



Guidelines on fetal monitoring aim to codify normal, abnormal FHR

↻ Any fetal heart rate pattern will now reside in 1 of 3 categories. Will this improve the way you manage labor? How?

Dozens of times, every week, obstetricians are guided by the results of electronic fetal heart rate (FHR) monitoring when they make labor management decisions. Now, The National Institute of Child Health and Human Development (NICHD), along with ACOG and the Society for Maternal-Fetal Medicine, have revisited the nomenclature for interpreting FHR patterns. I'll explain how the changes may affect your management of labor.

Does FHR monitoring have clinical value?

FHR is, of course, a proxy for fetal acid-base status, oxygenation, and blood volume. Despite some modest scientific evidence that electronic FHR monitoring improves the outcome of labor for mother or newborn (compared with outcomes with intermittent auscultation), that conclusion is *not* what most studies reach; instead, in **low-risk pregnancies**, electronic FHR monitoring does *not* decrease the rate of perinatal complications and death, compared with intermittent auscultation, and

does increase the rate of cesarean delivery.

The US Preventive Services Task Force² and the Canadian Task Force on Preventive Health Care³ therefore recommend *against* routine electronic FHR monitoring for low-risk women in labor. Furthermore, both task forces have concluded that evidence is insufficient to recommend for, or against, electronic FHR monitoring in **high-risk women in labor**.

In contrast, a 2005 ACOG bulletin *recommends* continuous FHR monitoring for high-risk women during labor and intermittent FHR monitoring, by auscultation or electronic means, during labor in uncomplicated pregnancies.⁴ The bulletin notes that it may be logistically difficult on most labor units to adequately execute a plan to provide intermittent auscultation because the team does not have time to assess FHR frequently by auscultation.

From a practical viewpoint, medicolegal precedent and the opinion of OB experts has led to FHR monitoring of most laboring women in US hospitals.

“Normal,” “abnormal,” and “indeterminate” categories

New NICHD guidelines¹ divide all FHR patterns into three categories:

Category I: Normal A Category I FHR pattern has the following

four characteristics:

- baseline rate, 110–160 bpm
- moderate variability (6–25 bpm)
- absence of late or variable decelerations
- absence or presence of early decelerations or accelerations.

Patterns in Category I are almost always associated with normal fetal acid-base status. No specific obstetric intervention is necessary when a Category I FHR pattern is observed.

Category II: Indeterminate Category II comprises all FHR patterns not in Category I or III. Category II tracings are not predictive of abnormal fetal acid-base status. When a Category II tracing is identified, a fetal scalp stimulation test may help identify fetuses in which acid-base status is normal.

Category III: Abnormal The new NICHD guidelines label four FHR patterns as abnormal. One of the abnormal patterns is a **sinusoidal heart rate**, defined as a pattern of regular variability resembling a sine wave, with fixed periodicity of 3–5 cycles/min and amplitude of 5–40 bpm. A sinusoidal pattern may indicate fetal anemia caused by fetomaternal hemorrhage or alloimmunization.

The other three abnormal FHR patterns in Category III are diagnosed when **baseline FHR variability is absent** and any one of the following is present:

In your practice, what do you do when a patient wants **bio-identical** hormone therapy?

Instant Poll

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2 KEYS TO INTERPRETING FHR TRACINGS

- ▶ **Focus on assessment of variability**
- ▶ **Accurately identify type of deceleration**

Fetal heart rate variability

Assessment of variability is an important part of interpreting a fetal heart rate (FHR) pattern. Baseline FHR is defined as fluctuations in the baseline of irregular amplitude and frequency. These fluctuations are quantified in terms of the amplitude of the peak-to-trough in beats per minute (bpm). Baseline FHR variability is determined on a 10-minute segment of the FHR strip.

FHR variability is assigned to one of four possible categories:

- ▶ **Absent.** No peak-to-trough changes in FHR detected
- ▶ **Minimal.** Amplitude is >0 and ≤ 5 bpm
- ▶ **Moderate.** Amplitude is 6–25 bpm
- ▶ **Marked.** Amplitude is >25 bpm.

The presence of moderate variability is strongly predictive of normal fetal acid–base status. Absent variabil-

ity is an ominous finding, especially when it occurs in conjunction with late or variable decelerations.

Differentiating the 3 types of deceleration

When reviewing FHR tracings, clinicians often disagree on the identification of various types of FHR decelerations. The NICHD guidelines provide clear advice on interpreting deceleration patterns.

A **variable deceleration** is an abrupt decrease in FHR. If the time from baseline to the nadir of the deceleration is 30 seconds or longer, the deceleration cannot be considered variable; it must be either an early or a late deceleration.

A **late deceleration** has a nadir that occurs after the peak of the contraction.

An **early deceleration** has a nadir that occurs at the same time as the peak of the contraction.

A clearly documented contraction pattern is necessary to accurately differentiate late and early decelerations.

- recurrent late decelerations
- recurrent variable deceleration
- bradycardia.

These patterns are predictive of abnormal fetal acid–base status.

NICHD categories and practical matters

Management of labor is complex. When a Category I tracing is observed, obstetric issues, independent of the FHR tracing, occupy center stage in management.

When a Category II FHR tracing is observed, a fetal scalp stimulation test may help define fetal acid–base status. When gentle stroking of the fetal scalp for 15 seconds during a vaginal examination elicits an acceleration of 15 bpm for 15 seconds, fetal acid–base status is very likely normal.⁵

(Note: Fetal scalp stimulation is a diagnostic test, not a therapeutic intervention. The test should not be

performed during a deceleration because the information gained in that setting doesn't predict the acid–base status of the fetus.)

When a Category III tracing is observed, the presence of a responsible clinician at the bedside—one who is authorized to make decisions regarding timing and route of delivery—is of paramount importance. Efforts should be made to identify the cause of the nonreassuring FHR pattern and initiate a plan to improve fetal status. Standard interventions that may help to resolve the abnormal pattern (and that may also be warranted for some Category II tracings) include:

- supplemental oxygen to the mother
- a change in maternal position
- discontinuation of oxytocin
- resolution of maternal hypotension.

In most situations, expeditious

delivery is likely warranted if an abnormal pattern persists.

Neutralizing a critical inconsistency—the observer

A major problem in the use of FHR tracings is significant **interclinician variability** in how they are interpreted.⁶ When clinicians disagree on the interpretation of a particular FHR pattern, it often becomes difficult to develop and execute a unified plan for managing the mother's labor.

To improve communication among nurses and physicians, it helps for each labor unit to accept a uniform approach to how FHR tracings are interpreted. Focusing on FHR variability and accurate identification

Will these categories of FHR tracings help you to manage labor?

Send us an e-mail

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of late and variable decelerations is of particular importance (see “2 keys to interpreting FHR tracings,” page 12).

This tool offers welcome uniformity

For practical reasons, obstetricians in the United States have accepted FHR monitoring as a standard component of labor management. Given that we have accepted this technology, we can improve the consistency of our approach to interpreting FHR patterns by adopting a uniform set of definitions of what is normal and what is abnormal. Focusing on FHR variability and correctly identifying the type of deceleration that is present are the two best ways to achieve a unified approach to using FHR patterns to guide management of labor. ☺

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Instant Poll

BIO-IDENTICAL HT: WHERE DO YOU STAND?

A 54-year-old woman, recently menopausal, complains to you of hot flushes that make her miserable during the day and interrupt sleep at night. After an evaluation, including an endocrine work-up, you recommend hormone therapy (HT). She promptly asks about bio-identical hormones, which she has read about on the Internet and heard about from friends. In your practice, the next step would be to:

- Educate her about the risks of bio-identicals and how little they have been studied, and offer a prescription for conventional HT only
- Endorse her interest and offer her a prescription for a compounded bio-identical hormone formulation
- Discourage her from using bio-identicals but, if she insists on that course, offer to refer her to a clinician who prescribes them
- Take yet a different approach (please specify!)

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