Boston Medical Center Maternity Care Guideline
Guideline: INDUCTION OF LABOR
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Updated:
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Introduction

- In the absence of maternal or fetal indications delivery should not occur prior to 39 weeks. When fetal or maternal conditions arise indicating induction of labor shared decision making, informed consent, and evidence-based practice should be used for induction planning.

- Induction of labor may be indicated for maternal, fetal and obstetric indications. **Early delivery prior to 39 weeks is only recommended when certain criteria are met.** It is the OBGYN and Family Medicine department's goal to prevent elective delivery prior to 39 weeks. See Appendix I & II for ACOG recommendations for IOL and rates of stillbirth associated with maternal/fetal conditions.

Management of obstetric patients for induction of labor or delivery

- **Early delivery prior to 39 weeks**
  Delivery prior to 39 weeks is only indicated when certain maternal, fetal and obstetric risks are present. Please link to the resource below for a list of exceptions to this rule. If you have questions, please consult with the Labor and Delivery Nurse Manager or the OB director of quality improvement.

Patients who may be admitted for immediate induction of labor:

- Spontaneous Rupture of Membranes at term (>37 weeks) and GBS+. PROM at term and GBS negative may use shared decision making for 24 hours of outpatient management versus immediate inpatient management.
- Premature Rupture of Membranes (<37 weeks)
- Chorioamnionitis
- Gestational hypertension and/or Preeclampsia with or without severe features at term. Gestational hypertension and/or Preeclampsia with or without severe features $\leq$ 37 weeks per MFM recommendation
- Fetal Demise
- Oligohydramnios: maximal vertical pocket of <2x2 $\geq$ 37 weeks.
- Non-Reassuring Fetal Testing

- **Patients who may be scheduled for induction of labor >37weeks gestational age:**
  - **Fetal Abnormalities**
  - **Twin gestation**:
    - Uncomplicated di-di twins 37-38 weeks
    - Uncomplicated mono-di twins 36-37 weeks
    - Complicated twin gestation plan delivery timing with MFM consult
  - **Gestational hypertension** and/or Preeclampsia without severe features at term at time of diagnosis
  - **Chronic Hypertension on medications**, well controlled, plan for induction of labor by 39 weeks
  - **Prior pregnancy with fetal demise**, IOL after 39 weeks with shared decision making with patient
  - **Oligohydramnios**: If AFI <5 but maximal vertical pocket of <2x2 $\geq$ 37 weeks
    - no comorbidities can repeat AFI in 4 days
    - no comborbidities, otherwise normal fetal testing, use shared decision making for immediate induction versus repeat fetal monitoring and awaiting spontaneous labor
  - **Cholestasis**
    - Reasonable at time of diagnosis after 37 weeks and recommended by 39 6/7weeks with evidence of elevated bile acids and/or abnormal LFTs
  - **Intrauterine Growth Restriction** (<10th percentile) - ultrasound performed within 2
    - IUGR< 5-9%tile and normal dopplers: Delivery at 39.0-39.6d unless significant drop in growth curve or concurrent conditions
    - IUGR & elevated dopplers: Delivery @37 weeks unless significant drop in growth curve or concurrent conditions
    - IUGR & reversed or absent diastolic flow: MFM management

  - **Diabetes**
    - Diet-Controlled GDM: There are no clear gestational age guidelines regarding induction for women with well-controlled gestational diabetes on diet alone. It is reasonable to induce these patients between 40-41 weeks. An ultrasound for EFW should be obtained at 37-38 weeks gestation for counseling about mode of delivery in the presence of suspected fetal macrosomia (EFW >4500 g at delivery).
    - GDM on medications: Patients with well-controlled gestational diabetes treated with oral medications or insulin are recommended to undergo induction of labor between 39 0/7-39 6/7 weeks
    - Type 2 Diabetes: well controlled induction of labor at 39 weeks
    - Poorly controlled diabetes plan delivery timing with MFM consult

- **Advanced Maternal Age**
  - At this time there are no national recommendations for early IOL for AMA, and no guideline at BMC. Shared decision making should be used when discussing elective IOL for AMA mothers. (See Appendix III)

- **Elective IOL >39 weeks**
  - Shared decision making should be used when considering elective inducations.

- **Gestation Greater than 41 weeks/Postdates pregnancy**
  - The incidence of stillbirth or infant death is increased in pregnancies that continue beyond 42 weeks is approximately 4 to 7 deaths per 1000 deliveries. By comparison, the risk of stillbirth or infant death in pregnancies between 37 and 42 weeks is 2 to 3 per 1000 deliveries. (see Appendix III)
  - There is an increased risk of macrosomia and meconium with postterm pregnancy
  - Maternal risks include increased risk of cesarean birth, postpartum hemorrhage, and chorioamnionitis

- **The following are not indications for labor induction:**
  - Falling off of the growth curve
  - Suspected Macrosomia
  - Any indicator that is not listed in the "Conditions possibly justifying elective delivery prior to 39 weeks gestation".

Logistical Practice for BMC and CHC providers

- Inductions of labor can be scheduled by calling the unit coordinator on Labor and Delivery at 617-414-4364. If unable to schedule the patient within a reasonable time frame please request to speak to the Charge Nurse or L&D Nurse Manager.
- Please have patients name, BMC MRN number, EDD, gestational age at time of IOL, and indication for IOL ready to provide to unit coordinator.
- Induction of labor for **postdates** between 41-42 weeks may be booked with the L&D unit coordinator when the patient has completed 40 weeks gestation. Patients should be scheduled for fetal testing after 41 weeks gestation.

Patient Education Materials

- See attached for patient education letters in English and Spanish for IOL.
- Patients should be advised to contact L&D prior to arrival for their IOL to ensure on time start. IOL dates sometimes need to be moved due to floor acuity.

B O S T O N M E D I C A L C E N T E R

Department of Obstetrics & Gynecology

Dear Patient,

Welcome to Boston Medical Center. We are very happy that you will have your baby with us. The date for your Induction of Labor is:

Date: _____

Time: _____

Place: Women and Infants Center, Yawkey Building, 4th Floor

Please register for your appointment at the desk on Labor and Delivery in the Yawkey building, 4th floor. We want to start your induction soon after you arrive. Sometimes it is very busy on the Labor and Deliver floor. You may have to wait before we can begin the induction. Rarely, we will call you to change your induction time.

Please remember:

- Your induction may take two to three days before your baby is born

-Eat before you come to BMC. There will be times during your induction when we will ask you not to eat.

- Bring any items that you may need for yourself or your baby (clothing, toothbrush, baby clothes, car seat, etc).

- Bring your identification, Health Insurance card, Health Care Proxy and Tubal Ligation Consent (if that is your plan).

- Let your Birth Sister[sm] know your induction time and day.

To learn more, talk to your provider. After office hours, please call (617) 414-2000.

Sincerely,

The Labor and Delivery Staff

[sm] Birth Sister is a registered service mark of Urban Midwife Associates and is used with permission.

B O S T O N M E D I C A L C E N T E R

Departamento de Obstetricia y Ginecología

Estimada Paciente:

Bienvenida a Boston Medical Center (BMC). Nos sentimos muy contentos de que usted venga nuestro hospital a tener a su bebé.

La cita para su inducción de parto es:

Fecha: _____

Hora: _____

Lugar: El Centro Materno Infantil, Yawkey Edificio 4ª Piso

Por favor, regístrese para su cita en el mostrador en el Centro Materno Infantil en el edificio de Yawkey, 4ª piso. Nosotros queremos comenzar la inducción de parto tan pronto que usted llegue. En ocasiones estamos muy ocupados en la unidad de partos. Puede que usted tenga que esperar antes de su inducción. En muy raras ocasiones le llamaremos para cambiar la cita de su inducción.

Por favor recuerde:

- La inducción puede durar varios días antes de que nazca su bebé.
- Comer antes de llegar al BMC. Usted no podrá comer luego de que comience la inducción.
- Traiga las cosas que usted o su bebé puedan necesitar. Por ejemplo: ropa, cepillo de dientes, ropa para el bebé, asiento para el bebé, etc).
- Traiga su identificación con foto, tarjeta de seguro médico, consentimiento para esterilización (si estos son sus planes), Health Care Proxy (documento para designar persona para tomar decisiones médicas de usted no poder).
- Si usted tiene Birth Sister[sm] (Hermana de Parto), dígale sobre su cita para la inducción.

Para obtener más información, hable con su proveedor. Llame al 617-414-2000 durante horas laborables.

Sinceramente,

Personal de la unidad de partos

References

Induction of Labor. ACOG Practice Bulletin No. 107. American College of Obstetricians and Gynecologists. Obstet Gynecol 2009;114:386-97.

ACOG Practice bulletin no. 134: fetal growth restriction. Obstetrics and gynecology 2013; 121(5): 1122-33.

ACOG committee opinion no. 560: Medically indicated late-preterm and early-term deliveries. Obstetrics and gynecology 2013; 121(4): 908-10.

ACOG practice bulletin No. 102: Management of Stillbirth. *Obstet Gynecol* 2009 Mar;113(3):748-61.

Page et al. Term fetal/infant mortality risk stratified by maternal age. *Am J Obstet Gynecol* 2013.

https://manual.jointcommission.org/releases/TJC2017A/AppendixATJC.html#Table_Number_11.07:_Conditions_Possibly_Justifying_Elective_Delivery_Prior_to_39_Weeks_Gestation

Appendix I: ACOG Timing of Delviery at or after 34 Weeks Gestational Age

Table 1: Recommendations for the Timing of Delivery When Conditions Complicate Pregnancy at or After 34 Weeks of Gestation ⇦

Condition	General Timing	Suggested Specific Timing
Placental/uterine issues		
Placenta previa*	Late preterm/early term	36 0/7–37 6/7 weeks of gestation
Placenta previa with suspected accreta, increta, or percreta*	Late preterm	34 0/7–35 6/7 weeks of gestation
Prior classical cesarean	Late preterm/early term	36 0/7–37 6/7 weeks of gestation
Prior myomectomy	Early term/term (individualize)	37 0/7–38 6/7 weeks of gestation
Fetal issues		
Growth restriction (singleton)		
Otherwise uncomplicated, no concurrent findings	Early term/term	38 0/7–39 6/7weeks of gestation
Concurrent conditions (oligohydramnios, abnormal Doppler studies, maternal co-morbidity [eg, preeclampsia, chronic hypertension])	Late preterm/early term	34 0/7–37 6/7 weeks of gestation
Growth restriction (twins)		
Di–Di twins with isolated fetal growth restriction	Late preterm/early term	36 0/7–37 6/7 weeks of gestation
Di–Di twins with concurrent condition abnormal Doppler studies, maternal co-morbidity [eg, preeclampsia, chronic hypertension])	Late preterm	32 0/7–34 6/7 weeks of gestation
Mo–Di twins with isolated fetal growth restriction	Late preterm	32 0/7–34 6/7 weeks of gestation
Multiple gestations		
Di–Di twins	Early term	38 0/7–38 6/7 weeks of gestation
Mo–Di twins	Late preterm/early term	34 0/7–37 6/7 weeks of gestation
Oligohydramnios	Late preterm/early term	36 0/7–37 6/7 weeks of gestation
Maternal issues		
Chronic hypertension		
Controlled on no medications	Early term/term	38 0/7–39 6/7 weeks of gestation
Controlled on medications	Early term/term	37 0/7–39 6/7 weeks of gestation
Difficult to control	Late preterm/early term	36 0/7–37 6/7 weeks of gestation
Gestational hypertension	Early term	37 0/7–38 6/7 weeks of gestation
Preeclampsia—severe	Late preterm	At diagnosis after 34 0/7 weeks of gestation
Preeclampsia—mild	Early term	At diagnosis after 37 0/7 weeks of gestation
Diabetes		
Pregestational well-controlled*	Late preterm, early term birth not indicated	
Pregestational with vascular complications	Early term/term	37 0/7–39 6/7 weeks of gestation
Pregestational, poorly controlled	Late preterm or early term	Individualized
Gestational—well controlled on diet or medications	Late preterm, early term birth not indicated	
Gestational—poorly controlled	Late preterm or early term	Individualized
Obstetric issues		
PPROM	Late preterm	34 0/7 weeks of gestation

Abbreviations: Di–Di, dichorionic–diamniotic; Mo–Di, monochorionic–diamniotic; PPROM, preterm premature rupture of membranes.

*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. Committee Opinion 560. Medically Indicated late-Preterm and Early=Term Deliveres. Obstet&Gynecol. 2013;121(4):908-910.

Appendix II: Risk of Stillbirth Induction of Labor Counseling Tool:

Table 2. Estimates of Maternal Risk Factors and Risk of Stillbirth

Condition	Prevalence	Estimated rate of stillbirth	OR*
All pregnancies		6.4/1000	1.0
Low-risk pregnancies	80%	4.0–5.5/1000	0.86
Hypertensive disorders			
Chronic hypertension	6%–10%	6–25/1000	1.5–2.7
Pregnancy-induced hypertension			
Mild	5.8%–7.7%	9–51/1000	1.2–4.0
Severe	1.3%–3.3%	12–29/1000	1.8–4.4
Diabetes			
Treated with diet	2.5%–5%	6–10/1000	1.2–2.2
Treated with insulin	2.4%	6–35/1000	1.7–7.0
SLE	<1%	40–150/1000	6–20
Renal disease	<1%	15–200/1000	2.2–30
Thyroid disorders	0.2%–2%	12–20/1000	2.2–3.0
Thrombophilia	1%–5%	18–40/1000	2.8–5.0
Cholestasis of pregnancy	<0.1%	12–30/1000	1.8–4.4
Smoking >10 cigarettes	10%–20%	10–15/1000	1.7–3.0
Obesity (prepregnancy)			
BMI 25–29.9 kg/m²	21%	12–15/1000	1.9–2.7
BMI >30	20%	13–18/1000	2.1–2.8
Low educational attainment (<12 y vs. 12 y+)	30%	10–13/1000	1.6–2.0
Previous growth-restricted infant (<10%)	6.7%	12–30/1000	2–4.6
Previous stillbirth	0.5%–1.0%	9–20/1000	1.4–3.2
Multiple gestation			
Twins	2.7%	12/1000	1.0–2.8
Triplets	0.14%	34/1000	2.8–3.7
Advanced maternal age (reference <35 y)			
35–39 y	15%–18%	11–14/1000	1.8–2.2
40 y+	2%	11–21/1000	1.8–3.3
Black women compared with white women	15%	12–14/1000	2.0–2.2

*OR of the factor present compared to the risk factor absent.

Reprinted from Am J Obstet Gynecol, 193, Fretts R, Etiology and prevention of stillbirth, 1923–35, 2005, with permission from Elsevier.

References: ACOG practice bulletin No. 102: Management of Stillbirth

Appendix III: Postterm pregnancy by maternal age, gestational age, and parity

TABLE 1
Risk of stillbirth and infant death stratified by maternal age 35 years and gestational age

	Stillbirth per 10,000 ongoing pregnancies (95% CI)		Infant death per 10,000 live births (95% CI)	
GA, wks	**Maternal age <35 y**	**Maternal age ≥35 y**	**Maternal age <35 y**	**Maternal age ≥35 y**
37	2.2 (1.6–2.8)	3.3 (1.4–5.1)	37.1 (34.6–39.6)	23.9 (18.9–29.0)
38	3.0 (2.6–3.5)	4.0 (2.7–5.3)	25.4 (24.0–26.7)	15.9 (13.3–18.4)
39	3.9 (3.5–4.3)	5.0 (3.8–6.2)	18.8 (17.8–19.7)	10.9 (9.2–12.7)
40	6.8 (6.2–7.4)	10.0 (8.0–12.0)	17.4 (16.4–18.4)	10.3 (8.2–12.3)
41	8.5 (7.3–9.8)	15.4 (10.7–20.2)	15.6 (13.9–17.3)	11.9 (7.7–16.0)
42	28.2 (20.4–36.0)	32.5 (10.0–54.9)	22.6 (15.6–29.5)	24.4 (4.9–43.9)

Stillbirth was an intrauterine fetal demise occurring at or after 20 weeks' gestation. Infant death was a death occurring within the first year of life.
CI, confidence interval.
Page. Term fetal/infant mortality risk stratified by maternal age. Am J Obstet Gynecol 2013.

Does it make a difference if I've had a baby before?

Risk of stillbirth is lower if you have already had a baby before, regardless of your age.

*These numbers are different than the risks of stillbirth quoted earlier for people at 39-40 weeks (i.e., 2/1000 for clients 40 and over and 1/1000 for people under 35). That's because the numbers to the right represent the risk of stillbirth at any point between 37 and 41 weeks of pregnancy.

	Risk of stillbirth* at any point between 37 and 41 weeks of pregnancy	
During a first pregnancy	Age: Under 35 years	About 4 in 1000
	Age: 35 to 39 years	About 6.5 in 1000
	Age: 40 years and older	About 9 in 1000
During a second, third, fourth (or later) pregnancy	Age: Under 35 years	About 1 in 1000
	Age: 35 to 39 years	About 2 in 1000
	Age: 40 years and older	About 3 in 1000

In Due Time…Pregnancy beyond 40 and Induction of Labour. Ontario Midwives Association. 2017. https://www.ontariomidwives.ca/sites/default/files/2017-10/In-due-time-pregnancy-beyond-40-English.pdf

Rates of Stillbirth by Gestational Age and Maternal Age for general population versus "healthy women" defined as no DM, HTN, preeclampsia, heart/kideney/lung disease. https://evidencebasedbirth.com/advanced-maternal-age/