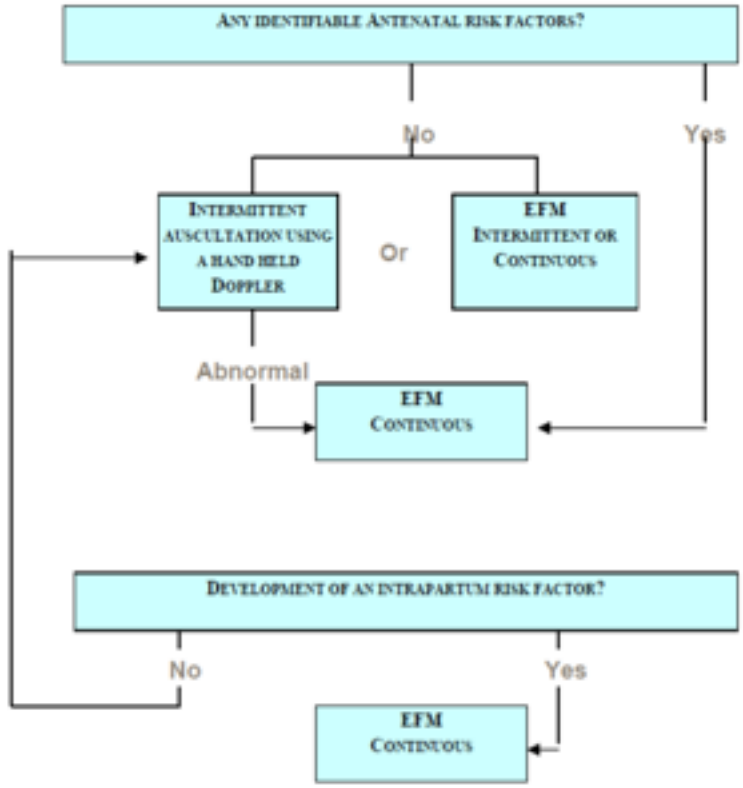
Fetal surveillance (intrapartum)

Chapter 3 Intrapartum fetal surveillance flow chart



ANTEPARTUM RISK FACTORS

- Abnormal antenatal cardiotocogram (CTG)
- Abnormal Doppler umbilical artery velocimetry
- Suspected intrauterine growth restriction
- Antepartum haemorrhage (in excess of a 'show' ≥ 50 mL)
- Hypertension / pre-eclampsia (current pregnancy)
- Diabetes (including gestational diabetes treated with insulin)
- Multiple pregnancy
- Uterine scar / previous caesarean section
- Known fetal abnormality which requires monitoring
- Iso-immunisation
- Oligohydramnios
- Maternal medical conditions that constitute a significant risk of fetal compromise (including severe anaemia, cardiac disease, hyperthyroidism, vascular disease, renal disease)

INTRAPARTUM RISK FACTORS

- Preterm labour
- Breech presentation
- Post-term pregnancy (≥ 42^{+0} weeks)
- Induction / augmentation of labour with oxytocin
- Prolonged rupture of membranes (> 24 hours)
- Meconium-stained or blood-stained liquor
- Fetal bradycardia (< 110 beats / minute) or audible decelerations
- Fetal tachycardia (>160 beats / minute)
- Abnormal fetal heart rate on auscultation
- Maternal pyrexia > 38 °C
- Chorioamnionitis
- Vaginal bleeding in labour (in excess of a "show" ≥ 50 mL)
- Prolonged active first stage labour (> 12 hours regular uterine contractions with cervical dilatation > 3 cm)
- Prolonged second stage of labour (> 1 hour active pushing)
- Insertion of epidural

Government of South Australia
SA Health

ISBN number: UNKNOWN
Endorsed by: SA Maternal & Neonatal Clinical Network
Contact: South Australian Perinatal Practice Guidelines workgroup at: cywhs.perinatalprotocol@health.sa.gov.au

Fetal surveillance (intrapartum)

Literature review

Intrapartum fetal surveillance

- Aims to avoid adverse outcome from intrapartum acidotic / hypoxic insult
- Method (intermittent auscultation or continuous CTG monitoring) should be decided in partnership with the woman according to her needs
- Intermittent auscultation is equally as effective as continuous CTG monitoring for low risk women in labour
- In low risk women, the incidence of intrapartum fetal compromise is low

Continuous electronic fetal monitoring

- Should not be used as a substitute for a midwife
- Provides a record of change over a period of time
- Reduces the incidence of neonatal convulsions
- Increases the rates of caesarean sections and operative vaginal deliveries
- When combined with fetal scalp blood sampling, rates of caesarean section and operative vaginal deliveries are reduced compared with CTG alone
- (Enkin et al. 2000; Mires et al. 2001; RCOG 2001; RANZCOG 2006; Alfirevic et al. 2006).
- With the use of telemetry, women can labour with minimal restriction in their activity

Intermittent auscultation

- Refers to auscultation of the fetal heart at regular intervals using a hand held Doppler
- Every 15 - 30 minutes (throughout and after a contraction) in active labour or in accordance with hospital policy
    - Each auscultation should commence toward the end of a contraction and continue for at least 30 seconds after the contraction has finished
- Every 5 minutes in active second stage of labour:
    - listen in the absence of active pushing and toward the end and at least for 30 seconds after each contraction

Indications for continuous electronic fetal monitoring intrapartum

- Continuous electronic fetal monitoring is recommended when risk factors for fetal compromise are detected during pregnancy, at the onset of labour, or at any time during labour. (See risk factors below)
- Where continuous EFM is required for the substantial part of labour, and if the EFM to date is considered to be normal, monitoring may be interrupted for short periods of up to 15 minutes to allow personal care (e.g. shower, toilet). Such interruptions should be infrequent and not occur immediately after any intervention that might be expected to alter the FHR (e.g. amniotomy, epidural insertion, or top-up etc)

Antepartum risk factors

- Abnormal antenatal cardiotocogram (CTG)

ISBN number: UNKNOWN
Endorsed by: SA Maternal & Neonatal Clinical Network
Contact: South Australian Perinatal Practice Guidelines workgroup at: cywhs.perinatalprotocol@health.sa.gov.au

Government of South Australia
SA Health

Fetal surveillance (intrapartum)

- Abnormal Doppler umbilical artery velocimetry
- Suspected intrauterine growth restriction
- Antepartum haemorrhage (in excess of a 'show' ≥ 50 mL)
- Hypertension / preeclampsia (current pregnancy)
- Diabetes (including gestational diabetes treated with insulin)
- Multiple pregnancy
- Uterine scar / previous caesarean section
- Known fetal abnormality which requires monitoring
- Iso-immunisation
- Oligohydramnios
- Maternal medical conditions that constitute a significant risk of fetal compromise (including severe anaemia, cardiac disease, hyperthyroidism, vascular disease, renal disease)

Risk factors at the onset of labour

- Preterm labour
- Breech presentation
- Post-term pregnancy (≥ 42^{+0} weeks)
- Induction of labour with oxytocic agents

Risk factors present at the onset of labour or arising during labour

- Prolonged rupture of membranes (> 24 hours)
- Meconium-stained or blood-stained liquor (apply fetal scalp electrode, [providing there are no contraindications e.g. Hepatitis B antigen carrier, Hepatitis C or HIV positive women])
- Fetal bradycardia (< 110 beats / minute) or audible decelerations
- Fetal tachycardia (>160 beats / minute)
- Abnormal fetal heart rate on auscultation
- Maternal pyrexia > 38 ˚C
- Chorioamnionitis
- Vaginal bleeding in labour (in excess of a "show" ≥ 50 mL)
- Prolonged active first stage labour (> 12 hours regular uterine contractions with cervical dilatation > 3 cm)
- Prolonged second stage of labour (> 1 hour active pushing)

Indications associated with the use of interventions

- Any use of oxytocin whether for induction or for augmentation of labour
- Before and for at least 20 minutes after administration of prostaglandin
- Epidural analgesia (including at the time of inserting an epidural block)

References

1. Enkin M, Keirse MJNC, Neilson J, Crowther C, Duley L, Hodnett E, et al. A guide to effective care in pregnancy and childbirth, 3rd ed. Oxford: Oxford University Press; 2000 (Level I).

ISBN number: UNKNOWN
Endorsed by: SA Maternal & Neonatal Clinical Network
Contact: South Australian Perinatal Practice Guidelines workgroup at: cywhs.perinatalprotocol@health.sa.gov.au

Government of South Australia
SA Health

2. Mires G, Williams F, Howie P. Randomised controlled trial of cardiotocography versus Doppler auscultation of fetal heart at admission in labour in low risk obstetric population. BMJ 2001; 322: 1457-62 (Level I).
3. Royal College of Obstetricians and Gynaecologists (RCOG). The Use of Electronic Fetal Monitoring, Evidence-based Clinical Guideline Number 8. RCOG Clinical Effectiveness Support Unit, London: RCOG Press; 2001 (Level IV).
4. Royal Australian and New Zealand College of Obstetricians and Gynaecologists (RANZCOG): Intrapartum Fetal Surveillance. Clinical Guidelines – Second Edition; 2006 (Level IV).
5. Alfirevic Z, Devane D, Gyte GML. Continuous cardiotocography (CTG) as a form of electronic fetal monitoring (EFM) for fetal assessment during labour. *Cochrane Database of Systematic Reviews* 2006, Issue 3. Art. No.: CD006066. DOI: 10.1002/14651858.CD006066. Available at URL: http://www.mrw.interscience.wiley.com/cochrane/clsysrev/articles/CD006066/frame.html
6. Freeman RK, Garite TJ, Nageotte MP. (2003). Fetal Heart Rate Monitoring. 3rd ed. Chapter 8. Philadelphia: Lippincott Williams & Wilkins; 2003.
7. MacLennan A. A template for defining a causal relation between acute intrapartum events and cerebral palsy: International consensus statement. BMJ 1999; 319m: 1054-59 (Level IV).

Abbreviations

CTG	Cardiotocograph or cardiotocogram
RCOG	Royal College of Obstetricians and Gynaecologists
RANZCOG	Royal Australian and New Zealand College of Obstetricians and Gynaecologists
EFM	Electronic fetal monitoring
FHR	Fetal heart rate
mL	Millilitre(s)
e.g.	For example
HIV	Human immunodeficiency virus

Version control and change history

PDS reference: OCE use only

Version	Date from	Date to	Amendment
1.0	18 Feb 04	03 Oct 06	Original version
2.0	03 Oct 06	23 Nov 10	Review
3.0	23 Nov 10	Current	

ISBN number: UNKNOWN
Endorsed by: SA Maternal & Neonatal Clinical Network
Contact: South Australian Perinatal Practice Guidelines workgroup at: cywhs.perinatalprotocol@health.sa.gov.au

Government of South Australia
SA Health