McLaren GREATER LANSING

POLICY/ PROCEDURE

SUBJECT: Fetal Heart Rate Monitoring			**NUMBER:** 40.11.06.4
SCOPE: McLaren Greater Lansing			**PAGE 1 of 5**
Origination Date: 9/1999	**Reviewed Date:** 11/2006 12/2009 2/2011 4/2013 4/2016 5/2019 7/2019	**Approved By:** Glenda Cross, RN, MSN Director of Patient Care Services Darcy Tyrrell, BSN, RNC-OB PCM Birthing Center	**SUPERCEDES:**

POLICY

The fetal heart rate (FHR) assessment is indicated for an antepartum woman undergoing surgery, during an illness, after a trauma, or based non-reassuring fetal well-being. During the intrapartum phase, the fetal heart rate is assessed, evaluated, and documented periodically in relationship to uterine activity, including contraction frequency, duration, intensity, and resting tone. The 2008 National Institute of Child Health and Human Development (NICHD) terminology is used when describing characteristics of the FHR on an electronic fetal tracing. The method and period of FHR monitoring will be determined by the maternal/fetal risk factors, stage of labor, augmentations to labor, physician, and patient. It is recommended that all monitors be connected to central display screens on the unit.

DEFINITIONS

The following terms have been defined by the National Institute of Child Health and Human Development.

1. **Baseline:** Baseline is the approximate average (mean) FHR, rounded to increments of 5 beats per minute (bpm) during a 10-minute segment, and is documented as a single number. The baseline excludes periodic or episodic changes, periods of marked variability, and segments of the baseline that differ by greater than 25 bpm.
    a. There must be at least 2 minutes of identifiable baseline (not necessarily continuous) in any 10-minute segment, or the baseline for that period would be indeterminate. If this is the case, the baseline may be determined from a previous 10-minute segment.
2. The **normal range** of the baseline is 110 to 160 bpm.
3. **Bradycardia:** A baseline FHR less than 110 bpm
4. **Tachycardia:** A baseline FHR greater than 160 bpm
5. **Variability:** Variability refers to fluctuations in the baseline that are irregular in amplitude and frequency. The fluctuations are visually quantitated as the amplitude from peak-to-trough (high to low) in beats per minute as follows:
    a. **Absent Variability:** Amplitude range undetectable
    b. **Minimal Variability:** Amplitude range just more than undetectable and less than or equal to 5 bpm
    c. **Moderate Variability:** Amplitude range 6 bpm to 25 bpm
    d. **Marked Variability:** Amplitude range greater than 25 bpm
6. **Acceleration:** Acceleration is a visually apparent, abrupt increase above the baseline. The onset of the acceleration to its peak is less than 30 seconds. The increase is calculated from the most recently determined portion of the baseline. The peak is 15 bpm or more, and lasting 15 seconds or longer but less than 2 minutes from onset to baseline**.**

a. **Before 32 weeks of gestation**, accelerations are defined as visually apparent, abrupt increases above the baseline. The onset of the acceleration to its peak is less than 30 seconds. The increase is calculated from the most recently determined portion of the baseline. The peak is 10 bpm or more, and a duration of 10 seconds or longer.

b. **Prolonged acceleration** lasts 2 minutes or longer but less than 10 minutes. If the acceleration's duration is 10 minutes or longer, it is considered a baseline change.

7. **Decelerations**
   a. **Early deceleration** is a visually apparent, gradual decrease, defined as the onset of the deceleration to the nadir (lowest point), 30 seconds or longer, associated with a uterine contraction. Generally, the nadir of the deceleration occurs at the same time as the peak of the contraction.
   b. **Late deceleration** is a visually apparent, gradual decrease, and return to baseline FHR associated with a uterine contraction. The timing of the onset to nadir is 30 seconds or longer. The deceleration is delayed in timing so that the nadir of the deceleration occurs after the peak of the contraction.
   c. **Variable deceleration** is a visually apparent, abrupt decrease in FHR below the baseline. The time from onset of the deceleration to the beginning of the nadir is less than 30 seconds. The decrease below the baseline is 15 bpm or more, lasting 15 seconds or more, but less than 2 minutes.
   d. **Prolonged deceleration** is a visually apparent decrease in FHR below the baseline. The decrease from the baseline is 15 bpm or more and lasting 2 minutes or longer but less than 10 minutes from onset to return to baseline. If the deceleration lasts more than 10 minutes, it is considered a baseline change.

PROCEDURE

Initiating External Monitoring

1. Upon admission
   a. Initiate external fetal monitor (EFM) with gel applied over area of anticipated maximum intensity (usually over the fetal back). Fetal position can be determined with Leopold Maneuvers.
   b. Differentiate fetal heart rate from maternal pulse.
   c. Position tocodynamometer over the uterine fundus; Press "UA Reference" to ensure a baseline is established. Do not press during a contraction.
   d. Obtain a minimum of 20 minutes of continuous monitoring to assess fetal well-being and uterine activity.

Fetal Monitoring

1. Fetal heart rate monitoring for low-risk patients may be intermittent auscultation, intermittent EFM or continuous EFM:
   a. Auscultate or interpret and document tracing every hour during the latent phase of labor (<6 cm dilation).
   b. Auscultate or interpret and document tracing every 30 minutes during the active phase of labor (≥ 6cm dilation).
   c. Auscultate or interpret and document tracing every 15 minutes during passive second stage of labor (laboring down)
   d. Auscultate or interpret and document tracing every 15 minutes during the second stage of labor (pushing)
2. Fetal heart rate monitoring for high-risk patients:
   a. Interpret and document tracing every 30 minutes during the latent phase of labor (<6 cm dilation).
   b. Interpret and document tracing every 30 minutes during the active phase of labor (≥ 6cm dilation).
   c. Interpret and document tracing every 15 minutes during passive second stage of labor (laboring down) Interpret and document tracing every 15 minutes during the second stage of labor (pushing).

3. Fetal heart rate monitoring for patients receiving Oxytocin:
   a. Interpret and document tracing every 15 minutes during the latent phase of labor (<6 cm dilation).
   b. Interpret and document tracing every 15 minutes during the active phase of labor (≥ 6cm dilation).
   c. Interpret and document tracing every 15 minutes during passive second stage of labor (laboring down)
   d. Interpret and document tracing every 5 minutes during the second stage of labor (pushing).

4. Fetal heart rate monitoring for cervical ripening via Cervidil
    a. Obtain a minimum of 20 minutes of continuous monitoring to assess fetal well-being and uterine activity
    b. After Cervidil is placed, the patient is to remain recumbent for 30 minutes with continuous fetal monitoring
    c. Interpret and document tracing every hour while Cervidil is inserted

Wireless Fetal Monitoring

a. Criteria: Term, FHT category I, singleton pregnancy
b. Patient must be still for approximately 15 minutes after placement of the monitor patches and battery pack
c. If the FHTs are not tracing consistently, try replacing the patches (only attempt twice)
d. If the FHTs change from category I to category II:
    i. If not persistent category II, watch the patient closely
    ii. If persistent category II, switch to external fetal monitor
    iii. If FHTs are tracing intermittently, switch to the external fetal monitor

See Attachment 1 for Fetal Monitoring Summary

Interpretation and documentation of FHR

NICHD Fetal Heart Rate Classification			
	Category I (includes all of the following criteria)	**Category II** (includes any of the following criteria)	**Category III**
Baseline rate	110-160 BPM	Bradycardia without absent baseline variability	Absent variability WITH any of the following: • bradycardia • recurrent late decelerations • recurrent variable decelerations Or Sinusoidal pattern
		Tachycardia	
Baseline FHR variability	Moderate	Minimal	
		Absent, without recurrent decelerations	
		Marked	
Late or variable decelerations	Absent	Recurrent variable decelerations with minimal or moderate variability	
		Prolonged deceleration >2min but <10 min	
		Recurrent late decelerations with moderate variability	
		Variable decelerations with other characteristics such as slow return to baseline, overshoots, or "shoulders"	
Early decelerations	Present or absent		
Accelerations	Present or absent	Absence of induced accelerations after fetal stimulation	

1. Uterine activity is assessed concurrently with FHR activity, noting the following:
    a. Frequency of contractions
    b. Duration of contractions
    c. Intensity of contractions
    d. Uterine resting tone, if utilizing an intrauterine pressure catheter.
2. **Key Note:** When using external monitoring equipment for evaluation of uterine activity, evaluation of contraction intensity and uterine resting tone is done by palpation.
3. Assess and Document FHT's prior to:
    a. Ambulation of patient
    b. Transfer or discharge of patient
    c. Initiation of any augmentation or induction procedures
    d. Administration of medications

4. Assess and Document FHT's immediately following:
    e. Admission of patient
    f. Artificial or spontaneous rupture of membranes
    g. Vaginal examinations or fetal stimulation
    h. Ambulation of patient
    i. Abnormal uterine activity
    j. Initiation or increase of oxytocin
    k. Any invasive procedure, such as internal uterine pressure (IUPC) monitor

Fetal Scalp Electrode

1. Placement to be by physician if deemed necessary to monitor fetal well-being.
2. Fetal heart tones will present on electronic fetal monitoring strip and will be evaluated in the same fashion as the external fetal monitoring.

Fetal Heart Rate: Auscultation

1. Auscultate the FHR for 30–60 seconds between contractions to determine FHR baseline, during a contraction, and for 30-60 seconds after a contraction. Check maternal pulse rate to differentiate from the FHR.
2. Interpretation and documentation of FHR includes the following:
    a. Baseline rate and variability
    b. Presence/ Absence and type of decelerations
    c. Presence/ Absence of accelerations
    d. Category I, II, or III
3. Assess and document at the following intervals for low-risk patients
    a. Every 30 minutes during the active phase of the first stage of labor
    b. Every 15 minutes during the active pushing phase of the second stage of labor.

Interventions

The following interventions are performed to correct the underlying cause of alterations in the FHR and/ or abnormal uterine activity.

Goal	Associated Fetal Heart Rate Abnormality	Potential Intervention (s)
Promote fetal oxygenation and improve uteroplacental blood flow	Recurrent late decelerations	Initiate lateral positioning (either left or right)
	Prolonged decelerations or bradycardia	Administer maternal oxygen administration
	Minimal or absent fetal heart rate variability	Administer intravenous fluid bolus
		Reduce uterine contraction frequency
Reduce uterine activity	Tachysystole with Category II or III tracing	Discontinue oxytocin or cervical ripening agents
		administer tocolytic medication (eg, terbutaline)
Alleviate umbilical cord compression	Recurrent variable decelerations	Initiate maternal repositioning
	Prolonged decelerations or bradycardia	Initiate amnioinfusion
		If prolapsed umbilical cord is noted, elevate the presenting fetal part while preparations are underway for operative delivery

References:

ACOG (2012) Guidelines for Perinatal Care (7th Ed.)

AWHONN. (2015) Fetal heart monitoring principles and practices, 5th Ed. Kendall/Hunt

Attachment 1

MATERNAL AND FETAL MONITORING DURING INTRAPARTUM PERIOD

	LATENT PHASE: < 6cm			ACTIVE PHASE: > 6 cm			SECOND STAGE: LABORING DOWN		SECOND STAGE: PUSHING	
Patient Type	**BP/P/R/ Pain**	**Temp**	**FHT/UA**	**BP/P/R/ Pain**	**Temp**	**FHT/UA**	**BP/P/R/Pain**	**FHT/UA**	**BP/P/R/Pain**	**FHT/UA**
Cervidil	On insert and every 4 hrs	On insert and every 4 hrs	Continuous monitoring while inserted; document every hour							
Oxytocin ***	Q1 hour or as ordered	ROM: Q2 hrs Intact: Q4 hrs	Continuous monitoring; document every 15 min and when increasing or decreasing rate	Q1 hour or as ordered	ROM: Q2 hrs Intact: Q4 hrs	Continuous monitoring; document every 15 min and when increasing or decreasing rate	Q1 hour or as ordered	Continuous monitoring; document every 15 min	Q1 hour or as ordered	Continuous monitoring; document every 5 min
Cytotec	Q2 hrs	ROM: Q2 hrs Intact: Q4 hrs	Continuous monitoring; document every 30 min	Q2 hrs	ROM: Q2 hrs Intact: Q4 hrs	Continuous monitoring; document every 30 min	Q2 hrs	Continuous monitoring; document every 15 min	Q2 hrs	Continuous monitoring; document every 5 min
VBAC	Q4 hrs	ROM: Q2 hrs Intact: Q4 hrs	Continuous monitoring; document every 30 min	Q2 hr	ROM: Q2 hrs Intact: Q4 hrs	Continuous monitoring; document every 30 min	Q2 hr	Continuous monitoring; document every 15 min	Q2 hr	Continuous monitoring; document every 5 min
Low Risk Labor	Q4 hrs	ROM: Q2 hrs Intact: Q4 hrs	Assess and document every 30 min	Q2 hr	ROM: Q2 hrs Intact: Q4 hrs	Assess and document every 30 min	Q2 hr	Assess and document every 15 min	Q2 hr	Assess and document every 15 min
High Risk Labor	Q4 hrs or as ordered	ROM: Q2 hrs Intact: Q4 hrs	Continuous monitoring; document every 30 min	Q1 hr or as ordered	ROM: Q2 hrs Intact: Q4 hrs	Continuous monitoring; document every 30 min or sooner if indicated	Q1 hr or as ordered	Continuous monitoring; document every 15 min	Q1 hr or as ordered	Continuous monitoring; document every 5 min
Epidural	BP/P/R/O2 sat Q2min x2 after test dose, then Q5 min x3, then Q15 min x2, then Q30 min until delivery			Q30 min	ROM: Q2 hrs Intact: Q4 hrs	Q30 min	Q30 min	Q15 min	Q30 min	Q5 min

Oxytocin *: No change in infusion rate, assessment and documentation will occur every 30 minutes during 1st stage and every 15 minutes during 2nd stage**