**The 2020 SOGC Intrapartum
Fetal Surveillance Guideline Update**

Presented by:

Lauren Rivard
Catherine Gascon

Disclosures

Lauren Rivard and Catherine Gascon

- We do not intend to make therapeutic recommendations for medications that have not received regulatory approval (i.e. "off-label" use of medication).
- We do not have a relationship with a for-profit and/or a not-for-profit organization to disclose.
- No financial or in-kind support was received from a commercial organization to develop this presentation.
- Speakers have not received any payment, funding or in-kind support from a commercial organization to present at this event.

Learning Objectives

1 min.

After this session, participants will be able to:
- Identify the what has stayed the same and what has changed in the 2020 SOGC Intrapartum FHS Guideline
- Discuss the focus of the principles of Intrapartum FHS
- Describe IA and EFM classification, interpretation and response
- Review the classification of IA and EFM tracings

Format of 2020 FHS Guideline

The new guideline includes:

- List of what has changed and strength of evidence for the change
- Tables and algorithms
- Definition table
- Appendix of physiology

What will optimize outcomes?

- Team work and communication

- Contextualize care in light of the total clinical picture

- Engage in initial and ongoing FHS education every 2 years

- Multidisciplinary reviews of clinical situations

Maintaining Standards in Fetal Surveillance

- **All providers** of intrapartum obstetrical care (Physicians, Nurses, Midwives) commit to formal education in fetal health surveillance (FHS) and maintain up to date competence with formal education review of **both IA and EFM** every 2 years. (II-B)

- Each **facility should provide** opportunities for all intrapartum care providers (Physicians, Nurses, Midwives) to regularly attend an interdisciplinary educational discussion of FHS clinical situations, **including both IA and EFM,** to ensure common terminology, shared understanding and to foster the concept of team responsibility (III-C).
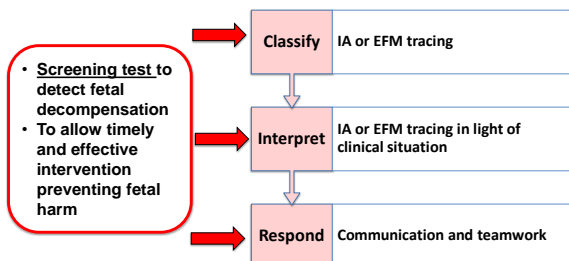
In Canada

- Canadian Association of Midwives (CAM) requires FHS every 2 years

- Canadian Association of Perinatal and Women's Health Nurses (CAPWHN) has recommended FHS education every 2 years

- British Columbia individual facilities require MDs, RNs and RMs to have FHS educational certificate every 2 years to maintain privileges
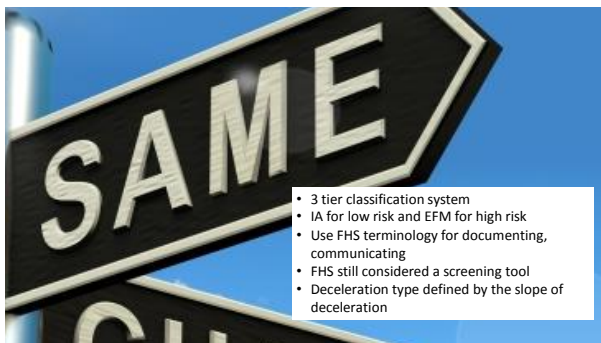
- 3 tier classification system
- IA for low risk and EFM for high risk
- Use FHS terminology for documenting, communicating
- FHS still considered a screening tool
- Deceleration type defined by the slope of deceleration

Intrapartum Fetal Surveillance: The Principles

- **Screening test** to detect fetal decompensation
- To allow timely and effective intervention preventing fetal harm

Classify — IA or EFM tracing

Interpret — IA or EFM tracing in light of clinical situation

Respond — Communication and teamwork

RECOMMENDED CHANGES IN PRACTICE

Terms (see online Appendix A for definitions)	• Tachysystole: any excessive uterine activity (UA). • Repetitive decelerations: 3 or more decelerations in a row. • Recurrent decelerations: decelerations that occur with ≥50% of contractions in a 20-minute period. • Intermittent decelerations: decelerations occurring with <50% of contractions in a 20-minute period. • Episodic gradual deceleration: gradual deceleration (≥30 seconds from onset to nadir) not associated with a contraction. • Interpretable electronic fetal monitoring: electronic fetal monitoring tracing that has a continuous display of the fetal heart rate and uterine activity with minimal gaps.
Uterine activity (UA)	• Document frequency of uterine activity as number of contractions present in a 10-minute window, averaged over 30 minutes. • If fetal heart rate is atypical or abnormal in the first 10 minutes, initiate a response without averaging over 30 minutes.
Intermittent auscultation (IA)	• Monitor pregnancies ≥370 weeks gestation in healthy women in spontaneous labour without perinatal risk factors via intermittent auscultation (IA). • While the presence of spontaneous accelerations is a normal finding, it is not required in order for the fetal health surveillance (FHS) assessment to be classified as normal. • If a woman begins labour following cervical ripening, base the determine method of intrapartum FHS monitoring based on ongoing risk factors. • Use a handheld device for IA and not an electronic fetal monitoring (EFM) transducer connected to a hard drive, even if the paper is turned off, because the tracing is saved on the hard drive and retained in the medical record but is not seen by the caregiver. • If a deceleration is heard by IA immediately following a contraction, assess further by having the woman change position and listening after the next contraction OR by immediately initiating EFM. If decelerations persist after the next contraction, initiate EFM if not already initiated to confirm the fetal heart rate pattern. Intrauterine resuscitation should be initiated as required. • If EFM was initiated for abnormal IA, you can discontinue monitoring if the tracing is normal and if you have

Choosing a Method of FHS

- Pregnancies **≥ 37^0** weeks gestation in healthy women in spontaneous labour, without perinatal risk➔ monitor using IA

- If a woman begins **labour following cervical ripening**, the method of intrapartum fetal health surveillance monitoring is determined by the ongoing risk factors

- Recommendation when EFM may be beneficial is divided into recommended and **could consider**

Admission Fetal Heart Tracings are NOT recommended for women without risk factors

Cochrane Syst Rev **2012**
- ⇧ probability of CS (~20%), EFM, FBS
- No difference: AVB, fetal/neonatal deaths, etc.
- No evidence of benefit and it should not be used
- Women should be informed...

  Devane, Cochrane Database Syst Rev 2012;

- Expert panel did not feel that the ADCAR trial was sufficient to suggest changing practice in Canada.

Conditions Associated With Adverse Fetal Outcome Where EFM May Be Beneficial		
Note: this list is not exhaustive and should not rep~~~~ Pre-pregnancy BMI >35 consider EFM (FECG+/-IUPC if needed)		
Antenatal Conditions		
	EFM is recommended	**EFM should be considered**
Maternal	• Hypertensive disorders of pregnancy • Diabetes: Pre existing and gestational • Medical disease (e.g. cardiac, significant anemia, hyperthyroidism, vascular and/or renal disease) • Motor vehicle collision / trauma (EFM recommended for a minimum of 4-6 hours) • **Maternal perception of reduced or absent fetal movements** • Antepartum hemorrhage	• **pre-pregnant BMI >35 kg/m^2** • Others factors (smoking, substance use, limited prenatal care)

Antenatal Conditions		
	EFM is recommended	**EFM should be considered**
Fetal	• Intrauterine growth restriction • Abnormal umbilical artery Doppler velocimetry • **Single umbilical artery** • Oligohydramnios • Polyhydramnios • Abnormal BPP or NST • Significant fetal abnormality (compatible with life) • Isoimmunization • Multiple pregnancy • **Velamentous cord insertion**	• **3 or more nuchal loops**

Intrapartum Conditions		
	EFM is recommended	**Considered**
Maternal	• Vaginal bleeding in labour • Intrauterine infection/ Chorioamnionitis • Previous Caesarean Section / Trial of labour after CS • Prolonged ROM at term (>24 hours) • **Combined spinal-epidural analgesia** • Oxytocin induction or augmentation • Post term pregnancy (> 42 weeks gestation) • Labour dystocia • **Tachysystole** • Difficulties in reliably determining UA and/or FHR with IA	
Fetal	• Abnormal FHR on auscultation • **Prematurity (<37^0 weeks)** • Meconium staining of the amniotic fluid • Breech presentation • **FHR Arrythmia**	

Contractions

- **Frequency:**   **≤ 5 in 10 min (averaged over 30min)**
- Duration: ≤ 90 seconds
- Configuration: regular, symmetrical
- Intensity: Palpation: mild, moderate, or strong
 IUPC: >25 and less than 75mm/Hg
 (*except during active second stage*)
- Resting tone**:**   Palpation: uterus soft for ≥ 30 seconds
 IUPC:<25mmHg for ≥30 sec

Tachysystole
Describes all forms of excessive uterine activity

- Frequency: > 5 (6) contractions in 10 minutes, averaged over 30 minutes
- Duration: lasting more than 90 seconds
- Resting tone: soft resting tone for less than 30 seconds OR the uterus remains firm by palpation (>25mmHg via IUPC) between contractions

If FHS atypical or abnormal at any point a response required

Tachysystole:

- ***The terms "hypercontractility" & "hyperstimulation" should be abandoned!**
  - [1] Macones et al, NICHHD, Ob Gyn VOL. 112, NO. 3, SEPT. 08

Determine and document Maternal Heart Rate

1. When initially determining baseline FHR
2. Any time there is uncertainty about FHR and MHR
3. During labour:
   - Active 1st & passive 2nd stage
     - Intact membranes: **q4h**
     - With ROM: **q2h**
   - Active 2nd stage: **q15-30min**

Auscultation Technique

- Palpate:
  - presentation (Leopold's Maneuvers)
  - contraction freq., duration, intensity & rest. tone
- Auscultate
  - device (Doppler, Pinard)
  - over back/shoulder max intensity
  - document mother's pulse and **differentiate from FHR**
  - establish baseline between contractions for a **full minute (60 sec.)**
  - then: assess FHR for 30-60 sec. **immediately after** contractions

Intermittent Auscultation Recommendation

"Use a handheld device for IA and not an EFM transducer connected to a hard drive, even if the paper is turned off, because the tracing is saved on the hard drive and retained in the medical record but is not seen by the caregiver"
(SOGC, p.317, 2020)
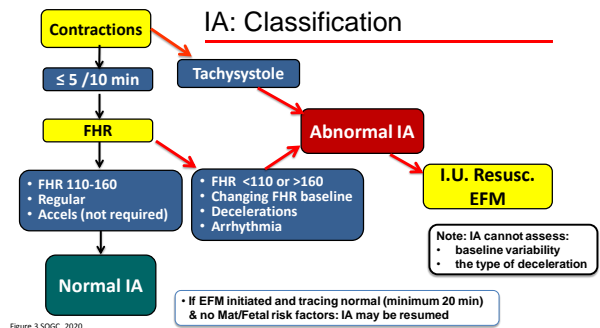
Intrapartum FHS without Risk Factors: IA

- Screening test "sensitive enough"
- Skilled surveillance & response
- Assessment: **Normal** or **Abnormal**

Frequency of IA Assessment

Frequency depends on the stage of labour
- Q 15-30 minutes in active labour
- Q 15-30 minutes in passive 2nd stage
- Q 5 minutes or immediately following each contraction in active 2nd stage

IA: Classification

Figure 3 SOGC, 2020

Contractions → ≤ 5 /10 min → FHR

Tachysystole → Abnormal IA

- FHR 110-160
- Regular
- Accels (not required)

→ Normal IA

- FHR <110 or >160
- Changing FHR baseline
- Decelerations
- Arrhythmia

→ I.U. Resusc. EFM

Note: IA cannot assess:
- baseline variability
- the type of deceleration

- If EFM initiated and tracing normal (minimum 20 min) & no Mat/Fetal risk factors: IA may be resumed

Intrapartum INTERMITTENT AUSCULTATION (IA) Classification (SOGC, 2020)

Parameters	NORMAL	ABNORMAL
Baseline	• FHR 110-160 bpm	• FHR < 110 bpm • FHR > 160 bpm • Changing baseline
Rhythm	• Regular	• Irregular
Accelerations	• May or may not be heard	•
Decelerations	• Not heard	• Heard
ACTIONS:	• Continue IA • Promote maternal comfort and fetal oxygenation • Provide supportive care	• Auscultate again following next contractions to confirm what was heard • Assess potential causes and attempt to eliminate/reduce effects of problem • Intervene to improve blood flow and oxygenation • Review overall clinical situation • Initiate EFM to obtain tracing of FHR characteristics • Notify physician • Consider fetal scalp sampling • Consider delivery

When IA is classified as Abnormal

- Unless delivery is imminent, initiate EFM and intrauterine resuscitation as indicated.

- If a deceleration is heard by IA immediately following a contraction, assess further by having the woman change position and listening after the next contraction OR by immediately initiating EFM. If decelerations persist after the next contraction, initiate EFM if not already initiated to confirm the fetal heart rate pattern. Intrauterine resuscitation should be initiated as required

- If EFM is initiated in response to abnormal IA and the EFM tracing is normal (usually for a minimum of 20 minutes) and there are no maternal or fetal risk factors, the IA may be resumed.

EFM Tracing Systematic Classification, Interpretation and Response

1. **Assess:** risks, gest, lab. stage, mat. intuition, meds etc.
2. **Uterine activity** – environment
3. **Fetal heart rate pattern**
   a. Baseline
   b. Variability
   c. Accelerations & Decelerations

   Ensure fetal, not maternal throughout!

4. **Classify** the tracing:
   - **Normal**, **Atypical** or **Abnormal**
5. **Interpret** in light of clinical situation
6. **Respond**: communication and teamwork

Decelerations: Two Kinds

1. **Abrupt** (onset to nadir <30s & ≥15 bpm x ≥15 sec.)
   = **Variable**
      a) **Uncomplicated**
      b) **Complicated**
   – If ≥ 2 min: Prolonged deceleration
   – If ≥ 10 min: Baseline change

2. **Gradual** (onset to nadir ≥ 30s*), usually symmetrical, no depth criteria
      a) **Early:** Onset, nadir & recovery **coincident** with onset, peak & end of contraction
      b) **Late:** Onset, nadir & recovery **after** onset, peak & end of contraction

5

What's in a word?

Periodic: with contractions	Episodic: not with contractions
Repetitive: ≥3 in a row	Non-repetitive: 1 or max. 2 in a row
Recurrent: ≥ 50% in 20 min	Intermittent: <50% in 20 min

Area of deceleration

"Deceleration area is the most predictive EFM pattern for acidemia, and combined with tachycardia for significant risk of morbidity, from the EFM patterns studied."

Cahill et al AJOG, vol 218, issue 5, May 2018, Pages 523.e1-523.e12

Early Deceleration

1 min.
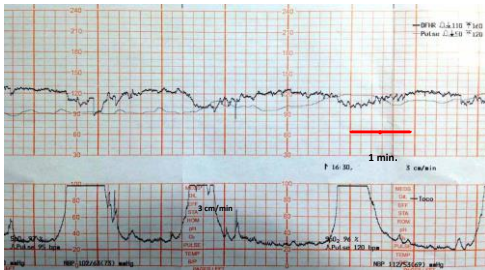
Variable Deceleration - Uncomplicated

Complicated Variable Decelerations

1. **Failure to return to baseline by end of contraction**
2. **Lasting ≥ 60 sec. AND down to ≤ 60 bpm or decrease by ≥ 60 bpm below baseline**
3. **Overshoot**
4. **In the presence of a baseline abnormality:**
   – **Absent or minimal variability**
   – **Tachycardia/bradycardia**

"Rule of 60's"

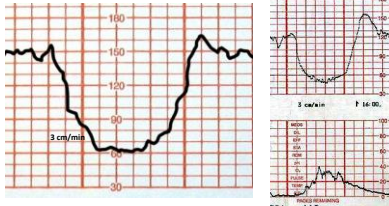**Complicated Variable Decelerations**

1. **Failure to return to baseline by end of contraction**.
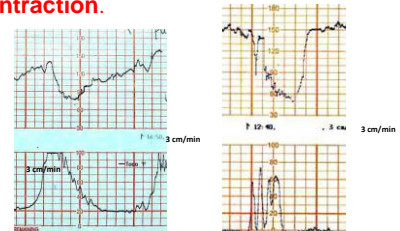
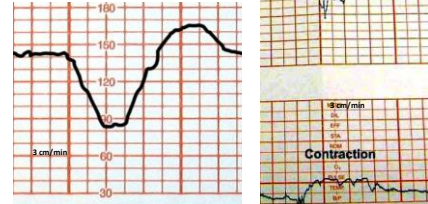Complicated Variable Decelerations

2. To ≤ 60 bpm or by ≥ 60 bpm from baseline and lasting ≥ 60 seconds

"Rule of 60's"
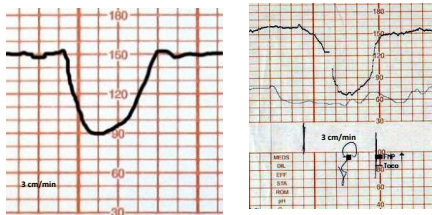

Complicated Variable Decelerations

3. Overshoot

≈ 20 bpm ↑ for 20 sec.

Complicated Variable Decelerations
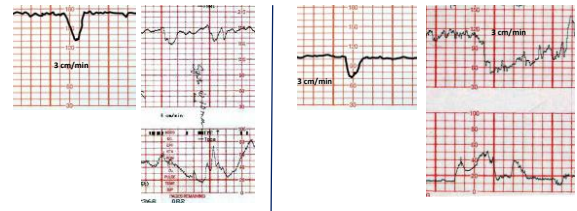
4. In the presence of a baseline abnormality:
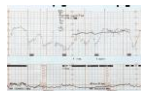
a) Absent or minimal variability

Complicated Variable Decelerations

4. In the presence of a baseline abnormality:

b) Tachycardia/bradycardia

EFM Artifact: A problem! (55%)

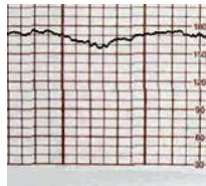All patterns attributed to the FHR can be mimicked by MHR.

- E.g. baseline variability, accelerations (usually occurring during contractions) and decelerations (including variable, early and late types). (Ramadan 2019)
- Particularly in the active second stage when the mother may be tachycardic with increases in HR with pushing (e.g 100 -167 bpm).
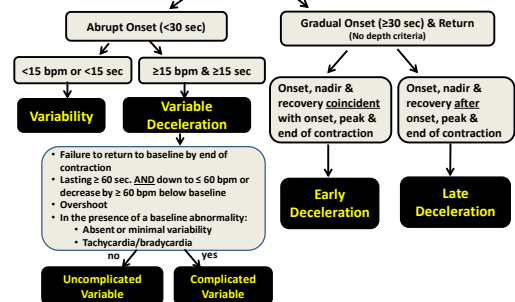
Late Decelerations
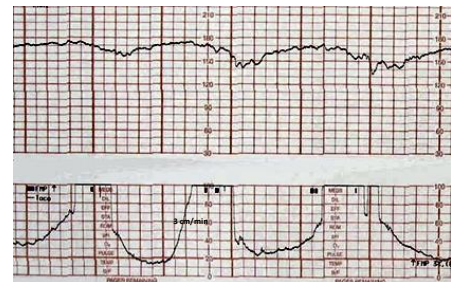
Episodic gradual deceleration

- When gradual decelerations are not associated with identifiable contractions.

Decrease in FHR

Abrupt Onset (<30 sec) | Gradual Onset (≥30 sec) & Return (No depth criteria)

<15 bpm or <15 sec → **Variability**

≥15 bpm & ≥15 sec → **Variable Deceleration**

Onset, nadir & recovery coincident with onset, peak & end of contraction → **Early Deceleration**

Onset, nadir & recovery after onset, peak & end of contraction → **Late Deceleration**

- Failure to return to baseline by end of contraction
- Lasting ≥ 60 sec. AND down to ≤ 60 bpm or decrease by ≥ 60 bpm below baseline
- Overshoot
- In the presence of a baseline abnormality:
  - Absent or minimal variability
  - Tachycardia/bradycardia

no → **Uncomplicated Variable**

yes → **Complicated Variable**

Uninterpretable tracing

WHAT TO DO?

- **Document what you did to improve the tracing**
- Consider internal monitoring

Frequency of EFM Assessment

Frequency depends on the stage of labour:

- Q 15 minutes in active labour
- Q 15 minutes in passive 2nd stage Q 15 minutes in active 2nd stage If continuous interpretable tracing AND caregiver continuously present (note – if not interpretable increase frequency of documentation to q 5)

Summary of Recommended Frequency of Assessments and Documentation			
	IA FHS	EFM FHS	MHR*
Latent phase, if admitted to birthing area or individualized based on mat/fetal status if in triage or midwifery care at home (not admitted to hospital)	Q 1 hr	Q 1 hour	• On admission & when determining baseline FHR • Any time there is uncertainty about FHR and MHR
Active 1st & passive 2nd stage	Q 15-30 min.	Q 15 min.	• Q 4 hrs with intact membranes OR • Q 2 hrs with ruptured membranes
Active 2nd stage	Q 5 min.	Q 15 min. If continuous tracing & caregiver presence	• Q 15-30 min. SOGC 2020

Intrapartum ELECTRONIC FETAL MONITORING (EFM) Classification (SOGC, 2020)

Parameter	NORMAL Tracing	ATYPICAL Tracing	ABNORMAL Tracing
UTERINE ACTIVITY	• Normal Contractions		
	• Tachysystole may be present with normal, atypical or abnormal tracings. Monitor closely for concerning FHR characteristics.		
BASELINE	• 110-160 bpm	• 100-110 bpm • > 160 bpm for 30 min. to 80 min. • Rising baseline • Arrhythmia (irregular rhythm)	• < 100 bpm • > 160 bpm x > 80 min • Erratic baseline
VARIABILITY	• 6-25 bpm • ≤5 bpm for < 40 min	• ≤5 bpm for 40-80 min.	• ≤ 5 bpm for > 80 min. • ≥ 25 bpm for > 10 min • Sinusoidal
ACCELERATIONS	• Spontaneous accelerations but not required • Acceleration with scalp stimulation	• Absence of acceleration with scalp stimulation	• Usually absent (accelerations if present, do not change classification of tracing)
DECELERATIONS	• None • Non-repetitive uncomplicated variables decelerations • Early decelerations	• Repetitive uncomplicated variables • Non –repetitive complicated variables • Intermittent late decelerations • Single prolonged deceleration for > 2 min. but < 3 min.	• Repetitive complicated variables • Recurrent late decelerations • Single prolonged deceleration for > 3 min but < 10 min.

Umbilical Cord Blood Gases

- Artery and vein recommended for **ALL births**

Ua blood gas

Uv blood gas

"Normal" UA		Ranges	Criteria of Concern
pH	**7.27**	**7.20** - 7.34	**< 7.0**
pCO$_2$	**50.3**	39.2 - **61.4**	
HCO$_3$	**22.0**	**18.4** - 25.6	
B.D.	**2.7**	0.1 - **5.5**	**≥ 12**

(Riley, 1993)

Intrauterine Resuscitation

- Call for help, teamwork
- Change maternal position
- Assess & document maternal vs's
- Maintain optimal uterine blood flow
  - ↓ or D/C oxytocin – consider tocolysis
  - modify or pause pushing
  - IV fluid bolus ONLY if indicated by maternal hypovolemia and/or hypotension
  - Vag. Exam to rule out cord prolapse, consider amnioinfusion
- Support woman/family
- Maternal oxygen administration should be reserved for maternal confirmed maternal hypoxia or hypovolemia

> IV Nitroglycerine

If additional testing required

Fetal Scalp Stimulation
- Done when uncertain about tracing
- Assessment NOT TREATMENT
- Acceleration = pH of 7.19 at the time of the accel

Fetal Scalp blood sampling
- pH
- **Lactate (faster, less blood required)**

Paper Speed!

1 cm/min
(2 squares)

2 cm/min
(4 squares)

NEW!

3 cm/min
(6 squares)

Big News!
One Canadian
paper speed!
3 cm/min

Documentation

- Canada moving to paper speed of 3 cm/min

- Rationale for method of monitoring and discussion with the woman should be included in narrative charting

- Writing on tracing may be helpful in flagging time of key events (e.g. cervical check, epidural, vomiting, steps in intrauterine resuscitation)

- Ensure timing on tracing is consistent with narrative and flow sheet/ EMR documentation

Now What?

- Ongoing FHS Instructor Update Education

- FHS Update PowerPoints – How do I get them?

- CME – MOC Section 1 credits for Specialists and Family Physicians

- FHS Education during a Pandemic…

Questions?

- If you require CME credits, please email Lauren at
larivard@cmnrp.ca