

New study finds fetal heart rate not a good indicator of a baby's health

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Physicians preparing to deliver a baby look at fetal heart rate patterns to guide them in deciding whether or not to perform a C- section. But a new study by maternal-fetal medicine specialists at Intermountain Medical Center shows that those heart rate patterns may not be a good indicator of a baby's health, and in fact may lead to unnecessary interventions and higher costs.

"We're trying to create a better a road map for labor," says Marc Jackson, MD, a maternal-fetal medicine specialist at Intermountain Medical Center, the flagship facility for the Intermountain Healthcare system, and principal investigator on the study. "For years we've used the fetal [heart rate](#) to try to identify problems, but it's not a very good map because we have so many babies in an 'indeterminate' category."

In an attempt to clear up that uncertainty, Dr. Jackson and his colleagues at Intermountain Medical Center studied fetal heart rate patterns from more than 48,000 labor and delivery cases at 10 Intermountain Healthcare hospitals over a 28-month period. The fetal heart rates were then classified using a system developed in 2008 by the Eunice Kennedy Shriver National Institute of Child Health and Human Development and the American College of Obstetricians and Gynecologists.

The results of the study are published in the October issue of the journal *Obstetrics and Gynecology*.

The system is comprised of three categories: Category I heart rate

patterns are considered normal, and, as a rule, do not indicate fetal stress. Category III patterns are abnormal and rare, and usually indicate a problem. Category II patterns are considered indeterminate, and their significance uncertain.

Researchers examined the time babies spent in each of these categories and [neonatal outcomes](#). The fetal heart rate patterns were classified as category I nearly 78% of the time, as category II patterns 22% of the time, and as category III rates only very rarely, 0.004% of the time when data from all stages of labor were analyzed.

But, when looking at the data for just the final two hours of delivery, the numbers changed. The data show that category I rates decreased to 61%, while category II rates increased to 39%, and category III rates increased to 0.006%.

As for outcomes, babies that spent the entire time in category I scored well. Five minutes after birth, only 0.6 percent had Apgar scores of less than seven. Apgar is a system for determining a newborn's health using a scale of zero to 10, with 10 being the healthiest. Only 0.2 percent required admission to the neonatal intensive care unit. Category III fetal heart rates were very uncommon, occurring in only 0.1 percent of the patients studied, and resulted in admission to the NICU about half the time.

Category II [fetal heart rate](#) patterns showed up most often, occurring in 84 percent of all labors. They also found that the amount of time spent in category II increased in the two hours before delivery. This also coincided with lower Apgar scores and increased admissions to the NICU.

Regardless of those statistics, the vast majority of category II babies had no short-term problems after delivery. This means that using category II

heart rate patterns as an indicator of fetal health is an unreliable method, researchers say.

Without a good map to guide them during those critical hours, doctors and nurses must play a guessing game – one that will almost always spur them to act with caution – possibly ordering a C-section delivery when it might not be necessary.

"Our next step, obviously, is to sort out those patterns in Category II to determine which ones are more predictive of a baby that's sick and one that's healthy," says Dr. Jackson. "When we know that, we will be able to make better decisions for both the mother and her baby."

Dr. Jackson and his team are currently examining the data on preterm babies during the same period in hopes of uncovering more clues that will help them better decipher category II patterns.

Provided by Intermountain Medical Center

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