

Monitoring your baby's heartbeat in labour

This leaflet is for pregnant women and birthing people who want a vaginal birth. It explains why it is necessary to monitor your baby's heartbeat in labour and what methods can be used. It also explains what might happen if there are concerns about your baby's heartbeat or if there is meconium in your amniotic fluid (waters). If you have any questions or concerns, please speak to your midwife or doctor.

Why monitor a baby's heartbeat in labour?

One of the key things your midwife will be doing is observing and recording your baby's heart rate during labour. Most babies are born without any problems; however, there are some babies who run into difficulties and listening to the baby's heartbeat regularly throughout labour means we can see how they are doing as a rise, or fall in heart rate tells us something may be wrong.

What are they checking for?

Your baby's heartbeat can be monitored in different ways, which will be explained later. The midwives (and doctors) will check the rate of the heartbeat over a period of time. The normal range for a baby is 110-160 beats per minute; sometimes this can be lower or higher without meaning the baby is in difficulty. This variation is usually caused by the baby moving or during contractions of the uterus (womb). During a contraction there will be a very brief interruption to the blood flow through the placenta to the baby; this is normal and the majority of babies cope well with this. However, if your baby is not coping well, for example, if the baby is small or the blood flow to the placenta is reduced it may mean that your baby gets less oxygen than usual. The effect of the reduced oxygen may show in changes to the baby's heart rate. Where these changes fall within certain patterns, you may be advised that your baby needs to be born as soon as possible.

How is the heartbeat measured?

There are different ways in which babies' heart rate can be monitored:

- Using a trumpet shaped stethoscope called a Pinard
- Using a hand held device called Sonicaid

Both of the above are known as intermittent auscultation (IA) where we listen to and count the babies heartbeats for short periods of time during active labour. We use these methods on Rushey – our midwife led unit (MLU) and on our delivery suites.

If there is a need to continuously monitor the heartbeat we would use Continuous Electronic Fetal Heart Rate Monitoring – which we refer to as continuous monitoring or cardiotocography (CTG) using either:

- Electronic fetal heart rate monitor (attached to the abdomen – tummy).
- Fetal scalp electrode (attached directly to baby's head).

If this is needed the following methods are available only on our delivery suite where you would be transferred to if birthing on Rushey.

Intermittent auscultation (IA)

The midwife will listen to your baby's heart rate at regular intervals with either a Pinard which is a trumpet shaped stethoscope or a portable hand held device called a 'Sonicaid', which may have been used during your pregnancy. This enables your midwife or doctor to hear your baby's heartbeat through your abdomen (tummy). In labour, your baby's heart rate is listened to for at least one minute, immediately following a contraction, every 15 minutes in the first stage, and then more frequently as you get nearer the birth. The midwife may ask you to change position during this time so that she can hear the baby's heart. Otherwise you will be able to adopt any positions that are comfortable to you. If you have chosen to give birth at home or in Rushey, this is the only method used in these environments.

If you have had an uncomplicated pregnancy and your labour is also uncomplicated, current research has shown that this method of monitoring your baby's heartbeat is more appropriate when compared to continuous electronic fetal monitoring.

Why would I need continuous cardiotocography (CTG?)

If when listening to the baby's heartbeat with a Sonicaid or Pinard, the midwife thinks there may be an issue, they will recommend that you change to continuous monitoring or CTG. If you are in labour at home or in Rushey, (MLU), this will mean having to transfer to the main delivery suite in the hospital.

A CTG is done using an electronic fetal heart rate monitor that records your baby's heartbeat continuously on a paper printout or electronically (a trace). This works by having two flat round sensors held in place by elasticated belts against your tummy. One of these sensors is placed at the top of your tummy to detect the frequency and length of the contractions whilst the other detects the baby's heartbeat.

If you have had issues during your pregnancy and the midwife and doctor have some concerns about how your baby will cope, they may recommend the use of a CTG in labour.

The National Institute of Clinical Excellence (NICE, 2014, updated 2017)⁽¹⁾ recommend CTG in the following circumstances:

If you have a health problem such as:

- Diabetes (including gestational diabetes).
- Infection.
- Pre-eclampsia (high blood pressure).
- Problems with your heart or kidneys.

Any factors relating to your current or previous pregnancy for example:

- Your pregnancy has lasted more than 42 weeks.
- You are having epidural analgesia (pain relief injected into your back).

- You have had bleeding from your vagina during or before labour.
- Your labour is induced (started artificially) or strengthened with a drip (oxytocin).
- You have a twin/triplet or multiple pregnancy.
- You have previously had a caesarean birth.
- Your baby is measuring small or you are delivering before 34 weeks.
- Your baby is in the breech presentation (with bottom closest to your cervix).
- Your baby has passed meconium into your waters (had a poo in your amniotic fluid).

There are many other reasons too, your care is personalised and your midwife or doctor will explain if they feel CTG is the best route for your labour. You may also choose to have continuous monitoring for your own reasons.

How does continuous monitoring work?

Continuous monitoring keeps track of your baby's heartbeat for the whole or part of your labour depending on the reason for the CTG. The midwife or doctor will read and interpret the trace to help get an idea of how well your baby is coping with labour. The CTG enables you to hear the baby's heartbeat and there is a visual display which you may find reassuring. It is normal for there to be changes in the pattern of the heartbeat, for example, when your baby is sleeping or moving around. Sometimes the sound disappears or the monitor stops showing the heart rate on the paper or visual display. This is usually due to the baby moving away from the sensor and does not necessarily mean that there is a problem.

National guidelines recommend that the CTG trace is assessed hourly by a second midwife or a doctor. This is called 'fresh eyes'. Your midwife may invite another midwife or doctor into your room to do this. The midwife will explain this to you but please ask if you would like more information.

Being attached to a CTG monitor can make moving around feel more difficult however we have wireless telemetry CTG monitors which mean you are able to move more freely. These monitors can also record your baby's heart continuously if you are having a water birth, or using the pool, or bath during labour.

Occasionally, a **fetal scalp electrode**, sometimes called a 'clip' may be offered or recommended. The reasons for doing this should be discussed with you. The electrode is attached to your baby's scalp by inserting it through your vagina, into your uterus and is then connected to the monitor. This is a reliable means of picking up your baby's heartbeat if there are difficulties monitoring the heartbeat through your tummy.

What happens if a problem is suspected?

If the CTG shows a potential issue with the baby's heartbeat, the situation will be reviewed and further action may be recommended. Sometimes simply changing your position can help. If the heart rate does not improve the doctor may suggest immediate delivery of your baby (which may be by Caesarean section).

What is meconium in your waters, and how does it affect monitoring options?

Meconium, simply put is the baby's poo, and is sometimes found in the amniotic fluid ('waters') during labour. Meconium is more common in late pregnancy; but also occurs if the baby becomes distressed. In these instances it is very important that your baby's wellbeing is assessed. Currently the best way to do this is with continuous electronic fetal monitoring. Your midwife will advise that you transfer to the delivery suite if you are not already there. This is so that your baby's heartbeat and your contractions can be monitored continuously with doctors nearby if needed. The presence of meconium in the amniotic fluid is important even if the baby's heartbeat pattern is currently normal. This is because if the baby develops any signs of infection or distress, the amniotic fluid may be sucked into their lungs and can cause baby to become very unwell – this is known as meconium aspiration syndrome (MAS) and can occur in 10% (1 in 10) cases, there is an increased risk of developing MAS if the meconium is thick and dark in colour. It is important to monitor babies who have meconium in their waters as 20% (1 in 5) babies who develop meconium aspiration syndrome sadly will not survive.

If meconium stained liquor is present, meconium aspiration syndrome can occur in approximately 1 out of 10 cases.

After your baby is born

If there has been thick and dark meconium during labour, your baby's heartbeat, breathing and skin tone will be checked carefully straight after birth. If these are not as expected, your baby's airways will be looked at and suction will be used to try to remove any visible meconium. Even if your baby's heartbeat, breathing and skin tone are as expected, we will perform observations every two hours over a 12-hour period after the birth. If there has been thin meconium, your baby should be checked firstly at one hour and two hours after birth.

Your baby will be assessed by a neonatologist (specialist doctor in newborn health) if there are any concerns raised by the midwife at routine checks.

You will be advised about what to look out for and who to contact if you have any worries after the midwife has left a homebirth or when you reach home from a birth unit.

Who makes the decision?

As with all decisions in your pregnancy and birth the choice is yours. We hope we have explained why monitoring a baby's heartbeat throughout labour is recommended and why different types of monitoring are used. You always have a choice about how this monitoring is performed and your midwives and doctors will explain which type of monitoring is best for you and your baby and how your choices affect the outcomes and risks for your baby.

Further information

1. National Institute of Clinical Excellence (2014 updated 2017) Intrapartum Care for healthy women and babies NICE: London available at www.nice.org.uk
2. Bolton and Chandraharan (2019) The Significance of 'Non-Significant' Meconium
3. Stained Amniotic Fluid (MSAF) journal of Advances in Medicine and Medical research 30(5)

4. RCM (2017) Consensus statement: RCM/RCOG consensus statement on electronic fetal monitoring available at www.rcm.org.uk/publications

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Please ask if you need this information in another language or format.

J Pawlak, Fetal Monitoring MW

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