

Physiological CTG interpretation: out with the old, in with the new

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Objective



Evaluate the impact of introducing physiological CTG interpretation on documentation, decision-making and emergency caesarean birth practices

Comparing compliance with pre and post implementation standards

All women should have primary reason for emergency CS, decision for emergency CS and CTG interpretation at time of decision documented in the partogram

Design and Methods



Retrospective analysis of emergency CS cases October 2023 (pre-implementation)

Prospective analysis of emergency CS cases March 2024 (post-implementation)

- Electronic and paper notes review and theatre logs scrutinised
- CTG classifications were reviewed independently by two clinicians



Data were compiled using Microsoft Excel and analysed using descriptive statistics. Free text comments were analysed for themes using content analysis.

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Results

- 117 women included in the audit (73 pre- and 68 post- implementation)
- Median gestation at birth 39+2
- 65% nulliparous
- 55% CS in labour
- 75% category 2
- 51% overnight

Standard	October 2023 n=50	March 2024 n=67
All patients should have a primary reason for emergency CS documented	92	97
All patients should have a decision for emergency CS documented in the partogram	64	70
All patients should have CTG interpretation at time of decision documented in the partogram	48	70

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Results continued

- There was a positive impact on audit standards following implementation of new CTG guidance

Change in compliance over time		Compliance change
1)	All patients should have a primary reason for emergency CS documented	+5%
2)	All patients should have a decision for emergency CS documented in the partogram	+6%
3)	All patients should have CTG interpretation at time of decision documented in the partogram	+22%

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Conclusions

- All audit standards compliance improved post physiological CTG implementation
- Emergency caesarean birth rates remained the same
- Staff education key
- Areas for improvement: (1) Documentation wording (2) Misinterpreting compensated hypoxia

Old fetal monitoring

Antenatal CTG Proforma	Reassuring	Non-reassuring	
Baseline Rate (BPM)	110-160 Rate:	<109 Rate: >161 Rate: Sinusoidal pattern ≥10minutes	Comments:
N.B Rising baseline rate even within normal range may be of concern if other non-reassuring features			
Variability (bpm)	≥5 bpm	< 5bpm for >40mins	Comments:
Accelerations	Present	None for 40mins	Comments:
Decelerations	None	Unprovoked decelerations	Comments:
Opinion	Normal CTG (all 4 features reassuring)	Abnormal CTG (1 or more non-reassuring features)	
	Mat Pulse (bpm):	Membranes ruptures Y/N FV, date/time: at	Liquor colour:
Reason for CTG:			
Action: (an abnormal CTG requires prompt review by experienced Obstetrician/ Senior Midwife)			
Date:	Time:	Signature:	Print:

Risk factors:	Reassuring	Baseline at the start of labour:	Non-Reassuring	Abnormal
≥10% Change in baseline?	No		Yes – clinical review and consider hypoxia or infection	
Baseline rate (bpm)	110 - 160		100 - 109 161 - 180	<100 >180
Variability (bpm)	5 - 25		<5 for 30-50 min >25 for 15-25 min	<5 for >50 min >25 for >25 min Sinusoidal
Accelerations	If present are generally a sign that the baby is healthy			
Decelerations	None	Variable, no concerning features, >90 mins	Variable with concerning features, >50% contractions for >30 mins	
Concerning features:	Early	Variable with concerning features, <50% contractions for >30 mins OR >50% contractions for <30 mins	Late decels >30 mins (less if P+R/meds)	
• ≥60 sec				
• Reduced variability				
• Fails to return to baseline				
• Bifidus (PW)				
• No shouldering				
Variable, no concerning features, <90 min		Late decels >50% contractions for <30 mins	Bradycardia or single prolonged decel >3 min	
Opinion	Normal (all features reassuring)	Suspicious (1 non-reassuring feature)	Pathological (1 abnormal or 2+ non-reassuring feature)	
Dilation:	Liquor:	Maternal pulse:	Contraction:	
Action			Positive features	
Date:	Time:	Signature:	☐ Accelerations	
			☐ Cycling	
			☐ Scalp stimulation response	
			☐ Other (Specify):	
Fresh Eyes	I agree with opinion? YES/NO			

Intrapartum

Physiological fetal monitoring

Baseline rate		
Baseline appropriate for gestation	Yes	No
Accelerations	Yes	No
Decelerations	No	Yes
Variability	Normal	Abnormal (reduced/ increased)
Category	Normal	Abnormal
Signature & peer review		

Date			Time		
Baseline rate			Starting Baseline		
Is the baseline stable?	Yes	No			
Has the baseline increases by ≥10%?	No	Yes			
Is the baseline appropriate for gestation?	Yes	No			
Accelerations?	Yes	No			
Decelerations?	None	Baroreceptor	Chemoreceptor	Single prolonged lasting 3 mins or more	
Variability?	5-25bpm	<5bpm for 50-90mins	<5bpm for >10 mins	>25bpm	Sinusoidal
Cycling Present?	Yes	No			
Category	No evidence of hypoxia	Compensated gradually evolving hypoxia	Decompensated gradually evolving hypoxia	Chronic hypoxia	Sub-acute hypoxia
Signs of infection?	Yes	No			
Risk assessment reviewed	Yes	Risk added	Yes	No	
Signature	Peer review signature				

Antenatal

Intrapartum

Changing the way CTGs are interpreted and improved audit compliance, not altered emergency birth rates and provided and opportunity for focussed multiprofessional education.
Regular audit can help the Fetal Monitoring Education Leads focus subsequent training days.