Approved by Quality & Patient Safety Committee
15 October 2015

CARDIOTOCOGRAPHY (CTG) - ANTENATAL

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.

1. AIM

- Accurate interpretation of Antenatal Fetal Heart Rate (FHR) with Electronic Fetal Monitoring (EFM)

2. PATIENT

- A woman ≥26 weeks gestation, presenting with a clinical indication as per Appendix 1

3. STAFF

- Medical, nursing and midwifery staff

4. EQUIPMENT

- Cardiotocography (CTG) machine and straps
- Ultrasound gel

5. CLINICAL PRACTICE

Performing the FHR pattern:

- Explain the procedure and reasons for CTG
- Obtain verbal consent
- Suggest the woman empties her bladder
- Raise bed to appropriate height for clinician
- Ascertain the lie, presentation and position of the fetus by abdominal palpation
- Place and secure the fetal heart rate ultrasound transducer over the fetal anterior shoulder and the tocotransducer on the fundus
- Position the woman comfortably, either sitting upright or laterally
- Ensure ultrasound contact is maintained (handheld if necessary)
- Document on the CTG paper:
    - date and time
    - addressograph
    - indication for monitoring
    - maternal pulse every 30 minutes
    - gestation
- Ensure that the FHR records at the rate of 1cm/minute
- Continue recording the FHR pattern until all reassuring features have been met
- Ensure where there are concerns regarding fetal heart rate pattern, reporting of FHR pattern is documented by consultant/medical staff using the CTG sticker

Interpreting antenatal FHR patterns (see Figure 1 below)

- Classify CTG as per features on antenatal sticker (Figure 1) and arrange clinical response as per RHW PACE criteria
- Interpret the CTG in the context of the clinical situation, especially gestational age
- Compare with preceding CTGs where available

Features not met

- Escalate to the midwife in charge if non-reassuring or abnormal CTG
- Consider either review by the medical team or call PACE 1 or 2
- Discuss with midwife in charge if criteria falls in yellow (non-reassuring) or red (abnormal) zone to determine which of medical review or a PACE call is required
- Keep monitoring with ongoing assessment if features are <u>non–reassuring or abnormal</u>
- Keep woman nil by mouth
- Document in the clinical notes by medical team individualized plan for the woman

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Figure 1 - Antenatal Sticker

ANTENATAL	**DATE :**	**TIME :**	**GESTATION :**	**MRN :**	
Identified Risk :					Maternal Pulse :
Features	***Contractions***	***Baseline Rate***	***Variability (bpm)***	***Reactivity*** (accelerations 2:10)	***Decelerations***
Reassuring	• Nil • Present >37/40	110–160	≥5	Present	• None • Single isolated
Non-reassuring	• Present <37/40	100-109 or 161-179	• < 5 for >30 mins • >25 for >15mins	Absent >30mins	• Repetitive • Shallow • Prolonged < 3 mins
Abnormal	• Tonic >2min • ≥6:10	< 100 or ≥180	• < 5bpm >40mins • Sinusoidal ≥10mins	Absent >60mins	• Prolonged > 3 mins

FEATURES:	**REASSURING**	**NON-REASSURING**	**ABNORMAL**
Management Plan:			

Signature: Designation: Name:	Signature: Designation: Name:

6. DOCUMENTATION

- Integrated Clinical Notes
- CTG Stickers
- CTG Paper

7. EDUCATIONAL NOTES

- It is mandatory for all appropriately trained and qualified providers of maternity care to complete Fetal Welfare Assessment training including ongoing updates
- The fetal heart rate pattern can be affected by :
    - The gestation of the fetus
    - Fetal behavioural state
    - Maternal medications
    - Pregnancy complications
- Whilst most fetal behavioural states last between 20–40 minutes, a fetal sleep cycle may last up to 60 minutes; reduced variability is abnormal if it lasts longer than 60 minutes
- Tocotransducers have limited ability to record uterine activity in the preterm gestation or in a woman with high BMI
- Antenatal EFM may be considered at gestations below 26+0 weeks following a multidisciplinary discussion with the woman regarding birth and neonatal management.
- (In multiple pregnancies ultrasound may be required to locate individual fetal heart positions prior to commencement of CTG monitoring
- The frequency of antenatal CTG is dependent on both the maternal and fetal condition
- There are very few instances where regular routine CTG must be implemented

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8. RELATED POLICIES / PROCEDURES / CLINICAL PRACTICE LOP

- NSW Health. Policy Directive. Maternity - Fetal Heart Rate Monitoring. Document Number PD2010_040
- Preterm Premature Rupture Of Membranes (PPROM) – Assessment And Management Guideline
- Ruptured Membranes – Pre Labour at Term
- Preterm Labour - Diagnoses and Management
- Transfers - In Utero At 23–25 Weeks Gestation
- Midwifery Admission Guideline
- Estimating Due Date (EDD)
- Induction of Labour
- Hypertension – Management In Pregnancy
- Antepartum Haemorrhage
- Cervical Catheterisation for Mechanical Cervical preparation
- Cervical Ripening - Induction of Labour - Administration of Prostaglandin
- Induction Of Labour For Women With A Post-Dates Low Risk Pregnancy
- Intrapartum Fetal Heart Rate Monitoring
- Cervidil Guideline
- Patient with Acute Condition for Escalation (PACE): Management of the Deteriorating ADULT & MATERNITY Inpatient

9. RISK RATING

- Medium

10. REFERENCES

1 NSW Health. Fetal welfare assessment, Obstetric emergencies and Neonatal resuscitation Training (FONT) Program. 2012. IB2012_042
2 NSW general *DETECT/ 'Between the Flags'* program 2012
3 Antenatal Cardiotocography. SA Maternal & Neonatal Clinical Network **Contact:** South Australian Perinatal Practice Guidelines workgroup 2010
4 New South Wales Fetal Heart Rate Monitoring Guideline GL2015_004 March 2015

REVISION & APPROVAL HISTORY

Minor addition (last dot point) Performing the FHR pattern February 2016
Reviewed and endorsed Maternity Services LOPs September 2015
Approved Quality & Patient Safety Committee December 2010
Reviewed Obstetrics Clinical Guidelines Group October 2010
Approved Patient Care Committee 6/12/07

FOR REVIEW : SEPTEMBER 2018

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APPENDIX 1

Situations where Antenatal EFM should be considered from 26 weeks gestation

Abnormal Doppler waveform studies
Amniotic fluid index (AFI) <5cm or >25cm
Antepartum haemorrhage (APH)
Decreased fetal movements
Diabetes – Pre-gestational or Unstable gestational
External cephalic version (prior to and following any attempt)
Hypertension: a sudden elevation of blood pressure (BP) at a gestation where birth is considered as a treatment option
Intrauterine growth restriction (IUGR)
Post-dates from 41+1 weeks (twice weekly)
Pre-eclampsia - Uncontrolled hypertension or progressing pre-eclampsia
Preterm rupture of the membranes <37+0 weeks
Preterm uterine activity
Prostaglandin – (pre and post administration)
Any other obstetric conditions or procedures that increase the risk of fetal compromise

Note: This list is not exhaustive and should not replace clinical judgement.