

STANDARDIZED PROCEDURE

BONE MARROW ASPIRATION (Adult,Peds)

I. Definition:

This protocol covers the task of bone marrow aspiration by an Advanced Health Practitioner. The purpose of this standardized procedure is to allow the Advanced Health Practitioner to safely do a bone marrow aspiration when needed.

II. Background Information

A. Setting: The setting (inpatient vs outpatient) and population (adults vs pediatrics) for the Advanced Health Practitioner (AHP) is determined by the approval of the privileges requested on the AHP Privilege Request Form. If the procedure is being done on a Pediatric patient, make sure Child Life is involved and use age appropriate language and age appropriate developmental needs with care of children, as appropriate to the situation.

B. Supervision: The necessity of this procedure will be determined by the Advanced Health Practitioner in collaboration with the supervising physician or his/her designee. Designee is defined as another attending physician who works directly with the supervising physician and is authorized to supervise the Advanced Health Practitioner.

Direct supervision will not be necessary once competency is determined, as provided for in the procedure. The Advanced Health Practitioner will notify the physician immediately upon being involved in any emergency or resuscitative events or under the following circumstances:

1. Patient decompensation or intolerance to the procedure
2. Bleeding that is not resolved
3. Outcome of the procedure other than expected

C. Indications:

Need for diagnostic biopsy

D. Precautions:

Note evidence of significant thrombocytopenia

III. Materials required:

1. Lidocaine cream with occlusive dressing
2. 16-gauge 2-1/2 or V bone marrow needle
3. (3) 10ml syringes
4. 25-gauge needles
5. 20-gauge needles
6. 4 x 4 and 2 x 2 gauze pads
7. Povidone-iodine swabs
8. Sterile drapes

STANDARDIZED PROCEDURE
BONE MARROW ASPIRATION (Adult,Peds)

9. Lidocaine 1% multidose vial
10. Alcohol swabs
11. Elastoplast adhesive, or other pressure dressing
12. Sterile gloves

IV. Procedure:

A. Prior to the procedure

1. Obtain consent for procedure.
2. Notify hematology to schedule BM tech.
3. Determine and obtain appropriate type and dose of sedation and pain medications. Schedule child for anesthesia if elective and child/adolescent have no contraindications for anesthesia. Instruct patient/family in NPO requirements.

B. Prepare the patient for the procedure:

1. Explain the basic steps of the procedure, appropriate for the patient's age, development status, and prior experience.
2. Encourage the parent's/patient's participation, answering all questions honestly given the available knowledge.
3. Explain that while parts of the procedure are painful, the use of a local anesthetic and sedation medications will minimize the discomfort and anxiety the child will experience.
4. Elicit the patient's help by encouraging them to hold as still as possible once positioned. Reinforce the patient's help in holding still will enable you to complete the procedure in the minimum amount of time.
5. During the procedure, explain each step in a simple manner, preparing the patient for painful parts of the BMA.

C. Procedure:

1. Apply Lidocaine cream 1-2 hours prior to the procedure: either the staff RN or the AHP should apply the cream on the right or left iliac crest, covering an area of approximately 3-4 cm in diameter. A transparent occlusive dressing is then applied.

At the time of the procedure:

1. Wash hands.
2. Assemble supplies and medications, checking expiration date on BMA tray.
3. Complete a time out with all elements of the preprocedure process.
4. Administer sedation medications, monitoring vital signs, pulse oximetry, level of sedation.
5. Remove outer wrapping from bone marrow tray using clean technique.
6. Position patient in prone or side-lying position.
7. Expose area for aspiration and locate posterior superior iliac crest. Remove Lidocaine from aspirate site. A towel roll or small pillow placed under the hips may allow easier location of the iliac crest.
8. If necessary, a member of the nursing staff will help secure the patient's position.
9. Position the parent near the child's head in order to more easily comfort the child during the procedure.

STANDARDIZED PROCEDURE
BONE MARROW ASPIRATION (Adult,Peds)

10. Expose contents of bone marrow tray using aseptic technique.
11. Put on sterile gloves.
12. Swab bone marrow site with povidone-iodine swab stick, applying some friction and working in a circular motion beginning in the center and moving outward. Repeat x 2 with new swabs.
13. Allow povidone-iodine to dry.
14. Remove povidone-iodine with alcohol swab using concentric motion beginning in the center. Repeat with new swab x 2 (optional).
15. Allow area to dry.
16. Apply sterile drape.
17. Draw up 2-3ml lidocaine 1% from a vial held by an assistant into a 3 ml syringe with a 22 gauge 1 " needle.
18. Location exact point for aspiration and outline area between thumb and index finger.
19. Perpendicularly inject lidocaine subcutaneously and into periosteum. Avoid injecting too much and obscuring landmarks.
20. While allowing 2-3 minutes for lidocaine to take effect:
 - a. Prepare bone marrow needle, assuring stylet moves freely.
 - b. Prepare (2) 10ml syringes, assuring plungers move freely. Remove top from one syringe and set aside. Prepare second syringe (if needed for special studies) using 0.2ml heparin and rinsing inside of syringe. Set aside.
21. Stretch skin taut over puncture site, keeping crest between thumb and index finger of one hand.
22. Holding bone marrow needle with stylet in place, puncture skin and advance through subcutaneous tissue, periosteum and into marrow cavity using a steady, controlled pressure with a twisting motion. When the needle is firmly in place and a slight give in pressure is felt, the cavity has been entered.
23. Remove the stylet and quickly attach the plain syringe to the needle hub.
24. Apply strong, quick suction and obtain approximately 0.5ml marrow.
25. Hand syringe to the lab technician.
26. Obtain other samples with heparinized syringe as needed.
27. Remove needle with syringe attached with slight twisting motion.
28. Maintain pressure over site approximately 2 minutes until bleeding has stopped.
29. Meanwhile, remove sterile drape and cleanse povidone-iodine from skin with alcohol swab to avoid burn.
30. Apply dry 2x2 gauze folded into quarters and secured with tightly stretched Elastoplast.
31. Praise the patient's cooperation.
32. Inform patients / parents and child of marrow result when obtained.

D. Patient conditions requiring consultation:

1. Unusual bleeding, pain or signs/symptoms of concern to the practitioner will be brought to the attention of the responsible fellow or attending physician.

STANDARDIZED PROCEDURE
BONE MARROW ASPIRATION (Adult,Peds)

2. After two unsuccessful attempts by the AHP, a fellow, attending or another AHP will complete the procedure.

E. Patient education:

1. The parents and/or patient are instructed to remove the dressing after 24 hours, observing for signs of infection, unusual bleeding, or any other drainage on the dressing. If either is noted, the practitioner should be informed. The site should be checked daily thereafter until healed for signs of infection.
2. It is not unusual to feel an aching or bruised feeling for several days after the procedure. This may be relieved with a warm pack. The nurse practitioner should be notified if pain persists beyond several days or worsening pain..

V. Documentation

A. Documentation is in the electronic medical record.

1. Documentation of the pretreatment evaluation and any abnormal physical findings.
2. Record the time out, indication for the procedure, procedure, type and size of needle used, method used, EBL, the outcome, how the patient tolerated the procedure, medications (drug, dose, route, & time) given, complications, and the plan in the note, as well as any teaching and discharge instructions.

B. All abnormal or unexpected findings are reviewed with the supervising physician.

VI. Competency Assessment

A. Initial Competence

1. The Advanced Health Practitioner will be instructed on the efficacy and the indications of this therapy and demonstrate understanding of such.
2. The Advanced Health Practitioner will demonstrate knowledge of the following:
 - a. Medical indication and contraindications of bone marrow aspiration
 - b. Risks and benefits of the procedure
 - c. Related anatomy and physiology
 - d. Consent process (if applicable)
 - e. Steps in performing the procedure
 - f. Documentation of the procedure

STANDARDIZED PROCEDURE

BONE MARROW ASPIRATION (Adult,Peds)

- g. Ability to interpret results and implications in management.
3. Advanced Health Practitioner will observe the supervising physician perform each procedure three times in its entirety.
4. Advanced Health Practitioner will perform the procedure **three** times under direct supervision of attending physician.
5. Supervising physician will document Advanced Health Practitioner's competency prior to performing procedure without direct supervision.
6. The Advanced Health Practitioner's Attending Physician will ensure the completion of the clinical competency sign off documents and provide them for filing in their skills assessment, as well as a copy to be sent to the Medical Staff Office

B. Continued Proficiency

2. The Advanced Health Practitioner will demonstrate competence by successful completion of the initial orientation.
 3. Each candidate will be initially proctored and signed off by an attending physician. Advanced Health Practitioner must perform this procedure at least **three** times per year. In cases where this minimum is not met, the attending, must again sign off the procedure for the Advanced Health Practitioner. The Advanced Health Practitioner will be signed off by the proctor after demonstrating 100% accuracy in completing the procedure.
 4. Demonstration of continued competence shall be monitored through the annual evaluation and documentation of successfully performing of successful performing three procedures within the past year.
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4. A clinical practice outcomes report is to be submitted with each renewal of credentials. It will include the number of procedures performed per year and any adverse outcomes. If an adverse outcome occurred, a copy of the procedure note will be submitted.

VII. RESPONSIBILITY

Questions about this procedure should be directed to the Chief Nursing and Patient Care Services Officer at 353-4380.

VIII. HISTORY OF PROCEDURE

Revised February 2012 by Subcommittee of the Committee for Interdisciplinary Practice

Reviewed February 2012 by the Committee on Interdisciplinary Practice

Prior revision June 2008

Approved February 2012 by the Executive Medical Board and the Governance Advisory Council.

This procedure is intended for use by UCSF Medical Center staff and personnel and no representations or

STANDARDIZED PROCEDURE
BONE MARROW ASPIRATION (Adult,Peds)

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