



ASSESSMENT FOR

Elective Labor Induction

2019 Update

Labor induction involves the stimulation of uterine contractions to produce delivery before the onset of spontaneous labor. Induction of labor is indicated when the potential risks of continuing a pregnancy outweigh the benefits. At times, this is clear (e.g., when one of the indications listed on the following page threatens the health of the mother or baby). In other circumstances, the physician and patient may choose to induce labor to expedite delivery in the absence of well-accepted medical indications—that is to **electively induce labor**.^{HAR} Common reasons for elective induction include a history of fast labors, patient living far from the hospital, advanced cervical dilation, and issues of convenience. As with any obstetrical procedure, the benefits of elective induction must be weighed against the potential maternal and fetal risks.

The treatment guidelines summarized in this document were created by the Obstetrical Development Team of the Women and Newborns (W&N) Clinical Program at Intermountain Healthcare. The guidelines are derived from Intermountain practice outcomes, expert consensus, and recommendations from the American College of Obstetricians and Gynecologists (ACOG).^{ACO1}

► Why Focus on ELECTIVE LABOR INDUCTION?

Since the initial adoption of the guidelines described in this care process model (CPM), Intermountain has dramatically reduced the percentage of elective deliveries performed at < 39 weeks gestation—and not approved by Intermountain Maternal and Fetal Medicine (MFM) for special reasons—from 28% of all elective deliveries in 1999, to less than 1%.

Elective inductions that do not meet criteria recommended by ACOG (e.g., ≥ 39 weeks gestation and Bishop score ≥ 8) may result in:

- Increased risk for infection
- Premature delivery
- Longer labor due to the need for cervical ripening
- Scheduling and staffing challenges that both increase overall healthcare costs and inconvenience other practitioners and patients
- Need for cesarean delivery (C-section)

However, recently published evidence concludes that elective labor induction at 39 weeks gestation as compared to expectant management, may be done safely and result in the following:^{GRO}

- No difference in perinatal morbidity
- Decrease in the rate of C-section to 19% in the induction of labor group as compared to 22% in the expectant management group
- Reduction of hypertensive disorders in the induction group to 9% as compared to 14% in the expectant management group
- Better patient satisfaction in the induction of labor group

(Note: See [page 4](#) for more Intermountain and national data.)

► WHAT'S INSIDE?

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MEASUREMENT & GOALS

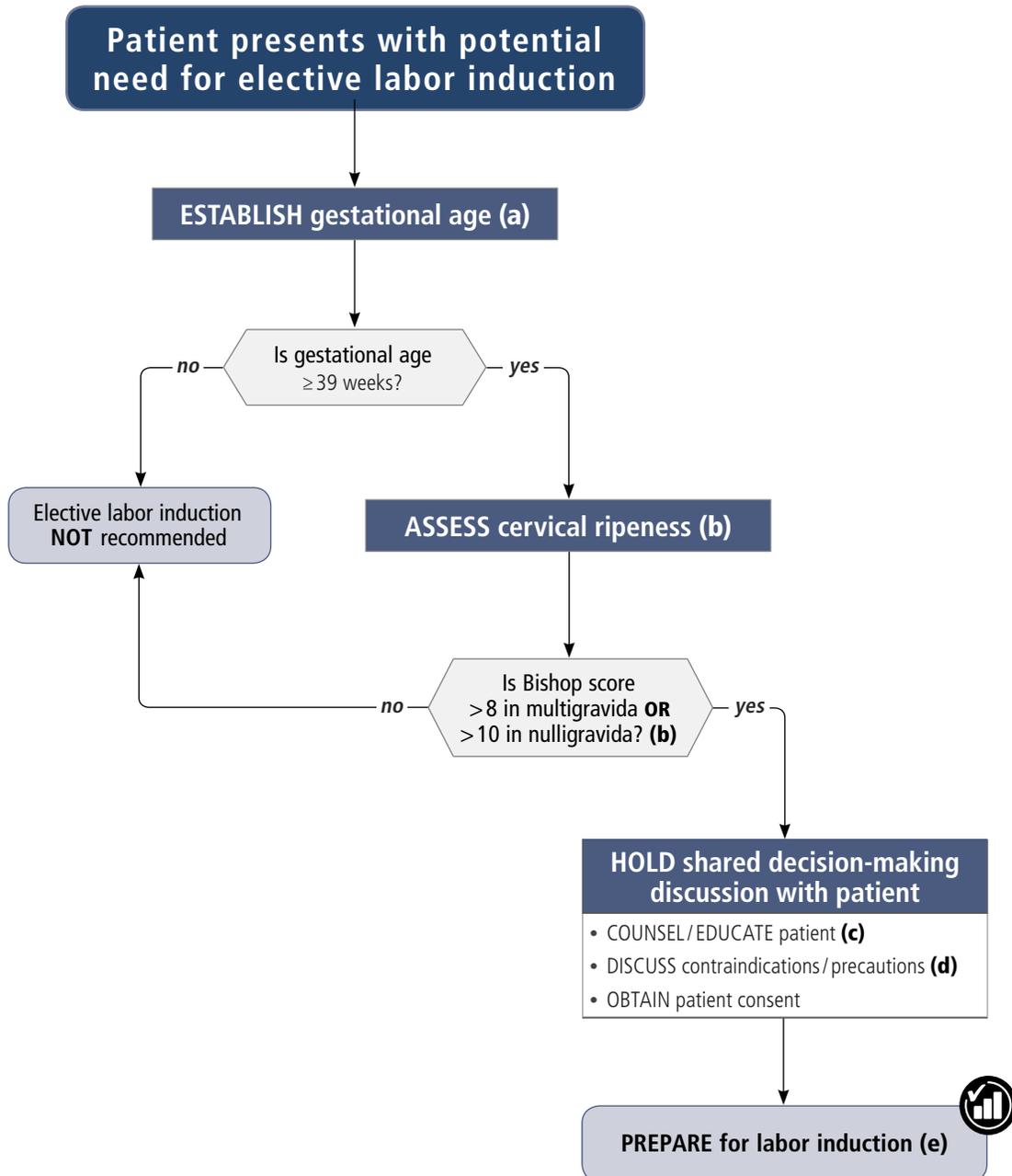
The primary goal of this CPM is to continue to educate physicians and patients on the safe and efficacious practice of elective labor induction. The primary measure will be tracking the appropriate use of elective labor inductions.



Indicates an Intermountain measure



▶ ALGORITHM: ASSESSMENT OF NEED FOR ELECTIVE LABOR INDUCTION



ALGORITHM NOTES

(a) Gestational age

Delivery, whether by induction or C-section, should be electively undertaken ONLY AFTER:

- 39 weeks gestation, regardless of fetal lung maturity testing
- Both the mother and fetus have been examined thoroughly (see note **b**)
- The patient has given consent

In most patients, the gestational age is well-established by considering the menstrual dates based on last menstrual period (LMP) and obstetric ultrasound findings. ACOG guidelines indicate that as soon as data from the LMP, the first accurate ultrasound examination—or both—are obtained, the gestational age and the estimated date of delivery (EDD) should be determined, discussed with the patient, and documented clearly in the medical record (see ACOG's [Guidelines for Redating Based on Ultrasonography](#)).^{AC02}

Assume fetal maturity (IF ANY):^{AC01}

- Fetal heart tones have been documented for 20 weeks by non-electronic fetoscope or for 30 weeks by Doppler.
- It has been 36 weeks since a positive serum or urine human chorionic gonadotropin pregnancy test was performed by a reliable method.
- An ultrasound measurement of the crown-rump length, obtained at 6–12 weeks, supports a gestational age of ≥ 39 weeks.
- An ultrasound scan, obtained at 13–20 weeks, confirms the gestational age (of ≥ 39 weeks) determined by clinical history and physical examination.

(Note: Graphs on [page 4](#)—generated with Intermountain data—show the increase in NICU admissions and ventilator usage in relation to gestational weeks.)

(b) Assessment of cervical ripeness

The cervix should be assessed for its state of ripeness. It is recommended that the physician or certified midwife use a Bishop score as part of the assessment process. (If needed, use a [Bishop Score Calculator](#) to determine the score.)

Ideally, the Bishop score should be > 8 in multigravida women and > 10 in nulligravida women. If the Bishop score is > 8 , the probability of vaginal delivery after induction is similar to that of spontaneous labor.^{AC01}

Longer labor and delivery, and unplanned C-sections, result in more complications for mother and baby and always add cost.

(Note: Graphs on [page 4](#)—generated with Intermountain data—show how the Bishop score relates to rates of unplanned C-sections and to average hours in labor and delivery for nulligravida elective inductions.)

(c) Patient counseling

The patient should be counseled regarding:^{AC01}

- Indications for induction.
- Agents and methods of labor stimulation.
- Possible need for repeat induction or C-section.
- Intermountain patient education resources. The Intermountain fact sheet, [Elective Labor Induction—When is it okay?](#), is available in English and Spanish at intermountain.net/pel or from [Intermountain's Design & Print Center](#).

**(d) Contraindications and precautions**

Contraindications	Precautions
<p>The individual patient and clinical situation should be considered in determining when labor induction is contraindicated. Contraindications include, but are not limited to, the following situations:^{AC01}</p> <ul style="list-style-type: none"> • Vasa previa or complete placenta previa • Transverse fetal lie • Umbilical cord prolapse • Previous classical C-section • Active genital herpes infection • Previous myomectomy entering the endometrial cavity 	<p>Several obstetric situations are not contraindications to labor induction but do necessitate special precautions. These include, but are not limited to, the following:^{AC01}</p> <ul style="list-style-type: none"> • One or more previous low-transverse C-sections • Breech presentation • Maternal heart disease • Multifetal pregnancy • Polyhydramnios • Presenting part above the pelvic inlet • Severe hypertension • Abnormal fetal heart rate patterns not necessitating emergent delivery

(e) Preparation for induced labor

The following records/personnel should be present and available:

- The patient's prenatal record should be on the patient's chart.
- Personnel familiar with the maternal and fetal effects of uterine-stimulating agents should be in attendance during labor induction.
- A physician who has privileges to perform C-sections.

REFERENCES

ACO1 ACOG Committee on Practice Bulletins—Obstetrics. ACOG Practice Bulletin No. 107: Induction of labor. *Obstet Gynecol.* 2009;114(2 Part 1): 386-397.

ACO2 ACOG Committee Opinion No. 611: Method for estimating due date. *Obstet Gynecol.* 2014;124(4):863-866.

CDC1 Martin JA, Hamilton BE, Sutton PD, et al. Births: Final data for 2006. *Natl Vital Stat Rep.* 2011;57(7):1-101.

CDC2 Martin JA, Hamilton BE, Ventura MA, et al. Births: Final data for 2009. *Natl Vital Stat Rep.* 2011;60(1):1-71.

CDC3 Martin JA, Hamilton BE, Osterman MJK, Curtin SC, Matthews TJ. Births: Final data for 2012. *Natl Vital Stat Rep.* 2013;62(9):1-71.

CDC4 Martin JA, Hamilton BE, Osterman MJK, Driscoll AK, Drake P. Births: Final data for 2017. *Natl Vital Stat Rep.* 2018;67(8):1-49.

CLA Clark SL, Miller DD, Belfort MA, Dildy GA, Frye DK, Meyers JA. Neonatal and maternal outcomes associated with elective term delivery. *Am J Obstet Gynecol.* 2009;200(2):156.e1-156.e4.

GRO Grobman WA, Rice MM, Reddy UM, et al. Labor induction versus expectant management in low-risk nulliparous women. *N Engl J Med.* 2018;379(6): 513-523.

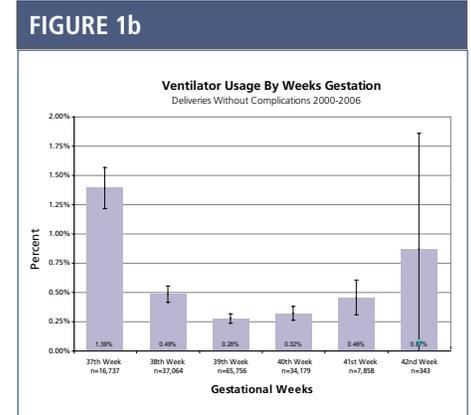
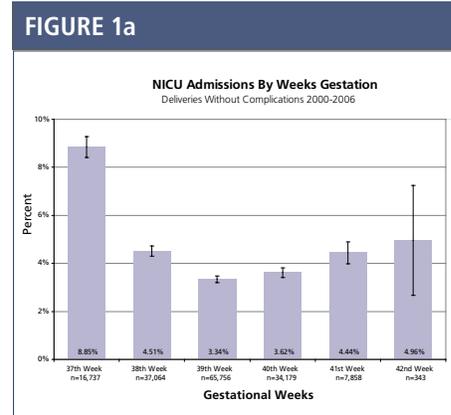
HAR Harris S, Buchinski B, Grzybowski S, Janssen P, Mitchell GW, Farquharson D. Induction of labour: A continuous quality improvement and peer review program to improve the quality of care. *Can Med Assoc J.* 2000;163(9):1163-1166.

OSH Oshiro BT, Henry E, Wilson J, Branch DW, Varner MW; Women and Newborn Clinical Integration Program. Decreasing elective deliveries before 39 weeks of gestation in an integrated health care system. *Obstet Gynecol.* 2009;113(4):804-811.

► DATA & STATISTICS

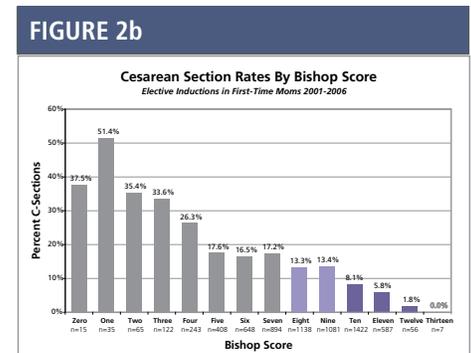
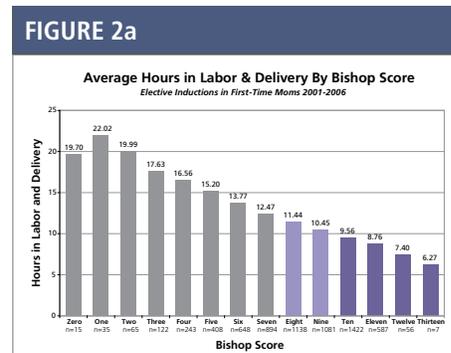
Intermountain Healthcare

Labor induction at < 39 weeks gestation: Intermountain data show that deliveries at < 39 weeks gestation result in an increased number of neonates with NICU admits (see figure 1a), respiratory distress syndrome, and ventilator usage (figure 1b), thereby increasing neonatal morbidity in such infants.



Unfavorable Bishop score (< 8 in multigravida; < 10 in nulligravida):

Intermountain data show that patients who have an elective labor induction with an unfavorable Bishop score spend more time in labor and delivery (figure 2a) and are more likely to need an unplanned C-section (figure 2b).



United States

The overall rate of labor induction in the U.S. more than doubled during a 20-year period, from 9.6% in 1990 to 23.2% in 2009.^{CDC1, CDC2} While the rate decreased slightly to 22.8% in 2012, it steadily increased each of the following years, reaching 25.7% in 2017.^{CDC3, CDC4} Elective labor inductions without a clear medical or obstetric indication have also been increasingly common.^{OSH, CLA}

This CPM presents a model of best care based on the best available scientific evidence at the time of publication. It is not a prescription for every physician or every patient, nor does it replace clinical judgment. All statements, protocols, and recommendations herein are viewed as transitory and iterative. Although physicians are encouraged to follow the CPM to help focus on and measure quality, deviations are a means for discovering improvements in patient care and expanding the knowledge base. Send feedback to Jean Millar, Intermountain Healthcare, Clinical Operations Director (Jean.Millar@imail.org).

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