CAPWHN FHS Webinar

Response to questions raised during the webinar
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Index to questions and answers

These responses were created and reviewed by the Guidelines authors (SD, WE) and cochairs of the FHS steering committee (responsible for the online education and resources) (LR, HE)

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ACCESS

Who can access the recorded webinar?

- Access to recorded webinars is a benefit of CAPWHN membership; we open the live webinars to non-members but only CAPWHN members can access the recorded webinar
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- CAPWHN membership has many benefits; there are different categories of membership - check out which one fits for you – RN active membership is only $139 annually

GENERAL GUIDELINE

1) Intrapartum guideline

This guideline only addresses intrapartum care; another working group is addressing antenatal fetal surveillance; questions on NST's will be included in that guideline.

2) **Corrected reference**

- Reference 52 in the guideline has no relevance to steroid effect and is misplaced.

UTERINE ACTIVITY

1) Counting contractions

What if you are documenting and interpreting contractions every 15 minutes, are you still looking at an average over 30 min or are you picking a 10 minute window in that 15 min period?

- the bedside caregiver (nurse or midwife) assesses the average number of contractions in a 10 minute window over the previous 30 minutes
- If you are assessing FHS every 15 minutes, pick a 10 minute window within your 15 minute period, and document the number of contractions – you also document the length, intensity and resting tone
- If you identify >5 contractions in your 10 minute window, continue to assess contraction frequency to determine if tachysystole is present (this would be > 15 contractions in the 30 minutes providing an average of more than 5 contractions in 10 minutes)
- If a tracing is atypical or abnormal in the first 10 minutes of 5 contractions; do not delay, a response is required.

2) Tachysystole

Why is one contraction >90 sec defined as tachysystole? The same with decreased resting tone occurring only once? Why does one incident of tachysystole classify the FHS interpretation through IA as Abnormal?

Tachysystole is the term used to describe all forms of excessive uterine activity:

- > 5 contractions per 10-minute period averaged over 30 minutes and/or

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- Inadequate resting tone: uterine resting period between contractions of < 30 seconds OR the uterus does not return to resting tone between contractions, and/or
- Prolonged contraction: lasting > 90 seconds

Tachysystole results in decreased blood flow to the fetus.

Prolonged contractions:

A contraction that is assessed through palpation as being 90 seconds in length would in fact be longer as uterine contractions are not palpable until the intrauterine pressures reach above 15mmHg. If monitoring using a toco (that was working appropriately) or an IUPC, the contraction length would be longer than the perceptible calculated length when monitoring through palpation alone.

During a uterine contraction, where pressures exceed 50 mmHg (contraction palpated as moderate or strong in strength) utero-placental blood flow ceases. This causes impaired gas exchange, not allowing the fetus to be the recipient of oxygen for a prolonged period. The fetus has an ability to withstand these repeated periods of transient hypoxia when they do not exceed 60-80 seconds (Gary & Williams, 2010).

Decreased Resting Tone:

A shortened resting tone can lead to excess constriction of the spiral arterioles and increased intervillous space pressure. These spiral arterioles provide oxygen delivery to the placenta and fetus. When there is limited resting tone it may result in reduced perfusion pressure and thus reduced placental blood flow. (Heuser et al., 2013).

1) If resting tone of < 20 mmHg does not occur between 2 contractions, fetal gas exchange is impaired.
    a. If IU pressure is maintained at 30-40 mmHg there is constriction of blood flow and gas exchange is impaired; If resting tone pressures remain above 50mmHg no gas exchange is occurring (i.e. no oxygen is being delivered to the fetus and no waste products are being expelled).

3. Recommended Response to Tachysystole

- Initiate EFM.
    b. If EFM is initiated for abnormal IA, IA may be resumed if the EFM is normal after 20 minutes or more of EFM and if there are no maternal fetal risk factors;

Initiating EFM for abnormal IA does not mean EFM must continue for the remainder of the labour.

2) At a home birth with monitoring by IA, the care provider would recognize the contraction is > 90 seconds, assess the FHR in association with the uterine activity (immediately following the contraction), assess the overall clinical picture and then in collaboration with the pregnant person, discuss the findings and decide whether to transfer to hospital for EFM assessment.
3) Document all findings including the classification of findings, interventions, reassessments/evaluations and communications with the patient, family and care team.

4. Nitroglycerine as a Response to Tachysystole

For tachysystole, the guideline suggests IV Nitroglycerine as an intervention - is this still a practice? What is the dose, route of administration and monitoring requirements?

- IV Nitroglycerine is recommended as a treatment for tachysystole.
  - However, safety and efficacy remains inconclusive
    Sublingual Nitro has no evidence of effectiveness and will give the woman a headache.
- The ALARM Manual recommended dose is:
  - 50mcg IV doses every 90 seconds to 3 minutes to a maximum of 200mcg over 15 minutes
  - Many facilities have developed a compact Nitro emergency kit that includes the drug, instructions on mixing and equipment to administer the drug
- It is important to know your organizations policy on who can mix and administer IV Nitroglycerine and what the minimal monitoring requirements are. Some facilities reserve the administration to physicians only, while others will allow administration by RN's in the presence of a physician.

5. Toco for contractions and IA for FHR

Is it possible to use the toco only for contractions--and do IA?

- A toco can only provide information on the frequency and duration of contractions; palpation is required for strength or intensity of the contractions and assessment of resting tone. Regardless of whether you monitor the FHR via IA or EFM, if using a toco you MUST palpate the uterus for assessment of strength and resting.

Choosing a method of FHS

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1. **Cervical Ripening**

You mentioned the method of fetal health surveillance after cervical ripening has occurred. I understand this would mean that we do not recommend fetal health surveillance while the parturient is undergoing cervical ripening (i.e., latent phase) even in the context of high risk factors.

- FHS is part of the initial assessment prior to initiating cervical ripening. If the initial assessment is not classified as normal – ongoing and additional assessment of the fetus and communication with the primary health care provider is warranted.
- Immediately following insertion of a foley or administration of any cervical ripening medication, FHS is continued/re-initiated to determine the fetal and uterine response to the intervention (e.g. change in FHR, tachysystole).
- Following defined periods of assessment, some facilities will allow a mother with no perinatal risk factors to go home or to walk around without ongoing FHS until there is change in the labour status.
- The need for continuing FHS following cervical ripening is determined based on the perinatal risk factors; patients with increased risk may require increased surveillance throughout their cervical ripening.

- When induction of labour is initiated with oxytocin EFM is recommended.

2. **Epidural**

When is IA appropriate for patients with epidurals?

- The 2020 Guideline continues to support the use of IA with epidurals and Patient Controlled Epidural Anesthesia (PCEA).
- Combine Spinal Epidurals (CSE) are associated with a greater risk of maternal hypotension associated with FHR changes. Therefore EFM is recommended for patients who receive a CSE.

3. **VBAC / TOLAC**

When monitoring a patient undergoing a TOLAC do you use EFM in all stages of labour?

- Yes, patients who are having a TOLAC/VBAC should be monitored via EFM once they are in active labour. The purpose of monitoring in TOLAC situations is to identify FHR changes that often precede uterine rupture. These FHR changes include recurrent late decelerations, complicated variables and prolonged decelerations which are possible

indications of impending uterine rupture and have been noted to be present up to an hour prior to diagnosis of a uterine rupture.
- This is also true if for a woman who has had previous uterine surgery.

4. Discontinuing EFM

When can we switch from EFM back to IA?

- The purpose of including a statement about returning to IA after initiating EFM (for an Abnormal IA finding) was to reduce unnecessary medicalization and interventions.
- Clinicians can switch back to monitoring low risk patients via IA following a minimum of 20 minutes of EFM classified as normal (using the standard EFM classification criteria) provided there are no new perinatal risk factors that would indicate the need for ongoing EFM.

Intermittent Auscultation

1. **Timing in 2nd Stage**

At times in second stage it is difficult to ausculate for 60 seconds. Is a 30 second count sufficient? Is there a counting method that is preferred? In 2nd stage you are auscultating the FHR immediately following a contraction, this can be done over 30 or 60 seconds

- There is little evidence to support counting methods.
- Once the baseline FHR is established by assessing one full minute, the use of the 6 second count immediately following contractions (count for 6 seconds, multiply by 10), conducted multiple times in succession (over 30 to 60 seconds) will give you a quick indication of the FHR in that 6 second window. This method may be more sensitive in detecting subtle changes in the baseline immediately following a contraction alerting the clinician to potential decelerations that may not be easily identified by counting over longer periods of time. For example if the baseline had been calculated at 150 and immediately following a contraction you conduct six, six seconds counts obtaining the following numbers: 13, 13, 14, 14, 14, 15, you could deduct that the FHR immediately following the contraction was 130, 130, 140, 140, 140 then 150, this provides information that the FHR was lower than the baseline immediately following the contraction.

2. **WHEN to do IA**

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Are there any additional times that IA should be done in labour outside of minimally suggested frequencies (such as after ROM, after analgesia, after vaginal exam, etc.)?

Additional Indications for IA outside of the minimally suggested frequencies would include:

Assessing the FHR and UA before:

- initiation of labour-enhancing procedures (e.g., amniotomy)
- administration of medications
- administration of or initiation of analgesia/anesthesia
- transfer or discharge

Assess FHR and UA after:

- admission or transfer
- artificial or spontaneous rupture of membranes
- vaginal examinations or other relevant procedures
- administration of or initiation of analgesia/anesthesia
- any untoward event during labour* (e.g., hypotension, bleeding, uterine tachysystole)
- *move to EFM when it becomes the most appropriate fetal assessment method.

- (Canadian FHS Online Manual 2020 Update – In Press)

3. **Gestation for IA**

Why was IA changed from 36 to 37 completed weeks?

- The definition of preterm is labour is labour occurring at $<37^0$ weeks gestation. IA is used for term, not preterm fetuses thus the gestation was changed to be consistent with the definition.

4. **TOCO without Transducer**

Is it possible to use the toco only for contractions--and do IA?

- A toco can only provide information on the frequency and duration of contractions; palpation is required for strength or intensity of the contractions and assessment of resting tone. Regardless of whether you monitor the FHR via IA or EFM, if using a toco you MUST palpate the uterus for assessment of strength and resting.

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- There would need to be careful consideration to whether using the toco would provide any benefits? In most cases where IA is appropriate, the toco would limit movement and comfort of the labouring person.

EFM

1) Preterm EFM

Is there any FHS criteria for EFM interpretation for a fetus of less than 28 weeks?

- Initiating EFM in a preterm labour should be done if the fetus is viable and the decision has been made to actively resuscitate the fetus upon birth.
- If the fetus is not expected to survive or if the family has decided to provide comfort care only, discussion around the utility of EFM monitoring should occur and be documented.
- EFM monitoring can be done on fetus' 22-24 weeks and older although it is more difficult to obtain and maintain interpretable data.
- The criteria for accelerations in a fetus <32 weeks gestation is a 10bpm increase above baseline over a total of 10 seconds..
- For very early gestation fetuses variability, although commonly moderate, may not be as evident, this is due to their immature parasympathetic nervous system; variability is usually moderate by 32 weeks' gestation.

2) Baseline EFM

How to do baseline FHR ?

- Baseline FHR is the approximate mean FHR rounded to increments of 5 bpm during a 10-minute period, excluding accelerations or decelerations or periods of marked FHR variability. There must be 2 minutes of identifiable baseline (not necessarily contiguous) in any 10-minute window, or the baseline is indeterminate

3) What affects Variability

What is the effect of steroids on variability ?

- Antenatal Betamethasone (121) and dexamethasone steroids have an impact on fetal movements, variability, maternal sleep patterns etc for about 3 days from last administration and then return to normal.(122) Studies report a decrease in fetal heart rate baseline during day 1 and then an increase during days 2 to 3, whereas variability is increased during day 1 and then decreased during days 2 to 3. All values return to baseline during day 4.

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- Verdurmen KMJ, Warmerdam GJJ, Lempersz C, Hulsenboom ADJ, Renckens J, Dieleman JP, et al. The influence of betamethasone on fetal heart rate variability, obtained by non-invasive fetal electrocardiogram recordings. Early Hum Dev. 2018;119:8-14.
- Verdurmen KM, Renckens J, Van Laar JO, Oei SG. The influence of corticosteroids on fetal heart rate variability: a systematic review of the literature. Obstet Gynecol Surv. 2013;68:811-24.
- Jain V, Chari R, Maslovitz S, Farine D, Maternal Fetal Medicine C, Bujold E, et al. Guidelines for the Management of a Pregnant Trauma Patient. J Obstet Gynaecol Can. 2015;37:553-74. Available from: https://www.ncbi.nlm.nih.gov/pubmed/26334607

4) Complicated variable decelerations

If you have 4 complicated decelerations in 10 mins, but not in a row (i.e 2 complicated then an uncomplicated decel then 2 more complicated decels) what is this classified as? I would want to classify it as abnormal...

- Recurrent is a descriptive word for occurring with ≥ 50% of contractions in a 20-minute period. This does not state the number of decelerations but rather the fact that they reoccur. For purposes of classification, recurrent is used only with late decelerations (abnormal)
- Repetitive is a descriptive word when 3 or more occur in a row- there is no specific time frame. For purposes of classification, repetitive is used only with uncomplicated variable decelerations (atypical) and complicated variables (abnormal).
- A tracing showing 4 non-repetitive complicated variable decelerations within 10 minutes would meet the criteria of being atypical unless additional features such baseline concerns were presents e.g. minimal variability, tachycardia or bradycardia (in which case it would be abnormal).
- When reviewing tracings with complicated variables, unless the variables are repetitive (3 or more in a row) the tracing remains atypical. The physiology associated with the complicated variable will be less significant if it is not seen repetitively.
- Assessing the whole clinical picture is essential in cases as you described. Management of this patient if they were nulliparous at 4cm is very different then if they were multiparous at 9cm.

Is variability in the trough of a deceleration still important?

No, we no longer consider variability in the trough of the deceleration as there is no evidence to support assessing this feature. This change occurred in ALARM and MOREOB in 2015. The NICHHD definition clearly associates well-being with baseline variability.

5) Late decelerations

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Not all late decels are 60 secs in length (30 secs to nadir, then 30 secs to return to baseline). Are we still classifying a decel as a late if it meets the gradual & after beg/nadir/end of contraction criteria even if it only lasts 30 - 50 secs?

- It is only the decline that is gradual (≥30 sec.)– there is no criteria for the duration of the return to the baseline

If the duration of a decel is less than 30 seconds (say only 20 seconds) to nadir- is this still considered a late decel? In the past these short late decels were considered to be a late decel.

- The definition of a gradual decline is a gradual FHR deceleration from the baseline (≥30 seconds from onset to nadir) Macones GA, Hankins GD, Spong CY, et al. The 2008 National Institute of Child Health and Human Development workshop report on electronic fetal monitoring: update on definitions, interpretation, and research guidelines. J Obstet Gynecol Neonatal Nurs 2008;37:510–5.
- If a deceleration is characterised by the drop from baseline to the nadir occurring in <30 seconds (i.e. 20 seconds) and it meets the depth (≥15 bpm) and duration (≥15 seconds) it is considered abrupt and is a variable. If it does not meet the depth and duration criteria it is variability.
- In terms of the variable deceleration described, it may be classed as a complicated variable deceleration if it did not return to the baseline by the end of the contraction. . We know complicated variable decelerations and late decelerations are indicating physiological compromise to the fetus. If there are occasional late or a non-repetitive complicated variable decelerations we are looking at an atypical tracing. If recurrent late~~s~~ or repetitive complicated variable~~s~~ decelerations we are looking at an abnormal tracing. If we are considering early vs. variable~~s~~ decelerations we do end up with a different EFM classification.

Is the depth of deceleration taken into consideration for the late decelerations?

- No, late decelerations can be shallow (spoon like) or deep; there is no depth criteria for gradual decelerations (late or early)

Intrauterine Resuscitation

1. Additional Testing

What lactate machines are being used? NOVA test strips do not calibrate with the lab.

- Health Canada has only approved the Nova Biomedical Stat strip lactate meter.

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- If you use a different lactate metre you need to run verifications of results possibly using cord blood but also appreciate that Health Canada has only approved one device at the moment
- It is important to ensure that for whatever machine you use that you use the "action lactate levels" that will by unique to that analyzer.

Documentation

1) **Frequency of documentation**

For those of us with electronic documentation can you give us any ideas about implementation of frequency of contractions and heart rate...q15 for both or how do we consider this?

	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)	Q1H	Q1H	• 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.	• Q4hrs with intact membranes OR • Q2hrs with ruptured membranes
Active 2nd stage	Q 5 min.	Q 15 min. If continuous tracing & caregiver presence	Q 15-30 min.

If we are charting q 15 mins with pushing and things are atypical or abnormal, we need to chart more frequently, correct? I see people not doing interpretation with q 5 min charting and are charting low FHR with no interpretation of the tracing

The rationale for decreasing the frequency of documentation to every 15 minutes in active stage was to ensure that health care providers could provide adequate clinical care without the

interruption of documenting in the event that the clinical picture did not warrant additional documentation (i.e. overall the FHR and other factors were 'normal'). If an atypical or abnormal tracing is identified, appropriate clinical care including initiation of appropriate intrauterine resuscitation, and communication with the team would be the priority. Communication and documentation are essential anytime the clinical situation has changed (i.e. an intervention has been instituted). Due to the nature of classification of the FHS findings and criteria being documented (think of the definition of baseline which is assessed over 10 minutes), classification could continue to occur every 15 minutes, as appropriate and taking the total clinical picture into consideration.

It is important to note that the expectation of the health care provider documenting on fetal health surveillance is to document ALL components of their assessment findings, classify the findings and interpret them in light of the total clinical picture. This means that regardless of how frequently you assess the FHR and UA you need to classify your findings.

The documentation of FHR and UA findings is independent of documentation around interventions included in intrauterine resuscitation such as changing position, progress notes should be documented in real time as much as is possible in an evolving clinical situation.

Education

1) ALARM

Does ALARM completion with a FHS workshop count towards a refresher?

- At the moment the ALARM program does not serve as an equivalent program to the FHS Refresher program. The refresher program requires learners to complete the following which are not part of the ALARM program
    - review the online manual
    - successfully complete the online FHS exam prior to participating in an in-person (ideally, interprofessional) 4 hour Refresher workshop. FYI The Refresher workshop does not have to be conducted in 1, 4hr session but can be broken up to accommodate all learners needs (e.g. Offered as 2, two hour sessions).

2) Exam

The online manual and exam are being updated to match the 2020 SOGC guideline. After revisions are complete the manual, exam and all documents and tools used in the

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Fundamentals of FHS as well as the Refresher program will be translated. All updated materials will be made available to registered FHR Instructors through the Instructor Portal.

3) Instructors

To become a FHS Instructor you must have at least 2 years of intrapartum clinical experience, be formally supported by your organization to attend a FHS Instructor workshop (letter of support signed by management), complete an expression of interest (application to attend a workshop) and then attend a FHS Instructor Workshop. Workshops are offered once or twice per year in most provinces across the country.

Implementing the guidelines

When are facilities required to go live with the new standards?
Some physicians are already using the new guideline but many nursing staff are not educated on it. It's been a struggle.

- Organizations can make independent decisions about implementing the guidelines as soon as possible. Within an organization all members of the health care team must be consistently using the new guideline and new documentation when it is implemented.
- It is suggested that all facilities are using the new guidelines by no later than September 2021 (recommendation of FHS Steering Committee).
- Some organizations may be challenged to update all policies, procedures and documentation tools and facilitate "FHS 2020 Update" education to all intrapartum staff hence the date of September 2021.

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