Best Practice Recommendations for Labor and Delivery Care

“The Best Health and Care for Moms and Babies”

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Overview

Call to Action

The U.S. is the only developed nation with a rising maternal mortality rate\(^1\), and severe maternal morbidities are increasingly common in recent decades\(^2\). Our infant mortality rate and preterm birth rate are higher than in most developed countries\(^3\)\(^,\)\(^,\)\(^4\). These facts persist even though the total amount spent on health care in the U.S. is greater than in any other country\(^5\), with childbirth being one of the highest areas of hospitalization costs\(^6\). Although Washington State compares favorably to national averages, disparities between sub-populations and suboptimal care scenarios persist, and women and babies continue to suffer preventable morbidity and mortality\(^7\).

Through the Safe Deliveries Roadmap initiative, the Washington State Hospital Association (WSHA) and its partners aim to improve maternal and infant outcomes by establishing and promoting evidence-based\(^*\) best practices for care across four phases of the perinatal continuum:

- Pre-pregnancy
- Pregnancy
- Labor and Delivery
- Postpartum


About the Safe Deliveries Roadmap Recommendations

The recommendations are universally relevant for all women and newborns. Recommendations for care specific to select special populations (those with certain health conditions or making certain health-related choices) that are relatively common or likely to be subject to variations in current care practices are also included in the “Special Considerations” sections throughout. Physical examinations, patient health self-assessments, and complete health and family history-taking are established as foundations of primary care, and therefore are not specified in these recommendations.
The recommendations are aspirational – they outline the ideal care for optimal health outcomes. They are meant to be adaptable to the changing healthcare landscape. New care models such as team approaches and telemedicine may support implementation of the recommended practices.

The recommendations, tips, tools and resources provided in this toolkit reflect the best evidence as of 2014 and the input of expert clinicians and leaders in health care delivery and public health with expertise in women’s health, obstetrics, midwifery, neonatology, pediatrics, family practice, and health promotion. They will be reviewed and updated as evidence changes, with a full review planned every 2-3 years.

* The Society for Maternal and Fetal Medicine’s grading system ([http://www.ajog.org/article/S0002-9378(13)00744-8/fulltext](http://www.ajog.org/article/S0002-9378(13)00744-8/fulltext)) was used as a model; recommendations meeting any level of evidence were allowed to be included.

**Vision for the Future**

- Women and their families are informed on and engaged in care related to the topics covered by these recommendations.
- Providers and healthcare systems identify and meet each patient’s needs to optimize health outcomes.
  - Care is always culturally appropriate and relevant to each patient. (i.e. Services are responsive to patients’ gender, race/ethnicity, sexual orientation, age, stage, cognitive ability, language, and cultural beliefs.)
- All women and infants have access to care through coverage and primary care medical/health homes.
- Health equity and social determinants of health are addressed to enable optimal health attainment.

**Summary of Labor and Delivery Care Recommendations**

1. **Prenatal Care: Assessment of Gestational Age**
   - Provide documentation on how and when gestational age determined.

2a. **Labor Induction: Pre-Procedural**
   - Consent form discussed with patient and signed for any induction; medical and non-medical.

2b. **Labor Induction: Non-Medically Indicated**
   - Not done prior to 39 weeks gestation.
   - Between 39 – 40 6/7 weeks gestation: must have Bishop score of 9 or greater in nulliparous women and 6 or greater in multiparous women (no cervical ripening).

2c. **Labor Induction: Medically Indicated**
   - Done for reasons that are medically indicated and not included in the non-medically indicated guideline.
   - Cervical ripening if needed for unfavorable cervix.

2d. **Labor Induction: Failed Induction**
   - No cervical change after 24 hours of oxytocin and membranes have been artificially ruptured.
   - Failure to enter active phase despite uterine contractions every 3 mins x 24 hours with ruptured membranes.
   - Inadequate response to 2nd cervical ripening agent and failure to respond to oxytocin per hospital protocol.
   - In the setting of ruptured membranes, no cervical change after 12 hours of oxytocin.

3a. **Labor – First Stage: Delay Admission to Labor Unit**
   - Cervix less than 4 cm.
   - Membranes intact.
   - Reactive nonstress test/fetal heart rate category I (if uterine contractions present) confirmed by 2 practitioners.
• Pain control adequate with appropriate outpatient interventions as needed

**Note:** For spontaneous labor use all recommendations. For induction of labor entering active phase only use last recommendation.

3b. Labor – First Stage: Consider Discharge Home or Further Observation
• Cervix 4-5 cm without change x 2-4 hours.
• Less than 80% effacement.
• Membranes intact.
• Reactive NST/FHR category I (if uterine contractions present).
• Contractions less than 3/10 minutes.

**Note:** For spontaneous labor only.

3c. Labor – First Stage: Consider Artificial Rupture of Membranes
• Cervix 4-5 cm without change x 2-4 hours.
• 90 – 100% effacement.
• Membranes intact.
• Reactive NST/FHR category I (if uterine contractions present).
• Contractions less than 3/10 minutes.

**Note:** For spontaneous labor only.

3d. Labor – First Stage: Consider Cesarean Delivery
• Cervix 6 cm or greater.
• Membranes ruptured (if feasible).
• Arrest of cervical dilation and uterine activity.

**Note:** For spontaneous labor and induction of labor entering active phase.

• At least every 1-2 hours.

4b. Labor – Second Stage: Consider Operative Vaginal Delivery or Cesarean Delivery
• Time from complete dilation:
  o Nulliparous with epidural anesthesia – 4 hours.
  o Nulliparous without epidural anesthesia – 3 hours.
  o Multiparous with epidural – 3 hours.
  o Multiparous without epidural – 2 hours.

OR
  o Total time from complete dilation 5 hours or greater.
  o Greater than 2 hrs, adequate pattern, no descent.

5a. Labor – All Phases: Assessment of Fetal Status
• Use FHR interpretation algorithm.

5b. Labor – All Phases: Staffing
• 1:1 nurse to patient staffing ratios in active labor, high risk, or being induced.

5c. Labor – All Phases: Mode of Fetal Monitoring
• Provide ability to palpate contractions and auscultate FHR in appropriate populations.
**Topic 1: Prenatal Care: Assessment of Gestational Age**

**Recommendations**
- Provide documentation on how and when gestational age determined (most recent American Congress of Obstetricians and Gynecologists (ACOG) criteria, see ACOG Committee Opinion No. 611)

**Special Considerations**
- 1st trimester ultrasound dating is most accurate when a clearly visualized crown-rump length (CRL) can be measured.

**References**
(1-11)

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**Topic 2a: Labor Induction: Pre-Procedure**

**Recommendations**
- Consent form discussed with patient and signed for any induction; medical and non-medical (ACOG induction consent or equivalent)

**References**
(4; 10; 12-14)

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**Topic 2b: Labor Induction: Non-Medically Indicated**

**Recommendations**
- Not done prior to 39 weeks gestation
- Between 39 – 40 6/7 weeks gestation. Must have Bishop score of 9 or greater in nulliparous women and 6 or greater in multiparous women (no cervical ripening)

**References**
(4; 7; 15-28)

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**Topic 2c: Labor Induction: Medically Indicated**

**Recommendations**
- Done for reasons that are medically indicated and not included in the non-medically indicated guideline (Appendix A)
- Cervical ripening if needed for unfavorable cervix

**References**
(4; 6; 13-14; 16-17; 29-31)
Topic 2d: Labor Induction: Failed Induction (assuming stable mother and fetus)—parameters to use when not entering active labor (> 6 cms)

**Recommendations**
- No cervical change after 24 hours of oxytocin and membranes have been artificially ruptured (if feasible and no contraindications)
- Failure to enter active phase (6 cms) despite uterine contractions every 3 mins x 24 hours with ruptured membranes
- Inadequate response to 2nd cervical ripening agent *and* failure to respond to oxytocin per hospital protocol
- In the setting of ruptured membranes, no cervical change after 12 hours of oxytocin

**Special Considerations**
- If failed induction with intact membranes and Group B streptococcus (GBS) negative, discuss options regarding further management: consider risks, benefits, and alternatives of all options (i.e: discharge home with plan to return versus cesarean section, depending on clinical situation)

**References**
(16; 26; 32-36)

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**Topic 3a: Labor- First Stage: Delay Admission to Labor Unit**

**Note:** For spontaneous labor use all recommendations. For induction of labor entering active phase only use last recommendation.

**Recommendations**
- Cervix less than 4 cm
- Membranes intact
- Reactive nonstress test/fetal heart rate (NST/FHR) category I (if uterine contractions present) confirmed by 2 practitioners (RN, MD, DO, CNM)
- Pain control adequate with appropriate outpatient interventions as needed

**References**
(26)

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**Topic 3b: Labor- First Stage: Consider Discharge Home or Further Observation**

**Note:** For spontaneous labor only.

**Recommendations**
- Cervix 4-5 cm without change x 2 - 4 hours
- Less than 80% effacement
- Membranes intact
- Reactive NST/FHR category I (if uterine contractions present)
- Contractions less than 3/10 minutes
Topic 3c: Labor- First Stage: Consider Artificial Rupture of Membranes (AROM) and/or Oxytocin Administration

**Note:** For spontaneous labor only.

**Recommendations**
- Cervix 4-5 cm without change x 2-4 hours
- 90 – 100% effacement
- Membranes intact
- Reactive NST/FHR category I (if uterine contractions present)
- Contractions less than 3/10 minutes

**References**
(26; 34-39)

Topic 3d: Labor- First Stage: Consider Cesarean Delivery (All Three Present)

**Note:** For spontaneous labor and induction of labor entering active phase.

**Recommendations**
- Cervix 6 cm or greater
- Membranes ruptured (if feasible)
- Arrest of cervical dilation and uterine activity (see special considerations for parameters)

**Special Considerations**
- Arrest of cervical dilation and uterine activity documented as:
  - Adequate (>200 Montevideo units or palpably strong > q 3 minutes when not feasible to rupture membranes) with no or minimal cervical change x 4hr ***
  - OR
  - Inadequate (<200 Montevideo Units or <3/10 minutes despite oxytocin per protocol) with no or minimal cervical change x 6hr***

*** Clinical judgment is needed to determine safe upper limit of total time allowed in active phase >=6cm to < 10cm. “Minimal cervical change” would be substantially less than clinical norm, for example, less than or equal to 1 cm change in 4 - 6 hours. Per the Zhang et al. partogram at 6cm the 95th percentile for a normal active labor phase curve and normal outcomes is approximately 8 hrs total time

**References**
(16; 26; 40)
**Topic 4a: Labor- Second Stage: Assessment of Descent and Position of Presenting Part**

**Recommendations**
- At least every 1-2 hours

**References**
(26)

**Topic 4b: Labor- Second Stage: Consider Operative Vaginal Delivery or Cesarean Delivery (If Presenting Part Not On Perineal Floor: +4 or Lower)**

**Recommendations**
- Time from complete dilation*/**:
  - Nulliparous with epidural anesthesia – 4 hours
  - Nulliparous without epidural anesthesia – 3 hours
  - Multiparous with epidural – 3 hours
  - Multiparous without epidural – 2 hours
  OR
  - Total time from complete dilation 5 hours or greater
  - Greater than 2 hrs, adequate pattern, no descent

**Special Considerations**
*Passive descent (laboring down) is included in these time periods.
** Each may need an additional hour if occiput posterior position and rotation of greater than 45 degrees toward anterior has been previously achieved.

**References**
(16; 26)

**Topic 5a: Labor- All Phases: Assessment of Fetal Status**

**Recommendations**
- Use FHR interpretation algorithm (e.g. Spong, Clark) (Appendix B and C)

**References**
(26)

**Topic 5b: Labor- All Phases: Staffing**

**Recommendations**
• 1:1 nurse to patient staffing ratios in active labor (greater than or equal to 6 cm AND 80% effaced) high risk or being induced

**Topic 5c: Labor - All Phases: Mode of Fetal Monitoring**

**Recommendations**

• Provide ability to palpate contractions and auscultate FHR in appropriate populations

**Reference List**


Appendix A: Guideline Criteria for Non-medically Indicated Labor Induction

Guideline Criteria for Non-medically Indicated Labor Induction

(Adapted from Northern New England Perinatal Quality Improvement Network (NNEPQIN)
http://www.nnepqin.org/Guidelines.asp)

Non-medically indicated induction definition:

Labor Induction without clear medical benefits to mother or fetus at that point in time compared with continuation of pregnancy.

Indications that make the induction elective:

- History of fast labor
- Distance from hospital
- Suspected macrosomia (without history of shoulder dystocia)
- Psychosocial (e.g. partner’s deployment date, family or significant relation availability, adoption, etc…)
- Maternal discomfort (e.g. hemorrhoids, reflux, sciatic nerve pain, fatigue, etc…)
- Advanced cervical dilation, GBS negative

Appendix B: Assessment of Intrapartum Fetal Heart Rate Tracing Algorithm

Appendix C: Algorithm for Management of Category II Fetal Heart Rate Tracings