Royal College of Obstetricians & Gynaecologists
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CTG interpretation and further management

> **If CTG is normal:** continue CTG or if it was started because of concerns arising from intermittent auscultation, remove CTG after 20 minutes if there are no nonreassuring/abnormal features and no ongoing risk factors.

> Describe decelerations as 'early', 'variable' or 'late'. Do not use the terms 'typical' and 'atypical' because they can cause confusion.

> **If non-reassuring:** commence conservative measures – left lateral position, oral/intravenous fluids, stop oxytocin, consider tocolysis.

> **If the CTG is abnormal:** Offer to take fetal blood sample (FBS; for lactate or pH) after implementing conservative measures, or expedite birth if an FBS cannot be obtained and no accelerations are seen as a result of scalp stimulation.

> Inform the consultant obstetrician if any FBS result is abnormal/FBS cannot be obtained or a third FBS is thought to be needed.

CTG interpretation table

Lactate (mmol/l)	pH	Interpretation
≤4.1	≥7.25	Normal
4.2–4.8	7.21–7.24	Borderline
≥ 4.9	≤ 7.20	Abnormal

> To reduce false-positives and, consequently, unnecessary caesarean sections, fetal scalp pH sampling is recommended for cases with suspicious or pathological traces in labour (except in cases of prolonged deceleration where immediate delivery may be warranted).

> Remember the 'Rule of 3' for fetal bradycardia:

> 3 minutes – call for help

> 6 minutes – move to theatre

> 9 minutes – prepare for assisted delivery

> 12 minutes – aim to deliver the baby.

> The pH of the fetus has been shown to drop at the rate of 0.01 every 2–3 minutes.

> In cases of acute emergencies such as cord prolapse, scar rupture, placental abruption, prolonged bradycardia (10 minutes) and scalp blood pH.

> Reasons for the high rates of CTG misinterpretation include:

> difficulties in pattern recognition

> difficulty interpreting the CTG in the clinical context

> poor interobserver agreement on the classification of CTG cases

> technical factors, including a faulty leg plate, electrode or monitor, setting the recording rate at 3 cm/minute instead of the standard 1 cm/minute, and the fact that very slow fetal heart rates may be doubled and very fast rates (>240 beats/minute) may be halved by the machine.

> It is important to confirm that the external fetal monitor is actually recording fetal heart rate and not maternal heart rate (transmitted from a maternal vessel, such as the aorta or uterine artery).

> An internal fetal electrode is not definitive, as a fetus that is recently dead can conduct the maternal cardiac signals through its body to the electrode.

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The 3-, 6-, 9- and 12-minute rule

The 3-, 6-, 9- and 12-minutes rules for a prolonged fetal bradycardia were originally proposed by Gibb and Arulkumaran (2008) and are as follows:

However, a delivery conducted within 12 minutes of the development of a fetal bradycardia does not always guarantee a good outcome.

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