Category I

Category I FHR tracings include all of the following:

- Baseline FHR: 110-160 bpm
- Baseline FHR variability: moderate
- Late or variable decelerations: absent
- Early decelerations: present or absent
- Accelerations: present or absent

Category II

Category II FHR tracings include all tracings not categorized 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 ≥ 2 minutes but < 10 minutes
- Recurrent late decelerations with moderate baseline variability
- Variable decelerations with other characteristics, such as slow return to baseline, overshoots, or shoulders

Category III

Include either:

- Absent baseline FHR variability and any of the following:
- Recurrent late decelerations
    - Recurrent variable decelerations
    - Bradycardia
- Sinusoidal pattern

From Macones, Hankins, Spong, Hauth, & Moore (2008). The 2008 National Institute of Child Health and Human Development Workshop Report on Electronic Fetal Monitoring. *Obstetrics & Gynecology, 112, p. 665.*

Category I tracings are *normal*

- Strongly predictive of normal acid-base status at the time of observation

Category II tracings are *indeterminate*

- Not predictive of abnormal fetal acid-base status

Category III tracings are *abnormal*

- Predictive of abnormal fetal acid-base status at time of observation

Category I Tracings

- Can be followed in a routine manner
- No specific action required

Category II Tracings

- Require evaluation and continued surveillance and reevaluation
- Need to take into account entire associated clinical circumstances

Category III Tracings

- Require prompt evaluation

Category III Tracings

- Depending on the clinical situation
  - Efforts to expeditiously resolve the abnormal FHR pattern may include, but are not limited to
    - Provision of oxygen
    - Change in maternal position
    - Discontinuation of labor stimulation
    - Treatment of maternal hypotension
      - Intrauterine resuscitation

SYMBOLS:

≥ GREATER THAN
   OR EQUAL TO

≤ LESS THAN OR
   EQUAL TO

Uterine contractions	• Normal: ≤ 5 contractions in 10 minutes, averaged over a 30-minute window
	
	• Tachysystole: > 5 contractions in 10 minutes, averaged over a 30-minute window
	   – Should always be qualified as to the presence or absence of associated FHR decelerations
	   – Applies to both spontaneous and stimulated labor
	
	• The terms hyperstimulation and hypercontractility are not defined and should be abandoned

Baseline FHR	Mean FHR rounded to increments of 5 bpm during a 10 min window, excluding:
	  1. Accelerations and decelerations
	  2. Periods of marked FHR variability
	
	There must be at least 2 minutes of identifiable baseline (BL) segments (not necessarily contiguous) in any 10-minute window or the baseline for that period is indeterminate. In such cases, may need to refer to previous 10-minute window in order to determine the baseline.
	  Abnormal baseline rates:
	
	Bradycardia = FHR <110 bpm
	
	Tachycardia = >160 bpm

Baseline FHR Variability	Determined in a 10-minute window, excluding accelerations and decelerations
	Fluctuations in BL FHR that are irregular in amplitude and frequency
	No distinction between short-term and long-term, visually determined as a unit
	Quantitated as the amplitude of peak-to-trough:
	  absent = undetectable
	  minimal = detectable but equal to or less than 5 bpm
	  moderate = 6-25 bpm
	  marked = greater than 25 bpm

Accelerations	Abrupt increase in FHR above BL (onset to peak <30 sec) After 32 weeks: ≥ 15 bpm above BL lasting ≥ 15 sec and less than 2 min from onset to return to baseline Before 32 weeks: ≥ 10 bpm above BL lasting ≥ 10 sec from onset to return to baseline
Prolonged acceleration	Prolonged acceleration = ≥2 min and <10 min duration ≥ 10 min = BL change
Decelerations	Exclude transient spikes or electronic artifact when determining the nadir (lowest point of the deceleration) ***Recurrent decelerations:*** decelerations that occur with ≥ 50% of uterine contractions in any 20-minute window ***Intermittent decelerations:*** decelerations occurring with < 50% of uterine contractions in any 20-minute segment

SYMBOLS:

≥ **GREATER THAN OR EQUAL TO**

≤ **LESS THAN OR EQUAL TO**

Late Deceleration	• Visually apparent usually symmetrical gradual decrease and return of the FHR associated with a uterine contraction • Gradual defined as from onset of deceleration to nadir (lowest point of deceleration) of ≥ 30 sec • Deceleration delayed in timing, with nadir occurring after the peak of the contraction • In most cases, onset, nadir, and recovery of the deceleration occur after the beginning, peak, and ending of the contraction, respectively
Early Deceleration	• Visually apparent usually symmetrical gradual decrease and return of the FHR associated with a uterine contraction • Gradual defined as from onset of deceleration to nadir (lowest point of deceleration) of ≥ 30 sec • Nadir of deceleration occurs at the same time as the peak of the contraction • In most cases, onset, nadir, and recovery of the deceleration are coincident with the beginning, peak, and ending of the contraction, respectively
Variable Deceleration	• Visually apparent abrupt decrease in FHR • Abrupt defined as onset of deceleration to nadir < 30 sec • Decrease in FHR is ≥ 15 bpm below BL, lasting ≥ 15 sec and < 2 minutes in duration • Can occur with or without contractions • If they occur with contractions, the onset, depth, duration may vary with successive contraction
Prolonged Deceleration	• Visually apparent decrease in the FHR that is ≥15 bpm below BL, lasting ≥ 2 min but <10 min • If the drop in FHR lasts ≥ 10 min = BL change
Sinusoidal FHR pattern	• A visually apparent, smooth, sine wave-like undulating pattern in FHR baseline with a cycle frequency of 3-5/min that persists for ≥ 20 minutes
Variable decelerations with other characteristics	• Clinical significance of these patterns requires further research • Examples include: overshoots, shoulders, tachycardia after variable decelerations, biphasic decelerations
Episodic patterns	• Not associated with contractions
Periodic patterns	• Associated with contractions
Reliable predictors of the absence of fetal metabolic acidemia	• The presence of fetal heart rate accelerations (either spontaneous or stimulated) reliably predicts the absence of fetal metabolic acidemia. The absence of accelerations does not reliably predict fetal acidemia. • Moderate variability reliably predicts the absence of fetal metabolic acidemia at the time it is observed. Minimal or absent FHR variability alone does not reliably predict the presence of fetal hypoxemia or metabolic acidemia.
Marked variability	• Significance is unclear