UF UNIVERSITY of FLORIDA

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Radiology Practice Committee

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Inpatient Pediatric Failed Lumbar Puncture Guideline

Performance Improvement Team: Shelly Collins, MD, Don Novak, MD, David Burchfield, MD, Jeffrey Bennett, MD Jon Williams, MD, Tony Mancuso, MD Ken Harbour, RRA, Melinda Chitty, Kati Harlan, Quality Manager

Date: April 6, 2011

Revised and approved by Jonathan Williams, MD, Jeffrey Bennett, MD, Lori Deitte, MD, Christine Langford, Ultrasound Supervisor.

Objective: Following lumbar puncture attempt limits established by the Performance Improvement Team, ultrasound guided assistance will be provided.

Ultrasound guidance is less reliable and of marginal assistance when the infant is over the age of four to six months due to ossification.

Lumbar Puncture Attempt Limits:

Failed lumbar puncture attempt limits for inpatient pediatric patients:

- Interns: minimum 2 attempts, not to exceed 2 attempts, then
- Upper level resident: minimum 2 attempts, not to exceed 2 attempts, then
- **Optional** trial by attending with minimum 2 attempts, not to exceed 2 attempts, then
- **Next step**: ultrasound is used to identify interspinous space, determine depth and direction, and mark the site after a minimum of 4 attempts by two Pediatric housestaff

Procedure for obtaining ultrasound:

1. During regular working hours the pediatrician should call the Ultrasound department extension **4-4363** and speak to an Ultrasound Technologist to request ultrasound (US) assistance. The technologist will arrange staffing, equipment, and patient transport if necessary. The technologist will call the pediatric attending radiologist to perform the procedure.

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2. During off-hours the pediatrician should call the main radiology reading room extension **2-8986** to request assistance.

3. An order for an ultrasound of the lumbar spine must be placed by the pediatrician.

4. The radiology resident is responsible for calling the US tech. Please note that at night the tech may take 45 minutes to arrive at the hospital.

5. The child can either be brought to US, or radiology can come with portable US to the patient, at the discretion of the pediatrician.

6. During the day, the radiology resident assigned to pediatric radiology will assist with the help of an attending.

7. During off hours, the senior radiology resident on call will assist the ultrasound technologist with marking for the procedure.

8. The response time from Radiology will be within three hours maximum.

9. The pediatrician performing the LP and the holder of the child must be present at the time of the US. The patient is to be positioned as appropriate for performing the LP. The radiology resident, with assistance from the US technologist, will then make a determination as to whether sufficient spinal fluid is present or whether a hematoma may be obliterating the thecal sac. The position of the conus will also be assessed.

10. If fluid can be obtained, the radiology resident will assist with marking a skin entry site and estimating the depth. The pediatrician will then immediately perform the LP without changing the position of the patient.

References:

Local anesthetic and stylet styles: factors associated with resident lumbar puncture success. Baxter AL, Fisher RG, Burke BL, Goldblatt SS, Isaacman DJ, Lawson ML. Pediatrics. 2006 Mar;117(3):876-81. Positioning for lumbar puncture in children evaluated by bedside ultrasound. Abo A, Chen L, Johnston P, Santucci K. Pediatrics. 2010 May;125(5):e1149-53.