

## Monitoring your baby's heartbeat in labour

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This leaflet is for pregnant women who are anticipating 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 the water. If you have any questions or concerns, please speak to your midwife or doctor.

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### Why monitor a baby's heartbeat in labour?

One of the most important roles of the midwife is to observe and record your baby's heart rate in labour. This will help to provide reassurance that your baby is coping with labour. Most babies come through labour without any problems; however there are some babies who run into difficulties. One of the best ways of finding out which babies are having difficulties is to listen to the baby's heartbeat regularly throughout labour.

### 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?

#### Intermittent auscultation (IA)

The midwife will listen to your baby's heart rate at regular intervals with either a Pinnard 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 the Birth Centre, this is the only method used in these environments. If you have been healthy, have had a trouble-free pregnancy and your labour is uncomplicated, current research has shown that this method of monitoring your baby's heartbeat is more appropriate when compared to continuous electronic fetal monitoring. Inappropriate use of continuous electronic fetal monitoring in low risk pregnancies can increase your chance of needing a caesarean section in labour.

### Continuous Electronic Fetal Heart Rate Monitoring (CTG)

If when listening to the baby's heartbeat with a Sonicaid or Pinard, the midwife thinks there may be a problem, she/he will recommend that you change to continuous monitoring (CTG). If you are in labour at home or in the Birth Centre, 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 abdomen. One of these sensors is placed at the top of your abdomen to detect the frequency and length of the contractions whilst the other detects the baby's heartbeat.

If you have had problems in 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) recommend CTG in the following circumstances:

If you have a health problem such as:

- 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 pregnancy.
- You have previously had a Caesarean section.
- Your baby is small or premature.
- Your baby is in the breech presentation (going to be born bottom first).
- Your baby has passed meconium into the water (had a poo).

There are other reasons too. Your midwife or doctor will be able to advise you. You may choose to have continuous monitoring for your own reasons.

Continuous monitoring keeps track of your baby's heartbeat for the whole or part of your labour. The duration of the monitoring will depend on the reason for the CTG. Your doctor or midwife will advise you on this.

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 whilst you are in the pool.

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 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 abnormality with the baby's heartbeat, the situation will be reviewed and further action may be recommended. Sometimes simply changing your position can correct the problem. Very occasionally it is appropriate to offer you a test called fetal blood sampling. This involves taking one or two drops of blood from your baby's scalp (through your vagina). This blood is tested for oxygen levels to show how your baby is coping with labour. The test can take between ten and twenty minutes.

Sometimes the heart trace can make your midwife or doctor suspect that your baby is not coping well, when in fact they are fine. Fetal blood sampling helps to clarify this and may avoid you having an unnecessary Caesarean section. If the heart rate does not improve or the blood result shows that your baby is distressed the doctor may suggest immediate delivery of your baby (which may be by Caesarean section).

### Meconium stained liquor

Meconium 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 experiences an episode of distress. In these instances it is very important that your baby's wellbeing is assessed. Currently the best way to do this is with a continuous electronic fetal monitoring. Your midwife will advise that you transfer to an obstetric unit for birth if you are

not already there. This is so that your baby's heartbeat and your contractions can be monitored continuously. The doctors can be on hand to help 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 (meconium aspiration syndrome). If meconium stained liquor is present, meconium aspiration syndrome can occur in approximately 1 out of 10 cases. 2 out of 10 of those babies who develop meconium aspiration syndrome will die. This syndrome is more likely if the meconium is thick and dark in colour and therefore we strongly recommend continuous electronic fetal monitoring if this is present.

Even if the meconium is 'thin', and there are no other abnormal findings in you or your baby, we still recommend continuous electronic fetal monitoring. This is because even thin meconium cause inflammation of the baby's lungs and therefore it is important to look out for signs that your baby is becoming distressed.

A recent audit at the RBH has confirmed that there have been no incidents of meconium aspiration syndrome or poor neonatal outcomes in the presence of thin meconium when intermittent auscultation has been continued. If you choose to continue to have your baby's heartbeat monitored with intermittent auscultation in the presence of thin meconium your midwife will carry out a continuous risk assessment and if there are any other concerns she will make a strong recommendation for you to have continuous electronic fetal monitoring.

### After your baby is born

If there has been thick meconium during labour, your baby's heartbeat, breathing and colour will be checked carefully straight after the birth. If these are not normal, 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 colour are normal, a healthcare professional will perform observations every 2 hours for 12 hours after the birth. If there has been thin meconium, your baby should be checked 1 and 2 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.

### Whose decision?

Without doubt, it is a good idea to monitor the baby's heartbeat throughout labour. However, you should be involved in deciding how this should be done. There are some circumstances when a specific option will be recommended. Where this is the case, you can discuss this with your midwife or doctor.

## References:

1. National Institute of Clinical Excellence (2014 updated 2017) Intrapartum Care for healthy women and babies NICE: London available at [www.nice.org.uk](http://www.nice.org.uk)
2. Bolton and Chandrabaran (2019) The Significance of 'Non-Significant' Meconium Stained Amniotic Fluid (MSAF) journal of Advances in Medicine and Medical research 30(5)
3. RCM (2017) Consensus statement: RCM/RCOG consensus statement on electronic fetal monitoring available at [www.rcm.org.uk/publications](http://www.rcm.org.uk/publications)

This document can be made available in other languages and formats upon request.

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