

INTRAPARTUM FETAL HEART RATE MONITORING

This LOP is developed to guide clinical practice at the Royal Hospital for Women. Individual patient circumstances may mean that practice diverges from this LOP.

This LOP differs from the guideline of Maternity - Fetal Heart Rate Monitoring GL2015_004 since local allocated resources are not sufficient to comply with that guideline.

1. AIM

- Appropriate use of intrapartum fetal heart rate (FHR) monitoring
- Accurate interpretation of FHR pattern
- Appropriate intervention based on the interpretation of FHR patterns

2. PATIENT

- Pregnant woman who is greater than 24 weeks gestation with an indication for FHR monitoring in labour

3. STAFF

- Medical and midwifery staff

4. EQUIPMENT

- Hand held Doppler
- Cardiotocograph (CTG) machine – telemetry if available
- Ultrasound transmission gel
- Ultrasound machine (to determine fetal heart rate where doubt exists)
- Pinard's fetal stethoscope
- Fetal electrode

5. CLINICAL PRACTICE

- Assess antenatal and intrapartum risk factors in order to make a judgment regarding appropriate mode of monitoring (Table 1)

Table 1 - Indications for intrapartum continuous electronic fetal monitoring (CEFM) include (but are not limited to):

FETAL CONDITIONS	INTRAPARTUM	ANTENATAL MATERNAL CONDITIONS
Post term pregnancy ≥42 weeks Suspected or known Fetal Growth Restriction Oligohydramnios Preterm labour Multiple pregnancy Breech presentation Abnormal Umbilical Artery (UA) doppler studies	Meconium stained liquor Prolonged membrane rupture >18 hours Induced or augmented labour (with oxytocin) Epidural anaesthesia Evidence of infection and/or chorioamnionitis Maternal pyrexia >38°C Heavily blood stained liquor Dystocia in 1st or 2nd stage of labour Abnormal FHR on auscultation	Antepartum haemorrhage Pre-eclampsia/hypertension Insulin requiring diabetes Cholestasis Previous caesarean/uterine surgery Other maternal medical conditions

- Document mode of monitoring, indication and discussion with the woman on an hourly basis
- Perform abdominal palpation to identify the most appropriate position for either intermittent auscultation of the FHR or placement of the ultrasound transducer for CEFM

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Intermittent Auscultation of the FHR

- Perform auscultation of the FHR in established labour:
 - Every 15 to 30 mins in the first stage of labour
 - When providing one to one care for a woman in labour, 15 minutely auscultation is required
 - Every 5 mins, or after every contraction, during the active (pushing) phase of the second stage of labour
 - For a minimum of 60 seconds

Continuous Electronic FHR Monitoring (CEFM)

- Explain to the woman why CEFM is recommended and document in integrated clinical notes
- Palpate and record the maternal heart rate (MHR) simultaneously with FHR at commencement of the CTG. This helps prevent the inadvertent monitoring of the MHR instead of the FHR. The MHR should be documented at the beginning of the CTG and every 30 minutes thereafter. Some CTG machines have the capability to monitor MHR.
- Document on the CTG paper:
 - Date and time
 - Addressograph
 - Indication for monitoring
 - MHR every 30 minutes
 - Gestation
- Position the FHR ultrasound transducer
- Perform an ultrasound to positively identify FHR, when doubt exists
- Position the tocotransducer on the fundus of the uterus or over the area where uterine tone is most easily palpated, to record uterine activity
- Consider a fetal electrode if there are difficulties in maintaining a clear signal and no contraindications. The abdominal ultrasound transducer is sufficient in most cases to obtain an adequate signal
- Complete intrapartum CEFM sticker (Figure 1), or perform contemporaneous notation changes regarding interpretation of FHR pattern and midwifery/medical responses, every 60 minutes or earlier if significant changes occur
- Classify features of the CTG pattern as per Figure 1 (Intrapartum CEFM Sticker) and Table 2
- Manage the clinical situation as per Table 3. **A clinician may call for a clinical review at any time**
- Ensure woman is kept informed of significance of CTG findings
- Ensure all relevant events are recorded contemporaneously on the CTG paper
- Ensure the CTG is appropriately stored in an envelope within the medical record, following delivery, as this is considered a legal document and must be maintained for 25 years

Figure 1: Intrapartum CEFM Sticker

INTRAPARTUM	DATE :	TIME :	MATERNAL PULSE :	MRN :	
Determine Risk:					
FEATURES	CONTRACTIONS	BASELINE RATE	VARIABILITY	ACCELERATIONS	DECELERATIONS
Reassuring	≤5:10	110–160	≥ 5	Present	• None or Early
Non-reassuring	6-7:10	100–109 or 161–179	• < 5 for 40 mins • >25 for >15mins	or Absent ('the absence of accelerations with otherwise normal trace is of uncertain significance' and is therefore not of concern)	• Typical variable > 50% contractions >90mins • Atypical variable or Late for >3 contractions • Single prolonged for up to 3 mins
Abnormal	>7:10 or Tonic >2mins	<100 or >180	• < 5 for 90 mins • Sinusoidal ≥10 mins		• Atypical variable >50% for >30 mins • Late for >30 mins • Prolonged more than 3 mins
NORMAL			SUSPICIOUS	PATHOLOGICAL	
Management Plan:					
Signature(s): Name (s):			Designation:		

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Table 2: Classification of the Fetal Heart Rate Pattern

Normal	A FHR pattern where all features are reassuring
Suspicious	A FHR pattern where there is 1 non-reassuring feature
Pathological	A FHR pattern where there are 2 or more non-reassuring or 1 or more abnormal features

Table 3: Management Plan - Clinical Response

NORMAL	Keep monitoring if the maternal or fetal risks are unchanged. Consider intermittent electronic FHR monitoring if the woman needs to ambulate
SUSPICIOUS	Keep monitoring with ongoing assessment. Escalate and review CTG with midwife in charge/Team Leader or Obstetric Medical Officer
PATHOLOGICAL	Notify Obstetric Medical Officer for rapid response and review. Consider further fetal welfare assessment (fetal blood sampling) and/or consider expediting birth

- Consider use of conservative measures where the FHR pattern falls into the **Suspicious** category including:
 - Preventing/correcting maternal supine hypotension
 - Preventing/correcting uterine hyperstimulation or tonic uterine activity
 - Maximizing maternal blood volume with increased intravenous (IV) fluids if appropriate
 - Reassessing labour progress and risk factors where appropriate
 - Assessing for other causes for suspicious FHR pattern
 - Notification of and timely review by an appropriately experienced midwife and obstetric registrar/consultant within 30 minutes
- Continue the above measures where the FHR pattern falls into the **Pathological** category, in addition to the following:
 - Urgent review and assessment by a obstetric registrar/consultant
 - Fetal blood sampling (FBS) where appropriate
 - Expediting delivery if FBS is not available or not appropriate. FBS is not appropriate when there is clear evidence of acute fetal compromise

6. DOCUMENTATION

- Integrated Clinical Notes
- CTG Paper
- Intrapartum CEFM Sticker
- Partogram

1. EDUCATIONAL NOTES

The scientific evidence for the value of CTG monitoring influencing neonatal outcome, is inconclusive.

CEFM Interpretation

- Accurate interpretation of a FHR pattern may be influenced by intra and inter observer variability and error
- Most FHR features by themselves are poor predictors of sub-optimal neonatal outcome
- An isolated FHR baseline tachycardia (161-180) or a baseline bradycardia (100-109) does not appear to be associated with poor neonatal outcome
- Repeated late decelerations, atypical variable decelerations, and prolonged decelerations associated with reduced baseline variability are related to sub-optimal neonatal outcomes
- Inadvertent monitoring of the MHR produces a pattern that may look convincingly fetal
- The central monitoring system is an adjunct only to clinical care. Where there are concerns about the FHR pattern, an assessment needs to take place at the bedside with the labouring woman, her midwife and the medical staff

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Intermittent Electronic FHR Monitoring

- Intermittent electronic FHR monitoring (EFM) may be appropriate in some clinical situations where the fetal risk is not considered high.
- Intermittent EFM may be used where the woman has declined continuous monitoring
- Intermittent EFM in this context is a minimum of 10 minutes of reassuring FHR pattern each hour in established labour

Monitoring Multiple Pregnancies

- Simultaneous monitoring of each baby is the standard practice when assessing fetal welfare in a multiple pregnancy
- Where the FHR patterns are indistinguishable or extremely similar an ultrasound examination should be performed to clarify the situation

8. RELATED POLICIES / PROCEDURES / CLINICAL PRACTICE LOP

- Fetal Blood Sampling – Intrapartum (FBS) guideline
- Human immunodeficiency virus (HIV) in pregnancy, birth and postpartum period
- Human Immunodeficiency Virus in Pregnancy: Prevention of Mother-to-child-transmission (MTCT)
- Hepatitis B Positive mothers and their babies
- Hepatitis C positive mothers and their babies
- Women who choose care outside of royal hospital for women (RHW) guidelines
- Twin pregnancy intrapartum vaginal birth
- Pre-eclampsia - Intrapartum Care
- Meconium stained amniotic fluid (MSAF) guideline
- Hypertension.- Management in pregnancy
- Severe and/or urgent hypertension in pregnancy guideline
- Cholestasis of Pregnancy - Diagnosis and Management
- Artificial rupture of membranes (ARM)
- Breech Vaginal Birth
- Preterm Labour Diagnosis and Management
- First stage labour care for women with a low risk pregnancy guideline
- First Stage of Labour Care recognition of normal progress and management of delay
- Second Stage of Labour Care recognition of normal progress and management of delay
- Epidural analgesia - continuous infusion adult
- Epidural analgesia patient controlled - Delivery Suite
- NSW MoH Maternity - Fetal Heart Rate Monitoring GL2015_004
- SESLHD Gestational Diabetes Mellitus Management (GDM) Policy SESLHDPD/282
- Between the flags: NSW Health Intrapartum Fetal Heart Rate Pattern Interpretation and Management Algorithm 2012

9. RISK RATING

- Medium

10. NATIONAL STANDARD

- CC – Comprehensive Care

CLINICAL POLICIES, PROCEDURES & GUIDELINES

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Clinical Effectiveness Support Unit, RCOG Press
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events and cerebral palsy: international consensus statement *BMJ* 319 347-348
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REVISION & APPROVAL HISTORY

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