FETAL BIOPHYSICAL PROFILE ULTRASOUND EXAMINATION

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

PURPOSE: To quantitatively assess the well being of the fetus by observing specific criteria using real time ultrasonography.

INDICATIONS: Fetal biophysical profile ultrasound examination is indicated for patients with signs and/or symptoms of fetal stress and conditions which put the fetus at higher risk for antepartum death. Maternal conditions may include, but are not limited to, diabetes, chronic renal disease or lupus. Pregnancy related conditions may include, but are not limited to, decreased fetal movement, failed fetal non-stress test, preeclampsia, intrauterine growth restriction, oligohydramnios and polyhydramnios.

PATIENT PREPARATION: In most cases, patients will be investigated from a transabdominal approach through the distended urinary bladder for at least a portion of the examination. Patients will be instructed to have completed drinking 32 ounces of liquid one hour prior to the scheduled examination time and refrain from voiding until instructed by Inland Imaging staff. Patients who do not require a filled bladder need no special preparation. Patients should be instructed to take prescribed oral or injectable medication on their normal schedule.

PROCEDURE: The examination will be performed from a transabdominal approach with the maternal urinary bladder distended, often followed by additional transabdominal imaging after voiding. The elements of the examination are defined by the Committee on Practice Bulletins Obstetrics of the American College of Obstetricians and Gynecologists (ACOG) as written in the 10/1999 issue of Obstetrics and Gynecology. The elements of imaging for the fetal biophysical profile examination will be:

General Evaluation (10 images)
- Fetal position
- Fetal heart rate
- AFI

Fetal Well Being Assessment – total of 8 points based on the following criteria (2 images, 3 cines)
- Amniotic fluid (score 0 or 2)
- Breathing (score 0 or 2)
- Fetal movement (score 0 or 2)
- Fetal tone (score 0 or 2)

GENERAL EVALUATION:
Minimal stored images should include:

- Four long axis views of the uterus (two sagittal midline and right and left parasagittal) labeled **long uterus rt**, **long uterus ml**, and **long uterus lt** to demonstrate the uterine walls, fetal position and placental position. One midline image should be optimized to display the fundus and one image optimized to demonstrate the lower uterine segment;
- Three transverse views of the uterus labeled **trans sup**, **trans mid** and **trans inf**, to demonstrate the lateral uterine walls, fetal position and placental position;
- One m-mode image of the heart rhythm with a calculate heart rate labeled **heart**;
- A focused imaged of each quadrant of the uterus will be obtained to include the largest vertical pocket of amniotic fluid and labeled **RUQ**, **LUQ**, **RLQ** or **LLQ**, as appropriate. The amniotic fluid pocket in each quadrant will be measured to exclude the umbilical cord (color Doppler can be utilized to improve visualization of the cord) and fetal parts, and added to the measured pocket in each of the other quadrants to arrive at the amniotic fluid index. Quadrants without perceptible amniotic fluid will be imaged and labeled as well. Two images should be obtained; one with measurements and one without.

**Note:** AFI is not considered when determining a score for the Fetal Well Being Assessment (this is performed using a single deepest pocket measurement as described below).

FETAL WELL BEING ASSESSMENT:
As stated above, the fetal well being assessment will consist of four criteria observed using real time ultrasonography and awarded a score of 0 or 2, allowing for a maximum score of 8/8. All criteria are pass or fail, 0 or 2 (there is no possibility of a score of 1 for any given criteria). All criteria must be met within a 30 minute timeframe.

If the fetus does not appear active within the first 5 minutes of scanning, the patient should be given a high sugar drink (such as Tang) in order to expedite as much fetal movement as possible. The 30 minute timeframe should begin approximately 10-15 minutes after the patient drinks the high sugar beverage. Note: cine clips mentioned below should only be obtained after a passing score has been determined as each cine clip is indicative of a passing score. Minimal stored images should include:

- One image of the deepest single vertical pocket of amniotic fluid should be obtained and measured, excluding the umbilical cord and fetal parts. A measurement of more than 2 cm is considered adequate
and should receive a score of 2. Anything less than or equal to 2cm should receive a failing score of 0;

- One short cine (less than ten seconds) in a long axis plane of the fetal abdomen/thorax demonstrating breathing motion of the diaphragm and labeled *breathing*. This cine indicates a passing score of 2 for fetal breathing. In order to meet the criteria for a score of 2 for fetal breathing, the fetus must have at least one episode of rhythmic fetal breathing movements for at least 30 seconds within a 30 minute timeframe. Anything less than this is a failing score of 0;

- One short cine (less than ten seconds) of at least one gross body movement and labeled *movement*. This cine indicates a passing score of 2 for fetal movement. In order to meet the criteria for a score of 2 for fetal movement, the fetus must have at least two discrete body or limb movements with the 30 minute timeframe. Anything less than this is a failing score of 0;

- One short cine (less than ten seconds) of one demonstration of fetal tone and labeled *tone*. This cine indicates a passing score of 2 for fetal tone. In order to meet the criteria for a score of 2 for fetal tone, the fetus must have at least one episode of extension of a fetal extremity with return to flexion (i.e.: opening and closing of hand). Slow extension with return to partial flexion, movement of a limb in full extension or a partially opened fetal hand are examples of abnormal fetal tone with a failing score of 0.

When available, computerized obstetric reporting software (e.g.: Viewpoint) will be used to report fetal well being assessment.

REFERENCE:
ACOG Guidelines on Antepartum Fetal Surveillance as it appears in the October 1999 issue of *Obstetrics and Gynecology*