

**WASHINGTON ADVENTIST HOSPITAL
WOMEN'S SERVICES
LABOR AND DELIVERY
COLLABORATIVE PRACTICE STANDARDS**

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Page 1 of 1

Internal Fetal Spiral Electrode Placement

SCOPE: This policy applies to the Labor and Delivery Unit

I. PURPOSE:

The internal FSE (fetal spiral electrode) may be applied in order to obtain a more accurate electronic fetal heart rate and further information regarding the fetal status is required

II. POLICY

A. FSE placement may be performed only if the following conditions exist:

1. Membranes are ruptured; and
2. The presentation is vertex.

B. Contraindications

1. Patient is known to be HIV positive
2. High risk factors of fetal infection including herpes simplex virus and hepatitis B or C virus.

III. BY WHOM:

A LIP (Licensed Independent Provider)

IV. PROCEDURE:

A. Placement

1. A sterile vaginal exam should be performed by a LIP to verifying vertex presentation.
2. FSE should be placed as a sterile procedure.
3. After placement, the electrode should dried and plugged into the monitor cable. The monitor cable will then be attached to the patient using an ECG conductive adhesive electrode.
4. Document the time of the placement.

B. Removal

1. Detach the FSE from the monitor cable and rotate the electrode counter clockwise until it is free.

Reference:

AAP/ACOG 2012. Guidelines for Perinatal Care. 7th Ed.

AWHONN: Fetal Heart Monitoring Principles & Practices. 4th Ed.

**WASHINGTON ADVENTIST HOSPITAL
WOMEN'S SERVICES
POLICY AND PROCEDURE**

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Page 1 of 6

ELECTRONIC FETAL MONITORING

SCOPE: This policy applies to Women's Services

- I. **PURPOSE:** To provide guidelines for fetal heart rate (FHR) monitoring.
- II. **GUIDELINES:** A complete clinical understanding of the FHR necessitates discussion of baseline rate, variability, presence of accelerations, periodic or episodic decelerations, and the changes in these characteristics over time.

When external fetal monitoring (EFM) is used during labor, the nurses and physicians should review it frequently. In a patient without complications, the FHR tracing should be reviewed approximately every 30 minutes in the first stage of labor and every 15 minutes in the second stage. Patients' experiencing complications (i.e. diabetes, fetal growth restriction, preeclampsia) should have their fetal tracing evaluated every 15 minutes in the first stage of labor and every 5 minutes in the second stage. Each evaluation of the tracing should be documented in the patient's medical record.

III. **DEFINITIONS OF FETAL HEART RATE PATTERNS:**

In April 2008, the *Eunice Kennedy Shriver* National Institute of Child Health and Human Development, the American College of Obstetricians and Gynecologists, and the Society for Maternal-Fetal Medicine partnered to sponsor a 2-day workshop to revisit nomenclature, interpretation, and research recommendations for intrapartum electronic fetal heart rate monitoring. The terminology and nomenclature are as follows:

BASELINE

The mean FHR rounded to increments of 5 beats per min during a 10 min segment, excluding:

- Periodic or episodic changes
- Periods of marked FHR variability

There must be at least 2 minutes of identifiable baseline segments (not necessarily contiguous) in any 10-minute window, or the baseline for that period is indeterminate.

BASELINE VARIABILITY

Fluctuations in the FHR baseline of two cycles per min or greater, fluctuations are irregular in amplitude and frequency, fluctuations are visually quantitated as the amplitude of the peak to trough in beats per minute.

Classification of variability:

**WASHINGTON ADVENTIST HOSPITAL
WOMEN'S SERVICES
POLICY AND PROCEDURE**

Effective Date: 6/10
Comments:
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Policy: WWS.9507
Origin:
Approved: 6/10
Page 2 of 6

ELECTRONIC FETAL MONITORING

- Absent = amplitude range undetectable
- Minimal = amplitude range is greater than undetectable to 5 beats/min
- Moderate = amplitude range 6-25 beats/min
- Marked = amplitude range greater than 25 beats/min (bpm)

ACCELERATION

- Abrupt increase in FHR above the most recently determined baseline.
- Onset to peak of acceleration is < 30 seconds, peak is ≥ 15 bpm above the most recently determined baseline and must last ≥ 15 seconds from the onset to the return.
- Before 32 weeks of gestation, accelerations are defined by an acme ≥ 10 bpm above the most recently determined baseline for ≥ 10 seconds.
- At 32 weeks of gestation and beyond, an acceleration has an acme of ≥ 15 bpm above the baseline, with a duration of ≥ 15 seconds but < 2 minutes.
- Prolonged acceleration lasts ≥ 2 minutes but < 10 minutes.
- If an acceleration lasts ≥ 10 minutes, it is a baseline change.

BRADYCARDIA

Baseline fetal heart rate of less than 110 bpm

TACHYCARDIA

Baseline FHR greater than 160 bpm

EARLY DECELERATION

- Gradual decrease in FHR (onset to nadir ≥ 30 seconds) below the most recently determined baseline, with nadir occurring *coincident* with uterine contraction.
- Also considered a periodic pattern.

LATE DECELERATION

- Gradual decrease in FHR (onset to nadir ≥ 30 seconds) below the most recently determined baseline, with nadir occurring *after* the peak of uterine contractions.
- Considered a periodic pattern because it occurs with uterine contractions.

**WASHINGTON ADVENTIST HOSPITAL
WOMEN'S SERVICES
POLICY AND PROCEDURE**

Effective Date: 6/10
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Reviewed:6/10
Revised: 6/10, 4/13

Policy: WWS.9507
Origin:
Approved: 6/10
Page 3 of 6

ELECTRONIC FETAL MONITORING

VARIABLE DECELERATION

- Abrupt decrease in FHR (onset to nadir < 30 seconds).
- Decrease is ≥ 15 bpm below the most recently determined baseline lasting ≥ 15 seconds but < 2 minutes.
- May be episodic (occurs without a contraction) *or* periodic.

PROLONGED DECELERATION

- Decrease in FHR ≥ 15 bpm below the most recently determined baseline lasting ≥ 2 minutes but < 10 minutes from onset to return to baseline.

** Decelerations are tentatively called recurrent if they occur with $\geq 50\%$ of uterine contractions in any 20-minute period. Decelerations occurring with <50% of uterine contractions in any 20-minute segment are defined as intermittent. **

REACTIVE NONSTRESS TEST (NST)

At least two accelerations of the FHR are seen within a 20-minute period. The accelerations must increase in rate above the FHR baseline by at least 15 bpm in a term fetus and last for at least 15 seconds in a term fetus.

NONREACTIVE NST

The above criteria has not been met.

IV. NEW CLASSIFICATION SYSTEM

Fetal Heart Rate tracings are now based on a three-tiered FHR interpretation system. The categorization of the FHR tracings evaluates the fetus at that specific point in time. A FHR tracing may move back and forth between categories depending on the clinical situation and management strategies used.

CATEGORY I (Normal)

- Baseline rate: 110-160 beats/minute
- Baseline FHR variability: moderate
- Early decelerations: present or absent
- Late or variable decelerations: absent
- Accelerations: present or absent

CATEGORY II (Indeterminate)

- Baseline rate:

**WASHINGTON ADVENTIST HOSPITAL
WOMEN'S SERVICES
POLICY AND PROCEDURE**

Effective Date: 6/10
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Policy: WWS.9507
Origin:
Approved: 6/10
Page 4 of 6

ELECTRONIC FETAL MONITORING

- Bradycardia not accompanied by absent baseline variability
- Tachycardia
- Baseline FHR variability:
 - Minimal
 - Absent with no recurrent decelerations
 - Marked
- Periodic or episodic decelerations:
 - Recurrent variable decels accompanied by minimal or moderate variability
 - Prolonged deceleration
 - Recurrent late decels with moderate variability
 - Variable decels with other characteristics such as slow return to baseline, overshoots, or “shoulders”
- Accelerations:
 - Absence of induced accelerations after fetal stimulation

CATEGORY III (Abnormal)

- Absent baseline FHR variability and any of the following:
 - Recurrent late decelerations
 - Recurrent variable decelerations
 - Bradycardia
- Sinusoidal pattern
- Reassuring and non-reassuring are no longer used.

V. NURSING ACTIONS FOR FETAL HEART RATE MONITORING

1. Make every attempt to obtain fetal heart tones for each patient that presents to L&D within 15 minutes of their arrival.
2. Perform Leopold's maneuvers and attempt to locate the fetal back. Position the US lead or Doppler on the area of maximum intensity of the fetal heart sound, usually over the fetal back.
3. Check the maternal pulse while assessing the fetal heart rate to assure you are getting two distinct and separate readings.
4. Snuggly place the toco monitor on the maternal abdomen over the fundal region to document the frequency of uterine contractions.
5. Palpate the uterus, when it is relaxed set the UA button to 20 mmHg (i.e. “zero” the monitor in order to pick up contractions)
6. Fetal well-being is assured with a reactive non-stress test, defined as 2

**WASHINGTON ADVENTIST HOSPITAL
WOMEN'S SERVICES
POLICY AND PROCEDURE**

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Policy: WWS.9507
Origin:
Approved: 6/10
Page 5 of 6

ELECTRONIC FETAL MONITORING

accelerations (that meet criteria of 15 beats above the baseline FHR with a duration of 15 seconds), in a twenty minutes time period. If a patient presents to L&D fetal well-being **must** be assured with a reactive NST before the patient can be discharged. If the patient is <32 weeks the testing must be reassuring for gestational age. Any patient without evidence of fetal well-being for their gestational age requires direct evaluation by the obstetric provider before the patient can be discharged from the labor and delivery unit.

7. If fetal well-being cannot be reassured with NST physician must be notified and further evaluation of the fetal status must take place, i.e. biophysical profile, CST.
8. A persistently FHR tracing requires evaluation of the possible causes. Initial evaluation and treatment may include:
 - a. Discontinuation of any labor stimulating agent, i.e. pitocin, cytotec, cervidil
 - b. IV fluid bolus
 - c. Provide O₂ by facemask at 8-10L/min
 - d. Cervical examination to assess for prolapsed umbilical cord or rapid cervical dilation
 - e. Changing maternal position to the left or right lateral recumbent position, reducing compression on the vena cava and improving utero-placental blood flow
 - f. Monitoring maternal blood pressure for evidence of hypotension, especially in those with regional anesthesia
 - g. Assessment of patient for tachysystole by evaluating uterine contraction frequency and duration
 - h. Promptly alerting the obstetric provider of the non-reassuring changes
9. When non-stress tests are ordered the results should be reviewed by the physician or two RN's. All patients requiring outpatient NST should be instructed on fetal movement counts and given a written copy of instructions to perform and document fetal movement counting.
10. If outpatient NST is deemed non-reactive physician must be notified and further diagnostic tests to confirm fetal well-being (i.e. BPP, CST) should be ordered. A patient should not be discharged from L&D unless fetal well-being can be documented by reliable testing.
11. All outpatient non-stress tests should be reviewed by the obstetrical provider or two RN's within 1 hour of the test completion time. All outpatient NST results should be documented in the patient's record.

**WASHINGTON ADVENTIST HOSPITAL
WOMEN'S SERVICES
POLICY AND PROCEDURE**

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Policy: WWS.9507
Origin:
Approved: 6/10
Page 6 of 6

ELECTRONIC FETAL MONITORING

12. If the tracing quality is erratic further action must be taken to ensure an accurate tracing. Appropriate nursing actions to improve the quality of the EFM tracing include:
- a. If contractions are not evident but the patient is complaining of uterine contractions, abdominal pain, back pain, etc. - palpate the uterus to ascertain the area where the contractions feel the strongest and place the toco transducer over that area. Be sure to zero the toco when the uterus relaxes between contractions.
 - b. Test the toco by pushing on the abdominal transducer button; the digital monitor should display a rise in the number display.
 - c. Consider placing an IUPC if these actions are unsuccessful and the patient's condition warrants. Always confirm the patient does not have any contraindications to IUPC placement before attempting the procedure.
13. If fetal heart rate tracing is not clear or there are gaps in the tracing:
- a. Apply ultrasonic gel to the U/S transducer
 - b. Reposition the U/S transducer as the fetus may have moved and the signal is no longer over the fetal back
 - c. Consider maternal position change to improve the signal.
 - d. Consider placing an internal fetal scalp lead if the condition warrants it and there are no contraindications.
14. Assess the FHR prior to:
- a. Ambulation of patient
 - b. Transfer or discharge of patient
 - c. Before and after AROM or SROM
 - d. Epidural placement (before, during and after)
 - e. Vaginal exam (before and after)
 - f. Administration of pain medication (before and after)

REFERENCES:

American College of Obstetricians and Gynecologists. Intrapartum Fetal heart Rate Monitoring. ACOG Practice Bulletin #106. Washington DC: ACOG; July 2009.

National Institute of Child Health and Human Development Research Planning Workshop (1997). Electronic Fetal Heart Rate Monitoring: Research Guidelines for Interpretation. *American Journal of Obstetrics and Gynecology*, 177, 1385-1390.

The 2008 National Institute of Child Health and Human Development Workshop Report on Electronic Fetal Monitoring: Update on Definitions, Interpretation, and Research Guidelines. *JOGNN*, 37, 510-515; 2008.