

Joint Guideline for the use of Intrapartum Fetal Monitoring and Fetal Blood Sampling

Document Control:

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8	April 2020	Amendment from JPUH	Amendment from JPUH 'In the active stages of labour intermittent auscultation should occur' – 'immediately after contraction' amended to 'Towards the end of a contraction and for at least 30 seconds following a contraction'.
9.1	02/11/2020	Charles Bircher	Removed reference to BMI and CTG to fall in line with RCOG.
10	15/04/2021	Charles Bircher	Addition of when to use FSE: Confirmation of who second checker for fresh eyes (via JPUH).
11	26/06/2021	Charles Bircher	Removed reference to GTN and left in terbutaline, as this is what is used more and terbutaline is evidence based more so than GTN

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11.1	26/11/2021	Tracey Miller Beth Revell	Low risk changes
11.2	14/12/2021	Charles Bircher Pip Noble Deirdre Foley	Removed Joint from title, added iCare SOP link
11.3	28/01/2022	Pip Noble Lauren Goodfellow (fetal monitoring midwife JPH)	Re-instated Joint Guideline Link with JPUH, iCARE changes accepted by JPUH.
12	23/06/2023	C Bircher	Complete review to move from FIGO recommendations to NICE recommendations
13	01/08/2023	V Maxey	Minor amendment to sticker size for printing purposes

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None	Not applicable

Distribution Control

Printed copies of this document should be considered out of date. The most up to date version is available from the Trust Intranet.

Consultation

The following were consulted during the development of this document:

- Charles Bircher, Consultant Obstetrician, Labour Ward Lead
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- Tracey Miller, Midwife Led Birth Unit Team Leader
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Monitoring and Review of Procedural Document

The document owner is responsible for monitoring and reviewing the effectiveness of this Procedural Document. This review is continuous however as a minimum will be achieved at the point this procedural document requires a review e.g. changes in legislation, findings from incidents or document expiry.

Relationship of this document to other procedural documents

This document is a clinical guideline applicable to the Norfolk and Norwich University Hospital NHS Trust; please refer to local Trust's procedural documents for further guidance, as noted in Section 5.

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1.1. Rationale

The monitoring of the fetal heart in labour aims to identify hypoxia before it is sufficient to lead to damaging acidosis and long-term irreversible neurological damage in the baby.

The NICE Fetal Monitoring in Labour Guideline (2022) recommends for women with no identified risk factors for fetal compromise, continuous CTG increases the risk of interventions which may outweigh the benefits. Therefore in general, intermittent auscultation is the preferred method of intrapartum fetal monitoring in this group.

The assessment of risk factors for fetal compromise is a dynamic process that can change and therefore the method of fetal monitoring recommended can change.

1.2. Objective

The objective of this guideline is to improve the standard of fetal surveillance, especially intrapartum. It gives guidance as to when intermittent auscultation or continuous CTG is recommended and it provides the criteria for identifying normal, suspicious and pathological heart beat traces, and recommends appropriate responses to these – in an effort to reduce perinatal mortality and morbidity.

1.3. Scope

These are the general recommendations. A birthing person can make her own choice about method of intrapartum fetal monitoring which may not follow this guidance. This should be an informed decision.

1.4. Glossary

The following terms and abbreviations have been used within this document:

Term	Definition
BPM	Beats per minute
CTG	Cardiotocograph
FBS	Fetal blood sample
CS	Caesarean section
FHR	Fetal heart rate
FIGO	International Federation of Gynaecology and Obstetrics
NIEL	Not in established labour
NICE	National Institute for Health and Care Excellence
IA	Intermittent Auscultation

2. Responsibilities

Charles Bircher, Consultant Obstetrician, and Dierdre Foley, Fetal Monitoring Midwife have responsibility to keep this guideline up to date with national guidance and ensure all staff with responsibility for fetal monitoring are educated on it.

3. Processes to be followed

3.1. General Principles

While performing fetal monitoring in labour, perform and document a systematic assessment of the condition of the woman and unborn baby every hour, or more frequently if there are concerns. Discuss the results of each hourly assessment with

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the woman and base recommendations about care in labour on her preferences and the frequency, length and strength of her contractions, any antenatal and intrapartum risk factors for fetal compromise, the current wellbeing of the woman and unborn baby and how labour is progressing. Include birthing companion(s) in these discussions if appropriate, and if that is what the woman wants. Remember that fetal heart rate monitoring is a tool to provide guidance on fetal condition, and not a standalone diagnostic tool. The findings from monitoring need to be looked at together with the developing clinical picture for both woman and baby.

Ensure one-to-one support is maintained by having a midwife remain with the woman throughout labour. If the midwife needs to leave the room or there needs to be a change in staff, ensure the woman knows this is happening (NICE 2022).

Before commencing fetal monitoring, perform an abdominal palpation to confirm fetal lie and presentation, and listen to the fetal heart with a Pinard or sonicaid while palpating maternal pulse to ensure it is different from the fetal heart.

3.2. Initial Assessment

Perform an initial assessment of antenatal risk factors for fetal compromise at the onset of labour to determine whether IA or CTG is offered as the initial method of fetal heart rate monitoring. Take into account the recommendations for fetal monitoring for women who are considered to be at higher risk of complications during labour because of existing medical conditions or obstetric complications.

3.2.1. Risk factors to start continuous fetal monitoring

(This is not an exhaustive list)

Maternal Problems	Fetal Problems	Intrapartum/Developing problems
Previous CS or full thickness uterine scar	Growth restriction	Oxytocin augmentation
Pre-eclampsia	Oligohydramnios	Bleeding in labour (other than show)
Hypertensive disorders	Polyhydramnios	Maternal pyrexia/sepsis
Membranes ruptured >24 hrs and NIEL	Abnormal Dopplers	Suspected chorioamnionitis
Post term pregnancy (>42 weeks)	Breech or any non cephalic presentation	Maternal Tachycardia >120bpm x2 30mins apart
Multiple Pregnancy	Prematurity	Regional anaesthesia
Diabetes	Reduced fetal movements in the 24 hours prior to regular contractions	Contractions lasting >2 minutes (hypertonus), or 5 or more contractions in 10 minutes (tachysystole)
Ante partum haemorrhage		Confirmed delay in 1st or 2nd stage
Other maternal medical disease		Meconium liquor

The NNUH “Intrapartum and Fetal Monitoring Risk Assessment Tool” (Trust Doc ID: [17215](#)) can help guide both place of birth as well as type of fetal monitoring recommended.

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3.3. Labouring people with babies at low risk of fetal compromise

For full low risk / MLBU criteria and care, refer to Intrapartum Care guideline (Trust Doc ID: [850](#)) and Midwifery-Led Birthing Unit (MLBU) Operational Guideline (Trust Doc ID: [7181](#))

In general, for a woman who is healthy and has an otherwise uncomplicated pregnancy of up to 40⁺¹⁴ weeks, IA should be offered and recommended in labour to monitor fetal wellbeing, wherever practical.

Intermittent auscultation can be performed by using Pinard's stethoscope or handheld Doppler. Maternal pulse should be palpated simultaneously to differentiate from fetal heart rate.

In response SBLCBV2 (2019) recommends regular supportive reviews in labour to promote the detection of fetal and maternal deterioration as well as deviations from normality; supported with a structured proforma to promote discussion between the midwife and another midwife/doctor. The N&W LMNS have introduced iCARE fresh approach which aims to improve the recognition of changing risk factors and promote appropriate escalation. The process for this is explained in the Norfolk and Waveney LMNS Shared Standard Operating Procedure for the process of the intrapartum risk assessment and performing an iCARE review when using intermittent auscultation.

3.3.1. Intermittent Auscultation

The process for carrying out IA in the active first stage of labour, or when you suspect someone is in active labour, as per NICE 2022:

- Carry out IA for at least 1 minute after a palpated contraction, at least once every 15 minutes.
- Record the FH as a single rate on the partogram
- Record accelerations and decelerations if heard
- Palpate and record on the partogram the maternal pulse hourly, or more often if there are any concerns, to ensure differentiation with the fetal heart rate.

Second stage of labour (either confirmed with vaginal assessment, or if clinically the second stage of labour is suspected):

- Carry out IA for at least 1 minute after a palpated contraction, at least once every 5 minutes.
- Record the FH as a single rate on the partogram
- Palpate the woman's pulse simultaneously to differentiate between maternal and fetal heart rates
- If there is any concerns about differentiation, seek help and consider changing to continuous fetal heart rate monitoring (CTG)

3.4. Escalation Policy

3.4.1. Initial actions to take if decelerations are heard on IA, or there is an increase in the FHR (as plotted on the partogram) of 20 beats a minute or more from the start of labour

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- Carrying out intermittent auscultation more frequently, for example after 3 consecutive contractions initially.
- Consider the whole clinical picture, including existing or developing risk factors for fetal compromise, the progress in labour the woman's position and hydration, the strength and frequency of contractions and maternal observations.

3.4.2. Continuous CTG should be recommended and Obstetric help should be summoned if any of the following are true:

- If there is any evidence of a fetal heart rate baseline of less than 110 bpm or greater than 160 bpm
- If decelerations are confirmed by the increased IA as above.
- If a rise in the FHR of 20 beats or more from the start of labour is confirmed as above.
- If any maternal or fetal intrapartum risk factors develop (see table 3.1.1).

In order to perform a CTG and get Obstetric help, if the labouring person is on MLBU, transfer to delivery suite is likely necessary unless delivery is imminent.

If the CTG trace is normal, including no evidence of a rise in the baseline of 20 beats or more, after 20 minutes, return to IA unless the labouring person chooses to remain on the CTG.

3.5. Meconium

There is a difference in national guidance when meconium is seen.

The NICE Fetal Monitoring guideline says “Offer continuous CTG monitoring for women who have or develop any of the following new intrapartum risk factors:.....the presence of meconium”. However later in the guideline it says “Consider the character of the meconium as part of the overall clinical assessment, in conjunction with other antenatal or intrapartum risk factors, and discuss the option of CTG monitoring with the woman.”

The NICE Intrapartum care guideline classifies significant and non-significant meconium and says “If significant meconium is present, transfer the woman to obstetric-led care provided that it is safe to do so and the birth is unlikely to occur before transfer is completed.”

Therefore, the guidance at NNUH is:

- If significant meconium is seen, a continuous CTG for the remainder of labour is recommended, which will require transfer to delivery suite if not birthing in a different location.
- If non-significant meconium is seen, this should prompt a holistic review of a woman's care in labour. If other risk factors such as poor progress or a maternal pyrexia are noted, then a CTG recommended (and transfer to delivery suite if not in this location). If there are no other developing risk factors and other maternal and fetal observations are normal, the woman should still be offered a CTG and transfer to delivery suite, but if she declines she can remain on MLBU with intermittent auscultation, with a low threshold to transfer if other risk factors develop or the woman changes her mind.

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- If at home, if meconium is seen, a transfer to delivery suite is recommended.

3.6. Second opinions

If concerns about fetal or maternal wellbeing are identified by the midwife, initially they can escalate to the midwifery coordinator or oncall Obstetric team as needed. If there is a difference of opinion, involvement of other senior members of staff is encouraged (i.e. Obstetric consultant on call).

3.7. Labouring people with babies at high risk of compromise in labour

A large number of patients fall into the “high risk” category, either as a result of maternal or fetal risk factors identified antenatally, or as a result of intrapartum problems. All such women should be recommended continuous CTG. A list of potential risk factors is in table 3.1.1. This list is not exhaustive, and if there is any question a discussion should take place between the midwifery and obstetric teams, taking into account the labouring persons wishes.

Prior to connecting the machine, ensure that the automatic date and time settings are correct and that the rate is set at 1cm per minute.

Women should be informed that continuous fetal monitoring may restrict their mobility in labour. The use of CTG machines with wireless monitors is encouraged to aid mobility and the use of water if water is deemed safe (see policy on [Waterbirth.Trust i.d. 804](#)).

3.7.1. Documentation

Once a CTG has commenced the following information should be included on the trace:

- Patient’s name and hospital number.
- Date and time (use 24-hour clock) trace commenced check this is correct on the CTG.
- Maternal pulse at the time the trace commenced and hourly throughout labour also to be recorded on the sticker (appendix 1). The use of a maternal pulse oximeter makes continuous maternal pulse possible.
- Any key intrapartum events – such as a vaginal examination, membrane rupture, siting and topping-up an epidural – should be noted at the time of the event and the time noted and signed.
- Any member of staff who is asked to provide an opinion on a trace should note their findings on both the trace and in the medical records with a sticker, along with date, time and signature.
- Following birth, the healthcare professional should sign and note the date, time and mode of delivery on the CTG trace.
- CTGs performed antenatally should be countersigned by 2 midwives upon completion. The modified antenatal CTG sticker should be used to aid interpretation and once completed placed in the maternity handheld records.

Half-hourly Systematic review of CTG

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The interpretation of the CTG should take into consideration any risk factors, the stage of labour, progress in labour, maternal and fetal condition, as well as the features of the CTG. The CTG should be classified at least half-hourly as normal, suspicious or pathological using the criteria in this guideline.

“Fresh eyes” review

A “Fresh eyes” review and categorisation of CTG by an independent person is recommended hourly. The independent person should be a band 6 midwife or above, fetal surveillance/monitoring midwife or Obstetric training registrar who is competent to review a CTG independently. The CTG sticker in Appendix 1 of this guideline should be used. **Any risk factors should be documented on this sticker.**

3.7.2. CTG Features

With the introduction of this version of this guideline, NNUH has moved from the CTG classification system recommended by FIGO to the recommendation by NICE 2022. However the interpretation of a CTG needs to be made in conjunction with an understanding of fetal physiology which includes the physiological reserves for the individual baby, as well as a holistic overview of a birthing persons care in labour.

Categorise the 4 features of the cardiotocography trace (contractions, baseline fetal heart rate, variability, decelerations) as white, amber or red (indicating increasing levels of concern) and use alongside consideration of the presence of accelerations to classify the overall CTG trace.

As a general rule “If there is a stable baseline fetal heart rate between 110 and 160 beats a minute and normal variability, continue usual care as the risk of fetal acidosis is low” – NICE 2022.

Contractions

White:

- Fewer than 5 contractions in 10 minutes

Amber

- 5 or more contractions in 10 minutes (tachysystole) **or**
- Contractions lasting 2 minutes or more (hypertonus)

Baseline

This is the average rate of the FHR over a 10-minute period, excluding accelerations and decelerations when the FHR is stable. When deciding if there is any change in baseline, compare it with earlier CTG traces or a baseline established on IA. Preterm fetus’ tend to have a baseline towards the higher end of normal, and post-term fetus’ baselines tend to be at the lower end of normal. Therefore when considering a baseline, always consider is it appropriate for the gestation.

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A rise in the baseline may represent developing infection or hypoxia.

White

- Stable baseline of 110 – 160

Amber

- Increase in baseline fetal heart rate of 20 beats a minute or more from the start of labour or since the last review an hour ago, **or**
- 100 to 109 beats a minute (but continue usual care if this has been stable throughout labour and there is normal variability and no variable or late decelerations), **or**
- Unable to determine baseline

Red

- Below 100 beats a minute, **or**
- Above 160 beats a minute

Variability

Refers to the oscillations of the FHR around the baseline. Measure it by estimating the difference in beats per minute between the highest heart rate and the lowest heart rate in a 1-minute segment of the trace between contractions, excluding decelerations and accelerations.

Intermittent periods of reduced variability are normal, but these are unlikely to last longer than 30 minutes, and if longer than 50 minutes, reduced variability is not normal. If there is reduced variability as soon as a CTG trace is started, a full holistic review should take place and decisions on reduced variability can happen before 30 minute or 50 minute thresholds as it may be unclear how long the reduced variability has been going on for.

Certain medications can cause reduced variability, such as opiates. In this situation, other aspects of CTG interpretation are likely to be normal.

If there is an absence of variability, carry out a review of the whole clinical picture with a low threshold for expedited birth, as this is a very concerning feature.

White

- 5 to 25 beats a minute

Amber

- Fewer than 5 beats a minute for between 30 and 50 minutes, **or**
- More than 25 beats a minute for up to 10 minutes

Red

- Fewer than 5 beats a minute for more than 50 minutes, **or**
- More than 25 beats a minute for more than 10 minutes, **or**

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- Sinusoidal (a regular, smooth, undulating pattern, resembling a sine wave, with an amplitude of 5-15bpm, with a frequency of 3-5 cycles per minute. If lasting >30 minutes it can be associated with fetal hypoxia, fetal anaemia or infection)

Accelerations

Increase in the FHR by at least 15bpm above the baseline lasting more than 15 seconds.

- The presence of accelerations are a sign of good fetal wellbeing, even with reduced variability
- The absence of accelerations **in labour** on an otherwise normal CTG trace does not indicate fetal acidosis.
- Simultaneous monitoring of maternal and fetal heart rate can be useful in cases where it is difficult to distinguish between them. This should be considered, especially during the second stage of labour, when tracings show accelerations coinciding with contractions and maternal expulsive efforts.

Decelerations

Decrease in the FHR by more than 15bpm for more than 15 seconds. An exception to this is that in a trace with reduced variability, decelerations may be 'shallow'.

When assessing the significance of decelerations in fetal heart rate, consider:

- Their timing (early, variable or late) in relation to the peaks and duration of the contractions
 - Early decelerations: Repetitive and periodic slowing of the fetal heart rate with onset early in the contraction and return to baseline at the end of the contraction. These are uncommon.
 - Variable decelerations: Intermittent and periodic slowing of the fetal heart rate with a variable time in relation to the contraction.
 - Late decelerations: Repetitive and periodic slowing of the fetal heart rate with onset mid to end of the contraction and the lowest point more than 20 seconds after the peak of the contraction, and ending after the contraction.
- The duration of the individual decelerations
- Whether or not the fetal heart rate returns to the baseline heart rate
- How long they have been present for
- Whether they occur with over 50% of contractions (defined as repetitive)
- The presence or absence of shouldering
- The variability within the deceleration

White

- No decelerations, **or**
- Early decelerations, **or**
- Variable decelerations that are not evolving to have concerning characteristics

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Amber

- Repetitive variable decelerations with any concerning characteristics for less than 30 minutes, **or**
- Variable decelerations with any concerning characteristics for more than 30 minutes, **or**
- Repetitive late decelerations for less than 30 minutes

Red

- Repetitive variable decelerations with any concerning characteristics for more than 30 minutes, **or**
- Repetitive late decelerations for more than 30 minutes, **or**
- Acute bradycardia, or a single prolonged deceleration lasting 3 minutes or more

Regard the following as concerning characteristics of variable decelerations:

- **Lasting more than 60 seconds**
- **Reduced variability within the deceleration**
- **Failure or slow return to baseline fetal heart rate**
- **Loss of previously present shouldering**

3.7.3. Classification of CTG traces

- Normal
- no amber or red features (all 4 features are white)
- Suspicious
- any 1 feature is amber
- Pathological
- any 1 feature is red **or** 2 or more features are amber

3.7.4. Maintaining a good quality CTG trace

If you have a poor quality CTG, loss of contact or are unsure of your fetal baseline consider application of an FSE. A maternal heart rate monitor (pulse oximeter) can also be used to differentiate between fetal and maternal heart rates.

It is important to maintain a good quality trace when. When there are potential breaks in monitoring, such as going to the toilet or during the siting of an epidural or spinal anaesthetic, consideration to monitoring needs to be made. It may be reasonable to have small gaps in monitoring if prior monitoring has been normal, but a holistic review of the situation needs to be made and use of other equipment may be necessary:

- Fetal scalp electrodes
- Wireless CTG monitors
- Bed pans or commodes

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- Maternal heart rate monitored with a pulse oximeter
- Extra staff to hold on transducers

Staff should feel empowered to speak up if they have concerns about gaps in monitoring.

3.7.5. Actions to be taken in the event the CTG is assessed as suspicious or pathological:

Categorisation of a trace as suspicious or pathological does not necessarily mean delivery. If it is classified as suspicious or pathological, perform a full risk assessment, including a full set of maternal observations, taking into account the whole clinical picture, and document the findings, and start conservative measures to improve the fetal environment and reverse reversible causes of fetal hypoxia:

- **Excessive uterine activity.** This is the most common cause for fetal hypoxia. Can be corrected by stopping oxytocin infusion, removing prostaglandins or administration of a Tocolytic, such as terbutaline (250mcg s/c).
- **Aorto-caval compression.** Can be a result of the mother being in the supine position, so can be corrected by changing maternal position, usually to her left lateral.
- **Sudden maternal hypotension.** Usually a result of regional anaesthesia, and can be corrected by rapid infusion of IV fluids.
- **Additional effect of maternal pushing.** In the second stage of labour, this can cause extra stress on the fetus, causing hypoxia to develop quicker. Therefore it may be appropriate to discontinue active pushing to allow the fetus to recover if delivery is not imminent or easily achievable

If the CTG trace is categorised as suspicious and there are no other concerning risk factors:

- If accelerations are present then fetal acidosis is unlikely
- If the CTG trace was previously normal, consider possible underlying reasons for the change
- Undertake conservative measures as indicated

If the CTG trace is categorised as suspicious and there are additional intrapartum risk factors such as slow progress, sepsis or meconium:

- Obtain an urgent review by an obstetrician (Tier 2/Registrar or above) or a senior midwife
- Consider fetal scalp stimulation. If this results in an acceleration and a sustained improvement in the CTG, hypoxia is unlikely
- Expediting birth

If the CTG trace is categorised as pathological:

- Obtain an urgent review by an obstetrician (Tier 2/Registrar or above) and a senior midwife
- Exclude acute events (for example, cord prolapse, suspected placental abruption or suspected uterine rupture) that need immediate intervention
- If the CTG trace is still pathological after implementing conservative measures:

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- obtain a further urgent review by an obstetrician and a senior midwife
- evaluate the whole clinical picture and consider expediting birth
- if there are evolving intrapartum risk factors for fetal compromise, have a very low threshold for expediting birth

If there is an acute bradycardia or a single deceleration for 3 minutes or more

- Urgently seek obstetric review
- If there has been an acute event (for example, cord prolapse, suspected placental abruption or suspected uterine rupture), expedite the birth
- Consider possible underlying causes and undertake conservative measures as indicated
- Make preparations for an urgent birth, including a request for paediatric or neonatal support.
- Expedite the birth if the acute bradycardia persists for 9 minutes, or less if there are significant antenatal or intrapartum risk factors for fetal compromise.
- If the fetal heart rate recovers at any time up to 9 minutes, reassess any decision to expedite the birth, but take into account other antenatal and intrapartum risk factors and discuss this with the woman.
- If a decision is made to expedite birth, ensure the time at which urgent review was sought, and the time the decision was made, are documented

These are broad recommendations – if in doubt SEEK ADVICE FROM A SENIOR

3.7.6. The Use of Telemetry

In order to maintain mobility or to use water during labour where appropriate, the use of wireless CTG monitors are available. It is important to ensure wireless transducers are kept charged and maintained so that they are ready to use. When starting wireless monitoring, it is vital that the transducer is docked to the machine you are using to ensure it is matched and picking up the correct signal. Switch from wireless to wired transducers as soon as possible if there is signal loss which is not resolved by reducing the distance between the base unit and the woman, in order to confirm whether or not there is a clinical problem. And once finished with wireless transducers, they must be docked in the machine to ensure they are charged and matched to that machine.

3.8. Fetal blood sampling (FBS)

The NICE guideline on Fetal Monitoring (2022) says: “NICE is unable to make a recommendation about fetal blood sampling because of limited evidence”. Current local practice is to use FBS in limited, selected cases.

When it is used alone, continuous CTG is associated with an increased likelihood of obstetric intervention, including caesarean section (CS).

FBS to establish acid-base status has been used in cases where there are concerns about the fetal heart in the hope it increases the detection rate of true fetal compromise and reduce unnecessary CS sections for suspected “fetal compromise”.

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However there has been no high quality RCT to show the impact CTG with or without FBS has on fetal outcomes and intervention rates.

FBS should be performed in the left lateral position. The FBS results and any actions taken should be written in the labour record and the blood gas analyser print-out should **also** be secured in the labour record.

FBS should be considered:

- In the presence of a persistent pathological CTG trace despite conservative measures above, unless there is clear evidence of acute compromise or vaginal delivery can be expedited safely.
- When prioritising multiple cases on labour ward.

FBS should NOT be undertaken:

Where there is clear evidence of acute fetal compromise (e.g. prolonged deceleration greater than 3 minutes).

3.8.1. Classification of FBS results

pH	Interpretation	Action
≥ 7.25	Normal	Repeat sample no more than 60 minutes later if this is still indicated by the CTG trace, or sooner if there are further abnormalities (eg. meconium appears)
7.21-7.24	Borderline	Repeat sample no more than 30 minutes later if this is still indicated by the CTG trace, or sooner if there are further abnormalities (eg. meconium appears)
≤ 7.20	Abnormal	Consultant obstetric advice should be sought. Delivery within 30 minutes is indicated

All scalp pH estimations should be interpreted taking into account the previous pH measurement, the rate of progress in labour and the clinical features of the mother and baby.

If the CTG trace remains unchanged and the FBS result is stable after the second test, a third sample may be deferred unless additional abnormalities develop on the trace.

Where a third FBS is considered necessary, a consultant obstetric opinion should be sought.

If it is technically impossible to obtain a satisfactory sample, but there is an accelerative trace associated with scalp stimulation, then the likelihood of significant fetal acidosis is low.

The time taken to take an FBS needs to be considered when planning repeat samples.

Contraindications to fetal blood sampling include:

1. Maternal infection (e.g. HIV, hepatitis viruses and herpes simplex virus).
2. Fetal bleeding disorders (e.g. haemophilia).

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3. Prematurity (less than 34 weeks).

4. Training & Competencies

All staff trained to interpret fetal condition in labour are required to attend a full day update of fetal monitoring in labour annually.

5. Related Documents

- [Trust Guideline for the Midwife-Led Birthing Unit \(MLBU\) Operational Guideline, Trust Docs 7181](#)
- [Maternity Clinical Guideline for Intrapartum Care, Trust Docs 850](#)
- [Norfolk and Waveney LMNS Shared Standard Operating Procedure for the process of the intrapartum risk assessment and performing an iCARE review when using intermittent auscultation, Trust Docs 19254](#)
- [Intrapartum and Fetal Monitoring Risk Assessment Tool, Trust Docs 17215](#)
- [Water Birth Management, Trust Docs 804](#)

6. References

NICE, Fetal Monitoring in Labour, NICE Guideline 229, December 2022
FIGO consensus guidelines on intrapartum fetal monitoring, October 2015

7. Monitoring Compliance

Compliance with the process will be monitored through the following:

Key elements	Process for Monitoring	By Whom (Individual / group /committee)	Responsible Governance Committee /dept	Frequency of monitoring
Staff training on fetal monitoring	ESR percentage of staff trained	Fetal monitoring team	Maternity	Annual
Fetal outcomes	Datix for all Apgar's <7 at 5 minutes and cord pH's <7.0. Cases to be reviewed at weekly intrapartum meeting	Fetal monitoring team	Maternity	Continuous

The results are to be discussed at relevant fetal monitoring meetings where recommendations for further action are made. The Maternity Risk team will ensure any actions and recommendations highlighted through Datix and the fetal monitoring meeting are suitable and sufficient.

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8. Appendix 1

8.1. NICE Intrapartum CTG Sticker

Sticker No:	CTG in Labour: NICE 2022 classification		Maternal pulse:	<u>Initial risk factors:</u>
Contractions	• < 5:10	• ≥ 5:10 • Contraction lasting ≥ 2 mins		<u>Evolving risks:</u>
Baseline bpm Original baseline bpm	• 110 – 160bpm AND • Stable baseline AND • Appropriate for gestation	• Increase of ≥ 20bpm from start of labour or in last 1 hour • 100 - 109bpm (unless otherwise normal) • Unable to determine baseline		• < 100 bpm, • > 160 bpm • Increase of 20bpm in Active 2 nd stage
Variability (bpm)	• 5 – 25 bpm	• < 5 bpm for 30 – 50 minutes, • > 25 bpm for up to 10 minutes		• < 5 bpm for > 50 minutes, • > 25 bpm for > 10 minutes, • Sinusoidal pattern
Decelerations	Concerning characteristics Lasting >60 secs; reduced variability within decel; slow / failure return baseline; loss of shouldering			
	• No decelerations, • Early decelerations, • Variable decelerations with no concerning characteristics	• Repetitive variable decelerations with concerning characteristics < 30 mins, • Variable decelerations with any concerning characteristics > 30 mins, • Repetitive late decels < 30 mins		• Repetitive variable decelerations with any concerning characteristics > 30 mins • Repetitive late decelerations > 30 mins • Acute bradycardia, or single prolonged deceleration lasting > 3mins
Classification & Management:	NORMAL All 4 features are White Continue current care	SUSPICIOUS: Any 1 Amber Full risk assessment incl. maternal observations; Senior Midwife or Obstetric review if additional risk factors; Start conservative measures, consider fetal scalp stimulation or expediting birth		PATHOLOGICAL: 1 Red / 2 or more Amber Full assessment incl. maternal observations; Urgent Obstetric review; Start conservative measures, consider fetal scalp stimulation and exclude acute events
Time:	Signature 1:	Name & Job Role:		Document plan in the notes
Time:	Signature 2:	Name & Job Role:		Agree <input type="checkbox"/> Disagree <input type="checkbox"/>

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9. Equality Impact Assessment (EIA)

Type of function or policy	Existing clinical guideline
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Division	Women's and Childrens	Department	Maternity
Name of person completing form	Charles Bircher	Date	19/06/23

Equality Area	Potential Negative Impact	Impact Positive Impact	Which groups are affected	Full Impact Assessment Required YES/NO
Race				No
Pregnancy & Maternity				No
Disability				No
Religion and beliefs				No
Sex				No
Gender reassignment				No
Sexual Orientation				No
Age				No
Marriage & Civil Partnership				No
EDS2 – How does this change impact the Equality and Diversity Strategic plan (contact HR or see EDS2 plan)?	No			

<ul style="list-style-type: none"> A full assessment will only be required if: The impact is potentially discriminatory under the general equality duty Any groups of patients/staff/visitors or communities could be potentially disadvantaged by the policy or function/service The policy or function/service is assessed to be of high significance
IF IN DOUBT A FULL IMPACT ASSESSMENT FORM IS REQUIRED
The review of the existing policy re-affirms the rights of all groups and clarifies the individual, managerial and organisational responsibilities in line with statutory and best practice guidance.