Sample Doula-Friendly Fetal Monitoring Policy and Procedure Manual

This sample fetal monitoring policy and procedure manual is part of a set of materials on doula support and doula-friendliness, including the Hospital Doula-Friendliness Guidebook available at nyc.gov/health/doula. You can use this sample and adapt it to your institution's needs while taking all steps to ascertain that any information you use is correct and has been verified by your institution.* This sample was adapted for formatting and removing identifying information from an actual fetal monitoring policy and procedure manual created and provided by a participating hospital.

Policy and Procedure Manual†

Subject: Fetal Monitoring

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† This manual was developed with reference to the following resources: awhonn.org/nurse-resources/fetal-heart-monitoring-resources and acog.org/clinical/clinical-guidance/practice-bulletin/articles/2009/07/intrapartum-fetal-heart-rate-monitoring-nomenclature-interpretation-and-general-management-principles.

I. **Purpose**

To provide guidelines to the medical and nursing staff for performance of intermittent auscultation or continuous electronic fetal heart rate monitoring and interpretation.

II. **Policy**

1. The medical and nursing staff will assess and interpret fetal heart rate recorded by electronic fetal monitor in labor and delivery, antepartum unit, fetal evaluation unit, and non-obstetric units.
2. The nursing staff will account for all fetal monitor strips regardless of gestational age upon discharge or transfer in labor and delivery, antepartum unit, fetal evaluation unit, and non-obstetric units.

A. Indications:

1. External fetal monitoring is used routinely for patients in labor and delivery, antepartum unit, fetal evaluation unit, and non-obstetric units.
2. Internal monitoring may be used for patients in labor and delivery.
3. Intermittent auscultation by fetoscope or Doppler may be used for low-risk patients as determined by the provider.

B. Contraindications:

1. Internal monitoring should be avoided in patients with:
    - Active genital or cervical herpes
    - High presenting fetal part
    - HIV or AIDS

Procedure: Responsible Staff	**Action To Be Performed**
Attending Physician	1. Places an order for monitoring in the EMR. o This fetal monitoring order may include concurrent maternal pulse monitoring and may be either continuous or intermittent (which requires obtaining an initial 20 minutes of a NICHD Category I Tracing). 2. Explains electronic fetal monitoring to the patient, including its indications, benefits, risks and alternatives. 3. If the patient declines to be monitored, documents reinforced explanation and patient response and completes the refusal of treatment forms with the patient. 4. Determines whether fetal cardiac monitoring will be internal or external and whether uterine activity will be via external tocodynamometer (TOCO) or internal uterine pressure catheter (IUPC).
Registered Nurse	1. Checks physician order. 2. Explains electronic fetal monitoring, its indication and benefits to the patient before application, and answers the patient's questions. 3. Verifies two patient identifiers. 4. If the patient declines electronic fetal monitoring, informs the physician and signs and witnesses refusal of treatment form.

Procedure: Responsible Staff	Action To Be Performed
	External Fetal Heart Rate Monitoring ("Doppler") An ultrasound transducer (Doppler) placed on the patient's abdomen conducts the sounds of the fetal heart to an electronic fetal monitor. The rate and pattern of the fetal heart are displayed on the attached screen and printed onto special graph paper (fetal monitor paper) with a paper speed of 3 centimeters per minute. Note that the FHR value shows on the monitor's display and the FHR tracing appears on the top (or left) grid of the chart paper strip.
Registered Nurse	a. Places patient in semi-Fowler's position with abdomen exposed, with a belt under the patient. b. Determines the position of the fetus using Leopold's maneuvers. c. Plugs the ultrasound transducer into the ultrasound connector. d. Applies a small amount of ultrasonic coupling gel to the transducer face. e. Places the transducer face down on the maternal abdomen. f. Repositions the transducer as necessary until clearest heart sound is heard through the speaker. g. Adjusts the volume using the monitor's volume control. h. Secures the transducer to the belt, maintaining heart sounds. i. Three to five seconds after a clear heart sound is heard, verifies that the heartbeat indicator (♥) flashes synchronously with the sound indicating signal acceptance and recording.
	Tocodynamometer The tocotransducer provides relative pressure measurements compared to a baseline (UA reference). The quality of these measurements depends on each of the following: • Position of the tocotransducer • Belt tension • Size of the patient
Registered Nurse	a. Inserts the tocodynamometer external transducer cable into monitor's UA connector. b. Positions the tocotransducer on the maternal abdomen over the uterine fundus, or where there is the least maternal tissue and where the contractions are strongly detected by palpation. o Secures with an elastic belt, ensuring a comfortable fit, which holds the transducer securely in place. c. Adjusts belt tension so that, between contractions, the UA display shows approximately 25 relative units above the initial baseline. d. After the belt is adjusted, establishes a baseline for the belt pressure. o Sets (or resets) the baseline by pressing the UA Reference button between contractions. o Allows the patient to assume a comfortable position, which avoids vena caval compression. Patient may or may not be allowed to get out of bed with continuous external fetal monitoring.

Procedure: Responsible Staff	Action To Be Performed
	Internal fetal monitoring electrode:
Registered Nurse	a. Places the patient in the dorsal lithotomy position and prepares the perineal area for a vaginal examination. b. Instructs the patient to breathe through their mouth and to relax their abdominal and perineal muscles. c. Assists the physician during the procedure.
Attending Physician	d. If the amniotic sac is still intact, may break open the membranes with a suitable device. e. Feels the part of the fetus at the cervical opening (usually the fetal head) with gloved fingers. f. A long, plastic electrode containing a guide will be inserted into the patient's vagina. o A small spiral wire at the end of the electrode will be placed against the fetal part and gently rotated clockwise into the fetal skin. g. The guide will be removed, and the electrode will be left in place, attached to the fetal part. h. Once the baby is born, the electrode can be removed by grasping the electrode wire as close to the fetal presenting part as possible, twisting it counterclockwise until freed from the presenting part.
Registered Nurse	i. Connects the attachment pad to the underside of the legplate by pushing them together until they snap in place. j. Removes the protective backing from the pad. k. Applies the attachment pad and legplate to the desired site, using fingers to press it securely in place. l. Wipes clean the attachment end of the applied spiral electrode before inserting it into the legplate. o Makes certain the plug is fully inserted into the mating receptacle of the legplate. m. Plugs the legplate into FECG connector on the monitor. o Note that the FHR value shows on the monitor's display and the FHR tracing appears on the top (or left) grid of the strip chart paper.

Procedure: Responsible Staff	Action To Be Performed
Attending Physician	**Internal Uterine Pressure Catheter Monitoring:** a. Identifies the fetal presenting part to determine the optimal position for placement. b. Inserts the IUPC introducer and catheter through the vagina. c. Removes the introducer.
Registered Nurse	**Internal Monitoring of Uterine Activity (IUPC):** 1. Assists the physician during the procedure. 2. Places the patient in the dorsal lithotomy position and prepares the perineal area for a vaginal examination. 3. Instructs the patient to breathe through their mouth and to relax their abdominal and perineal muscles. 4. Prior to connecting to the electronic fetal monitor, zeroes the system, referencing the pressure to 0 mmHg while the system is open to air, to ensure an absolute pressure measurement. a. Note: If the patient is disconnected from the monitor, all zeroing information is lost. Re-zero the monitor when: i. Reconnecting the patient to the monitor ii. The patient's position has changed, significantly altering the baseline iii. The message "CHECK IUP" flashes in the UA display area, indicating that there is insufficient compensation to provide 100 mmHg above the reference level iv. A negative value is displayed (indicating pressure less than 0 mmHg). If a negative value occurs for more than 20 seconds, the message "BASELINE PRESSURE OFFSCALE" will appear on the bottom grid on the chart paper 5. Attach the IUPC to the intrauterine pressure transducer cable.

Procedure: Responsible Staff	Action To Be Performed
Registered Nurse	**Maternal Pulse Monitoring** An electronic monitor capable of monitoring maternal heart rate for comparison to FHR. Maternal heart rate monitoring may be indicated when the FHR pattern is uncertain or similar to the maternal heart rate, which may suggest that the equipment intended to determine the fetal heart rate may instead be detecting the maternal heart rate.

Registered Nurse	**Response to Alarm** • Alarms must be attended to and addressed promptly, regardless of the reason for them. • Respond to alarms that are activated or triggered based on set parameters. ○ These alarms may occur as a result of changes in FHR, changes in maternal-fetal status, maternal position or body habitus, or change in fetal position. • Acknowledgement of alarms requires documentation stating cause of alarm, interventions and attending notification as applicable. **Document the following electronically on the tracing strip (by right clicking on the strip for c, d, e and f):** a. The patient's name and medical record number b. The date, time monitor was attached c. Maternal position changes, vital signs, drug administration, procedures performed, vaginal exam d. Mode of monitoring e. Membrane status f. Out of bed, on bedpan, to bathroom g. Interventions 02, position change, IV bolus, provider informed h. Delivery time with Apgar scores **Documentation in the EMR should reflect nursing process:** a. Assessment b. Actions c. Evaluations d. Time of events e. Document decelerations by describing the tracing and factors related to the FHR pattern f. Frequencies for review of EFM tracing during intrapartum period based on the stages of labor and changes in the status of labor

Procedure: Responsible Staff	Action To Be Performed
Registered Nurse	**Dual Fetal Heart Rate Monitoring** Accomplished using either: • Two ultrasound transducers or • One spiral electrode and one ultrasound transducer
Registered Nurse	**1. External Monitoring of Twins (Dual Ultrasound)** a. Applies an ultrasound transducer **over the presenting twin and plugs this transducer into the monitor's primary ultrasound connector**. b. Applies a second ultrasound transducer **over the second twin** and plugs this second transducer into the monitor's secondary ultrasound connector. c. The tracing derived from the primary ultrasound transducer prints in plain black and is annotated with "US ⌐⩘¬." d. The tracing derived from the secondary ultrasound transducer prints in bold and is annotated with "**US2** ⌐⩘¬."
Registered Nurse	**2. Internal and External monitoring of Twins (FECG and Ultrasound)** a. Plug the ultrasound transducer into the ultrasound connector. o For monitors which support dual ultrasound and FECG, use the **US2** connector. b. Plug the legplate into the **FECG** connector. c. Apply the ultrasound transducer and spiral electrode as described earlier. d. Note that the tracing derived from FECG prints in plain black and is annotated with "FECG ⌐⩘¬" on the strip chart paper. e. The tracing derived from the ultrasound transducer prints in bold and is annotated with "**US** ⌐⩘¬" (or "**US2** ⌐⩘¬"), depending on the model monitor and connector being used.
Registered Nurse	**Fetal Heart Rate Offset Mode** When monitoring twins, overlapping traces may be difficult to interpret. Many monitors provide a +20 BPM shift for the secondary FHR trend to alleviate this problem, whether using dual ultrasound or ultrasound and FECG. **Activating the FHR Offset** When activating the heart rate offset mode, the secondary FHR trend is shifted +20 BPM. If using dual ultrasound, or US2 and FECG, the US2 trace shifts +20 BPM and the "**US2+20**" symbol prints on the upper portion of the top grid. If using the primary ultrasound connector and FECG, the ultrasound trace shifts +20 BPM and the "**US2+20**" symbol prints on the upper portion of the top grip. A vertical dashed line prints to draw your attention to the shifted trend. On some monitors, a right arrow (→) prints at the top and bottom of the dashed line.

Guidelines for Nomenclature and Interpretation of Electronic FHR Monitoring by NICHD 2008

Table 1. Electronic Fetal Monitoring Definitions	
Pattern	**Definitions**
Baseline	• Mean FHR rounded to increments of 5 beats per minute (BPM) in a 10-minute segment, excluding: o Periodic or episodic changes (accelerations or decelerations) o Periods of marked FHR variability o Segments of baseline that differ by more than 25 BPM • Must be for a minimum of two minutes in any 10-minute segment
Baseline variability	• Fluctuations in FHR of two cycles per minute or greater • Described by amplitude of peak-to-trough range in BPM: Absent: Undetectable Minimal: From detectable to 5 BPM Moderate (normal): From 6 to 25 BPM Marked: Greater than 25 BPM
Sinusoidal pattern	• Sine wave-like undulating pattern with cycle frequency of 3 to 5 BPM, persisting for 20 minutes • Not considered to be baseline variability
Acceleration	• FHR increase (with onset to peak less than 30 seconds) from baseline: o At 32 weeks gestation and beyond: ▪ Acceleration: acme of 15 BPM or more above baseline ▪ Duration: 15 seconds or more but less than 2 minutes o Before 32 weeks gestation: ▪ Acceleration: acme of 10 BPM or more above baseline ▪ Duration: 10 seconds or more but less than 2 minutes • Duration of acceleration: Time from initial FHR change from the baseline to return of FHR to the baseline. • Prolonged acceleration lasts from two to 10 minutes. • If an acceleration lasts 10 minutes or longer, it is a baseline change.
Bradycardia	• Baseline FHR less than 110 BPM
Early deceleration	• In association with uterine contraction, gradual (onset to nadir 30 seconds or more) decrease in FHR with return to baseline. • Nadir of the deceleration occurs at the same time as the peak of the contraction. • Onset, nadir and recovery occur coincidentally with the contraction.
Late deceleration	• In association with a uterine contraction, visually apparent, gradual (onset to nadir 30 seconds or more) decrease in FHR with return to baseline • Onset, nadir and recovery of the deceleration occur after the beginning, peak and end of the contraction, respectively.
Tachycardia	• Baseline FHR greater than 160 beats per min

Variable deceleration	• An abrupt (onset to nadir less than 30 seconds), visually apparent decrease in the FHR below the baseline. • The decrease in FHR is 15 BPM or more, with a duration of 15 seconds or more but less than two minutes. • May vary in onset, depth and duration from contraction to contraction
Prolonged deceleration	• Decrease in the FHR below the baseline • Deceleration of 15 BPM or more, lasting from two to 10 minutes from onset to return to the baseline

Table 2. Three-Tiered Fetal Heart Rate Interpretation System

Category	Interpretation	Features
Category I Normal	Tracings in this category are strongly predictive of normal acid-base status at the time of observation.	Category I FHR tracings include **all** the following: • Baseline rate: 110 to 160 beats per minute • Baseline FHR variability: Moderate • Late or variable decelerations: Absent • Early decelerations: Present or absent • Accelerations: Present or absent
Category II Indeterminate	Tracings in this category are not predictive of abnormal acid-base status, but there are insufficient data to classify them as category I or category III.	Category II tracings may represent an appreciable fraction of those encountered in clinical care. Examples of Category II FHR tracings include any of the following: **Baseline rate:** • Bradycardia not accompanied by absent baseline variability • Tachycardia **Baseline FHR variability:** • Minimal baseline variability • Absent baseline variability not accompanied by recurrent decelerations • Marked baseline variability **Accelerations:** • Absence of induced accelerations after fetal stimulation **Periodic or episodic decelerations:** • Recurrent variable decelerations accompanied by minimal or moderate baseline variability • Prolonged deceleration of two minutes or longer but less than 10 minutes • Recurrent late decelerations with moderate baseline variability • Variable decelerations with other characteristics, such as slow return to baseline, “overshoots” or “shoulders”

Table 3. Frequency of Review of FHR Tracing and Intermittent Auscultation

The guidelines for frequencies for review of electronic fetal monitor tracing or of performance of intermittent auscultation during the intrapartum period are based on the stages of labor and changes in the status of labor.

	First Stage		Second Stage (Active Pushing)
	Latent Phase (4 to 5 cm)	Active Phase (Over 6 cm)	
AWHONN			
Low risk	Not stated	q 30 minutes	q 15 minutes
High risk	Not stated	q 15 minutes	q 5 minutes
ACOG			
Low risk	Not stated	q 30 minutes	q 15 minutes
High risk	Not stated	q 15 minutes	q 5 minutes

Category III Abnormal	Tracings in this category are predictive of abnormal acid-base status at the time of observation.	Category III FHR tracings include either:
		• Absent baseline FHR variability and any of the following:
		  ○ Recurrent late decelerations
		  ○ Recurrent variable decelerations
		  ○ Bradycardia
		• Sinusoidal pattern	

Table 4. Interpretation for Nonstress Testing

Nonstress Testing	**Interpretation**
Reactive NST Over 32 weeks gestation	Presence of FHR accelerations meeting the criteria of a **15 BPM** increase over **15 seconds** occurring at least twice in 20 minutes
Reactive NST Under 32 weeks gestation	Presence of FHR accelerations meeting the criteria of a **10 BPM** increase over **10 seconds** occurring at least twice in 20 minutes
Nonreactive NST	A nonreactive, nonstress test for 40 minutes

References

1. Association of Women's Health, Obstetric and Neonatal Nurses (AWHONN)
2. National Institute of Child Health and Human Development (NICHD)
3. American College of Obstetricians and Gynecologists (ACOG)

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