Reproductive Care Program of Nova Scotia

RCP

Guide

For the

Development of a

FHS Case Study

nova scotia health

IWK Health

INTRODUCTION

Fetal Health Surveillance (FHS) is a required skill for all registered nurses (RNs), licensed practical nurses (LPNs), physicians and registered midwives (RM) providing antepartum and intrapartum care in Nova Scotia. Initial and ongoing FHS education requires application of knowledge through review of case studies, fetal heart rate tracings and practice with classification, interpretation, and response. Access to relevant FHS case studies would best support these FHS educational activities along with hands-on clinical experiences at the local level. In collaboration with the Reproductive Care Program of Nova Scotia (RCP), a provincial group is working to develop a repository of FHS case studies to support this education and to align with similar practices occurring in other provinces across Canada.

Nova Scotia Health (NSH) and IWK Health have obtained approval from Privacy and Legal to create and maintain a provincial case study repository which will provide FHS educators within the province access to standardized and relevant clinical case studies. This work is being completed by a provincial subcommittee working under the Atlantic Fetal Health Surveillance Advisory Committee. This committee reports to the Canadian Fetal Health Surveillance Steering Committee.

This document provides a step-by-step approach and 'how-to' guide on how to develop a fetal health surveillance case study. Including details to assist with:

1. Selecting a case study
2. Creating a case study
3. Reviewing your case study content
4. Final review and preparation of a case study for submission
5. Submission of a case study

STEP 1: SELECTING A CASE STUDY

Case studies should be identified by the local team, or a member of the team, as having educational value. Example:

- The fetal heart tracing contains FHR characteristics that can be useful for focused education (e.g. tachysystole, fetal tachycardia, minimal variability, decelerations, etc.)
- Cases with commonly occurring clinical issues (e.g. preterm labour, cervical ripening, oxytocin infusion, twins, preeclampsia, gestational diabetes, etc.)

**Note: Identified cases are not always those with a poor outcome but can also include those cases where concerns for fetal wellbeing were promptly identified and the outcome was good.*

STEP 2: CREATING A CASE STUDY

Obtain FHR Tracing Images and Case Information

- Review the identified permanent health record and FHR tracing for suitable segments for use in the case; these should reflect the key periods of the clinical case to help learners think through the clinical information in a simulated manor; tracings might be sequential or have a lapse of time between them with information provided to fill in details of the overall clinical picture.
- Retrieve pertinent case information from the permanent health record.
- Utilize the standardized case study Power Point template to determine what information is required NS FHS Case Study Template
- Choose a minimum of 4 segments from the EFM tracing and create images. Remove any identifiable information from the final image (Including, but not limited to dates, times, patient name). Appendix F contains important details related to the criteria for de-identification.
- FHR tracing images should be at least 10 minutes in length and be of good visual quality.

Build the Case Study

- Input images of the FHR tracing into the standardized case study PowerPoint template. Add the case information obtained from the permanent health record to include only the most pertinent details that provide clinical relevance to the learner. **Direct extraction of documentation is discouraged**.
- Do NOT include identifying information or clinical details of low or rare occurrences.

- The case will be created using simulated information, adding layers to the case to further reduce identifiability; so that it could represent an obstetrical case from any perinatal unit in NS.

Saving the Case Study Images and Files during Development

- During case development individual case study information will be saved on an IWK/NSH organization computer, on a shared H: drive (in a specific folder) with restricted access by FHS instructors/delegates identified for case development purposes.
- No images or information can be held or saved on personal computers or devices.

STEP 3: REVIEWING YOUR CASE STUDY CONTENT

1. Utilize documents in this guide to review your case study for appropriate content found in the presentation notes for each slide on the Case Study Power Point template.
2. The content in the presentation notes is outlined by the Principles of FHS below:

3. Use the systematic approach to EFM assessment for review of each fetal heart tracing segments and when identifying the components of the FHR tracings for classification. This will ensure consistency with the slide content. This information should be included in the notes for each slide on the Case Study Power Point template.

EFM ASSESSMENT - SYSTEMATIC APPROACH

RISK/FACTORS: Identify/confirm risk factors –risk factors table Appendix A (or FHS Pocket Guide Reference) utilize the mind map see Appendix B. This will help determine what method of monitoring is required (i.e. IA vs. EFM)

1. Tracing quality, paper speed, graph range, internal vs. external?
2. Uterine activity
3. Maternal heart rate
4. Fetal heart rate characteristics
    a. Baseline
    b. Variability
    c. Accelerations & decelerations
5. **Classify** the tracing: **Normal**, **Atypical**, or **Abnormal**
6. **Interpret** in light of the clinical situation
7. **Respond:** communication and teamwork

CLASSIFY

4**. Classify** each segment of fetal heart tracing using the appropriate classification table:

- Antepartum FHS Classification table (**Appendix C**) or
- Intrapartum FHS Classification Table (**Appendix D**)

INTERPRET

5**. Interpret** the segment of fetal heart tracing within the whole clinical picture**:**

- Risk factors: Identify/confirm risk factors –risk factors table ***Appendix A*** (or FHS Pocket Guide Reference) utilize mind map see ***Appendix B***
- Fetal/maternal adaptations - *refer to the intervention resource in* ***Appendix E.***
- Current labour assessments- *refer to the intervention resource in* ***Appendix E.***
- Fetal HR controls- *refer to the intervention resource in* ***Appendix E.***
- Overall Interpretation: within context of clinical picture - *refer to the intervention resource in* ***Appendix E.***

RESPONSE

6. Identify the appropriate **response** based on the clinical scenario and fetal status. This may include details associated with:
   - No Action Required
   - Action is required i.e., intrauterine resuscitation, fetal scalp blood pH/lactate sampling etc...
   - Expedite delivery (plan for immediate delivery)

STEP 4: FINAL REVIEW OF A CASE STUDY AND PREPARATION FOR SUBMISSION

1. Consider peer review by FHS colleagues at the local facility prior to sending the case study to the NS FHS Case Study Review Committee. This will help confirm understanding and identify gaps in information and/or challenges with format/flow.
2. Utilize NS FHS Case Study Submission Checklist ***Appendix G*** as a guide to ensure the case study has met all necessary development criteria for review by the NS FHS Case Study Review Committee. This ensures that all case studies will be developed and presented in a consistent manner.

Step 5: SUBMISSION OF A CASE STUDY

1. Submit the completed case study and submission checklist via '**MoveIt'** to fhs@iwk.nshealth.ca.
2. The originator of the case study will receive an automated confirmation of receipt. If a confirmation email is not received within 2-3 business days, the originator is asked to contact fhs@iwk.nshealth.ca.
3. Submitters can expect the case to be reviewed within 6–8 weeks, after which the submitter will receive feedback about the review with any necessary revisions, or notification of approval.
4. If revisions are required – the case study and submission checklist with comments will be sent back to the submitter. The submitter is asked to complete the suggested revisions and resubmit at their earliest convenience.
5. Once a case study has been reviewed and approved the submitter can expect it to be uploaded to the RCP Case Study Repository with 7 –10 business days.

APPENDIX A – RISK FACTORS

Risk Factors (Where use of EFM may be beneficial)

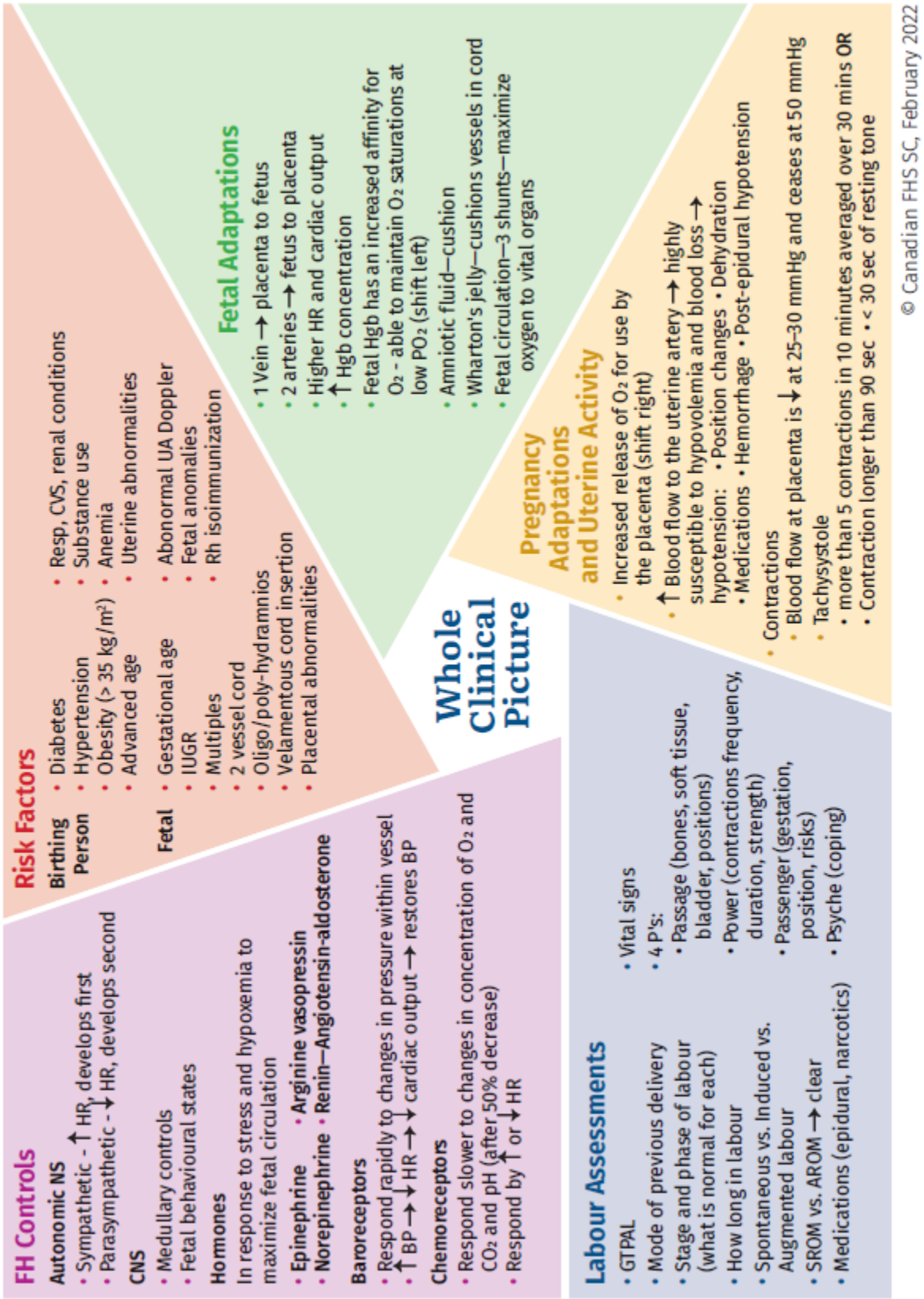
Antenatal Conditions

	EFM is recommended	EFM should be considered
Maternal	• Hypertensive disorders of pregnancy • Diabetes: Preexisting 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) • Perception of reduced or absent fetal movements • Antepartum hemorrhage	• *Pre-pregnant BMI > 35 kg/m^2 • Others factors (smoking, substance use, limited prenatal care) • Advanced Age (AMA –greater than 35 years at time of labour) *consider FSE+/-IUPC if needed
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	EFM should be considered
Maternal	• Vaginal bleeding in labour • Intrauterine infection/Chorioamnionitis • Previous C 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 • Unable to reliably determine UA +/or FHR with IA	
Fetal	• Abnormal FHR on auscultation • Prematurity (< 37^0 weeks) • Meconium staining of the amniotic fluid • Breech presentation • FHR Arrythmia	

APPENDIX B - MIND MAP



APPENDIX C

ANTEPARTUM FHS CLASSICATION TABLE

Antepartum Non-Stress Test (NST) Classification Table (Adapted from SOGC, 2018)

Parameters	Normal	Atypical	Abnormal
Baseline	• 110–160 bpm	• 100–110 bpm • Greater than 160 bpm for less than 30 minutes • Rising baseline	• Less than 100 bpm • Greater than 160 bpm for greater than 30 minutes • Erratic baseline
Variability	• Moderate (6–25 bpm) • Minimal or absent (less than or equal to 5 bpm) for less than 40 minutes	• Minimal or absent (less than or equal to 5 bpm) for 40 to 80 minutes	• Minimal or absent (less than or equal to 5 bpm) for more than 80 minutes • Marked (greater than 25 bpm) for more than 10 minutes • Sinusoidal pattern
Accelerations—Term Fetus	• Greater than or equal to 2 accelerations with an acme of greater than or equal to 15 bpm lasting a minimum of 15 seconds **within less than 40 minutes of testing**	• Less than or equal to 2 accelerations with an acme of greater than or equal to 15 bpm lasting a minimum of 15 seconds **between 40–80 minutes of testing**	• Less than or equal to 2 accelerations with an acme of greater than or equal to 15 bpm lasting a minimum of 15 seconds **in greater than 80 minutes of testing**
Accelerations—Preterm Fetus (less than 32 weeks)	• Greater than or equal to 2 accelerations with an acme of greater than or equal to 10 bpm lasting a minimum of 10 seconds **within less than 40 minutes of testing**	• Less than or equal to 2 accelerations with an acme of greater than or equal to 10 bpm lasting a minimum of 10 seconds **between 40–80 minutes of testing**	• Less than or equal to 2 accelerations with an acme of greater than or equal to 10 bpm lasting a minimum of 10 seconds **in greater than 80 minutes of testing**
Decelerations	• None or • Occasional variable deceleration lasting less than 30 seconds	• Variable decelerations, 30–60 seconds duration	• Variable decelerations, greater than 60 seconds duration • Late decelerations*
Actions	**Further Assessment Optional** based on the total clinical picture • NST reviewed by the most responsible provider at the earliest opportunity; signed within 24 hours	**Further Assessment Required** • NST reviewed by the most responsible provider at the time of classification	**Urgent Action Required** • NST reviewed by the most responsible provider **IMMEDIATELY** • Overall assessment of the situation and further investigation with U/S or BPP is required • Some situations will require delivery

***Note:** Gradual decelerations that are not associated with identifiable contractions can be described as **episodic gradual decelerations** (SOGC, 2020)

APPENDIX D

INTRAPARTUM FHS CLASSICATION TABLE

Intrapartum Electronic Fetal Monitoring (EFM) Classification Table (Adapted from SOGC, 2020)

Parameters	Normal	Atypical	Abnormal
Uterine Activity	• Normal • Tachysystole may be present with normal, atypical or abnormal FHR characteristics		
Baseline	• 110–160 bpm	• 100–110 bpm • Greater than 160 bpm for 30–80 minutes • Rising baseline • Arrhythmia (irregular rhythm)	• Less than 100 bpm • Greater than 160 bpm for more than 80 minutes • Erratic baseline
Variability (amplitude in bpm)	• Moderate (6–25 bpm) • Minimal or absent (less than or equal to 5 bpm) for less than 40 minutes	• Minimal or absent (less than or equal to 5 bpm) for 40–80 minutes	• Minimal or absent (less than or equal to 5 bpm) for more than 80 minutes • Marked (greater than 25 bpm) for more than 10 minutes • Sinusoidal
Accelerations	• Spontaneous acceleration(s) (but not required to classify the tracing as normal) • Acceleration with scalp stimulation	• Absence of acceleration with scalp stimulation	• Usually absent • Accelerations, if present, do not change the classification of the tracing based on other characteristics
Decelerations	• None • Non-repetitive uncomplicated variable decelerations • Early decelerations	• Repetitive uncomplicated variable decelerations • Non-repetitive complicated variable decelerations • Intermittent late decelerations • Single prolonged deceleration lasting more than 2 minutes but less than 3 minutes	• Repetitive complicated variable decelerations • Recurrent late decelerations • Single prolonged deceleration lasting more than 3 minutes but less than 10 minutes
Clinical Interpretation within the total clinical picture	• No evidence of fetal compromise	• Physiologic response reflecting activation of compensatory mechanisms	• Possible fetal compromise
Terminology	Non-repetitive: 1 or maximum of 2 in a row Repetitive: greater than or equal to 3 in a row Intermittent: Decelerations occur with less than 50% of uterine contractions in any 20-minute window Recurrent: Decelerations occur with greater than or equal to 50% of uterine contractions in any 20-minute window		

Response to Classified EFM Tracings

(Adapted from SOGC, 2020)

Response	Normal	Atypical	Abnormal
Actions	Always: • Focus on communication and teamwork including the birthing person and family • Evaluate FHS considering the overall clinical picture • Actions often occur simultaneously		
	• Continue with monitoring method, as indicated, and provide supportive care • EFM may be interrupted for up to 30 minutes if clinical condition and oxytocin rate are stable	**Vigilance** • Vigilant assessment required, especially when combined features are present • Determine significance/cause and correct reversible cause • Initiate intrauterine resuscitation • Determine duration of effect and reserve tolerance of fetus • Consider fetal evaluation (scalp stimulation and/or fetal scalp blood sampling, ultrasound) • Consider transfer/delivery if tracing persists or deteriorates	**Action Required** • Determine significance/cause and correct reversible cause • Initiate intrauterine resuscitation • Determine duration of effect and reverse tolerance of fetus • Fetal scalp blood sampling if available • Notify pediatric and anaesthesia services • Expedite delivery (operative vaginal or cesarean delivery) unless delivery is imminent or there is evidence of normal fetal scalp blood sample

APPENDIX E- CASE STUDY INTERPRETATION RESOURCE

FHS Case Study Development

INTERVENTION SELECTION: Select the most appropriate entry for every slide with a FHR tracing that requires identification of classification, interpretation, and response in facilitator notes.

	RISK FACTORS	MATERNAL/ FETAL ADAPTATIONS	LABOR ASSESSMENTS	FHR CONTROL	OVERALL INTERPRETATION & RESPONSE
*** Refer to Appendix B – Mind Map for additional details regarding each category**					
TACHYSYSTOLE	**Consider maternal/fetal risk factors**		**Medications/Epidural** Oxytocin infusion – rate? Require titration? **4P's** **-Power (UA (Uterine Activity): frequency, duration, and strength)** IUPC (Intrauterine Pressure Catheter) vs. External toco	If there are atypical fetal heart rate changes, evidence of compensatory response. Consider how the duration of the insult could be impacting fetal oxygenation and pH, therefore reflecting a chemoreceptor response.	***Normal FHR with tachysystole.*** ***Atypical or Abnormal FHR with tachysystole.*** *Action and vigilance required, consider expediting delivery. *Required action's: → *Identify potential causes:* oxytocin Respond in accordance with oxytocin safety checklist & actions (if used at your facility) *Reduce or STOP oxytocin → *Determine FWB:* consider scalp stimulation or fetal lactate testing.
TACHYCARDIA	**Consider maternal/fetal risk factors**	Potential for compromised adaptations r/t GA. *(Preterm, postdates?)* Potential for compromised adaptations r/t indication for IOL (induction of labour)	**How long in labor** **Spontaneous/Augmented /Induced** **SROM vs. AROM → Clear? Meconium present (due to postdates GA or hypoxia?)** If present, cautiously consider reasons for meconium. **Maternal Vital Signs** (Ie; maternal temperature and heart rate)	-Evidence of compensatory responses with rising baseline. -Change in baseline Consider how the duration of the insult could be impacting fetal oxygenation and pH, therefore reflecting a chemoreceptor response and/or acidosis affecting the nervous system.	

	RISK FACTORS	MATERNAL/ FETAL ADAPTATIONS	LABOR ASSESSMENTS	FHR CONTROL	OVERALL INTERPRETATION & RESPONSE
*** Refer to Appendix B – Mind Map for additional details regarding each category**					
MINIMAL VARIABILITY OR **MINIMAL VARIABILITY AND FETAL TACHYCARDIA**	**Consider maternal/fetal risk factors** **FETAL RISK FACTOR:** **Preterm** **GA < 37 WEEKS** **OR** **Post Dates** **GA ≥ 41 WEEKS**	***Normal*** -Likely not compromised ***Potential Compromise*** - Potential for compromised adaptations, related to: -Risk factors, -Placental circulation, -Gestational age (*Preterm* or *postdates*), - Indication for IOL (induction of labour)	**Stage and phase of labor (what is normal for each), dilation** **How long in labor? How long does the FHR pattern persist?** **Medications/Epidural** (i.e., narcotics, corticosteroids, MgSO4) **Meconium** If present, cautiously consider reasons for meconium.	Short periods of minimal variability could reflect normal CNS (Central Nervous System) function and fetal behavioural states. -Evidence of compensatory responses with decreased fetal movement and minimal variability. Minimal/changing variability may reflect a compensatory response to fetal hypoxia Consider how the duration of the insult could be impacting fetal oxygenation and pH, therefore reflecting a chemoreceptor response and/or acidosis affecting the nervous system. -Lack of parasympathetic influence with a higher heart rate leads to minimal variability in association with tachycardia -Evidence of fetal compromise/impending decompensation with changes in baseline and variability.	Depending on the duration of both tachycardia and minimal variability the classification could be considered normal, atypical or abnormal. Cannot yet determine if this period of minimal variability is related to normal physiological processes (like fetal sleep cycles) or indication of some initiation of compensatory mechanisms Potentially compromised fetus due to *preterm or post term* GA→ impending decompensation Two factors making the tracing abnormal (tachycardia with minimal variability) → possible impending decompensation → Response required. ***-Determine FWB & *Consider:*** *Scalp Stimulation? *Fetal Scalp Lactate?

	RISK FACTORS	MATERNAL/ FETAL ADAPTATIONS	LABOR ASSESSMENTS	FHR CONTROL	OVERALL INTERPRETATION & RESPONSE
*** Refer to Appendix B – Mind Map for additional details regarding each category**					
ACCELERATIONS	**Consider maternal/fetal risk factors**			Crude indication of fetal oxygenation	NORMAL reflex responses, spontaneous accelerations
EARLY DECELERATIONS	**Consider maternal/fetal risk factors**			-Early decelerations, consider potential causes of decelerations?	NORMAL within the context of the clinical situation. If in transition, the presence of early decelerations align with the clinical picture.
UNCOMPLICATED VARIABLE DECELERATIONS	**Consider maternal/fetal risk factors**	***Normal*** -Likely not compromised ***Potential Compromise*** - Potential for compromised adaptations, related to: -Risk factors, -Placental circulation, -Gestational age (*Preterm* or *postdates*), -Indication for IOL (induction of labour)	**GTPAL** **Mode of Previous Delivery** **Stage and phase of labor (what is normal for each), Pelvic Exam** **How long in labor** **Spontaneous/Augmented /Induced** **SROM vs. AROM → Clear? Meconium** If present, cautiously consider reasons for meconium. **Medications/Epidural** **Maternal Vital Signs** **4 P's:** -Passage (Pelvis, soft tissue, maternal position) -Power (UA frequency, duration, and strength) -Passenger (GA, fetal position, risks) -Psyche (coping) -Evaluate maternal position and potential blood flow to uterus, signs of hypoxia in mom or fetus. Anything untoward happen prior to this?	-Non-repetitive uncomplicated variable decelerations is a normal physiologic response (Baroreceptor response to cord compression). -Repetitive uncomplicated variable decelerations might reflect a compensatory response (baroreceptor response to cord compression) -Atypical physiologic compensatory response. -Compensatory response increases with increased number and duration of variable decelerations. Consider how the duration of the insult could impact fetal oxygenation and pH, if not corrected.	Does the clinical picture seem consistent or inconsistent with stage and phase of labor? ***-Identify potential causes:*** *Maternal position or fetal position *Cord compression If repetitive: -In early stages of labour and concerned with fetal response to contractions, will the fetus have enough reserve? -Consider compensatory responses to hypoxia which could progress to decompensation if time-to-delivery is prolonged. ***-Determine FWB & consider: **** *Scalp Stimulation? *Fetal Scalp Lactate (if available) *Amnioinfusion

	RISK FACTORS	MATERNAL/ FETAL ADAPTATIONS	LABOR ASSESSMENTS	FHR CONTROL	OVERALL INTERPRETATION & RESPONSE
*** Refer to Appendix B – Mind Map for additional details regarding each category**					
COMPLICATED VARIABLES DECELERATIONS	**Consider maternal/fetal risk factors as listed above**	***Normal*** -Likely not compromised ***Potential Compromise*** - Potential for compromised adaptations, related to: -Risk factors, -Placental circulation, -Gestational age (*Preterm* or *postdates*), -Indication for IOL (induction of labour)	**See labor assessment for uncomplicated variables**	-Potential for progression towards decompensation with complicated variable decelerations and possible changes in variability. Consider how the duration of the insult may be contributing to hypoxia and/or acidosis affecting the nervous system's ability to maintain FHR control.	***See overall interpretation from uncomplicated variables*** Decompensation Action Required
LATE DECELERATIONS	**Consider maternal/fetal risk factors as listed above**		**See labor assessment for uncomplicated variables** **Consider induced or augmented labour.** **Medications or epidural?** **Maternal Vital Signs**	Late decelerations reflect transient or chronic hypoxia related to uteroplacental insufficiency. Consider how the duration of the insult may be contributing to hypoxia and/or acidosis affecting the nervous system's ability to maintain FHR control.	***Response required** In the presence of normal FHR features (baseline rate, variability) if recurrent institute intrauterine resuscitation measures. If reflex late decelerations, improvement in the FHR tracing would be expected. If no improvement, or in the presence of risk factors and other abnormal FHR features, suspect fetal hypoxia. ***Determine FWB & consider: **** *Scalp Stimulation? *Fetal Scalp Lactate (if available)

	RISK FACTORS	MATERNAL/ FETAL ADAPTATIONS	LABOR ASSESSMENTS	FHR CONTROL	OVERALL INTERPRETATION & RESPONSE
PROLONGED DECELERATIONS	**Consider maternal/fetal risk factors as listed above**	***Potential Compromise*** - Potential for compromised adaptations, related to: -Risk factors, -Placental circulation, -Gestational age (*Preterm* or *postdates*), Indication for IOL (induction of labour)	**See labor assessment for uncomplicated variables** **Medications/Epidural** **Maternal Vital Signs** BP? Pelvic Exam? suspect cord prolapse; rapid descent	Decompensation is evidenced in the prolonged deceleration which returned to baseline. Prolonged deceleration could reflect a loss of fetal reserve especially after a prolonged period of tachycardia.	*Atypical* or *Abnormal*, FHR may be showing signs of compensatory response. ***Immediate response required:** **-Expedite delivery**

APPENDIX F

Nova Scotia FHS Case Study Review Committee

Electronic Fetal Monitor Tracings De-Identification Criteria

The following points must be incorporated/considered when using an electronic fetal monitor (EFM) tracings for case study education. The following de-identification criteria must be met prior to submitting any EFM tracings to the Nova Scotia FHS Case Study Review Committee.

De-Identification Criteria:

- Remove the name of hospital/health region/birth centre if present on the tracing or accompanying documentation.
- Remove the city/town and province/territory if present on the tracing or accompanying documentation.
- Remove all patient identifiers (name, date of labour and birth, care provider info). Fictitious names and dates may be used.
- Remove names of attending care providers.
- Remove/cover any handwritten notes on the FHR tracing. A text box containing the content of the handwritten note may be substituted if required.
- Provide only a short maternal history incorporating the most relevant medical factors. Omit rare medical factors that could potentially identify the patient. Some factors may be modified slightly to prevent patient identification without changing important clinical points. For example, gestation, maternal age, sex of newborn.
- Provide corresponding information that explains the relevant actions of attending care providers; placed in a text box above segments of the FHR tracing. **Direct extraction of documentation is discouraged**.
- An EFM tracing may be presented in sections, rather than in its entirety, to shorten presentation time. Care should be taken to present the sections that reflect FHR or uterine changes necessary for correct interpretation.
- The final slide that provides newborn outcome information should be presented in a format that enables the staggering of information to engage the reader. Omit rare medical factors and any details that could potentially identify the patient and care providers.

EFM Images:

Images of EFM tracings need to be visually clear and presented in a format that prevents alteration and protects the edits that have been performed in the de-identifying process (e.g. after text boxes have been added to hide information, a final snapshot or un-editable image of the final version will be used).

For submission of EFM tracings you must have:

1. Obtained explicit permission and/or followed the established organizational and/or provincial processes for sharing EFM tracings at the provincial level (Nova Scotia).
2. At least 4 but up to10 images of EFM segments. Must be at minimum 10 minutes in length for each EFM segment.
3. Clinical information may include: GTPALS, maternal health history, current pregnancy information, past pregnancy information (if applicable). Fabricated information would also be acceptable.
4. Provide a realistic time sequence that doesn't deviate from true clinical case (e.g. if the timeframe of the case you have gotten permission to use was 12 hours in duration, please indicate the realistic time frame between EFM segments without sharing the exact dates and times).

APPENDIX G
NS FHS CASE STUDY SUBMISSION AND REVIEW CHECKLIST

Date of Submission: _____
Facility: _____
Author(s) / Submitter of the Case Study: _____

ITEM FOR REVIEW	Case Study Author/ Submitter: Included Check (✓)	Review Committee: Criteria Met Check (✓)	Comments / Review Committee suggestions for revision
What educational value do you think this brings? (Please comment)			
Standardized case study PowerPoint template utilized			
Consistent font, font size on all slides			
Consistent footer with page number on each slide			
Images of fetal tracings: • Included a minute of 4 x 10min segments			
• Good visual quality			
• Paper speed is 3 cm / min			
FHR tracings are deidentified: • No patient / identifying information on slides			
• No month/year noted on slides			
• Used Appendix F for specific criteria			
Use of Case Study Template- PowerPoint and include pertinent case information from the permanent health record.			
• Case information is presented in chronological order.			
• Key periods of the clinical case are reflected in the tracings or slides.			
• No significant gaps in information or time (e.g. learner must be able to understand the clinical picture).			

ITEM FOR REVIEW	Case Study Author/ Submitter: Included Check (✓)	Review Committee: Criteria Met Check (✓)	Comments / Review Committee suggestions for revision
Systematic approach to EFM assessment included in the notes for every FHR segment.			
• Appropriate classification table used (Refer to Appendix C or D)			
• Interpretation is clear and accurate. (Refer to Appendix A & B)			
• Interpretation language is consistent with Interpretation & Response (Resource Refer to Appendix E)			
• Clear and appropriate response (s) (Refer to Appendix C, D & E)			
Case study has been peer reviewed by site (optional)			
For NS FHS Case Study Review Committee Use Only			
Reviewed by:	Approved:		
	Revisions Required:		
Review Date:	Revision Feedback provided to Authors (date):		
Revisions Received:			
Revisions Reviewed:			
Uploaded to Case Study Repository:	Date:	By:	