Memorial Hospital

BBBP 5.0-Processing of Blood Products in the Meditech System

A. Principle

All blood and blood products are entered into the hospital computer system. Red blood cell products will need further processing prior to placing on the available shelf.

B. General Policies

a. Red cell products must have a confirmation ABO/Rh prior to being placed on the available shelf. Any discrepancy from attached label must be communicated to the blood supplier

b. Non-Red cell products will have a canned message attached at the time of entry into the system and may be placed on the available shelf immediately.

c. Markers, such as leuko-reduced or irradiated will be added to the product at the time of entry as these attributes are part of the product bar code.

d. Markers, such as antigen status will need to be added separately to each unit as this is not part of the product bar code. (Refer to *BBBP 4.0-Entering Blood, Blood Products and Tissues into the Blood Bank Meditech System*.)

C. Specimen Collection and Preparation

Segment of packed red blood cells from donor unit

D. Equipment

Meditech LIS
Heat Block
Calibrated serological centrifuge
Agglutination lamp

E. Supplies

Test tubes
Disposable pipettes
Test tube rack
Manual reagent rack
Calibrated timer

F. Reagents

a. Commercial Anti-A
   i. Preparation: Use as supplied.
   ii. Storage: 1-10C when not in use.
   iii. Expiration: Use until date listed by manufacturer.

b. Commercial Anti-B
   i. Preparation: Use as supplied.

ii. Storage: 1-10C when not in use.
iii. Expiration: Use until date listed by manufacturer.

c. Commercial Anti-A,B
i. Preparation: Use as supplied.
ii. Storage: 1-10C when not in use.
iii. Expiration: Use until date listed by manufacturer.

d. Commercial Anti-D
i. Preparation: Use as supplied.
ii. Storage: 1-10C
iii. Expiration: Use until date listed by manufacturer.

e. Commercial Monoclonal control
i. Preparation: Use as supplied.
ii. Storage: 1-10C
iii. Expiration: Use until date listed by manufacturer.

f. Anti-IgG
i. Preparation: Use as supplied.
ii. Storage: 1-10C
iii. Expiration: Use until date listed by manufacturer.

g. Coombs Control Cells
i. Preparation: Use as supplied.
ii. Storage: 1-10C
iii. Expiration: Use until date listed by manufacturer.

h. 0.9% Buffered physiologic saline
i. Preparation: Use as supplied.
ii. Storage: 20-24C.
iii. Expiration: Daily use squeeze bottle – Expiration of originating saline cube, or 30 days from the date the saline original container was opened.

G. Quality Control

Ensure that all daily reagent quality control has been successfully completed prior to testing.

H. Safety

Refer to Chemical Hygiene and Blood Borne Pathogen Plan for Memorial Hospital Laboratory.

I. Procedure

a. Running ABO/Rh confirmation

i. Empty segment contents from newly received red cell products into properly labeled tubes with Meditech generated label.
ii. Load tubes onto instrumentation uses donor rack(s).
1. See NEO manual for additional information about loading specimens and ordering of assays.

iii. Download orders from Meditech through interface or manually order "Unit testing" on instrument.
iv. Ensure ABO/Rh plates are available onboard NEO
v. Ensure reagents are loaded and of sufficient quantity to complete testing of units.
vi. Start assays.
    1. NOTE: some units that are tagged as Rh positive by the blood center may result on the instrument as Rh negative. Weak D testing should be performed to resolve this discrepancy. If weak D testing is still negative, quarantine unit, physically and electronically, and refer to blood center for further instructions.
vii. When ABO/Rh confirmation is complete, approve and export results from NEO.
    1. See NEO manual for approving and exporting results.

b. Verifying results in Meditech

i. See NEO manual for verifying results run on NEO.
ii. Any discrepancies

c. Completing Unit Processing

i. Once ABO/Rh confirmation has been successfully completed on a unit, it may be moved from the processing refrigerator to the inventory refrigerator.
ii. Unit is now ready for use.

d. Manually testing of Units

i. If instrumentation is unavailable, ABO/Rh confirmation may be completed manually using tube method.
ii. Empty contents of segment into test tube properly labeled with Meditech generated bar code label and make a 3-5% cell suspension using normal saline.
iii. Remove four (4) test tubes and label them appropriately with unit ID and test to be performed in that tube. There is no standard way to label as long as a unique unit ID is used and a way to identify what test is being run in that test tube.
    1. Ex. W456 Anti-A
iv. The tests to be performed are Anti-A, Anti-B, Anti-D and Rh control.
v. Drip one (1) drop of each reagent into its designated tube.
vi. Drip one (1) drop of the designated unit cell suspension into each of the five properly labeled test tubes.
vii. Mix by gently, but firmly, shaking test tube.

viii. Centrifuge all tubes in centrifuge for calibrated time for saline type testing.
    1. Ex. 15 seconds
ix. After centrifugation, remove no more than three (3) tubes at a time and gently resuspend cell button.
    1. NOTE: reaction should not be read until cell button has been completely resuspended and is not adhering to side of test tube.
x. Grade and record reactions according to SOP Reading and Interpretation of Agglutination Reactions.
xi. Record reaction in Meditech in designated field of "Enter Results" module.
xii. Click "Save" or press F12 to save results once all fields have been resulted.

e. Weak D testing

i. It may be necessary to complete weak D testing on a donor unit if it is labeled as Rh positive and manual tube testing indicates Rh negative.
ii. Take Anti-D and Rh control tubes created in steps "iv" through "vi" above or make new tests using same steps above.
iii. Ensure contents of properly labeled tubes are mixed thoroughly.
iv. Incubate at 36-38C for 15 – 60 minutes.
v. Wash a minimum of three (3) times with physiologic saline.
vi. Add two (2) drops Anti-IgG to each tube.
vii. Mix gently.
viii. Centrifuge according to equipment used.
ix. Read, grade and record reactions according to SOP Reading and Interpretation of Agglutination Reactions.
x. Add 1 drop of Coombs control cells to all negative reactions.
xi. Centrifuge for the specific time designated on the equipment used.
xii. Read, grade and record reactions according to SOP Reading and Interpretation of Agglutination Reactions.
    i. Reactions must be 2+ to be considered valid.
    ii. Any tests less than 2+ will be considered invalid and must be repeated.
xiii. If Rh control is positive at any point, testing is invalid.
    1. Perform DAT on unit segment
    2. If DAT positive, weak D testing invalid.
xiv. Go to step c. and finish process.

Reporting Results

f. Interpretation:

Test Results									
IS		37C		Weak D		Coombs Control		Rh Interpretation	Notes
D	Ct	D	Ct	D	Ct	D	Ct		
2-4+	0							Pos	
w-1+	0	2-4+	0					Pos	
0	0	0-1+	0	2-4+	0	NT	2-4+	Pos	
0	0	0	0	0	0	2-4+	2-4+	Neg	
						0-1+	0-1+	Invalid	Repeat Testing
	w-4+		w-4+		w-4+			Invalid	Repeat Testing, Investigate

g. All possible combinations of reactions may not be included in table.

J. Limitations

a. False results can occur from contamination of test materials, inadequate incubation temperature or time, improper centrifugation, improper storage of materials or omission of test reagents.

b. Positive reactions with stored specimens may be weaker than those obtained with fresh specimens.

c. Red blood cells demonstrating a positive direct antiglobulin test cannot be tested using the weak D method.

d. If testing is invalid, contact supervisor and/or blood center for further instructions and quarantine unit, physically and electronically.

K. References

a. Standards for Blood Banks and Transfusion Services, AABB, 26th Edition, 2009, Std. 5.8.2, 5.13.2, & 5.20.2, Bethesda, MD.

b. Technical Manual, AABB, 16th Edition, 2008, pp. 387-406, Method 2-13 & 2-15, Bethesda, MD.

c. Judd's Methods in Immunohematology, 3rd Edition, 2008, Method I-A & I-D, Bethesda, MD.

d. Anti-Rho(D) package insert, Immucor/Gamma, Norcross, GA.

e. Anti-Rho(D) package insert, Ortho Diagnostics, Raritan, NJ.

Memorial Hospital

PROCEDURE AND FORM CHANGE CONTROL

Title: BBBP 5.0-Processing of Blood Products in the Meditech System										
Written		**Validated**		**Path Review**		**Review**		**Effective**		**Reason for Revision**
Date	**By**	**Date**	**By**	**Date**	**By**	**Date**	**By**	**Date**	**By**	
2/11/10	**PAB**	**2/14/10**	**GJM**	**3/2/10**	**ESB**			**3/2/10**	**PAB**	
Revised										
5/17/10	**PAB**	**5/17/10**	**GJM**					**5/25/10**	**PAB**	**Removed processing of non-red cell products.**
6/17/11	**PAB**									**Updated for new Meditech version**
1/21/15	**JLH**									**Rewrite procedure to delete information about processing using worksheets and add current procedure.**

Location of any copy(s) of the procedure:

Out of use:

Date:_____By:_____Reason:_____