BlueCross BlueShield of Alabama

Name of Blue Advantage Policy:
Biophysical Fetal Profile

Policy #: 232
Latest Review Date: February 2024
Category: Obstetrics

BACKGROUND:
Blue Advantage *medical policy does not conflict with Local Coverage Determinations (LCDs), Local Medical Review Policies (LMRPs) or National Coverage Determinations (NCDs) or with coverage provisions in Medicare manuals, instructions or operational policy letters. In order to be covered by Blue Advantage the service shall be reasonable and necessary under Title XVIII of the Social Security Act, Section 1862(a)(1)(A). The service is considered reasonable and necessary if it is determined that the service is:*

1. *Safe and effective;*
2. *Not experimental or investigational*;*
3. *Appropriate, including duration and frequency that is considered appropriate for the service, in terms of whether it is:*
   - *Furnished in accordance with accepted standards of medical practice for the diagnosis or treatment of the patient's condition or to improve the function of a malformed body member;*
   - *Furnished in a setting appropriate to the patient's medical needs and condition;*
   - *Ordered and furnished by qualified personnel;*
   - *One that meets, but does not exceed, the patient's medical need; and*
   - *At least as beneficial as an existing and available medically appropriate alternative.*

Routine costs of qualifying clinical trial services with dates of service on or after September 19, 2000, which meet the requirements of the Clinical Trials NCD are considered reasonable and necessary by Medicare. Providers should bill* ***Original Medicare* *for covered services that are related to* ***clinical trials*** *that meet Medicare requirements (Refer to Medicare National Coverage Determinations Manual, Chapter 1, Section 310 and Medicare Claims Processing Manual Chapter 32, Sections 69.0-69.11).*

POLICY:
Blue Advantage will treat **fetal biophysical profile** as a **covered** benefit for patients at or after **32 weeks gestation with an increased risk of fetal demise**. Conditions associated with an increased risk of fetal demise include:

- Hypertensive disorders,
- 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
    - Gestational diabetes
    - 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.
    - Pregnancy conceived with in vitro fertilization

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 than every seven days.

Blue Advantage 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 Advantage administers benefits based on the members' contract and 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.

DESCRIPTION OF PROCEDURE OR SERVICE:
A biophysical fetal profile (BPP) is an ultrasonographic assessment of fetal well-being. During the ultrasound, 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.

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. A nonreactive NST without fetal heart rate decelerations may not indicate fetal jeopardy but may be an indication for further evaluation. This evaluation may include a biophysical profile (BPP).

The modified BPP consists of the nonstress test (NST) and the amniotic fluid index. It can be just as useful for fetal surveillance in patients at increased risk for poor perinatal outcome and small-for-gestational-age infants.

Components of the Biophysical Profile		
Parameter	Normal (Score = 2)	Abnormal (Score = 0)
Nonstress test	Two or more accelerations of at least 15	Fewer than 2 accelerations of

Components of the Biophysical Profile		
Parameter	Normal (Score = 2)	Abnormal (Score = 0)
	bpm above baseline for at least 15 sec in 20 minutes	sufficient height and duration in 20 minutes
Amniotic fluid volume	At least 1 amniotic fluid pocket greater than or equal to 2 cm in vertical pocket or AFI of 5cm	No 2 × 2-cm pockets or AFI <5.0
Fetal breathing movements	1 or more episodes of rhythmic fetal breathing movements 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).		

KEY POINTS:
A literature review was conducted through February 8, 2024.

Summary of Evidence
There are many indications for antepartum fetal surveillance. Common noninvasive tests are non-stress tests (NST) and biophysical profiles (BPP). These tests 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 example, 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 may be indicated. The

evidence is sufficient to determine that the technology results in a meaningful improvement in the net health outcome.

U.S. Preventive Services Task Force
Not applicable

Practice Guidelines and Position Statements
The American College of Obstetricians and Gynecologists
ACOG published a practice bulletin in December 2016 regarding ultrasound in pregnancy. They state that indication for specialized examinations, such as the biophysical profile, include fetal growth restriction and multifetal gestation.

In 2021, ACOG updated Practice Bulletin 229 regarding antepartum fetal surveillance.

- "In growth-restricted fetuses, umbilical artery doppler velocimetry used in conjunction with standard fetal surveillance, such as NSTs or BPPS or both, is associated with improved outcomes (level A evidence)
- Abnormal results from an NST or a modified BPP generally should be followed by additional testing with either a contraction stress test or BPP. (level B evidence)
- Initiating antepartum fetal testing no earlier than 32 0/7 weeks of gestation is appropriate for most at-risk patients. However, in pregnancies with multiple or particularly worrisome high-risk conditions (e.g. chronic hypertension with suspected fetal growth restriction), testing might begin at a gestational age when delivery would be considered for perinatal benefit.
- When the clinical condition that prompted testing persists, the test should be repeated periodically to monitor for continued fetal well-being until delivery. If the maternal medical condition is stable and test results are reassuring, tests of fetal well-being (NST, BPP, modified BPP, or CST) are typically repeated at weekly intervals; however, in the presence of certain high-risk conditions, some investigators have performed more frequent testing, although the optimal regimen has not been established (level C evidence)."

The American College of Radiology
According to the ACR, "The BPP is the mainstay of fetal well-being evaluation and consists of four parameters variably sensitive to the acute exposure of the fetus to hypoxemia….. For those at risk for fetal demise, testing strategies usually evaluate one or more of the fetal well-being parameters at least weekly. For the well-being of those fetuses at highest risk for fetal demise, testing can often occur twice weekly or even daily, from the point of postnatal viability until delivery is indicated."

KEY WORDS:
Biophysical profile, fetal biophysical profile, modified biophysical profile, BPP, fetal well-being

APPROVED BY GOVERNING BODIES:
Not applicable

BENEFIT APPLICATION:
Coverage is subject to the member's specific benefits. Group-specific policy will supersede this policy when applicable.

CURRENT CODING:
CPT codes:

76818	Fetal biophysical profile; with non-stress testing
76819	; without non-stress testing

REFERENCES:

1. American College of Obstetricians and Gynecologists. Committee Opinion: Indications for outpatient antenatal fetal surveillance. Number 828, June 2021.
2. American College of Obstetricians and Gynecologists. Practice Bulletin: Antepartum fetal surveillance. Number 145, July 2014.
3. American College of Obstetricians and Gynecologists. Practice Bulletin: Ultrasound in Pregnancy. Number 175, December 2016.
4. American College of Obstetricians and Gynecologists. Practice Bulletin: Antepartum Fetal Surveillance. Number 229, June 2021.
5. American College of Obstetricians and Gynecologists. Special tests for monitoring fetal well-being. FAQs. Available at: https://www.acog.org/womens-health/faqs/special-tests-for-monitoring-fetal-well-being
6. American College of Radiology. ACR appropriateness criteria. Growth disturbances-risk of fetal growth restriction. https://acsearch.acr.org/docs/69377/Narrative/. Accessed February 19, 2021.
7. Booker W, Fox NS, Gupta S, et al. Antenatal Surveillance in Twin Pregnancies using the Biophysical Profile. J Ultrasound Med. 2015 Nov;34(11):2071-5.
8. Gardner MO and Doyle NM. Asthma in pregnancy. Obstet Gynecol Clin North Am 2004;31(2):385-413.
9. Kontopoulos EV and Vintzileos AM. Condition-specific antepartum fetal testing. Am J Obstet Gynecol 2004; 191(5): 1546-51.
10. IOM (Institute of Medicine). 2011. Clinical Practice Guidelines We Can Trust. Washington, DC: The National Academies Press.

11. Lewis DF, Adair CD, et al. A randomized clinical trial of daily nonstress testing versus biophysical profile in the management of preterm premature rupture of membranes. Am J Obstet Gynecol 1999; 181(6).
12. Manandhar BL, Giri K, Rana A. Fetal biophysical profile score and perinatal outcome. J Nepal Health Res Counc. 2013 Sep; 11(25):269-72.
13. Manning FA, Morrison I, et al. Fetal assessment based on fetal biophysical profile scoring: experience in 12,620 referred high-risk pregnancies. 1985; 151(3): 343-50.
14. Neff MJ. ACOG releases guidelines on management of post-term pregnancy. Am Fam Physician 2004; 70(11): 2221-25.
15. Nageotte MP, Towers CV, et al. The value of a negative antepartum test: Contraction stress test and modified biophysical profile. Obstet Gynecol 1004; 84(2): 231-34.
16. Panting-Kemp A, Nguyen T, Castro L. Substance abuse and polyhydramnios. Am J Obstet Gynecol 2002; 187(3).
17. Rakel: Textbook of Family Practice, 6th ed. 2002 W.B. Saunders Company.
18. Schroeder BM. ACOG practice bulletin on thyroid disease in pregnancy. Am Fam Physician 2002; 65(10): 2158, 2161-62.
19. Schroeder BM. ACOG practice bulletin on diagnosing and managing preeclampsia and eclampsia. Am Fam Physician 2002; 66(2): 330-31.
20. Vandebosche RC and Kirchner JT. Intrauterine growth retardation. Am Fam Physician 1998; 58(6).

POLICY HISTORY:

Adopted for Blue Advantage, August 2005
Available for comment August 30-October 13, 2005
Medical Policy Group, June 2008
Medical Policy Group, September 2012: Effective September 14, 2012, this policy is no longer scheduled for regular literature reviews and updates.
Medical Policy Group, February 2021
Medical Policy Group, February 2022: Reviewed by consensus. No new published peer-reviewed literature available that would alter the coverage statement in this policy.
Medical Policy Group, February 2023: Reviewed by consensus. No new published peer-reviewed literature available would alter the coverage statement in this policy.
Medical Policy Group, August 2023: Added in vitro fertilization to covered indications in policy statement.
UM Committee, December 2023: Policy approved by UM Committee for use for Blue Advantage business.
Medical Policy Group, February 2024
UM Committee, February 2024: Annual review of policy approved by UM Committee for use for Blue Advantage business.

member's plan in effect as of the date services are rendered. All medical policies are based on (i) research of current medical literature and (ii) review of common medical practices in the treatment and diagnosis of disease as of the date hereof. Physicians and other providers are solely responsible for all aspects of medical care and treatment, including the type, quality, and levels of care and treatment.

This policy is intended to be used for adjudication of claims (including pre-admission certification, pre-determinations, and pre-procedure review) in Blue Cross and Blue Shield's administration of plan contracts.