Appendix of EFM Classification Methods

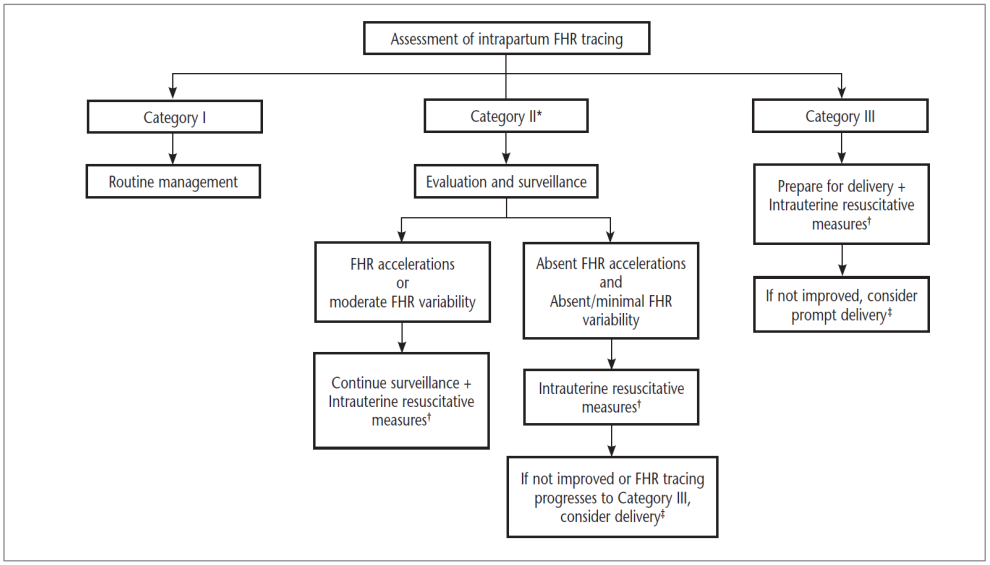
1. EFM scoring system based on Krebs et al 1979

	Krebs Score		
FHR Feature	**2**	**1**	**0**
Baseline FHR (bpm)	120-160	100-119 161-180	< 100 >180
Variability **Amplitude (bpm)** **Frequency oscillations/min**	6-25 >6	3-5 or > 25 3-6	<3 <3
Accelerations	>4	1-4	0
Decelerations	None Early	Moderate Variable	Late Severe Variable Atypical variable

2. Classification based on FIGO methods in 1987

	FIGO Classification		
FHR Feature	**Normal**	**Suspicious**	**Pathological**
Baseline FHR (bpm)	110-150	100-110 150-170	<100 >170
Variability Amplitude (bpm)	5-25	5-10 for >40 min >25	<5 for > 40 min
Decelerations	None	Variable	Severe variable Severe repeated early Prolonged Late or Sinusoidal

3. Classification and management based on guidelines by ACOG 2010



4. Tracing classification and management based on NICE guidelines

NICE Classification			
FHR Feature	**Normal Reassuring**	**Non-reassuring**	**Abnormal**
Baseline FHR (bpm)	110-160	161-180	<100 >180
Variability	>5	<5 for 30-90 minutes	<5 for > 90 min
Decelerations	None or early	Variable decelerations < 60 in depth and lasting <60 sec Present for > 90 min With >50% of contractions **Or** Variable decelerations >60 in depth and lasting >60 sec Present for up to 30 min With >50% of contractions **Or** Late decelerations Present up to 30 min With > 50% of contractions	Non-reassuring variable decels persist 30 min after starting conservative measures With > 50% of contractions **Or** Late decelerations Present over 30 min Do not improve with conservative measures With > 50% of contractions **Or** Bradycardia or single prolonged decel > 3min

NICE Clinical management				
FHR Classification	**Normal Reassuring**	**Non-reassuring and suggests need for conservative measures**	**Abnormal and indicates need for conservative measures AND further testing**	**Abnormal and indicates need for urgent intervention**
Definition	ALL FHR features are Normal/ Reassuring	1 Non-reassuring feature and 2 normal/reassuring features	1 abnormal or 2 non reassuring features	Bradycardia Prolonged deceleration> 3 min with baseline < 100
Interpretation	Normal	Associated with increased risk of acidosis. Acidosis unlikely if acceleration are present	Likely to be associated with acidosis	Likely to be associated with acidosis or rapid development of fetal acidosis
Management		A Consider underlying causes If baseline > 160-Check for fever Start conservative measures Inform coordinating midwife and obstetrician	B Management from A Offer to take fetal blood sample Take action sooner than 30 min if late decelerations are accompanied by tachycardia or reduced baseline variability	C Start A Urgently seek obstetric help Prepare for urgent birth Expedite birth if persistence > 9 min Reassess and discuss with the women if heart rate if heart rate recovers < 9 minutes

5. Classification and management by Parer et al 2006.

G=Green, B=Blue, Y=Yellow, O=Orange, R=Red. Each of the modifiers "mild" "moderate" and "severe" was defined in numeric terms.

Tracing Classification											
Moderate Variability											
	Decelerations		**Recurrent Variable**			**Recurrent Late**			**Prolonged**		
	None	Early	Mild	Mod	Severe	Mild	Mod	Severe	Mild	Mod	Severe
Baseline											
Tachycardia	B	B	B	Y	O	Y	Y	O	Y	Y	O
Normal	G	G	G	B	Y	B	Y	Y	Y	Y	O
Mild Bradycardia	Y	Y	Y	Y	O	Y	Y	O	Y	Y	O
Mod Bradycardia	Y	Y			O		O	O			O
Severe Bradycardia	O	O			O			O			O
Minimal Variability											
	Decelerations		**Recurrent Variable**			**Recurrent Late**			**Prolonged**		
	None	Early	Mild	Mod	Severe	Mild	Mod	Severe	Mild	Mod	Severe
Baseline											
Tachycardia	B	Y	Y	O	O	O	O	R	O	O	O
Normal	B	O	Y	O	O	O	O	R	O	O	R
Mild Bradycardia	O	O	R	R	R	R	R	R	R	R	R
Mod Bradycardia	O	O			R		R	R			R
Severe Bradycardia	R	R			R			R			R
Absent Variability											
	Decelerations		**Recurrent Variable**			**Recurrent Late**			**Prolonged**		
	None	Early	Mild	Mod	Severe	Mild	Mod	Severe	Mild	Mod	Severe
Baseline											
Tachycardia	R	R	R	R	R	R	R	R	R	R	R
Normal	O	R	R	R	R	R	R	R	R	R	R
Mild Bradycardia	R	R	R	R	R	R	R	R	R	R	R
Mod Bradycardia	R	R			R		R	R			R
Severe Bradycardia	R	R			R			R			R
Sinusoidal	R										
Marked variability	Y										

Clinical Management			
Color	**Risk of acidemia**	**Risk of evolution**	**Action**
Green	0	Very low	None
Blue	0	low	Conservative techniques and begin preparation
Yellow	0	moderate	Conservative techniques and increased surveillance
Orange	Borderline Acceptably low	High	Conservative techniques and prepare for urgent delivery
Red	Unacceptably high	Not a consideration	Deliver

6. Management algorithm for Category II tracings by Clark et al 2012.

Nine branches lead to one of three possible managements.