BONE MARROW ASPIRATION AND BIOPSY

☒ St. Joseph Medical Center, Tacoma, WA	☒ St. Anthony Hospital Gig Harbor, WA	☐ Harrison Medical Center, Bremerton, WA
☒ St. Francis Hospital, Federal Way, WA	☒ St. Elizabeth Hospital Enumclaw, WA	☐ Harrison Medical Center, Silverdale, WA
☒ St. Clare Hospital Lakewood, WA	☐ Highline Medical Center Burien, WA	☐ PSC

PURPOSE

Bone marrow aspiration/biopsy is performed by the physician assisted by an MT/MLT or other trained personnel as approved by the site pathologist.
The slide interpretation is performed by the pathologist and the information is used for diagnosis of the patient.

PATIENT PREPARATION

- Complete blood count with differential done within 24 hours of the bone marrow.
- Ensure that “Timeout” has been performed prior to starting the procedure.
- Pathology requisition must be placed in EPIC

EQUIPMENT/ FORMS

2 - Petri dishes	Disposable forceps
Frosted or painted tip slides	2 - Sodium heparin tubes
EDTA soln - in date	1 - SPS tube for AFB (yellow top)
Face shield/PPE	1 - Red top tube (or pearl top tube)
2 - plastic 5-slide mailers	1 - Green blood culture bottle (for blood/fungus)
Pencil	1 - RPMI tube
2 - 10% formalin jars	**FORMS:**
Luer-tip caps	Pathology requisition in EPIC
Pasteur pipettes- glass	CBC request-if not already done
Pipette rubber bulb	H&P if not in EPIC
Rack for holding tubes	

PROCEDURE

1. Setting up equipment needed for procedure in procedure room:
   a. Add 6-8 drops EDTA to Petri-dish
   b. Request that the physician collect 7-10 mls of aspirate.
   c. Have glass pasteur pipette with rubber bulb ready for use.
   d. Ask physician before aspirate procedure begins if any additional testing is needed - i.e. cultures.
   e. Take tops off of 2 sodium heparin tubes (use sterile technique).

2. Procedure:
   a. Add 1 ml specimen to the EDTA in the Petri dish and mix immediately. Immediately put a minimum of 2 ml in each of the 2 sodium heparin tubes and mix right away (If 2 ml are not available, put 1 ml each, in 2 tubes). Leave a little in the syringe to clot, about 0.5 to 1 ml. **Note:** If the physician uses 2 syringes for the aspirate, one syringe can be used for cytogenetics and /or flow cytometry testing and the other syringe for slides and clot.
   b. Mix the anti-coagulated aspirate in dish and in the tubes immediately to prevent clotting.
   c. Observe for spicules. "Spicules look like salt crystals," do not confuse them with fat globules. If no spicules are seen, ask the physician to collect another sample. If another sample cannot be collected, see step 3.
   d. Place a luer-tip cap on syringe with remainder of aspirate to clot. Label the syringe with two patient identifiers. Once clotted, remove cap, pull the plunger back out of the syringe and place the clot into a 10% formalin jar labeled with 2 patient identifiers and "bone marrow clot".
   e. Ask the physician to place the bone core onto a new petri dish. Be sure to inform the physician that the petri dish is not sterile.
   f. Using forceps, transfer the biopsy to a slide. Put another slide on top of biopsy and roll the biopsy with a little pressure. Make 4-6 touch preps on <u>all</u> bone marrow collections. Slides must be labeled with 2 patient identifiers.
   g. Transfer the core to a 10% formalin jar labeled with 2 patient identifiers and "bone marrow biopsy". If there are insufficient spicules or the Sodium heparin tubes are clotted, see step 3 below **BEFORE** you put the core in formalin.
   h. Using the glass pasteur pipette with rubber bulb, transfer spicules from petri dish to a slide. Syphon off excess blood. Immediately place a second slide on top and pull with even pressure. Make 6-8 slides. Slides must be labeled with 2 patient identifiers.
   Note: All specimens including slides, biopsy, clot, and aspirate, must be labeled with two patient identifiers before leaving the bedside.

3. Procedure if no spicules are available (or no aspirate at all):

   a. Ask the physician to place the biopsy onto a petri dish. Request that the physician get 2 bone cores. If this cannot happen, the core will need to be split in half.
   b. Using forceps, transfer the biopsy to a slide. Put another slide on top of the biopsy and roll the biopsy with a little pressure to make a touch prep. Make 4-6 touch preps. Slides must be labeled with 2 patient identifiers.
   c. Half of the bone biopsy is placed in a RPMI tube labeled with 2 patient identifiers and "bone marrow biopsy".
   d. Transfer remaining biopsy to 10% formalin jar labeled with 2 patient identifiers and "bone marrow biopsy".

4. Follow up:
   a. Use pipet to transfer remaining bone marrow aspirate with EDTA from petri dish to a red top tube and label with 2 patient identifiers and "bone marrow aspirate-EDTA petri dish".
   b. Place the slides into plastic slide mailers.
   c. The pathology requisition must be placed in EPIC with the source designation (ie. Left Post Iliac Crest or Right Post Iliac Crest) and the performing provider. If not included, please handwrite on the req.

5. Deliver the following to SJMC pathology or Highline pathology department:
   a. All smears labeled with 2 patient identifiers and placed in plastic slide holders for transport.

b. Biopsy and clot each in its own 10% formalin jar labeled with 2 patient identifiers and specimen type.
c. All tubes labeled with 2 patient identifiers.
d. Copy of CBC results with differential.
e. 2 peripheral blood smears, unstained or a lavender top tube of peripheral blood.
f. Pathology requisition order from EPIC with EPIC-BEAKER label attached.
g. Receive the sample in the LIS and update collection date/time.
h. Create a Room Temp packing list for the appropriate destination.
i. H&P if not in EPIC.

6. **For cultures**:
   The SPS tube is used for AFB. The green blood culture tube is used for Fungal Cultures and Organisms. Sample should be added to culture tubes before clotting if possible.
   a. To prepare, remove the lid from SPS tube and remove a hypodermic needle from the wrapper
   b. Request a 2nd pull of aspirate. The ideal volume for the second pull is 6-7 ml.
   c. Place 1-2 ml into the SPS tube
   d. Place the needle onto the syringe and poke through the top of the green blood culture bottle. The bottle will automatically pull the remainder of the aspirate from the syringe.
   e. Label both tubes with 2 patient identifiers and “bone marrow aspirate”
   f. Make sure that the microbiology orders have been placed in EPIC
   g. Send specimens to Microbiology

PROCEDURAL NOTES

1. If there are insufficient spicules, the sodium heparin tubes are clotted or there is no aspirate, a piece of biopsy needs to be placed into RPMI to be used for cytogenetics and/or flow cytometry.
2. Culture and/or fungal cultures are collected in a green blood culture bottle (minimum amount 1 ml). Can use the same bottle for both culture and fungal culture.
3. AFB collected in SPS solution tube. (light yellow top tube)
4. If a bone marrow procedure is needed and your site does not have a qualified person at that time, please contact the Pathology department at SJMC to see if they can assist or if the procedure needs to be rescheduled.
5. If two sites are performed, specify right and/or left aspirate and biopsy in your labeling. If two samples are taken from the same side they can go in the same container (aspirate with aspirate and biopsy with biopsy).
6. Notify SJ Pathology at 127-6823 or Highline Pathology at 206-439-5462 if a Bone Marrow will be arriving late in the day (after 3pm for SJMC or after the 3pm courier run for Highline) so that processing isn’t delayed until the next day. Also call if the bone marrow is a “rush”. Rush samples should be identified by the site pathologist.