



# ALARM



## Fetal Well-Being



**ALARM**

Fetal Well-Being

### Objectives

At the end of this session, participants will be able to:

- Use the appropriate terminology associated with fetal surveillance
- Identify the appropriate method of fetal surveillance based on the clinical situation and resources
- Review the assessment components used with Uterine Activity (UA) and fetal heart rate using either Intermittent Auscultation (IA) or Electronic Fetal Monitoring (EFM)
- Classify the results of UA, IA and EFM based on SOGC criteria and to interpret the classification in its unique clinical context
- Identify appropriate responses to UA, IA and EFM interpretations



### **Aim of Intrapartum Fetal Surveillance**

- As a screening test, fetal surveillance aims to detect fetal decompensation and to allow timely and effective interventions to prevent perinatal/neonatal morbidity or mortality
  - FHR acts as a surrogate for assessment of fetal oxygenation status
  - Fetal surveillance classification is one part of the complete clinical picture

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### **Why do we call FHS a screening test?**

- It is not able to detect fetal compromise 100% of the time
- Predictive value of fetal heart rate monitoring is low especially in the low risk situation
- Normal EFM = well baby, but atypical or abnormal EFM does not necessarily predict a fetus that is unwell

### **What value does the complete clinical picture provide when you consider FHS?**

- Determines pre-test likelihood of a problem
- Fetus with limited oxygen reserves more likely to have difficulty with the stress of labour. A fetus with good reserves will have a physiological drop in pH, but labour is well tolerated.

### **What are the factors that may affect maternal and fetal oxygenation?**

#### Maternal

- ↓ maternal arterial oxygen tension (e.g.: smoking, respiratory

disease, pre pregnancy BMI >35, trauma, seizure)

- ↓ maternal oxygen carrying capacity (e.g. anemia, smoking)
- decreased uterine blood flow (e.g. hypotension, maternal positioning)
- chronic maternal conditions (e.g. SLE, diabetes, heart disease, COPD)

#### Fetal

- oligohydramnios
- cord compression
- single umbilical artery
- ↓ oxygen carrying capacity (anemia, maternal smoking)

#### Uteroplacental

- excessive UA
- uteroplacental dysfunction – leading to fetal growth restriction
- abruption
- chorioamnionitis
- uterine rupture
- abnormal placental cord insertion eg - velamentous

**Key Points to Remember**

- Do not use terms like fetal distress or asphyxia without chemical evidence from scalp or umbilical vessel sampling
- Avoid subjective qualifiers such as “significant”, or “severe”
- Communicate clearly within the clinical team about the status of the fetus during labour that incorporates standardized terminology for classification:
  - IA is normal or abnormal
  - EFM is normal, atypical or abnormal

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**Characteristics of normal contractions**

<b>Frequency</b>	≤ 5 in ten minutes (averaged over 30 minutes)
<b>Duration</b>	≤ 90 seconds
<b>Configuration</b>	Regular, symmetrical
<b>Intensity</b>	Mild moderate or strong by palpation 25-75 mm Hg above resting tone by IUPC
<b>Resting tone</b>	Soft by palpation for at least 30 seconds <7-25 mmHg by IUPC

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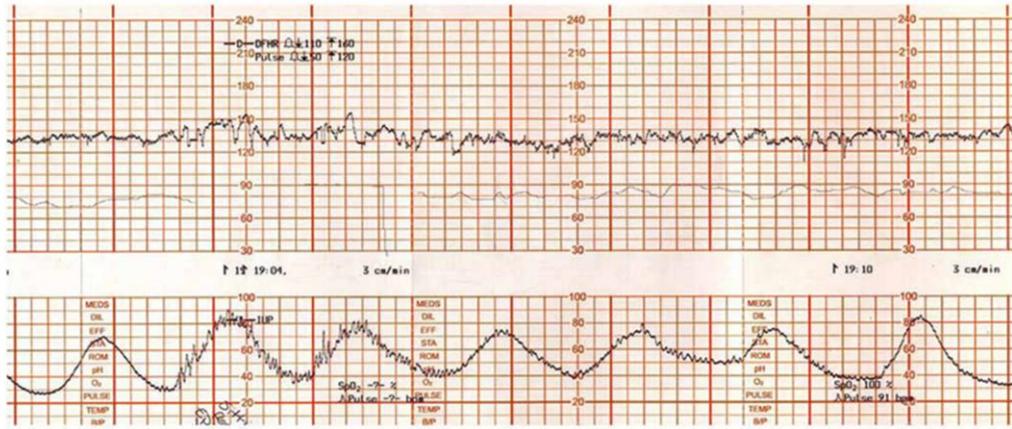


### **Tachysystole**

- > 5 contractions in 10 min averaged over 30 minutes
- Resting tone between contractions lasts < 30 seconds
- Contraction length > 90 seconds

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- Terms hyper stimulation and hyper contractility (previously used to describe excessive UA with atypical or abnormal FHR) are not defined and should be abandoned
- Tachysystole may be spontaneous, due to uterotonic agent or due to placental abruption



Example of tachysystole

**0800 Triage**

36 year old Martine is healthy woman, G2P1, at 37+2 weeks who presents to the obstetrical unit. She has had a previous SVD at 38 weeks, 3 years ago. Her pre pregnant BMI was 29. She had no problems in her pregnancy and baby is doing well.

She is having 3 contractions in 10 minutes for the past 4-5 hours. Baby is moving regularly. She does not describe any fluid or bleeding.

In triage, she is 5 cm dilated, 80% effaced and station -1. Baby is cephalic. She has moderate UA, about 2 in 10 minutes, lasting 40-50 seconds.

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**Presenting Complaint:** 37w2d contractions

**Current Pregnancy:** Healthy; no fluid or bleeding; baby moving well

**Obstetrical History:** One previous SVD term

**Medical History:** Healthy BMI 29

**Medication/Allergies:** none

**Social History/Exposures:** none

**Vital Signs/ Examination:** 5cm 80% efface Stn -1; 2 in 10, last 40-50 sec

**What method do you use to monitor FWB and why?**

IA because she is healthy with no risk factors

IA is acceptable for low risk pregnancies from 36<sup>0</sup> up to 41<sup>3</sup> weeks

IA acceptable 41+4 to 42+0 if NST and AFV have been and are normal

**Comparing Continuous EFM with IA in labour<sup>61</sup>**

Outcome	RR (95% CI)	
Caesarean section	1.63 (1.29–2.07)	
Instrumental vaginal delivery	1.15 (1.01-1.33)	
NICU admission	1.01 (0.86–1.18)	
Perinatal death	0.86 (0.59–1.23)	
<b>Neonatal seizures</b>	<b>0.50 (0.31–0.80)</b>	
Cerebral palsy	1.75 (0.84–3.63)	

**Some reasons why EFM might be used when it is not necessary in some facilities**

- Staffing limitations
- Belief that technology is better (both health practitioners and parents)
- Initially, marketing suggested that it would reduce CP (did not)
- Used more often in larger hospitals
- More at risk women having babies
- EFM equipment more readily available
- Less work (?) for staff
- Perceived as more comfortable for the woman

**Admission EFM**

**A medical student suggests Martine needs to have EFM to document fetal well-being before she leaves triage. What is your response?**

- Not recommended for healthy term women with absence of risk factors
  - interventions with no difference in outcome

- associated with ↑ CS rate by 20%
- Not used to diagnose labour
- Recommended with the presence of risk factors only

**It is determined that IA is appropriate for assessment of Martine's baby.**



### **Components of IA**

- Uterine activity
- Maternal heart rate
- Baseline HR
- Post contraction HR
- Rhythm
- Increases
- Decreases
- Changes over time
- Interpretation

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### **IA assessment and classification**

How does one perform IA correctly?

Includes:

- Assessment of uterine activity
- Assessment of maternal heart rate

Baseline:

- Listen for 60 seconds
- Count in blocks of 15-30 seconds and sum
- For example
  - If the count for 15 seconds was 35-40-35-40, the BPM would be 150

Post contraction:

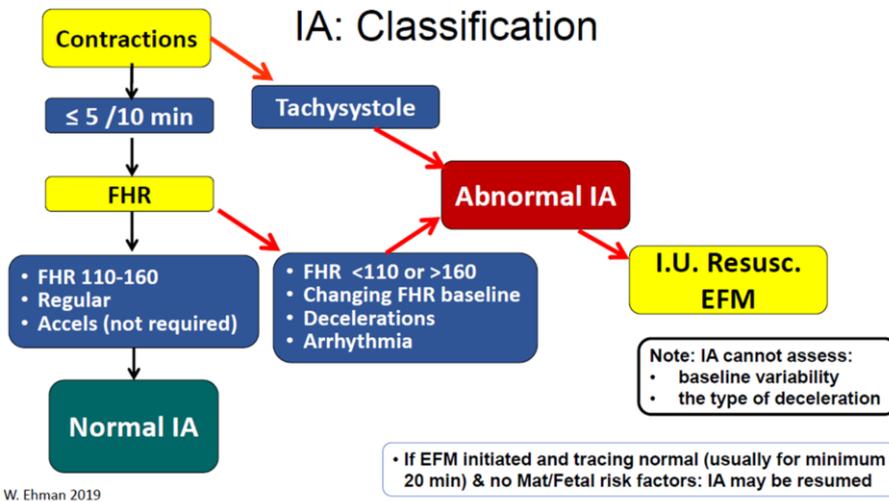
- Listen immediately for 30-60 seconds
- Count in 6 second blocks – multiply by 10 to get FHR in BPM for each

block

- For example
  - If the count was 14-14-14-14-14, the BPM would be 140
  - If the count was 9-9-10-11-12-13, the BPM would be 90-90-100-110-120-130



### IA: Classification



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**Case Study – Chandra**

Chandra is a 27 year old G1. She has had a healthy pregnancy. She has come into triage as she thought she was in labour. Cervix is 2cm, 25% effaced.

**Determine her auditory baseline FHR, rhythm, increases or decreases, and identify the category of IA – normal or abnormal**

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**Play IA via YouTube:**

<https://www.youtube.com/watch?v=CWsj4qKDdBU&t=4s>

**What actions, if any, would you take?**

- Rate 140 but as counting for an exact number 136 -144 acceptable
- Rhythm normal
- No increases or decreases
- Normal IA

**EXCPECTED CAREGIVER ACTION:**

- Continue IA and supportive care
- Send home as not in active labour

**DISCUSSION**

- Baseline is an exact number – count for 1 min
- Baseline assessed between contractions
  - always assess maternal pulse to ensure you have fetal HR



**She is now feeling contractions - determine the immediate post contraction FHR**

**Play IA via YouTube:** <https://www.youtube.com/watch?v=tAEIYRarGNU>

- FHR not heard during contractions
- FHR post contraction at baseline of 140
- Rhythm normal
- No increases or decreases
- Normal

**EXPECTED CAREGIVER ACTION:**

- Continue IA and supportive care
- Document UA frequency, length, strength



### Case Study – Sophia

Term gestation, no medical co-morbidities, ruptured her membranes 12 hours ago; declined IOL at that time. Has returned for reassessment. Not feeling any contractions now.

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**Play IA via YouTube:** <https://www.youtube.com/watch?v=shtru2FB7Go>

- 180 bpm (with actual rate from 176-184) - tachycardia
- Rhythm normal
- No real increases or decreases
- Abnormal IA

Expected Caregiver Action:

- Confirm IA by listening again (i.e. make sure not just a point in time acceleration that happened to occur while listening)
- Maternal heart rate evaluation is part of IA, making sure the heart rate you are hearing is fetal
- If confirmed – apply EFM
- Maternal temperature, pulse, uterine palpation, evaluation of amniotic fluid for signs of infection, odour

Response to fetal tachycardia:

- Assess complete clinical situation (i.e. ROM, risk of infection, dehydration, maternal temperature, etc.)
- Assess maternal pulse
- Assess EFM and need for intervention

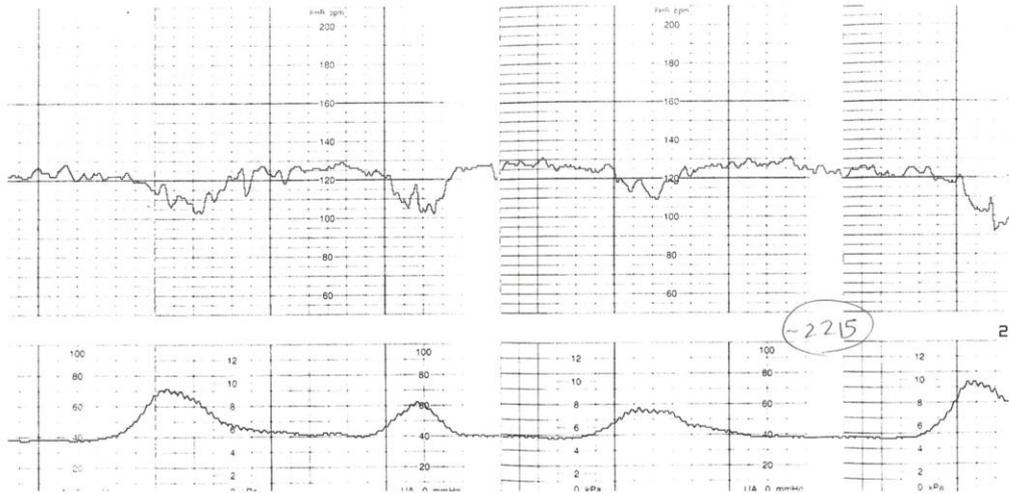
**Case Study – Darla**

Darla is a woman in labour at 9 cm dilated. This is a healthy term pregnancy. Her baseline FHR is 140 bpm and has been normal.

**Please assess her post contraction FHR**

**Play IA via YouTube:** <https://www.youtube.com/watch?v=RsCeAf7B5wM>

- IA results are a baseline of 140 bpm and a post contraction FHR of 140 bpm, rhythm normal, no decreases, category normal and no action required



This tracing of the IA demonstrates an early deceleration that you do not hear but are not worried about.



### Case Study – Celine

Celine is G2P1 in spontaneous labour at term. IA for the past 2 hours was normal. Baseline 140bpm, regular rhythm and no decreases heard post contraction. After Celine returns from the washroom, the RN listens immediately after a contraction.

**Play IA via YouTube:** <https://www.youtube.com/watch?v=sjaNnSkPUQ0>

#### What do you do?

- Reposition mother and listen again
- If membranes ruptured – check for meconium
- Check maternal vital signs and hydration (hypotension could be contributing - if mother hypotensive IV bolus)
- Assess for potential causes
- Initiate **EFM** and call the primary care provider



### **How to Apply EFM**

- Maternal heart rate
- Uterine activity
- Variability
- Accelerations
- Decelerations
- Classification
- Interpretation in clinical context
- Response

The recommended paper speed in EFM for Canada is 3cm/minute



### Components of EFM

Baseline	<ul style="list-style-type: none"><li>• 110-160 bpm</li><li>• Need 2 minutes of identifiable baseline in 10 minute segment</li><li>• Round number to increments of 5 bpm</li></ul>
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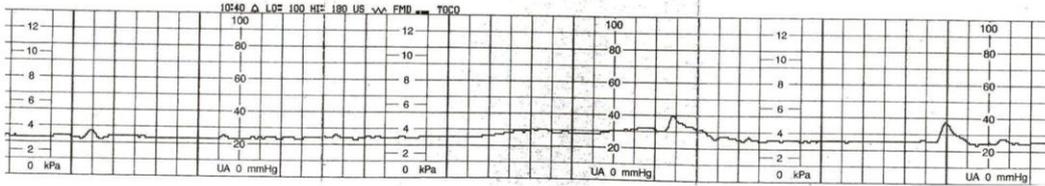
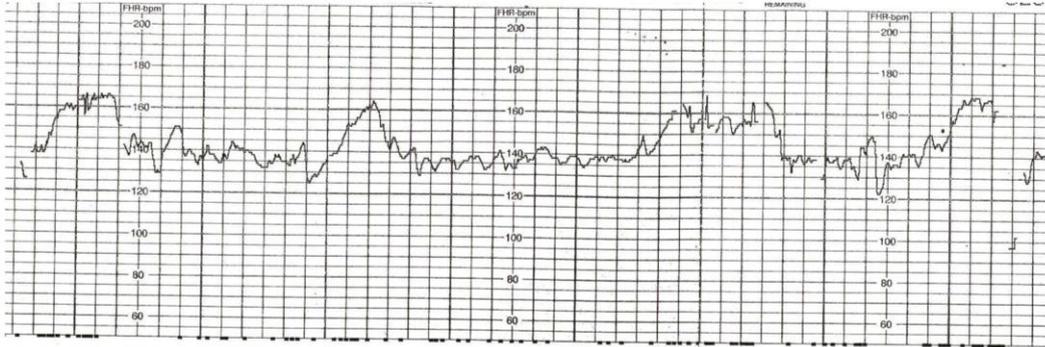


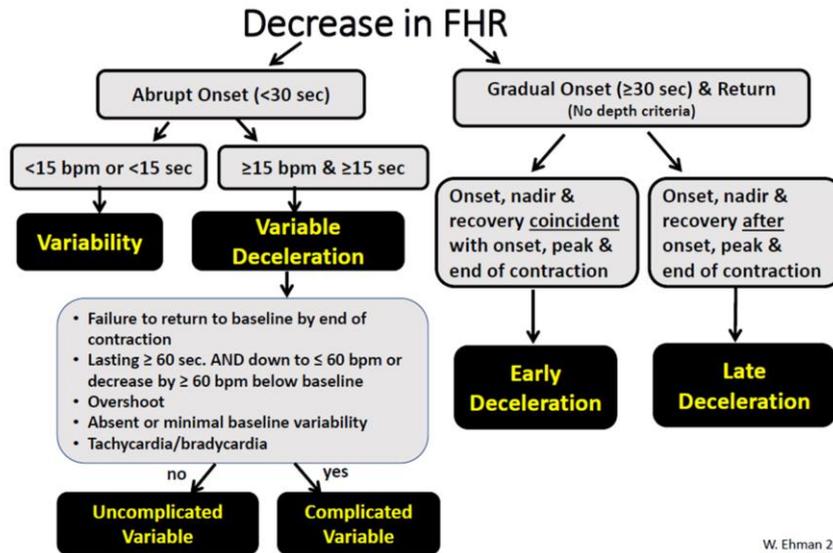
### Components of EFM

Variability	<ul style="list-style-type: none"><li>• Fluctuations from the baseline</li><li>• Assessed in a 10 min segment excluding accelerations and decelerations</li><li>• An intact CNS and well oxygenated fetus will demonstrate moderate variability</li><li>• ABSENT = undetectable</li><li>• MINIMAL = <math>\leq 5</math> bpm</li><li>• MODERATE = 6-25 bpm</li><li>• MARKED <math>&gt; 25</math> bpm</li></ul>
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### Accelerations





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## Decelerations

**Repetitive** if occurring with three or more contractions in a row

**Recurrent** if occurring with > 50% of contractions in a 20 minute segment

**Intermittent** if occurring with < 50% of contractions in a 20 minutes segment

They can be grouped into 2 categories' based on the slope of the decline of the FHR

ABRUPT (< 30 seconds) are variable decelerations

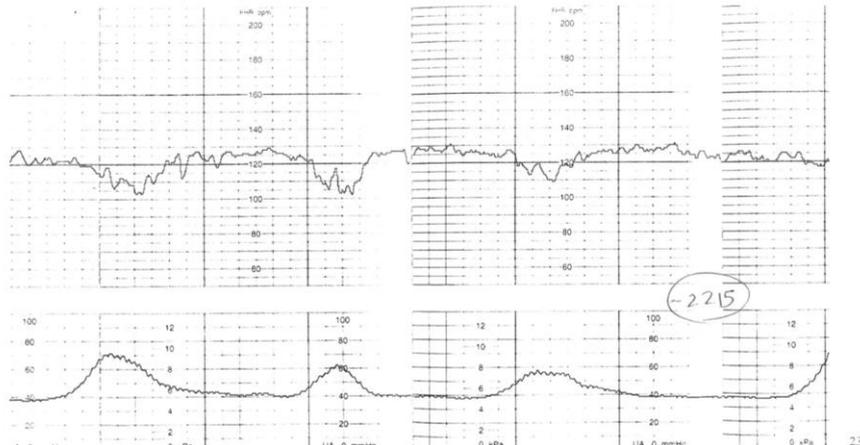
GRADUAL (> 30 seconds) are early and late decelerations

Episodic gradual deceleration when not apparently associated with uterine contraction – reevaluate uterine activity



**Early - gradual** decrease in FHR

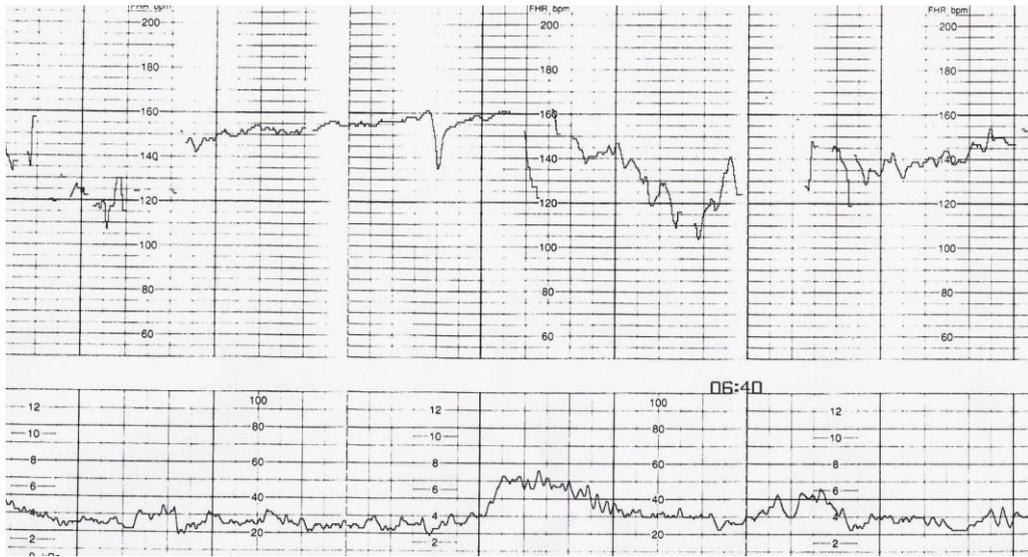
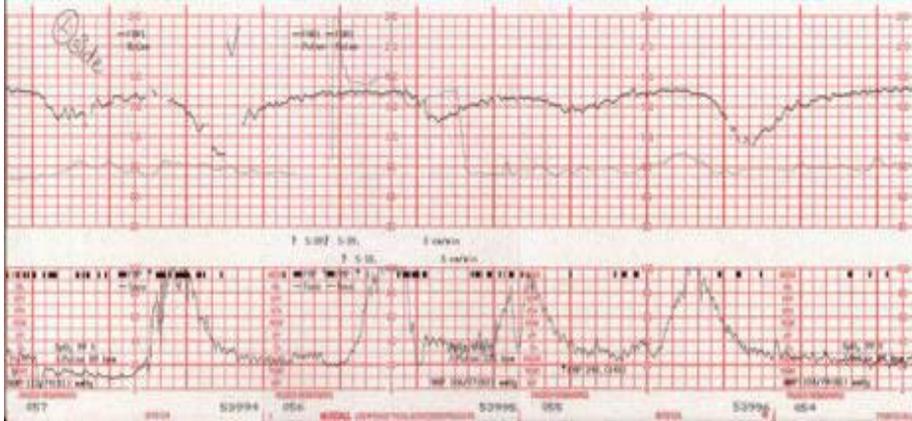
- Vagal stimulus associated with head compression
- Deceleration profile corresponds to contraction
- Is not associated with change in pH





**Late - gradual decrease in FHR**

- Chemoreceptor stimulus suggesting some degree of hypoxia



Another example of late



**Uncomplicated Variable Deceleration - abrupt decrease in FHR**

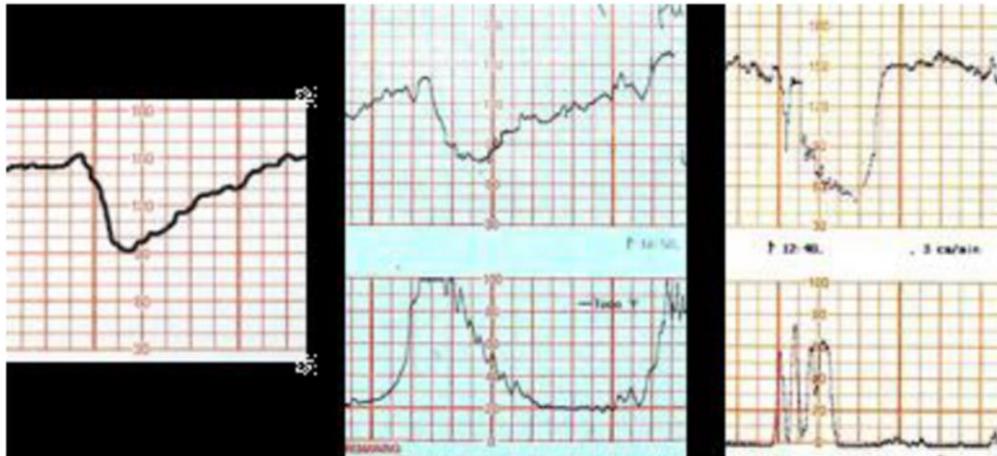
- Baroreceptor stimulus due to cord compression
- Often have shoulders and usually have rapid return to baseline
- Not consistently associated with adverse neonatal outcomes



**Complicated Variable**

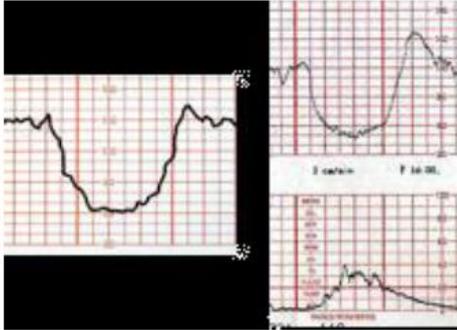
Abrupt decrease in FHR with:

- Failure to return to baseline by the end of the contraction
- Deceleration lasts  $\geq 60$ s AND drop to  $\leq 60$  bpm or by  $\geq 60$  bpm from baseline
- Absent or minimal variability
- Prolonged secondary acceleration (overshoot)  $\geq 20$  bpm over baseline for  $\geq 20$ s
- Presence of fetal bradycardia or tachycardia

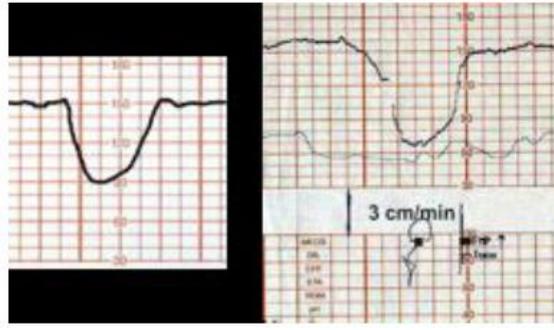


**Delayed return to baseline**

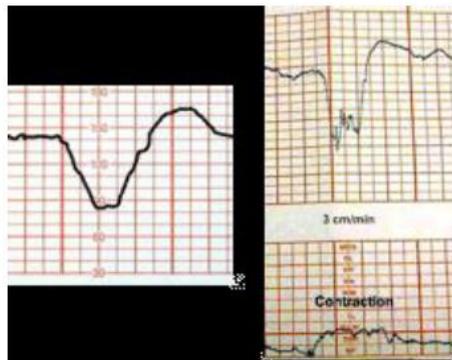
Delay, gradual, failure to return to baseline is the salient feature of this complicated variable deceleration.



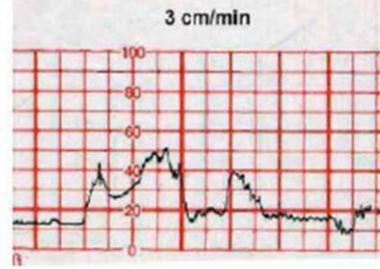
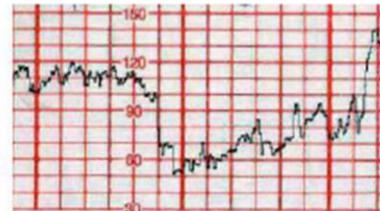
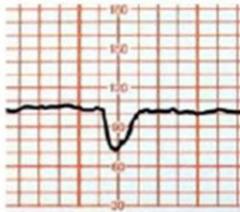
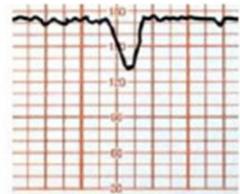
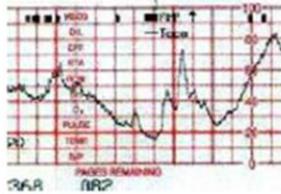
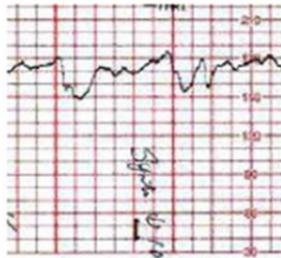
**Deceleration to  
<60 bpm > 60 sec**



**Loss of variability of baseline**



**Overshoot  
(20 bpm increase for 20  
seconds)**



**Baseline tachycardia or bradycardia**

**When Intrauterine Resuscitation is undertaken:**

- Stop or decrease oxytocin/remove vaginal PGE2
- Maternal reposition
- Check maternal pulse
- IV bolus if hypotensive or dehydrated
- Reduce maternal anxiety; modify pushing technique
- Amnioinfusion for variable decelerations
- Vaginal exam to rule out cord prolapse
- Oxygen only if mother has low oxygen saturation/hypovolemia

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**Comments regarding intrauterine resuscitation:**

- ↓Oxytocin – especially if excessive UA; even without excessive UA, cessation can decrease stress of UA to fetus
- Modify or pause pushing in the second stage and reassess FHR
- Maternal reposition- to R or L lateral to increase placental blood flow
- Check and document maternal pulse
- IV bolus to improve maternal placental perfusion if hypotensive or dehydrated
- Reducing maternal anxiety will reduce catecholamine effect
  - reassurance
  - modify or pause pushing in 2<sup>nd</sup> stage to determine if it improves FHR
- Amnioinfusion used to reduce variable decelerations by increasing amniotic fluid, thus reducing cord compression
  - ineffective in reducing MAS, perinatal death or severe morbidity
- VE to reduce pressure of presenting part on cord
  - also helps determine fetal position and likelihood of imminent delivery
- Oxygen **only** if maternal hypoxia or hypovolemia is suspected or confirmed

- little evidence to support its use for fetal compromise
- increases maternal anxiety, sense of claustrophobia if by mask



SOGC classifies EFM as normal, atypical and abnormal. There is greater urgency with abnormal vs atypical.

- Normal – stable
- Atypical – extra vigilance – intrauterine resuscitation, possible scalp stimulation, scalp pH or lactate sampling, if no improvement consider transfer/delivery
- Abnormal - action - intrauterine resuscitation – consider delivery unless scalp pH or lactate sampling is normal or delivery is imminent

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**We are now going through a few EFM tracings to apply the guideline information in a clinical context**

**NOTE:**

Each page is about 9 minutes of EFM, we should really have 10 to assess baseline and variability

All tracings at 3cm/min

For some interpretations of atypical and abnormal, the duration of the findings matter and we are presenting only snapshots here

Numbers below the FHR graph represent fetal movements

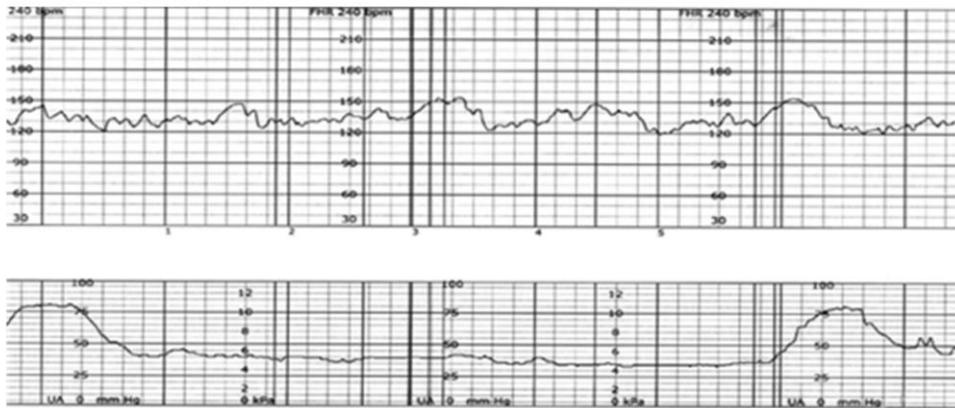
Remember to assess maternal pulse regularly and anytime there is a change in FHR

**For each of the following tracings and cases consider:**

1. Classification
2. Interpretation
3. Plan for ongoing care

**Tamara**

G1 presents at 35 weeks gestation with symptoms of early labour. On exam, cervix was 1 cm, 50% effaced, membranes intact, no bleeding. **Classify the EFM and state your interpretation and plan of care.**



Baseline: 130

Variability: Moderate

Accelerations: Present

Decelerations: None

Uterine Activity: Appears intermittent

- EFM cannot reflect strength or effectiveness

Maternal heart rate MHR: 75 bpm

Classification: Normal

Interpretation: Latent labour

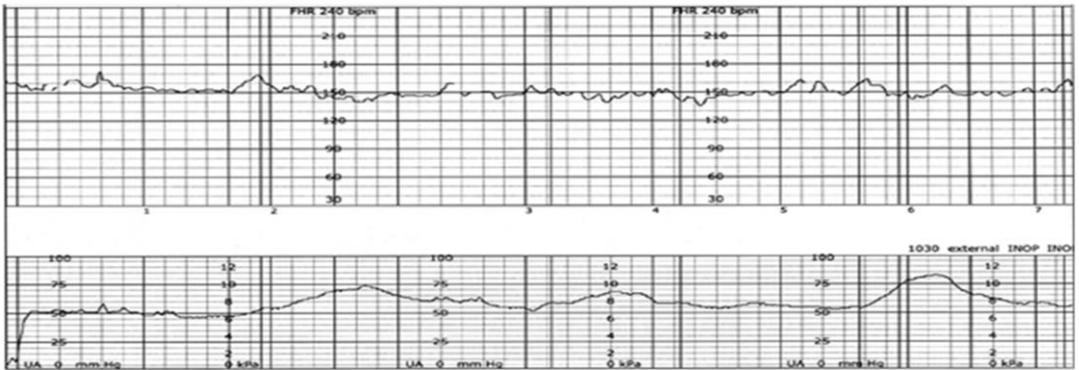
- Fetal movements present

Action

- Send home
- Educate about when to come back
- FMC

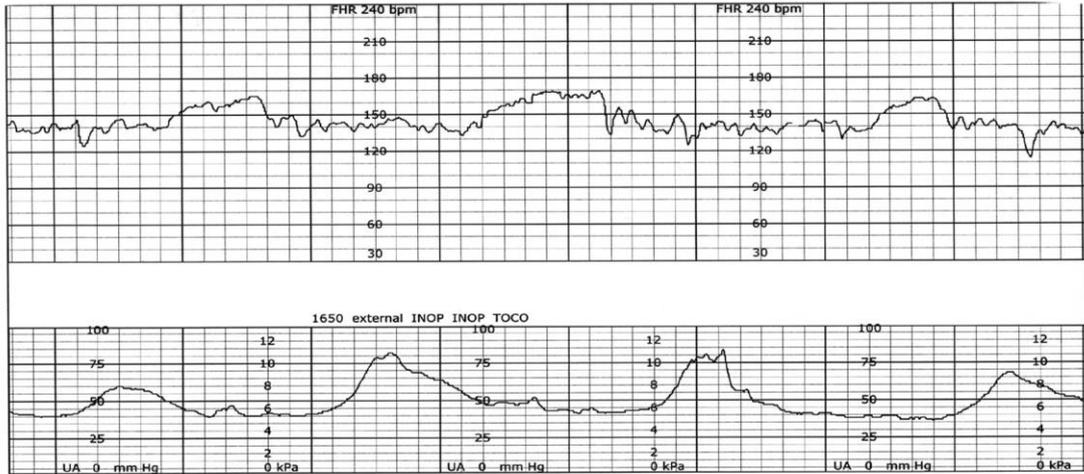


**Fatima**, G4P3 with gestational diabetes on insulin at 38 weeks presents in early labour.





Six hours later, cervix 6cm



Baseline: 140

Variability: Moderate

Accelerations: Present

Decelerations: Uncomplicated variable

- Near end of tracing; these are common & would not alter pH

Uterine Activity: Regular

- Palpate moderate to strong

MHR: 72 bpm

Classification: Normal

Interpretation: Normal labour

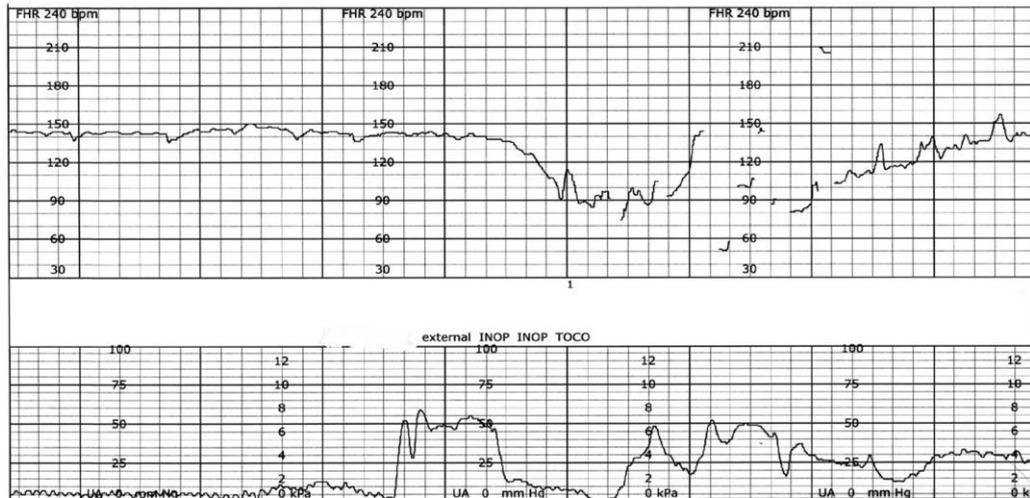
Action

- Continue maternal care and fetal monitoring in labour



1 hour later:

Fatima is reevaluated and is fully and feels like pushing.



Baseline: 145

Variability: Min initially mod

Accelerations: None

Decelerations: Complicated variable

- 3 min = prolonged, however period of ? attempting to return to baseline – loss of contact

Uterine Activity: irregular

MHR: 70-75 bpm

Classification: Atypical

Interpretation:

- Second stage
- Atypical EFM

Action

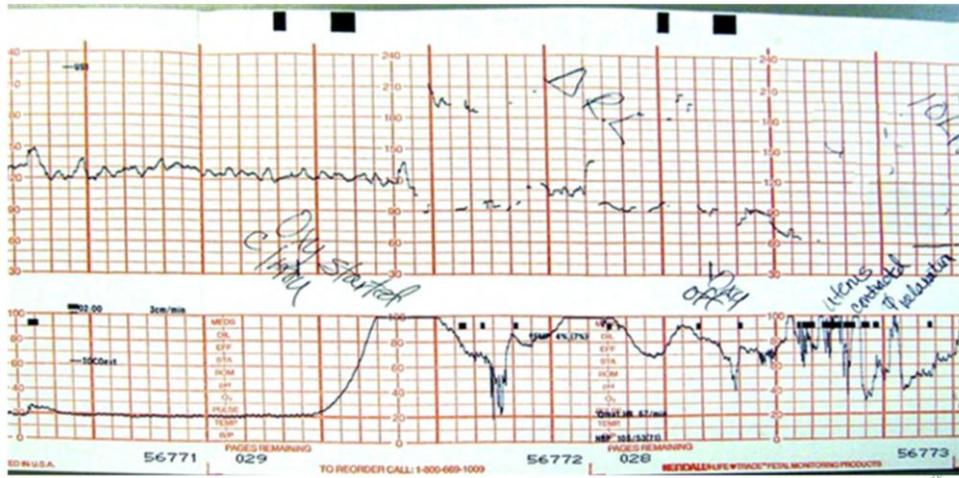
- Alter maternal position
- Evaluate fetal station
- Encourage pushing – anticipate SVD

Outcome – SVD, normal Apgars and cord gases



**Deanne:** 31 year old, G1P0, 42 wks, SROM

- Epidural (0100 hrs), Cx ant. Rim for 90 minutes
- Oxytocin augmentation at 0200 hours



Uterine activity: Tachysystole

Baseline: 125

Variability: Moderate until tachysystole

Accelerations: Yes

Decelerations: Prolonged

MHR: 65 bpm

Classification: Abnormal

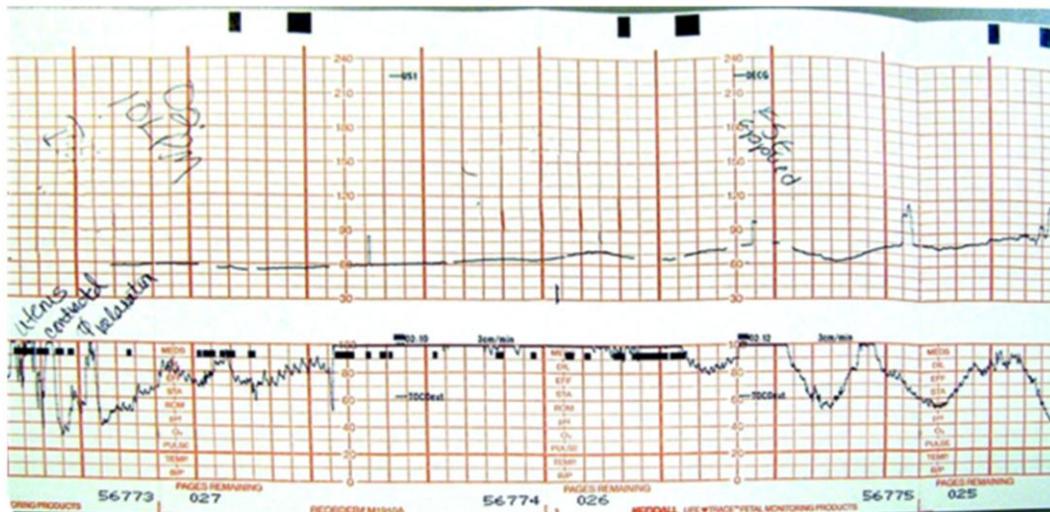
Interpretation: Tachysystole and bradycardia

Action:

- Intrauterine resuscitation
- Stop oxytocin, help, check for cord, change position, IV fluids , consider tocolytic
- Institutional response – practice drills
- Plan for emergency CS



Deanne



Uterine activity: Tachysystole

Baseline: 60 baseline change as > 10 min = bradycardia

Variability: Absent

Accelerations: None

Decelerations: Bradycardia

MHR: 85 bpm

Assessment: Abnormal

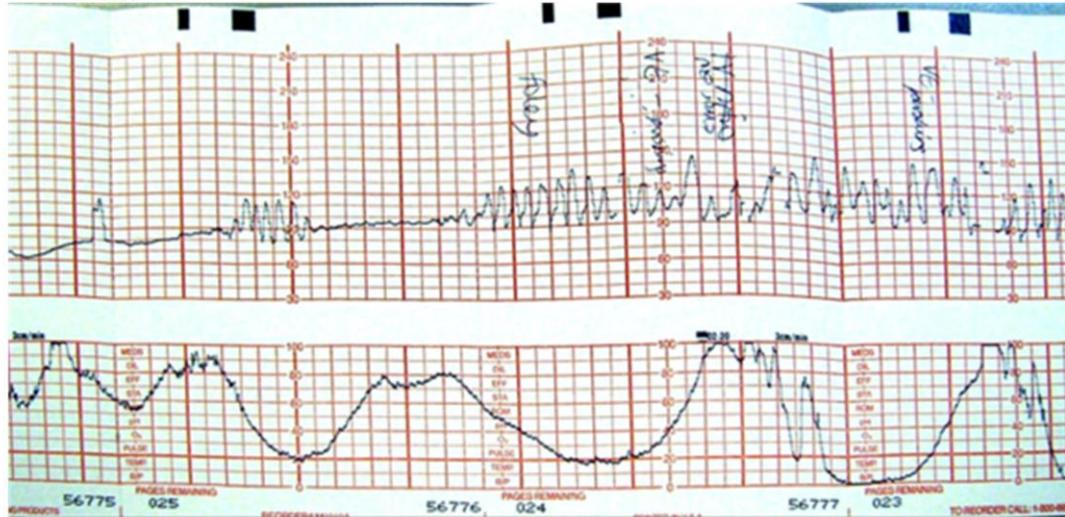
Interpretation: Tachysystole with bradycardia – delivery not imminent

Action:

- Tocolysis
- CS

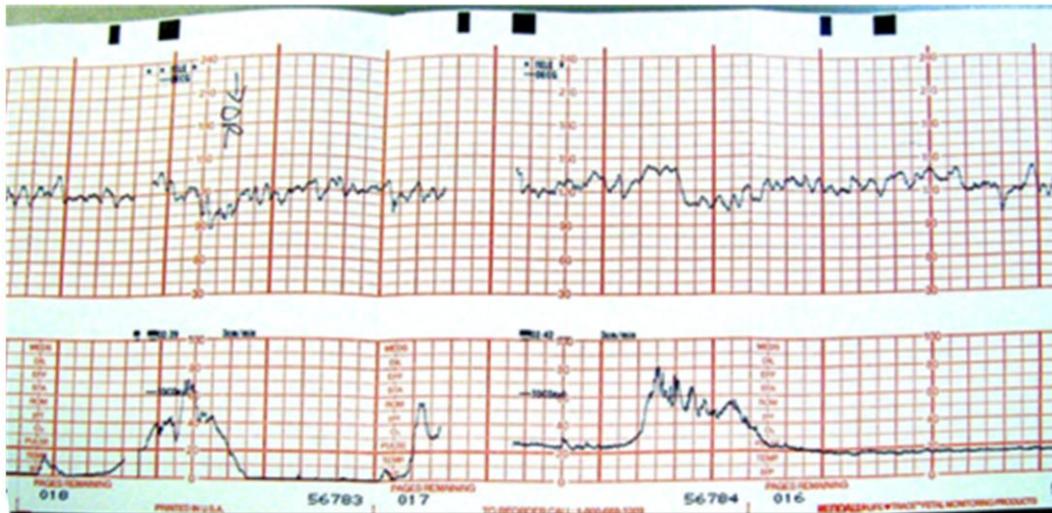


**Deanne**





Deanne



Uterine activity: Tachysystole improving over time to normal

Baseline: 110-130

Variability: Absent to marked to moderate

Accelerations: None

Decelerations: None

MHR: 65 bpm

Classification: Abnormal to normal

Interpretation: Recovered from tachysystole

Action:

- Depending on stage of labour
- AVB was performed

Outcome: Forceps assisted vaginal delivery; Apgars normal, cord gases normal

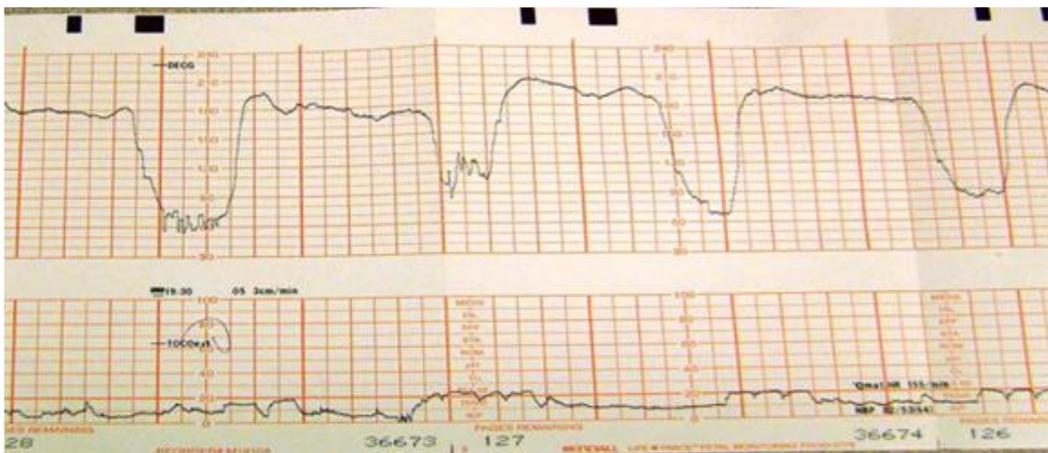


**Marie** - 29 year old, healthy G2P1, term, spontaneous labour

- 6 cm dilated

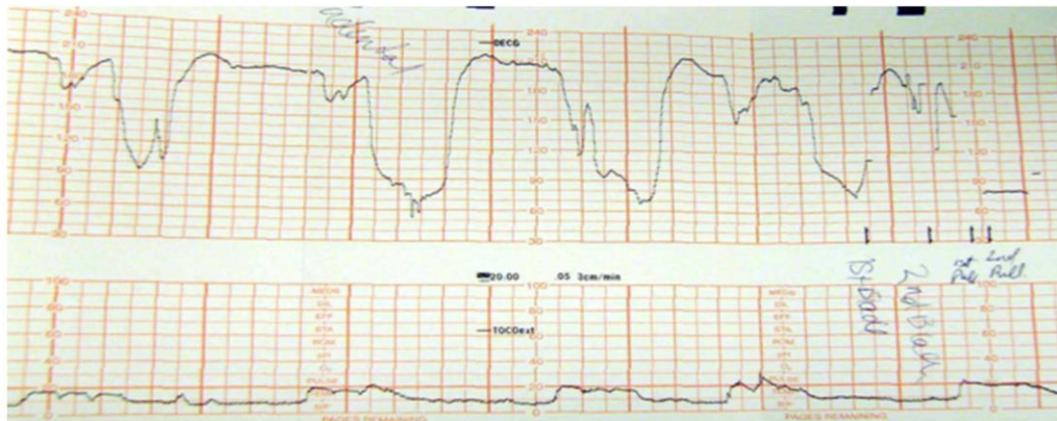


**Marie**





Marie



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Uterine activity: 3-4/10 min, then difficult to detect

Baseline: 155 rising to 200

Variability: Minimal to absent

Accelerations: None

Decelerations: Variable complicated – biphasic, long overshoot, depth <60, loss of variability

MHR: 70 bpm

Classification: Abnormal

Interpretation: Abnormal fetal status in labour

Action:

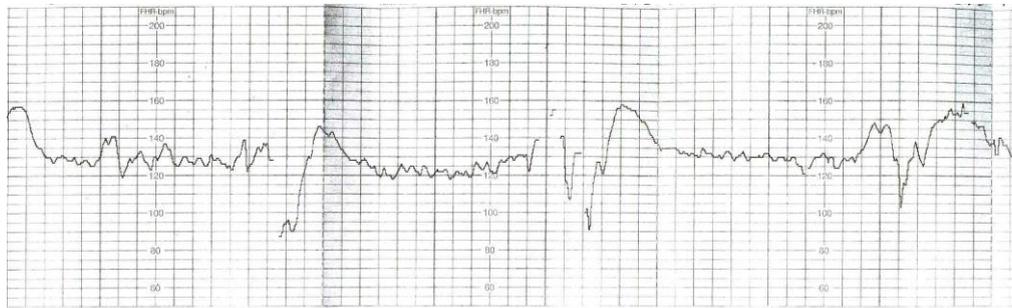
- Readjust Toco or palpation to evaluate contractions
- Intrauterine resuscitation
- Consider scalp sampling/stimulation
- Evaluate response and place in context of timing of delivery

Outcome – forceps assisted vaginal delivery

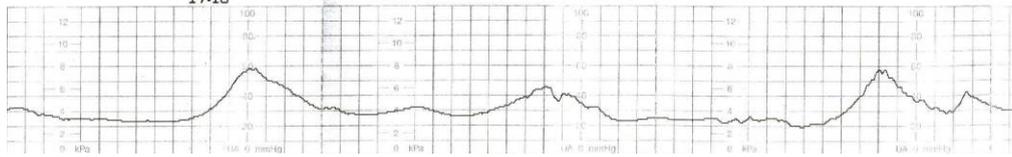
- Apgars 8 and 9 and normal cord gases



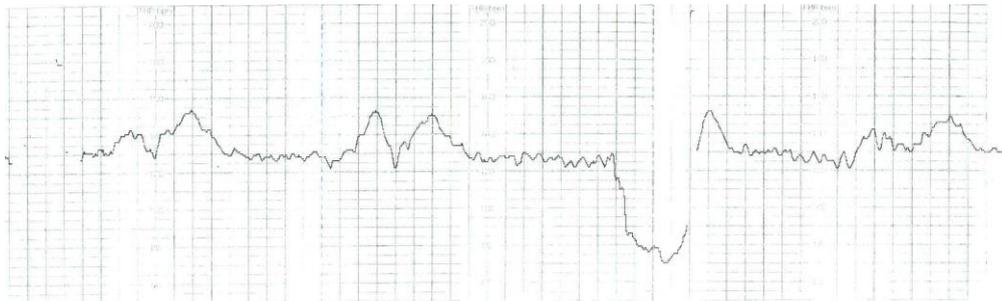
**Reah - G1 37 weeks induction of labour for fetal growth restriction**



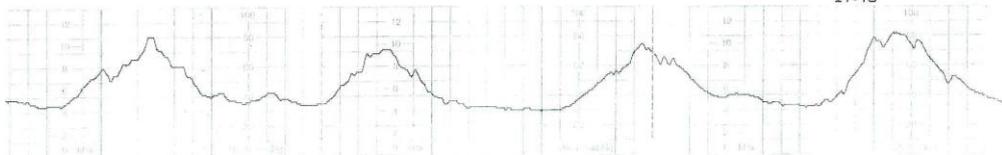
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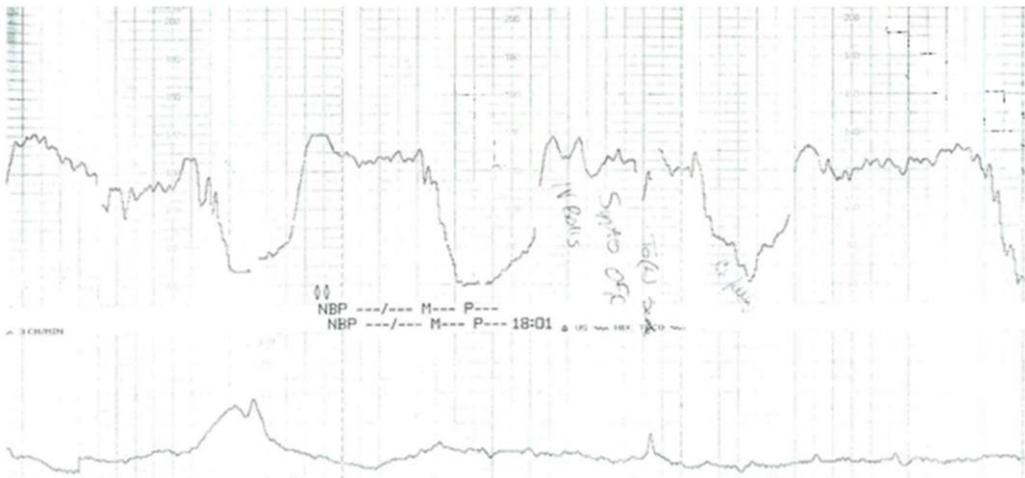


**Reah - G1 37 weeks induction of labour for fetal growth restriction**



17:40



**Reah - G1 37 weeks induction of labour for fetal growth restriction**

Uterine activity: 4 in 10 minutes

Baseline: 130

Variability: moderate

Accelerations: present

Decelerations: Variable – uncomplicated – abrupt return, min overshoot, maintain baseline, maintain variability

MHR: 78 bpm

Classification: Atypical

Interpretation: Fetus with limited reserves and active labour

Action:

- Continue close monitoring
- Be ready for possible emergent delivery

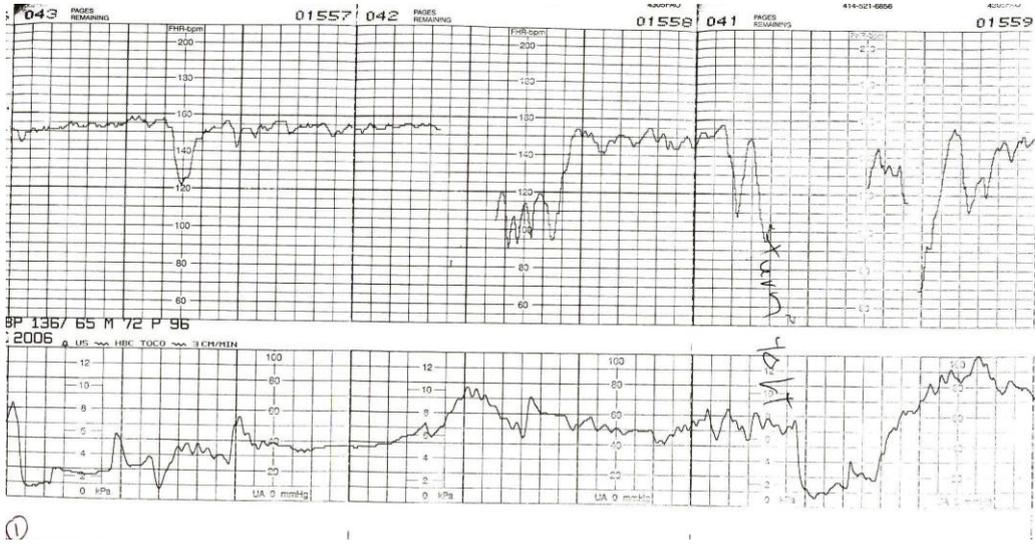
Outcome: SVD, small but vigorous baby, Apgars 9&9, normal umbilical cord gases



**ALARM**

Fetal Well-Being

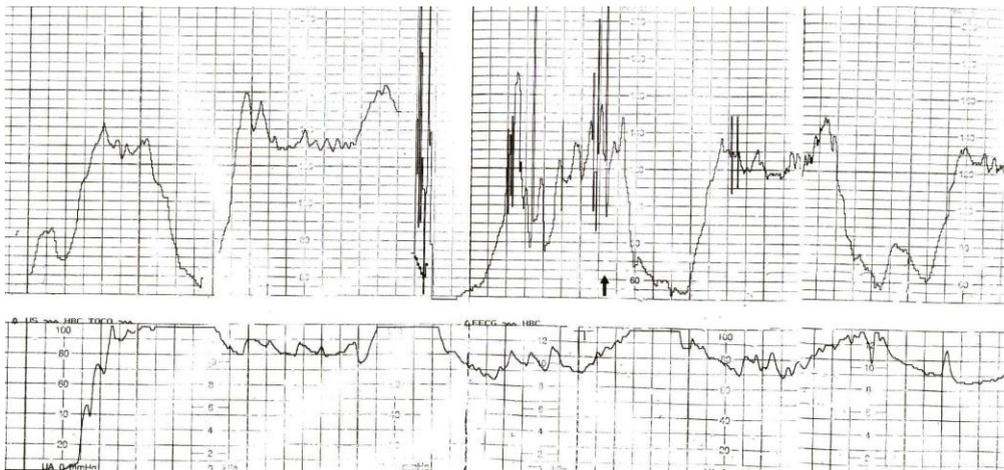
**Olga: G5P3 39 weeks, rapid advanced labour**



**ALARM**

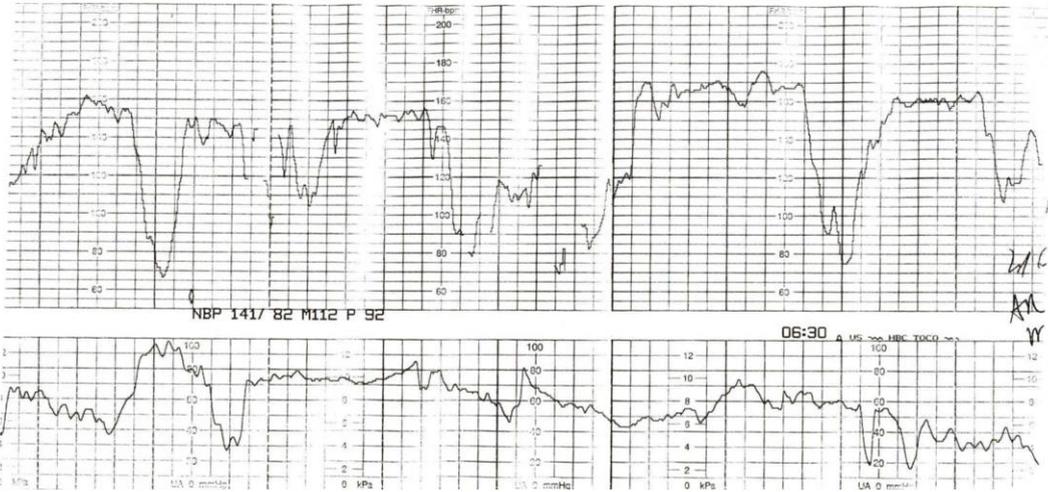
Fetal Well-Being

**Olga: G5P3 39 weeks, rapid advanced labour**



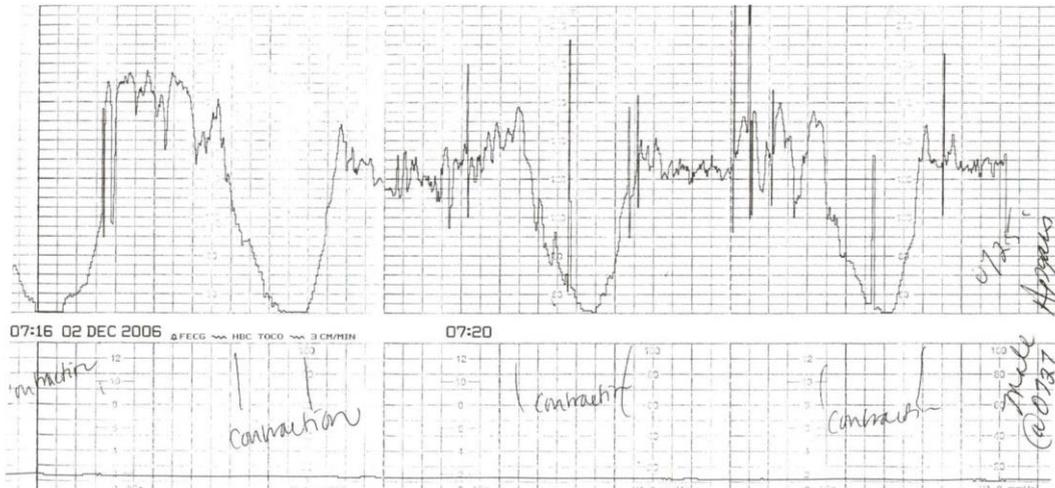


Olga: G5P3 39 weeks, rapid advanced labour





Olga: G5P3 39 weeks, rapid advanced labour



Uterine activity: 4-5/ 10 minutes

Baseline: 150 until last panel

Variability: moderate

Accelerations: No

Decelerations: Variable complicated (depth < 60 bpm, altered baseline, biphasic)

MHR: 65 bpm

Classification: Abnormal

Interpretation: Abnormal EFM in the setting of rapid labour

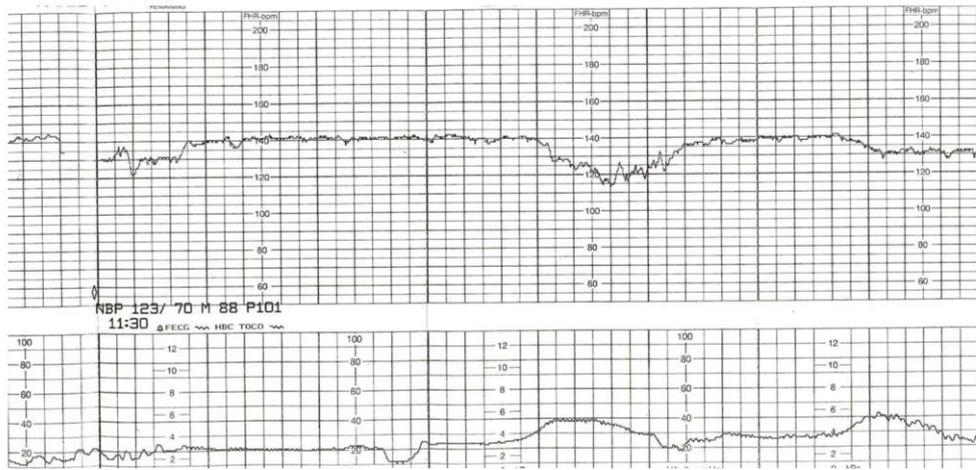
Action:

- Parity and rapid progress are good signs
- NRP provider ready
- Anticipate precipitous delivery

Outcome: SVD, precipitous, normal Apgars and cord gases

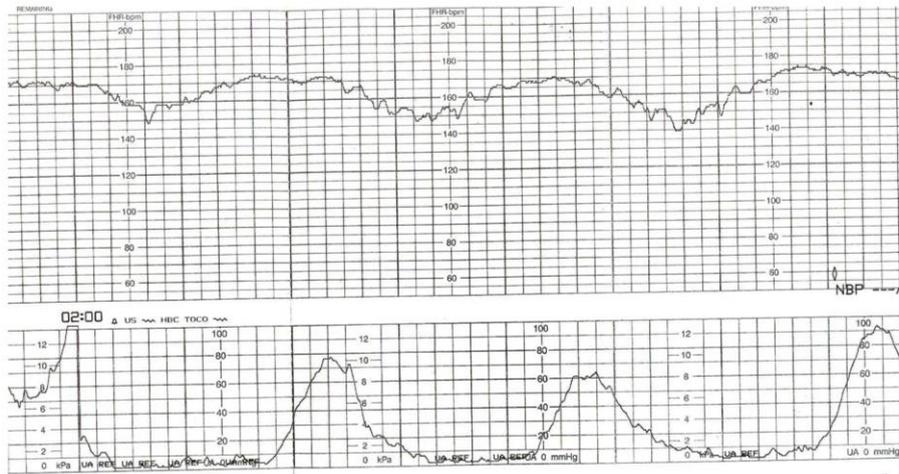


**Shylane - G1, smoker, crystal meth use, 36 weeks, presents with severe nausea and vomiting, visibly dehydrated, feels some contractions**





Shylane - G1, smoker, crystal meth use, 36 weeks, presents with severe nausea and vomiting, visibly dehydrated, feels some contractions



Uterine activity: 3-4 in 10 minutes

Baseline: 140 to 160

Variability: minimal

Accelerations: none

Decelerations: late

MHR: 110 bpm

Classification: Abnormal

Interpretation: Prematurity, drug use, dehydration

Action:

- Correct maternal physiologic status and assess fetal response
- Rest, fluids, antiemetics, nutrition, social supports

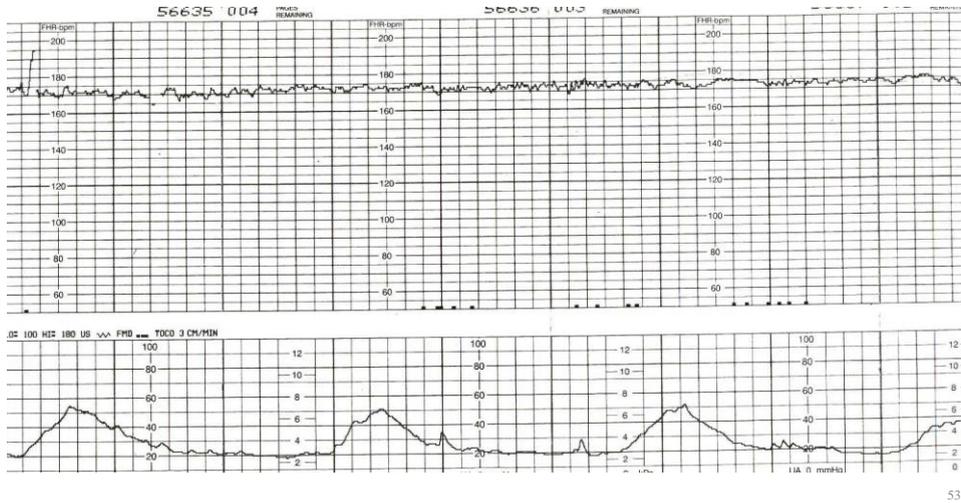
Outcome: responded well to supportive measures and ultimately delivered 2 w later, small but well baby



**ALARM**

Fetal Well-Being

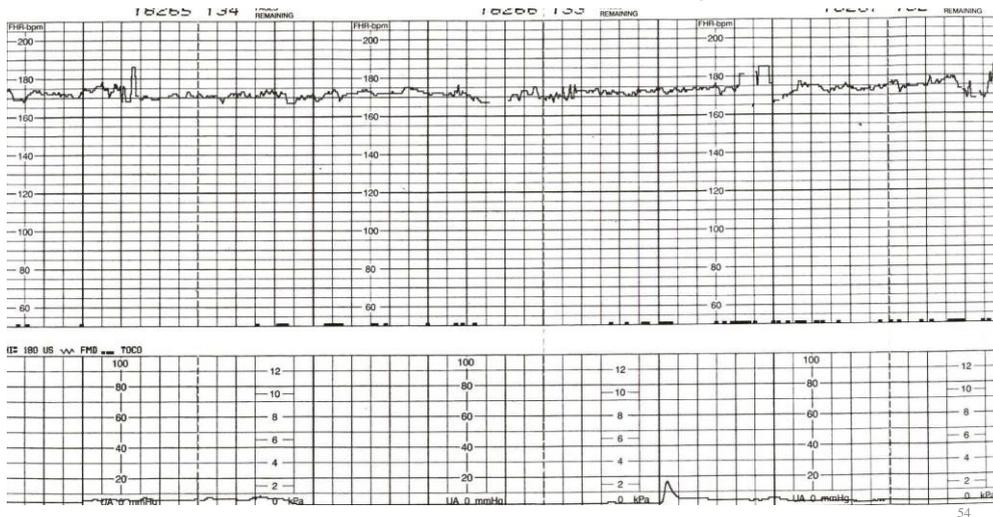
**Alianna - G4P2 36 weeks, fluid leaking pv x 6 days, feels warm and unwell, did not seek medical attention until today. T 37.5 P 107:**



**ALARM**

Fetal Well-Being

**Alianna - G4P2 36 weeks, fluid leaking pv x 6 days, feels warm and unwell, did not seek medical attention until today. T 37.5 P 107:**

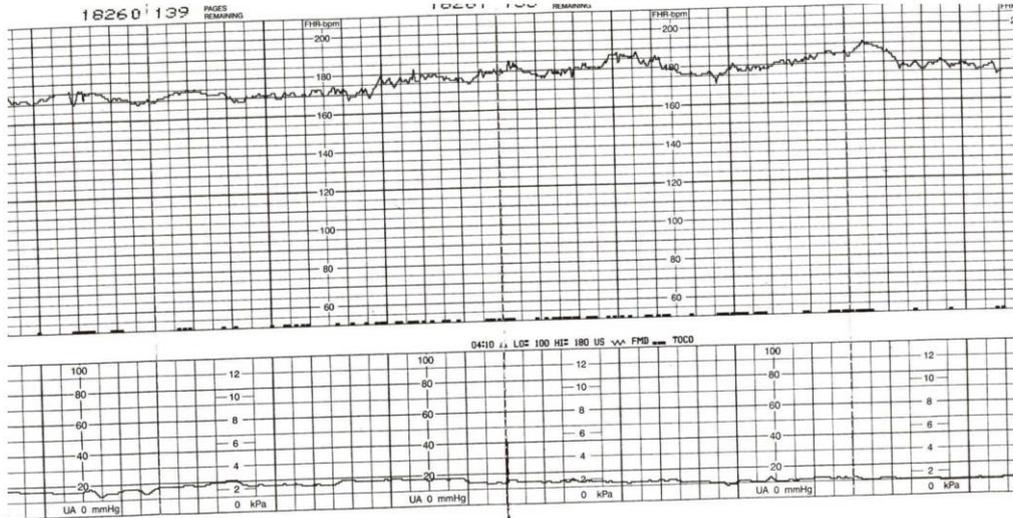




**ALARM**

Fetal Well-Being

Alianna - G4P2 36 weeks, fluid leaking pv x 6 days, feels warm and unwell, did not seek medical attention until today. T 37.5 P 107:

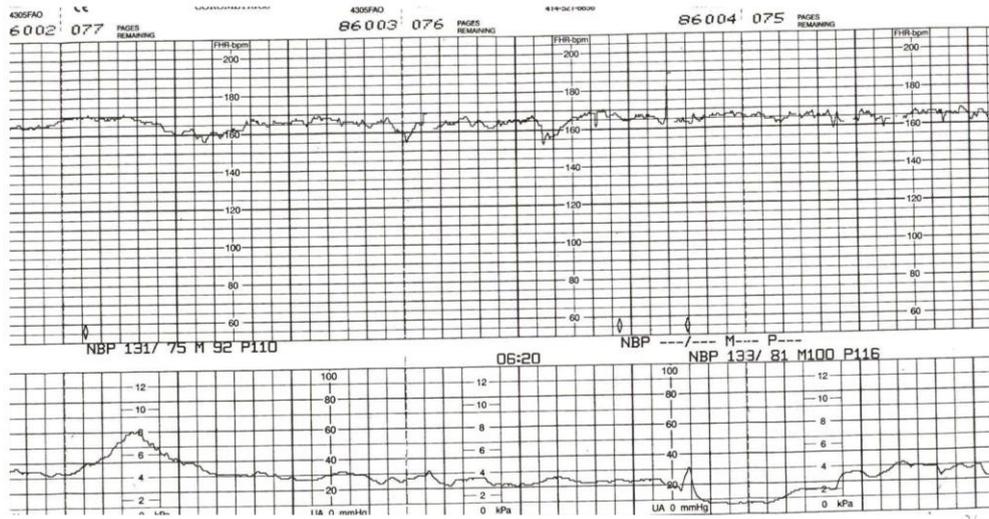




**ALARM**

Fetal Well-Being

Alianna - G4P2 36 weeks, fluid leaking pv x 6 days, feels warm and unwell, did not seek medical attention until today. T 37.5 P 107:



Uterine activity: Unable to assess

Baseline: 170 +

Variability: minimal

Accelerations: none

Decelerations: none

MHR: 107

Classification: Abnormal

Interpretation: Likely chorioamnionitis

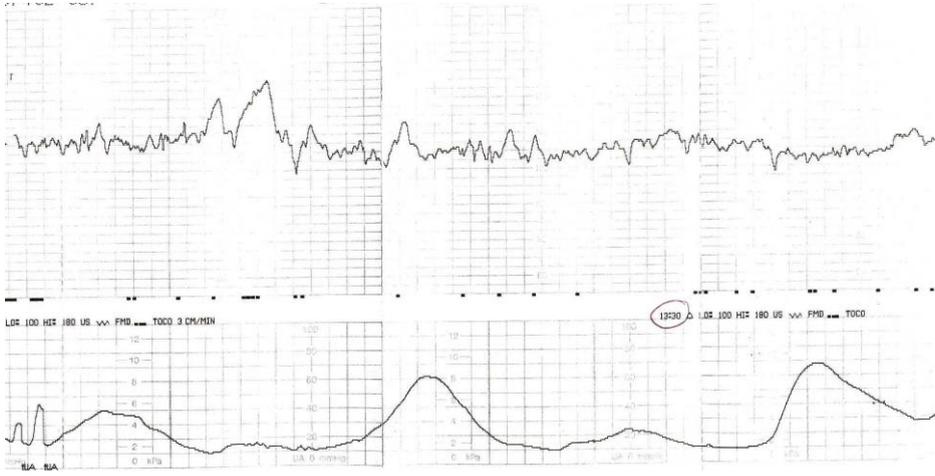
Action:

- Intrauterine resuscitation
- IV antibiotics
- Expedite delivery

Outcome: Delivery by CS for footling breech, Apgars 4 and 9, cord gases normal



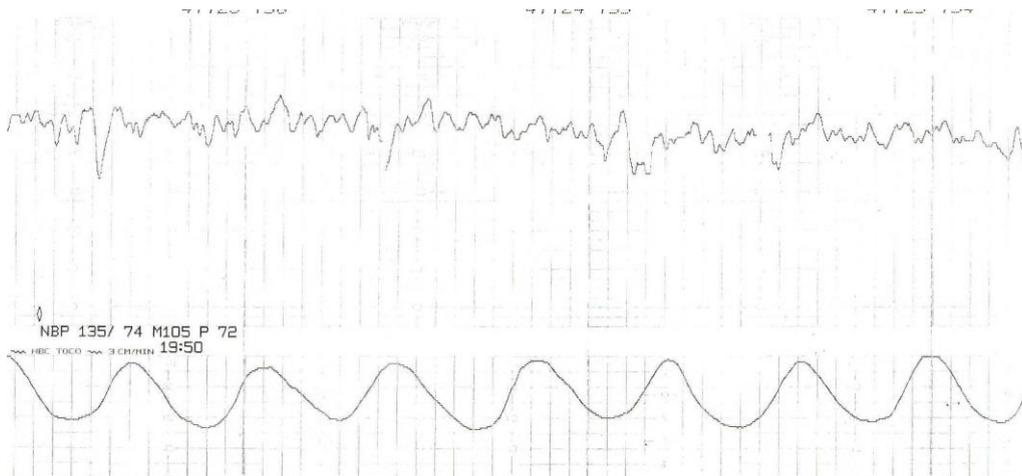
**Carlita – G1 induction for postdates – dinoprostone vaginal insert (Cervidil)**



This tracing is immediately after dinoprostone vaginal insert (Cervidil) placement



**Carlita – G1 induction for postdates – dinoprostone vaginal insert (Cervidil)**







**ALARM**

Fetal Well-Being

**Estelle** – G2P1 term spontaneous labour, planned for trial of labour after previous CS delivery for breech. She is a suitable candidate.



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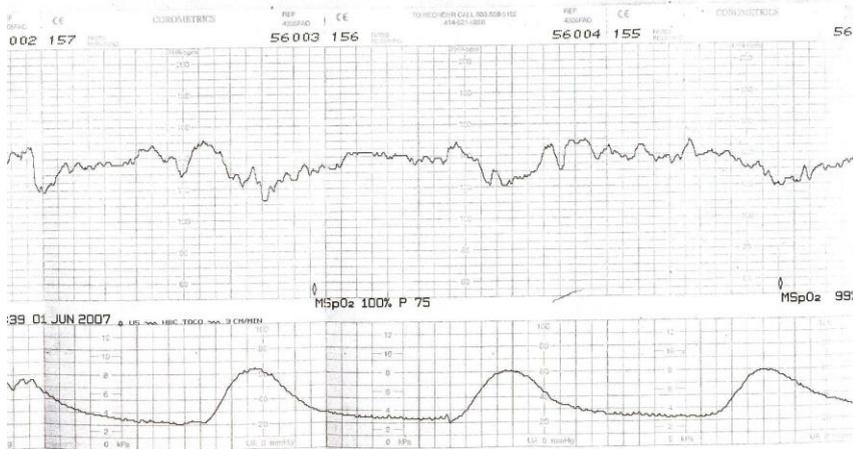


**ALARM**

Fetal Well-Being

**Estelle** – G2P1 term spontaneous labour, planned for trial of labour after previous CS delivery for breech. She is a suitable candidate.

4cm stn-3 synto for irreg. contractions



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Estelle – G2P1 term spontaneous labour, planned for trial of labour after previous CS delivery for breech. She is a suitable candidate.





Estelle – G2P1 term spontaneous labour, planned for trial of labour after previous CS delivery for breech. She is a suitable candidate.



Uterine activity: 3-4 in 10 minutes

Baseline: 120-130

Variability: moderate

Accelerations: present

Decelerations: Early then late then bradycardia

MHR: 82 bpm

Classification: Abnormal

Interpretation: Abnormal EFM in TOLAC – consider abruption or uterine rupture

Action: Expedite delivery – AVB or CS

Outcome: forceps assisted vaginal delivery for bradycardia in second stage

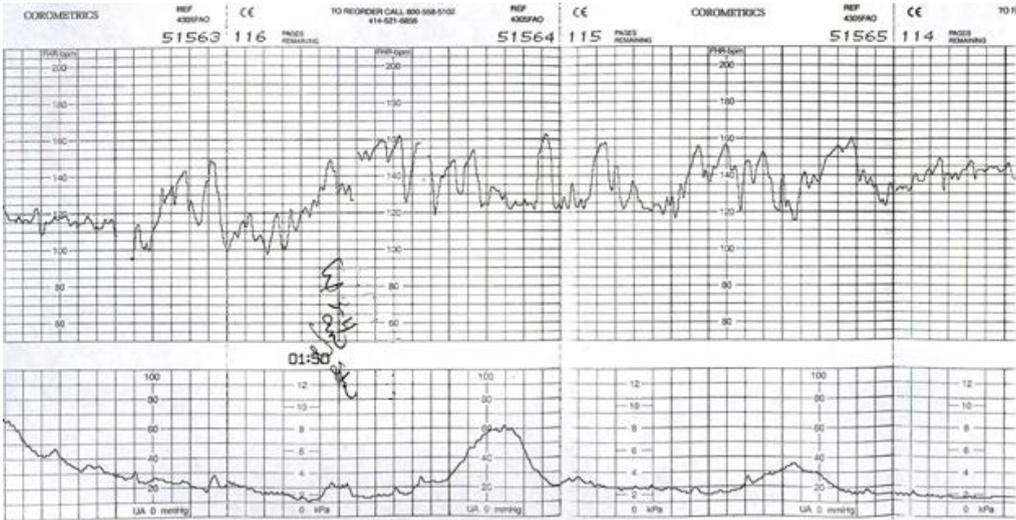
- Apgars 4 and 8 apH 7.05 BXS – 5, vpH 7.20 BXS -4
- Maternal status unstable 2 hours later – laparotomy, found uterine rupture – repaired



**ALARM**

Fetal Well-Being

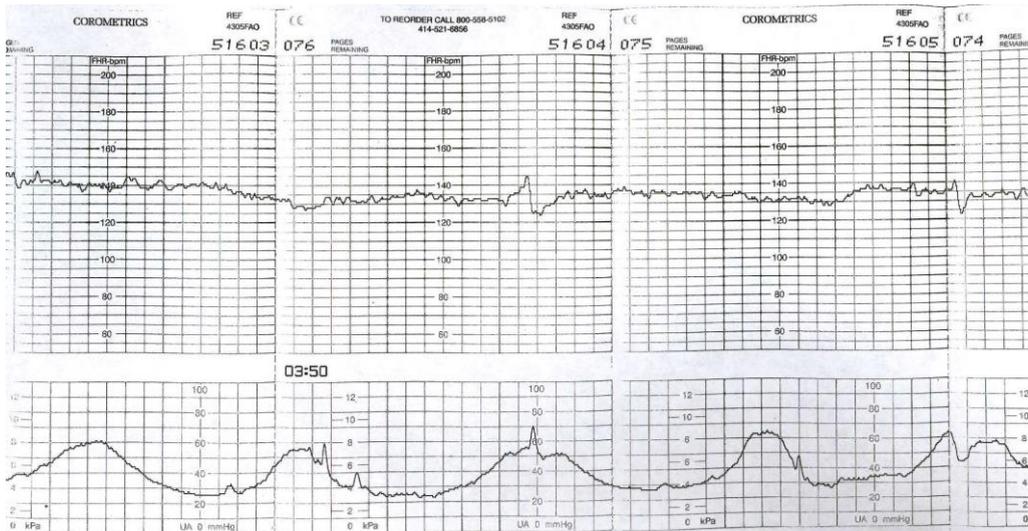
### Svetlana – G1 39 weeks SROM and spontaneous labour



**ALARM**

Fetal Well-Being

### Svetlana – G1 39 weeks SROM and spontaneous labour

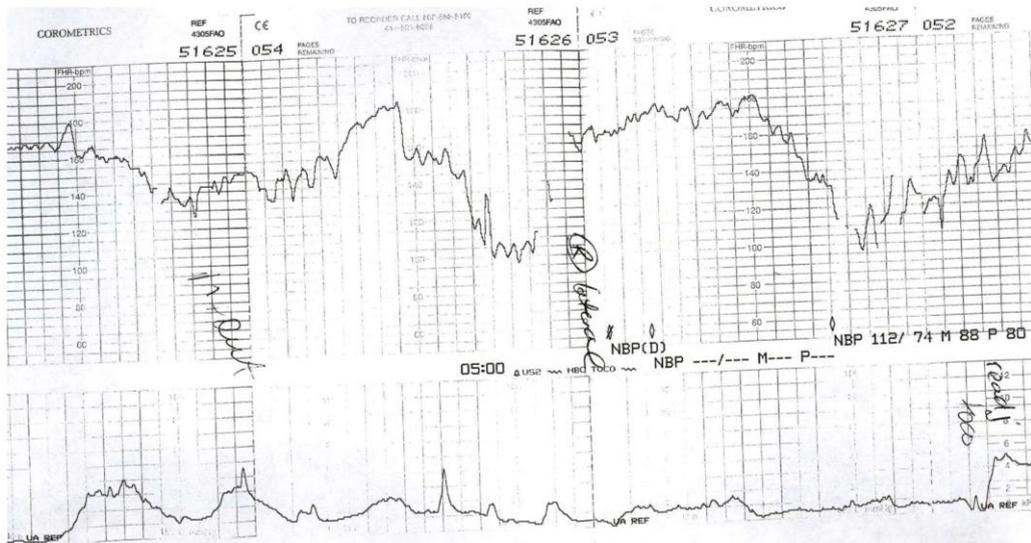


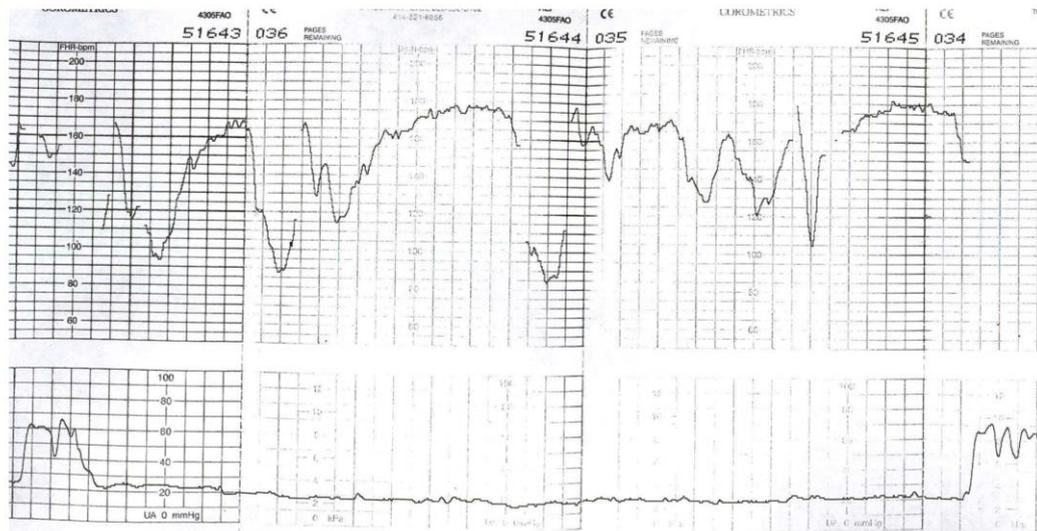


**ALARM**

Fetal Well-Being

### Svetlana – G1 39 weeks SROM and spontaneous labour



**Svetlana – G1 39 weeks SROM and spontaneous labour**

Uterine activity: Up to 3-4/10 minutes

Baseline: 135 - 140

Variability: Moderate to marked

Accelerations: Yes then no

Decelerations: Uncomplicated and complicated variables, both with and without contractions, maintained baseline and variability

MHR: 75 bpm

Classification: Atypical – requires ongoing monitoring

Interpretation: Uncertain fetal status

Action:

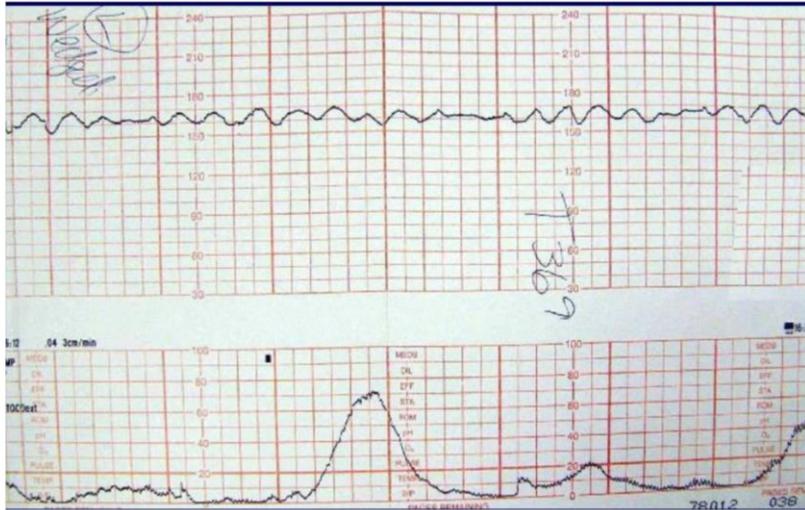
- Ongoing monitoring
- Re-evaluate uterine activity and its relationship to decelerations
- Intrauterine resuscitation
- Assess progress and dilation
- Consider amnio infusion
- Consider scalp sampling

Outcome: vacuum assisted vaginal delivery because of concern about fetal well being

- Apgars 7&8

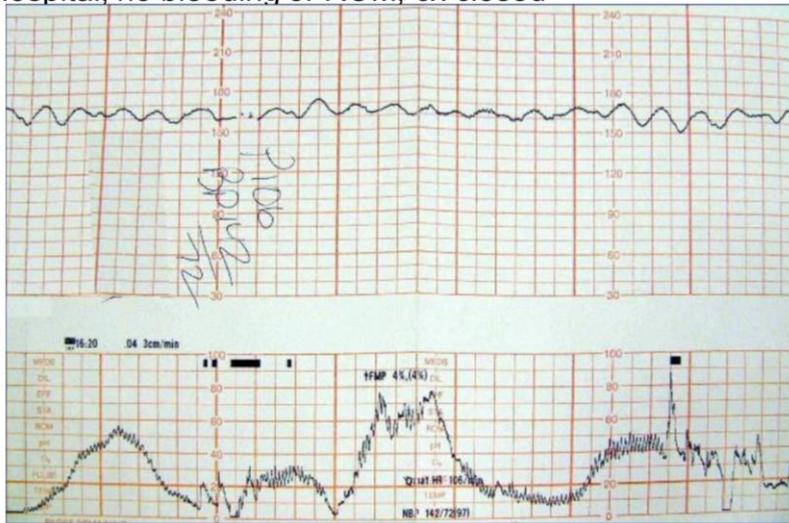


**Jill** – G1 36 weeks, MVA, uterine pain and tenderness, EMS brings to hospital, no bleeding or ROM, cx closed





Jill – G1 36 weeks, MVA, uterine pain and tenderness, EMS brings to hospital, no bleeding or ROM, cx closed



Uterine activity: 1-2 in 10m

Baseline: 160

Variability: absent

Accelerations: none

Decelerations: none

MHR: 110 bpm

Classification: Abnormal - sinusoidal

Interpretation: Fetomaternal haemorrhage after trauma

Action:

- Expedite delivery
- NRP ready for possible neonatal anemia

Outcome: Emergency CS, abruption and fetomaternal hemorrhage

- Apgars 3 and 5 apH 7.12 BD 8.6, neonatal Hgb 45g/l



**Summary:**

- IA unless risk factors present
- EFM if risk factors or if IA abnormal
- Systematic approach to IA and EFM including maternal heart rate
- Classify IA or EFM
- Followed by interpretation in clinical context
- Communication of classification, interpretation and action plan amongst team members