## TITLE: Cord Blood Routine

PRINCIPLE:

Rh typing, ABO group and direct antiglobulin test (Coombs test) are minimal but essential tests of the umbilical cord in suspected Erythroblastic babies. This testing can also be done on the heelstick of babies less than 4 months old.

**CLINICAL SIGNIFICANCE:**

Evaluation by laboratory tests of the umbilical cord blood in Erythroblastsis is important in deciding whether or not the baby may need exchange transfusions. The evaluation involved not only blood bank, but also hematology and biochemistry.

# PERSONNEL:

Medical Technologists

# EQUIPMENT:

See individual procedures for necessary equipment.

# COLLETION OF SAMPLE

Labor and delivery draws these samples for us. They should send an EDTA tube (purple top) or plastic centrifuge tube with sequester SOL added. Perform appropriate testing which is ordered through the LIS. If sample is not an actual cord blood but a heelstick or venipuncture on a baby less than 4 months old, the nurse or phlebotomist will be required to enter the source of the specimen at collection under “Cord Test Source”

### STEPWISE PROCEDURE

1. Perform ABO Typing.

 Perform Rh typing.

 If no agglutination is observed proceed to the Du Testing Procedure.

1. Perform a direct antiglobulin test using IgG Coombs reagent.
2. An eluate must be prepared from direct antiglobulin positive specimens and the antibody

 identified ONLY if the physician requests it. This testing would be sent to Heartland Blood Center.

4. Order a total bilirubin when the direct antiglobulin testing is positive.

 Receive the order and take the cord blood sample and label to Chemistry for processing.

 All positive direct coombs must be called to the patient’s (baby’s) nurse. Document this call in a comment on the order.

 After testing is complete, place samples in the daily rack, allowing for 21 day storage.

 NOTE: CORD BLOOD TESTING **MUST** BE COMPLETED WITHIN 6 HOURS OF THE BABY BEING BORN. In an effort to save resources when one cord blood is received the pending may be reviewed for any other pending cord bloods. You may wait for the other pending cord bloods before testing or you may call the floor requesting them to send down the pending cord blood. Never “batch test” cord bloods on your shift.

**INTERPRETATION**

1. In newborn infants, only cell grouping is done, as the expected Anti-A and/or Anti-B does not usually appear until infants are about 3 to 6 months of age.
2. False negative results of Rh typing may occur when the baby’s red cells are strongly sensitized with Rh antibody from the mother. In such cases the direct antiglobulin test will be positive and the Rh type of the baby will be indeterminable. These babies should be considered Rh indeterminate.
3. Identification of the antibody in maternal serum may confirm the identity of the antibody eluted from the infant’s cord blood cells.
4. Specimens, which are direct antiglobulin positive, may also indicate antibodies other than Rh (D), or fetal-maternal ABO incompatibility.
5. The strength of positive direct antiglobulin test does not indicate the severity of the disease process. Hemoglobin, indirect serum bilirubin level, and reticulocyte count are better reflectors of the extent of red cell destruction and elimination.
6. Umbilical cord specimens contaminated with Wharton’s jelly must be washed four or more times with saline.

**NOTE: You may add an antibody screen to cord blood testing that has been drawn by heelstick or venipuncture; if requested by a physician or if needed when no maternal testing has been done.**

**CALCULATIONS**

Not applicable

**REPORTING RESULTS**

 Report all results through the Laboratory Information System. Refer to Soft Bank II

 V.25.3 Manual for complete instructions (See example form)

 **REFERENCE:**

Technical Methods and Procedures of the Association of Blood Banks. 16th ed., 2008.

 Soft Computer, Clearwater, Florida

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