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:

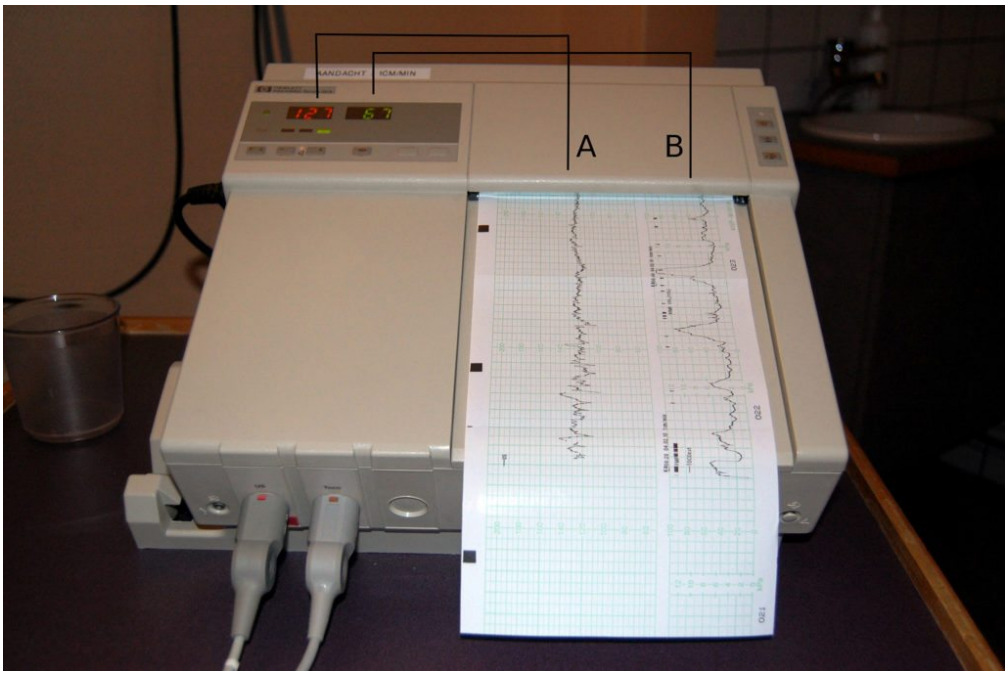

Image courtesy of Wikimedia Commons

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. 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.