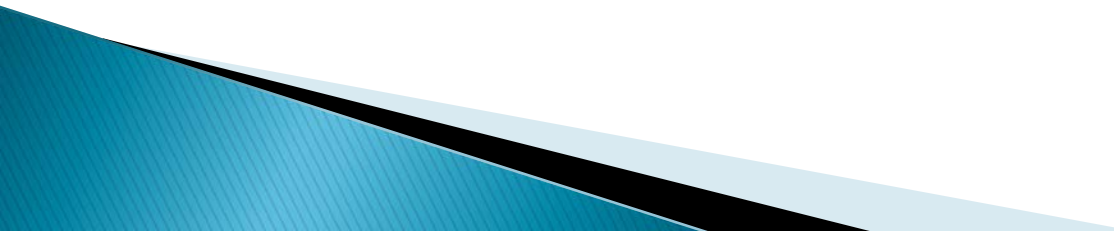


Intermittent Auscultation

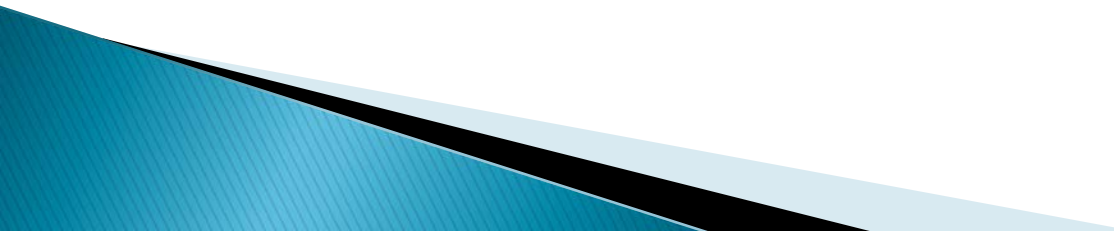
Denver Health



Objectives

- ▶ Understand the evidence supporting IA as a valid tool for assessing the FHR and fetal well-being
 - ▶ Understand benefits and limitations of IA
 - ▶ Identify the appropriate patient for IA
 - ▶ Describe the clinical decision making process when using IA
 - ▶ Identify interventions in the presence of non-reassuring findings
 - ▶ Identify criteria for discontinuing IA and moving to EFM
 - ▶ Demonstrate how to perform IA and document correctly
- 

BACKGROUND

- Fetal Heart Rate (FHR) monitoring is a crucial part of monitoring the well-being of the fetus during labor.
 - Goal of FHR monitoring is to assess fetal well-being and detect any abnormalities which might indicate fetal intolerance of labor in order that interventions to prevent fetal or maternal injury or death may be preformed in a timely manner.
- 

BACKGROUND

▶ 4 ways of monitoring the FHR

Intermittent Auscultation... a systemic method of listening to the fetal heart with an acoustical device at predetermined intervals.

- Pinard horn or fetoscope
- Doppler... fetal heart sound from deflected ultrasound waves

Continuous Fetal Monitoring... continuous use of a Doppler device with computerized logic to interpret and record the Doppler signals

- External...belts on belly
- Internal...fetal scalp electrode



The Pinard Horn



The Fetoscope



The Doppler

HISTORY

- ▶ The oldest method is Intermittent Auscultation (IA) since 1800's
- ▶ Electronic Fetal Heart Monitoring developed in 1950's
 - 1970's used nation wide in hospitals
 - 1980 nearly 50% of all labors
 - 1990's 60–75% of all labors
 - 2000's 85% or more

A Look at the Evidence

- ▶ “Despite its widespread use, there is controversy about the efficacy of EFM, interobserver and intraobserver variability, nomenclature, systems for interpretation, and management algorithms. Moreover, there is evidence that the use of EFM increases the rate of cesarean deliveries and operative vaginal deliveries.”

ACOG July 2009

COCHRANE REVIEW

Comparing Continuous Electronic Monitoring Of The Baby's Heartbeat In Labour Using Cardiotocography (CTG, Sometimes Known As EFM) With Intermittent Monitoring (Intermittent Auscultation, IA)

REVIEW CONTAINED 12 TRIALS INVOLVING >37,000 WOMEN

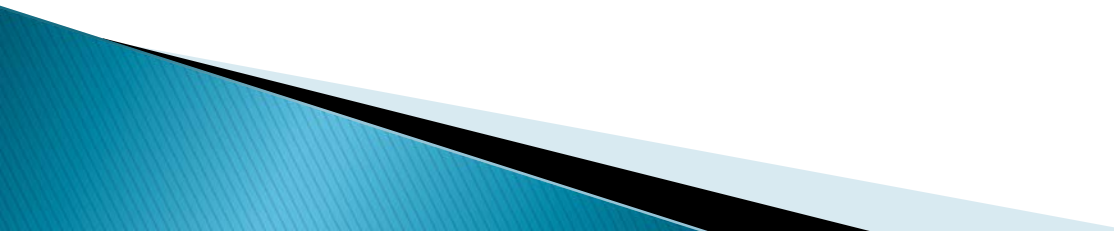
MOST TRIALS NOT WELL DONE

ONE WELL-DESIGNED TRIAL WITH >12,000 WOMEN

NO DIFFERENCE IN NUMBER OF BABIES WHO DIED DURING
OR SHORTLY AFTER BIRTH

NEONATAL SEIZURES RARE, BUT SLIGHTLY MORE IN IA
GROUP

COCHRANE REVIEW

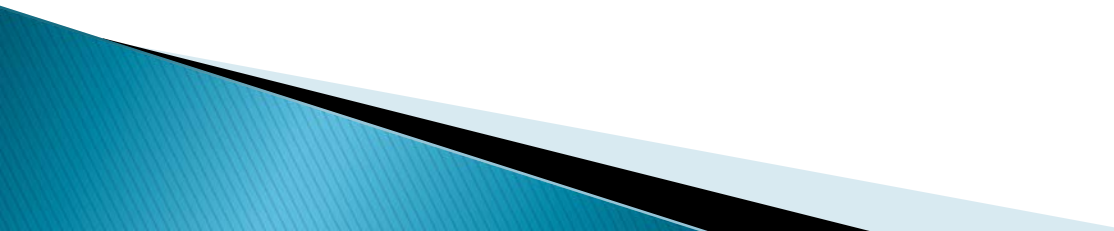
- ▶ No difference in incidence of CP between IA and EFM
 - ▶ EFM was associated with a significant increase in C-Sections and instrumental vaginal deliveries
 - ▶ Recent review by ACOG (July 2009) comparing EFM and IA
- 

“UNCERTAIN VALUE OF ELECTRONIC FETAL MONITORING IN PREDICTING CEREBRAL PALSY”

“...the only clinically significant benefit from the routine use of EFM was the reduction in neonatal seizures. The rates of IP and neonatal deaths, short-term morbidity and long term morbidity including CP were similar whether the FHR had been monitored continuously or intermittently.”

- New England Journal of Medicine, March 7, 1996 Vol-334
- Editorial by Dermot MacDonald of the Dublin Trial

THE PROBLEM WITH EFM IS...

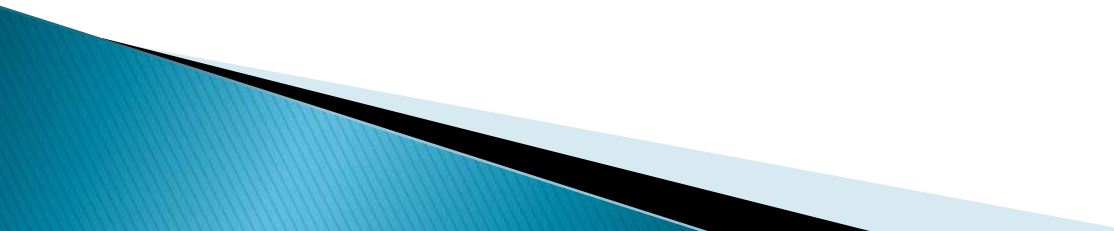
- ▶ Over use in low-risk women
 - ▶ Over reliance on a poor screening tool
 - 99% false positive rate for predicting CP
 - Low reliability and validity
 - ▶ Increased rate of interventions with significant increase in morbidity and mortality for women and babies
 - ▶ Can contribute to significantly more difficulty in legal cases second to interpretation disputes
- 

CONTINUOUS FETAL MONITORING

▶ Benefits

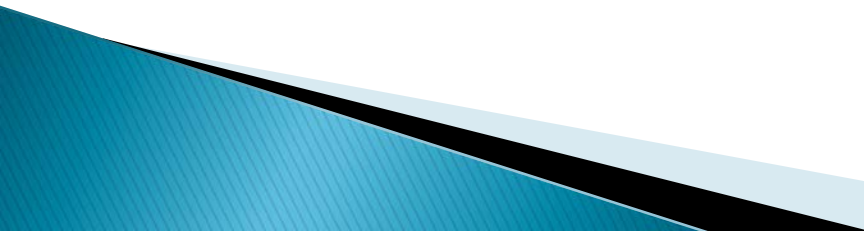
- Can identify early signs of developing hypoxia
- Allows closer monitoring of high risk patients
- Excellent predictor of a normally oxygenated fetus
- Records FHR and UCs simultaneously

▶ Limitations

- High rate of false positives leading to increased interventions...C/S, etc... without better outcomes
 - Prevents maternal mobility
 - No agreement regarding timing of intervention
 - Expensive
 - Poor reliability/validity
- 

INTERMITTENT AUSCULTATION

▶ Benefits

- Evidence-based practice
 - Lower rates of C/S, operative delivery and related morbidities/mortalities for mom and baby
 - Increased mobility for mother...can ambulate, hydrotherapy, more comfortable
 - Decrease use of analgesia/anesthesia
 - Fosters more continuous labor support
 - Focus on mother not machine
 - Facilitates alternative birth positions
- 

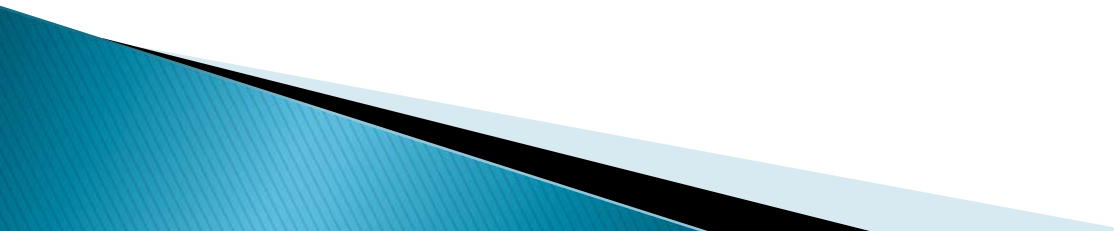
INTERMITTENT AUSCULTATION

▶ Limitations

- Frequency of auscultation is lacking evidence but agreed upon
- Could miss an acute and sustained bradycardia (rare)
- Difficult to assess variability
- Periodicity of decelerations cannot be determined
- Attention to staffing matrix
- Requires unit education, commitment and support for sustained use
- No permanent record of FHR (could be good or bad)

Supportive Care During Labor

Continuous Labor Support

- ▶ 50% reduction in the cesarean rate
 - ▶ 25% shorter labor
 - ▶ 60% reduction in epidural requests
 - ▶ 40% reduction in oxytocin use
 - ▶ 30% reduction in analgesia use
 - ▶ 40% reduction in forceps delivery
- 







SOCG and ACOG

- ▶ “IA is the preferred method of fetal surveillance for healthy low risk women in labor”

SOGC (Society of Obstetricians and Gynecologists of Canada)

- ▶ “The FHR may be evaluated by auscultation or by EFM”

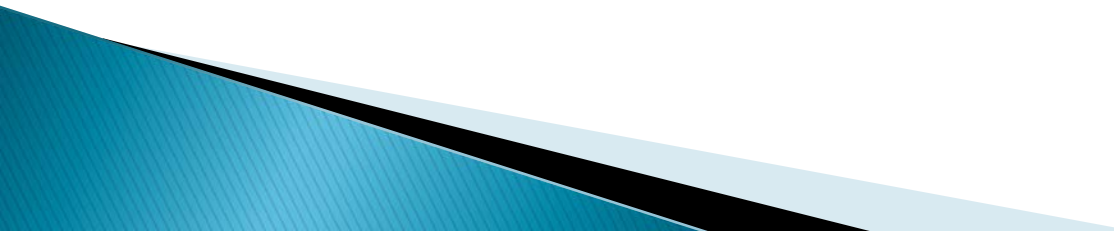
ACOG

ACOG

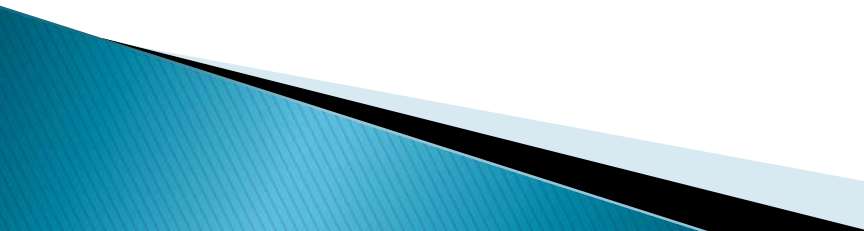
“Given that the available data do not show a clear benefit for the use of EFM over intermittent auscultation, either option is acceptable in a patient without complications. “

ACOG July 2009

Ethical Principles

- ▶ Autonomy...personal liberty and self determination
 - ▶ Beneficence...to do good
 - ▶ Nonmaleficence...to prevent harm
 - ▶ Justice...fair or equal treatment of individuals
 - ▶ Veracity...duty to tell the truth
- 

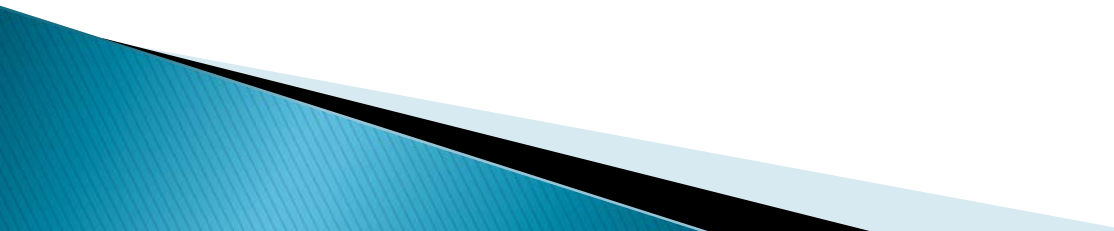
WHAT TO DO?

- ▶ Use fetal monitoring appropriately.
 - ▶ Intermittent auscultation should be the standard for low-risk women with reassuring fetal status upon admission in labor.
 - ▶ Agreed upon criteria for “low-risk” and the intrapartum risk factors which would require moving from IA to CEFM.
 - ▶ Agreed upon and consistent use of auscultation frequency.
 - ▶ Work towards standardization of EFM pattern identification and appropriate responses.
- 

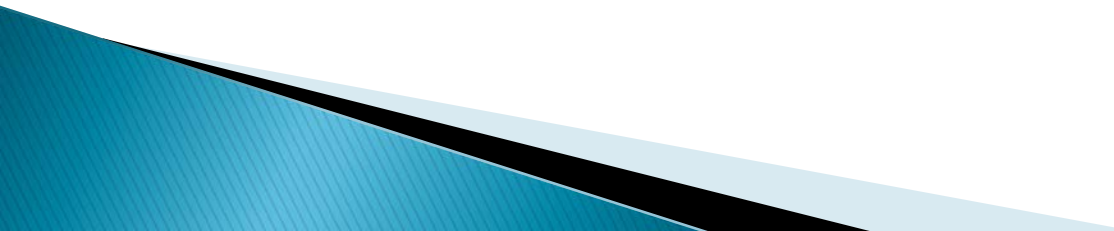
IA...Who is the appropriate candidate?

- ▶ Low-Risk Patient
 - Reassuring FHR strip on admission (recent from OBSR is fine)
 - Gestation 36 weeks or greater
 - Vertex presentations
 - Singleton pregnancies
 - No maternal/fetal exclusionary factors (per clinical care standard CCS)
 - No IP risk factors (per CCS)

REASSURING DEFINED

- ▶ Normal baseline rate and rhythm
 - ▶ Moderate variability (6–25 bpm)
 - ▶ Absence of persistent (occurring more than 50% of the time) variable decelerations or late decelerations
 - ▶ 20 minute strip
 - ▶ NOTE: No accelerations required
- 

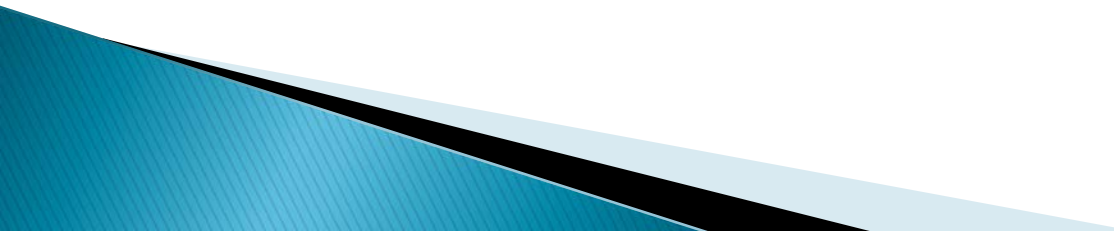
Special Cases

- ▶ Misoprostol
 - ▶ Meconium
 - ▶ Parenteral Narcotics
 - ▶ Oligohydramnios
- 

When... Frequency of IA

- ▶ ACOG and AWHONN agree on frequency
- ▶ Latent labor: q 1 hour
- ▶ Active labor: q 30 minutes
- ▶ Second stage: q 15 minutes
- ▶ Listen Before:
 - Administration of narcotics
 - AROM
 - Transfer or discharge of patient
- ▶ Listen after :
 - Vaginal exam
 - SRM/AROM
 - Recognition of abnormal uterine activity
 - Recognition of abnormal vaginal bleeding

Where...

- ▶ Walking
 - ▶ Standing
 - ▶ In the tub
 - ▶ On the ball
 - ▶ On the stool
 - ▶ With a mouse, on a house, in a chair...
 - ▶ Anywhere!
- 

How...

- ▶ Established guidelines for unit
- ▶ Educate staff
- ▶ Have watch or clock with seconds available
- ▶ Obtain reassuring 20 minute strip prior to initiating
- ▶ Palpate fetal back using Leopold's
- ▶ Place Doppler on maternal abdomen and auscultate between UCs X 60 seconds and then for 60 seconds after a UC
- ▶ Palpate UCs for strength, note frequency, and length, beginning and end. Ask women to tell you!
- ▶ Count baseline rate, listen for accelerations or decelerations
- ▶ Count in 5 sec increments, or continuous for 60 seconds or 30 seconds x2
- ▶ Obtain maternal pulse
- ▶ Note fetal movement
- ▶ Document well

In case of non-reassuring FHT...

- ▶ Same as with EFM
 - Increase frequency of auscultation
 - Change to EFM until reassured
 - Position Change
 - Fluid Bolus
 - Oxygen
 - Notify provider

IA TO EFM

- ▶ Continuous monitoring if: IP risk factors
 - Frank bleeding not bloody show
 - Thick meconium
 - Maternal fever
 - Baseline bradycardia or tachycardia
 - Abnormal rhythm
 - Persistent decelerations after position changes
 - Uterine tachysystole noted
 - Acuity of unit
 - Severe persistent hypertension or hypotension
 - Desires CLE
 - Augmentation with Pitocin

Documentation

- ▶ Documentation of fetal heart rate auscultation in OB Trace View may be placed under “Fetus” utilizing the drop down boxes noting baseline, presence or absence of decelerations and presence or absence of accelerations, maternal pulse rate, and fetal movement.
- ▶ In addition, a narrative documentation may be placed under “Events” using remarks.

Documentation

▶ 0800

FHR 130-136 bpm via auscultation, regular rhythm. Acceleration to 160bpm. No audible decelerations. Auscultated x120 seconds after UC. Pt ambulating and coping well with UCs. Palpable FM. Maternal pulse 90.

▶ 0830

Pt reports UCs getting stronger. Breathing with UCs and coping well. Palpable FM. Maternal pulse 100. FHR auscultated 135 bpm x 60sec before UC. Regular rhythm. Acceleration to 155bpm. Abrupt decrease to 90 bpm following UC. Quick return to baseline. Auscultated x 60 sec after UC. Pt repositioned to left lateral. Increased frequency of auscultation.

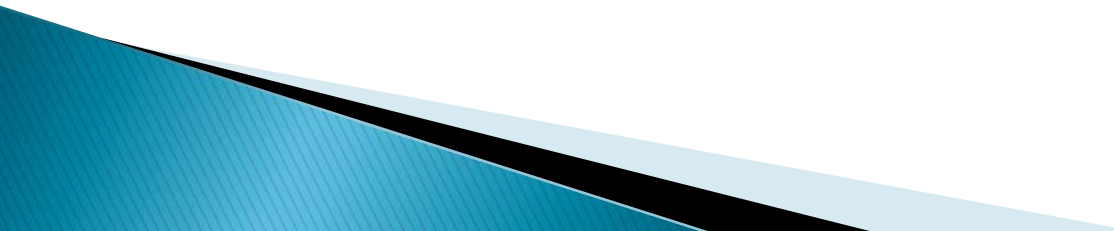
Documentation

- ▶ **0833** baseline FHR auscultated 135bpm. No deceleration auscultated x60 secs before and after UC. No audible accels. Maternal pulse 90. Pt reports FM.
- ▶ **0837** baseline FHR 130bpm. No audible accels. No decels auscultated 60 secs before or after UC. Maternal pulse 100. Palpable FM. Will return to q30min auscultation frequency.

Documentation

- ▶ **0900** Pt resting in left lateral. Breathing with UCs. SROM clear fluid. FHR baseline 135bpm. Acceleration to 170bpm. Abrupt decrease to 70 bpm auscultated immediately after UC x 30 seconds with return to baseline. Auscultated x 60 sec before and after UC. Pt placed in hands and knees position w/an increase in auscultation frequency. Maternal pulse 90.
- ▶ **0903** Deceleration to 60bpm at nadir x 60 seconds auscultated during and after UC X 120 seconds. Return to baseline. Maternal pulse 90. IVLR fluids started. Pt to right lateral.
- ▶ **0908** Deceleration to 70 bpm at nadir auscultated during and after UC x 120 seconds. Return to baseline. Maternal pulse 100. Continuous EFM placed. Provider notified.

Legal Considerations

- ▶ Document Well
 - ▶ Follow Our CCS at DH
 - ▶ Communicate Well
 - ▶ Numerous Cases Have Upheld IA as an Acceptable Standard
 - ▶ Can Have Legal Benefits
 - ▶ Use Good Clinical Decision-Making
- 

Questions...Discussion



Thank You!



References

- ▶ 1. Association of Women's Health, Obstetric and Neonatal Nurses. Fetal heart monitoring principles and practices. Washington (DC): Association of Women's Health, Obstetric and Neonatal Nurses, 2000.
- ▶ 2. American College of Obstetricians and Gynecologists. Intrapartum Fetal Heart Rate Monitoring: Nomenclature, interpretation and General Management Principles. Washington (DC): ACOG Practice Bulletin Number 106, July 2009.
- ▶ 3. Society of Obstetricians and Gynecologists of Canada (SOGC). Fetal health surveillance in labor. SOGC J 1995;17:859-901.
- ▶ 4. United States Preventative Services Task Force. Screening for fetal distress with intrapartum electronic fetal monitoring: guide to clinical preventative services: an assessment of effectiveness of 169 interventions. Washington (DC): U.S. Preventative Services Task Force 1989;233-8.
- ▶ 5. Albers L. Clinical Issues in electronic fetal monitoring. Birth 1994;21:108-110.
- ▶ 6. Thacker SB, Stroup DF. Continuous electronic fetal heart monitoring for fetal assessment during labor (Cochrane Review). In: The Cochrane Library 2001).
- ▶ 7. Feinstein NF, Sprague A, Terpanier MJ. Fetal Heart Rate Auscultation. Association of Women's Health, Obstetric and Neonatal Nurses. 2000.
- ▶ 8. Flamm, B.L. (1994). Electronic fetal monitoring in the United States. Birth, 21, 105-106.
- ▶ 9. Goodwin L. Intermittent Auscultation of the fetal heart rate: a review of general principles. J Perinatal Neonatal Nursing 2000;14 (3): 53-61.

References

- ▶ 10. Martin E.J. Intrapartum Management Modules: A perinatal education program. 3rd Edition. 2002 Lippincott Williams and Wilkins: 118–125, 188–190.
- ▶ 11. Varney H, Kriebs JM, Gregor CL. Varney's Midwifery 4th Edition. 2004 Jones and Bartlett: 796–798, 636–637.
- ▶ 12. Association of Women's Health, Obstetric and Neonatal Nurses. Fetal Assessment: Clinical Position Statement. 2000.
- ▶ 13. Fox M, Kilpatrick S, King T, Parer JT. Fetal heart rate monitoring: interpretation and collaborative management. Journal of Midwifery and Women's health: vol 45(6), nov/dec 2000, 498–507.
- ▶ 14. Alber, LL. Monitoring the fetus in labor: evidence to support the methods. J of Midwifery and Women's Health: vol 46 (6) Nov/Dec 2001: 366–373
- ▶ 15. Wood SH. Should women be given a choice about fetal assessment in labor? The American Journal of Maternal Child Nursing, Sept/Oct 2003, Vol 28(5): 292–300.
- ▶ 16. Kripke CC. Why are we using electronic fetal monitoring? American Family Physician May 1999, Vol 59(9).
- ▶ 17. Kennell J, Klaus M, McGrath S, Robertson S, Hinkley C. Continuous emotional support during labor in a US hospital. A randomized controlled trial. JAMA 1991; 265:2197–201.