STANDARDIZED PROCEDURE
LUMBAR DRAIN INSERTION (Adults, Peds)

I. Definition

The purpose of this standardized procedure is for the Advanced Health Practitioner to safely place a lumbar drain.

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

1. Patients with cerebrospinal fluid leaks
2. Patients with hydrocephalus

D. Precautions/Contraindications

1. Thrombocytopenia (platelet count less than 50,000)
2. Evidence of increased intracranial pressure: Increased blood pressure with widened pulse pressure, papilledema, or significant decrease in the level of consciousness until imaging studies have ruled out mass effect.
3. New focal neurological findings and/or lesions, or imaging studies revealing significant mass effect.
4. Patients with coagulation defects or those receiving anticoagulant therapy.
5. Cutaneous infection at the site of procedure.

6. Use caution with patients with a history of low back pain, lower extremity neuralgia or sciatica. Patients with prior back surgery will be evaluated by the attending physician prior to the procedure.

III. Materials

1. Standard LP kit
2. Chlorhexadine
3. Spinal epidural catheter kit
4. Sterile gloves, Sterile gown, mask, hat

IV. Procedure

A. Pre-treatment evaluation

1. Subjective
   a. History of pancytopenia, anticoagulation or aspirin use, renal insufficiency, disseminated intravascular coagulation, liver dysfunction, seizures; cerebral bleeding, head trauma or back surgery should be elicited.
   b. Review of systems: Headache, confusion, altered mental status, nuchal rigidity, fever, bleeding, lower extremity, back pain, difficulty with elimination or ambulation.
2. Patient Evaluation
   a. General appearances, vital signs, fever.
   b. Focused neurological and mental status examination. Assess for focal neurologic findings. Evaluate for evidence of increased intracranial pressure: high blood pressure, widening pulse pressure, papilledema, decreased level of consciousness. Evaluate for evidence, of local infection or metabolic abnormalities.
3. Diagnostic
   a. Previous LP (MRI, CT results, if applicable)
   b. As indicated, current CBC with differential, PT/PTT, platelets, electrolytes, creatinine, and/or other chemistries as needed.

B. Patient Preparation

1. After providing the purpose, risks and benefits, and steps of the procedure, obtain informed consent from the patient or appropriate legal designee. Complete a time out with all of the required steps.
2. The most important step is positioning the patient. The lateral decubitus position may be used; firm bed, head on pillow, head flexed with chin on the chest, legs maximally flexed toward the head. Alternatively, the patient may be sitting, flexed forward and supported by stable table or assistant.

C. Perform Procedure

1. Identify interspaces and mark the puncture site at the L4-5 interspaces in a perpendicular line from the iliac crest. The L3-4 interspace above this level may also be used.
2. Identify interspaces and mark the puncture site at the L4-5 interspaces in a perpendicular line form the iliac crest. The L3-4 interspace above this level may also be used.
3. Don sterile gloves, sterile gown, hat and mask. Set up prepared LP tray.
4. Using the sponge applicator provided in the LP tray, prepare the back with chlorhexadine solution beginning at the site marked for the needle puncture, working outward; repeat twice.
5. Drape the patient
6. Recheck the landmarks
7. Infiltrate the skin and subcutaneous tissue with preservative free 1% lidocaine with a 22-25-gauge needle.
8. Insert the spinal needle into the midline of the interspace with bevel up. Direct the needle on a 10-degree angle toward the umbilicus (horizontal axis).
9. Advance the needle slowly, removing the stylet every 2-3 millimeters to check for CSF flow. If the patient complains of nerve root pain, do not advance the needle. Remove stylet and check for CSF. If none, then replace the stylet and remove. Remove the needle to subcutaneous tissue, change angle and continue. If repeated bony resistance is noted, discard the needle and replace it. If blood is returned, watch for clearing of fluid; if no clearing, replace the stylet, remove the needle and notify the attending MD.
10. Once CSF flow is established, rotate the needle 90 degrees counter-clock wise (bevel in transverse plane).
11. Remove 1-2ml of CSF for each of the four tubes.
12. Send samples to the lab for glucose, protein, cell count (culture and gram staining or other test) and cytology tests as indicated.
13. Thread a standard epidural catheter into the subarachnoid space. Withdraw needle and attach to an epidural drainage system with buretrol.
14. Ensure drain patency. Correct with catheter manipulation as necessary.
15. Secure the 3-way stopcock with a suture tie, connecting the spinal catheter and the external drainage system.
16. Cover catheter insertion site with a sterile 4x4 gauze dressing and a transparent adhesive dressing.
17. Ensure catheter is secured to the patient.

D. Post-procedure

1. Assess patient for any adverse reactions to procedure.
2. Label CSF specimen tubes and send to lab
3. Ensure head of bed is at 30° and drip chamber is at patient's shoulder level.

E. Termination of treatment

1. Severe pain which persists
2. Failure to access the CSF space after three attempts

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 and catheter 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 findings are reviewed with 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 lumbar drain insertion.
   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
   g. Ability to interpret results and implications in management.
3. Advanced Health Practitioner will observe the supervising physician perform each procedure three times and perform the procedure **three** times under direct supervision.
4. Supervising physician will document Advanced Health Practitioner's competency prior to performing procedure without supervision.

5. The Advanced Health Practitioner will ensure the completion of competency sign off documents and provide a copy for filing in their personnel file and a copy to the medical staff office for their credentialing file.

B. Continued proficiency

1. The Advanced Health Practitioner will demonstrate competence by successful completion of the initial competency.
2. 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 after demonstrating 100% accuracy in completing the procedure.
3. Demonstration of continued proficiency shall be monitored through the annual evaluation.
4. A clinical practice outcomes log 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 POLICY

Revised June 2012 by Subcommittee of the Committee for Interdisciplinary Practice
Reviewed June 2012 by the Committee on Interdisciplinary Practice
Prior revision October 2008
Approved June 2012 by the Executive Medical Board and the Governance Advisory Council.