Induction of Labor Toolkit

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Texas Collaborative for Healthy Mothers and Babies
Background

- 23% of pregnant women undergo induction of labor (IOL)

- Failed IOL=lack of progression into active labor (cesarean delivery in latent phase for lack of cervical dilation)

ACOG; SMFM. Obstet Gynecol 2014 Mar;123(3):693-711
Background

- Likelihood of vaginal delivery with IOL
  - Nulliparous women with unfavorable cervix (Bishop score <6) have 2-fold increased risk of cesarean delivery (CD)
  - If Bishop score >8, probability of vaginal delivery similar to that after spontaneous labor
  - Avoid IOL with unfavorable cervix unless indicated for maternal/fetal benefit

- Quality improvement initiative to reduce frequency of inappropriate IOL (elective IOL before 39 wks or before ripe cervix) resulted in lower CD rate for electively induced nullips
  - Elective IOL, including logistical inductions:
    - >39 wks
    - Accurate GA dating
    - Bishop score >8 for nullips, >6 for multips before scheduling elective IOL
    - Cervical ripening agents not allowed for elective IOL

ACOG; SMFM. Obstet Gynecol 2014 Mar;123(3):693-711
Patient Safety Checklist✓
Number 5 • December 2011
(Replaces Patient Safety Checklist No. 1, November 2011)

SCHEDULING INDUCTION OF LABOR

Date ___________ Patient ________________________ Date of birth ________ MR # _________
Physician or certified nurse–midwife __________________________ Last menstrual period ________

Gestation/Parity _________________

Estimated date of delivery ___________ Best estimated gestational age at delivery ___________

Proposed induction date ___________ Proposed admission time ___________

☐ Gestational age of 36 0/7 weeks or older confirmed by either of the following criteria (1):
  ☐ Ultrasound measurement at less than 20 weeks of gestation supports gestational age of 36 weeks or greater
  ☐ Fetal heart tones have been documented as present for 30 weeks of gestation by Doppler ultrasonography

Indication for induction: (choose one)
  ☐ Medical complication or condition (1): Diagnosis: _________________________________
  ☐ Nonmedically indicated (1–3): Circumstances: _________________________________

Patient counseled about risks, benefits, and alternatives to induction of labor (1)
☐ Consent form signed as required by institution

Bishop Score (see below) (1): ______

Bishop Scoring System

<table>
<thead>
<tr>
<th>Score</th>
<th>Dilation (cm)</th>
<th>Position of Cervix</th>
<th>Effacement (%)</th>
<th>Station*</th>
<th>Cervical Consistency</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>Closed</td>
<td>Posterior</td>
<td>6–30</td>
<td>-3</td>
<td>Firm</td>
</tr>
<tr>
<td>1</td>
<td>1–2</td>
<td>Midposition</td>
<td>40–50</td>
<td>-2</td>
<td>Medium</td>
</tr>
<tr>
<td>2</td>
<td>3–4</td>
<td>Anterior</td>
<td>60–70</td>
<td>-1, 0</td>
<td>Soft</td>
</tr>
<tr>
<td>3</td>
<td>5–4</td>
<td>—</td>
<td>80</td>
<td>+1, +2</td>
<td>—</td>
</tr>
</tbody>
</table>

*Station reflects a −3 to +5 scale.

☐ Pertinent prenatal laboratory test results (eg, group B streptococci or hematocrit) available (4, 5)
☐ Special concerns (eg, allergies, medical problems, and special needs): _________________________________

To be completed by reviewer:
☐ Approved induction after 36 0/7 weeks of gestation by aforementioned dating criteria
☐ Approved induction before 30 0/7 weeks of gestation (medical indication)
☐ HARD STOP – gestational age, indication, consent, or other issues prevent initiating induction without further information or consultation with department chair
ACOG Recommendations for the Timing of Delivery When Conditions Complicate Pregnancy at or After 34 Weeks of Gestation

<table>
<thead>
<tr>
<th>Condition</th>
<th>General Timing</th>
<th>Suggested Specific Timing</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Placental/uterine issues</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Placenta previa*</td>
<td>Late preterm/early term</td>
<td>36 0/7–37 6/7 weeks of gestation</td>
</tr>
<tr>
<td>Placenta previa with suspected accreta, increta, or percreta*</td>
<td>Late preterm</td>
<td>34 0/7–35 6/7 weeks of gestation</td>
</tr>
<tr>
<td>Prior classical cesarean</td>
<td>Late preterm/early term</td>
<td>36 0/7–37 6/7 weeks of gestation</td>
</tr>
<tr>
<td>Prior myomectomy</td>
<td>Early term/term (individualize)</td>
<td>37 0/7–38 6/7 weeks of gestation</td>
</tr>
<tr>
<td><strong>Fetal issues</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Growth restriction (singleton)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Otherwise uncomplicated, no concurrent findings</td>
<td>Early term/term</td>
<td>38 0/7–39 6/7 weeks of gestation</td>
</tr>
<tr>
<td>Concurrent conditions (oligohydramnios, abnormal Doppler studies, maternal co-morbidity [e.g., preeclampsia, chronic hypertension])</td>
<td>Late preterm/early term</td>
<td>34 0/7–37 6/7 weeks of gestation</td>
</tr>
<tr>
<td>Growth restriction (twins)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Di–Di twins with isolated fetal growth restriction</td>
<td>Late preterm/early term</td>
<td>36 0/7–37 6/7 weeks of gestation</td>
</tr>
<tr>
<td>Di–Di twins with concurrent condition abnormal Doppler studies, maternal co-morbidity [e.g., preeclampsia, chronic hypertension])</td>
<td>Late preterm</td>
<td>32 0/7–34 6/7 weeks of gestation</td>
</tr>
<tr>
<td>Mo–Di twins with isolated fetal growth restriction</td>
<td>Late preterm</td>
<td>32 0/7–34 6/7 weeks of gestation</td>
</tr>
<tr>
<td>Multiple gestations</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Di–Di twins</td>
<td>Early term</td>
<td>38 0/7–38 6/7 weeks of gestation</td>
</tr>
<tr>
<td>Mo–Di twins</td>
<td>Late preterm/early term</td>
<td>34 0/7–37 6/7 weeks of gestation</td>
</tr>
<tr>
<td>Oligohydramnios</td>
<td>Late preterm/early term</td>
<td>36 0/7–37 6/7 weeks of gestation</td>
</tr>
</tbody>
</table>

*Uncomplicated, thus no fetal growth restriction, superimposed preeclampsia, or other complication. If these are present, then the complicating conditions take precedence and earlier delivery may be indicated.
ACOG Recommendations for the Timing of Delivery When Conditions Complicate Pregnancy at or After 34 Weeks of Gestation

<table>
<thead>
<tr>
<th>Maternal issues</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Chronic hypertension</strong></td>
<td></td>
</tr>
<tr>
<td>Controlled on no medications</td>
<td>Early term/term</td>
</tr>
<tr>
<td>Controlled on medications</td>
<td>Early term/term</td>
</tr>
<tr>
<td>Difficult to control</td>
<td>Late preterm/early term</td>
</tr>
<tr>
<td>Gestational hypertension</td>
<td>Early term</td>
</tr>
<tr>
<td>Preeclampsia—severe</td>
<td>Late preterm</td>
</tr>
<tr>
<td>Preeclampsia—mild</td>
<td>Early term</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>Diabetes</strong></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Pregestational well-controlled*</td>
<td>Late preterm, early term birth not indicated</td>
</tr>
<tr>
<td>Pregestational with vascular complications</td>
<td>Early term/term</td>
</tr>
<tr>
<td>Pregestational, poorly controlled</td>
<td>Late preterm or early term</td>
</tr>
<tr>
<td>Gestational—well controlled on diet or medications</td>
<td>Late preterm, early term birth not indicated</td>
</tr>
<tr>
<td>Gestational—poorly controlled</td>
<td>Late preterm or early term</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Obstetric issues</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>PPROM</td>
<td>Late preterm</td>
</tr>
</tbody>
</table>

*Uncomplicated, thus no fetal growth restriction, superimposed preeclampsia, or other complication. If these are present, then the complicating conditions take precedence and earlier delivery may be indicated.

ACOG CO#560, 2013
Patient Safety Checklist

INPATIENT INDUCTION OF LABOR

Date ___________________ Patient ___________________ Date of birth ________ MR # ________
Physician or certified nurse–midwife ___________________ Last menstrual period ____________
Gravidity/Parity ___________________
Estimated date of delivery ______________ Best estimated gestational age at delivery ____________
Indication for induction ____________

Fetal Presentation (1)

☐ Vertex
☐ Other ____________
☐ If other, physician or certified nurse–midwife notified

Estimated fetal weight ________

☐ Patient has a completed medical history and physical examination
☐ Known allergies identified ____________
☐ Medical factors that could effect anesthetic choices identified ____________
☐ Pertinent prenatal laboratory test results (eg, group B streptococci or hematocrit) available (2, 3)
☐ Other special concerns identified (eg, medical problems and special needs): ____________

☐ Patient counseled about risks and benefits of induction of labor (1)
☐ Consent form signed as required by institution

Bishop Score (see below) (1): ____________

<table>
<thead>
<tr>
<th>Bishop Scoring System</th>
</tr>
</thead>
<tbody>
<tr>
<td>Factor</td>
</tr>
<tr>
<td>Score</td>
</tr>
<tr>
<td>-------</td>
</tr>
<tr>
<td>0</td>
</tr>
<tr>
<td>1</td>
</tr>
<tr>
<td>2</td>
</tr>
<tr>
<td>3</td>
</tr>
</tbody>
</table>

*Station reflects a -3 to +3 scale.


☐ Orders received (1)
☐ Oxytocin
☐ Cervical ripening
Management of Induction of Labor

Historical

- No uniform management of latent phase of induced labor
- No uniform definition of failed induction
  - 12-18 hours of latent labor before diagnosis of failed IOL

Contemporary

- Accept longer durations of latent phase (up to ≥24 hours)
- Administer oxytocin for at least 12-18 hours after membrane rupture before diagnosis of failed IOL
- Failed IOL:
  - Failure to generate regular (Q 3 min) ctx & cervical change after ≥24 hours of oxytocin, with AROM if feasible (after completion of cervical ripening)
  - Oxytocin administered for at least 12-18 hours after ROM

ACOG; SMFM. Obstet Gynecol 2014 Mar;123(3):693-711
ACOG PB#107, Aug 2009
Cervical Ripening

• If induction indicated & cervix unfavorable, agents for cervical ripening may be used

• Cervical ripening agents not consistently associated with reduced likelihood of CD, but do effect duration of labor
Cervical “Favorability:” Bishop Score

<table>
<thead>
<tr>
<th>Score</th>
<th>Dilate (cm)</th>
<th>Efface (%)</th>
<th>Station</th>
<th>“Feel”</th>
<th>Position</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>Closed</td>
<td>0-30</td>
<td>-3</td>
<td>Firm</td>
<td>Post</td>
</tr>
<tr>
<td>1</td>
<td>1-2</td>
<td>40-50</td>
<td>-2</td>
<td>Med</td>
<td>Mid</td>
</tr>
<tr>
<td>2</td>
<td>3-4</td>
<td>60-70</td>
<td>-1,0</td>
<td>Soft</td>
<td>Ant</td>
</tr>
<tr>
<td>3</td>
<td>≥5</td>
<td>≥80</td>
<td>+1,+2</td>
<td>------</td>
<td>--------</td>
</tr>
</tbody>
</table>
Cervical Ripening Techniques: Mechanical

- Transcervical Foley catheter or Cook balloon
  - Foley catheter placement before oxytocin induction significantly reduces duration of labor & risk of CD
  - Addition of oxytocin doesn’t shorten time to delivery
  - Primiparous cervix with 80 ml balloon vs. 30 ml balloon:
    - Advanced cervical dilatation
    - Higher rates of deliveries within 24 hours of induction
    - Less oxytocin requirement
    - Lower rate of CD resulting from dysfunctional labor

- Comparison of Cook Cervical Ripener Balloon (balloons on either side of cervix inflated with 80 ml of saline) vs. 60 ml Foley catheter filled:
  - Both equally efficacious for inducing labor
  - No statistical difference in CD between the 2 groups

Williams Obstetrics 23rd ed
ACOG PB#107, Aug 2009
Cervical Ripening Techniques: Pharmacologic

• Prostaglandin E2 (dinoprostone)
  – Delay oxytocin for 6-12 hours after administration

• Prostaglandin E1 (misoprostol)
  – Uterine tachysystole with FHR changes (↑ with 50 μg dose)
  – Delay oxytocin for 4 hours after last dose
  – Contraindicated in women with prior CD or major uterine surgery (↑ risk uterine rupture)

• Combination
  – Foley + misoprostol
    • Induction-to-delivery time shorter with combination compared to vaginal misoprostol alone (difference -3.1 hours, 95% CI -5.9 to -0.30)

Williams Obstetrics 23rd ed
ACOG PB#107, Aug 2009
Labor Induction: Membrane Stripping

- Releases phospholipase A2 & prostaglandin $F_{2\alpha}$

- Increases likelihood of spontaneous labor within 48 hours & reduces incidence of induction with other

- Insufficient data to guide clinical practice in GBS positive women
Labor Induction: Amniotomy

• Unpredictable & occasionally long interval to labor onset

• May be contraindicated with HIV

• Insufficient data to guide clinical practice in GBS positive women

• Appears most effective when used with early oxytocin infusion

• Risks: umbilical cord (UC) prolapse, chorio, significant UC compression, rupture of vasa previa
Resting: only in cases in which maternal/fetal condition is not expected to deteriorate rapidly (eg, postterm IOL)
Standardized Latent Labor Management

• Included indicated IOL at >36 weeks, cervix ≤2 cm; excluded prior CD

• Protocol:
  1. Amniotomy within 24 hours of starting induction
  2. I UPC after membrane rupture
  3. Titration of oxytocin to achieve >200 MVUs
  4. At least 12 hrs of oxytocin after membrane rupture before cesarean for failed induction
     • Cervix not 4 cm/90% or 5 cm

• 4% nullips & no multips in latent labor after 12 hrs

Standardized Protocol vs. Provider Preference

• Retrospective analysis of women who underwent IOL with unfavorable cervix to determine if adherence to standardized IOL protocol decreased rate of failed IOL
  – Modification of protocol by Rouse, et al
    • Included GA <36 weeks & TOLAC
    • Use & type of cervical ripening at discretion of provider

• Protocol adherent IOL:
  1. Amniotomy within 24 hrs of oxytocin induction
  2. IUPC at amniotomy or within 6 hours & still latent labor
  3. Titration of oxytocin to MVUs 200-300 or cervical change
  4. Oxytocin for at least 12 hours (up to 18 hours) after membrane rupture before diagnosis of failed IOL

Standardized Protocol vs. Provider Preference

• Rate of failed IOL:
  – Significantly lower in protocol-adherent group among nullips (3.8% vs. 9.8%; p=.043) & multips (0% vs. 6%; p=.0004)
  – Protocol-adherent nullips spent 3.5 fewer hours in labor
  – Protocol-adherent multips spent 1.5 fewer hours in labor
  – Lower among protocol-adherent women who underwent TOLAC (0 vs. 22%; p=.008)
  – Lowest rate when ALL elements of protocol followed

## Recommendations for the Safe Prevention of the Primary Cesarean Delivery

### Induction of labor

<table>
<thead>
<tr>
<th>Recommendation</th>
<th>Evidence Level</th>
</tr>
</thead>
<tbody>
<tr>
<td>Before 41 0/7 wks of gestation, induction of labor generally should be performed based on maternal and fetal medical indications. Inductions at ≥41 0/7 wks of gestation should be performed to reduce risk of cesarean delivery and risk of perinatal morbidity and mortality.</td>
<td>1A Strong recommendation, high-quality evidence</td>
</tr>
<tr>
<td>Cervical ripening methods should be used when labor is induced in women with unfavorable cervix.</td>
<td>1B Strong recommendation, moderate-quality evidence</td>
</tr>
<tr>
<td>If maternal and fetal status allow, cesarean deliveries for failed induction of labor in latent phase can be avoided by allowing longer durations of latent phase (up to ≥24 h) and requiring that oxytocin be administered for at least 12-18 h after membrane rupture before deeming induction failure.</td>
<td>1B Strong recommendation, moderate-quality evidence</td>
</tr>
</tbody>
</table>

ACOG; SMFM. Obstet Gynecol 2014 Mar;123(3):693-711
INTRAPARTUM USE OF OXYTOCIN
Management of Active Phase Disorders

• When 1\textsuperscript{st} stage labor is protracted or arrested, oxytocin is commonly recommended

• 80% of women with active phase arrest have inadequate uterine contractions (<180 MVU)

• Oxytocin augmentation
  – 90% achieve 200-225 MVU
  – 40% achieve at least 300 MVU

• Criteria for labor augmentation
  – Active labor arrest of dilation >2 hrs & inadequate uterine activity
  – Arrest of descent with inadequate uterine activity

Williams Obstetrics 23\textsuperscript{rd} ed
## Oxytocin Regimens

<table>
<thead>
<tr>
<th>Regimen</th>
<th>Starting Dose (mU/min)</th>
<th>Incremental Increase (mU/min)</th>
<th>Interval (min)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Low dose</td>
<td>0.5-2</td>
<td>1-2</td>
<td>15-40</td>
</tr>
<tr>
<td>High dose</td>
<td>6</td>
<td>3-6</td>
<td>15-40</td>
</tr>
</tbody>
</table>

ACOG PB #107, Aug 2009
Oxytocin Regimens

• Initial infusion rates vary by more than an order of magnitude; dosing intervals vary by 200-300%

• No evidence for improved perinatal outcomes with aggressive active management protocols vs. low-dose techniques

• Patient safety approach favors use of a low-dose regimen

Oxytocin Regimens

Low-dose, less frequent increase

- Less tachysystole with FHR changes
- Less postpartum maternal infection
- Less postpartum hemorrhage
- More spontaneous vaginal birth

High-dose, more frequent increase

- More tachysystole with FHR changes
- Less chorioamnionitis
- Shorter labor
- Less CD for dystocia
- No data in previous CD

ACOG PB #107, Aug 2009
Oxytocin: Safety Considerations

• ~50% of all paid obstetric litigation claims involve allegations of oxytocin misuse

• Recently added to list of high-alert meds designated by Institute for Safe Medication Practices
  – Only 11 other drugs on this list
    • “bearing a heightened risk of harm when used in error”
    • “require special safeguards to reduce risk of error”
  – Administration of other high alert meds (eg, insulin, methotrexate, nitroprusside) generally involves use of well-defined protocols that eliminate dangerous variation & minimize risk of inadvertent human error

Oxytocin: Pharmacologic Considerations

• Unpredictable therapeutic index
  – Most women requiring oxytocin deliver with infusion at no more than 11-13 m/U per minute
  – Effects of any given dose may range from sustained tachysysole & fetal asphyxia to no discernible effect on uterine contractility

• Oxytocin should be started at a relatively low dose

• Dosage increase based upon determination that lower dose is insufficient in achieving normal, physiologic rates of labor progress

Oxytocin: Pharmacologic Considerations

• No established max dose

• Uterine response ↑ from 20-30 wks & ↑ rapidly at term

• t ½ = 5 min

• Uterus contracts within 3-5 min of starting oxytocin

• Steady-state reached in 40 min
  – Dosing regimens that increase infusion rate significantly faster than this will result in additional drug being given before full effects of previous dose known

Williams Obstetrics 23rd ed
ACOG PB #107, Aug 2009
Oxytocin: Pharmacologic Considerations

• Detrimental effects exclusively mediated through its dose-related effects on uterine activity
  – Inverse relationship between ctx number & fetal pH
  – Incomplete recovery of fetal SaO2 to previous baseline levels when ctx occur >2 min

• Progressive decline in fetal SaO2 with persistent ctx frequencies of ≥5/10 min
  – Not seen with frequencies <5/10 min

Oxytocin: Physiologic Considerations

• Acceptable uterine ctx in patients receiving oxytocin:
  – Consistent achievement of 200-220 MVU
  – Consistent pattern of 1 ctx every 2-3 min, lasting 80-90 sec, & palpating strong by an experienced labor nurse

• Once these levels achieved, more time, not more oxytocin!

• If no labor progress, CD is indicated rather than supraphysiologic uterine activity levels!

Oxytocin: Team Approach

• “The professional at the bedside administering & monitoring the oxytocin infusion should have authority & responsibility for assuring this is done safely. It is inappropriate to override the recommendation of a labor nurse at the bedside regarding oxytocin infusion without actual examination of the tracing.”

• “Use of uniform, unambiguous, & preestablished criteria for oxytocin initiation, administration, & monitoring, agreed on in advance by both nursing & medical staff, can largely eliminate such.”

Oxytocin: Checklist-Based Protocol

• Study objective: examine effects of conservative, specific checklist-based protocol for oxytocin on maternal & newborn outcomes

• Focused on uterine & fetal response to oxytocin rather than on any specific dosing regimen

• Premise
  – Lack of outcomes based data on regimen superiority
  – Fundamental principle of quality improvement: greater practice variation is associated with poorer outcomes than more uniform practice patterns

### TABLE 2

**Pre-oxytocin checklist**

**HCA Perinatal Safety Initiative**

**Pre-Oxytocin Checklist**

**For Women with Term-Singleton Babies**

*This Pre-Oxytocin checklist represents a guideline for care; however, individualized medical care is directed by the physician.*

**If the following checklist cannot be completed, Oxytocin should not be initiated**

Date and time completed __________

1. □ Physician or Midwife Order on chart
2. □ Current history and physical on the chart*
3. □ Prenatal Record on chart*
4. □ Indication for induction is documented
5. □ Pelvis is documented by physician to be clinically adequate (should be on prenatal record)*
6. □ Estimated fetal weight within past week (clinical or ultrasound) less than 4500 grams in a non-diabetic woman or less than 4250 grams in a diabetic woman*
7. □ Gestational age documented
8. □ Consent signed (General & D consent)
9. □ Physician with C-section privileges is aware of the induction and readily available and this is documented in the medical record
10. □ Status of the cervix is assessed and documented
11. □ Presentation is assessed and documented (physician required to come in if nurse unable to determine)
12. □ Fetal Assessment completed and indicates: (complete all below)
   - □ A minimum of 30 minutes of fetal monitoring is required prior to starting Oxytocin
   - □ At least 2 accelerations (15 bpm x 15 sec) in 30 minutes are present, or a biophysical profile of 8 of 10 is present within the past 4 hours or adequate variability.**
   - □ No late decelerations in the last 30 minutes
   - □ No more than 2 Variable deceleration exceeding 60 seconds and decreasing greater than 60 bpm from baseline within the previous 30 minutes prior to starting Oxytocin infusion.

*May be delayed for non-elective admissions.

**This document does not apply to a formal Oxytocin challenge test without the intent to induce or augment labor.

**There will be some situations in which alterations in management from that described in the protocol are clinically appropriate. If, after reviewing the fetal heart rate strip and course of labor the responsible physician feels that in his or her judgment, continued use of Oxytocin is in the best interest of the mother and baby, the physician should write or dictate a note to that effect and order the Oxytocin to continue. The RN will continue to provide safe, high quality nursing care.

FINAL: September 8, 2005
Pre-Oxytocin Checklist

• Fetal Assessment completed & indicates (complete all below):
  – Minimum of 30 min of fetal monitoring required prior to starting oxytocin
  – At least 2 accels (15 bpm x 15 sec) in 30 min are present, or a BPP of 8/10 is present within past 4 hours, or adequate variability
  – No late decels in the last 30 min
  – No more than 2 variable decels exceeding 60 sec & decreasing >60 bpm from baseline within the previous 30 min

Pre-Oxytocin Checklist: Accelerations and/or Moderate Variability

- Accels & Moderate Variability = Oxytocin
- No Accels but Moderate Variability = Oxytocin
- No Accels, No Moderate Variability = No Oxytocin
Pre-Oxytocin Checklist: Late Deceleration=No Oxytocin
Pre-Oxytocin Checklist: Variable Decelerations

Oxytocin

No Oxytocin if another 60x60
TABLE 3

"In use" oxytocin checklist

HCA Perinatal Safety Initiative

Recommended Oxytocin “In Use” Checklist for Women with Term Singleton-Babies

“This Oxytocin “In Use” Checklist represents a guideline for care; however, individualized medical care is directed by the physician.”

Checklist will be completed every 30 minutes. Oxytocin should be stopped or decreased if the following checklist cannot be completed.

Date and time completed ____________

☐ Fetal Assessment indicates:
☐ At least 1 acceleration of 15 bpm x 15 seconds in 30 minutes or adequate variability for 10 of the previous 30 minutes.
☐ No more than 1 late deceleration occurred.
☐ No more than 2 Variable decelerations exceeding 60 seconds in duration and decreasing greater than 60 bpm from the baseline within the previous 30 minutes.

☐ Uterine Contractions
☐ No more than 5 uterine contractions in 10 minutes for any 20-minute interval
☐ No two contractions greater than 120 seconds duration
☐ Uterus palpates soft between contractions
☐ If IUPEC is in place, MVU** must calculate less than 300 mm Hg and the baseline resting tone must be less than 25 mm Hg.

*If Oxytocin is stopped the Pre-Oxytocin Checklist will be reviewed before Oxytocin is reinitiated.
** MVU = Montevideo Units
“In Use” Oxytocin Checklist

• Fetal Assessment indicates:
  – At least 1 accel of 15 bpm x 15 sec in 30 min or adequate variability for 10 of the previous 30 min
  – No more than 1 late decel occurred
  – No more than 2 variable decels exceeding 60 sec in duration & decreasing >60 bpm from baseline within the previous 30 min

• Uterine Contractions
  – No more than 5 ctx in 10 min for any 20 min interval
  – No two ctx >120 sec duration
  – Uterus palpates soft between ctx
  – If IUPC is in place, MVU must calculate <300 mm Hg & the baseline resting tone must be <25 mm Hg

“In Use” Oxytocin Checklist: Uterine Contractions

Oxytocin

No Oxytocin
Outcomes

• Max dose used to achieve delivery significantly lower in checklist-managed group

• No difference in length of any stage or phase of labor, total time of oxytocin administration, or rate of operative vaginal or abdominal delivery

• CD rate declined & newborn outcome improved

Outcomes

• Primary CD rate in 220,000 deliveries fell from 23.6% to 21.0% in contrast to annual increase of 1-4% in previous years

[Graph showing the trend of Primary Cesarean Delivery Rate from 2001 to 2006]
Conclusion

• Non-medically indicated IOL should not be undertaken before 39 0/7 or before a favorable cervix

• ACOG has set forth recommendations for timing of delivery for medically indicated IOL at $\geq 34$ 0/7

• ACOG patient safety checklists can be used to guide the scheduling & admission criteria for IOL

• When delivery is indicated & the cervix is unfavorable, cervical ripening agents should be used

• A standardized protocol for IOL exists & is associated with a reduction in the rate of failed IOL & the length of labor
  - These findings hold true for nulliparas & multiparas, for all GA $\geq 24$ 0/7, & for women with prior CD(s)