Dear Colleague

The Intrapartum Fetal Surveillance (IFS) guideline is intended as a guide and provided for information purposes only. The information has been prepared using a multidisciplinary approach with reference to the best information and evidence available at the time of preparation. No assurance is given that the information is entirely complete, current, or accurate in every respect.

The guideline is not a substitute for clinical judgement, knowledge and expertise, or medical advice. Variation from the guideline, taking into account individual circumstances may be appropriate.

This guideline does not address all elements of standard practice and accepts that individual clinicians are responsible for:

- Providing care within the context of locally available resources, expertise, and scope of practice
- Supporting consumer rights and informed decision making in partnership with healthcare practitioners including the right to decline intervention or ongoing management
- Advising consumers of their choices in an environment that is culturally appropriate and which enables comfortable and confidential discussion. This includes the use of interpreter services where necessary
- Ensuring informed consent is obtained prior to delivering care
- Meeting all legislative requirements and professional standards
- Applying standard precautions, and additional precautions as necessary, when delivering care
- Documenting all care in accordance with mandatory and local requirements

To assist with the publication of the Intrapartum Fetal Surveillance (IFS) Guideline a knowledge assessment learning package has been developed.

The IFS guideline knowledge assessment learning package is an opportunity to update and refresh your knowledge on maternal and neonatal risk factors, definitions, terminology and appropriate documentation when interpreting and reporting on CTGs. When you have completed the learning package can you please send it to me for assessment. Completion of the learning package with earn four continuing professional development (CPD) points which will be recorded on the Trendcare education and training database.

To complete this package you will need to access the IFS guideline available on the Maternity, Neonatal & Gynaecology Procedures site on the QHEPS intranet– this is the link: https://www.health.qld.gov.au/qcg/documents/q-ifs.pdf

Completion of the K2 Perinatal Training Program (an internet based interactive learning program) will further enhance your knowledge of fetal surveillance – this program needs to be completed once every two years. If you require access to the program please contact me and I can organise your logon and password access.

The Multidisciplinary CTG Review Meetings that are held regularly provide a forum to discuss and review actual clinical situations related to CTG monitoring with known outcomes. Attendance at these meetings is recorded on the Trendcare education and training database.

Rita Ball
Midwifery Educator
Nursing & Midwifery Education & Research Unit - Cairns Hospital
Ph. 07 42266470
Email: rita.ball@health.qld.gov.au
The primary purpose of fetal surveillance is to attempt to prevent adverse fetal outcomes. Fetal surveillance includes intermittent auscultation (IA) of fetal heart rate, cardiotocography (CTG) which measures fetal heart rate and uterine contractions and fetal blood sampling (FBS) for indications of metabolic acidosis (pH and or lactate).

There are a number of recommendations in the IFS guidelines including:
- During pregnancy, women are offered information on intrapartum fetal surveillance by those responsible for provision of maternity care.
- Fetal surveillance in labour, whether by intermittent auscultation or electronic fetal monitoring is discussed with and recommended to all women.
- Intermittent auscultation is an appropriate method of intrapartum fetal monitoring in women without recognised risk factors.
- Women receive 1:1 midwifery intrapartum care. Cardiotocography is not a substitute for adequate intrapartum midwifery staffing.
- Continuous Electronic Fetal Monitoring (CEFM) is recommended when either risk factors for fetal compromise have been detected antenatally, are detected at the onset of labour or develop during labour.
- Cardiotocograph (CTG) interpretation is included in bedside handovers between clinicians.
- Paired (arterial and venous) umbilical cord blood gas or lactate analysis are taken at delivery where available when any of the following are present:
  - Apgar score less than 4 at 1 minute
  - Apgar score less than 7 at 5 minutes
  - Fetal scalp sampling performed in labour
  - Operative delivery undertaken for fetal compromise

Where paired umbilical cord blood gas or lactate analysis is taken at delivery as part of a clinical audit regimen, this process should not interfere with management of the third stage of labour.

**There are clinical practice standards relating to women during the antenatal and intrapartum periods.**

- **Antenatal care**
  - Offer women information about intrapartum fetal surveillance (IFS) during the antenatal period
  - Discuss the advantages and disadvantages of IFS as they pertain to the individual woman
  - Encourage the woman to make decisions about the mode of FHR monitoring with her health care provider

- **Intrapartum care**
  - The wellbeing and wishes of the woman are respected with regard to monitoring
  - All women in active labour including when continuous electronic fetal monitoring (CEFM) is used receive one-to-one midwifery care
  - During CEFM:
    - Short infrequent interruptions are acceptable for personal care if the preceding monitoring is normal and there have not been any interventions that can be expected to alter the fetal heart (e.g. amniotomy, epidural insertion or top-up).
    - Minimise disturbances to the woman, for example keep monitor volume low and do not restrict mobility and position or the use of water for pain relief.
    - Continue FHR monitoring by IA during unavoidable interruptions (including transfer to operating room) when there is potential fetal vulnerability and recommence CEFM when feasible.
QUESTION 1:
Annabelle is a G1P0 presents to Birth Suite today at 39 weeks in early labour. You review Annabelle’s history and note that she had presented to Birth Suite 5 days previously for assessment for decreased fetal movements. What is her risk factor for FHR monitoring?

QUESTION 2:
Becky, aged 45 years, is a G1P0 and has successfully achieved a pregnancy with assisted conception. She has attended her antenatal visits regularly and her antenatal care has been uncomplicated. She is now 40+2 weeks and eagerly awaiting the birth of her baby. What is her risk factor for FHR monitoring?

QUESTION 3:
You are the midwife caring for Cynthia in labour. Her progress of labour has not progressed as expected and she is requesting pain relief - about to have an epidural inserted. You review the partogram in the intrapartum record and notice that the alert and action lines have been passed. When do you perform a CTG and what are her risk factors for FHR monitoring?

QUESTION 4:
Dianne is 41 years having her first baby. She presents to Birth Suite in early labour at 41+4 weeks. What is her risk factor for FHR monitoring?

QUESTION 5:
When interpreting an intrapartum CTG of a term fetus, what are the characteristics of the CTG to classify the CTG as NORMAL?
Baseline: ..............................................................
Variability: ..............................................................
Accelerations: ..............................................................
Decelerations: ..............................................................
INTERPRETATION of CTGs:
All abnormal CTGs require further evaluation and management taking into account:
• Full clinical picture
• Identification of reversible causes
• Initiation of appropriate action including FBS and expediting birth if abnormality persist
Significance of accelerations/no accelerations in an otherwise normal CTG is unclear.
When interpreting a CTG the classification is either normal or abnormal with varying probability of fetal compromise i.e.
  a) NORMAL - Low probability of fetal compromise
  b) ABNORMAL - Unlikely fetal compromise
  c) ABNORMAL - May be fetal compromise
  d) ABNORMAL - Likely fetal compromise

QUESTION 6:
You are asked to review an intrapartum CTG with the following characteristics:
• Baseline - 146 bpm
• Variability – presence of complicated variable decelerations
• Accelerations - absent
• Decelerations - absent

How would you classify the CTG?
  a) NORMAL - Low probability of fetal compromise
  b) ABNORMAL - Unlikely fetal compromise
  c) ABNORMAL - May be fetal compromise
  d) ABNORMAL - Likely fetal compromise

Define and describe complicated variable decelerations?

What are the possible causes of complicated variable decelerations?

What are your actions?
QUESTION 7:
You are asked to review an intrapartum CTG with the following characteristics:
- Baseline – 156 bpm
- Variability – 10 bpm
- Accelerations - absent
- Decelerations – persistent late decelerations

How would you classify the CTG?
e) NORMAL - Low probability of fetal compromise
f) ABNORMAL - Unlikely fetal compromise
g) ABNORMAL - May be fetal compromise
h) ABNORMAL - Likely fetal compromise

Define and describe late decelerations?

What are the possible causes of late decelerations?

What are your actions?

QUESTION 8:
You are asked to review an intrapartum CTG with the following characteristics:
- Baseline – 105 bpm
- Variability – 15 bpm
- Accelerations - absent
- Decelerations – early decelerations

How would you classify the CTG?
i) NORMAL - Low probability of fetal compromise
j) ABNORMAL - Unlikely fetal compromise
k) ABNORMAL - May be fetal compromise
l) ABNORMAL - Likely fetal compromise
Define and describe baseline bradycardia?

What are the possible causes of baseline bradycardia?

Define and describe early decelerations?

What are the possible causes of early decelerations?

What are your actions?

QUESTION 9:
You are asked to review a CTG with the following characteristics:
- Baseline – 176 bpm
- Variability – reduced baseline variability
- Accelerations - absent
- Decelerations - absent

How would you classify the CTG?
- m) NORMAL - Low probability of fetal compromise
- n) ABNORMAL - Unlikely fetal compromise
- o) ABNORMAL - May be fetal compromise
- p) ABNORMAL - Likely fetal compromise
Define and describe baseline tachycardia?

What are the possible causes of baseline tachycardia?

Define and describe reduced baseline variability?

What are the possible causes of reduced baseline variability?

What is the significance of combined baseline tachycardia and reduced baseline variability on a CTG?

What are your actions?
QUESTION 10:
A woman in labour is having intermittent auscultation (IA). How often should the fetal heart be auscultated and recorded?
Towards the end of a contraction and for at least how many seconds after the contraction has finished? .................................................................
How often in the active phase of the first stage of labour? .................................................................
How often in the active second stage of labour? .................................................................
What are your actions if you suspect a fetal heart rate abnormality?
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QUESTION 11:
You are caring for a woman in labour with no identified risk factors for CTG monitoring. Fetal monitoring is managed by intermittent auscultation. However, you note on auscultation that the fetal heart rate is abnormal i.e. there is fetal tachycardia. What is your clinical management and what do you need to exclude for the ongoing well-being of the fetus?
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Name two additional measures you may consider:
1. ...........................................................................................................................
2. ...........................................................................................................................

QUESTION 12:
Refer to Flow Chart – Abnormal Fetal Heart - on Page 4 of the IFS guideline. Outline the key elements of Assessment of an abnormal fetal heart rate.
CTG Review within what time period .........................................................
Maternal pulse to be correlated with ..........................................................
Six Features of the CTG to be identified:
1. ...........................................................................................................................
2. ...........................................................................................................................
3. ...........................................................................................................................
4. ...........................................................................................................................
5. ...........................................................................................................................
6. ...........................................................................................................................

What events need to be noted? .................................................................

After confirming your findings they indicate that the CTG is not normal what do you do?
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QUESTION 13:
When completing your assessment you document your findings and actions. Referring to the IFS guideline what does CTG labelling and documentation need to include?

QUESTION 14:
How often does the CTG trace need to be reviewed?

QUESTION 15:
What actions do you take to differentiate between maternal pulse and FHR?

QUESTION 16:
What is the definition of Hypertonus (uterine)?

QUESTION 17:
What is the definition of Tachysystole?

QUESTION 18:
How would you define tachysystole or uterine hypertonus with fetal heart rate abnormalities?
QUESTION 19:
It is recommended to palpate the maternal pulse with a contraction and simultaneously with FHR by IA or CEFM in order to differentiate between maternal and fetal heart rates. In the second stage of labour it is recommended to palpate the maternal pulse if there is suspected fetal bradycardia or any other FHR anomaly to differentiate between the two heart rates.

What are some of the features of the CTG when monitoring in labour?
Maternal ‘accelerations’?

Fetal ‘accelerations’?

QUESTION 20:
What special considerations need to be undertaken for Multiple Pregnancy?

QUESTION 21:
What special considerations need to be undertaken for Preterm Labour?
QUESTION 22:
When interpreting an intrapartum CTG of a preterm fetus what are the normal characteristics of to be noted regarding:
Baseline FHR at 20-24 weeks .................................................................
Does tachycardia increase or decrease with increasing gestational age? ........................................
Is baseline variability reduced or increased in a preterm fetus? ......................................................
Why? ...................................................................................
Are frequency of accelerations and amplitude increased or reduced before 30 weeks gestation? ..........
Do variable decelerations occur more commonly or less commonly in a preterm fetus compared to a term fetus? ..............................................................

QUESTION 23:
It states in the IFS guideline that Internal Fetal Scalp Electrode(FSE) monitoring
• May be used when external monitoring is unable to be used or when the signal quality is poor
• Requires rupture of membranes, cervical dilation 2–3 cm and cephalic or breech presentation
• Requires relative certainty of fetal head position to avoid placement in fontanelles, eyes, sutures or other structures
It also states that the contraindications for Internal Fetal Scalp Electrode (FSE) monitoring are the same as for FBS [Refer to Table 14. Intrapartum fetal blood sampling]
List the contraindications:
1 .......................................................................................... 
2 .......................................................................................... 
3 .......................................................................................... 
4 .......................................................................................... 
5 ..........................................................................................

Does Group B Streptococcus carrier preclude FBS?
YES or NO ........................................

QUESTION 24:
If fetal death is suspected despite the presence of an apparently recordable FHR, how is fetal viability confirmed?
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QUESTION 25:
What are the potential contributing factors for an inadequate quality of CTG?
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What are the possible corrective actions to take?
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QUESTION 26:
What are the potential contributing factors for cord compression or reduced placental perfusion?

What are the possible corrective actions to take?

QUESTION 27:
What are the potential contributing factors for uterine hyperstimulation (tachysystole or hypertonus)?

What are the possible corrective actions to take?

QUESTION 28:
What are the potential contributing factors for maternal tachycardia/ pyrexia?

What are the possible corrective actions to take?
QUESTION 29:
Results of intrapartum fetal blood sampling of a woman in labour with an abnormal CTG indicate a pH of 7.23. What are the recommendations regarding management of this labour?

QUESTION 30:
Results of intrapartum fetal blood sampling of a woman in labour with an abnormal CTG indicate a lactate of 5.1 mmols. What are the recommendations regarding management of this labour?

QUESTION 32:
When interpreting fetal blood sampling results what are the normal pH cord blood values at birth for a term fetus?
UA pH? ......................
UV pH? ......................
Lactate (mmol)? .............

QUESTION 33:
Guidelines for paired umbilical cord blood gas or lactate analysis include:
- Collection and analysis of paired cord blood samples allows the detection of respiratory and metabolic acidosis if present at birth41
- Umbilical artery blood:
  - Provides most accurate information regarding fetal and newborn acid-base
  - Is a tool for quality control of obstetric care
- Umbilical venous blood reflects maternal acid-base status and placental function
- Involves sampling both:
  - Umbilical artery (UA)—smaller lumen, thicker wall and contains less blood
  - Umbilical vein (UV)
- Deferred sampling with or without cord clamping is possible
- Studies inconsistent regarding timing of sampling with or without clamping and cord blood gas results
- Procedure as per local practice within 30 minutes of birth

What are some of the indications for paired umbilical cord sampling?

QUESTION 34:
What is the highest single-drop waterfall in Australia?