PEDIATRIC HIP ULTRASOUND EXAMINATION

POLICY: Pediatric hip ultrasound will be performed with an order from a physician or other qualified clinical practitioner. The examination will be supervised and/or performed and interpreted by a radiologist or other licensed practitioner who is qualified by reason of training to understand the normal anatomy, pathophysiology of the pediatric hip, and integration of ultrasound with other imaging techniques to optimize the probability of detecting disease.

PURPOSE: To assess the anatomy of the pediatric hip and document normal and abnormal structures therein.

INDICATIONS: Ultrasound of the pediatric hip is indicated for patients with signs of developmental dysplasia of the hip. Such signs include, but are not limited to abnormal physical exam (e.g., clicking, popping), abnormal imaging study, monitoring of patients with congenital hip dysplasia, breech pregnancy or delivery, oligohydramnios and family history of developmental dysplasia of the hip. Note: Females are at higher risk than males for congenital hip dysplasia.

PATIENT PREPARATION: There is no special preparation for this examination. However, the accuracy of pediatric hip ultrasound decreases as the femoral head ossifies. Patients should be less than six months of age for this examination in order to minimize these limitations. Pediatric hip ultrasound should only be scheduled at a facility where a qualified radiologist is on-site to participate or assist in the examination. Infants who have been recently fed are more likely to lie quietly during the examination. Use of warm blankets, warm ultrasound gel and pacifiers are also recommended during the ultrasound examination. The use of warm, sterile gel is required when scanning neonates.

PROCEDURE: Pediatric hip ultrasound will be performed with the patient in a supine or lateral decubitus position. The highest frequency linear transducer possible that will allow adequate penetration should be used in order to optimally visualize the hip anatomy. Both hips are always examined. Each hip is examined in coronal and transverse planes with the hip in a neutral flexed and adducted position. The hip should be evaluated for stability, orientation and development of the acetabulum. If ordered, the radiologist will perform dynamic evaluation of the hip using stress maneuvers. If the femoral head is subluxed or dislocatable, reducibility can be assessed. Note: when the patient is in a Pavlik harness or splint device, it should not be removed for the exam unless ordered by the referring provider. The order of imaging for will be as follows (minimal number of images in parenthesis):

- Right Hip (5 images, 1 cine)
- Left Hip (5 images, 1 cine)
Minimal stored images should include:

- three coronal views of the right hip labeled *right hip long*. These images should be oriented to include the lateral margin of the ilium (a straight echogenic reflector parallel to the transducer surface) and the deepest part of the acetabulum. In this plane, the tip of the acetabular labrum (echogenic) is visible anteriorly, and the triradiate cartilage (hypoechoic) and ischium (hyperechoic) are visible posteriorly. Femoral head position and displacement should be noted. Measurements should include the angle of the acetabular roof (alpha angle) as well as the percentage of the femoral epiphysis covered by the acetabular roof.

- two transverse views, from an anterolateral approach, of the right hip should be obtained and labeled *right hip trans*. These images should be obtained in an axial plane to include the femoral head and the triradiate cartilage.

- if a dynamic examination is requested, stress maneuvers may be demonstrated by a competent sonographer; however, a radiologist must also dynamically evaluate the infant. Include one transverse cine of the right hip with during a gentle Barlow* stress maneuver, labeled *right hip trans Barlow*. Any change of position of the femoral head relative to the posterior acetabulum should be noted.

*Barlow maneuver is performed by adducting the hip while applying light pressure on the knee, directing the force posteriorly.

Note: stress maneuvers should not be performed when the patient is in a Pavlik harness or splint device unless ordered by the referring.

These images described above should be repeated on the left hip