

WELCOME TO

Obstetrical Webinars



Fetal Monitor Strip Review:

Amen Ness, MD

Clinical Assistant Professor

Department of Obstetrics and Gynecology

Division of Maternal Fetal Medicine

Stanford/Lucille Packard Children's Hospital

Webinar Etiquette

- Reminder – This call is being recorded
- Do not put your phone on hold
- Questions/Comments
 - Use the *Raise Hand Icon* (we will unmute your line)
 - Say your name and hospital, then speak
 - If attending via audio conference through your pc, type your questions into the Q&A box on your right
- Participating in a group?
 - Download participant sign-in on WebEx
 - Complete and fax to (818) 547-3888
- Technical problems?
 - Type your problem into the chat box or call (818) 545-3350

*Coming
soon...*

2012 OB Webinar Posters & Postcards



**3rd Tuesday of the Month
at Noon
January – December, 2012**

It's easy to attend:

- 1** Register for the free webinar on our website www.betahg.com
- 2** After registration, you will receive an email with log-in details and an attachment that can be opened to add the event directly to your calendar.
- 3** Open your calendar on the day of the event to find the webinar link to join.

Heather Gocke
hgocke@betahg.com or 1-818-545-3351
www.betahg.com

BETA*rm OB
SAFETY & CARE — UNITED

2012 Topics

Join us as we address the following hot topics in perinatal/neonatal services, conducted by a variety of nationally renowned perinatal experts:

JANUARY 17 • Amen Ness, MD
Fetal Monitor Strip Review

FEBRUARY 21 • Lisa Miller, CNM, JD
**The Good, The Bad and The Ugly:
Defensible Charting in Perinatal Services**

MARCH 20
Emily Hamilton, MDCM, FRCSC, FACOG Vicki Lucas, RN, PhD, CNQ, MNED, BSN
**Strategies to Address Shoulder Dystocia
With Brachial Plexus Injury**

APRIL 17 • Larry Veltman, MD
OB & Newborn: It Isn't Over when the Baby is Out

MAY 15 • Amen Ness, MD
Preterm Labor Management: A review of the Current Evidence

JUNE 19 • Robert Castro, MD
NEC: Etiology, Management & Prevention — A True CSI

JULY 17 • Dan Hinmon, Principal
Is Talk Cheap? The Risks & Rewards of Social Networking

AUGUST 21 • Larry Veltman, MD
VBAC: Are We Really Back to the Future?

SEPTEMBER 18 • Sue Gullo, RN, MSN
The Value of Community: IHI Teams Share their Experience

OCTOBER 16 • Lisa Miller, CNM, JD
Who is STAN: Using ST Analysis in Fetal Evaluation

NOVEMBER 20 • Larry Veltman, MD
Incivility and Intimidation: Still a Safety Threat

DECEMBER 18 • Mary Brucker, CNM, PhD
Bugs and Things: A Focus on Perinatal Infections



Beta Healthcare Group Fetal Monitoring Case Reviews January 2012

Amen Ness MD

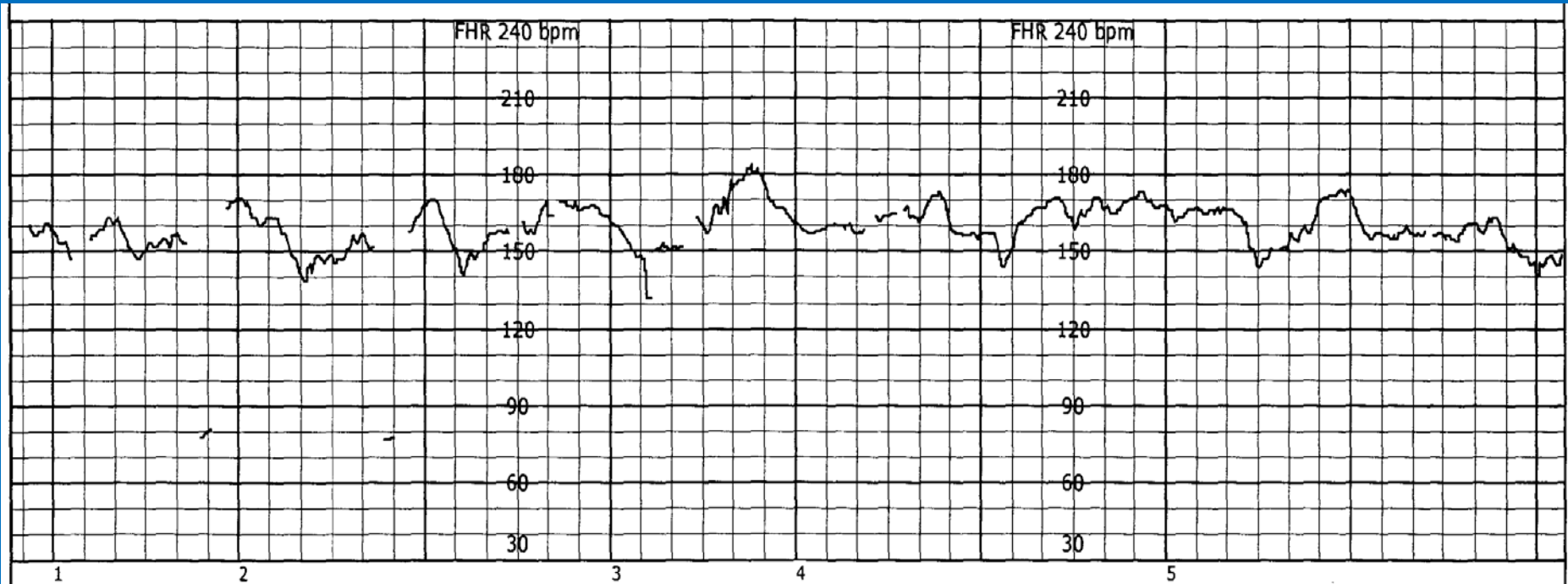
Clinical Assistant Professor
Dept of Obstetrics and Gynecology
Division of Maternal Fetal Medicine
Stanford/ Lucille Packard Children's Hospital
Stanford , California

Case 1

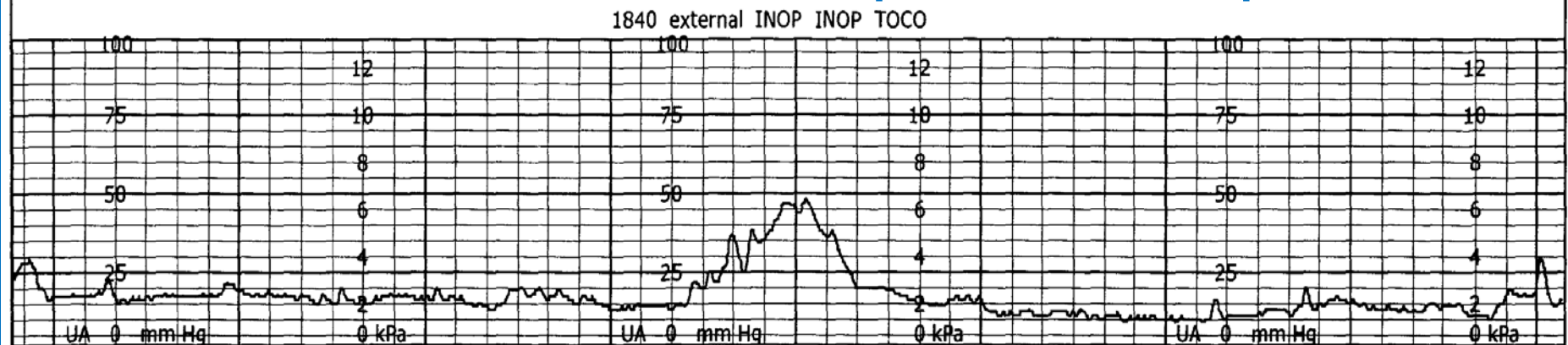
- 26 year old G6 P4 at 39 weeks
- Induction due to mild preeclampsia
- Initial BP at 11 wks - 134/86
 - 24 hr urine of 300mg/24hrs
 - BP's 130-140's/60-90's
- WT: 288lbs
- OB: Term spontaneous vaginal delivery
- Otherwise normal antepartum course

18:37

2+ protein SVE: FT/25%/-4

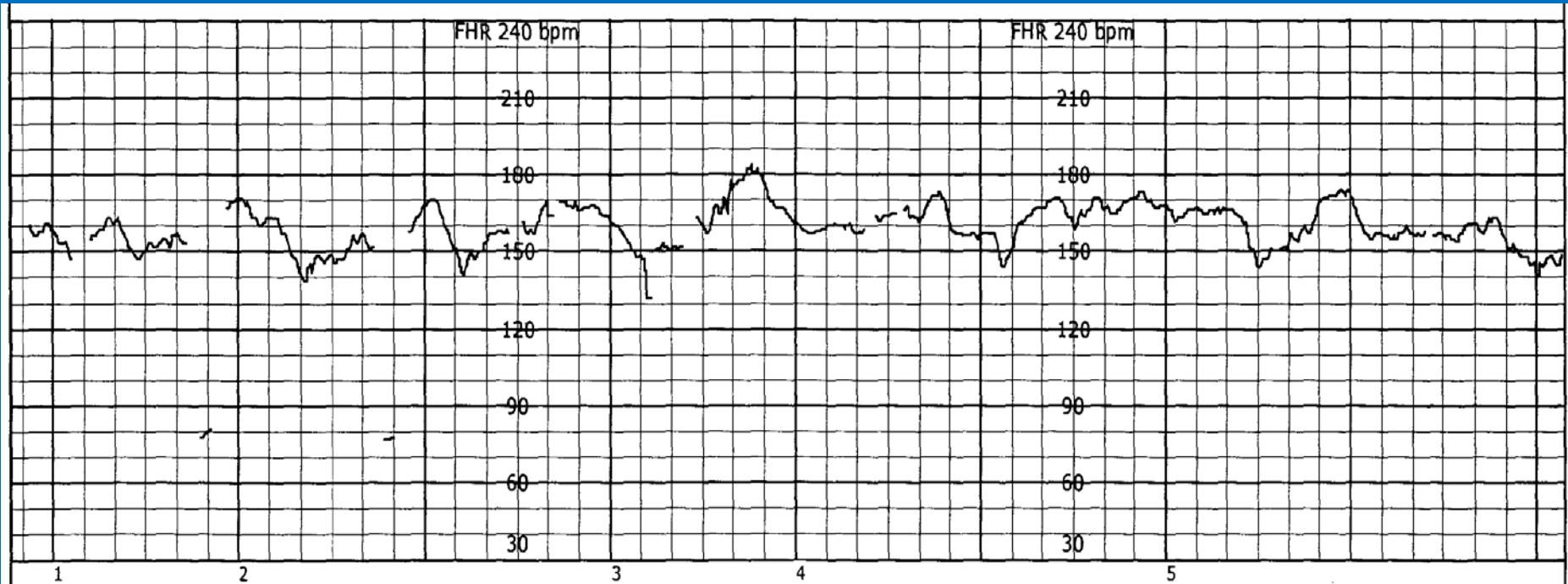


BP 163/93, MAP 143, HR 102, Respirations 16, Temp 98.3

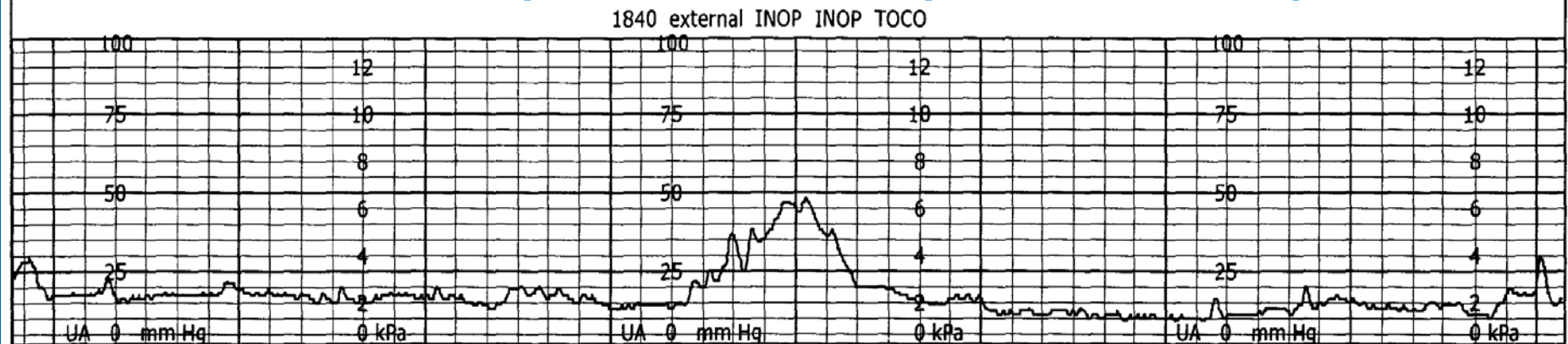


18:37

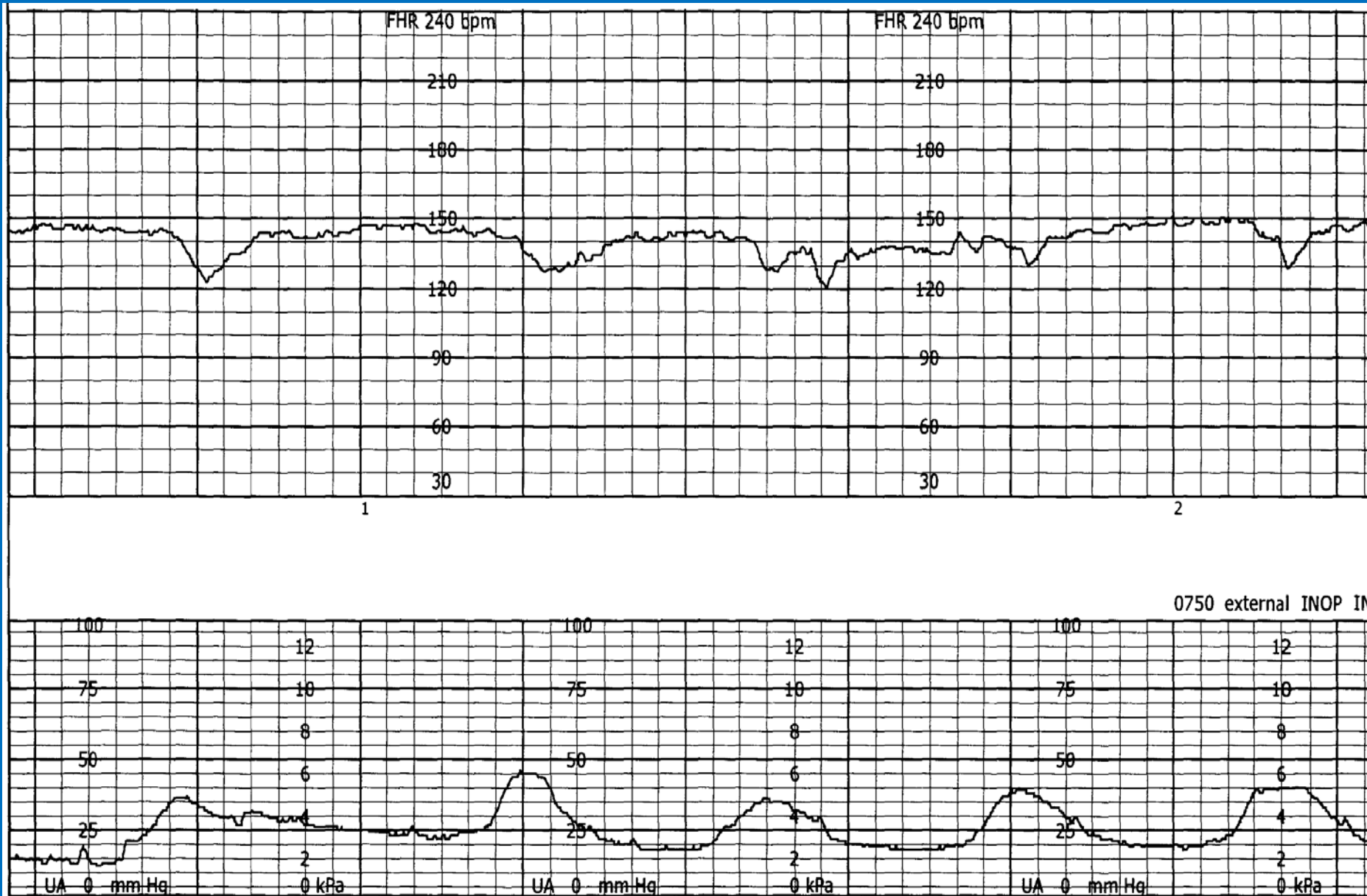
2+ protein SVE: FT/25%/-4



BP 163/93, Map 143, HR 102, Respirations 16, Temp 98.3

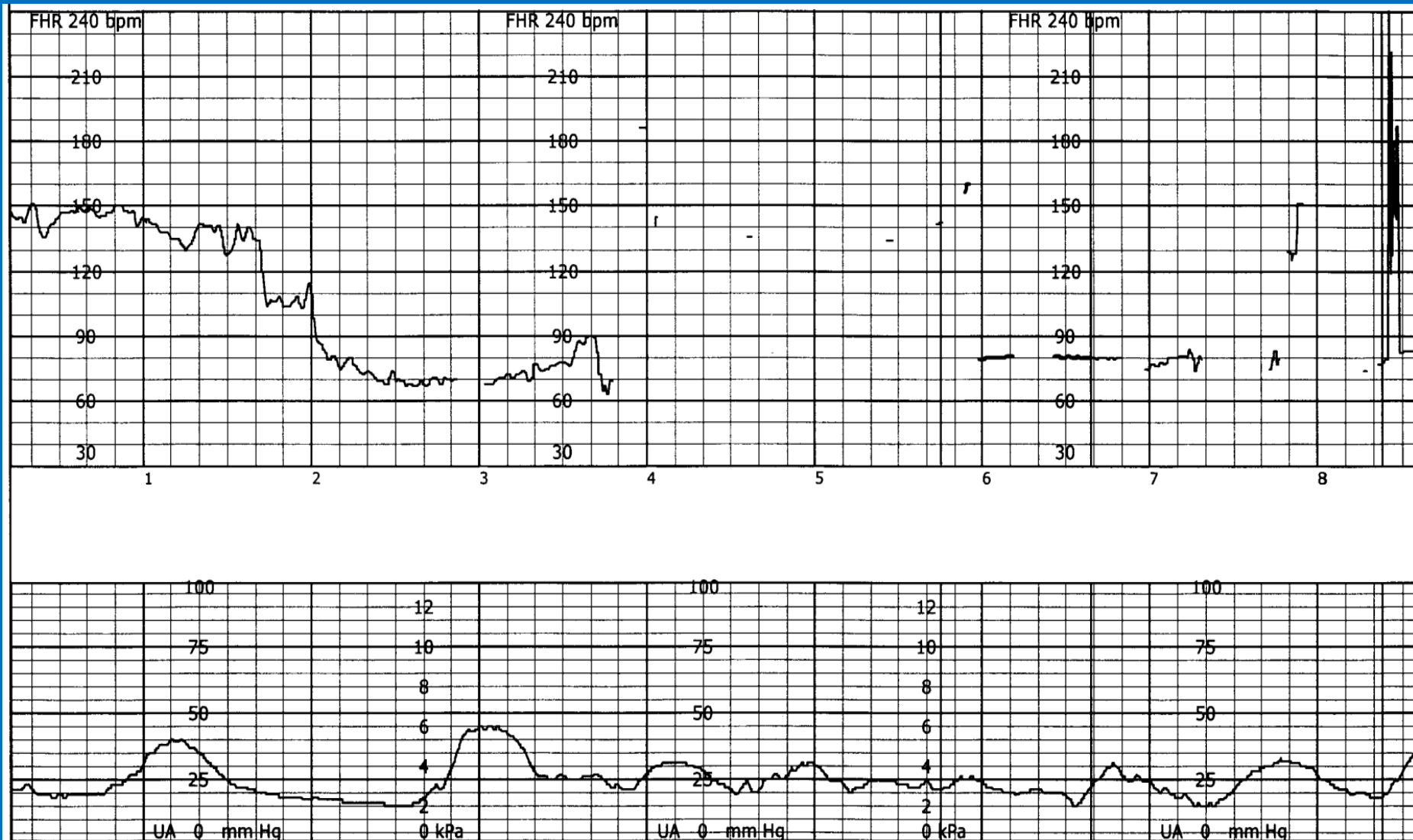


07:45



07:52

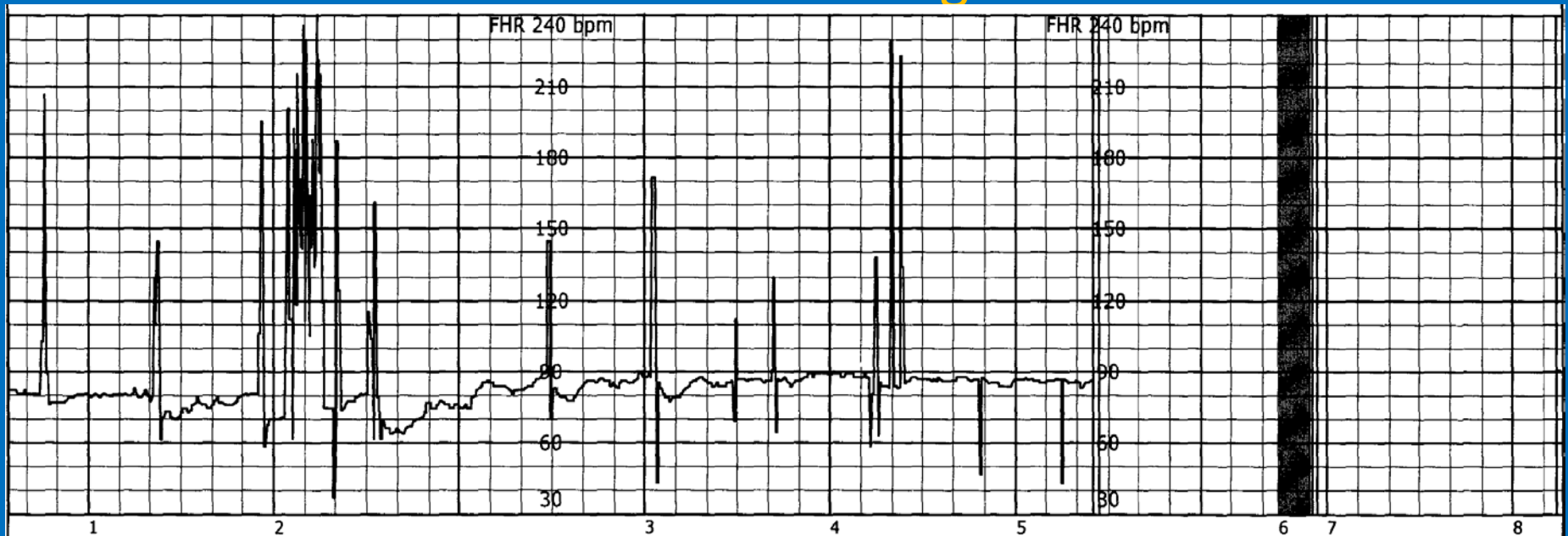
Patient states "I feel hot, it's hard to hear you."
Slightly diaphoretic - Magnesium sulfate – Pitocin off



08:00

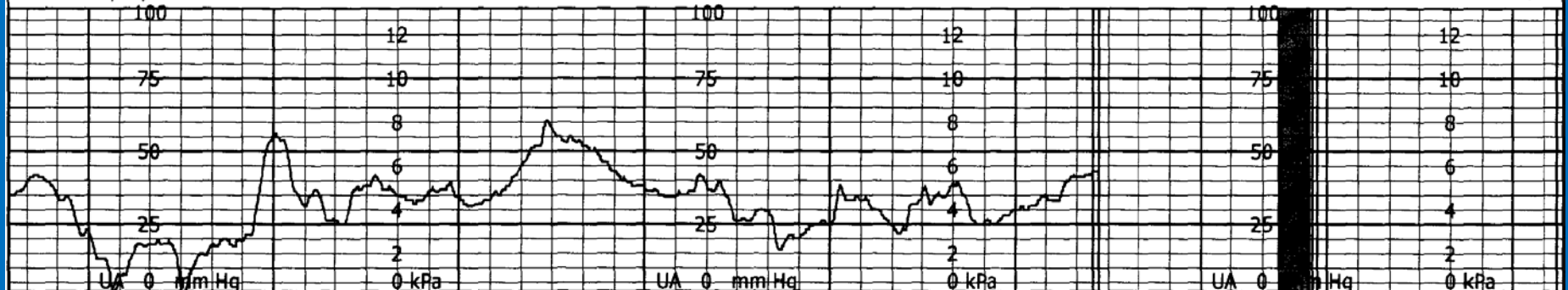
FECG placed by MD. Moderate amount of blood clots at introitus. Anesthesia present.

08:04: Decision to go to OR



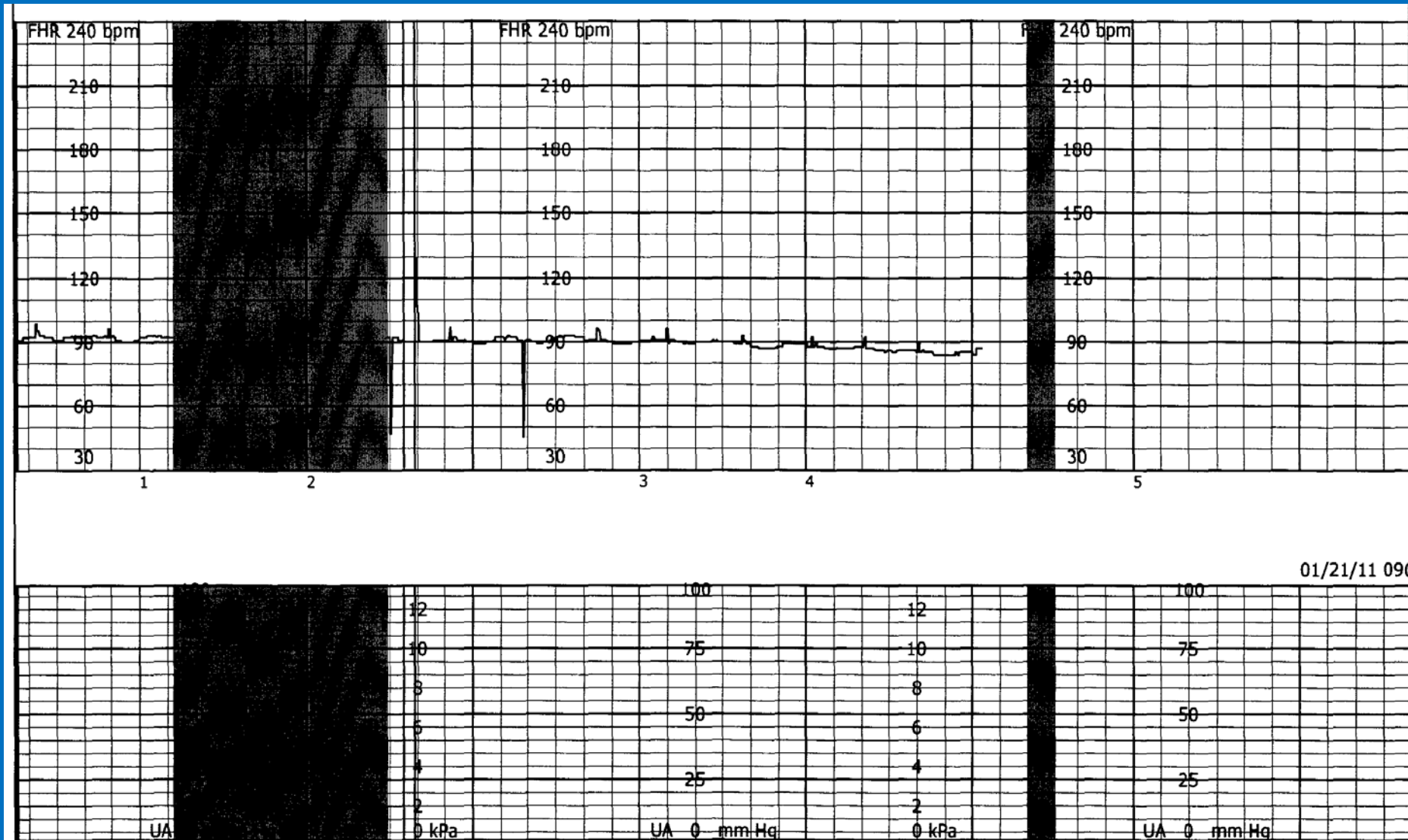
01/21/11 0800 FECG INOP INOP TOCO

0810



08:11

In OR - 9cm- Patient pushed once
Decision to incision...



Additional Data

- 0810- FHR in Operating Room - 90's
- 0812- Patient pushing per instruction
- 0814- Decision to do Cesarean Section
- 0817- Start time

Findings at Cesarean Section

- Profuse bleeding and clots in lower abdomen
- Infant floppy
- Rupture on left side
- EBL: 1000cc
- *Cord PH: 6.55 pCO2 194 BD -26.2*

3-Tier Fetal Heart-Rate Classification System

- Category I

Fetal heart-rate (FHR) tracings include all of the following:

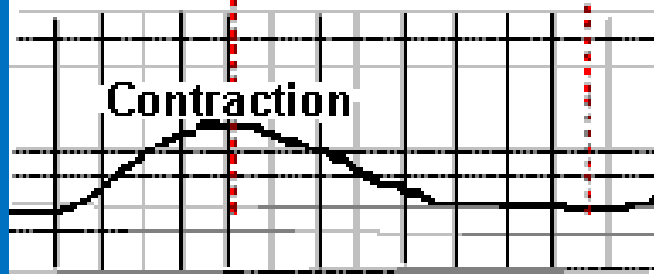
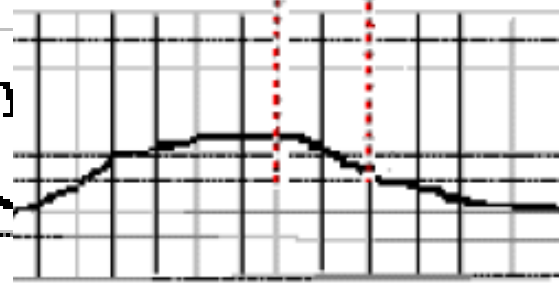
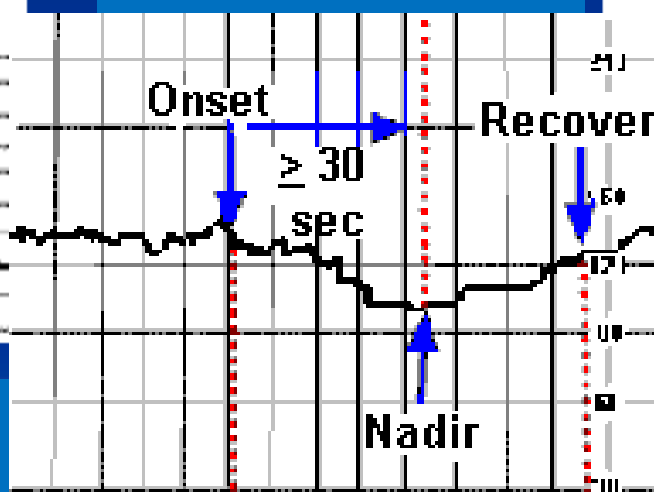
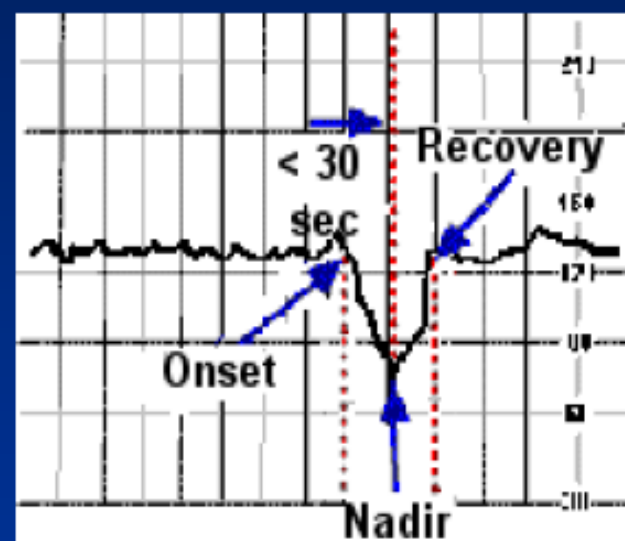
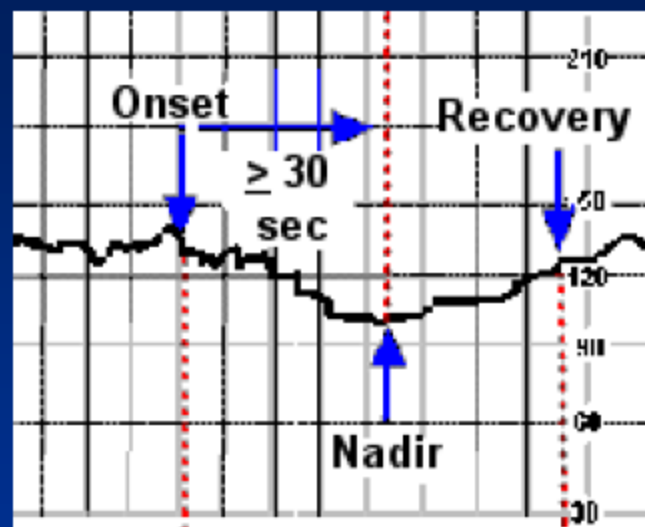
- baseline rate is 110–160 bpm
- baseline FHR variability is moderate
- accelerations are present or absent
- late or variable decelerations are absent
- early decelerations are present or absent

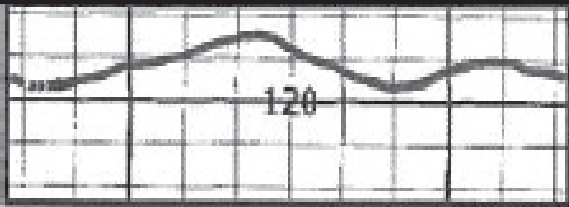
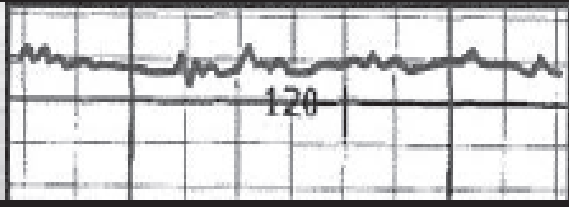
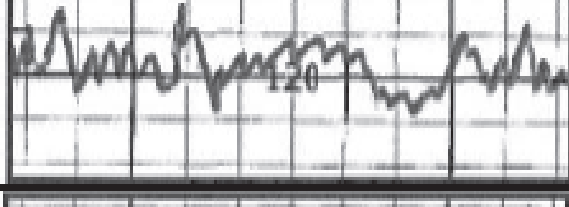
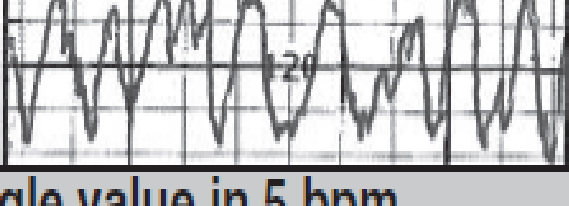
- Category II

All FHR tracings not included in Category I or Category III

- Category III :

- - **absent baseline FHR variability plus:**
- – recurrent late decelerations
- – recurrent variable decelerations
- – bradycardia
- OR **sinusoidal pattern**



VARIABILITY		
Absent	Undetectable	
Minimal	>Undetectable to 5 bpm	
Moderate	6 bpm to 25 bpm	
Marked	>25 bpm	
<p>FHR BASELINE: Mean BL rounded to single value in 5 bpm increments, exclude accelerations, decelerations & marked variability</p> <p>Tachycardia >160 bpm Bradycardia <110bpm</p>		

The Great Gray Zone

Category II

- If FH accelerations or moderate variability are detected, the fetus is unlikely to be currently acidemic
- If FH accelerations are absent and variability is absent or minimal, the risk of fetal acidemia increases

How Does This Tracing Fit In The Context?

Minimal variability without decelerations

- What was the tracing like just before CAT II?
- What, if any, events have taken place that might affect maternal or fetal status?

How Does This Tracing Fit In The Context?

- Most fetal hypoxic situations are associated with a **loss of variability over time** and usually develop over a 60 to 120 minute time period
- Exception –Prolonged Deceleration

A-B-C-D Steps

- A - Assess the oxygen pathway
- B - Begin conservative corrective measures
- C - Clear obstacles to rapid delivery
- D - Determine decision-to delivery time

TABLE 2 Conservative corrective measures to improve fetal oxygenation

	"A" Assess oxygen pathway	"B" Begin corrective measures if indicated
Lungs	Airway and breathing	Supplemental oxygen (10 L) using a tight-fitting, non-rebreather face mask for at least 15 minutes
Heart	Heart rate and rhythm	Position changes
Vasculature	Blood pressure	IV fluid bolus (500–1,000 cc of isotonic fluid over 20 min)
	Volume status	Correct hypotension
Uterus	Contraction strength	Stop or reduce uterine stimulants (oxytocin, prostaglandin) Consider uterine relaxant (terbutaline)
	Contraction frequency	
	Baseline uterine tone	
	Exclude uterine rupture	
Placenta	Placental separation	
	Bleeding vasa previa	
Cord	Vaginal exam	Consider amnioinfusion
	Exclude cord prolapse	

TABLE 3 Steps involved in preparing for delivery

	"C" Clear obstacles to rapid delivery	"D" Determine decision-to-delivery time
Facility	Operating room availability Equipment	Facility response time
Staff	Notify: Obstetrician Surgical assistant Anesthesiologist Neonatologist Pediatrician Nursing staff	Consider staff: Availability Training Experience
Mother	Informed consent Anesthesia options Laboratory tests Blood products Intravenous access Urinary catheter Abdominal prep Transfer to OR	Surgical considerations (prior abdominal or uterine surgery) Medical considerations (obesity, hypertension, diabetes, SLE) Obstetric considerations (parity, pelvimetry, placental location)
Fetus	Confirm: Estimated fetal weight Gestational age Presentation Position	Consider factors such as: Estimated fetal weight Gestational age Presentation Position
Labor	Confirm adequate monitoring of uterine contractions	Consider factors such as: Arrest disorder Protracted labor Remote from delivery Poor expulsive efforts

Courtesy of David A. Miller, MD

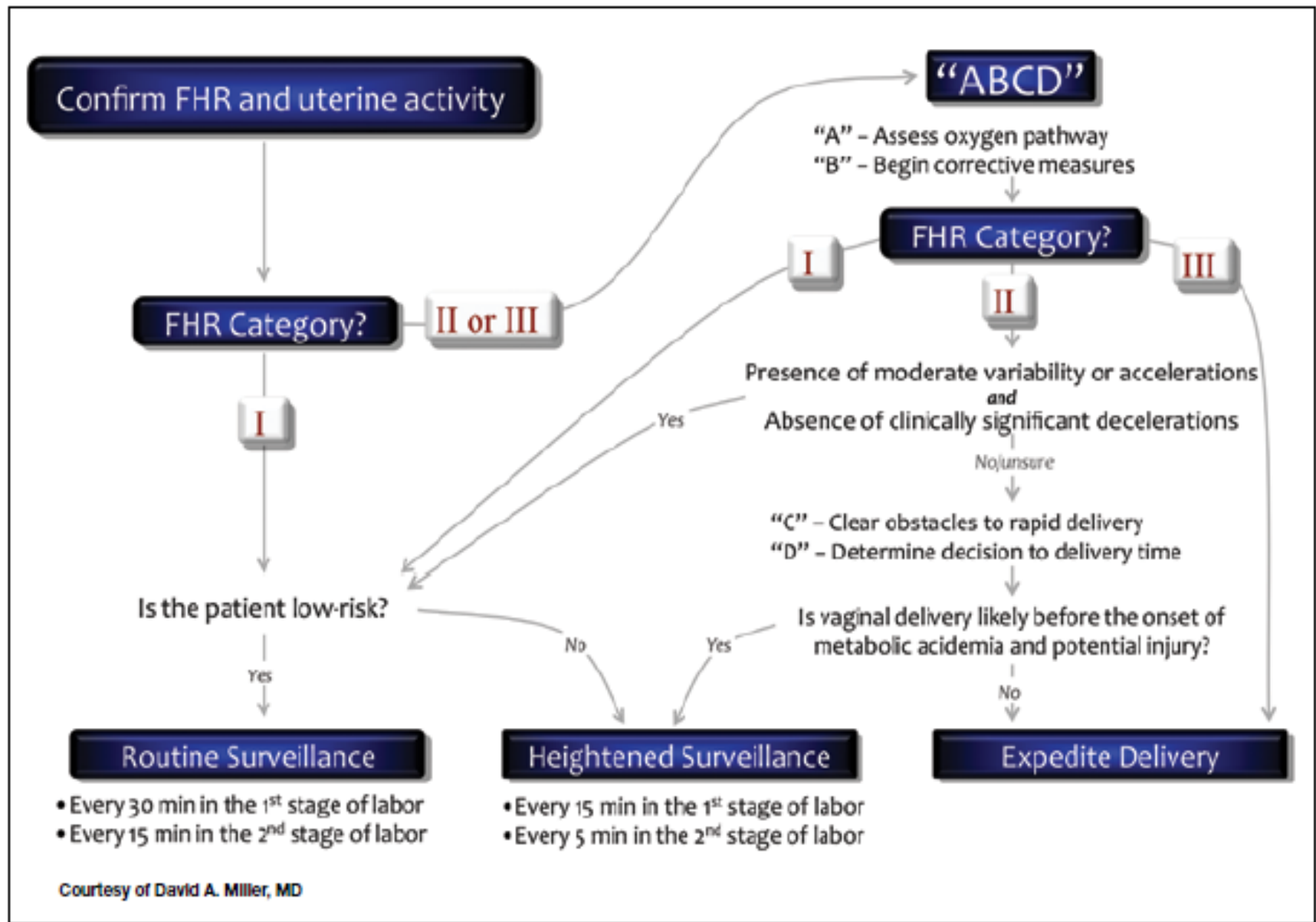
In utero resuscitation for Category-II and Category-III FHR tracings

✓✓✓ AN ACTION CHECKLIST ✓✓✓

Make a check mark alongside the interventions that you plan to execute.
Recheck the fetal heart rate pattern 15 to 20 minutes after each intervention.

- ☐ Change maternal position—preferably, to a lateral position
- ☐ Fluid bolus: Administer 500–1,000 mL lactated Ringer's solution IV over 20 min
- ☐ Maternal oxygen: Administer 10 L/min of O₂ by nonrebreather face mask for at least 15 min
- ☐ Decrease or stop infusion of oxytocin
- ☐ Discontinue cervical ripening agent
- ☐ Consider amnio-infusion if recurrent deep, variable decelerations are present
(For transcervical amnio-infusion, place an intrauterine pressure catheter and administer 1) a bolus of 250–1,000 mL of lactated Ringer's solution at 10 to 15 mL/min and then 2) continuous infusion at 100–200 mL/h by infusion pump or gravity.)
- ☐ If clinically appropriate, consider 1) a cervical check to assess the progress of labor and 2) fetal scalp stimulation to assess for FHR acceleration (*Digital scalp stimulation is performed by vigorously rubbing the fetal scalp for 15 sec using an examining finger. Following stimulation, acceleration in the FHR >15 beats/min above baseline, lasting longer than 15 sec, is associated with a low prevalence of fetal acidemia.*)
- ☐ Consider vibro-acoustic stimulation as an alternative method of fetal stimulation that does not require vaginal examination (*Apply a vibro-acoustic stimulator to the abdominal wall for 5 sec to assess fetal status. After the stimulus, acceleration in the fetal heart >15 beats/min above baseline, lasting longer than 15 sec, is associated with a low prevalence of fetal acidemia.*)
- ☐ If the mother is relatively hypotensive, which may occur in association with an epidural anesthetic, consider ephedrine, in a 5-mg IV bolus (*Note: Ephedrine may increase FHR.*)
- ☐ Consider administering terbutaline, 0.25 mg subcutaneously, if tachysystole is present
- ☐ Consider placing a fetal scalp electrode if the FHR tracing is of suboptimal quality

Decision model for management of intrapartum fetal heart rate (FHR)



The most common preventable error
is to postpone a difficult but
clinically necessary decision in the
hope that the situation will resolve
on its own

“Deciding to wait” is very different from “waiting to decide.”

1 – 2 – 3 Guideline

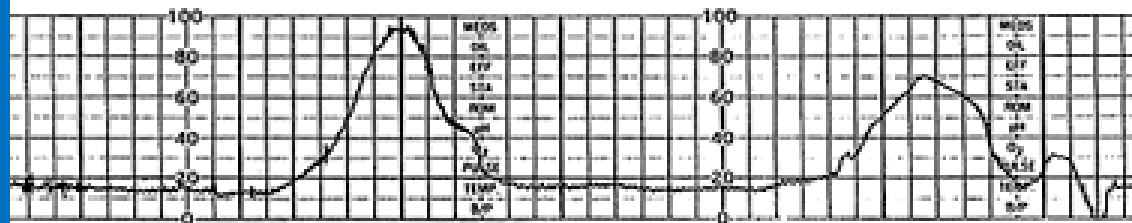
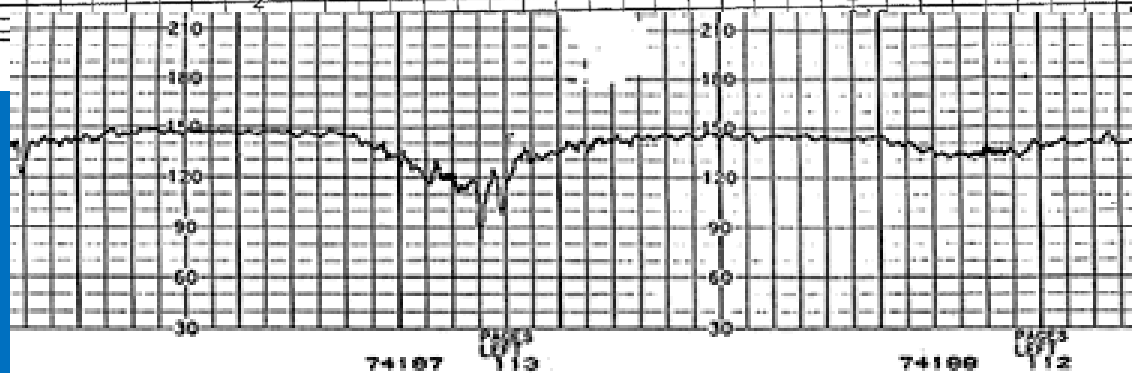
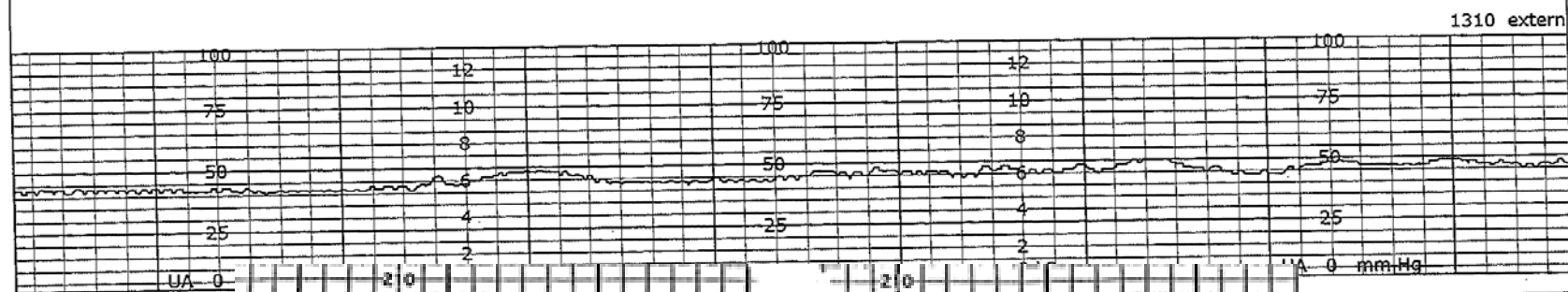
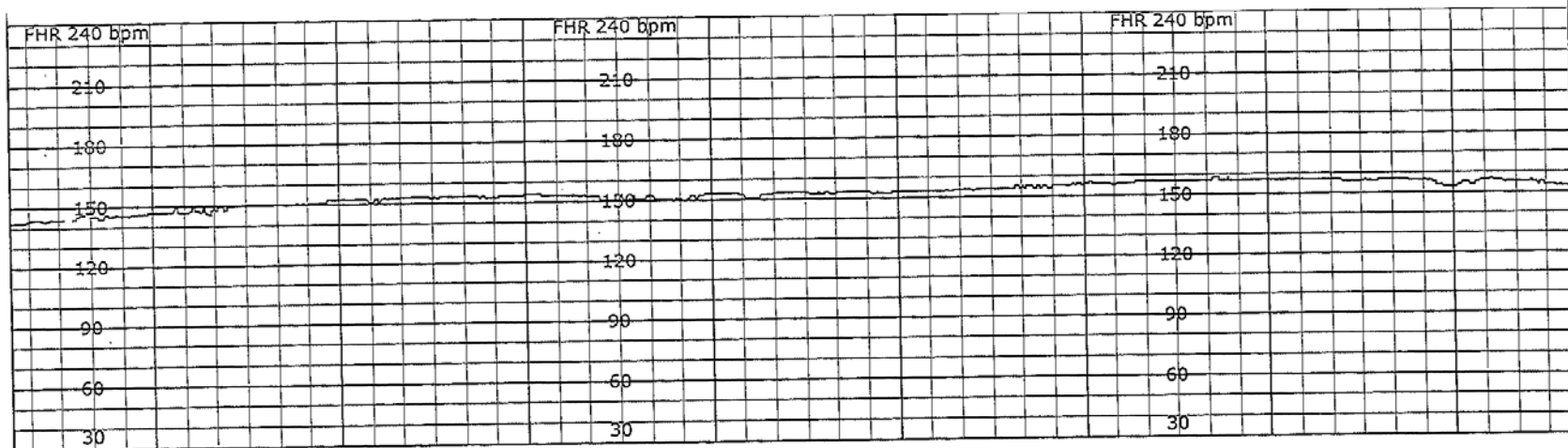
RATE-ROUTE-ROOM

1 – 2 – 3 Guideline

- ◎ END OF 1 MINUTE—FHR \leq 60: ASSESS CAUSE
 - EVALUATE/ CONSERVATIVE MEASURES INITIATED
- ◎ END OF SECOND MINUTE: EMERGENCY ALERT
 - MD, OR TEAM, HELP
 - EXPLAIN TO FAMILY
 - READY TO MOVE—tubes, cords, plugs
- ◎ END OF THIRD MINUTE: MD PRESENT, OR ANYONE CAN MOVE TO OR

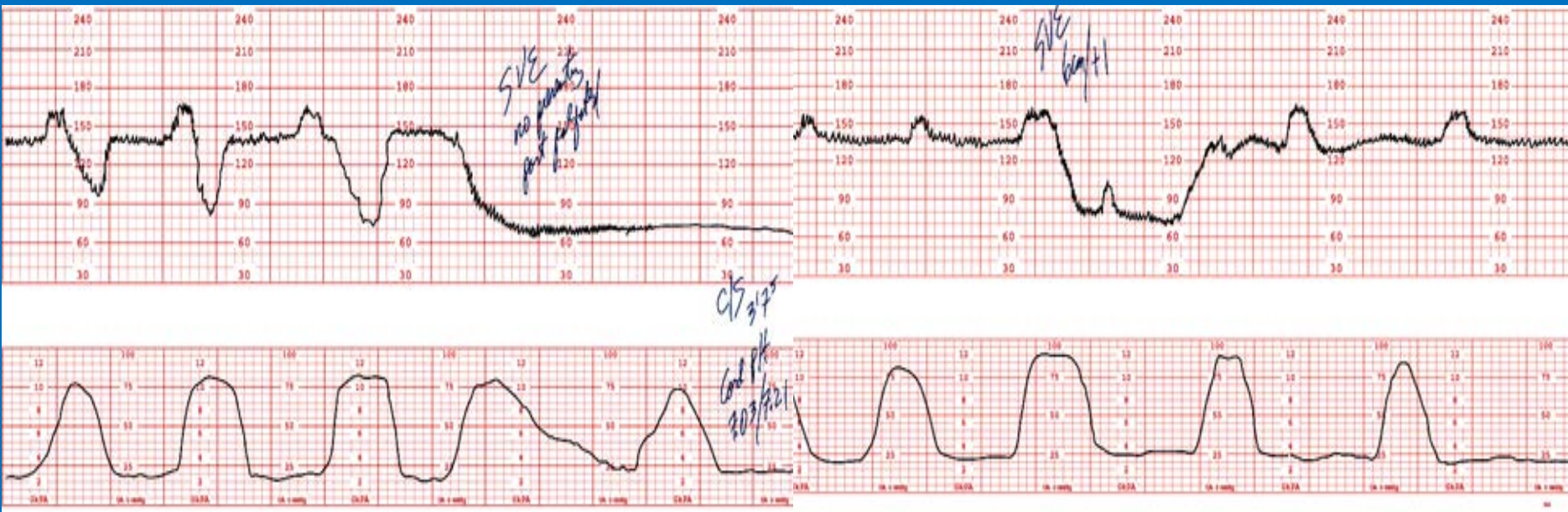
1 – 2 – 3 Guideline

- **RATE:** Heart rate
 - If < 80 bpm and delivery remote or 60 bpm anytime----NEXT STEPS
- **ROUTE:** Cervical exam re: delivery/prolapse
- **ROOM:** Where to deliver



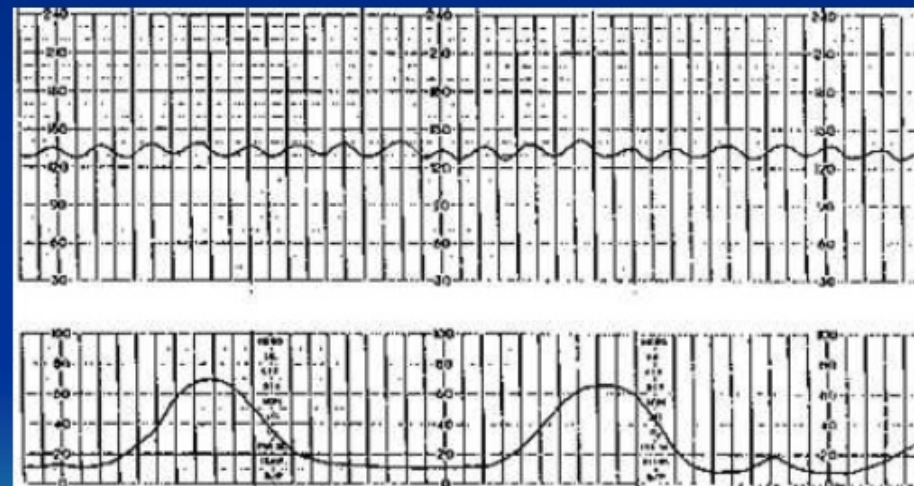
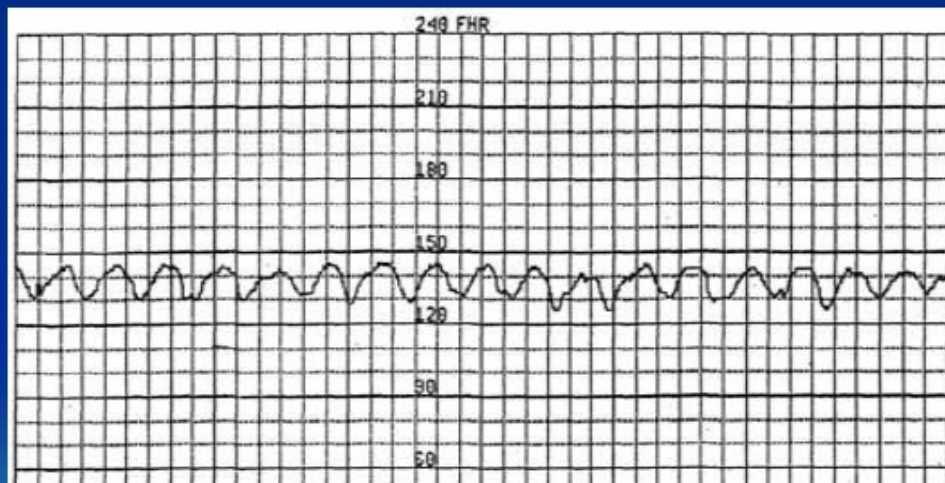
Prolonged Decelerations

A decrease in FHR of ≥ 15 beats per minute measured from the most recently determined baseline rate. The deceleration lasts ≥ 2 minutes but less than 10 minutes.



Prolonged deceleration following uterine rupture

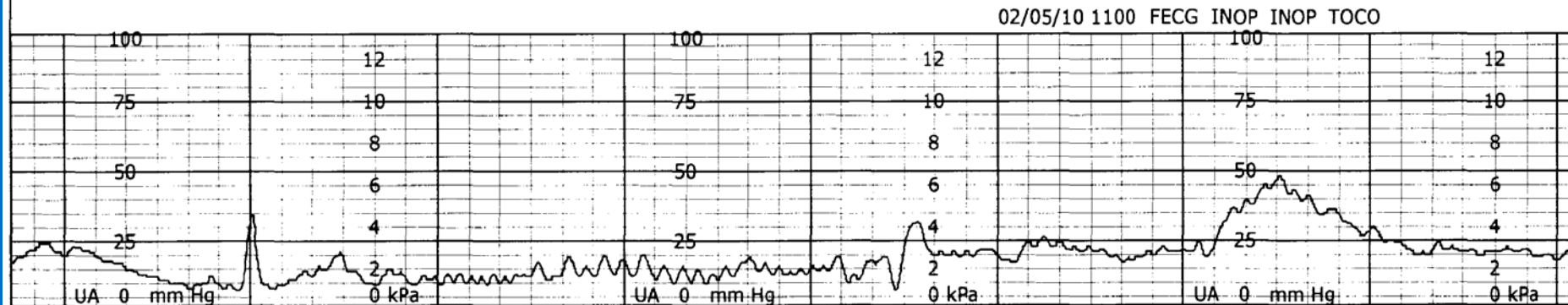
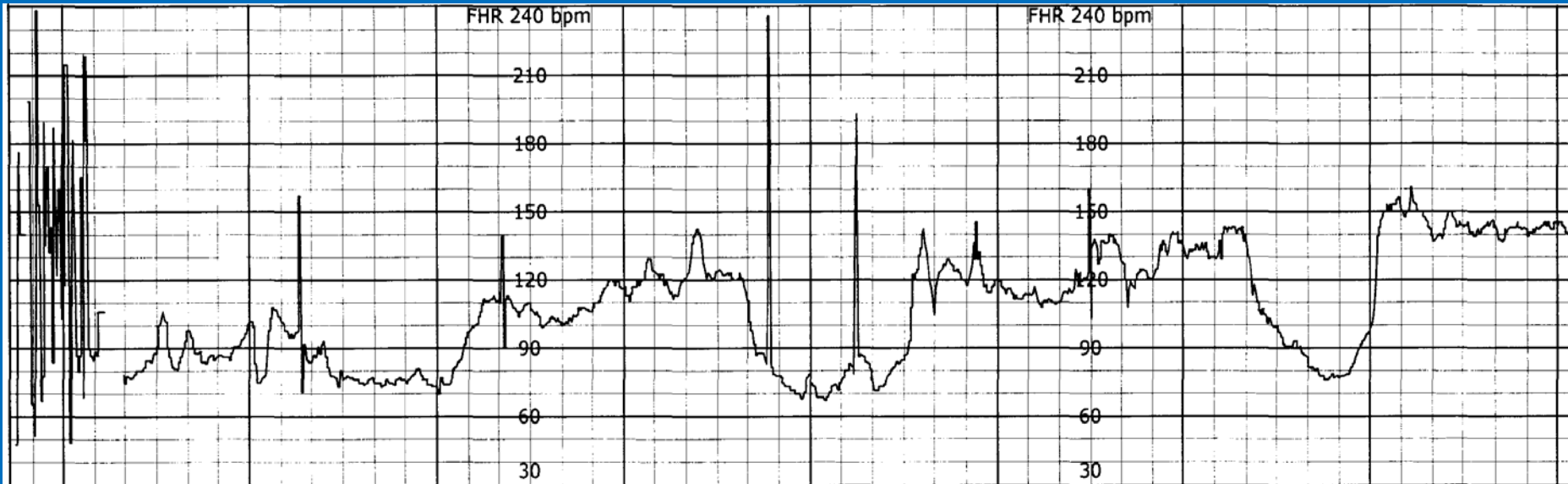
Prolonged deceleration following vaginal exam: vagal



Case 2

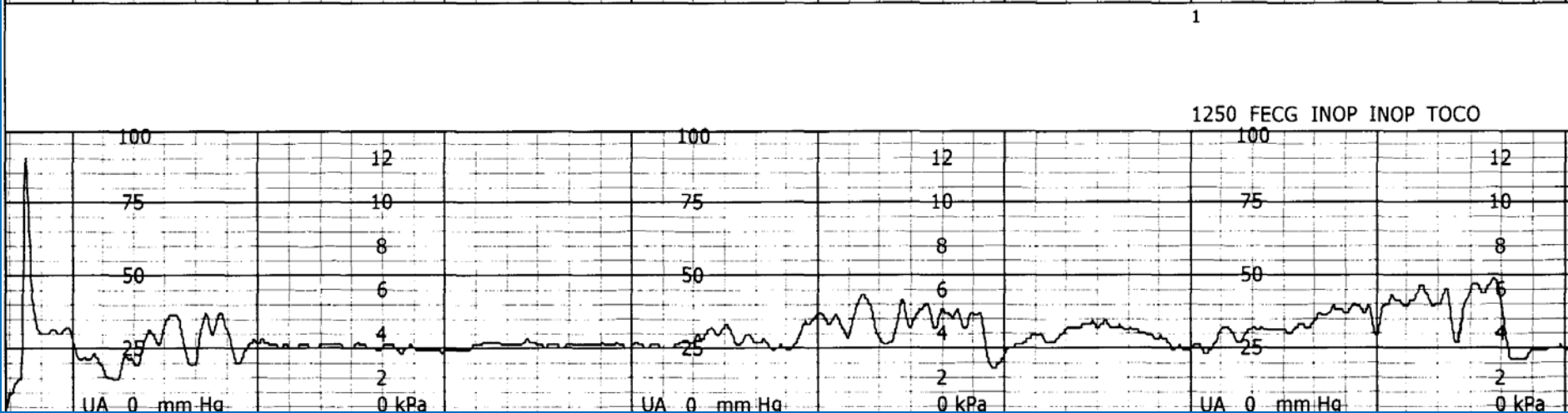
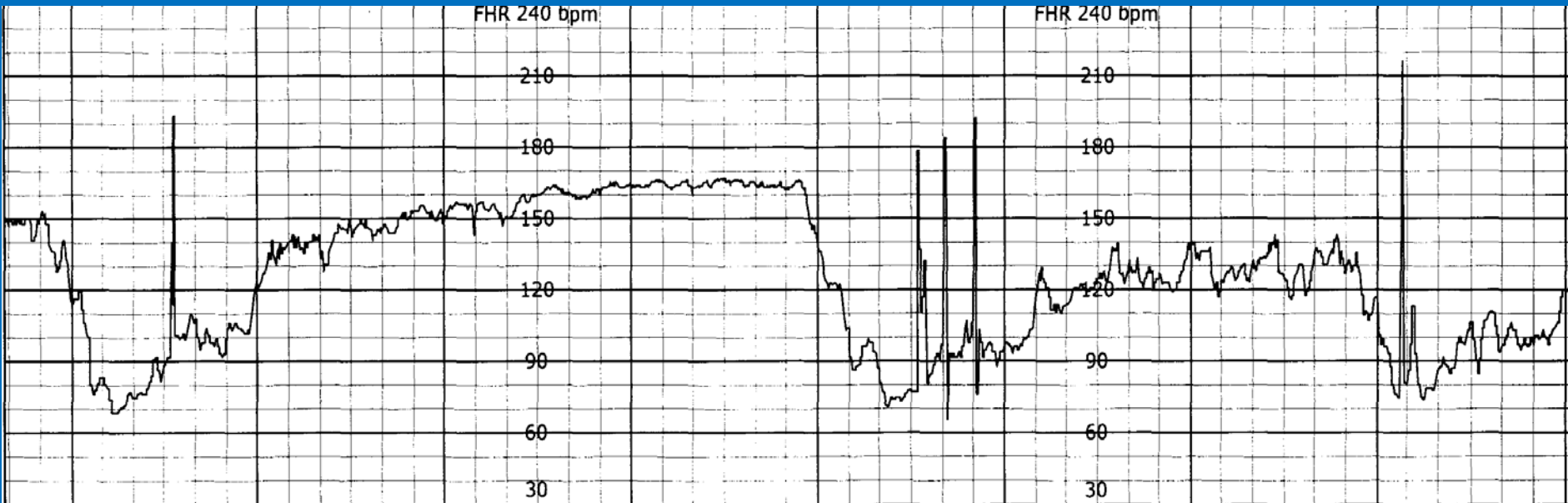
G1P0, VE 10/100%/-1 for the last 30 minutes

~ Name the Category ~

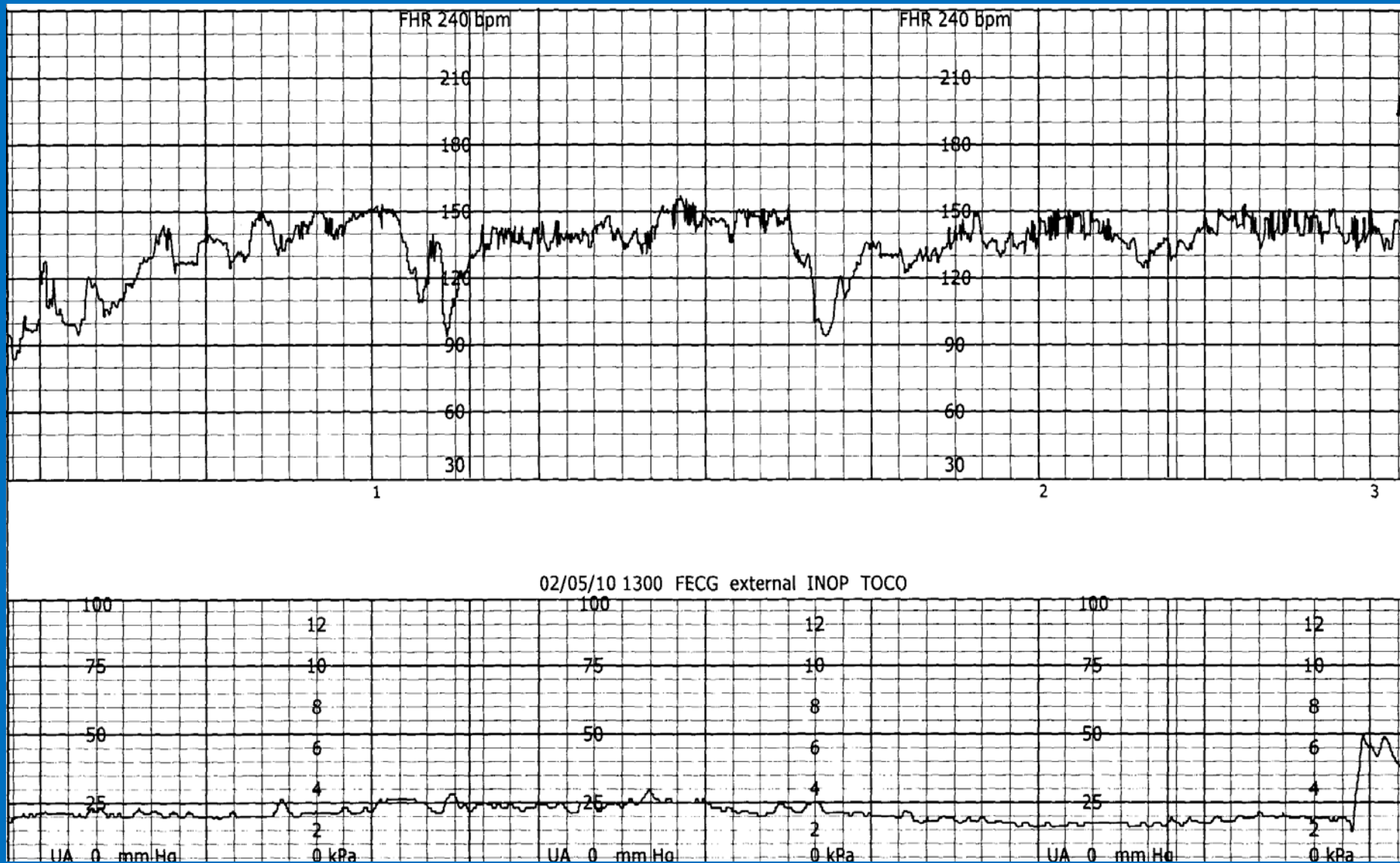


2 hours later...

Patient continues to push



Final segment...



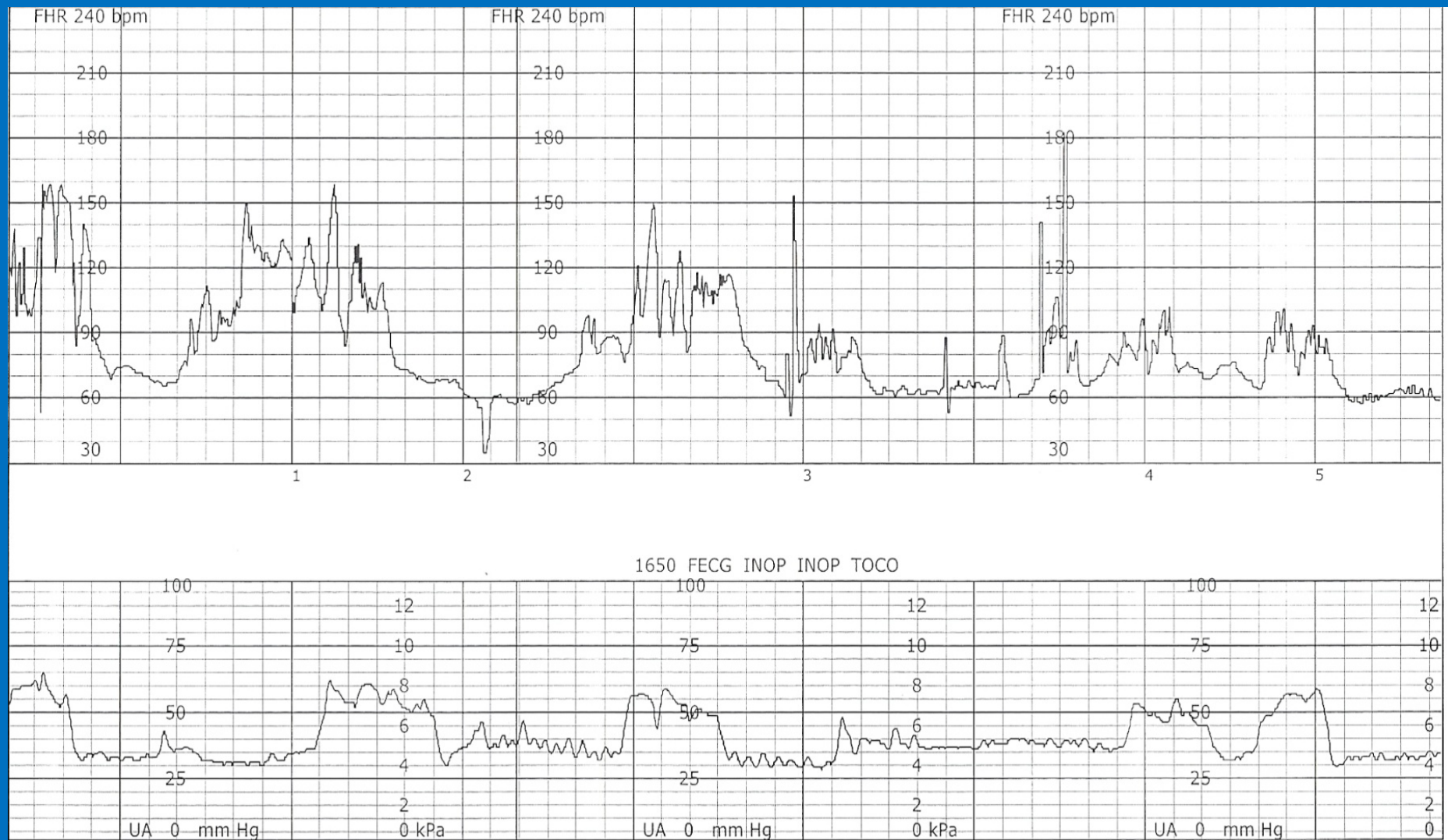
Outcome

- Vacuum assist delivery
- Apgars 8/9
- Nuchal cord X 1
- No cord blood gases obtained



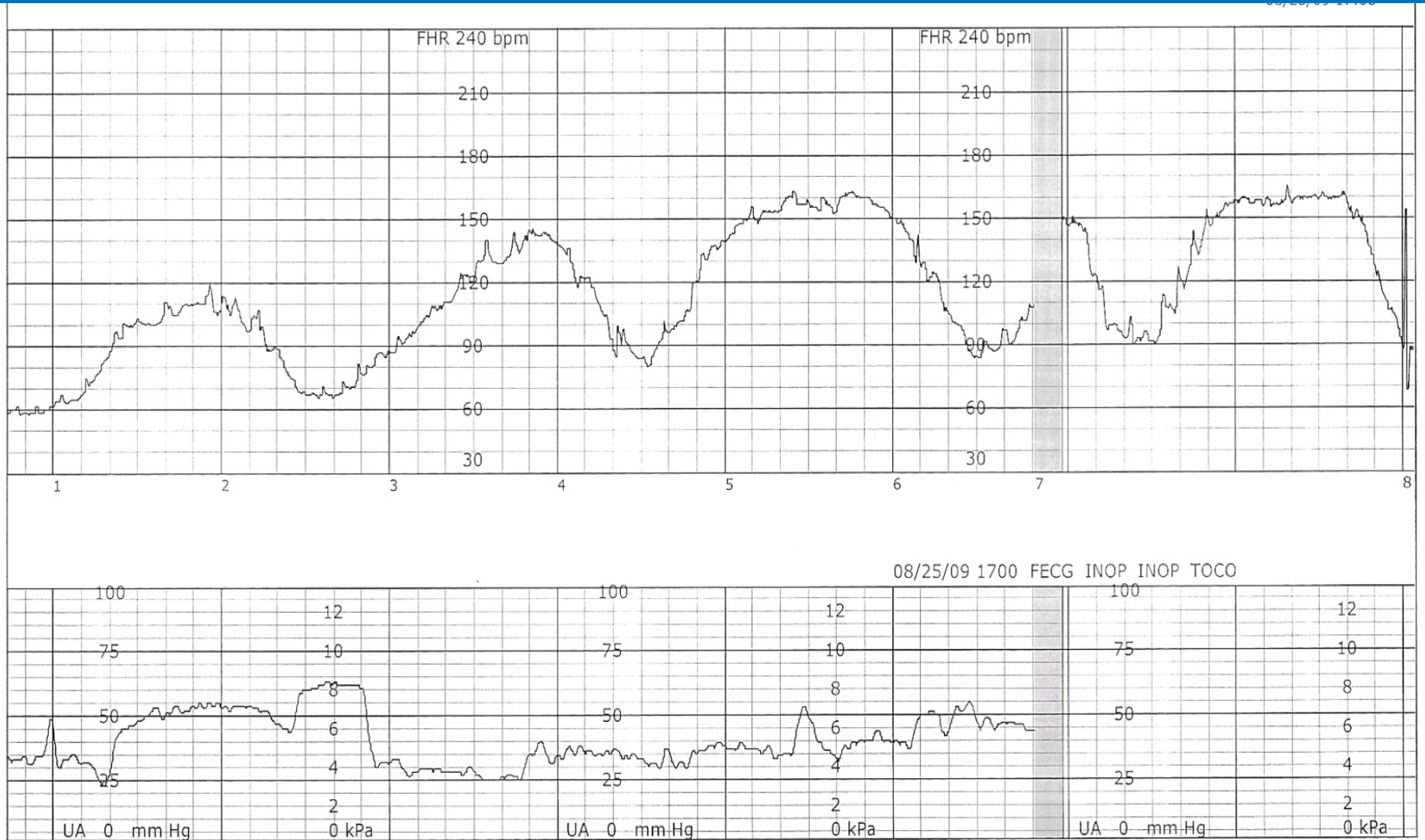
Case 3:

G1P0, Recent VE 10/90%/-1 Pitocin dc'd...



10 minutes later...

~ Name that Category ~

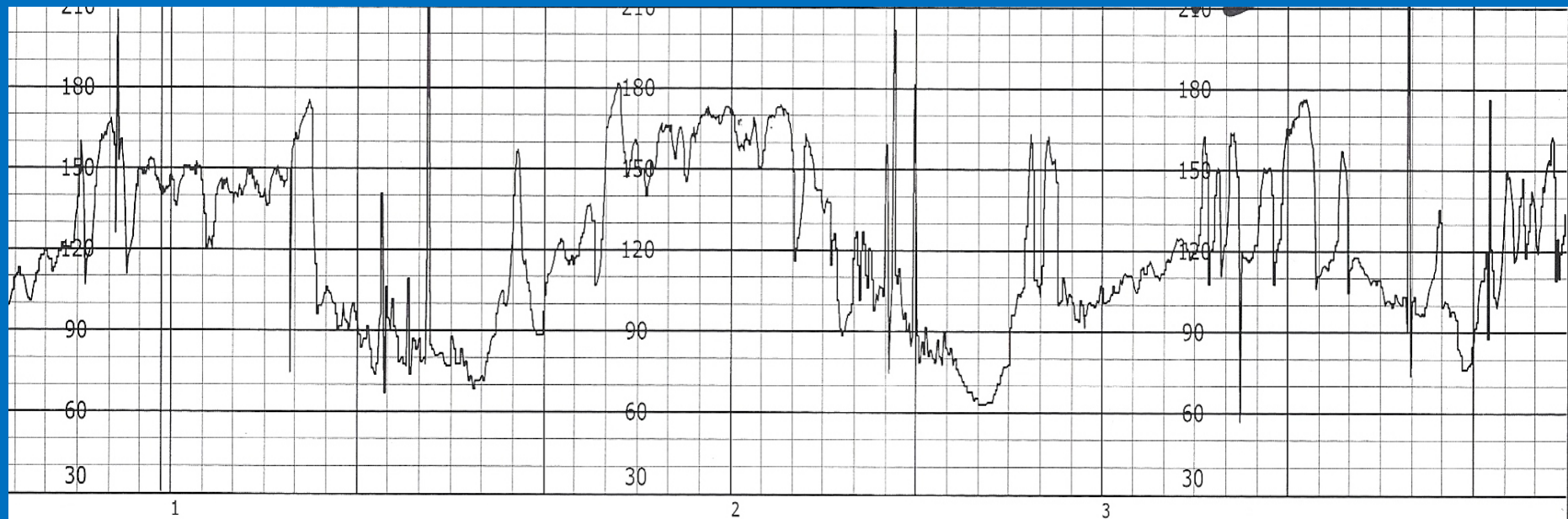


Decision was made to perform C/S

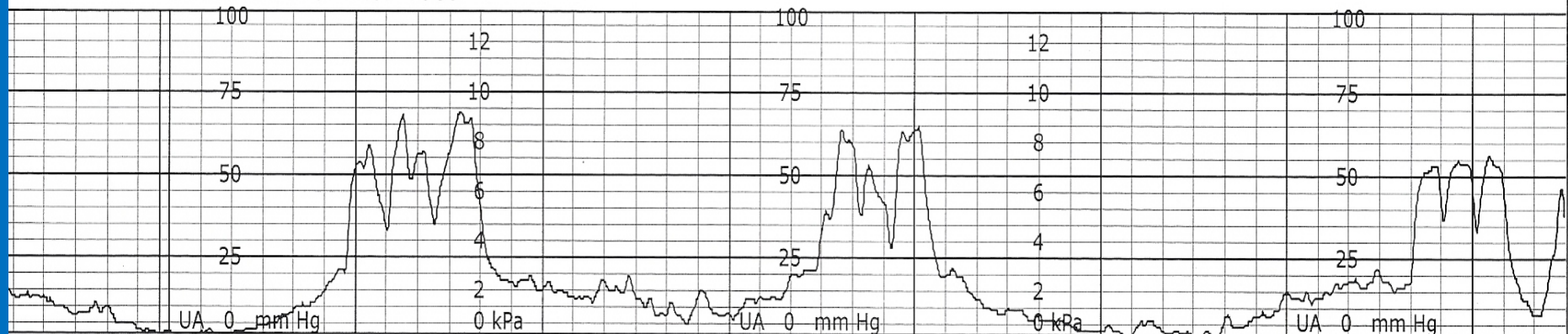
- Apgars 8/9
- Cord blood gases
 - PCO₂ 69
 - PH 7.11
 - HCO₃ 22
 - BE -9.1

Case 4:

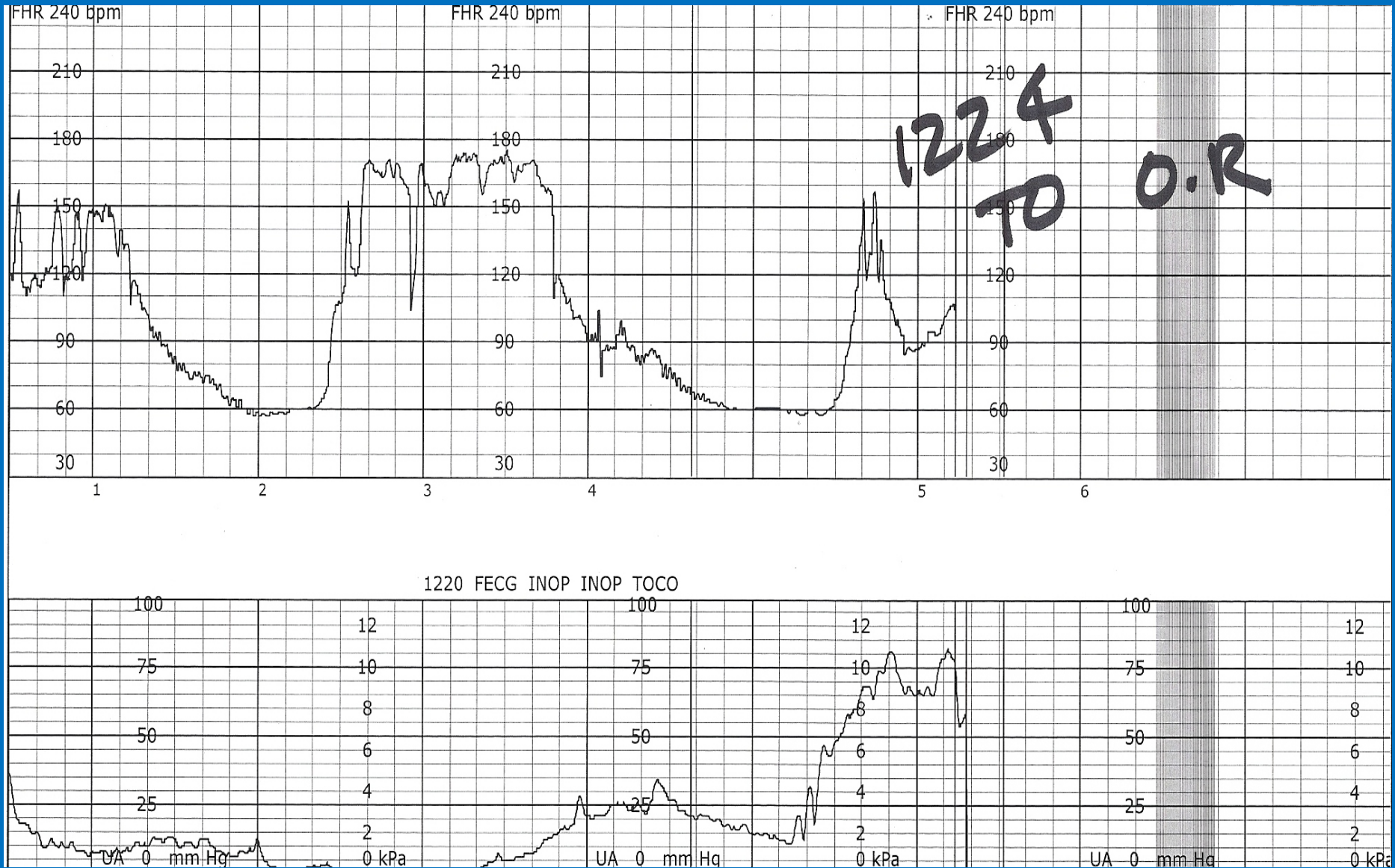
G1P0, VE 9/100%/-1 for the last 3 hours.



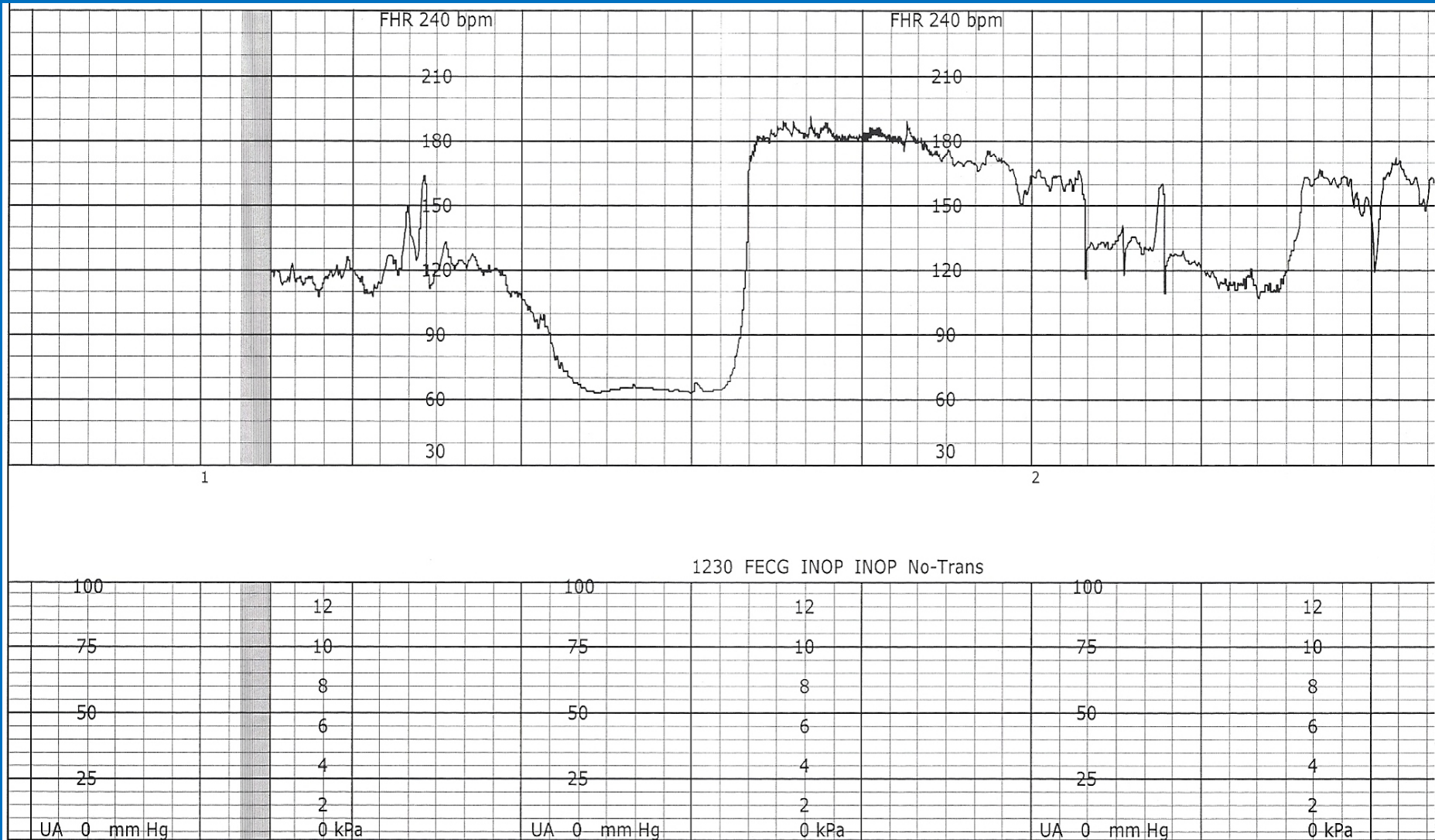
1210 FECG INOP INOP TOCO



10 minutes later...



5 minutes later the patient was transferred
to the OR...



Outcome...

- Decision made to perform C/S
- Apgars 8/9
- Cord blood gases
 - PCO₂ 70
 - PH 7.14
 - HCO₃ 24
 - BE -7.5

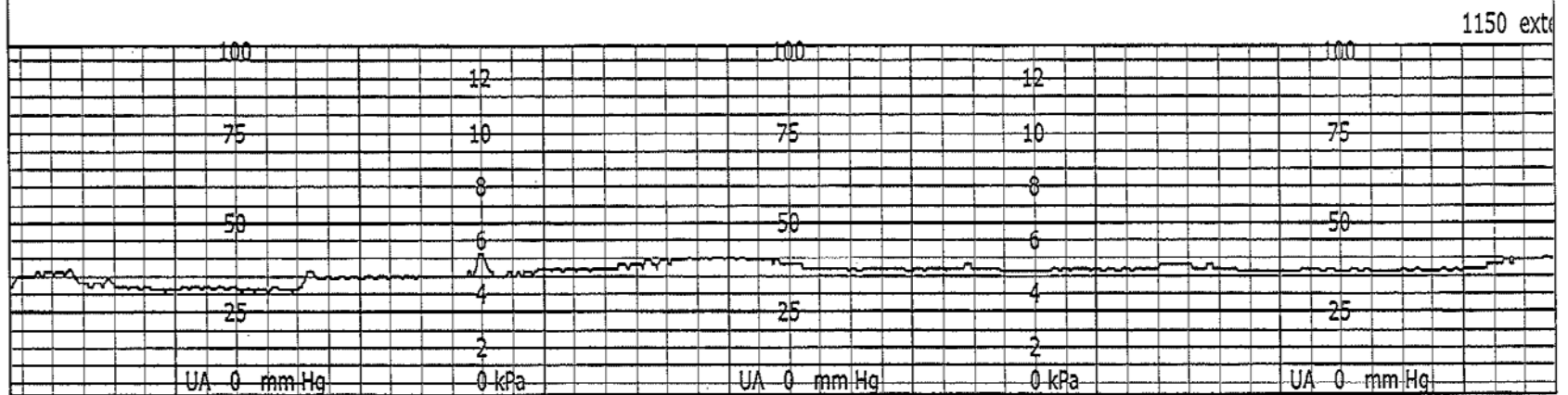
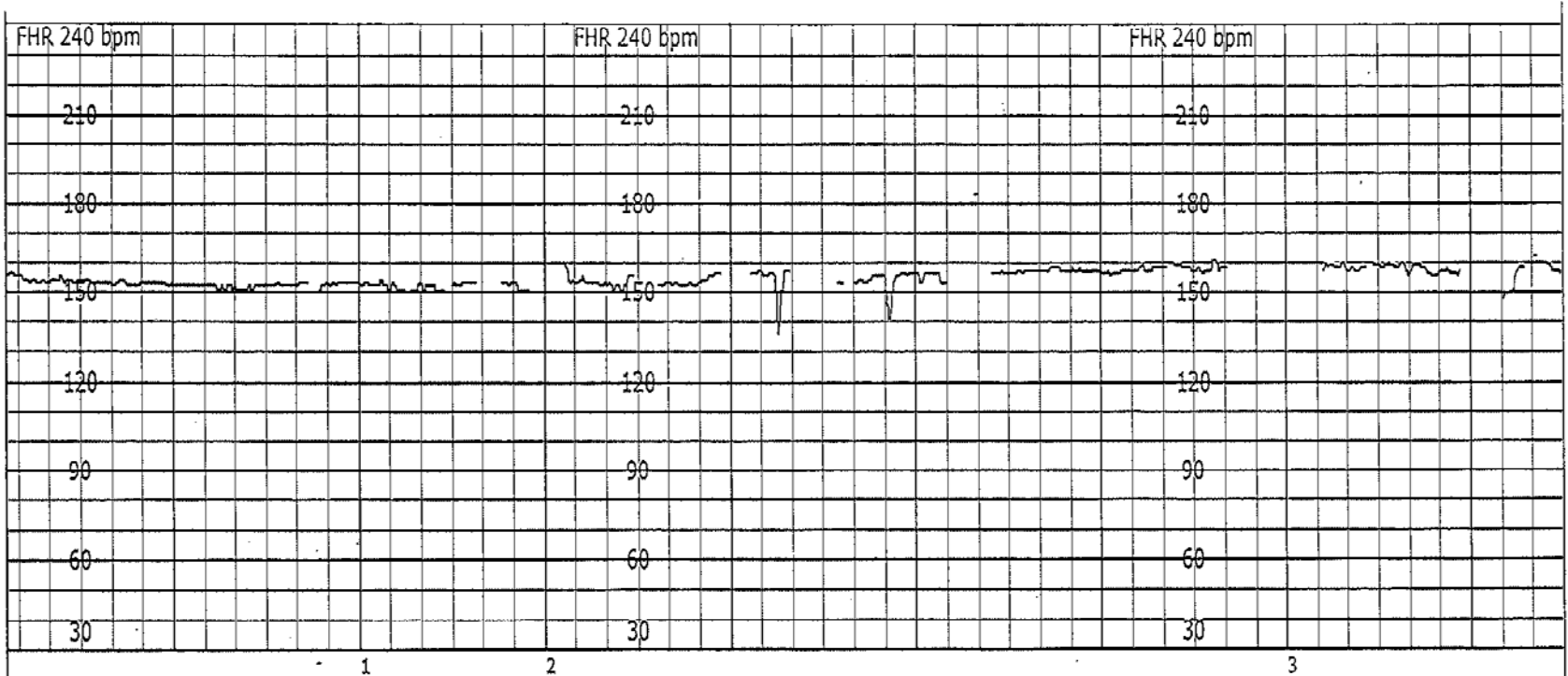


Fundamental Truths of FHR Monitoring

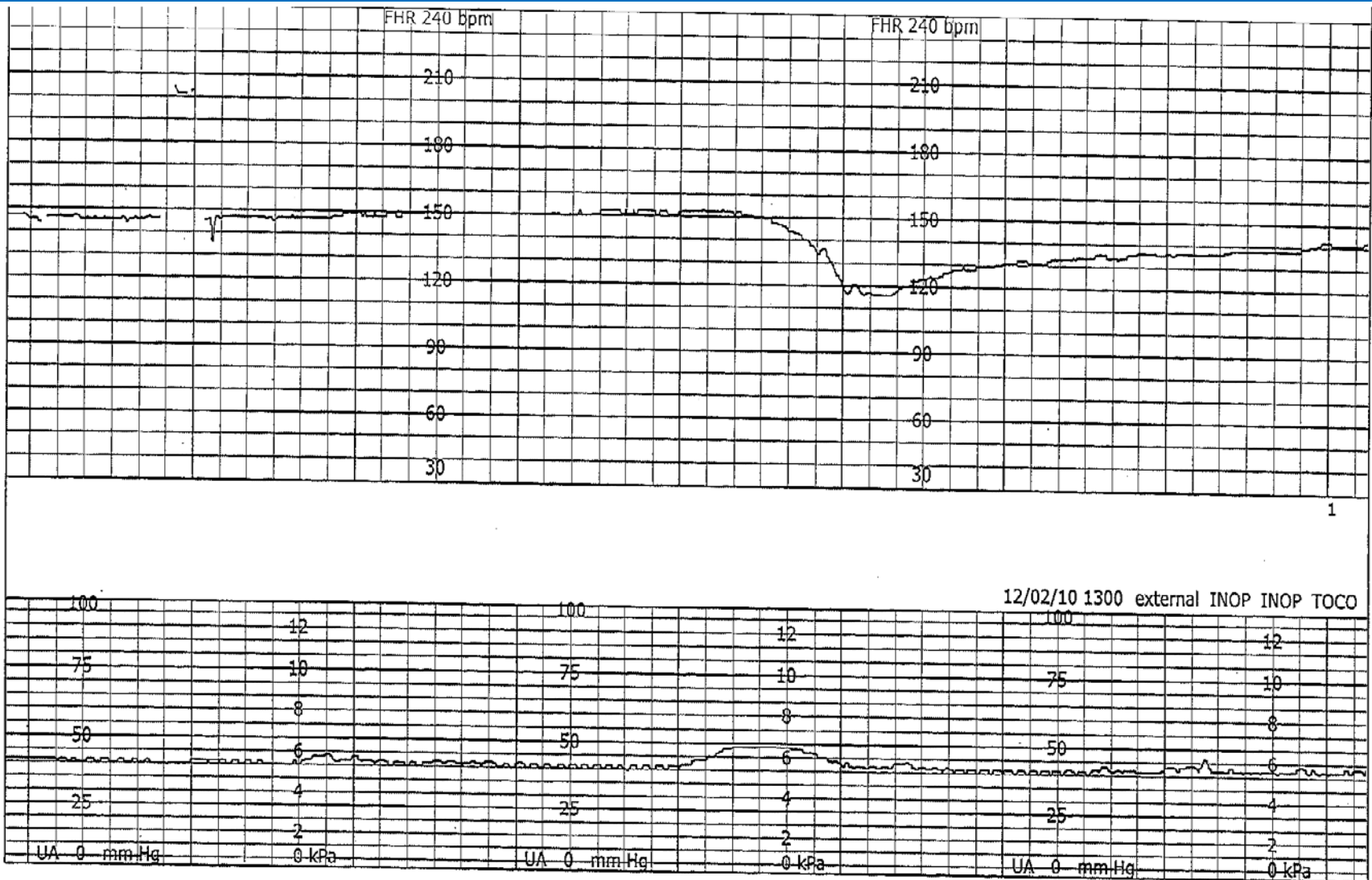
- The *positive predictive value* of intrapartum FHR monitoring, as it is used in actual clinical practice, is essentially zero.
- The *negative predictive value* of intrapartum FHR monitoring is nearly 100%.

Trying to use intrapartum FHR monitoring to diagnose neurologic injury is a recipe for failure.

BUT relying on the presence of moderate variability or accelerations, or both, to confirm adequate fetal oxygenation allows the clinician to formulate a rational, evidence-based plan of management that reflects consensus in the literature



~ Name that Category ~



SAVE THE PLACENTA!!

If it shows both chorioamnionitis
and funisitis
and umbilical arterial pH is above 7,
the cerebral palsy is
not believed to have been caused by
asphyxia.

THANK YOU.

Special thanks to Dani

Questions?

Amen Ness, MD

Clinical Assistant Professor
Department of Obstetrics and Gynecology
Division of Maternal Fetal Medicine
Stanford/Lucille Packard Children's Hospital

aness@svmh.com

Heather Gocke, RNC-OB, LNC, CPHRM, C-EFM

Director Risk Management/Patient Safety
BETA Healthcare Group

O: (818) 545-3351

hgocke@betahg.com



Join the discussion!

<http://www.betahg.com/join.asp>