BlueCross BlueShield of Alabama

Name of Policy:
Biophysical Fetal Profile

Policy #: 232
Category: Obstetrics

Latest Review Date: June 2008
Policy Grade: **Active Policy but no longer scheduled for regular literature reviews and updates.**

Background/Definitions:

As a general rule, benefits are payable under Blue Cross and Blue Shield of Alabama health plans only in cases of medical necessity and only if services or supplies are not investigational, provided the customer group contracts have such coverage.

The following Association Technology Evaluation Criteria must be met for a service/supply to be considered for coverage:

1. *The technology must have final approval from the appropriate government regulatory bodies;*
2. *The scientific evidence must permit conclusions concerning the effect of the technology on health outcomes;*
3. *The technology must improve the net health outcome;*
4. *The technology must be as beneficial as any established alternatives;*
5. *The improvement must be attainable outside the investigational setting.*

Medical Necessity means that health care services (e.g., procedures, treatments, supplies, devices, equipment, facilities or drugs) that a physician, exercising prudent clinical judgment, would provide to a patient for the purpose of preventing, evaluating, diagnosing or treating an illness, injury or disease or its symptoms, and that are:

1. *In accordance with generally accepted standards of medical practice; and*
2. *Clinically appropriate in terms of type, frequency, extent, site and duration and considered effective for the patient's illness, injury or disease; and*
3. *Not primarily for the convenience of the patient, physician or other health care provider; and*
4. *Not more costly than an alternative service or sequence of services at least as likely to produce equivalent therapeutic or diagnostic results as to the diagnosis or treatment of that patient's illness, injury or disease.*

Description of Procedure or Service:

The three most common methods used to evaluate fetal well-being in utero are the nonstress test (NST), contraction stress test (CST), and biophysical profile (BPP).

The indications for antepartum fetal surveillance are multiple and reflect conditions that are associated with increased fetal morbidity and mortality. Conditions that lead to fetal hypoxia, uteroplacental insufficiency, and death are all indications for increased fetal surveillance. No absolute protocols have been established for increased fetal surveillance, but certain practices are accepted for given maternal-fetal risks. For instance, weekly antenatal testing beginning the 32nd week of gestation is often performed in women with low to moderate risk, such as those with gestational diabetes, chronic hypertension, or mild preeclampsia. For women with a higher risk of abnormal outcome, earlier and more frequent antenatal testing is indicated.

Most often the NST is used as the primary tool in antepartum fetal surveillance. It has been used to document second- and third-trimester fetal well-being for the past 40 years. The NST serves as a surrogate measure of the developing fetal autonomic nervous system and the adequacy of uteroplacental function.

The NST is more specific than sensitive and is thus a better indicator of fetal health than fetal illness. The test itself is read as reactive or nonreactive and may be repeated at intervals as a screen for high-risk maternal conditions. A reactive or reassuring NST is defined as one with at least two accelerations in a 20-minute period above the baseline fetal heart rate of 15 beats per minute for 15 seconds. If a reactive pattern is not present at the end of the first 20 minutes, attempts may be made to arouse the fetus. Fetal rest periods, which are reported to be 30 to 40 minutes in duration, must be excluded for the fetus to demonstrate a reactive NST. Because fetuses can have normal sleep cycles lasting up to 40 minutes, an NST might require over an hour to complete if it is initially nonreactive. It is important to differentiate whether a nonreactive tracing truly represents a compromised fetus versus a temporary behavioral state.

The absence of fetal accelerations described earlier along with the exclusion of a fetal sleep state denotes a nonreactive test. No contraindications to the NST as a primary screening tool are known, and it is easily reproducible, relatively inexpensive, and acceptable to most patients.

Maternal narcotics, extreme prematurity and fetal cardiac or central nervous system anomalies may also be responsible for a nonreactive NST. A nonreactive NST without fetal heart rate decelerations does not indicate fetal jeopardy but should be viewed as an indication for further evaluation. This evaluation may take the form of a CST or a BPP.

A biophysical fetal profile (BPP) is an ultrasonographic assessment of fetal well-being. It was originally designed to mimic the Apgar score for postnatal assessment. The BPP is technically more difficult to perform and interpret but provides a greater degree of certainty of fetal well-being. During a 30-minute examination, certain behavioral patterns associated with a healthy fetus are documented. The test has five different components, each worth two points (See table below). Indicators such as amniotic fluid volume, fetal breathing, fetal heart rate, movement, and tone are evaluated. A score of 8 or 10 is reassuring, a score of 6 is suspicious and indicates a need for further evaluation, and a score of 4 or less is ominous and indicates a need for

immediate intervention. A low score may also reflect the fetus's behavioral state during the test, such as normal sleep or sedation from maternal use of narcotics or central nervous system depressants. However, a decreasing score has been well correlated with poor outcome and with increasing degrees of fetal acidemia.

The modified BPP consists of the nonstress test (NST) and the amniotic fluid index. It has proved to be an excellent means of fetal surveillance in patients at increased risk for poor perinatal outcome and small-for-gestational-age infants. It has been proven to be as effective as a full BPP in assessing fetal well-being.

Components of the Biophysical Profile		
Parameter	**Normal (Score = 2)**	**Abnormal (Score = 0)**
Nonstress test	Two or more accelerations of at least 15 bpm above baseline for at least 15 sec	Fewer than 2 accelerations of sufficient height and duration
Amniotic fluid volume	At least 1 amniotic fluid pocket greater than or equal to 2 × 2 cm in perpendicular plane	No 2 × 2-cm pockets or AFI <5.0
Fetal breathing movements	Sustained fetal breathing for at least 30 sec	Less than 30 sec of fetal breathing
Fetal body movements	At least 3 limb or gross body movements	Fewer than 3 limb or body movements
Fetal tone	Extremities in flexion at rest and at least 1 episode of extension of the extremity or spine with return to flexion	Extension at rest or no return to flexion after movement
NOTE: Scoring of the latter four components is done ultrasonographically in a 30-minute observation period. A total score of 8 to 10 is reassuring, a score of 6 is suspicious, and a score of 4 or less is ominous.		
AFI, amniotic fluid index (the sum of the largest vertical pocket in each of four quadrants of the uterus).		

Policy:

Fetal biophysical profile meets Blue Cross and Blue Shield of Alabama's medical criteria for coverage for patients at or after **32 weeks gestation with an increased risk of fetal demise**. Conditions associated with an increase risk of fetal demise include:

- Hypertensive disorders,
- Insulin dependent diabetes mellitus,
- Poorly controlled hyperthyroidism,
- Hemoglobinopathies,
- Cyanotic heart disease,
- Systemic lupus erythematosus,
- Antiphospholipid syndrome,

- Chronic renal disease,
- Hemorrhage,
- Thyroid disease,
- Severe hypoxic lung disease,
- Inflammatory bowel disease,
- Warfarin (Coumadin, Panwarfin),
- Phenytoin (Dilantin),
- Infections:
    - Syphilis
    - Cytomegalovirus
    - Toxoplasmosis
    - Rubella
    - Parvovirus B19
    - Hepatitis B
    - Herpes simplex virus (HSV-1 or HSV-2)
    - HIV-1
- Substance abuse,
- Pregnancy-related conditions which might include:
    - Decreased fetal movement,
    - Oligohydramnios,
    - Polyhydramnios,
    - Intrauterine growth restriction,
    - Post term pregnancy,
    - Fetal cardiac arrhythmias,
    - Fetal chromosomal anomalies,
    - Previous fetal demise (unexplained or recurrent risk),
    - Multiple gestations with significant growth discrepancy.

Individual consideration will be given to extremely high-risk pregnancy for BPP to begin at 24 weeks gestation.

Individual consideration will be given to BPPs performed more often that every seven days.

Blue Cross and Blue Shield of Alabama does not approve or deny procedures, services, testing, or equipment for our members. Our decisions concern coverage only. The decision of whether or not to have a certain test, treatment or procedure is one made between the physician and his/her patient. Blue Cross and Blue Shield of Alabama administers benefits based on the members' contract and corporate medical policies. Physicians should always exercise their best medical judgment in providing the care they feel is most appropriate for their patients. Needed care should not be delayed or refused because of a coverage determination.

Key Points:

In the past, many studies have used fetal biophysical testing, regardless of the underlying pathophysiologic condition. Evidence-based observations have shown that there are different pathophysiologic processed that may place the fetus at risk and that the efficacy of the various

fetal tests depends on the underlying pathophysiologic condition. The pathophysiologic processed that can cause fetal death or damage are decrease uteroplacental blood flow, decreased gas exchange at the trophoblastic membrane level, metabolic processes, fetal sepsis, fetal anemia, fetal heart failure, and umbilical cord accidents. Table II lists the conditions that can be associated with these pathophysiologic processes.

Table II . Maternal/fetal conditions and their underlying pathophysiologic condition

Pathophysiologic process	Maternal/fetal condition
Decreased uteroplacental blood flow	Chronic hypertension
	Preeclampsia
	Collagen/renal/vascular disease
	Most cases of fetal growth restriction (i.e., <32-34 wk)
Decreased gas exchange	Postdates pregnancy, some fetal growth restricted cases (i.e., >32-34 wk)
Metabolic aberrations	Fetal hyperglycemia
	Fetal hyperinsulinemia
Fetal sepsis	PROM
	Intra-amniotic infection
	Maternal fever, primary subclinical intra-amniotic infection
Fetal anemia	Fetomaternal hemorrhage
	Erythroblastosis fetalis
	Parvovirus B19 infection
Fetal heart failure	Cardiac arrhythmia
	Nonimmune hydrops
	Placental chorioangioma
	Aneurysm of the vein of Galen
Umbilical cord accident	Umbilical cord entanglement (monoamniotic twins)
	Velamentous cord insertion/Funic presentation
	Noncoiled umbilical cord
	Oligohydramnios

Indications for Delivery based on the Biophysical Profile:

- BPP<2
- BPP=4 at >32 weeks
- BPP=4<32 weeks; repeat same day; induce if <6
- BPP=6 with normal amnionic fluid index (AFI), >36 weeks with favorable cervix
- BPP=8 with oligohydramnios
- BPP=6 at <36 weeks and cervix unfavorable; repeat in 24 hours; induce if <6; follow if >6

June 2008 Update
No new literature was located that would alter the policy statement.

Key Words:

Biophysical profile, fetal biophysical profile, modified biophysical profile

Approved by Governing Bodies:

Not applicable

Benefit Application:

Coverage is subject to member's specific benefits. Group specific policy will supersede this policy when applicable.

ITS: Home Policy provisions apply
FEP contracts: No special consideration
Pre-certification requirements: Not applicable

Current Coding:

CPT codes:	**76818**	Fetal biophysical profile; with non-stress testing
	76819	;without non-stress testing

References:

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Policy History:

Medical Policy Group, June 2005 **(2)**
Medical Policy Administration Committee, July 2005
Available for comment July 28-September 10, 2005
Medical Policy Group, June 2008 **(1)**
Medical Policy Group, March 2012 **(3)**: **Effective September 14, 2012 this policy is no longer scheduled for regular literature reviews and updates.**
