## I.     PURPOSE:

To define the Soft computer process in regards to Special Hematology tests.

## II.     SOFT Special Hematology Tests:

*Orderable Tests:*
HGBSC – Hemoglobin Screen
AGACE – Hgb Electrophoresis
SPST – Special Stains
PK – Pyruvate Kinase Screening
NBT – Nitroblue Tetrazolium
OF-Osmotic Fragility
G6PD – Glucose-6-Phosphate Dehydrogenase

*Send-outs:*
ISOPR – Isopropanol Solubility (Unstable Hgb)
LYSOZ – Lysozyme Assay
RBCEZ – RBC Enzyme Evaluation
AT7D-Alpha Thalassemia, 7 deletions
BGS-Beta Globin Gene Sequencing

*MD Interpretation codes:*
SHINT- Special hematology general
OFINT- Osmotic Fragility
STINT- Special Stains
NBINT-  Nitroblue Tetrazolium
HSINT-  Hemoglobin Screen

## III.     PENDING LISTS:

HGBSC – Resulting Template for Hgb Screens (includes electrophoresis tests)
SPHEM – Resulting Template for Special Hematology tests
SHOUT – Resulting Template for Special Hematology Send outs

To call pending list:
1. Status Open Resulting Work list: Template – HGBSC, SPHEM or SHOUT
2. Click Pend and Nonver
3.  Query from order # **one month before current day.**

To print pending list:
1. Click on the printer icon 🖨 then click on Work list
2. Change the printer to the appropriate laser printer
3. Deselect print specimens
4. Change the layout to from regular to horizontal if being used as a worklist
5. Click OK to print

## IV. SPECIAL HEMATOLOGY TEST PROCEDURES:

### A. How to verify manual tests: G6PD, PK

1. Open Resulting work list:    Template – SPHEM
   Status – Pend and Nonver
   From order # - enter the number from **a week ago** to pick up tests that have been added on to older samples.
2. Any order numbers that appear on the list have pending test
3. Select (left click) on the patient test to be resulted
4. Enter results in the result box
5. Click VERIFY to verify only the selected test
6. Respond **Yes** to question do you want to save

G6PD reference range will automatically be added as a test comment when the test is ordered.

### B. Special Stains

1. Add SPST into the patient order entry page **(make sure the sample has been collected and received for SPST). The STINT will automatically reflex.**
2. Click on the Result box for MTYP (material type)
3. A Keypad will appear in the upper right hand corner of the screen
4. Hit 0 (blood) or 1 (Bone Marrow)
5. Type in PERFORMED for the stains that were requested
6. Receive flow order and print a FLOW label and place it on the patient's printout or SPST worklist

### C. Osmotic fragility

1. Go to resulting work list SPHEM under test OF
2. Enter the %'s and verify
3. Print a Flow label and attach it to the Osmotic Fragility form.
4. Place in the resident's box

### D. NBT

1. Click performed under NBT test on resulting template SPHEM
2. Receive flow order and print a FLOW label and place it on the patient's printout or NBT worklist

### E.  Hemoglobin Screens

**a.        TO LOCATE PREVIOUS PATIENT'S WITH ABNORMAL Hgb's**

2.  Click on Internet Explorer to bring you to the YNHH home page.
3.  Click on Yale New Haven Hospital
4.  Click on Applications
5.  Click on the CWS (clinical work station) Home page.
6.  On the left side in blue you will see Clinical labs click on that icon.
7.  Type in your user Id and password
8.  Type in the patient's unit number click on GO
9.  Click on the MRUN
10. Click on the blue (display all samples)
11. Hold Ctrl + F and search patients records for "screen" (The cursor will move to all screen results)

**b.        MANUALLY ENTERING HEMOGLOBIN SCREEN RESULTS**
              **Abnormal results or D10 results**
1.  Click on Resulting work list – HGBSC
2.  To obtain reports type in a starting date from the earliest sample.
3.  Type in the % HGB's
    **Remember do NOT enter:**
    **A2 > 10%**
    **Hgb A <10% enter "." for Hgb A-Type "See Below" in test-HSCH**
    **Hgb F if not detected enter as 0%**
    **If <0.8% enter as 0.8%**
4.  **Known** abnormal patient enter the comment under the abnormal hgb
    Normal results enter the correct comment under the %A
5.  Type in comment code (example: @TC01) then hit **ENTER**
6.  Click Date, Time and enter your initials
7.  Click OK
8.  **Verify All**
9.  Do you want to save?
10. YES

**c.  POSTING  NORMAL VARIANTII HEMOGLOBIN SCREEN RESULTS**
1.  Go to instrument menu, Biorad Variant
2.  If patient chromatograph normal, hit post all
3.  Manually calculate Hemoglobin A %

4. Go to resulting worklist, template HGBSC
5. Enter % A with comment @TC01 with date and initials
6. Hit verify all
7. Save

**HEMOGLOBIN SCREEN INTERPRETATION COMMENTS**

**(For previously worked up patients only.  These are not for patients with a Resident Review ordered.  These comments are to be entered under the predominant Hemoglobin fraction in the sample)**

**@TC01**
NORMAL Hgb A and A2. There is no evidence for any abnormal hemoglobin; for example, the most common abnormal hemoglobins are not present. Results have been REVIEWED BY TECHNOLOGIST ONLY.

**@TC02**
Known SICKLE CELL DISEASE from previous Hgb analysis. Results have been REVIEWED BY TECHNOLOGIST ONLY.
          Example Hgb SS, SC or S/beta thal

**@TC03**
Known HETEROZYGOUS for hemoglobinopathy from previous Hgb analysis. Results have been REVIEWED BY TECHNOLOGIST ONLY.
          Example AS, AC, AE or AD

**@TC04**
Known Beta-Thalassemia Trait from previous Hgb analysis; the current elevated A2 and low MCV are consistent with this diagnosis. Results have been REVIEWED BY TECHNOLOGIST ONLY.

**@TC05**
Known HOMOZYGOUS for non-sickle hemoglobinopathy from previous Hgb analysis. Results have been REVIEWED BY TECHNOLOGIST ONLY.
          Example: CC, DD, EE

**F.     COLLECTING AND RECEIVING INTERPRETATIONS  IN FLOW**

**All samples that need an interpretation by the residents and attending need to have the appropriate interpretation code added.   Collect and receive the interpretation in SOFTLAB and FLOW, using the SOFTLAB label to print a FLOW label.**

1.  Access Soft Flow live icon, log on
2.  Click on order
3.  Click on Specimen receiving work list
4.  Click on Find
5.  Place the cursor in the upper right corner and scan the soft (Shint) label
6.  The program will ask if you want to save this sample: YES
7.  It will ask you to print a label
8.  Select the H18 label printer
9.  Print FLOW label and attach it to the HPLC sheet


**G.      How to reprint flow label**
1.      Stay in the Flow page
2.      Upper left corner locate Order
3.      Click on Order
4.      Click on order entry
5.      Click on advanced search
6.      Type in MR#
7.      Click on the sample for Sp Heme test
8.      Click on Find
9.      Click on Tools
10      Click on print specimen label
11.     Change to H18 label printer
12.     Change to 1 label
13.     Click on Print


**V.      SPECIAL HEME SEND OUT TESTS:**

A.      FIRST follow the directions in the reference lab procedure manual
B.      Then batch the sample in the Mayo computer if applicable.

Special Hematology Send-out Tests:
SHOUT – Resulting Template for Special Hematology Send outs

| | | |
|---|---|---|
| ISOPR | Isopropanol Solubility (Unstable Hgb) | Mayo |
| LYSOZ | Lysozyme Assay | Mayo |
| RBCEZ | RBC Enzyme Evaluation | Mayo |
| AT7D | Alpha Thalassemia 7 Deletions | ARUP |
| BGS | Beta Globin Gene Sequencing | ARUP |

## VI. VERIFICATION OF MANUALLY ENTERED RESULTS

**Each afternoon after completion of each test category, a report is run to check that results were correctly entered into the computer.**

**Tests requiring verified result reports:**
**HGBSC, PK, G6PD, OF**

1. Click on reports
2. Click on verified result report
3. Under print flags toggle ALL the checks off except explode canned messages
4. Fill in an appropriate date range for all orders verified
5. Choose verification date as the current day
6. Enter the appropriate test ID or template
7. Enter the appropriate technologists initials
8. Print to appropriate printer

## VII. HISTORY:

H-1    This procedure was written by Paula Morris on 3/07/2010.
H-2    This procedure was revised by Paula Morris on March/2011.
H-3    This procedure was revised by Susan Richardson 9/2012.
H-4    This procedure was revised by Andrew Link 08/2013