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California Maternal
Quality Care Collaborative

Intermittent Fetal Monitoring: A Key Strategy for Reducing Primary Cesareans

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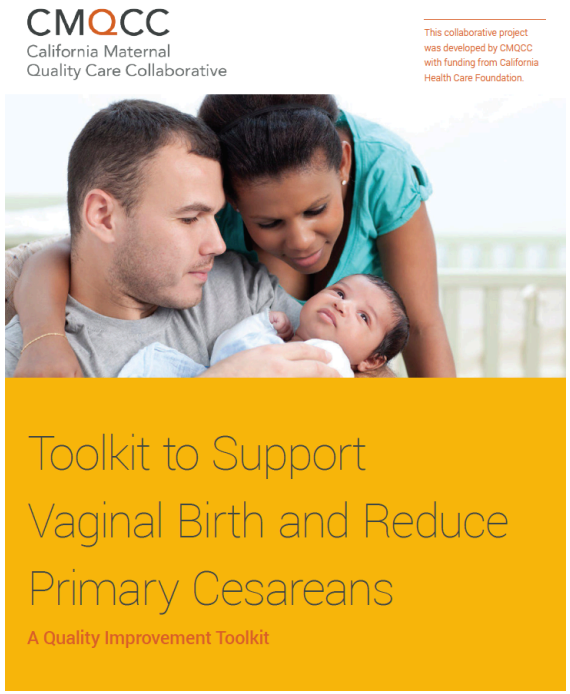
Objectives

- Review the goal of fetal monitoring and historical background
- Understand why the Toolkit to Support Vaginal Birth names intermittent fetal monitoring as a key cesarean reduction strategy
- Review the benefits of, evidence in favor of, and expert opinion regarding intermittent auscultation (and, by extension, intermittent EFM)
- Review the toolkit strategies for successfully implementing intermittent fetal monitoring
- Learn the basic methods of intermittent EFM and intermittent auscultation

Acronyms in this Presentation

- CEFM = Continuous electronic fetal monitoring
- IA = Intermittent Auscultation
- IFM = Intermittent fetal monitoring (either by auscultation or by intermittent electronic fetal monitoring)

From the Toolkit:



Part II. Recognition and Prevention: Supporting Intended Vaginal Birth

The New Normal: Redesigning Maternity Care for Low-Risk Women

Table 7. Barriers to Supporting Intended Vaginal Birth

Recognition and Prevention: Barriers to Supporting Intended Vaginal Birth
1. Lack of institutional support for the safe reduction of routine obstetric interventions
2. Admission in latent (early) labor without a medical indication
3. Inadequate labor support
4. Few choices to manage pain and improve coping during labor
5. Overuse of continuous fetal monitoring in low-risk women
6. Underutilization of the current treatment and prevention guidelines for potentially modifiable conditions (e.g. breech presentation and recurrent genital herpes simplex virus)

ELECTRONIC FETAL MONITORING IS THE MOST COMMON OB INTERVENTION[1]

Table 9. Key Strategies for Supporting Intended Vaginal Birth

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- Implement institutional policies that safely reduce routine interventions in low-risk patients, and consistently support intended vaginal birth
- Implement intermittent fetal monitoring (IFM) policies for low-risk women

Intermittent Fetal Monitoring (IFM) is a Key Strategy for Reducing CS because…

- Evidence-based: IA is associated with lower rates of cesarean and operative vaginal delivery
- Benefits include:
  - Increased mobility for the mother (can ambulate, use alternative birth positions, hydrotherapy → promotes improved comfort, thereby reducing dysfunctional labor)
  - Focus on high touch rather than high tech → improves labor support (continuous labor support is also associated with lower rate of cesarean)

*original slide source: Intermittent Auscultation of the Fetal Heart Rate, Denver Health slide deck located at http://birthtools.org/MOC-Assessing-Fetal-Well-Being-TOOLBOX

Background

Goal of Fetal Monitoring:

To assess fetal well-being with the intention of diagnosing fetal intolerance of labor in a timely manner and intervening appropriately to prevent fetal asphyxia and subsequent asphyxial injury (e.g. cerebral palsy), stillbirth, or neonatal death.

Background

- EFM developed in 1950's, introduced widely by 1960's; thought to be far superior to IA
- By1980's, 60% or more of all labors in U.S.
- By 1990's, 80% or more of all labors in U.S.
- 2000's, 90% or more in U.S.[2]

Continuous fetal monitoring (CEFM) has been called…

- "A cautionary tale of unintended consequences"[3]
- A "failure" that "could have, and should have, been predicted and thus avoided"[4]
- As "no better than tossing a coin in its ability to predict abnormal outcomes"[5]

*Original slide source: Emeis C, Hersh S, Megregian M. Moving Evidence Into Practice. A Slide Presentation of the 59th Annual Meeting of the American College of Nurse- Midwives. http://birthtools.org/birthtools/files/BirthToolFiles/FILENAME/000000000100/MakingIAtheNormInHospitalSetting-OHSU.pdf

ACOG States:

"There is an unrealistic expectation that a nonreassuring FHR tracing is predictive of cerebral palsy… Out of 1,000 fetuses with a nonreassuring FHR pattern, only one or two will develop cerebral palsy"[1]

Evidence for Intermittent Auscultation

Multiple RCTs have been performed since adoption of CEFM as the standard of care during labor[6]

- 2006 first meta-analysis of 11 RCTs >33,000 women
- 2013 updated to include13 RCTs > 37,000 women
- No change to conclusions

*Original slide source: Emeis C, Hersh S, Megregian M. Moving Evidence Into Practice. A Slide Presentation of the 59th Annual Meeting of the American College of Nurse- Midwives. http://birthtools.org/birthtools/files/BirthToolFiles/FILENAME/000000000100/MakingIAtheNormInHospitalSetting-OHSU.pdf

Evidence for IA (continued)

Compared with IA, CEFM:

- Showed no significant improvement in overall perinatal death rate
- Showed no significant difference in the cerebral palsy rates
- Showed significant increase in cesarean birth rate
- Showed slight increase in instrumental delivery rate
- However, CEFM was associated with 50% decrease in neonatal seizures

*Original slide source: Emeis C, Hersh S, Megregian M. Moving Evidence Into Practice. A Slide Presentation of the 59th Annual Meeting of the American College of Nurse- Midwives. http://birthtools.org/birthtools/files/BirthToolFiles/FILENAME/000000000100/MakingIAtheNormInHospitalSetting-OHSU.pdf

Evidence for IA (continued)

Author	Year	Design	N	CD Rate	Neonatal Outcomes
Renou et al AJOG, 126(4)	1976	Prosp. CC Risk status: high	440	Ø diff	Ø diff: Apgars ↑ NICU for IA
Haverkamp et al AJOG, 125(3)	1976	Prospective Randomized Risk status: high	483	↑ EFM group	Ø diff: Apgars, pH, NICU, seizures, intubations
Kelso et al AJOG, 131(5)	1978	Prospective Randomized Risk status: Normal	504	↑ EFM group	Ø diff: Apgars, NICU, pH
Haverkamp et al AJOG, 134(4)	1979	Prospective Randomized	690	↑ EFM group	Ø diff: Apgars, NICU, pH

*Original slide source: Emeis C, Hersh S, Megregian M. Moving Evidence Into Practice. A Slide Presentation of the 59th Annual Meeting of the American College of Nurse- Midwives. http://birthtools.org/birthtools/files/BirthToolFiles/FILENAME/000000000100/MakingIAtheNormInHospitalSetting-OHSU.pdf

Evidence for IA (continued)

Author	Year	Design	N	CD Rate	Neonatal Outcomes
Wood et al AJOG, 141(5)	1981	Prosp. Randomized Risk status:normal	504	↑ EFM group	Ø diff: Apgars Neurologic symptoms
MacDonald et al AJOG, 152 (5)	1985	Prospective Randomized Risk status: mixed high and normal	12,964*	Ø diff	Ø diff: Apgars, ↓ seizures EFM, @ 1 yr F/U Ø diff in severe disabilities
Vintzileos et al Obstet & Gynecol, 81 (6)	1993	Prospective Randomized Risk status: mixed high and normal	1428	↑ EFM group	Ø diff: Apgars, NICU, seizures

*Original slide source: Emeis C, Hersh S, Megregian M. Moving Evidence Into Practice. A Slide Presentation of the 59th Annual Meeting of the American College of Nurse- Midwives. http://birthtools.org/birthtools/files/BirthToolFiles/FILENAME/000000000100/MakingIAtheNormInHospitalSetting-OHSU.pdf

What the Experts Say

- ACNM: Intermittent Auscultation is the preferred method for low risk women[7]
- ACOG: Intermittent Auscultation is an acceptable method of assessment for women without complications[1]
- AWHONN: Women's preferences and clinical presentation should guide selection of monitoring method, with least invasive method as preferred method[8]

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You're Thinking to Yourself…

Hey wait! We just talked all about Intermittent Auscultation… So why does the toolkit refer to "Intermittent Fetal Monitoring" instead of "Intermittent Auscultation?"

Good question! Especially since…

- There are no studies comparing IA to Intermittent EFM
- Studies that compare Intermittent EFM to Continuous EFM show no difference in outcomes[9]
- IA is the prescribed standard of care for most low risk women in Canada and the UK

So, as far as we know, IA is superior to Intermittent EFM

Why We Did This:

1. We want facilities to have a choice of what works best for their environment.

Don't discard the concept of intermittent monitoring simply because you can't or are unwilling to introduce IA. Consider intermittent EFM instead.

THIS CANNOT BE OVERSTATED

2. Intermittent fetal monitoring, either by IA or Intermittent EFM, is the gateway to freedom of mobility in labor!

Mobility means more choices for coping during labor (position changes, walking, hydrotherapy), and improved coping means less dysfunctional labor!

3. Successful introduction of intermittent fetal monitoring, either by IA or Intermittent EFM, may begin changing your unit culture toward one that:

- Embraces normal birth
- Begins to think about reducing other routine interventions

4. Intermittent fetal monitoring, either by IA or Intermittent EFM, requires/fosters more bedside labor support than CEFM.

Continuous labor support is also known to significantly improve the chances of spontaneous vaginal birth[10]

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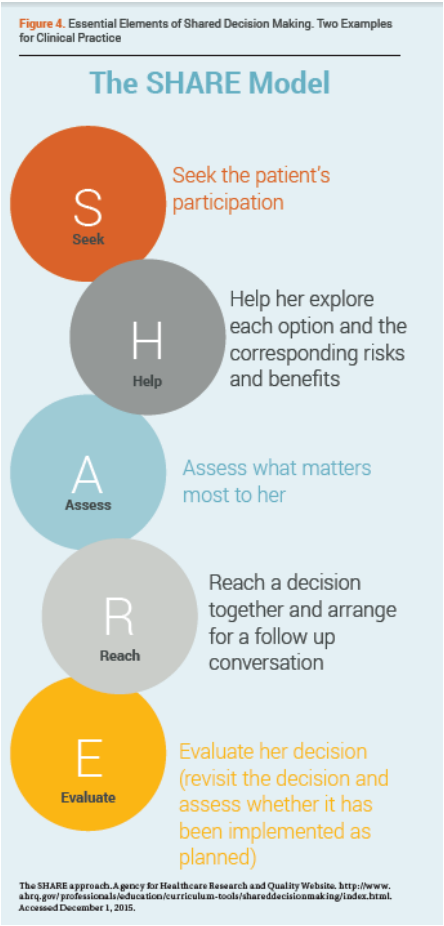
From the Toolkit…To successfully implement IFM for low-risk women:

- ✓ Provide patient education on IFM and engage in shared decision making
- ✓ Implement initial and ongoing training
- ✓ Identify appropriate patients! Policies should include exclusion criteria
- ✓ Ensure appropriate nurse staffing to accommodate safe IFM
- ✓ Make IFM the norm for women who do not meet the exclusion criteria

✓Provide patient education on IFM and engage in shared decision making

Table 4. Patient Decision Points that Impact Risk of Cesarean [80–86]

PATIENT DECISION POINTS THAT IMPACT RISK OF CESAREAN
Choice of provider and/or facility for prenatal care and care at time of birth
Timing of admission to hospital (admission to labor and delivery while still in the latent/early phase is associated with an increased risk of cesarean)
Choice of fetal monitoring method (continuous monitoring is associated with an increased risk of cesarean)
Whether to have continuous labor support by a trained caregiver like a doula (continuous labor support improves chances of having a vaginal birth)
Induction of labor without medical indication (depending on the provider and facility, induced labor may be associated with higher rates of cesarean)



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✓Provide patient education on IFM and engage in shared decision making

FETAL SURVEILLANCE ~ FOR PATIENTS				
Strategy#	Name of Tool	CMQCC Tool	External Tool	Location
Part 2 ~ Strategy 6	Choosing Wisely® – Monitoring Your Baby's Heart-beat During Labor		•	http://consumerhealthchoices.org/wp-content/uploads/2015/06/ChoosingWiselyFetalMonitoringAAN-ER.pdf
Part 2 ~ Strategy 6	ACNM – Share With Women – Fetal Heart Rate Monitoring in Labor		•	http://onlinelibrary.wiley.com/doi/10.1111/jmwh.12270/pdf

See Appendix D of Toolkit. Tools are arranged by topic!

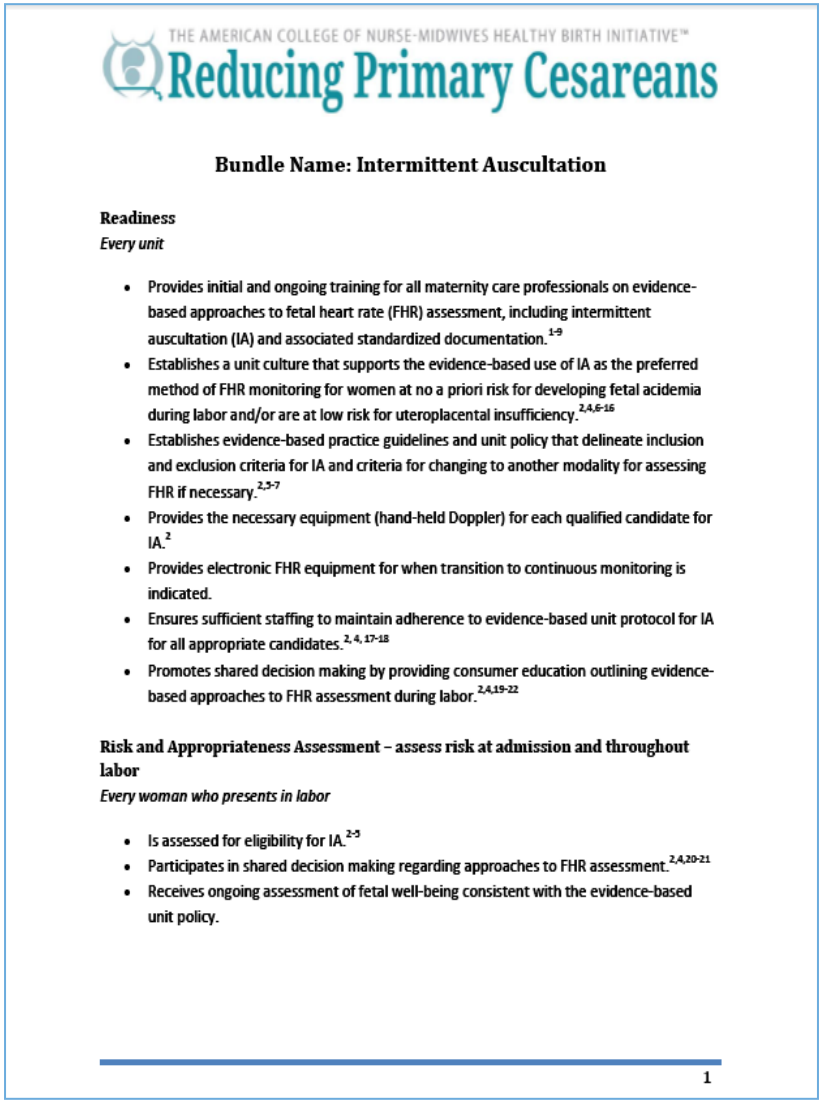
Under Fetal Surveillance you'll find downloadable patient decision aids for fetal surveillance (page 89)

✓Implement initial and ongoing training

If implementing IA, use ACNM's Intermittent Auscultation Bundle as your unit's roadmap for success!

Bundle is located at http://www.birthtools.org/RPC-Bundles-Toolbox

This and other downloadable IA resources are also located on page 89 of Toolkit



THE AMERICAN COLLEGE OF NURSE-MIDWIVES HEALTHY BIRTH INITIATIVE™

Reducing Primary Cesareans

Bundle Name: Intermittent Auscultation

Readiness

Every unit

- Provides initial and ongoing training for all maternity care professionals on evidence-based approaches to fetal heart rate (FHR) assessment, including intermittent auscultation (IA) and associated standardized documentation.[1-9]
- Establishes a unit culture that supports the evidence-based use of IA as the preferred method of FHR monitoring for women at no a priori risk for developing fetal acidemia during labor and/or are at low risk for uteroplacental insufficiency.[2,4,6-16]
- Establishes evidence-based practice guidelines and unit policy that delineate inclusion and exclusion criteria for IA and criteria for changing to another modality for assessing FHR if necessary.[2,5-7]
- Provides the necessary equipment (hand-held Doppler) for each qualified candidate for IA.[2]
- Provides electronic FHR equipment for when transition to continuous monitoring is indicated.
- Ensures sufficient staffing to maintain adherence to evidence-based unit protocol for IA for all appropriate candidates.[2, 4, 17-18]
- Promotes shared decision making by providing consumer education outlining evidence-based approaches to FHR assessment during labor.[2,4,19-22]

Risk and Appropriateness Assessment – assess risk at admission and throughout labor

Every woman who presents in labor

- Is assessed for eligibility for IA.[2-5]
- Participates in shared decision making regarding approaches to FHR assessment.[2,4,20-21]
- Receives ongoing assessment of fetal well-being consistent with the evidence-based unit policy.

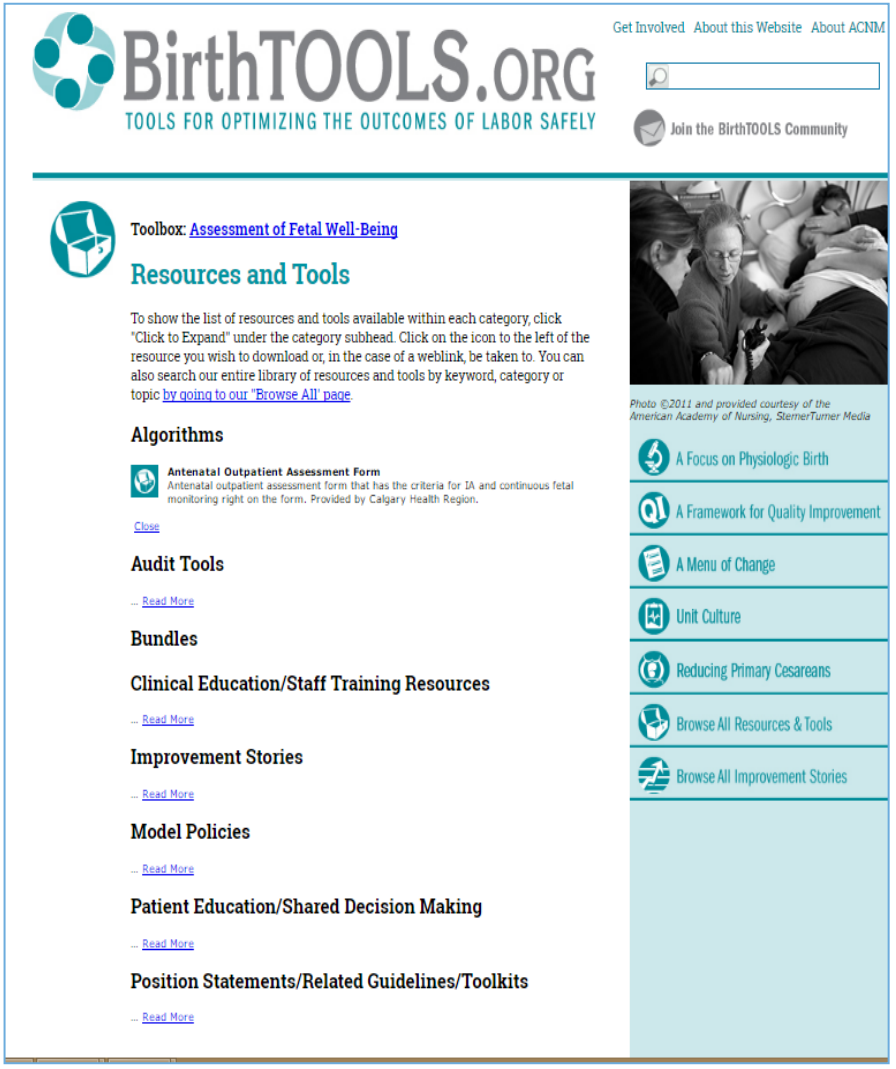
1

✓Implement initial and ongoing training

Birthtools.org also has IA:

- Algorithms
- Audit Tools
- Model Policies

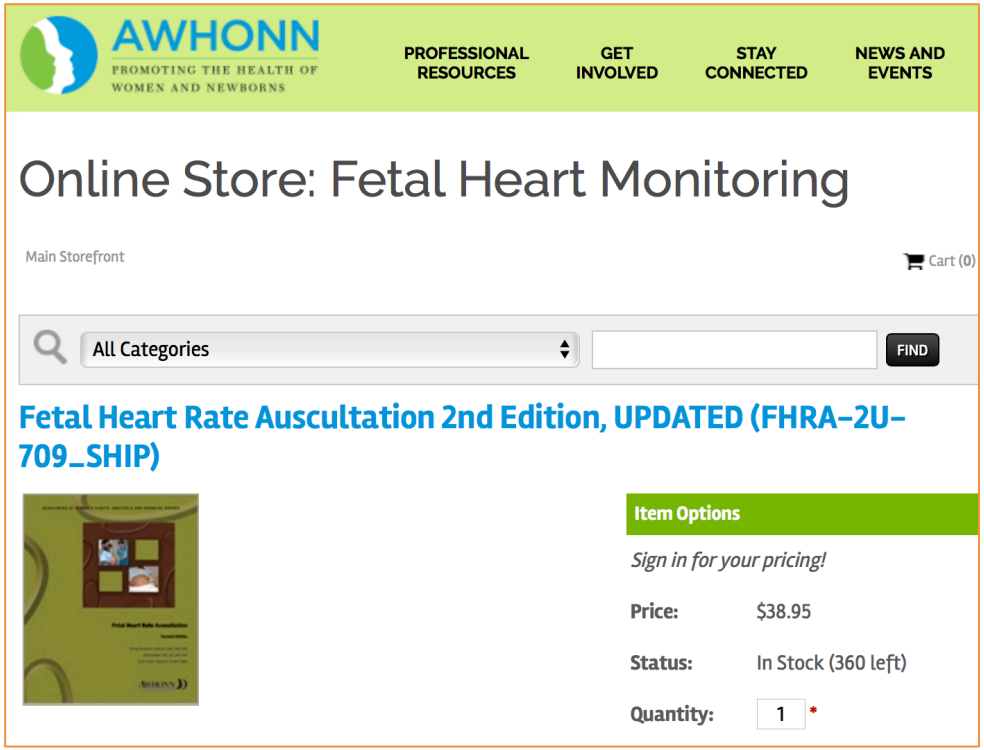
Located at http://www.birthtools.org/MOC-Assessing-Fetal-Well-Being-TOOLBOX



✓Implement initial and ongoing training

AWHONN Fetal Heart Rate Auscultation 2nd Edition

Find at https://www.awhonn.org/store/ViewProduct.aspx?ID=5094735



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✓Implement initial and ongoing training

American College of Nurse-Midwives Clinical Bulletin

Number 60, September/October 2015 *(Replaces ACNM Clinical Bulletin Number 11, March 2010)*

Intermittent Auscultation for Intrapartum Fetal Heart Rate Surveillance

American College of Nurse-Midwives

Fetal heart rate surveillance is a standard component of intrapartum care. The fetal heart rate can be evaluated using intermittent auscultation or electronic fetal monitoring. Research that has compared these 2 strategies found them to be equivalent with respect to long-term neonatal outcomes. The purpose of this clinical bulletin by the American College of Nurse-Midwives is to review the evidence for use of intermittent auscultation and provide recommendations for intermittent auscultation technique, interpretation, and documentation.
J Midwifery Womens Health 2015;60:626–632

Keywords: fetal heart rate, intermittent auscultation, electronic fetal monitoring, intrapartum fetal surveillance

(J Midwifery Womens Health. 2015;60(5):626-632)

IA Competency Assessment and Validation Form for RNs

Name of Employee: _____ **Date of Hire:** _____

Employee #: _____ **Cost Center:** _____

Person validating must date appropriate column and sign form.

Step	Self-Assessment	Skills/Competencies	Domain	Age-Specific	Learning Methods	Comp. Method	Validator		
							Date	Signature	Assess Code
1		*Explains the procedure to the woman and her support person(s)* • To help allay fears and anxiety; offers opportunity for emotional and informational support	A, B, C	1-4	I, S, D, L	DO, RD, SS, CS			
2		*Assists the woman to a semi-Fowler's or wedged lateral position* • Helps decrease potential for supine hypotension and promotes comfort	A, B	1-4	I, S, D, L	DO, RD, SS, CS			
3		*Palpates the maternal abdomen and performs Leopold's maneuvers* • Locates the fetal vertex, buttocks, and back and determines the optimal location for auscultation (fetal heart sounds are best heard over the fetal back).	A, B	1-4	I, S, D, L	DO, RD, SS, CS			
4		*Assesses uterine contractions (frequency, duration, intensity) and uterine resting tone by palpation* • Determines the maternal and fetal response to uterine activity	A, B	1-4	I, S, D, L	DO, RD, SS, CS			
5		*Applies conduction gel to underside of the Doppler device, if used* • Provides and airtight seal and aids in the transmission of U/S waves.	A, B	1-4	I, S, D, L	DO, RD, SS, CS			
6		*Positions the bell of fetoscope or Doppler device on the area of maximal intensity of the fetal heart sounds (usually over the fetal back). Use firm pressure if using the fetoscope* • Obtains the strongest FHR signal	A, B	1-4	I, S, D, L	DO, RD, SS, CS			
7		*Palpates the woman's radial pulse* • Differentiates maternal from fetal heart rate	A, B	1-4	I, S, D, L	DO, RD, SS, CS			
8		*Counts the FHR after uterine contractions for at least 30 – 60 seconds.* • Identifies the baseline FHR (in BPM), the rhythm (regular or irregular), and the presence or absence of increases/accelerations or decreases/decelerations of the FHR between contractions	A, B	1-4	I, S, D, L	DO, RD, SS, CS			

KEY

Self Assessment
1. Have never done – Have no knowledge
2. Have never done – Understand theory
3. Limited experience
4. Experienced – Understands theory

Domain
A. Clinical/Technical
B. Critical Thinking
C. Interpersonal Skill

Age Specific
1. Infant (birth- 1 yr.)
2. Child (1-10 yrs)
3. Adolescent (14-18 yrs)
4. Adult (19-64 yrs)
5. Geriatric (65 +)

Learning Methods
I – Internship
S – Self Study packets
V – Video
C – Course Certification
SK – Skills Lab/Simulation
D – Demonstration
L - Lecture

Competency Method
DO – Direct Observation
RD – Return Demonstration
WE – Written Examination
SS – Skills station simulation
CS – Case Scenario
DS-Discussion

Assessment Code
1. No Skills
2. Limited Skills
3. Competent
4. Competent, able to teach

Continued

Step	Self-Assessment	Skills/Competencies	Domain	Age-Specific	Learning Methods	Comp. Method	Validator Date	Validator Signature	Validator Assess Code
9		*Recounts for multiple, consecutive brief periods of 6 – 10 seconds (multiplies by 10 and 6, respectively) to clarify FHR changes.* • Clarifies the presence of changes and provides data about the nature and amplitude of FHR changes	A, B	1-4	I, S, D, L	DO, RD, SS, CS			
10		*Interprets FHR findings and documents per unit protocol* • Provides record of assessment	A, B	1-4	I, S, D, L	DO, RD, SS, CS			
11		*Shares findings with the woman and support person(s) and answers questions as needed.* • Provides informational support	A, B	1-4	I, S, D, L	DO, RD, SS, CS			
12		*Promotes maternal comfort and fetal oxygenation* • Provides physical support and promotes fetal well-being	A, B	1-4	I, S, D, L	DO, RD, SS, CS			

COMPETENCY VALIDATION STATEMENT

Validator's Role: (Check One) ☐ Preceptor ☐ Proficient Staff Member ☐ Clinical Manager ☐ Educator ☐ Clinical Nurse Specialist ☐ Other (specify)

CHECK ONE	
	Has satisfactorily completed the above criteria and has demonstrated competency in those areas congruent with the objectives.
	Has not met criteria. Follow up plan:

Validator's Name: ______________________________ Employee's Name: ______________________________

Signature: ______________________________ Employee's Signature: ______________________________

RE-EVALUATION STATEMENT: Employee Deemed No Skills/Limited Skills Will Have a Written Plan for Improvement Form Initiated.

Validator's Role: (Check One) ☐ Preceptor ☐ Proficient Staff Member ☐ Clinical Manager ☐ Educator ☐ Clinical Nurse Specialist ☐ Other (specify)

CHECK ONE	
	Has satisfactorily completed the above criteria and has demonstrated competency in those areas congruent with the objectives.
	Has not met criteria. Follow up plan:

Validator's Name: ______________________________ Employee's Name: ______________________________

Signature: ______________________________ Employee's Signature: ______________________________

Date: ______________________________ Date: ______________________________

KEY

Self Assessment
1. Have never done – Have no knowledge
2. Have never done – Understand theory
3. Limited experience
4. Experienced – Understands theory

Domain
A. Clinical/Technical
B. Critical Thinking
C. Interpersonal Skill

Age Specific
1. Infant (birth- 1 yr.)
2. Child (1-10 yrs)
3. Adolescent (14-18 yrs)
4. Adult (19-64 yrs)
5. Geriatric (65 +)

Learning Methods
I – [illegible]
S – Self Study packets
V – Video
C – Course Certification
SK – Skills Lab/Simulation
D – Demonstration
L - Lecture

Competency Method
DO – Direct Observation
RD – Return Demonstration
WE – Written Examination
SS – Skills station simulation
CS – Case Scenario
DS-Discussion

Assessment Code
1. No Skills
2. Limited Skills
3. Competent
4. Competent, able to teach

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✓Identify appropriate patients! Policies should include exclusion criteria

First, remember IFM is for "low risk" women.

Only proceed if:

- Term (at least 36 weeks)
- Singleton Fetus
- Vertex presentation
- Category I tracing on admission (or, alternatively, no "persistent" or "severe" decelerations on admission; protocols vary on this. Accelerations not required)

- Exclusions to IFM are generally the same in most hospital policies with a few differences.

- Key Point: exclusions should focus on conditions associated with uteroplacental insufficiency and/or conditions associated with cord blood pH of less than 7.1 at birth[7]

✓Identify appropriate patients! Policies should include exclusion criteria

SOGC Exclusion Criteria[11]

Table 12. Antenatal and intrapartum conditions associated with increased risk of adverse fetal outcome* where intrapartum electronic fetal surveillance may be beneficial

Antenatal	
Maternal	Hypertensive disorders of pregnancy
	Pre-existing diabetes mellitus/Gestational diabetes
	Antepartum hemorrhage
	Maternal medical disease: cardiac, anemia, hyperthyroidism, vascular disease and renal disease
	Maternal MVA/trauma
	Morbid obesity
Fetal	Intrauterine growth restriction
	Prematurity
	Oligohydramnios
	Abnormal umbilical artery Doppler velocimetry
	Isoimmunization
	Multiple pregnancy
	Breech presentation
Intrapartum	
Maternal	Vaginal bleeding in labour
	Intrauterine infection/chorioamnionitis
	Previous Caesarean section
	Prolonged membrane rupture > 24 hours at term
	Induced labour
	Augmented labour
	Hypertonic uterus
	Preterm labour
	Post-term pregnancy (> 42 weeks)
Fetal	Meconium staining of the amniotic fluid
	Abnormal fetal heart rate on auscultation

*Adverse fetal outcome: cerebral palsy, neonatal encephalopathy, and perinatal death.

Adapted from RCOG Evidence-based Clinical Guideline Number 8, May 2001. The use of electronic fetal monitoring.[7]

Source: Society of Obstetricians and Gynecologists of Canada (SOGC). Fetal Health Surveillance: Antepartum and Intrapartum Consensus Guideline. SOGC J 2007;29:S31.

ZSFG Exclusion Criteria Appendix T, Page 121 of Toolkit

Maternal Conditions

Chronic Disorders

1 Active drug use that may affect neonatal morbidity
2 Chronic HTN
3 SLE or antiphospholipid syndrome
4 Thyroid disease, if uncontrolled; Diabetes requiring insulin or uncontrolled gestational diabetes

Obstetric history

1 History of IUFD
2 Previous cesarean birth

Current pregnancy

1 No prenatal care
2 Cholestasis
3 Diabetes that requires insulin or uncontrolled gestational diabetes
4 Gestational hypertension
5 Increased maternal serum AFP or HCG
6 Malpresentation
7 Twins
8 Oligohyramnios
9 Prolonged pregnancy >41weeks
10 Pre-eclampsia
11 Prematurity (less than 36 weeks)
12 Preterm premature ROM (<36 weeks)

Labor

1 Chorioamnionitis
2 Epidural anesthesia
3 Meconium
4 Pitocin administration
5 Vaginal bleeding greater than bloody show
6 Misoprostol administration within two hours

Fetal Conditions

1 IUGR
2 Known congenital anomaly
3 Polyhydramnios
4 Red cell alloimmunization in the presence of erythroblastosis

Denver Health Exclusion Criteria

a. Preeclampsia
b. Chronic uncontrolled HTN
c. Gestational Hypertension requiring antihypertensive therapy or evidence of growth restriction
d. Diabetes requiring medication
e. Previous cesarean in active labor or history of other significant uterine surgery
f. Suspected placenta abruption or placenta previa
g. History of or current coagulopathy
h. History of or current significant cardiac disorders
i. Cigarette smoking greater than 1 pack per day
j. Current illicit drug use
k. Active infections including tuberculosis, syphilis, acute hepatitis and HIV
l. Other severe medical or obstetrical problem

2. Fetal contraindications
   a. Intrauterine growth restriction
   b. Multiple gestation
   c. Gestational age less than 36 weeks
   d. Isoimmunization
   e. Major anomalies unless decided upon by OB team
   f. In utero infections (TORCH infections)
   g. Other severe fetal complications
3. Intrapartum contraindications
   a. Abnormal vaginal bleeding not considered bloody show
   b. Thick meconium (includes any meconium not considered thin)
   c. Chorioamnionitis
   d. Epidural anesthesia
   e. Pitocin Induction/Augmentation

Source: http://www.nursemidwivesmn.org/wp-content/uploads/2016/10/Intermittent-Auscultation-of-the-Fetal-Heart-Rate-1.pdf

Disagreements on Some Exclusion Criteria

- Misoprostol
- Oligohydramnios
- Epidural
- Meconium
- Narcotics
- Prolonged Rupture of Membranes (without chorio)

Some of these may require department compromise despite lack of evidence

✓Ensure appropriate nurse staffing

- Appropriate staffing is critical to the safety and success of IFM implementation
- Could be an implementation barrier, or perceived barrier (especially in high census facilities)
- AWHONN recommends[12] 1:1 for IA
- Many facilities wait until 2nd stage to initiate 1:1 and as needed per sound clinical judgment (e.g. based on complexity or need for increased frequency of assessment)

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✓ Make IFM the norm for women who do not meet the exclusion criteria

- Map out your QI plan
  - Assess readiness (ACNM Bundle is a good resource for this)
  - Provide review of current evidence on EFM and IA to all stakeholders.
  - Staff buy-in in critical! Requires unit education, commitment and support for sustained use
  - Get policies and training underway. Only trained staff should participate

✓ Make IFM the norm for women who do not meet the exclusion criteria

- Consider implementing in stages (e.g. implement intermittent EFM → then IA→ then consider replacing the routine admission strip with IA for low risk women)
- Advocate for use on all low-risk women (not just midwife patients or patients of nurses who are "really good at labor support")
- Small tests of change go a long way
- Collect, analyze, and disseminate your data
- Celebrate successes
- Remember change takes time!

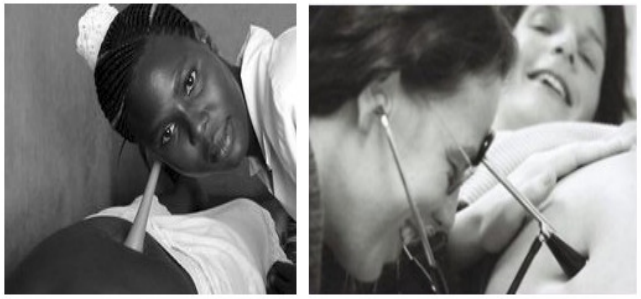
Intermittent Fetal Monitoring

A Short Crash Course

☺

Ways to Intermittently Monitor…

- Fetoscope (IA)



- Doppler (IA)

- Electronic Fetal Monitor (Intermittent EFM)

A To

Intermittent EFM

- Easy to implement
  - Already have EFM in every room
  - Already trained to use EFM
  - Will likely have better "buy-in" in institutions with a "high intervention" culture
    - keep in mind, these kinds of units will benefit the most from IA!

Intermittent EFM
WHERE

At the bedside

- Potential barrier/challenge: must interrupt current coping method (e.g. hydrotherapy) and return to bed (unless telemetry is available)

Intermittent EFM
WHEN

- Latent labor: q 1 hour*
- Active labor: q 15-30 min
- Second Stage: q 5-15 min
- Before and after vaginal exams, rupture of membranes, administration of narcotics, and ambulation
- After any significant event such as abnormal bleeding or prolonged contraction

Intermittent EFM
HOW (Preparation)

- Obtain reassuring 20 minute continuous tracing on admission or during obs prior to admission
  - Accelerations not necessary
  - Should have Category I tracing (or, alternatively, absence of persistent variable or late decels)

Intermittent EFM
HOW (Procedure)

- Apply fetal and TOCO transducers
- Obtain a 3-5 minute EFM tracing, ideally through a contraction
- At minimum obtain 2 minutes of monitoring which should include before, during, and at least 1 minute after a contraction
- Potential challenge: the temptation to leave the woman on the monitor

Documentation for Intermittent EFM

For Fetus

- Baseline FHR
- FHR variability
- Presence of accelerations
- Episodic or periodic deceleration
- Changes or trends in FHR

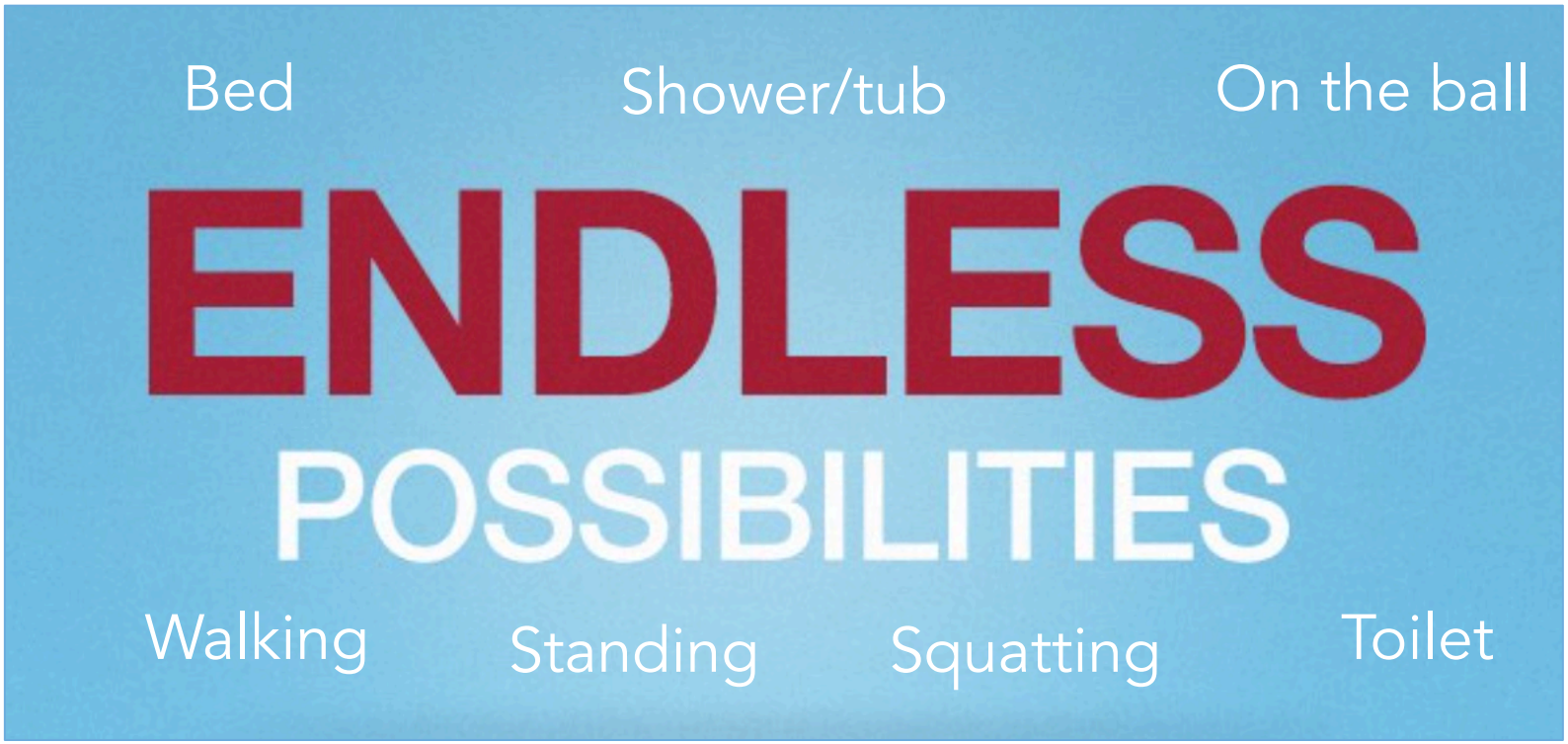
For Uterine Activity

- Mode (palpation vs TOCO)
-
- Duration
- Intensity

Intermittent Auscultation

- Requires dopplers in every room
- Requires enhanced training beyond Intermittent EFM
- Cannot assess variability
- Type of deceleration difficult to determine
- AWHONN recommends 1:1 staffing
- Permanent record consists only of nurse's notes

Intermittent Auscultation
WHERE



Intermittent Auscultation

WHEN

Same as Intermittent EFM

- Latent labor: q 1 hour*
- Active labor: q 15-30 min
- Second Stage: q 5-15 min
- Before and after vaginal exams, rupture of membranes, administration of narcotics, and ambulation;
- After any significant event such as abnormal bleeding or prolonged contraction

Intermittent Auscultation
HOW (Preparation)

- Obtain reassuring 20 minute continuous tracing on admission or during obs prior to admission
  - Accelerations not necessary
  - Should have Category I tracing (or, alternatively, absence of persistent variable or late decels)
- Have easily visible watch, clock, or smart phone available that shows seconds
- Assist woman into a comfortable position for listening

Intermittent Auscultation
HOW (Preparation continued)

- Assess frequency, strength, and duration of contractions. Palpate…Ask the woman
- Determine maternal pulse rate
- Perform Leopold's Maneuvers in order to apply listening device over the fetal back

Intermittent Auscultation HOW (Procedure)

- Obtain baseline
  - Auscultate between UCs for 60 seconds, then for 60 seconds after a UC
- Then determine response to UC
  - Begin auscultation at peak of contraction and continue for 30-60 seconds after end of contraction
  - Use a "multiple count strategy" of THREE 10 second counts separated by 5 second breaks.
  - Multiply each 10 second count by 6 to get FHR (over 90% accuracy for identifying late decelerations[14])
  - Note fetal movement
  - Document

IA Interpretation[7]

- Category I
  - Normal FHR baseline between 110 and 160 bpm
  - Regular rhythm
  - Presence of FHR increases or accelerations from the baseline
  - Absence of FHR decreases or decelerations from the baseline

- Category II
  - Irregular rhythm
  - Presence of FHR decreases or decelerations from the baseline
  - Tachycardia (baseline >160 bpm, >10 minutes in duration)
  - Bradycardia (baseline <110 bpm, >10 minutes in duration)

- Category III
  - Can't determine with IA because variability can't be assessed

Documentation for Intermittent Auscultation

Patient

- Maternal Heart Rate

Fetus

- Mode (doppler vs. fetoscope)
- Baseline FHR
- Rhythm: regular or irregular
- Presence or absence of increases (accelerations)
- Presence of decreases (depth, timing, and duration)

*Note: type of deceleration is difficult to assess with IA; variability cannot be assessed

Uterine Activity

- Mode (palpation)
- Frequency
- Duration
- Intensity

Sample Documentation

Sample documentation when using the ISIA informed decision-making framework for admission assessment.[1]

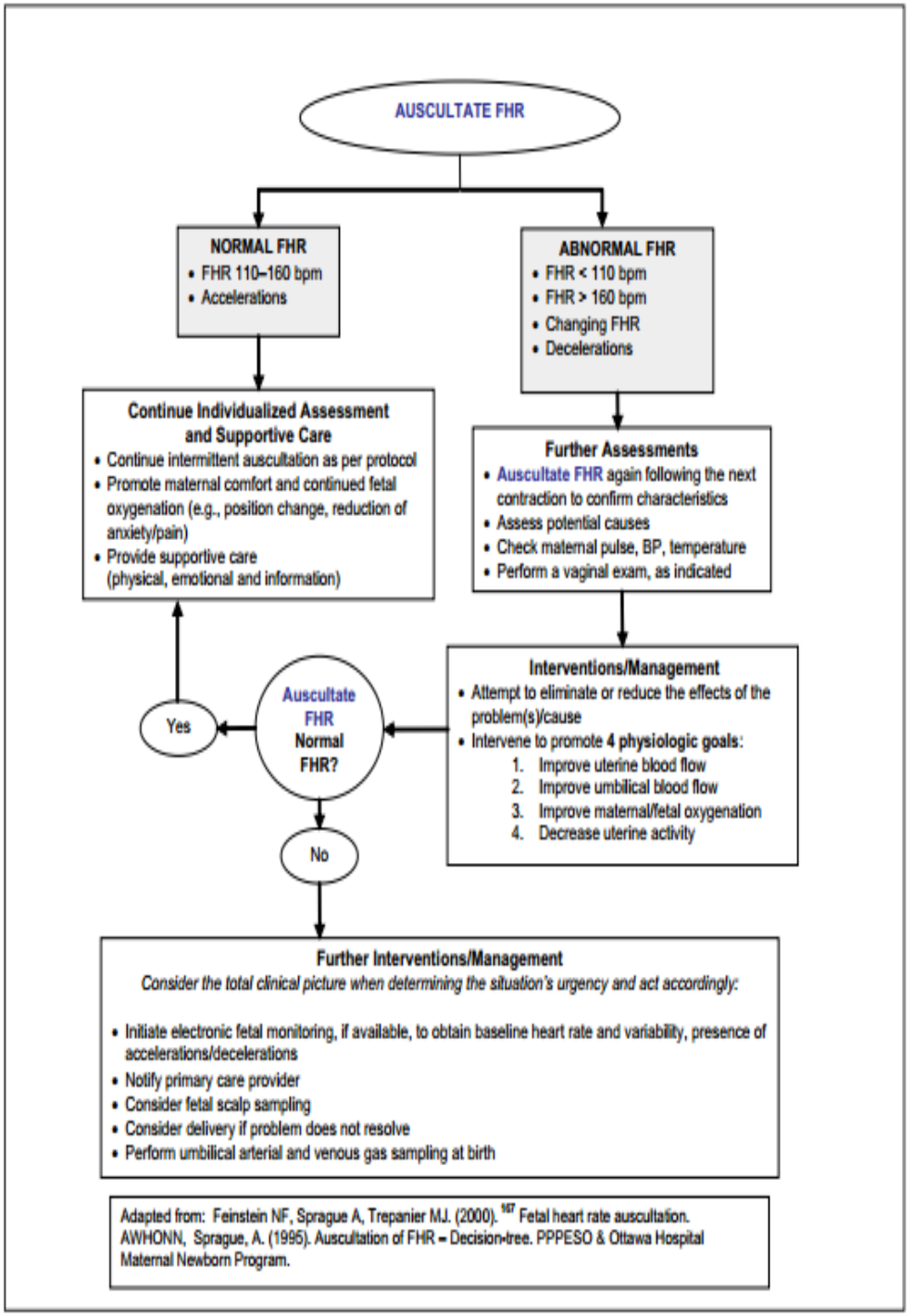
Date and time G2 P1; EDC 25/9/11	Well woman with an uncomplicated pregnancy admitted at term in spontaneous labour since 0200 h today, membranes intact. Antenatal history reviewed for risk factors – none found. Non-smoker. Good family support. Care plan indicates a preference for intermittent auscultation of the fetal heart rate during labour *On examination*: temperature 36.5, Pulse 78 bpm, Respiration rate 20, BP 116/70, urinalysis NAD. (*Name of woman*) reports regular fetal movements have been felt and the pattern of fetal movements are unchanged over the past few weeks. The last fetal movement was felt 5 min ago *Abdominal palpation*: fundus at term and liquor volume is clinically adequate. Longitudinal lie, cephalic presentation, left occipito-anterior position, head 2/5 palpable abdominally Uterine activity: contractions are coming every 3 min and lasting 50 s, they palpate as strong and the uterus is soft between contractions *Fetal heart rate*: average FHR is 130 bpm, determined over 10 min. The FHR counted during a fetal movement is 148 bpm and there were no decreases in the FHR when counted after the end of the contraction for 60 s. FH rhythm is regular All findings are within normal parameters and this woman is suitable for IA as on-going FR monitoring during active labour

*Source[15]: Maude RM, Skinner JP, Foureur MJ. Putting intelligent structured intermittent auscultation (ISIA) into practice. *Women and birth : journal of the Australian College of Midwives.* 2016;29(3):285-292. http://www.womenandbirth.org/article/S1871-5192(15)00358-3/pdf

What if FHTs are Non-reassuring?

- Administer same resuscitative measures as with CEFM:
  - Increase frequency of assessment
  - Position Change
  - Fluid Bolus
  - Oxygen
  - Notify provider
  - Change to EFM (depending on severity may need continuous EFM until reassured)

*Image source[2]: Liston et al
https://sogc.org/wp-content/uploads/2013/01/gui197CPG0709r.pdf



When to change to Continuous EFM?

- See exclusion criteria during labor on previous slides…
- Change to continuous if:
  - Abnormal FHR (bradycardia, persistent decelerations, abnormal rhythm)
  - Tachysystole
  - Abnormal bleeding
  - Meconium
  - Chorioamnionitis
  - Epidural
  - Hypertension
  - Pitocin administration or within first 1-2 hours of misoprostol administration
  - Staffing issues
  - Can't distinguish maternal and fetal heart rates

Putting Intelligent Structured Intermittent Auscultation (ISIA) into practice

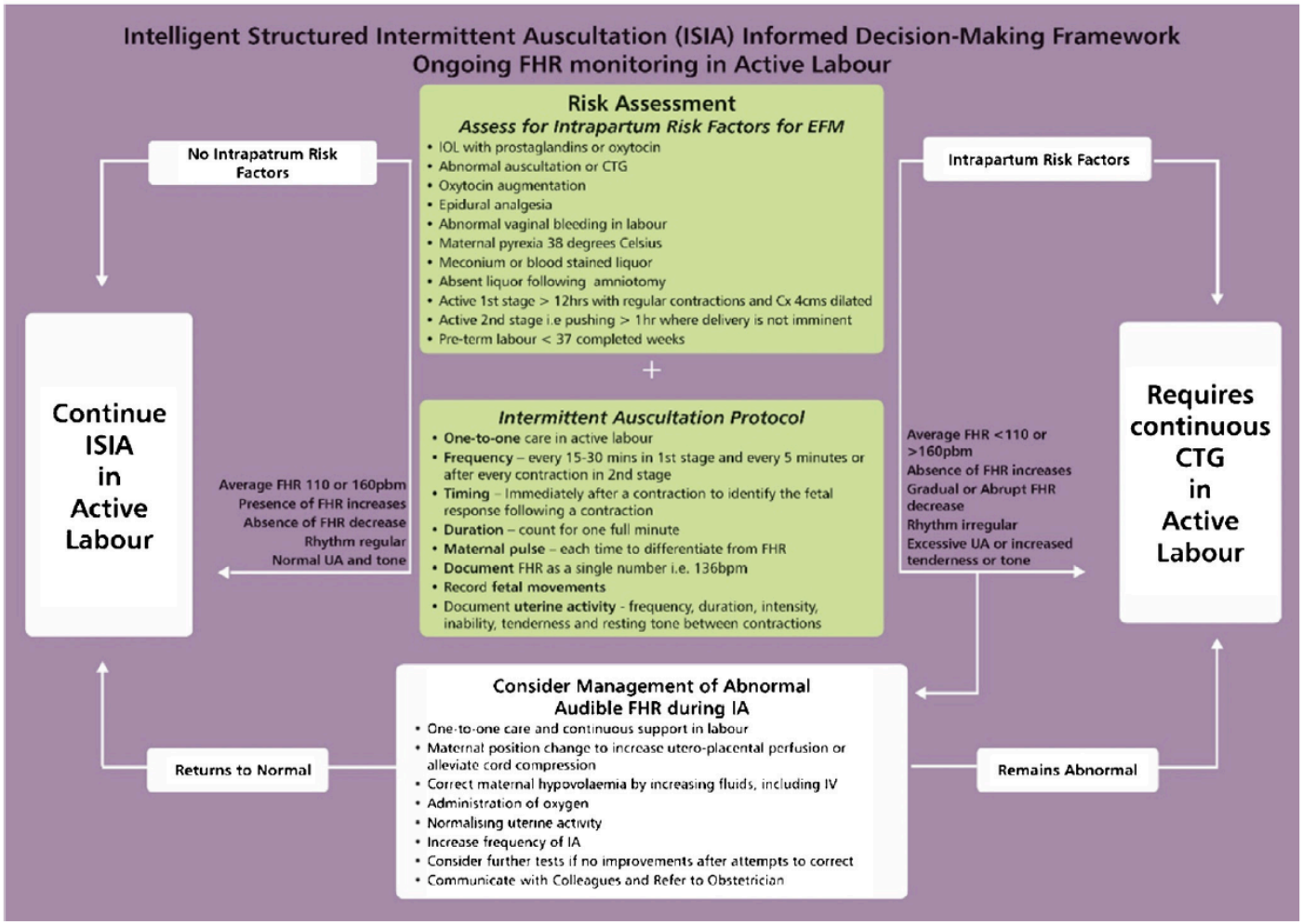


Fig. 3. ISIA ongoing IA in active labour.[7,8] IOL, induction of labour; Cx, cervix; FHR, fetal heart rate; IA, intermittent auscultation; CTG, cardiotocograph; UA, uterine activity.

Source[15]: Maude RM, Skinner JP, Foureur MJ. Putting intelligent structured intermittent auscultation (ISIA) into practice. Women and birth : journal of the Australian College of Midwives. 2016;29(3):285-292 http://www.womenandbirth.org/article/S1871-5192(15)00358-3/pdf

More Information

Questions about this presentation or the *Toolkit to Support Vaginal Birth and Reduce Primary Cesareans* :

- Contact Holly Smith, MPH, MSN, CNM hollymsmith77@gmail.com

- Download toolkit at https://www.cmqcc.org/projects/support-vaginal-birth-and-reduce-primary-cesareans-collaborative-and-toolkit

Questions about CMQCC or the statewide Collaborative to Support Vaginal Birth and Reduce Primary Cesareans

- Contact Valerie Cape at VCape@stanford.edu

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