Alameda Health System

MCH FETAL MONITORING

Department	Maternal Child Health	***Effective Date***	10/2013
Campus	Highland	***Date Revised***	8/2013, 8/2015, 3/2016
Unit	Labor and Delivery	***Next Scheduled Review***	3/2019
Manual	Maternal Child Health	***Author***	Director of Nursing, MCH
Replaces the following Policies:		***Responsible Person***	VP, Patient Care Services Chair, Maternal Child Health

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Purpose

Fetal heart rate patterns may indicate fetal well-being as well as the status of fetal oxygenation. Consistent employment of monitoring techniques and standardized terminology may lead to more accurate interpretation of fetal heart rate patterns. The two methods of fetal surveillance accepted by the American College of Obstetrician Gynecologists (ACOG), the American College of Nurse Midwives (ACNM), and the Association of Women's Health, Obstetric, and Neonatal Nurses (AWHONN) are intermittent auscultation (IA) and continuous electronic fetal monitoring (CEFM).

Alameda Heath System will offer low risk women the choice of IA or CEFM.

Intermittent Auscultation

Intermittent auscultation (IA) is a method of fetal surveillance that involves listening and assessing the fetal heart rate (FHR). This method of surveillance allows for greatest mobility of women in labor. To date, IA has been shown through randomized control trials to have equivalent neonatal outcomes compared to continuous fetal monitoring for women in low risk populations[1]. Additionally, IA has been shown to decrease a woman's chances of having a cesarean section or instrumental vaginal birth[1]. IA is a reasonable and appropriate choice for fetal surveillance for appropriate low risk women in labor.

Deciding on the Appropriate Method of Monitoring

The Patient's Role

All low-risk patients should be offered IA. In the absence of clinical risk factors, the patient can decide whether IA is right for her labor.

The Nurse's Role

The ability to use IA will be part of the standard skill set of all nurses taking care of laboring patients at Highland Hospital. The nurse has the responsibility to decline to use IA if unit patient assignment does not permit adherence to IA

protocol. In these cases the nurse should let the provider know in a timely fashion that the IA protocol cannot be adhered to. The nurse can advocate for IA in a patient who qualifies for it, and notify the provider of any change in patient status that indicate CEFM is required.

The Provider's Role

On admission the provider will evaluate the initial fetal monitoring tracing and the patient's risk factors and decide whether the patient is appropriate for IA. All low risk women should be offered IA and counseled regarding the advantages and disadvantages.

Indications

Admission/Triage monitoring:

Upon admission or presentation to triage, all patients greater than 24 weeks gestation are monitored for a minimum of 20 minutes. The tracing should be continuous until Category I (if greater than 28 weeks). Patients less than 24 weeks may have Doppler check for presence and rate of fetal heart tones. Patient refusal to be monitored must be documented.

Antepartum monitoring (patient not in labor):

Antepartum fetal monitoring should be individualized for each patient dependent on condition and risk factors.

If CEFM is used and the tracing does not meet Category I criteria, the strip will be shown to the attending OB physician at the time of identification.

Labor monitoring: Intermittent Auscultation

Intermittent Auscultation should be performed:

1. After admission of a patient
2. Before and after medication administration
3. Before and after artificial rupture of membranes
4. After ambulation
5. After vaginal examinations
6. After abnormal uterine activity patterns, e.g. increased basal tone or increase of number of contractions

7. After any abnormal event in a labor, e.g. maternal hypotension

Labor Monitoring: Continuous Monitoring

CEFM will be used in patients with risk factors precluding them from having IA or in patients who may be low risk but request CEFM. The FHR tracing is assessed and documented at minimum every 15 minutes during active labor and assessed every 5 minutes during the second stage.

Cesarean Sections: Continuous Monitoring:

Scheduled surgery, non-emergent

1. Continuous EFM for at least 30 minutes during admission assessment. If not Category I, then monitoring should be continuous.
2. Continuous EFM in operating room (OR) until abdominal prep.

Unscheduled, non-emergent

1. Continuous EFM until transfer to OR.
2. Continuous EFM in OR until abdominal prep.

Unscheduled, emergent

1. Continuous EFM until transfer to OR.
2. Continuous external EFM in OR until abdominal prep, or
3. Continuous internal EFM with fetal scalp electrode in OR until surgical prep is completed.

Candidates for Intermittent Auscultation

1. Healthy, full term, singleton, pregnant patients.

2. Women with the **absence** of obstetric or medical risk factors, including but not limited to:
    a. Meconium
    b. Maternal fever
    c. Hypertensive disorder on medication
    d. Vaginal bleeding in excess of bloody show
    e. History of previous stillbirth
    f. Intrahepatic cholestasis of pregnancy
    g. Prior cesarean section
    h. Multiple gestation
    i. Non-vertex presentation
    j. Diabetes requiring medication
    k. Documented IUGR $<10^{th}$ percentile

l. Active drug use
m. Maternal medical disease
n. Oligohydramnios or polyhydramnios
o. Decreased fetal movement
p. Prematurity < 36 weeks
q. Post maturity >42 wks
r. IVF conceived pregnancy
s. Fetal heart block
t. Known congenital anomaly

3. Absence of use of oxytocin or epidural; absence of prostaglandin administration within 2 hours.

The following ARE NOT exclusions to IA:

1. Injectable, intravenous, or inhaled analgesic administration

2. Rupture of membranes at term with clear fluid, regardless of duration

Frequency of Auscultation:

1. First stage, latent phase: at least every 60 minutes.

2. First stage, active phase: at least every 30 minutes.

3. Second stage: at least every 15 minutes.

Move to continuous electronic fetal monitoring (CEFM) for any of the following findings:

1. Inability to clearly auscultate the FHR

2. Baseline bradycardia (FHR<110 bpm for ≥10 minutes) or tachycardia (FHR>160 bpm for ≥10 minutes)

3. Presence of decelerations

4. Abnormal fetal heart rate patterns unresponsive to repositioning

5. Development of any exclusionary criteria in labor

6. Acuity of unit precludes adherence to IA protocol

Documentation for IA

Documentation in the medical record should include the following components:

1. Baseline FHR

2. Change in FHR rate

3. Nature of change (gradual or abrupt)

4. Rhythm (note only if irregular)

5. Type of monitoring used (Doppler)

6. Uterine activity

7. Fetal heart rate will be documented as normal or indeterminate:

8. "Normal FHR characteristics are associated with a well oxygenated fetus at the time they are observed. Indeterminate auscultated FHR characteristics include all findings that are not classified as normal."[4]

9. Communication with provider regarding FHR, if any

Continuous Electronic Fetal Monitoring

CEFM is either internal or external electronic monitoring with continuous tracing, with frequency of assessment based on risk status of patient, or, in low-risk patients, stage of labor.

1. Continuous EFM consists of no break in electronic monitoring of continuous tracing, with the exceptions of:
    a. Bathroom privileges (BRP) as ordered by provider.
    b. During epidural placement, when all efforts will be made to trace fetal heart rate during the procedure.
    c. Transfer of patient to operating room for cesarean section, whereupon tracing will resume until abdominal prep.
    d. Transfer of patient for procedures off the labor and deliver (L&D) unit on provider order, and resume continuous EFM as soon as possible or on return to L&D unit.
    e. Removal for bedside ultrasound or other procedures or interventions, resuming continuous EFM when ultrasound or procedure is complete.

2. For low-risk patients not undergoing IA, frequency of assessment via CEFM is as follows:
    a. Latent phase, < 4 cm: at least hourly
    b. Latent phase, 4 – 5 cm: every 30 minutes
    c. 1st stage, active phase ≥ 6 cm: at least every 30 minutes
    d. 2nd stage, passive descent: every 15 minutes
    e. 2nd stage, active pushing: at least every 15 minutes

3. For patients with risk factors or exogenous oxytocin, minimum frequency of assessment via CEFM is as follows:
    a. Latent phase, < 4 cm: every 15 minutes with oxytocin; every 30 minutes without oxytocin
    b. Latent phase, 4 – 5 cm: every 15 minutes
    c. 1st stage, active phase ≥ 6 cm: every 15 minutes
    d. 2nd stage, passive descent: every 15 minutes
    e. 2nd stage, active pushing: every 5 minutes

4. Frequency of assessment should always take into consideration maternal-fetal condition and at times will need to occur more often based on maternal-fetal clinical needs, for example, a temporary or ongoing change in maternal or fetal status.

5. Monitoring should also be performed:
    a. Before and after medication administration
    b. Before and after artificial rupture of membranes
    c. After ambulation

Reportable Conditions: (Notify the provider)

Admission

1. Absent variability of 20 minutes duration. Physician should be notified immediately if accompanied by decelerations or patient report of decreased or absent fetal movement.

2. Minimal variability persisting for up to 40 minutes. Provider should be notified sooner if accompanied by decelerations.

3. Persistent Category II tracing that is not resolving to a Category I with nursing interventions.

4. Any Category III tracing.

5. Patient refuses fetal monitoring.

6. Fetal heart tones not detectable.

7. Inability to monitor due to gestational age, position, or maternal factors such as obesity, abdominal pain, or intact membranes (for FSE).

8. Placement of FSE.

Intrapartum

1. Prolonged deceleration(s).

2. Fetal bradycardia.

3. Fetal tachycardia, whether fever is present or not.

4. Persistent Category II tracing that is not resolving to a Category I with nursing interventions.

5. Category III tracing.

6. Patient refuses fetal monitoring.

7. Fetal heart tones not detectable.

8. Inability to monitor due to gestational age, position, or maternal factors such as obesity, abdominal pain, or intact membranes (for FSE).

9. Placement of FSE.

Antepartum

1. Prolonged deceleration(s).

2. Fetal bradycardia.

3. Fetal tachycardia, whether fever is present or not.

4. Patient refuses fetal monitoring.

5. Fetal heart tones not detectable.

6. Inability to monitor due to gestational age, position, or maternal factors such as obesity, or abdominal pain.

<u>Interpretation of CEFM:</u>

1. Baseline FHR
    a. Ranges between 110-160 beats per minute (bpm) and should be assessed between contractions over a ten minute period of time.
    b. A visual interpretation of the mean FHR rounded to 5 bpm and expressed as a single number. Determined during a 10 minute segment, excluding periodic or episodic changes and periods of marked variability.
    c. There must be at least two minutes of identifiable baseline segments, not necessarily together in any 10 minute window.

2. Variability
    a. Fluctuations in the baseline FHR of 2 cycles per minute or greater.
    b. Absent: amplitude from peak to trough is undetectable.
    c. Minimal: amplitude from peak to trough greater than undetectable and less than or equal to 5 bpm.
    d. Moderate: amplitude from peak to trough 6-25 bpm.
    e. Marked: amplitude from peak to trough greater than 25 bpm.

3. Periodic or episodic changes
    a. Accelerations
        i. Visually apparent abrupt increases in FHR on EFM, or audible increase in FHR with auscultation.
        ii. At more than 32 weeks gestation, ≥ 15 bpm for ≥ 15 seconds and <2 minutes duration.
        iii. At 32 weeks or less gestation, ≥ 10 bpm for ≥ 10 seconds and < 2 minutes, unless fetus has demonstrated a 15 x 15 pattern previously.
        iv. Prolonged acceleration is ≥ 2 minutes but < 10 minutes.
    b. Decelerations
        i. Early ─ visually apparent, gradual (≥ 30 sec from onset to nadir) decreases in the FHR with the onset, nadir and recovery mirroring the contraction.
        ii. Late ─ visually apparent, gradual (≥ 30 sec from onset to nadir) decreases in the FHR that are delayed in timing with the onset, nadir and recovery after the onset, peak, and recovery of the contraction.
        iii. Variable ─ visually apparent, abrupt (< 30 sec from onset to nadir) decreases in the FHR that may or not be related to a contraction. Vary in shape, depth, and duration.
        iv. Prolonged ─ visually apparent decreases in the FHR dropping at least 15 bpm below baseline, and lasting at least 2 minutes but less than 10 minutes.
    c. Sinusoidal pattern
        i. Visually apparent undulating smooth, sine wave-like pattern of the FHR.
        ii. Cycle frequency of 3-5 per minute for at least 20 minutes.

<u>Three-Tier Fetal Heart Rate Interpretation System</u>

Per the last NICHD guidelines (2008) the following terminology will be used in the interpretation of the fetal heart rate:

1. **Category I Tracings**
    a. Category I FHR tracings include all of the following:

i. Baseline rate: 110-160 bpm.
ii. Baseline FHR variability: moderate.
iii. Late or variable decelerations: absent. iv. Accelerations: present or absent.

2. Category II Tracings

a. Category II FHR tracings include all FHR tracings not categorized as Category I or Category III.
b. Category II tracings may represent an appreciable fraction of those encountered in clinical care. Examples of Category II tracings include, but are not limited to, any of the following:
   i. Baseline rate:
      - Bradycardia not accompanied by absent baseline variability.
      - Tachycardia.
   ii. Baseline FHR variability:
      - Minimal baseline variability.
      - Absent baseline variability not accompanied by recurrent decelerations.
      - Marked baseline variability. iii. Accelerations:
      - Absence of induced accelerations after fetal scalp stimulation.
   iv. Periodic or episodic decelerations
      - Recurrent variable decelerations with minimal or moderate baseline variability.
      - Recurrent late decelerations with moderate or minimal baseline variability.
      - Prolonged deceleration > 2 minutes but < 10 minutes.
      - Variable decelerations with other characteristics, such as slow return to baseline.

3. Category III Tracings

a. Category III FHR tracings include absent baseline FHR variability and any of the following:
   i. Recurrent late decelerations.
   ii. Recurrent variable decelerations. iii. Bradycardia.
   iv. Sinusoidal pattern.

<u>Documentation of CEFM:</u>

A complete description of a CEFM tracing requires documentation of the following in the medical record:

1. Uterine contractions (UC).
2. Baseline FHR.
3. FHR variability.
4. Presence of accelerations.
5. Periodic or episodic decelerations.
6. Changes in trends of FHR patterns over time.
7. Type of monitoring used.
8. Patient teaching and response, patient reasons for refusing monitoring.
9. Category of tracing.
10. Communication with provider.

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Approvals

Departmental	**Date: 3/2016**
Clinical Practice Council	**Date: 4/2016**
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