

# Induction

## Position

The International Childbirth Education Association (ICEA) finds that spontaneous, physiologic labor provides benefits to babies and mothers. Induction of labor is a process utilizing various chemical and mechanical methods to initiate uterine contractions before the onset of spontaneous labor with the goal of accomplishing a successful birth. Augmentation of labor is initiated when spontaneous labor has either slowed, contractions are hypotonic, or labor progress has stopped. This position paper will focus solely on induction of labor.

## Background

The use of labor induction in the U.S. has risen from less than 10% to more than 22% between 1990 and 2006. Other studies show induction rates higher than 22%. An analysis of 230,000 medical records of U.S. women birthing from 2002-2008 in a 19 hospital consortium reported an induction rate of 44% among women planning vaginal birth (Goer and Romano, 2012).

According to the American College of Obstetricians and Gynecologists (ACOG), induction of labor is indicated when the benefits to the mother and/or the fetus outweigh the risks of continuing the pregnancy (ACOG, 2009). Some examples in which labor induction is indicated include (but are not limited to) gestational or chronic hypertension, preeclampsia, eclampsia, diabetes, premature rupture of membranes, severe fetal growth restriction, and post-term pregnancy. Controversy regarding the exact definition of post-term or postdates pregnancy still looms.

## Evaluating Readiness for Induction: The Bishop Score

In 1964, Bishop developed a pelvic scoring system to predict inducibility by evaluating the position of the cervix as it relates to the vagina, the cervical *consistency*, *dilation*, *effacement* and *station* of the presenting part (Bishop, 1964).

The higher the score, the more favorable the cervix with a clinical trial showing a score of 6-7 or more associated with successful inductions.

### Bishop Scoring System

Criteria	Scores			
	0	1	2	3
Dilation (cms)	0	1-2	3-4	5-6
Effacement (%)	0-30	40-50	60-70	80
Station	-3	-2	-1	+1, +2
Consistency	Firm	Med	Soft	—
Position	Posterior	Mid	Anterior	—

In nulliparous women with prolonged pregnancy, the Bishop Score predicts the need for cesarean section better than the ultrasonographic assessment of the cervix (Uzun, et al, 2013).

During the 1990s and 2000s, the U.S. saw a 30% increase in preterm births (before 37 completed weeks gestation, reaching an all-time high of 12.8% in 2006 (March of Dimes, 2006).

In 2012, the Association of Women’s Health, Obstetric and Neonatal Nurses (AWHONN) identified more pregnant women were electing to induce labor before term and thus putting their babies at risk for significant health issues (AWHONN, 2012).

The health risks for infants associated with an elective early term birth include:  Greater chance of dying early;

-  More likely to need care in the neonatal intensive care unit;
-  Problems breathing, including needing a ventilator;
-  Problems feeding, including coordinating sucking and swallowing; and
-  Increased need for special educational interventions later in life.

AWHONN urged nurses to help improve health outcomes for mothers and babies through education and intervention:

- › Asking hospital-based and other childbirth educators to include fetal development and early term birth health risk information in childbirth classes;
- › Providing information about the risks of early term birth to the pregnant women for whom they provide care; and
- › Educating women and healthcare providers alike about the health benefits of normal spontaneous birth and the prevention of unnecessary elective induction delivery.

## Indications for Induction

Election to induce has not been identified as a clinical indication for induction. Since 1982, the American College of Obstetricians and Gynecologists (ACOG) have had specific guidelines in place that recommend against elective inductions in early term or before 39 weeks. However, they do maintain “Guideline Suggestions for Elective Labor Induction” on their website. ACOG issued a joint statement in 2013 with the Society for Maternal-Fetal Medicine titled “Early Deliveries Without Medical Indications: Just Say No” (ACOG, 2013). AWHONN and the March of Dimes (AWHONN, 2012; March of Dimes, 2006) have made the public aware that babies should be growing inside the Mother’s uterus for as long as possible through various initiatives. Election to induce includes but is not limited to request for induction because a woman is “tired of being pregnant”, a family member will only be in town for a certain length of time, the family would like the baby born on a certain date, or the “favorite” physician is going out of town. Clinical indications for induction (ACOG, 2009) include:

- › Abruptio placentae;
- › Chorioamnionitis;
- › Fetal demise;
- › Gestational hypertension;
- › Preeclampsia, eclampsia;
- › Premature rupture of membranes;
- › Postterm pregnancy;
- › Maternal medical conditions (e.g., diabetes mellitus, renal disease, chronic pulmonary disease, chronic hypertension, antiphospholipid syndrome); and
- › Fetal compromise (e.g., severe fetal growth restriction, isoimmunization, oligohydramnios).

Contraindications for labor induction (ACOG, 2009) includes:

- › Vasa previa or complete placenta previa;
- › Transverse fetal lie;
- › Umbilical cord prolapse;
- › Previous classical cesarean delivery;
- › Active genital herpes infection; and
- › Previous myomectomy entering the endometrial cavity.

## Methods of Induction

The non-pharmacologic alternative approaches for cervical ripening and inducing labor can be safe, less-invasive, and more cost-effective than their pharmacological counterparts. Non-pharmacological methods may include acupuncture, sexual intercourse, nipple stimulation, herbal preparations, evening primrose oil, or castor oil. These methods require less clinical supervision; however, their effectiveness is less-documented in scientific literature. These alternative methods may require a longer period to ripen the cervix and initiate labor; therefore, time may be the determining factor in deciding which method to choose. The most important criteria for ripening the cervix and inducing labor is safety, for both the woman and her fetus. Nonpharmacological alternative methods are shown to be safe (Goer and Romano, 2012; NHS/NICE, 2008).

Pharmacologic or mechanical induction of labor include membrane stripping, Foley Balloon Catheter, or laminaria tents, cervical ripening agents, Pitocin/Syntocinon, Misoprostol/Cytotec, and Artificial Rupture of Membranes (AROM) via an amniotome (amniotomy).

A randomized controlled trial (RCT) of 123 women undergoing induction of labor with singleton pregnancies at 24 weeks gestation or greater with an unfavorable cervix (Bishop score 6 or lower). Women with fetal malpresentation, multifetal gestation, spontaneous labor, contraindication to prostaglandins, nonreassuring fetal heart rate tracing, intrauterine growth restriction, anomalous fetus, fetal demise, or previous cesarean delivery or other significant uterine surgery were excluded. The primary outcome measure was induction-to-delivery time. Secondary outcomes were mode of delivery, tachysystole with fetal decelerations, terbutaline use, postpartum hemorrhage, chorioamnionitis, neonatal Apgar scores, and neonatal intensive care unit admission. Wang found that a combination of the Foley Balloon Catheter bulb and vaginal misoprostol resulted in shorter induction-to-delivery time when compared with vaginal misoprostol alone without increasing labor complications (Wang, et al, 2014). However, tachysystole, non-reassuring fetal heart patterns and cases of newborn umbilical cord arterial blood pH <7.1 were significantly lower with transvaginal balloon catheter than with

dinoprostone vaginal insert (Glantz, 2010; Goer and Romano, 2012).

A 2013 review of the Cochrane Database for efficacy of AROM for shortening spontaneous labor showed that there is a lack of evidence for amniotomy being introduced routinely as a part of standard labor management and care (Smyth, 2013). However, early AROM after vaginal misoprostol for labor induction is associated with higher successful vaginal delivery, shorter labor and better neonatal outcome.

Another Cochrane Database Review for membrane stripping showed a lack of evidence for clinical benefits (Boulvain, et al, 2005).

Amniotomy is another ritualistic practice that has come under scrutiny. Several older studies have demonstrated the lack of efficacy of breaking the amniotic sac and have indicated that the increased pain of labor interfered with the onset of maternal affection immediately after birth as many women felt the birthing process had been interrupted (Bricker and Luckas, 2000; Robson and Kumar, 1980).

## Complications of Induction

Even in low risk women, induction of labor, regardless of the method used, is associated with a higher risk of postpartum hemorrhage than spontaneous labor (Khireddine, et al, 2013). Additionally, in multiparous women, the risk of cesarean delivery following induction increases with previous preterm delivery, short maternal height, and limited dilatation at the start of induction (Verhoeven, et al, 2013). Careful titration of oxytocin is necessary to avoid uterine tachysystole (Kunz, et al, 2013). A common complication, tachysystole, may be reduced by removal of induction agent.

Induction of labor has been associated with a shorter duration of any breastfeeding (Bai, 2013).

An increase in maternal/neonatal infections has been reported with laminaria and other hygroscopic dilators. Foley catheters also can cause significant vaginal bleeding in women with a low-lying placenta (ACOG, 2013).

Childbirth Connection asserts that although the public and professional perception that induction of labor is convenient and cost-effective, the reality is that (elective) induction of labor can result in neonatal intensive care admission and can increase the length of the hospital stay and the overall cost of care. In addition, elective induction, especially in first-time mothers, frequently results in c-section which exposes mothers to the risks of surgery, requires a longer recovery, and affects choices, outcomes, and costs in future pregnancies (Childbirth Connection, 2011).

Labor inductions should, therefore, be performed for specific indications and women should be fully informed of the possible risks, including failed induction leading to cesarean delivery (Glantz, 2010).

## Implications for Practice

There are numerous choices of induction methods that range from alternative to conventional; from noninvasive to invasive; and from non-pharmacologic to pharmacologic. ICEA takes the position that obstetrical intervention and technology should only be used in the presence of medically valid criteria and early induction methods should only be performed when a thorough medical assessment has been documented.

ICEA supports the focus on uncomplicated vaginal births and recommends that childbirth classes emphasize selfhelp strategies.

Since the pattern of labor is unpredictable and is subject to change, it would be desirable for every pregnant couple to participate in an education program where the many options and alternatives for all medical procedures are discussed. ICEA recommends childbirth educators teach from a Risk/Benefit position and childbirth education curricula consist of the following information concerning the induction of labor:

- › Information is presented in an unbiased format.
- › Information presented should reflect the common practices in their communities and prepare the learner accordingly.
- › Participants are educated on the rights of expectant parents and informed consent.
- › Learners are provided with the tools to obtain information to help in their decision-making process.
- › Printed materials reflect a risk/benefit approach that is well-referenced.
- › Information is provided for each procedure.
- › Expected restrictions that might be imposed by various induction methods are discussed.

Pregnant couples are informed of other medical interventions that might be involved such as intravenous infusion, blood pressure monitoring, rupture of membranes, and the risk for a possible cesarean delivery.

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