Clinical Guideline
Antenatal Cardiotocography Clinical Guideline

Policy developed by: SA Maternal & Neonatal Clinical Network
Approved SA Health Safety & Quality Strategic Governance Committee on:
07 September 2015
Next review due: 30 September 2018

Summary
Clinical practice guideline for the use of antenatal cardiotocography.

Keywords
antenatal, CTG, cardiotocography, reporting, storage of tracings, fetal wellbeing, STAN, cycling, fetal heart rate, monitoring, external fetal monitoring, Doppler, clinical guideline

Policy history
Is this a new policy?  N
Does this policy amend or update an existing policy?  Y v3.0
Does this policy replace an existing policy?  N

Applies to
All SA Health Portfolio
All Department for Health and Ageing Divisions
All Health Networks
CALHN, SALHN, NALHN, CHSALHN, WCHN, SAAS

Staff impact
All Staff, Management, Admin, Students, Volunteers
All Clinical, Medical, Nursing, Allied Health, Emergency, Dental, Mental Health, Pathology

PDS reference  CG222

Version control and change history

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Note

This guideline provides advice of a general nature. This statewide guideline has been prepared to promote and facilitate standardisation and consistency of practice, using a multidisciplinary approach. The guideline is based on a review of published evidence and expert opinion. Information in this statewide guideline is current at the time of publication.

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Health practitioners in the South Australian public health sector are expected to review specific details of each patient and professionally assess the applicability of the relevant guideline to that clinical situation.

If for good clinical reasons, a decision is made to depart from the guideline, the responsible clinician must document in the patient’s medical record, the decision made, by whom, and detailed reasons for the departure from the guideline.

This statewide guideline does not address all the elements of clinical practice and assumes that the individual clinicians are responsible for discussing care with consumers in an environment that is culturally appropriate and which enables respectful confidential discussion. This includes:

- The use of interpreter services where necessary,
- Advising consumers of their choice and ensuring informed consent is obtained,
- Providing care within scope of practice, meeting all legislative requirements and maintaining standards of professional conduct, and
- Documenting all care in accordance with mandatory and local requirements

Explanation of the aboriginal artwork:
The aboriginal artwork used symbolises the connection to country and the circle shape shows the strong relationships amongst families and the aboriginal culture. The horse shoe shape design shown in front of the generic statement symbolises a woman and those enclosing a smaller horse shoe shape depicts a pregnant women. The smaller horse shoe shape in this instance represents the unborn child. The artwork shown before the specific statements within the document symbolises a footprint and demonstrates the need to move forward together in unison.

Australian Aboriginal Culture is the oldest living culture in the world yet Aboriginal people continue to experience the poorest health outcomes when compared to non-Aboriginal Australians. In South Australia, Aboriginal women are 2-5 times more likely to die in childbirth and their babies are 2-3 times more likely to be of low birth weight. The accumulative effects of stress, low socio economic status, exposure to violence, historical trauma, culturally unsafe and discriminatory health services and health systems are all major contributors to the disparities in Aboriginal maternal and birthing outcomes. Despite these unacceptable statistics the birth of an Aboriginal baby is a celebration of life and an important cultural event bringing family together in celebration, obligation and responsibility. The diversity between Aboriginal cultures, language and practices differ greatly and so it is imperative that perinatal services prepare to respectively manage Aboriginal protocol and provide a culturally positive health care experience for Aboriginal people to ensure the best maternal, neonatal and child health outcomes.
Antenatal cardiotocography (CTG) flow chart

**Indications for antenatal CTG**
- Reduced fetal movements
- Abdominal trauma
- 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
- Cervical ripening with vaginal prostaglandins or cervical ripening balloon catheter (pre and post CTG)
- Other medical conditions that constitute a significant risk of fetal compromise

**Procedure for CTG**
- Explain procedure to woman
- Position woman correctly
- Record clinical observations
- CTG should not be performed immediately after the woman has smoked, is / has fasted. Document details on CTG report in these circumstances
- Record maternal details on trace including administration of drugs
- On trace indicate, fetal movements, loss of contact and audible decelerations
- If bradycardia note maternal pulse
- Operator to remain during trace

**Reporting**
- Operator to record result
- Refer tracings with abnormality for medical review immediately
- Medical staff ordering trace to review all tracings
- Senior medical staff to review all traces of non-booked women

**Storage of tracings**
- CTG recordings to be filed in case notes
- If notes microfilmed, short traces can be microfilmed
- Electronic archiving of computer based programs

**Review of CTGs forwarded from external facility**
- If faxed to hospital for advice, include patient details and condition
- Case note record to be created to archive advice given
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.

> The systematic review concluded that:

> The use of antenatal CTG has no effect on the risk of caesarean section for women.

> 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.

> There is no evidence that antenatal oral maternal glucose administration improves any features of fetal well-being as assessed by reactivity on CTG.

> 10% of CTGs may be uninterpretable due to:

> Gestational age.

> Normal cycling (rest) phases (may be up to 90 minutes).

> The use of certain medications (e.g. central nervous system sedatives).

> Changes in heart rate patterns associated with circadian rhythms.

Risk factors

> The following clinical situations may be an indication for antenatal CTG for fetal assessment:

> Reduced fetal movements (for more information see in A to Z index at www.sahealth.sa.gov.au/perinatal).

> Abdominal trauma (for more information, follow link to www.sahealth.sa.gov.au/perinatal in the A to Z index under 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
> Vaginal prostaglandins or cervical ripening balloon catheter (CTG pre and post insertion)
> 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

(Link to 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 (do not rely on the machine to document fetal movements)
> 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

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
References


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

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<td>cm</td>
<td>Centimetre</td>
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<tr>
<td>CTG</td>
<td>Cardiotocography</td>
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<td>EFM</td>
<td>External fetal monitoring</td>
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<td>FHR</td>
<td>Fetal heart rate</td>
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<td>NICE</td>
<td>National Institute for Clinical Excellence</td>
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<td>RANZCOG</td>
<td>Royal Australian and New Zealand College of Obstetricians and Gynaecologists</td>
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