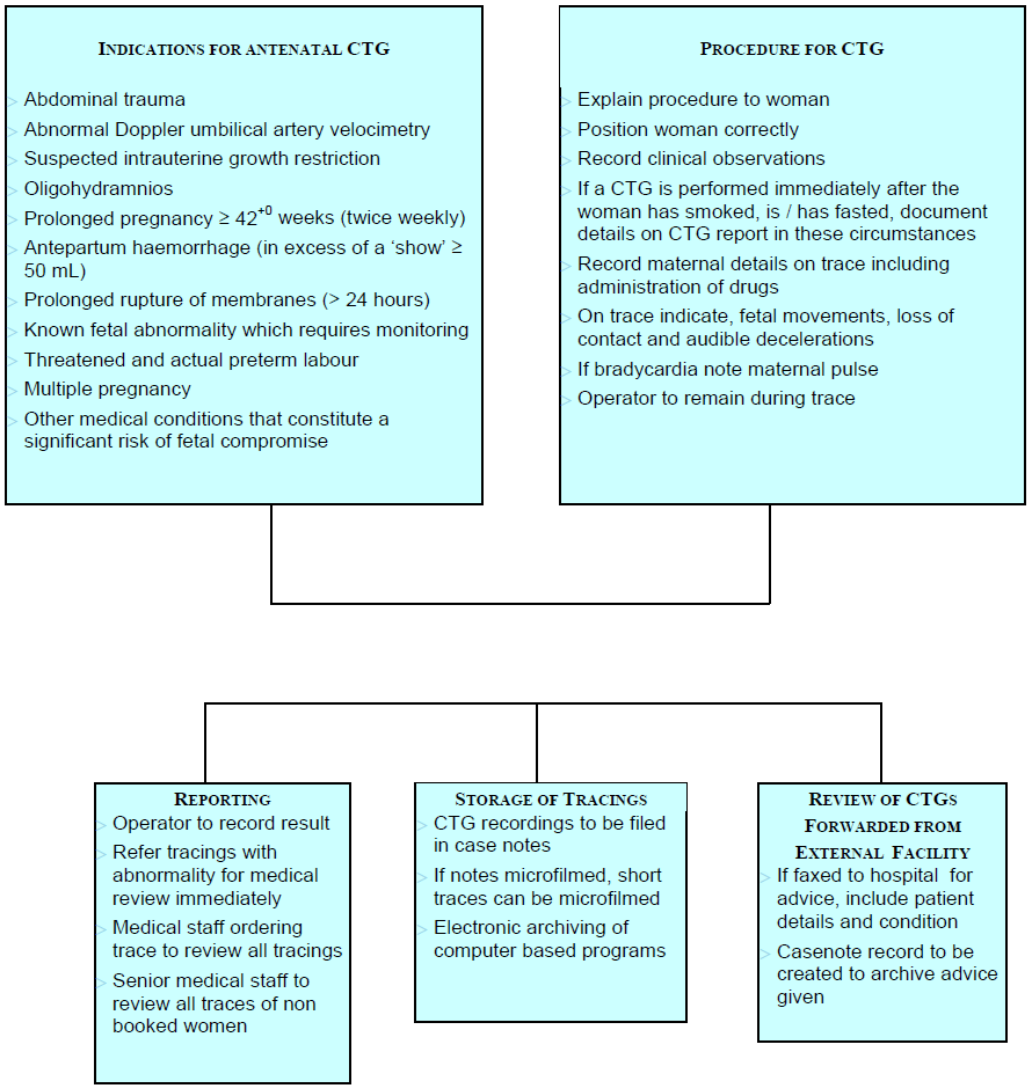
South Australian Perinatal Practice Guidelines

Antenatal Cardiotocography

Chapter 2b Antenatal cardiotocography flow chart



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Antenatal Cardiotocography

Introduction

- The cardiotocograph (CTG) is an evaluation tool widely used in antenatal care for assessment of fetal wellbeing. Antenatal CTG is commonly used in conjunction with ultrasound assessment of fetal and placental Doppler in high risk pregnancy
- Antenatal fetal heart recordings only provide assessment of the *immediate* fetal condition
- Use of a CTG implies that a pregnancy risk has been identified and medical referral is required

Literature review

- At present antenatal CTG is not thought to be useful as a method of routine fetal assessment in low risk pregnancies
- The most recent systematic review of antenatal CTG for fetal assessment was only to identify studies that included women with increased risk of complications (Grivell et al. 2010)
- The systematic review concluded that:
    - The use of antenatal CTG has no effect on the risk of caesarean section for women (Grivell et al. 2010)
    - Antenatal CTG has no beneficial effect on rates of perinatal mortality or morbidity
- However, a comparison between computerised interpretation of CTG and traditional CTG (visual interpretation) showed a significant reduction in perinatal mortality with computerised CTG but no difference in potentially preventable deaths (Grivell et al. 2010). Computerised CTGs with inbuilt computerised interpretation criteria are not currently used or available in South Australia
- There is no evidence that antenatal oral maternal glucose administration improves any features of fetal well-being as assessed by reactivity on CTG (Tan and Sabapathy 2001)
- 10 % of CTGs may be uninterpretable due to:
    - Gestational age
    - Normal rest phases (may be up to 90 minutes)
    - The use of certain medications (e.g. central nervous system sedatives) (Mohide and Keirse 1989)
    - Changes in heart rate patterns associated with circadian rhythms

Risk factors

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- The following clinical situations may be an indication for antenatal CTG for fetal assessment:
  - Abdominal trauma (for further information, refer to the PPG 'trauma in pregnancy)
  - Abnormal Doppler umbilical artery velocimetry
  - Suspected intrauterine growth restriction
  - Oligohydramnios
  - Prolonged pregnancy ≥ 42^{+0} weeks (twice weekly)
  - Antepartum haemorrhage (in excess of a 'show' ≥ 50 mL)
  - Prolonged rupture of membranes (> 24 hours)
  - Known fetal abnormality which requires monitoring
  - Threatened and actual preterm labour
  - Multiple pregnancy
  - Other medical conditions that constitute a significant risk of fetal compromise

Use of antenatal CTGs

- Antenatal CTGs may be provided for women attending as an outpatient (emergency department or day assessment unit) or as an antenatal inpatient
- As clinically indicated according to the presence of pregnancy risk factors
- The decision to perform EFM should be made following consultation with appropriate clinicians and the woman with consideration of gestation

Antenatal CTG practice recommendations

- If there is no centralised fetal monitoring the clinician should remain present throughout the tracing. At all times a clinician must be assigned to observe the CTG
- The duration of the recording need only be **10 minutes** if there are no decelerations and the features are within the normal parameters described in CTG reporting by RANZCOG
- Document on the report when CTG is performed within 30 minutes of cigarette smoking and administration of drugs
- The woman or her attending clinician should indicate fetal movements with the appropriate marker
- Document significant maternal events such as change of position to relieve aortocaval compression
- Loss of contact and audible decelerations should be marked on the CTG by the attending clinician
- Simultaneously palpate the maternal pulse to differentiate from FHR in the presence of a fetal heart deceleration or bradycardia and document the maternal pulse on the CTG tracing

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Responsibility for reporting

- The clinician who performs the CTG tracing should report the features of the tracing on the individual hospital's prescribed form
- Medical staff are responsible for the review of all CTGs they order
- The midwife should refer any CTG tracing with features of fetal compromise to a medical officer for immediate review
- Outpatient CTGs of all non-booked women should be seen by senior medical staff. The referring doctor should be telephoned and advised of the CTG findings

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Useful reference

National Institute for Health and Clinical Excellence (NICE) Antenatal care. Available from URL: http://www.nice.org.uk/guidance/index.jsp?action=download&o=40145

Abbreviations

RANZCOG	Royal Australian and New Zealand College of Obstetricians and Gynaecologists
RCOG	Royal College of Obstetricians and Gynaecologists
ACOG	American College of Obstetricians and Gynaecologists
bpm	Beats per minute
cm	Centimetre
CTG	Cardiotocography
EFM	External fetal monitoring
FHR	Fetal heart rate
NICE	National Institute for Clinical Excellence

Version control and change history

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1.0	17 Feb 04	09 Oct 06	Original version
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