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INTRODUCTION

This UHL fetal monitoring guideline uses FIGO classification for the assessment of fetal wellbeing. Previous guidance has been mainly based solely on pattern recognition. We aim to encompass a pathophysiological approach to explain how a fetus defends itself against intrapartum hypoxic ischaemic insults and highlight the signs that suggest progressive loss of compensation.

The purpose of intrapartum surveillance, in general, is a timely detection of babies who may be hypoxic, so that additional assessments of fetal wellbeing may be used or the baby can be delivered by caesarean or instrumental vaginal birth, to prevent perinatal/neonatal morbidity or mortality (NICE 2017, FIGO 2015).

As a result of a greater understanding and incorporation of physiology teaching we expect to see a reduction in unnecessary intervention as well as a reduction in fetal hypoxic neurological injury, stillbirth and early neonatal death.

SCOPE

This guideline applies to all healthcare professionals providing care for pregnant women in labour.

WHAT’S NEW IN THIS GUIDELINE

- FIGO classification tool and management prompt
- Intrapartum CTG Sticker introduced
- The classification of fetal blood sample (FBS) results
- Second stage review following 30 mins of active pushing

CONTINUOUS ELECTRONIC FETAL MONITORING (CEFM)

Prior to commencing CEFM the fetal heart (FH) should be auscultated with a Pinard Stethoscope.

CEFM could potentially reduce mobility. However, every effort should be made to facilitate the normal physiology of labour by encouraging the woman to adopt upright positions and mobilise. This can be facilitated by the use of wireless telemetry or by the encouragement to move within the constraints of being connected to the monitor.

CEFM is a screening tool for hypoxia and does not replace the need for accurate clinical observations on which decisions should be made in conjunction with the CTG (FIGO 2017).

INITIAL REASON FOR CEFM

<table>
<thead>
<tr>
<th>MATERNAL</th>
<th>FETAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gestation ≤37 or ≥42 weeks</td>
<td>Abnormal Doppler</td>
</tr>
<tr>
<td>Induced Labour</td>
<td>Known or suspected FGR / Macrosomia</td>
</tr>
<tr>
<td>Administration of Oxytocin</td>
<td>Oligohydramnios / Polyhydramnios</td>
</tr>
<tr>
<td>Condition</td>
<td>Action</td>
</tr>
<tr>
<td>------------------------------------------------</td>
<td>------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Ante/Intrapartum Haemorrhage</td>
<td>Malpresentation / Breech / free floating head in a primiparous women</td>
</tr>
<tr>
<td>Maternal Illness (e.g. diabetes, cardiac, renal, hyperthyroidism); monitoring as per Consultant plan</td>
<td>Meconium Stained Liquor</td>
</tr>
<tr>
<td>Pre-eclampsia / Hypertension</td>
<td>Multiple pregnancy (all babies to be monitored)</td>
</tr>
<tr>
<td>Previous Uterine Scar (Caesarean Section / Myomectomy)</td>
<td>2 or more episodes of reduced fetal movements in third trimester</td>
</tr>
<tr>
<td>Contraction ≥5:10 or lasting &gt; 90 seconds</td>
<td>Reduced fetal movements in last 24 hours reported by the woman</td>
</tr>
<tr>
<td>Epidural:</td>
<td>If Identified on IIA (Intelligent Intermittent Auscultation)</td>
</tr>
<tr>
<td>A CTG should be commenced prior to an epidural CEFM (if not already in use for maternal or fetal risk factors)</td>
<td>Recurrent accelerations (immediately following a contraction i.e. overshoot)</td>
</tr>
<tr>
<td></td>
<td>Rise in Baseline</td>
</tr>
<tr>
<td></td>
<td>Repeated decelerations / slow to recover decelerations</td>
</tr>
<tr>
<td>Prolonged Rupture of Membranes ≥ 24 hours pre-labour unless delivery is imminent.</td>
<td>Fetal structural abnormalities diagnosed during the antenatal period and planned for CEFM</td>
</tr>
<tr>
<td>Signs of chorioamnionitis or sepsis</td>
<td></td>
</tr>
<tr>
<td>• Maternal Pyrexia / Tachycardia &gt;120bpm</td>
<td></td>
</tr>
<tr>
<td>• Offensive Liquor</td>
<td></td>
</tr>
<tr>
<td>• Abdominal pain that differs from pain associated with contraction</td>
<td></td>
</tr>
<tr>
<td>Maternal request</td>
<td></td>
</tr>
</tbody>
</table>

The table above is not exhaustive; any condition which is thought to increase the risk of fetal hypoxia mandates CEFM.
SPECIAL CIRCUMSTANCES

Other factors that are present during labour such as prolonged rupture of membranes, (defined as spontaneous rupture of membranes for greater than 24 hours), chorioamnionitis, anhydramnious, meconium-stained liquor, maternal infection or pyrexia, and the speed of evolution of hypoxia are likely to modify the responses of the fetus as well as affect the perinatal outcome. See Appendix 4 for details of the physiological mechanisms.

MONITORING OF TWINS

- CEFM should preferably be performed with dual channel monitors.
- Clearly identify which trace is allocated to which twin on the CTG and in the notes.
- Consider offsetting twin 2 by 20 beats in order to clearly identify each twin separately.
- External monitoring of both twins is acceptable for as long as distinct traces of good quality are obtained.
- There should be a low threshold for internal monitoring of the presenting twin in the absence of contraindications as it is often superior in quality especially in the second stage.

ASSESSMENT AND MANAGEMENT OF WOMAN IN LABOUR

INITIAL ASSESSMENT

All women that have existing medical or obstetric conditions should have an obstetric review during pregnancy with a full plan of care formulated for labour and birth. This should include the suitability for different birth settings and the type of fetal monitoring required when in labour. The care plan should be explained to and agreed by the woman and filed in her medical records. The midwife must classify whether the woman is low or high risk and document this within the maternal records.

INITIAL ASSESSMENT AT ONSET OF LABOUR

1) Assess for Antenatal and Intrapartum Risk Factors. (Appendix 1)

2) Use the fetal wellbeing for labour sticker as a useful checklist that helps exclude signs of chronic hypoxia for all admissions in established labour (appendix 2) and place in no

3) Complete the start of CTG sticker (appendix 3)

CTG CLASSIFICATION PROCESS

ONGOING AND HOURLY ASSESSMENT STANDARDS

- Document CTG using Intrapartum Fetal heart rate sticker, for every assessment; (appendix 4) If this sticker is not available then the pneumonic DRCBRAVADO should be used. All aspects of the sticker should be completed

- Use the FIGO classification table 1 and Management plan table 2 to classify your CTG and escalate if required, using the physiological teaching to aid management plan.

The fetal heart should be assessed hourly by the midwife caring for the woman.
### CTG interpretation and response – *Intrapartum monitoring of high risk cases* (FIGO 2015)

<table>
<thead>
<tr>
<th>Normal</th>
<th>Suspicious</th>
<th>Pathological</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Baseline (bpm)</strong></td>
<td>110 – 160</td>
<td>Above 180bpm or below 100bpm</td>
</tr>
<tr>
<td><strong>Baseline variability (bpm)</strong></td>
<td>5-25</td>
<td>Less than 5 (reduced) &gt;50 minutes</td>
</tr>
<tr>
<td></td>
<td></td>
<td>More than 25 (saltatory) &gt;30 minutes</td>
</tr>
<tr>
<td></td>
<td></td>
<td><strong>Or</strong> sinusoidal for &gt;30 minutes</td>
</tr>
<tr>
<td><strong>Decelerations</strong></td>
<td>No repetitive decelerations</td>
<td>Repetitive, late or prolonged decelerations with any concerning characteristics &gt;30 minutes or &gt;20 minutes if there is reduced variability also:</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Reduced variability within the deceleration</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Gradual or failure to return to baseline after contraction</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Biphasic (W) shape</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• No shouldering</td>
</tr>
<tr>
<td></td>
<td></td>
<td><strong>Or</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td>A single prolonged deceleration (below 100 bpm) lasting 3 minutes or more</td>
</tr>
<tr>
<td><strong>Interpretation</strong></td>
<td>Fetus with no Hypoxia/acidosis</td>
<td>Fetus with low probability of having hypoxia/acidosis</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Fetus with high probability of having hypoxia/acidosis</td>
</tr>
<tr>
<td><strong>Management</strong></td>
<td>No intervention necessary to improve fetal Oxygenation state</td>
<td>Action to correct reversible causes</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Close monitoring or additional methods to evaluate fetal oxygenation</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Immediate action to correct reversible causes</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Consider additional methods to evaluate fetal oxygenation</td>
</tr>
<tr>
<td></td>
<td></td>
<td>If not possible to expedite delivery</td>
</tr>
<tr>
<td><strong>Accelerations</strong></td>
<td>The presence of fetal heart rate accelerations, even with reduced baseline variability, is generally a sign the baby is healthy. The loss of accelerations alone (in labour) is unlikely to be associated with fetal acidosis.</td>
<td></td>
</tr>
</tbody>
</table>

**AH MOTHERS acronym** – APH, Hypertension, Meconium, Oxytocin, Temperature/Tachysystole, Heart Rate abnormal pattern, Epidural analgesia, Rate of progress in labour, Scar
### MANAGEMENT PLAN (TABLE 2) THIS IS NO AN EXHAUSTIVE LIST OR IN ANY ORDER

<table>
<thead>
<tr>
<th>Classification</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Normal Classification</strong></td>
<td>Continue CTG – hourly reviews, 2 hourly fresh eyes and HIE score or if CEFM no longer advised discontinue and continue IIA</td>
</tr>
</tbody>
</table>
| **Suspicious Classification** | - Full set of maternal observations  
- Consider risk factors  
- Initiate conservative measures** and document time and type of measure  
- Consider stopping or reducing oxytocin  
- Escalate to co-ordinator/obstetric team and document time on CTG sticker  
- Correct hypotension  
- Communicate with woman regards to plan  
- Review in 30 mins or before  
- If Hyperstimulation-stop oxytocin or remove the propess. Consider tocolysis |
| **Pathological classification** | - Full set of maternal observations  
- Consider risk factors  
- Initiate conservative measures** and document time and type of measure  
- Escalate immediately to co-ordinator and Obstetric team  
- Consider FSE  
- Consider FBS  
- Correct hypotension  
- If pushing-stop to see if improvement made  
- VE- offer digital stimulation  
- Stop oxytocin or remove Propess. Consider tocolysis  
- Ensure communication with the woman  
- Consider expediting delivery if indicated |
| **Acute** | - Pull emergency buzzer  
- Exclude accidents~  
- Correct reversible causes  
- VE- to exclude cord prolapse  
- Initiate conservative measures**  
- Prepare for birth  
- Communicate plan with the woman  
- Expedite delivery |

** conservative measures  
Change maternal position, reduce or stop oxytocin, remove Propess, consider tocolysis if hyperstimulation, paracetamol if sepsis suspected, oral fluids/IV if maternal dehydration or tachycardia

~ accidents- cord prolapse, uterine rupture, abruption, ruptured vasa Previa  
**Tachysystole**- remain on CTG- Observe, inform co-ordinator and obstetric team for plan of care
In addition to the continuous hourly assessment of the CTG undertaken by the midwife caring for the woman, at least once every 2 hours the midwife must seek the assistance of a colleague (buddy) to perform a systematic, independent assessment of the CTG trace. The reviewer should document their findings and categorisation of the CTG in the maternal notes. Using sticker in appendix 2 (Hyperlink)

In second stage there should be a review every 30 mins or before by a senior midwife/Obstetrician and plan written in the notes once active pushing has commenced

Where agreement cannot be made see appendix 5 for escalation tools

DISCONTINUATION

Clearly document why the CTG has been discontinued on the CTG itself and sign it.

DOCUMENTATION, QUALITY AND STORAGE

DOCUMENTATION STANDARDS

It is the responsibility of every clinician using the CTG machine to perform the following initial checks prior to commencing the trace:

- Correct date and time
- Correct speed – 1cm per minute
- Paper specific for the machine in use, with correct orientation

Every trace should start by clearly documenting:

- The name, DOB, and hospital number of the woman using start of CTG sticker (appendix 1)
- Indication for CEFM
- Maternal observations

On-going documentation of maternal heart rate every hour in the first stage of labour and every 15 minutes in the second stage of labour on the partogram

Simultaneous maternal heart rate monitoring should be considered in:

- Fetal heart block
- Fetal heart rate similar to maternal heart rate
- Maternal tachycardia
- During 2nd stage of labour trace shows accelerations coinciding with contractions/expulsive efforts

Maternal observations:

- Maternal BP and temperature is to be measured every 4 hours unless more frequent observations are indicated clinically
- Mat pulse should be documented every 15 mins in second stage

Relevant intrapartum events should be documented on the CTG for example:

- Vaginal examination
Siting of an epidural
- Review of CTG
- Maternal hypotensive episodes

Hourly assessment should be performed using the Intrapartum fetal heart sticker and documented in the maternal notes.

**Ongoing assessment**

- Every 2 hours a Fresh eye review should be performed using the *intrapartum fetal heart sticker and the HIE risk assessment tool should be updated*

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**FETAL BLOOD SAMPLING**

FBS can be considered in the presence of a pathological FHR trace, after correcting reversible causes, unless either FBS is not possible or there is clear evidence of acute compromise or there are contraindications (i.e. BBI and bleeding disorders); in which cases, delivery should be expedited.

If offering FBS, the woman should be given a full explanation of the procedure and the benefits and risks.

Fetal blood samples should be taken with the woman in the left-lateral position.

The classification of fetal blood sample (FBS) results:

<table>
<thead>
<tr>
<th>FBS Result (pH)</th>
<th>Lactate (mmol/l)</th>
<th>Interpretation</th>
</tr>
</thead>
<tbody>
<tr>
<td>≥ 7.25</td>
<td>≤ 4.1</td>
<td>Normal</td>
</tr>
<tr>
<td>7.21 – 7.24</td>
<td>4.2 – 4.8</td>
<td>Borderline</td>
</tr>
<tr>
<td>≤ 7.20</td>
<td>≥ 4.9</td>
<td>Abnormal</td>
</tr>
</tbody>
</table>

The normal range for Base Excess is -2 to +2.

These results should be interpreted taking into account any previous pH measurement, the rate of progress in labour and the clinical risk features of the woman and baby.

After a normal FBS result (pH ≥7.25), sampling should be repeated no more than 60 minutes later if this is still indicated by the CTG or sooner if additional non-reassuring or abnormal features are seen.

After a borderline FBS result (pH 7.21-7.24), repeat sampling should be offered no more than 30 minutes later if this is still indicated by the CTG or sooner if additional non-reassuring or abnormal features are seen.

After an abnormal FBS result (pH ≤7.21), senior Obstetric advice should be sought.

The time taken to take an FBS needs to be considered when planning repeat samples.

If the CTG trace remains unchanged and the FBS result is stable after the second test, a third/further sample may be deferred unless additional non-reassuring or abnormal features are seen.

Where a third FBS is considered necessary, Consultant Obstetric opinion should be sought.
CONTRAINDICATIONS TO FBS INCLUDE:

- Maternal infection (for example, HIV, hepatitis viruses, herpes simplex virus) and chorioamnionitis
- Fetal bleeding disorders (for example, haemophilia)

FBS results should be documented in the maternal health record and the printout secured in an envelope in the maternal hospital notes in the current pregnancy section. If a printout is unavailable (equipment failure etc.), document the reason in the notes.

RISK MANAGEMENT

Paired cord bloods (from umbilical artery and vein) should be collected and analysed from any baby born with:

- Apgar Score 3 or less at one minute or
- 6 or less at five minutes, and results recorded in maternal records.
- Vaginal breech birth
- Complications in birth e.g. shoulder dystocia
- Instrumental delivery
- Meconium regardless of whether the baby needs resuscitation or not

Midwives and obstetricians should complete a Datix in relation to the following incidents:

- Apgar Score of 6 or less at 5 minutes
- Unexpected admission to NNU
- Arterial cord pH < 7.05
- Stillbirth

PLACENTAS SHOULD BE SENT TO HISTOLOGY FOR ANY UNEXPECTED ADMISSION TO NNU

STORAGE

CTG must be stored for 25 years.

MANAGEMENT OF SUSPECTED FETAL HYPOXIA

Identify reversible causes as alleviating them can lead to subsequent recovery of adequate fetal oxygenation and the return to fetal wellbeing and a normal trace.

When CTG changes develop, it is important to address underlying causes before hypoxia occurs. The midwife caring for the woman should escalate to a senior midwife/obstetric team for review without delay whilst simultaneously starting conservative measures.

CONTRACTIONS AND EXCESSIVE UTERINE ACTIVITY

Contractions are recorded as bell-shaped, gradual increases in the uterine activity signal, followed by roughly symmetrical decreases. When using the tocograph transducer, only the frequency of contractions can be reliably evaluated (FIGO 2015). The intensity and duration of contractions may be assessed by manual palpation. Frequency of contractions cannot be assessed reliably by the tocograph transducer and manual palpation is also required.

EXCESSIVE UTERINE ACTIVITY:

Excessive uterine activity can be detected by palpating the uterine fundus, assessing the frequency, strength and duration of contractions and the tone in between.
It can usually be reversed by

- Reducing or stopping oxytocin infusion
- Removing administered prostaglandins
- Starting acute tocolysis with beta-adrenergic agonists (terbutaline) or nitro-glycerine
- During the second stage of labour, maternal pushing efforts utilising valsalva manoeuvre can also contribute to fetal hypoxia/acidosis and the mother can be asked to stop pushing and a further assessment made to see if the situation improves (FIGO 2015). If this does not improve the trace, delivery should be expedited.

**Important note:**

Due to the longer half-life of prostaglandins, hyperstimulation usually requires the removal of the pessary and administration of tocolytics at the same time, especially when dealing with acute hypoxia.

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**TACHYSYSTOLE:**

Tachysystole presents an excessive frequency of contractions and is defined as the occurrence of five or more in 10 minutes, in two successive 10-minute periods or averaged over a 30-minute period but with a normal fetal heart rate.

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**HYPERSTIMULATION:**

Hyperstimulation refers to an increase in frequency of the contractions, strength of uterine contraction, increased uterine tone between contractions and/or prolonged contractions for over 2 minutes. It is associated with CTG changes/ abnormalities. Hyperstimulation can occur in spontaneous labour without the use of uterine stimulants, but more commonly occurs with uterine stimulants. (To avoid over complication, the term hyperstimulation will be used to include both iatrogenic and spontaneous increased uterine activity).

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**MANAGEMENT OF HYPERSTIMULATION:**

Reduce/stop oxytocin infusion or remove Propess if used. If this not effective then tocolysis with Terbutaline is used to treat hyperstimulation (unless contra-indicated):

*Regimen = Terbutaline 0.25mg Subcutaneous Injection*

This can be repeated every 15 minutes to achieve adequate tocolysis; discuss with CONSULTANT OBSTETRICIAN after administration of 2nd dose. (Maximum dose: 5mg in 24 hours).

---

**OTHER CAUSES OF FETAL HYPOXIA**

**AORTO-CAVAL COMPRESSION:**

Aorto-caval compression can occur in supine position. Turning the mother to lateral or upright positions may relieve compression.
TRANSIENT CORD COMPRESSION:

Transient cord compression (variable decelerations) can sometimes be relieved by changing maternal position.

SUDDEN MATERNAL HYPOTENSION:

Sudden maternal hypotension most frequently occurs after spinal or epidural administration. This is reversible by rapid fluid administration + I.V. ephedrine bolus (by the anaesthetic team).

ACTIONS WITH NO SUPPORTING EVIDENCE:

Oxygen administration to a well oxygenated mother does not alleviate fetal hypoxia and may actually be more harmful.

I.V. fluids in normotensive well hydrated women - although some may consider IV fluids to improve the placental flow, administration of IV fluids in chronic hypoxia and chorioamnionitis may provide a false sense of reassurance without improving perinatal outcomes.

Good clinical judgment is required to diagnose the underlying cause of the changes on the CTG, to judge the reversibility of the conditions with which it is associated, and to determine the timing of delivery. The objective is to avoid prolonged fetal hypoxia/acidosis, as well as unnecessary obstetric interventions. Additional methods such as fetal scalp stimulation may be used to evaluate fetal oxygenation.

ADJUNCTIVE TECHNIQUES TO ASSESS FETAL WELLBEING

FETAL SCALP ELECTRODE (FSE) AND QUALITY

External FHR monitoring is the recommended initial method, provided that a recording of acceptable quality is obtained i.e. that the basic CTG features can be identified. If the trace is of poor quality, early recourse to FSE is advised if no contraindications exist. Such instances include increased maternal BMI and poor recording during second stage (thus avoiding monitoring maternal heart rate).

Contraindications to FSE include:

- Maternal infection (for example, HIV, hepatitis viruses, herpes simplex virus) and chorioamnionitis
- Fetal bleeding disorders (for example, haemophilia)
- Prematurity (less than 34 weeks)

EDUCATION AND TRAINING

The Maternity Clinical Network within the East Midlands has produced a training record and competency document that needs to be completed by all clinicians who deliver care in labour, (Saving Babies Lives, 2015). The document is recognised across the region and should be retained by the clinician, included in their revalidation and annual appraisal process as a record of their CPD and suitability for providing care to women in labour. It is suitable for all Midwives, all doctors working in Obstetrics, including GP trainee’s, FY1 & FY2. Midwives and Obstetricians who lead on Education, guidance review and the investigation of incidents/lessons learnt or the management of other clinicians involved in EFM, must also complete this competency pack regardless of their clinical contribution.

The following must be achieved annually and will be recorded and reported on via HELM.
• Record of education in Physiological CTG Interpretation (can include face to face teaching, e-learning, internal and external courses)
• Record of annual theory assessment where the pass mark is 85%. If pass mark not reached, fetal monitoring midwife/education team to follow fail safe pathway.

The following are recommendations only but can be used to enhance knowledge and use for CPD using regional learning package

• Record of participation in EFM review events (CTG meetings / feedback of lessons learnt/incident review. 2 per year
• Peer review of EFM interpretation - 2 required within this 12 month period for professionals that provide intrapartum care.
• Handbook for reference for further details to physiology of the Fetal heart

Once the whole competency package has been completed this will be recorded by the W&C Education Team on a locally held database.

<table>
<thead>
<tr>
<th>What will be measured to monitor compliance</th>
<th>How will compliance be monitored</th>
<th>Monitoring Lead</th>
<th>Frequency</th>
<th>Reporting arrangements</th>
</tr>
</thead>
<tbody>
<tr>
<td>Auditable standards against the current guideline</td>
<td>Audit</td>
<td>Labour Ward Leads and Matrons</td>
<td>Yearly</td>
<td>Report to Maternity Governance</td>
</tr>
</tbody>
</table>

SUPPORTING REFERENCES

2. Chandraharan E (Ed) Handbook of CTG Interpretation; From Patterns to Physiology Cambridge University Press 2017.
4. Saving Babies Lives Version 2

KEY WORDS

Labour, Fetal Heart Rate, CTG, Intermittent Auscultation, Interpretation, Classification, Hypoxia
The Trust recognises the diversity of the local community it serves. Our aim therefore is to provide a safe environment free from discrimination and treat all individuals fairly with dignity and appropriately according to their needs.

As part of its development, this policy and its impact on equality have been reviewed and no detriment was identified.

### DEVELOPMENT AND APPROVAL RECORD FOR THIS DOCUMENT

| Author / Lead Officer: | Karen Moores, Chandrima Roy and Sarah Blackwell | Job Title: Consultant Obstetrician and Fetal Monitoring Lead Midwife |
| Reviewed by: | New Guideline |
| Approved by: | Maternity Governance Group | Date Approved: 21/04/2021 |

### REVIEW RECORD

<table>
<thead>
<tr>
<th>Date</th>
<th>Issue Number</th>
<th>Reviewed By</th>
<th>Description Of Changes (If Any)</th>
</tr>
</thead>
</table>

### DISTRIBUTION RECORD:

<table>
<thead>
<tr>
<th>Date</th>
<th>Name</th>
<th>Dept</th>
<th>Received</th>
</tr>
</thead>
<tbody>
<tr>
<td>w/c 26/4/21</td>
<td>All obstetricians and midwives</td>
<td>Maternity</td>
<td></td>
</tr>
</tbody>
</table>
# APPENDIX 1 – INTRAPARTUM RISK ASSESSMENT

## INTRAPARTUM HIE RISK ASSESSMENT

<table>
<thead>
<tr>
<th>Name __________________________</th>
<th>DOB __________________</th>
<th>S No: __________________</th>
</tr>
</thead>
</table>

### PRE-EXISTING RISK FACTORS
- Previous LSCS
- Previous Stillbirth
- Medical disease (e.g., Diabetes, hypertension, see intrapartum care guideline)
- Maternal age >40
- BMI >40 for multiplos or >35 for primips
- Multiple Pregnancy
- Fetal anomaly
- IVF / ICSI – individualised plan
- Unbooked women or minimal antenatal care in any country

### ANTE-NATAL SCORE

#### ADMISSION IN LABOUR OR FOR IOL
- USS: Growth <10th centile or <20g per day after 32 weeks
- GROW pathway and last scan >4 weeks ago
- Reduced fetal movements in last 24 hours OR 2 or more episodes from 28 wks
- PET or Hypertension requiring medication
- IOL/Augmentation
- AFI >20 or <5
- Long Latent phase – 3 admissions in early labour or >20 hours
- Gestation: <37 weeks or >42 weeks
- ≥24 hr ruptured membranes pre-labour

### ADMISSION SCORE

#### DEVELOPING RISK FACTORS – review 2 hourly in labour with fresh eyes

<table>
<thead>
<tr>
<th>Date / Time</th>
<th>2+ Proteinuria or more</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Raised BP (&gt;140/90 between contractions)</td>
</tr>
<tr>
<td></td>
<td>APH</td>
</tr>
<tr>
<td></td>
<td>Meconium</td>
</tr>
<tr>
<td></td>
<td>Hyperstimulation or tachysystole</td>
</tr>
<tr>
<td></td>
<td>Raised Temp (&gt;37.8 for 2 hours or &gt;38 for 30 mins)</td>
</tr>
<tr>
<td></td>
<td>Confirmed slow progress in 1st / 2nd stage of labour</td>
</tr>
<tr>
<td></td>
<td>Syntocinon</td>
</tr>
<tr>
<td></td>
<td>Epidural</td>
</tr>
<tr>
<td></td>
<td>Maternal pulse &gt;120 bpm (x2 30 mins apart)</td>
</tr>
<tr>
<td></td>
<td>Other*</td>
</tr>
</tbody>
</table>

### TOTAL SCORE:

| Sign / Print |

If a woman has a score ≥ 1 please OFFER continuous monitoring and ensure that you have consent.

*This is not an exhaustive list. Please seek advice from midwifery co-ordinator or obstetrician.
APPENDIX 2 – FETAL WELLBEING ASSESSMENT FOR LABOUR

This sticker should be used when a woman is first admitted for induction of labour or spontaneous labour.

APPENDIX 3 – START OF CTG STICKER

CTG check list (attach to start of CTG trace)

Reason for CTG:

Date: 

Time: 

Name: 

Hospital Number: 

(or attach addressograph)

Date set correctly on CTG? (tick)

Time set correctly on CTG? (tick)

Paper speed set to 1cm per min (tick)

Gestation:

Maternal Pulse:

FH auscultated prior to CTG (rate):
**APPENDIX 4 – INTRAPARTUM CTG HOURLY ASSESSMENT/FRESH EYES**

This sticker should be used for subsequent intrapartum CTG assessments.

<table>
<thead>
<tr>
<th>Determined Risks for Fetal Hypoxia</th>
<th>Rising Baseline Rate (≥10%?)</th>
<th>Yes / No</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Accelerations</td>
<td>Yes / No</td>
</tr>
<tr>
<td></td>
<td>Evidence of Cycling?</td>
<td>Yes / No</td>
</tr>
<tr>
<td></td>
<td>Variability ≥ 5-25 bpm?</td>
<td>Yes / No</td>
</tr>
</tbody>
</table>

**Overall Assessment (please circle)**

- **Normal** - No intervention required
- **Suspicious** - Correct reversible causes
- **Pathological** - Escalate & Correct reversible causes

**Management Plan**

- Escalated: Yes / No
- Who to:

**HIE Score**

- Sign: ____________________________
- Print name: ____________________________
APPENDIX 5 – ESCALATION TOOLS

Peer review process (fresh eyes/CARES)
For all intrapartum women at the set times of 7, 9, 11, 1, 3, 5
And must be completed within 30 mins of request

MW to review using DR C BRAVADO/CARES
Making sure all risk factors and overall assessment is completed.

2nd. Midwife or Dr receives SBAR
handover and reviews FHR independently using DR C BRAVADO
and documents as fresh eyes or CARES peer review

Compare classifications, discuss CARES peer review

Outcome

Both classifications normal
CARES peer review no concerns
Document as agree & inform the family

Both classifications pathological/suspicious/
CARES peer review identified concerns
Use physiological guidance to classify further
Plan agreed and escalation documented – must include coordinator
Discussed with family

Both classifications different / CARES peer review identified concerns but not agreed
Explain to family that further discussion needed
Escalate to co-ordinator and registrar/consultant use FHR safety huddle tool to
evidence conversation
Findings discussed with family and documented. Must have clear agreed plan by all

FHR Safety huddle tool
Co-Ordinator, midwife, fresh eye reviewer, Senior Reg and/or consultant

Discuss the case using appendix 1 as prompt. Findings agreed, plan agreed any ongoing disagreements must be escalated to consultant or send consultant if needed.