



Why is fetal heart monitoring important?

When a mother is admitted into the labor and delivery unit, doctors must monitor the baby's heart rate continuously. This is critical because fetal heart rate indicates how well a baby is handling labor. Sometimes, there is insufficient flow of oxygenated blood to the baby during labor and delivery due to complications such as [umbilical cord problems](#), [uterine hyperstimulation](#), or placental issues. Medical professionals can detect oxygen deprivation by looking at the baby's heart rate. An abnormal fetal heart rate is an important [sign of fetal distress](#), which is an indication that a fetus is not getting enough oxygen. If medical professionals respond to signs of fetal distress by performing a prompt emergency [C-section](#) or other interventions, they may be able to [prevent hypoxic-ischemic encephalopathy \(HIE\)](#) and [associated conditions](#) such as [cerebral palsy \(CP\)](#).

How does fetal heart rate monitoring work?

Medical professionals can observe a fetal heart rate using either an internal or external monitoring device. The internal monitor includes an electrode that is attached to the unborn baby's scalp, while the external monitor is a belt-like device that is strapped around the mother's abdomen.

During a contraction, it is normal for a baby's heart rate to drop slightly. This happens because uterine activity impinges on blood vessels. However, it should quickly return to baseline following the contraction. Some signs that a baby may be experiencing a dangerous level of oxygen deprivation include:

- Tachycardia (an abnormally rapid heart rate)
- Bradycardia (an abnormally slow heart rate)
- Variable decelerations (sudden slowing of heart rate)
- Late decelerations (slow returns to the baseline heart rate after contractions)
- Decreased variability

Medical staff are trained in reading the printouts (EFM tracings) that come from the electronic



fetal monitoring unit. The following image is an example of EFM readings:

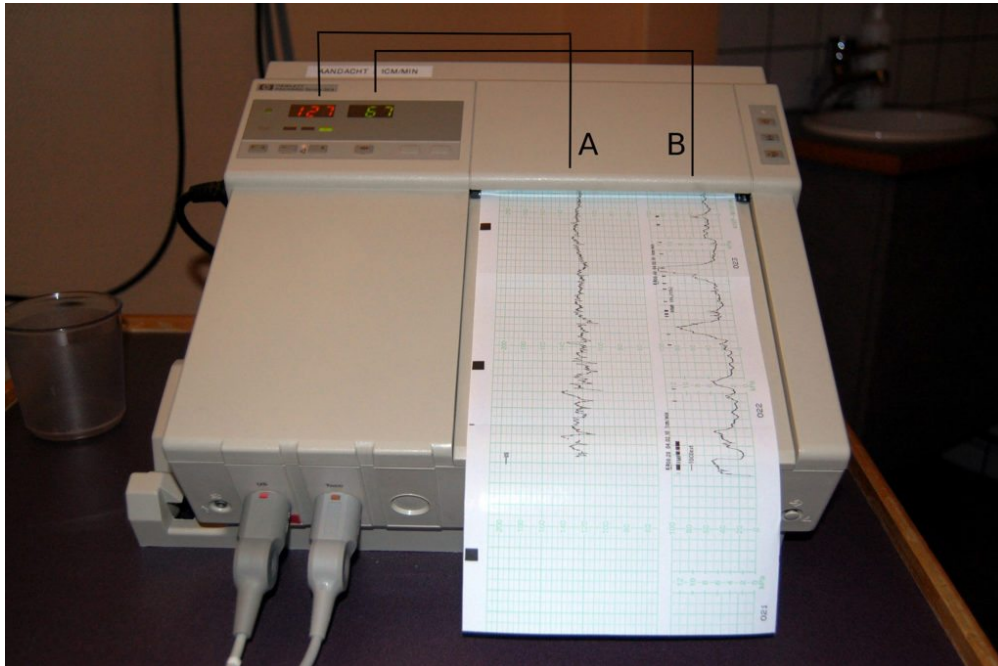


Image courtesy of Wikimedia Commons

Citations

- Murray, DM, et al. Fetal Heart Rate Patterns in Neonatal Hypoxic-Ischemic Encephalopathy: Relationship with Early Cerebral Activity and Neurodevelopmental Outcome. *Am J Perinatol.* 2009 Sep;26(8):605-12. doi: [10.1055/s-0029-1220774](https://doi.org/10.1055/s-0029-1220774). Epub 2009 Apr 27.
- Goulding, RM, et al. Heart Rate Variability in Hypoxic Ischemic Encephalopathy: Correlation with EEG Grade and 2-y Neurodevelopmental Outcome. *Pediatric Research* (2015) 77, 681-687 doi: [10.1038/pr.2015.28](https://doi.org/10.1038/pr.2015.28).