When ordering multiple tests on the same accession, i.e TS, DAT, ABID, the accession barcode must be scanned each time. Submit when all tests have been added to the scratch pad.

b. Add template SF_DT to Result Note at the interpretation field for documenting the actual performing CLS' NUID, the actual test completion date and time.

c. If a new specimen is obtained for ABORh and crossmatch due to the initial Type & Screen specimen being older than 17 days, flex the new ABORh specimen to the same expiration date as the original 30 Day Pre-Op specimen. **NOTE:** Flexing should be done prior to entering results.

5. **Receive blood products and ABORh unit confirmation**

a. Enter all blood products received (use the actual received date and time) and ABORh Unit performed during downtime into the computer system.

b. Add the original CLS' NUID, actual performed date and time as Product Comments and Result Note using template SF_DT.

6. **Thaw and Assign Plasma products**
   a. From the requisitions, Downtime Component Processing Log and Component Chart Copies, thaw/assign FFP or Cryo and assign Platelets.
   b. Change the products' computed expiration to the actual date and time. Add the original CLS' NUID, actual performed date and time as Product Comments using template SF_DT.

7. **Dispense Blood products**
   a. Dispense products using the original issue date and time as it is written on the retained Transfusion Service Crossmatch/Component Chart Copy.
   b. Add the original CLS' NUID as Product Comments using template SF_DT.

8. **Return Blood products**
   a. Return products according to the date and time indicated on the Return Record section, adding the original CLS' NUID as Product Comments using SF_DT.
9. **Issue, Return and Reissue Blood products**
   a. Some blood products may need to be issued, returned and reissued. The Issuance and Return documentation on the Crossmatch/Component Chart Copies should indicate the sequence of events.

10. **Manual Results Entry and Review**
    a. All results transcribed manually from paper to computer must be reviewed by a 2nd CLS for data entry error.

11. **Check and Replenish Downtime Forms, Blank Chart Copies and Specimen Labels**
    a. Check the Computer Downtime Binder to determine if any form, label or chart copy need to be replenished.
    b. Instruction sheets for printing chart copy and specimen label are in the front of the binder.
    c. Make copies of the downtime forms. The master copy is in the Forms Binders if needed.

PROCEDURE NOTES

1. When CIPS is down, it is adequate to check patient's history in RILIS Millennium.
2. If unable to get full history and the order is for future transfusion, leave the History Check until CIPS becomes available.
3. In urgent cases, call Kaiser SSF or other Northern Kaiser facilities which are not experiencing downtime for patient's transfusion history.
4. PTC Export File is a database that contains the following patients' historical

blood bank information: Blood Type, Antibody ID, Antigen Type, Rh Phenotype, Transfusion Requirement, and Blood Bank Comment. The data is extracted daily from RILIS Millennium and is current up to 2300 of the previous day.