

Fetal heart rate monitoring during labour

Doncaster and Bassetlaw
Teaching Hospitals
NHS Foundation Trust

What is fetal heart rate monitoring?

The aim of intrapartum fetal surveillance is to improve outcomes for babies. Whilst the majority of babies go through labour without any problems, for a few some difficulties may occur. The best way to ensure your baby's wellbeing during labour is to listen to their heartbeat regularly.

Your baby's heart rate can be monitored in the following ways:-

- At regular intervals, this is called Intermittent Auscultation (IA).
- Continuously by Electronic Fetal Monitoring (CEFM).

When monitoring your baby's heart rate the midwife will check your heart rate by counting your pulse to ensure that they can tell them apart.

If you have chosen to have your baby at home or in a midwifery led unit, only Intermittent Auscultation will be available. If the midwife is concerned at any point then they will advise transfer to hospital for an assessment including Continuous Electronic Fetal Monitoring.

How will my baby's heart rate be monitored in labour?



Pinard Stethoscope

The midwife will hold this against your stomach and place their ear over the smaller end to locate and count your baby's heart rate.

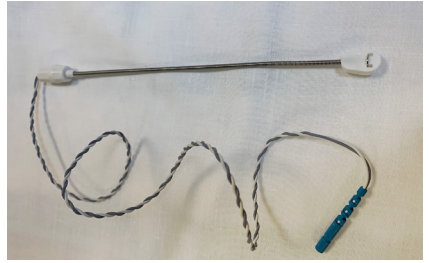
Handheld Doppler/Sonicaid

This is an electronic device that will be held against your stomach. You will be able to hear the baby's heart rate as the midwife counts the rate.



Fetal Scalp Electrode

Occasionally, the external monitoring equipment may not record the fetal heart adequately and therefore it may be necessary to apply a fetal Scalp Electrode (FSE). This is a small metal wire attached to a longer flexible wire which is passed into the vagina during an internal assessment and applied to the baby's scalp. The FSE does not harm your baby, however you may notice a small graze on the scalp after birth as the metal clip penetrates the skin of the baby's scalp. These marks are usually superficial and heal very quickly.



Limited studies have been undertaken to look at the risk of other complications associated with the use of an FSE. It has been found that the risks of infection, sepsis and deeper lacerations remains very low and studies support the use of fetal scalp electrodes when it is clinically recommended to do so.

The FSE picks up the signals of the baby's heartbeat more easily as it is attached to the baby and it will stay in place until the baby is born.

At the same time there will be a tocodynamometer attached to your abdomen with an elasticated band to record your contractions.

Cardiotocography machine (CTG)

Soft fabric belts are placed around your stomach which hold the transducers in place. One is placed at the top of your 'bump' and will monitor any contractions that you are experiencing. The second transducer is placed over the baby's back to listen to the heart rate. A recording of your baby's heart rate will be printed out on paper or stored electronically.



USS Transducer

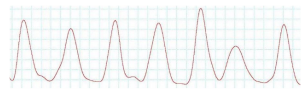
The USS transducer emits sound waves that bounce off the fetal heart making an echo. The transducer receives these echoes back and sends them to the computer in the monitor. This is used to create a printout of the baby's heartbeat.



Tocodynamometer (TOCO)

The tocodynamometer is a pressure transducer. When placed on the woman's abdomen it will measure the frequency of their contractions. It works by measuring the pressure force produced by the contracting uterus.

This information is converted into a pattern on the trace as follows.



Wireless technology

At Doncaster and Bassetlaw Teaching Hospitals we have wireless CTG machines (telemetry) and these allow more freedom to move around.

There are two at Bassetlaw Hospital and three at Doncaster Royal Infirmary.

The telemetry machines are wireless and attach to the abdomen via elasticated straps. There can be occasional issues with connectivity and whilst using telemetry the woman is required to be within 30 metres of the base unit.

This is more than adequate space to allow you to mobilise around the birthing room, visit the attached bathroom and use the birthing pool.

If continuous fetal monitoring is required and you wish to use the telemetry, this would only be available if the units were not already being used.





Uss Transducer For Telemetry (Monitors The Fetal Heart)



Toco For Telemetry (Monitors The Contractions)



Placement of uss transducer and toco on the abdomen

Why does my baby need monitoring during labour?

During contractions the blood vessels in the placenta and umbilical cord are squeezed which reduces the blood flow to your baby. This is normal during labour and for the majority of babies this does not cause any problems. However, in some babies we do see changes in the fetal heart rate pattern and this can sometimes indicate that further monitoring is required, or, that the baby needs to be born quicker.

If you are fit and well and have had a low-risk pregnancy, the recommended method for monitoring your baby is using the Pinards Stethoscope or Handheld Doppler. The current evidence and research does not support continually monitoring your baby's heart rate in this instance. Instead, the midwife will listen to your baby's heartbeat at approximately 15 minute intervals during the first stage of labour and increased to every 5 minutes during the second stage of labour (fully dilated).

A baby whose mother has complications in pregnancy may have a greater risk of developing problems during labour and for this reason we would recommend CEFM. This will continue for the length of your labour and the trace can be explained to you and your birth partner at any time.

If you have been identified with a health problem, if any issue is diagnosed during your pregnancy or if your baby is at an increased risk, the recommended method for fetal monitoring is CEFM.

Common examples of instances requiring CEFM:

Please note, this list is not exhaustive.

- Diabetes
- Infection
- Pregnancy induced hypertension (raised blood pressure due to the pregnancy)
- Issues with your heart or kidneys
- Your pregnancy is more than 42 weeks or less than 37 weeks
- Not enough or too much water (liquor) around your baby
- You are having an epidural as pain relief
- You have any bleeding before or during labour
- Prolonged rupture of membranes (waters broken over 24 hours)
- Using the syntocinon hormone drip to improve your contractions frequency and strength
- During an induction of labour
- You have previously had a caesarean section
- You have a multiple pregnancy (twins, triplets etc.)
- You have been having regular scans to ensure your baby is growing adequately and there are concerns with the growth
- Your baby is premature (under 37 week's gestation)
- Your baby is in the breech presentation (bottom first)
- If the midwife detects a problem when conducting intermittent auscultation (when the fetal heart is listened to at regular intervals). A trace will be commenced to ensure fetal wellbeing. If this is normal, we would revert back to IA.
- If when your waters break, they are meconium stained. (This is when the baby passes its first stool prior to birth. This is quite common when the baby is overdue, but can also be due to a problem that occurs during the labour).

Benefits of fetal heart monitoring

Knowing your baby is experiencing no issues during labour can assist the doctors and midwife in providing you with information and support to help you make an informed decision about your care.

If problems are identified with your baby's heart rate pattern, the doctor and midwife will discuss a plan of care with you.

This may include a caesarean section, ventouse (suction cup) or forceps birth.

IA allows you to move around freely and not attached to a machine. Your movement is only limited when we are listening to your baby's heartbeat. There is documented evidence that being mobile during your labour will have many benefits.

This includes being able to adopt a more natural position to encourage the descent of the baby through the birth canal.

At Doncaster and Bassetlaw Teaching Hospitals we have wireless CTG machines (telemetry) and these allow more freedom to move around.

Disadvantages of fetal heart rate monitoring

With CEFM you are attached to the monitor which does limit your ability to mobilise and move around. However, we will assist you to adopt different positions both on the bed and on a birthing ball at the side of the bed.

What happens if i choose not to have any fetal monitoring?

The type of fetal monitoring required will be discussed with you by the midwife caring for you.

If you are worried or reluctant to have any fetal monitoring, it would be best if you discuss this at the earliest opportunity with the midwife or doctor so that we can best support you.

If you are able to make an informed choice and understand your individual risks regarding not having fetal monitoring, a plan will be made to support you. This will be documented in your maternity notes. You can also change your mind at any time.

Resources

Further information can be found at:

AIMS (2017) Monitoring your baby's heartbeat in labour

<https://www.aims.org.uk/information/item/monitoring-your-babys-heartbeat-in-labour>

National Institute for Health and Care Excellence (NICE) update (2017) "Intrapartum care for healthy women and babies – Information for the Public"

<https://www.nice.org.uk/guidance/cg190/ifp/chapter/Care-of-women-and-their-babies-during-labour-and-birth>

If you would like to speak to a Midwife about any information in this leaflet, please contact the hospital via the contact numbers supplied to you during your pregnancy.

FAQs

Who will receive a copy of this leaflet and will it be explained to them.

All women will receive a copy of this leaflet when undertaking their birth planning appointment with their Community Midwife. The midwife will go through the leaflet and answer any questions at the time.

The fetal monitoring lead midwives will also be available to discuss any aspect around fetal monitoring. Please request their contact details during your appointment.

What information is collected by the machines? What does it exactly mean?

The fetal heart pattern and frequency of contractions are collected by the monitor and this enables the midwives and doctors to review the information and ensure that your baby remains well during labour.

Will you be paying more attention to the machine than me?

No. The information collected and recorded is only one part of the many assessments that are carried out during your labour.

Can I still go in the pool for pain relief?

If you wish to use the birthing pool and require continuous fetal monitoring, we will use the wireless telemetry unit. We would only ask you to vacate the birthing pool if a problem with your baby's heart rate was identified.

Will you explain to me what the machines are showing and what is happening exactly - even when all is going well?

If you wish to ask any questions, the midwife caring for you will be very happy to discuss the information that is being collected whilst you are undergoing fetal monitoring.

Patient Advice & Liaison Service (PALS)

The team are available to help with any concerns, complaints or questions you may have about your experience at the Trust. Their office is in the Main Foyer (Gate 4) of Doncaster Royal Infirmary. Contact can be made either in person, by telephone or email.

The contact details are:

Telephone: 01302 642764 or 0800 028 8059

Email: dbth.pals.dbh@nhs.net