Royal Cornwall Hospitals NHS Trust

# Policy Under Review

Please note that this policy is under review. It does, however, remain current Trust policy subject to any recent legislative changes, national policy instruction (NHS or Department of Health), or Trust Board decision. For guidance, please contact the Author/Owner.

| Information Category | Detailed Information |
|---|---|
| **Document Title:** | Antenatal Cardiotocography (CTG) and Dawes Redman Analysis Clinical Guideline V3.0. |
| **This document replaces (exact title of previous version):** | Antenatal Cardiotocography (CTG) and Dawes Redman Analysis Clinical Guideline V2.4. |
| **Date Issued / Approved:** | January 2022. |
| **Date Valid From:** | January 2022. |
| **Date Valid To:** | April 2025. |
| **Author / Owner:** | Jane Pascoe; Fetal Monitoring Lead Midwife. |
| **Contact details:** | 01872 255036. |
| **Brief summary of contents:** | This guidance is to assist midwives and obstetricians in interpretation of antenatal Cardiotocograph (CTG). This includes understanding the situations where computerised CTG is indicated and how to interpret the Dawes/ Redman Criteria. |
| **Suggested Keywords:** | Antenatal. Cardiotocography. CTG Computerised. Dawes/ Redman. Sonicaid Team. FetalCare3. |
| **Target Audience:** | **RCHT:** Yes<br>**CFT:** No<br>**CIOS ICB:** No |
| **Executive Director responsible for Policy:** | Chief Medical Officer. |
| **Approval route for consultation and ratification:** | Maternity Guidelines Group. |
| **Manager confirming approval processes:** | Caroline Chappell. |

| Information Category | Detailed Information |
|---|---|
| **Name of Governance Lead confirming consultation and ratification:** | Tamara Thirlby. |
| **Links to key external standards:** | None required. |
| **Related Documents:** | 1. Ayres-de-CamposD,ArulkumaranS, Physiology of Fetal Oxygenation and the main goals of Intrapartum Fetal Monitoring: for the FIGO consensus Guidelines on intrapartum Fetal Monitoring (2015).<br>2. NICE Clinical guideline [CG190] Intrapartum care for healthy women and babies**. (**Dec 2014, updated Feb 2017).<br>3. Grivell RM, Alfirevic Z, Gyte GML, Devane D Cochrane Review1002/14651858.CD007863.pub4 (Sept 2015).<br>4. Chandraharan E (Ed), Handbook of CTG Interpretation. From Patterns to Physiology. London (2017).<br>5. RCHT Clinical Guideline for the use of Electronic Fetal Monitoring (EFM) in labour, Fetal Blood Sampling (RBS) and Paired Cord Sampling' (Oct 2016).<br>6. Redman C. Statement on the use of Dawes Redman. 30/09/2019. |
| **Training Need Identified:** | Annual mandatory Fetal monitoring training day to include antenatal CTG for all midwives who work in a birth setting and obstetric doctors. Yearly device training/competency assessment for all midwifery and obstetric staff using antenatal CTG machines. |
| **Publication Location (refer to Policy on Policies – Approvals and Ratification):** | Internet and Intranet. |
| **Document Library Folder/Sub Folder:** | Clinical/ Midwifery and Obstetrics. |



**This document is only valid on the day of printing.**

**Controlled Document.**

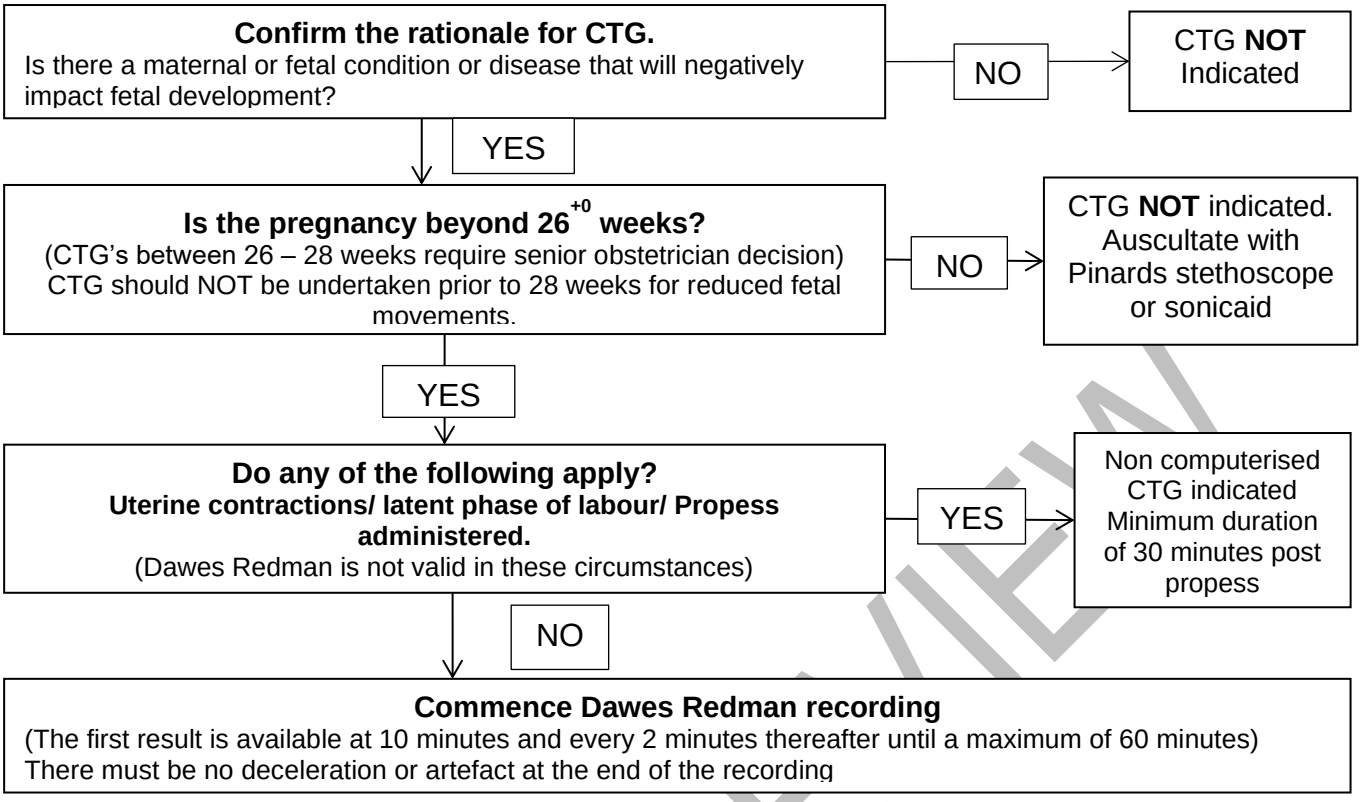
This document has been created following the Royal Cornwall Hospitals NHS Trust Policy on Document Production. It should not be altered in any way without the express permission of the author or their Line Manager.

# Antenatal Cardiotocography (CTG) and Dawes Redman Analysis Clinical Guideline

# V3.0

# January 2022

## Antenatal CTG / Dawes Redman analysis Flow Chart




**CRITERIA MET**

Visually review and classify the CTG. If this is normal and there are no other ongoing clinical concerns, the analysis can be **stopped**.

This can be with as little as 10 minutes recording time.

The printer will produce a report of the analysis results.

Do not review the numeric data as the CTG has been classified as normal and this data is, therefore, insignificant

**CRITERIA NOT MET BEFORE 60 MINUTES**

Unless there are clear abnormal features, or any cause for concern, continue the recording until the criteria are met.

**Urgent review is required if the CTG visual assessment is abnormal**

Short-term variation (STV) is uninterpretable prior to 60 minutes; do not review the numeric data.

DO NOT prematurely stop the recording. If the analysis has been stopped before criteria are met and before 60 minutes IT IS NOT VALID

**CRITERIA NOT MET AFTER 60 MINUTES OF ANALYSIS**

Indicates that normality has not been demonstrated In the context of antenatal CTG classification, this is an abnormal outcome. **Urgent review is required if the CTG visual assessment is abnormal**

The case must be reviewed by a senior obstetrician and action taken, based on the reasons for failure, visual trace review and a holistic assessment of the pregnancy

The STV should be taken into account and the trend reviewed if previous analysis has been performed. It has a predictive value for fetuses at risk of metabolic acidaemia and IUD.

STV cannot be assessed visually. It can only be analysed with a full 60 minutes.
STV MUST NOT be used in isolation as an indicator of fetal condition
STV Values:
**≥4 ms is normal**
**3-4 ms is low**
**<3 ms is abnormal**
**<2 ms is highly abnormal**
See appendix 3

**DO NOT act on the basis of the CTG analysis alone, this is an aid to pregnancy management, not a diagnostic tool**

# 1. Aim/Purpose of this Guideline

1.1. To assist midwives and obstetricians in the interpretation of antenatal Cardiotocograph (CTG). This includes understanding the situations where computerised CTG is indicated and how to interpret the Dawes/Redman Criteria.

1.2. This guideline should be read in conjunction with the Royal Cornwall Hospital Trusts (RCHT) guidance: 'Clinical Guideline for the use of Electronic Fetal Monitoring (EFM) in labour, Fetal Blood Sampling (RBS) and Paired Cord Sampling'

1.3. This version supersedes any previous versions of this document.

1.4. This guideline makes recommendations for women and people who are pregnant. For simplicity of language the guideline uses the term women throughout, but this should be taken to also include people who do not identify as women but who are pregnant, in labour and in the postnatal period. When discussing with a person who does not identify as a woman please ask them their preferred pronouns and then ensure this is clearly documented in their notes to inform all health care professionals (NEW 2020).

**Data Protection Act 2018 (General Data Protection Regulation – GDPR) Legislation**
The Trust has a duty under the Data Protection Act 2018 and General Data Protection Regulations 2016/679 to ensure that there is a valid legal basis to process personal and sensitive data. The legal basis for processing must be identified and documented before the processing begins. In many cases we may need consent; this must be explicit, informed, and documented. We cannot rely on opt out, it must be opt in.
Data Protection Act 2018 and General Data Protection Regulations 2016/679 is applicable to all staff; this includes those working as contractors and providers of services.
For more information about your obligations under the Data Protection Act 2018 and General Data Protection Regulations 2016/679 please see the Information Use Framework Policy or contact the Information Governance Team
Royal Cornwall Hospital Trust rch-tr.infogov@nhs.net



# 2. The Guidance

## 2.1. Definition and Background

2.1.1. The aim of antenatal fetal surveillance is to identify fetuses at risk of intrauterine hypoxia and acidaemia. Timely, appropriate intervention will avoid fetal neurological damage or death.

2.1.2. CTG is the most commonly adopted tool for antenatal fetal assessment. It may be used in isolation or combined with other methods of surveillance.

2.1.3. There is no clear evidence that antenatal CTG improves perinatal outcomes or caesarean section rates. However, a comparison of

computerised CTG versus traditional CTG showed a significant reduction in perinatal mortality with computerised CTG.

2.1.4. CTG interpretation must be used within the context of the clinical situation. The use of antenatal CTG to assess fetal well-being in a low risk pregnancy is NOT recommended.

## 2.2. COMPUTERISED CTG (cCTG)

2.2.1. Computerised CTG provides an objective CTG interpretation. It allows communication of robust, numeric facts instead of opinion.

2.2.2. The Dawes/Redman analysis has a database of 100,000 traces; by using this vast numeric data and relating it to outcomes, it acts as an expert assistant for CTG interpretation and accurate interpretation criteria.

2.2.3. The final clinical judgement should be based on the entire clinical assessment with cCTG forming a part of this holistic approach to pregnancy management.

## 2.3. ELIGIBILITY FOR CTG

2.3.1. Dawes/Redman Criteria is NOT appropriate for intrapartum fetal monitoring. It is not valid if the woman is experiencing regular uterine contractions, or when she is in the latent phase of labour. It can be used **prior** to the administration of Propess, but **not after** it has been administered.

2.3.2. CTG should only be performed in the antenatal period for fetal surveillance as per clinical indications.

2.3.3. Dawes/Redman criteria can be used for a fetal gestation of $26^{+0}$ until the woman is in labour. Prior to that gestation, auscultation with Pinards Stethoscope or Sonic aid is appropriate.

2.3.4. However, CTG's carried out before 28 weeks should be performed and interpreted with caution, the decision to do so must be made on an individual basis by a senior obstetrician. The fetal autonomic nervous system is not mature and therefore the patterns of fetal heart rate which may be expected at later gestations are not present. Also there is increased possibility of signal loss and poor quality CTG at earlier gestations.

2.3.5. CTG should not be undertaken for reduced fetal movements prior to 28+0 weeks.

2.3.6. **Common indications for antenatal CTG's** - Refer to appropriate RCHT guidelines

| Maternal- pre-existing | Maternal- gestational | Fetal |
|---|---|---|
| Cardiac Disease | Preeclampsia | Reduced Fetal Movements |
| Pulmonary Disease | Gestational Diabetes | IUGR |
| Renal Disease | Prelabour Rupture of Membranes | Infection |
| Thyroid Disease | Prolonged Pregnancy | Multiple pregnancy |
| Autoimmune Disease | Vaginal Bleeding | Fetal Arrhythmias |
| Hypertension | Abdominal Trauma | Oligohydramnios |
| Diabetes | Suspected Premature Labour | |

## 2.4. EQUIPMENT

2.4.1. All antenatal Huntleigh monitors at RCHT, and in the community setting, have the Sonicaid Team Fetal monitoring System which will perform Dawes/Redman criteria. This must be activated when an antenatal CTG is indicated.

2.4.2. In Day assessment Unit, the FetalCare3 Fetal Monitoring System should be used for patients who are likely to have a series of CTG's. This system has the ability to compare trends with cCTG's when 3 or more recordings have been made; it also stores all CTG's electronically and has the facility for real time electronic annotation.

## 2.5. PRIOR TO COMMENCING THE CTG/ SETTING UP THE MONITOR (NEW 2022)

2.5.1. Ensure an in-depth medical and obstetric history has been obtained and rational for the CTG clearly documented.

2.5.2. Record maternal observations as per MEOWS (See MEOWS guideline)

2.5.3. The fetal heart must be auscultated with a Pinards Stethoscope or sonic aid for 1minute before commencing the CTG. Record this as a single figure in the maternal record.

2.5.4. Position the toco and ultrasound transducers.

2.5.5. Connect the fetal event marker and show the patient how to use it.

2.5.6. Turn the Dawes Redman analysis on if appropriate to do so and ensure the Gestation is entered prior to starting the CTG,

2.5.7. Ensure the patients name and hospital number, maternal pulse, date and time are clearly recorded on the CTG trace.

2.5.8. The clinician commencing the CTG should sign and print their name at the start of the CTG

2.5.9. Ensure the monitor is running at 1cm per min and printing appropriately.

**NOTE the analysis will not start unless the gestation is entered prior to commencing the CTG.**

## 2.6. DURATION OF MONITORING

2.6.1. The maximum record length is 60 minutes.

2.6.2. The computer analyses the CTG data and compares it with the Dawes/Redman criteria at 10 minutes and every 2 minutes thereafter.

2.6.3. The practitioner commencing the CTG MUST return within 10 minutes to ensure the quality and assess, visually, whether the monitoring is normal and sign the CTG to confirm this action.

## 2.7. ABNORMAL CTG

2.7.1. If the antenatal CTG is suspected to be abnormal at any point, an immediate obstetric review **MUST** be sought using the appropriate SBARD escalation protocol. The SpR/Consultant should monitor the progress of this time critical plan and document this in the notes, so that birth can be expedited, if indicated, in line with the agreed timeframe (NEW 2020).

2.7.2. If the CTG is being undertaken in the Community, the community midwife must refer the woman to the Delivery Suite in the acute maternity setting in a timely manner. Consider the full clinical picture and the most appropriate mode of transport which may include a Catorgory 1 ambulance if fetal compromise is suspected.

2.7.3. Whenever the CTG is reviewed during the analysis, the practitioner must sign/annotate to evidence.

## 2.8. RESULTS

### Criteria met

2.8.1. If the CTG meets the Dawes/Redman criteria, this is a normal result.

2.8.2. Unless there are other clinical concerns, the analysis can be stopped and a report of the analysis is printed.

2.8.3. This criteria can be achieved as early as 10 minutes. The CTG does not need to be continued for the traditional 20 minutes.

2.8.4. The practitioner who stops the CTG must sign the CTG at the end of the print out. Include a visual assessment, to confirm that the CTG is normal, and complete the preformatted antenatal CTG sticker.

**Criteria NOT met**

2.8.5. The CTG must continue for the FULL 60 minutes.

2.8.6. If it the criteria is still not met at 60 minutes, the computer will end the analysis and print the results on the trace. The reasons why the criteria were not met are highlighted as coded numbers.

2.8.7. If in the community setting, the community midwife must refer the woman to DAU. The case must be reviewed by a senior obstetrician and action taken, based on the reasons for failure, visual trace review and a holistic assessment of the pregnancy.

**2.8.8. Reasons for not meeting the criteria**

**(For more details and action required, refer to Appendix 3)**

| Code | |
|---|---|
| 1 | Basal Heart Rate outside normal range |
| 2 | Large decelerations |
| 3 | No episodes of high variation |
| 4 | No movements and fewer than 3 accelerations |
| 5 | Baseline fitting is uncertain |
| 6 | Short-term variation (STV) is less than 3ms |
| 7 | Possible error at the end of the record |
| 8 | Deceleration at the end of the record |
| 9 | High frequency sinusoidal rhythm |
| 10 | Suspected sinusoidal rhythm |
| 11 | Long-term variation (LTV) in high episodes below acceptable level |
| 12 | No accelerations |

## 2.9. CLINICAL ANTENATAL CTG INTERPRETATION

2.9.1. For visual review of the CTG, when cCTG in progress OR for traditional CTG interpretation.

2.9.2. It is important to remember that the knowledge of the basic features (baseline heart rate, variability, accelerations and decelerations) are derived from intrapartum CTG interpretation. (Refer to the RCHT Clinical Guideline for the use of Electronic Fetal Monitoring in Labour, Appendix A “Definitions of CTG Features”.)

2.9.3. A traditional CTG should be no less than 20 minutes in duration. If the CTG continues for longer, there should be regular reviews of the CTG by a qualified member of staff, this should be annotated on the CTG with legible signature, print and time; the CTG should never be left attended for longer than 20 minutes.

2.9.4. A structured review of all the features of the CTG should be performed and documented on the preformatted antenatal CTG sticker at the end of the CTG. The trace should be classified as NORMAL or ABNORMAL.

2.9.5. An abnormal CTG should not be discontinued and immediate obstetric review should be requested unless acute concerns necessitate transfer (NEW 2022).

2.9.6. The healthcare professional should print, sign, date and time when the CTG is discontinued together with the reason for discontinuation.

| | | | |
|---|---|---|---|
| **Normal** | **CTG trace where all features are normal** | | |
| **Abnormal** | **CTG with any abnormal features** | | |
| Gestation: weeks | Normal | Abnormal | Comments |
| **Baseline**<br><br>Is baseline normal for gestation? | 110-160 bpm<br><br>Yes / No | Less than 110bpm<br>Greater than 160bpm<br>Sinusoidal pattern for more than 10 min | |
| **Variability** | 5 bpm or more | Less than 5bpm for more than 40 min | |
| **Accelerations** | Present | None for 40 min | |
| **Decelerations** | None | Any | |
| Opinion | **Normal** | **Abnormal** | |
| Reason for CTG: | Maternal Pulse: bpm | Liquor? | Fetal movements normal? Yes / No |
| Dawes/Redman criteria met at: min<br>**NOT** met at 60 min. | Action: | | |
| Date | Time | Signature | Designation |

## 2.10. DOCUMENTATION FOR BOTH cCTG AND TRADITIONAL CTG

2.10.1. Rationale for antenatal CTG documented in maternal notes.

2.10.2. At the start of the CTG, enter the woman's name, NHS number and hospital number (use patient identification sticker) and legible name, designation and signature of the midwife (use printed stamp for clarity).

2.10.3. Add the Maternal pulse at the start of the CTG.

2.10.4. Confirmation that the date and time on the CTG is correctly set with the wall clock and initialed by the midwife.

2.10.5. Confirmation that the monitor is set to run at 1cm per minute.

2.10.6. Any event, review or action related to the CTG will be entered on the trace with a legible name, signature and designation.

2.10.7. At the end of the CTG, the above classification is documented with the date, time and legible staff name, signature and designation.

## 2.11. STORAGE OF CTG's

2.11.1. Antenatal CTG paper print outs must be stored in the CTG envelope in the patients record. They are not stored in the patients hand held notes. The envelope must be identified with the patient's name, NHS number and hospital number; include the date, reason for CTG and legible name, designation and signature of the midwife.

2.11.2. Where possible, particularly when a series of CTG's are required, use the FetalCare 3 fetal monitoring system so that the CTG's are stored electronically.

## 2.12. STORAGE OF CTG's in Community Setting

2.12.1. Community midwives will not have access to the patient main records. Therefore, insert the trace into a CTG envelope and file into green handheld notes.

2.12.2. When the woman's notes are returned to hospital postpartum, the CTG envelope will be merged into main hospital notes.

2.12.3. Ensure when you document the contact on the electronic notes you put a brief summary of the trace in case the green notes go missing.

# 3. Monitoring compliance and effectiveness

| Information Category | Detail of process and methodology for monitoring compliance |
|---|---|
| **Element to be monitored** | Was the antenatal CTG indicated?<br>Has the rationale for antenatal CTG been documented?<br>Was the correct equipment used?<br>Has the CTG classification been documented appropriately?<br>Was correct action taken according to Dawes/Redman?<br>Has the antenatal CTG sticker been completed appropriately?<br>Have the CTG traces been securely stored? |
| **Lead** | Audit Midwives and Fetal Monitoring Lead Midwife |
| **Tool** | Excel |
| **Frequency** | Every 3 years |
| **Reporting arrangements** | A formal Report of the results will be provided at the Maternity Forum<br>Non-compliance identified will be discussed on an individual basis by the Patient Safety Team<br>If there is a theme of non-compliance, an action plan is made by the Patient Safety |
| **Acting on recommendations and Lead(s)** | Action leads will be identified and a time frame for the action to be completed<br>The action will be monitored by the Patient Safety Team |
| **Change in practice and lessons to be shared** | This Guideline supports staff in the use of an existing process and does not involve a change in practice<br>The antenatal ward manager and community team leaders will take this forward and ensure that staff understands the contents of the guideline. Obstetric consultant identified to take this forward with obstetric staff<br>Lessons will be shared with all the relevant stakeholders<br>The results of audits will be distributed to all staff through the Patient Safety or Practice Development Newsletter and Maternity Forum. |

# 4. Equality and Diversity

4.1. This document complies with the Royal Cornwall Hospitals NHS Trust service Equality and Diversity statement which can be found in the 'Equality, Inclusion & Human Rights Policy' or the Equality and Diversity website.

4.2. Equality Impact Assessment

The Initial Equality Impact Assessment Screening Form is at Appendix 2.

# Appendix 1. Governance Information

| Information Category | Detailed Information |
|---|---|
| **Document Title:** | Antenatal Cardiotocography (CTG) and Dawes Redman Analysis Clinical Guideline V3.0 |
| **This document replaces (exact title of previous version):** | Antenatal Cardiotocography (CTG) and Dawes Redman Analysis Clinical Guideline V2.4 |
| **Date Issued/Approved:** | January 2022 |
| **Date Valid From:** | January 2022 |
| **Date Valid To:** | January 2025 |
| **Directorate / Department responsible (author/owner):** | Jane Pascoe Fetal Monitoring Lead Midwife |
| **Contact details:** | 01872 25 50 36 |
| **Brief summary of contents:** | This guidance is to assist midwives and obstetricians in interpretation of antenatal Cardiotocograph (CTG). This includes understanding the situations where computerised CTG is indicated and how to interpret the Dawes/Redman Criteria. |
| **Suggested Keywords:** | Antenatal. Cardiotocography. CTG Computerised. Dawes/Redman. Sonicaid Team. FetalCare3 |
| **Target Audience:** | RCHT: Yes<br>CFT: No<br>KCCG: No |
| **Executive Director responsible for Policy:** | Medical Director |
| **Approval route for consultation and ratification:** | Maternity Guidelines Group<br>Obstetrics and Gynaecology Directorate Meeting |
| **General Manager confirming approval processes:** | Mary Baulch |
| **Name of Governance Lead confirming approval by specialty and care group management meetings:** | Caroline Amukusana |
| **Links to key external standards:** | None |

| Information Category | Detailed Information |
|---|---|
| **Related Documents:** | 7. Ayres-de-CamposD,ArulkumaranS, Physiology of Fetal Oxygenation and the main goals of Intrapartum Fetal Monitoring: for the FIGO consensus Guidelines on intrapartum Fetal Monitoring (2015).<br><br>8. NICE Clinical guideline [CG190] Intrapartum care for healthy women and babies**. (**Dec 2014, updated Feb 2017)<br><br>9. Grivell RM, Alfirevic Z, Gyte GML, Devane D Cochrane Review1002/14651858.CD007863.pub4 (Sept 2015)<br>10. Chandraharan E (Ed), Handbook of CTG Interpretation. From Patterns to Physiology. London (2017)<br><br>11. RCHT Clinical Guideline for the use of Electronic Fetal Monitoring (EFM) in labour, Fetal Blood Sampling (RBS) and Paired Cord Sampling' (Oct 2016)<br><br>12. Redman C. Statement on the use of Dawes Redman. 30/09/2019 |
| **Training Need Identified?** | Annual mandatory Fetal monitoring training day to include antenatal CTG for all midwives who work in a birth setting and obstetric doctors. Yearly device training/competency assessment for all midwifery and obstetric staff using antenatal CTG machines |
| **Publication Location (refer to Policy on Policies – Approvals and Ratification):** | Internet & Intranet |
| **Document Library Folder/Sub Folder:** | Clinical / Midwifery and Obstetrics |

**Version Control Table**

| Date | Version Number | Summary of Changes | Changes Made by |
|---|---|---|---|
| January 2018 | V1.0 | Initial Issue | Sally Budgen<br>Fetal Monitoring Lead Midwife |
| 13th July 2018 | V1.1 | Update for community midwives re storage of antenatal CTG paper trace see 2.6 as requested by Helen Ettle to advise community midwives | Sarah-Jane Pedler<br>Practice Development Midwife |
| January 2019 | V2.0 | Total review of the Guideline following a documentation audit and also revised to meet the MOSOS requirements. | Sally Budgen, Fetal Monitoring Lead Midwife. |
| December 2019 | V2.1 | Following a statement by Professor Redman. Not valid for Latent phase, early labour or post Propess insertion | Sally Budgen<br>Fetal Monitoring Lead midwife |
| July 2020 | V2.2 | GDPR template change<br>1.4. inclusion statement<br>2.7.1. changes following HSIB report<br>2.12.3. E3 amended to electronic notes<br>Appendix 1 updated governance template<br>Appendix 2 updated EIA template | Josie Dodgson<br>Patient Safety midwife |
| November 2020 | V2.3 | Update to 2.7.2 for referring to delivery suite for an abnormal CTG and consideration of full clinical picture for most appropriate mode of transport. | Josie Dodgson, Patient Safety Midwife<br>Jane Pascoe, Fetal Monitoring Lead Midwife |
| August 2021 | V2.4 | Formatting and structure amended to be clear and not overlapping. Updated to meet latest template and accessibility checked with alternative text applied and governance sheet updated. | Demi Louise Kent Corporate Records Manager |
| January 2022 | V3.0 | Timely review and update. | J Pascoe |

# Appendix 2. Equality Impact Assessment

## Section 1: Equality Impact Assessment (EIA) Form

The EIA process allows the Trust to identify where a policy or service may have a negative impact on an individual or particular group of people.

For guidance please refer to the Equality Impact Assessment Policy (available from the document library) or contact the Equality, Diversity & Inclusion Team rcht.inclusion@nhs.net

| Information Category | Detailed Information |
|---|---|
| **Name of the strategy / policy / proposal / service function to be assessed:** | Antenatal Cardiotocography (CTG) and Dawes Redman Analysis Clinical Guideline V3.0 |
| **Directorate and service area:** | Obstetrics & Gynaecology Care Group |
| **Is this a new or existing Policy?** | Existing |
| **Name of individual completing EIA** (Should be completed by an individual with a good understanding of the Service/Policy): | Jane Pascoe, Fetal Monitoring Lead Midwife. |
| **Contact details:** | 01872 252361 |

| Information Category | Detailed Information |
|---|---|
| **1. Policy Aim - Who is the Policy aimed at?** (The Policy is the Strategy, Policy, Proposal or Service Change to be assessed) | This Guidance is to assist midwives and obstetricians in interpretation of antenatal Cardiotocograph (CTG). This includes understanding the situations where computerised CTG is indicated and how to interpret the Dawes/Redman Criteria. |
| **2. Policy Objectives** | Appropriate use of antenatal CTG enabling early detection of fetuses at risk of developing hypoxaemia/ acidosis, with timely intervention |
| **3. Policy Intended Outcomes** | Improved neonatal outcomes |
| **4. How will you measure each outcome?** | Compliance monitoring tool, demonstrated on the maternity dashboard against KPI's |
| **5. Who is intended to benefit from the policy?** | All pregnant women of 26+0 weeks gestation until established in labour |

| Information Category | Detailed Information |
|---|---|
| **6a. Who did you consult with?**<br>(Please select Yes or No for each category) | • Workforce: Yes<br>• Patients/ visitors: No<br>• Local groups/ system partners: No<br>• External organisations: No<br>• Other: No |
| **6b. Please list the individuals/groups who have been consulted about this policy.** | **Please record specific names of individuals/ groups:**<br>Maternity Guidelines Group<br>Obs and Gynae Specialism Group |
| **6c. What was the outcome of the consultation?** | Guideline agreed |
| **6d. Have you used any of the following to assist your assessment?** | **National or local statistics, audits, activity reports, process maps, complaints, staff or patient surveys:** No |

**7. The Impact**
Following consultation with key groups, has a negative impact been identified for any protected characteristic? Please note that a rationale is required for each one.

Where a negative impact is identified without rationale, the key groups will need to be consulted again.

| Protected Characteristic | (Yes or No) | Rationale |
|---|---|---|
| **Age** | No | All pregnant women from 26+0 until established labour |
| **Sex** (male or female) | No | All pregnant women from 26+0 until established labour |
| **Gender reassignment** (Transgender, non-binary, gender fluid etc.) | No | All pregnant women from 26+0 until established labour |
| **Race** | No | All pregnant women from 26+0 until established labour |
| **Disability** (e.g. physical or cognitive impairment, mental health, long term conditions etc.) | No | All pregnant women from 26+0 until established labour |
| **Religion or belief** | No | All pregnant women from 26+0 until established labour |

| Protected Characteristic | (Yes or No) | Rationale |
|---|---|---|
| **Marriage and civil partnership** | No | All pregnant women from 26+0 until established labour |
| **Pregnancy and maternity** | No | All pregnant women from 26+0 until established labour |
| **Sexual orientation** (e.g. gay, straight, bisexual, lesbian etc.) | No | All pregnant women from 26+0 until established labour |

**A robust rationale must be in place for all protected characteristics. If a negative impact has been identified, please complete section 2. If no negative impact has been identified and if this is not a major service change, you can end the assessment here.**

I am confident that section 2 of this EIA does not need completing as there are no highlighted risks of negative impact occurring because of this policy.

Name of person confirming result of initial impact assessment: Jane Pascoe, Fetal Monitoring Lead Midwife

**If a negative impact has been identified above OR this is a major service change, you will need to complete section 2 of the EIA form available here:**
Section 2. Full Equality Analysis

# Appendix 3. Reasons for not meeting Dawes/Redman Criteria and Actions

**1. Basal Heart Rate outside normal range**

The FIGO and NICE guidelines agree that a normal baseline fetal heart rate for a term fetus is 110 – 160 beats per minute. Baseline FH Rates must be assessed in consideration of expected baseline for a fetus of the gestation being monitored.

The Dawes/ Redman analyses the intervals between beats and converts into a Basal Heart Rate. Basal rate is not the same as baseline rate and may deviate significantly from a visual assessment of baseline rate.

**2. Large decelerations**

These will be an unprovoked decelerations. Review by obstetric Registrar.

Immediate intervention if the trace is otherwise abnormal, or significant clinical concerns.

If the trace is otherwise normal and there are no clinical concerns, the CTG should be should be repeated later, as per Obstetric Registrar management plan.

**3. No episodes of high variation**

Long Term Variation (LTV) is essentially equivalent to traditional baseline variability.

Measured over a 1 minute sample, the difference between the high and low FH values is analysed. Important evidence of normality is the episodic variation in the baseline heart rate. LTV is reported as “High” or “Low” episodes.

In deep sleep the fetal heart rate is relatively constant with lower short-term variation but this should not normally exceed 50 minutes.

**4. No movements and fewer than 3 accelerations.**

This is significant and requires review by the obstetric team.

**5. Baseline fitting is uncertain**

If all else is normal and the baseline falls within normal parameters then this can be ignored.

**6. Short-term variation (STV) is less than 3 ms**

Short-term variation is a computerised measure of the micro fluctuations of the fetal heart. These are not visible to the human eye.

**A value of less than 3ms is strongly linked to the development of metabolic acidaemia and impending intrauterine death** .Particularly with the absence of an episode of high variation. STV of less than 3ms is significant and should be discussed and reviewed by the Obstetric Registrar or Consultant.

Urgent review is required if the CTG visual assessment is also abnormal

STV can only be analysed after a full 60 minutes.

| STV (ms) | **<2.6** | **2.6-3.0** | **>3.0** |
|---|---|---|---|
| Metabolic acidaemia | 10.3% | 4.3% | 2.7% |
| IUD | 24.1% | 4.3% | 0.0% |
| | | | |

Considerations for ongoing care when reviewing the STV value after 60mins of cCTG

| CRITERIA | STV | Action |
|---|---|---|
| When Criteria not met following 60 mins of cCTG the STV value can be analysed.<br><br>Review by a senior Obstetrician need to take place including consideration of maternal condition and fetal risk factors | STV ≥ 4 | Ultrasound scan for fetal growth and dopplers. Repeat cCTG later same day if USS not available. |
| | STV 3 - 3.99 | Low STV:<br>Admit and repeat cCTG <4hours. Repeat twice daily cCTG until fetal medicine review. |
| | STV < 3 | Abnormal STV High Risk of acidosis the fetus may require delivery. |

**7. Possible error at end of the record**

This occurs when the machine detects a possible abnormality at the end of the trace which would otherwise be passed as CRITERIA MET.

In this event the trace may be continued or, if the clinical evaluation is that it is significantly abnormal, for example prolonged deceleration, then action should be taken as appropriate. Review by Obstetric Registrar or Consultant on call.

**8. Deceleration at the end of the record**

In this event the trace should be continued and action taken as appropriate. Review by Obstetric Registrar or Consultant on call.

**9. High frequency sinusoidal rhythm**

Sinusoidal FHR patterns are associated with either severe fetal anaemia or severe/prolonged fetal hypoxia with acidosis and are associated with poor fetal outcomes.

The analysis of the Dawes Redman system should be acted on immediately and discussed with the Obstetric Registrar or Consultant on call.

**10. Suspected sinusoidal rhythm**

Sinusoidal FHR needs to be distinguished from a pseudosinusoidal FHR which, while it closely resembles a sinusoidal pattern, is usually transient, resolves spontaneously and is associated with a good fetal outcome.

Where a diagnosis of Sinusoidal FHR pattern is made, immediate intervention is required with probable emergency delivery if intrauterine resuscitation is not appropriate.

The CTG should be continued.

Maternal blood should be taken for an urgent Kleihauer test to assess the degree of any feto-maternal haemorrhage.

The Obstetric Registrar, Obstetric Consultant, Neonatal Paediatricians and Haematologist, should be alerted.

**11. Long-term variation in high episodes below acceptable level**

This should be acted upon in the same way as STV.

**12. No accelerations**

In this event the CTG trace should be continued but should be reviewed by Obstetric Registrar or Consultant.

(Dawes Redman analyses acceleration using a slightly lower threshold (>10bpm) than FIGO and NICE definitions).

## DO NOT RELY ON THE ANALYSIS IN ISOLATION

## It may not always identify abnormal patterns that may be more obvious from visual interpretation with a holistic expert assessment of the whole clinical scenario.