



OBSTETRICS AND GYNAECOLOGY  
CLINICAL PRACTICE GUIDELINE

# Fetal compromise (acute): Management if suspected

**Scope (Staff):** WNHS Obstetrics and Gynaecology Directorate staff

**Scope (Area):** Labour and Birth areas

This document should be read in conjunction with this [Disclaimer](#)

## Aim

To identify suspected or actual fetal compromise and initiate early intervention to promote placental and umbilical blood flow to decrease risk of hypoxia and acidosis.

## Key points<sup>1</sup>

1. Fetal compromise in labour may be due to a variety of pathologies including placental insufficiency, uterine hyperstimulation, maternal hypotension, cord compression, placental abruption, uterine rupture, and fetal sepsis. Identification and management of reversible abnormalities may prevent unnecessary intervention.
2. Continuous cardiotocograph (CTG) monitoring is recommended when either risk factors for fetal compromise have been detected antenatally, at the onset of labour or develop during labour.
3. A normal CTG is associated with a low probability of fetal compromise and has the following features:
  - Baseline rate 110-160 bpm
  - Baseline variability 6-25 bpm
  - Accelerations of greater than or equal to 15bpm above baseline and lasting greater than or equal to 15 seconds at the baseline
  - No decelerations
4. The following features **are unlikely** to be associated with fetal compromise when occurring in isolation:
  - Baseline rate 100-109 bpm
  - Reduced or reducing baseline variability (3-5 bpm)



- Absence of accelerations
  - Early decelerations
  - Variable decelerations without complicating features.
5. The following features **may be** associated with significant fetal compromise and require further action (see management section on next page):
- Baseline fetal tachycardia >160 bpm
  - Rising baseline fetal heart rate (FHR), including where the fetal heart rate remains within normal range
  - Complicated variable decelerations
  - Late decelerations
  - Prolonged decelerations (a fall in baseline FHR for >90seconds and up to 5 minutes).
6. The following features **are likely** to be associated with significant fetal compromise and require immediate management, which may include urgent birth:
- Bradycardia (a fall in the FHR below 100bpm for > 5 minutes)
  - Absent baseline variability <3bpm
  - Sinusoidal fetal heart rate pattern
  - Complicated variable decelerations with reduced or absent baseline variability
  - Late decelerations with reduced or absent baseline variability.
7. At any time in labour, if there is difficulty auscultating the FHR, or in attaining an adequate trace, the FHR can be monitored using a scalp electrode, where not contraindicated. For contraindications and procedure, see Clinical Guideline, Fetal Heart Rate Monitoring.
8. Some intrapartum procedures / events can affect the FHR and should be documented contemporaneously e.g. vaginal examinations, inserting/ topping up an epidural and obtaining a fetal blood sample.
9. There is not enough evidence to support or evaluate the effectiveness of maternal oxygen therapy in cases of suspected fetal compromise.<sup>2</sup>

## Management

For ALL situations where the FHR is considered abnormal, immediate management includes:

- Call for assistance
- Inform the Labour and Birth Suite Co-ordinator, the Obstetric Registrar / Senior Registrar or Consultant for immediate review
- Apply continuous CTG monitoring (if not already in progress)<sup>1</sup>
- Insert intravenous (IV) access if not in situ. Consider collecting blood for group and hold.

- Identify any reversible causes of FHR abnormality and initiate suitable action.<sup>1</sup>  
Actions may include:
  - Maternal repositioning
  - Correction of maternal hypotension
  - Rehydration with IV fluid
  - Stopping oxytocin infusion
  - Tocolysis for excessive uterine activity<sup>1</sup>
- Consider further fetal evaluation or birth if significant abnormality persists<sup>1</sup>
- Escalate care to more experienced practitioner if required<sup>1</sup>
- Do not leave the room / the woman unattended

## Fetal heart rate (FHR) abnormality management

FHR abnormality	Possible reasons	Management
<b>Bradycardia / prolonged deceleration</b>	<ul style="list-style-type: none"> <li>• Maternal hypotension<sup>3, 4</sup></li> <li>• Cord prolapse or compression<sup>3, 4</sup></li> <li>• Uterine hyperstimulation<sup>4</sup></li> <li>• Scar dehiscence / uterine rupture<sup>3</sup></li> <li>• Abruption placentae<sup>3, 4</sup></li> <li>• Rapid fetal descent</li> <li>• Procedures may include:               <ul style="list-style-type: none"> <li>➤ vaginal examinations</li> <li>➤ inserting/sitting for epidural insertion</li> <li>➤ obtaining a fetal blood sample</li> </ul> </li> </ul>	<ol style="list-style-type: none"> <li>1. Reposition the woman<sup>1, 3, 5</sup> – e.g. lateral position</li> <li>2. Administer bolus IV fluids<sup>1, 3, 5</sup>, unless contraindicated (e.g. pre-eclampsia)</li> <li>3. Discontinuation of oxytocin or decreasing rate of infusion ( if in progress)<sup>1, 3</sup></li> <li>4. Check maternal blood pressure (BP)<sup>3</sup></li> <li>5. Check the maternal pulse<sup>3</sup> – to differentiate maternal pulse rate from the fetal heart rate (FHR)</li> <li>6. Perform a VE to exclude cord prolapse or rapid cervical dilatation if the bradycardia persists.<sup>3, 5</sup> Consider application of a fetal scalp electrode.<sup>3</sup></li> <li>7. Assess abdominal tone to exclude a tonic uterus<sup>3</sup></li> <li>8. Prepare for assisted delivery or emergency caesarean section if bradycardia does not resolve.<sup>3</sup></li> </ol>
<b>Variable decelerations</b>	<ul style="list-style-type: none"> <li>• Cord compression<sup>4</sup></li> <li>• May be exacerbated by:               <ul style="list-style-type: none"> <li>➤ Maternal positioning<sup>3</sup></li> </ul> </li> </ul>	<ol style="list-style-type: none"> <li>1. Reposition the woman<sup>4, 5</sup> – alternative side e.g. left lateral.</li> <li>2. Administer bolus IV fluids, unless</li> </ol>

FHR abnormality	Possible reasons	Management
	<ul style="list-style-type: none"> <li>➤ Direct cord involvement e.g. cord entanglement, short or knotted cord<sup>3</sup></li> <li>➤ Oligohydramnios<sup>3</sup></li> <li>➤ Fetal activity</li> <li>➤ Abnormal uterine activity</li> </ul>	<p>contraindicated (e.g. pre-eclampsia).</p> <ol style="list-style-type: none"> <li>3. Perform a VE to exclude cord prolapse<sup>3</sup> or rapid cervical dilatation if the variables persist.<sup>5</sup> Consider application of a fetal scalp electrode.<sup>3</sup></li> <li>4. Assess uterine tone</li> <li>5. Consider amnioinfusion<sup>3</sup> e.g. circumstances of oligohydramnios</li> </ol>
<p style="text-align: center;"><b>Late decelerations</b></p>	<ul style="list-style-type: none"> <li>• Fetal hypoxia<sup>4</sup> – uteroplacental insufficiency<sup>3</sup></li> <li>• Decreased fetal oxygenation may be caused by<sup>3</sup>: <ul style="list-style-type: none"> <li>➤ Uterine hyperstimulation</li> <li>➤ Maternal conditions e.g. hypertension, smoking, hypotension, cardiac status, anaemia, diabetes</li> <li>➤ Fetal/placental e.g. post-term, intrauterine growth restriction, abruptio placentae, chorioamnionitis, haemorrhage</li> </ul> </li> </ul>	<ol style="list-style-type: none"> <li>1. Reposition the woman<sup>3-5</sup> – alternative side e.g. left lateral</li> <li>2. Increase bolus IV fluids,<sup>3</sup> unless contraindicated (e.g. pre-eclampsia)</li> <li>3. Assess maternal vital signs including uterine tone/activity<sup>3</sup></li> <li>4. Cease oxytocic<sup>3,4</sup></li> <li>5. Consider tocolytic therapy<sup>3,4</sup> e.g. terbutaline</li> <li>6. Initiate procedures to assist determination of acid-base status<sup>3</sup> e.g. fetal scalp blood sampling</li> <li>7. Prepare for assisted delivery or emergency caesarean section<sup>4</sup></li> </ol>
<p style="text-align: center;"><b>Sinusoidal pattern</b></p>	<ul style="list-style-type: none"> <li>• Fetal hypoxia<sup>3</sup></li> <li>• Severe anaemia e.g. fetal-maternal transfusion, Rh isoimmunisation, fetal infection, antepartum haemorrhage (APH),<sup>3</sup> twin-to-twin transfusion<sup>4</sup></li> </ul>	<ol style="list-style-type: none"> <li>1. Cease oxytocic<sup>1</sup></li> <li>2. Administer bolus IV fluids<sup>1</sup>, unless contraindicated (e.g. pre-eclampsia)</li> <li>3. Perform maternal vital signs – including vaginal discharge, pain</li> <li>4. Assess uterine tone</li> <li>5. Collect equipment that may be required e.g. real time scanner, blood collection tubes for Kleihauer</li> <li>6. Prepare for emergency caesarean</li> </ol>
<p style="text-align: center;"><b>Fetal tachycardia</b></p>	<ul style="list-style-type: none"> <li>• Maternal tachycardia<sup>4</sup></li> <li>• Maternal fever<sup>3,4</sup></li> <li>• Extreme prematurity</li> </ul>	<ol style="list-style-type: none"> <li>1. Reposition the woman<sup>1</sup></li> <li>2. Assess maternal pulse, temperature, and BP<sup>3</sup></li> </ol>

FHR abnormality	Possible reasons	Management
	<ul style="list-style-type: none"> <li>• Medications<sup>3</sup> e.g. beta sympathomimetics<sup>4</sup>, methamphetamines<sup>5</sup></li> <li>• Fetal hypoxia<sup>3, 4</sup></li> <li>• Infection-fetal<sup>4</sup>, maternal<sup>5</sup></li> <li>• Fetal tachyarrhythmia<sup>3</sup></li> <li>• Maternal dehydration<sup>3</sup></li> <li>• Maternal medical disorders<sup>5</sup></li> </ul>	<ol style="list-style-type: none"> <li>3. Provide IV hydration<sup>1</sup> / increase rate, unless contraindicated<sup>3</sup> (e.g. pre-eclampsia)</li> <li>4. Consider discontinuation of oxytocin infusion, uterotonic agents, and consider tocolysis<sup>1</sup></li> <li>5. Antibiotics may be required<sup>5</sup></li> </ol>
<p><b>Decreased variability</b></p>	<ul style="list-style-type: none"> <li>• Fetal acidaemia<sup>5</sup></li> <li>• Fetal sleep state<sup>5</sup></li> <li>• Medications e.g. opioids, magnesium sulphate, <math>\beta</math>-blockages<sup>5</sup></li> <li>• Extreme prematurity<sup>5</sup></li> <li>• Known or suspected abnormalities of the fetus</li> <li>• Supine hypotension</li> <li>• Hypoglycaemia</li> </ul>	<ol style="list-style-type: none"> <li>1. Reposition the woman<sup>5</sup></li> <li>2. Hydration – administer IV fluid bolus, unless contraindicated (e.g. pre-eclampsia)<sup>5</sup></li> <li>3. Fetal scalp stimulation (if no FHR accelerations)<sup>5</sup></li> </ol>

## RANZCOG FHR abnormality explanations<sup>1</sup>

- **Prolonged deceleration:** FHR decrease below baseline for 90sec- 5min.
- **Bradycardia:** A fall in the baseline for >5min- requires immediate management, which may include urgent delivery.
- **Variable deceleration/s:** Repetitive or intermittent drop in FHR with rapid onset & recovery. Occurs with contractions.
- **Late deceleration/s:** Repetitive uniform FHR decreases with usually slow onset mid to late contraction and nadir >20 seconds after contraction peak & ending after contraction.

Note: In the presence of reduced baseline variability (<5bpm) & no accelerations, would also include decelerations <15bpm.

- **Sinusoidal pattern:** Regular oscillation of baseline FHR resembling a sine wave. Absent baseline variability & no accelerations.
- **Baseline tachycardia:** >160bpm
- **Decreased variability:**
  - Reduced: 3-5bpm
  - Absent: <3bpm

## Management of excessive uterine activity <sup>1</sup>

### Without FHR abnormalities

- Tachysystole (>5 active labour contractions in 10 minutes without FHR abnormality)
- Uterine hypertonus (contractions lasting >2minutes or contractions occurring within 60 seconds of each other, without FHR abnormality)

Management involves continuous CTG; consider reducing or ceasing oxytocin infusion; the midwife staying with the woman until normal uterine activity returns; and considering tocolysis.

### With FHR abnormalities

- Uterine hyperstimulation (tachysystole or uterine hypertonus accompanied by FHR abnormalities)

Management involves continuous CTG; consider reducing or ceasing oxytocin infusion; the midwife staying with the woman until normal uterine activity returns; considering tocolysis; or consideration of urgent birth.

**Tocolysis: Terbutaline 250 micrograms subcutaneous.**<sup>1</sup> See **Clinical Guidelines, Pharmacy, A-Z Medications, [Terbutaline](#)** for current guidance.









## References

1. RANZCOG. Intrapartum fetal surveillance: Clinical guideline- 4th ed. East Melbourne, VIC: RANZCOG. 2019. Available from: [https://ranzcoг.edu.au/RANZCOG\\_SITE/media/RANZCOG-MEDIA/Women%27s%20Health/Statement%20and%20guidelines/Clinical-Obstetrics/IFS-Guideline-4thEdition-2019.pdf?ext=.pdf](https://ranzcoг.edu.au/RANZCOG_SITE/media/RANZCOG-MEDIA/Women%27s%20Health/Statement%20and%20guidelines/Clinical-Obstetrics/IFS-Guideline-4thEdition-2019.pdf?ext=.pdf)
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4. Baker L, Beaves M, Wallace E. **Assessing fetal wellbeing: A practical guide**. 2nd ed. Melbourne, VIC: RANZCOG and Monash Health; 2016.
5. Walton JR, Peaceman AM. Identification, Assessment and Management of Fetal Compromise. **Clinics of Perinatology**. 2012;39:753-68.

## Related WNHS policies, guidelines and procedures

WNHS Clinical Guidelines:

- Obstetrics and Gynaecology: [Fetal Heart Rate Monitoring](#)
- Pharmacy Adult Medication Monograph: [Terbutaline](#)

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## Version history

Date	Summary
Oct 1990 to Sept 2015	Archived. For a list of changes- see OGD <a href="#">Guideline Updates</a> by month/ year of review date or contact OGD Guideline Coordinator for previous versions. Previously known as 'Section B 5.7 Management of Suspected Acute Fetal Compromise'. In 2015, reformatted with title changed to 'Fetal Compromise (Acute): Management if Suspected'.
June 2019	Evidence on this topic was reviewed and overall guidance remains unchanged. Minor changes and formatting have been made.
Aug 2021	<ul style="list-style-type: none"> <li>Updated with RANZCOG Intrapartum Fetal Surveillance, 4<sup>th</sup> ed. - Definition of accelerations updated to align and reduced variability (3-5bpm) has moved to the key point with 'features unlikely to be associated with fetal compromise when occurring in isolation'</li> <li>In the management table, when discussing hydration / fluid bolus: Added 'unless contraindicated (e.g. pre-eclampsia)'</li> </ul>

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