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Society for Maternal-Fetal Medicine

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Committee on Obstetric Practice
Society for Maternal-Fetal Medicine

This Committee Opinion was developed by the Committee on Obstetric Practice in collaboration with Society for Maternal-Fetal Medicine liaison member Cynthia Gyamfi-Bannerman, MD, MS, committee members Angela B. Gantt, MD, MPH and Russell S. Miller, MD, and the Society for Maternal-Fetal Medicine.

INTERIM UPDATE: The content in this Committee Opinion has been updated as highlighted (or removed as necessary) to reflect a limited, focused change in delivery timing recommendations around preterm prelabor rupture of membranes.

Medically Indicated Late-Preterm and Early-Term Deliveries

ABSTRACT: The neonatal risks of late-preterm and early-term births are well established, and the potential neonatal complications associated with elective delivery at less than 39 0/7 weeks of gestation are well described. However, there are a number of maternal, fetal, and placental complications in which either a late-preterm or early-term delivery is warranted. The timing of delivery in such cases must balance the maternal and newborn risks of late-preterm and early-term delivery with the risks associated with further continuation of pregnancy. Deferring delivery to the 39th week is not recommended if there is a medical or obstetric indication for earlier delivery. If there is a clear indication for a late-preterm or early-term delivery for either maternal or newborn benefit, then delivery should occur regardless of the results of lung maturity testing. Conversely, if delivery could be delayed safely in the context of an immature lung profile result, then no clear indication for a late-preterm or early-term delivery exists. Also, there remain several conditions for which data to guide delivery timing are not available. Some examples of these conditions include uterine dehiscence or chronic placental abruption. Delivery timing in these circumstances should be individualized and based on the current clinical situation.

Recommendations

The American College of Obstetricians and Gynecologists and the Society for Maternal-Fetal Medicine make the following recommendations:

- Deferring delivery to the 39th week is not recommended if there is a medical or obstetric indication for earlier delivery. Table 1 presents recommendations for the timing of delivery for a number of specific conditions.
- In the case of an anticipated late-preterm delivery, a single course of antenatal betamethasone is recommended within 7 days of delivery in select women who have not received a previous course of antenatal corticosteroids. However, a medically indicated late-preterm delivery should not be delayed for the administration of antenatal corticosteroids.

Introduction

The American College of Obstetricians and Gynecologists and the Society for Maternal-Fetal Medicine have long discouraged nonindicated delivery before 39 weeks of gestation. The reason for this longstanding principle is that the neonatal risks of late-preterm (34 0/7–36 6/7 weeks of gestation) and early-term (37 0/7–38 6/7 weeks of gestation) births are well established, and the potential neonatal complications associated with elective delivery at less than

Table 1. Recommendations for the Timing of Delivery When Conditions Complicate Pregnancy*

Condition	General Timing	Suggested Specific Timing
Placental/Uterine Conditions		
Placenta previa†	Late preterm/early term	36 0/7–37 6/7 weeks of gestation
Suspected accreta, increta, or percreta†	Late preterm	34 0/7–35 6/7 weeks of gestation
Vasa previa	Late preterm/early term	34 0/7–37 0/7 weeks of gestation
Prior classical cesarean delivery	Late preterm/early term	36 0/7–37 0/7 weeks of gestation
Prior myomectomy requiring cesarean delivery‡	Early term (individualize)	37 0/7–38 6/7 weeks of gestation
Previous uterine rupture	Late preterm/early term	36 0/7–37 0/7 weeks of gestation
Fetal Conditions		
Oligohydramnios (isolated or otherwise uncomplicated [deepest vertical pocket less than 2 cm])	Late preterm/early term	36 0/7–37 6/7 weeks of gestation or at diagnosis if diagnosed later
Polyhydramnios (mild, idiopathic)†	Full term (early term birth not routinely recommended)	39 0/7–40 6/7 weeks of gestation
Growth restriction (singleton)		
Otherwise uncomplicated, no concurrent findings, EFW between 3rd and 10th percentile	Early term/full term	38 0/7–39 0/7 weeks of gestation
Otherwise uncomplicated, no concurrent findings, EFW <3rd percentile	Early term	37 0/7 weeks of gestation or at diagnosis if diagnosed later
Abnormal umbilical artery Doppler studies: elevated impedance to flow (eg, S/D ratio, pulsatility index, or resistance index greater than 95th percentile for gestational age) with end-diastolic flow still present	Early term	37 0/7 weeks of gestation or at diagnosis if diagnosed later
Abnormal umbilical artery Doppler studies: absent end-diastolic flow	Preterm/late preterm	33 0/7–34 0/7 weeks of gestation or at diagnosis if diagnosed later§
Abnormal umbilical artery Doppler studies: reversed end-diastolic flow	Preterm	30 0/7–32 0/7 weeks of gestation or at diagnosis if diagnosed later§
Concurrent conditions (oligohydramnios, maternal comorbidity [eg, preeclampsia, chronic hypertension])	Late preterm/early term	34 0/7–37 6/7 weeks of gestation
Multiple gestations—uncomplicated		
Dichorionic-diamniotic twins	Early term	38 0/7–38 6/7 weeks of gestation
Monochorionic-diamniotic twins	Late preterm/early term	34 0/7–37 6/7 weeks of gestation
Monochorionic-monoamniotic twins	Preterm/late preterm	32 0/7–34 0/7 weeks of gestation
Triplet and higher order multiples	Preterm/late preterm	Individualized
Multiple gestations—complicated		
Dichorionic-diamniotic twins with isolated fetal growth restriction	Late preterm/early term	36 0/7–37 6/7 weeks of gestation
Dichorionic-diamniotic twins with concurrent condition	Late preterm	Individualized
Monochorionic-diamniotic twins with isolated fetal growth restriction	Preterm/late preterm	32 0/7–34 6/7 weeks of gestation
Alloimmunization		
At-risk pregnancy not requiring intrauterine transfusion	Early term	37 0/7–38 6/7 weeks of gestation
Requiring intrauterine transfusion	Late preterm or early term	Individualized
Maternal Conditions		
Hypertensive disorders of pregnancy		
Chronic hypertension: isolated, uncomplicated, controlled, not requiring medications	Early term/full term	38 0/7–39 6/7 weeks of gestation‖
Chronic hypertension: isolated, uncomplicated, controlled on medications	Early term/full term	37 0/7–39 6/7 weeks of gestation‖
Chronic hypertension: difficult to control (requiring frequent medication adjustments)	Late preterm/early term	36 0/7–37 6/7 weeks of gestation
Gestational hypertension, without severe-range blood pressure	Early term	37 0/7 weeks of gestation or at diagnosis if diagnosed later
Gestational hypertension with severe-range blood pressures	Late preterm	34 0/7 weeks of gestation or at diagnosis if diagnosed later
Preeclampsia without severe features	Early term	37 0/7 weeks of gestation or at diagnosis if diagnosed later
Preeclampsia with severe features, stable maternal and fetal conditions, after fetal viability (includes superimposed)	Late preterm	34 0/7 weeks of gestation or at diagnosis if diagnosed later

(*continued*)

Table 1. Recommendations for the Timing of Delivery When Conditions Complicate Pregnancy* (*continued*)

Condition	General Timing	Suggested Specific Timing
Preeclampsia with severe features, unstable or complicated, after fetal viability (includes superimposed and HELLP)	Soon after maternal stabilization	Soon after maternal stabilization
Preeclampsia with severe features, before viability	Soon after maternal stabilization[¶]	Soon after maternal stabilization[¶]
Diabetes		
Pregestational diabetes well-controlled[†]	Full term	39 0/7–39 6/7 weeks of gestation
Pregestational diabetes with vascular complications, poor glucose control, or prior stillbirth	Late preterm/early term	36 0/7–38 6/7 weeks of gestation
Gestational: well controlled on diet and exercise	Full term	39 0/7–40 6/7 weeks of gestation
Gestational: well controlled on medications	Full term	39 0/7–39 6/7 weeks of gestation
Gestational: poorly controlled	Late preterm/early term	Individualized
HIV		
Intact membranes and viral load >1,000 copies/mL	Early-term cesarean delivery	38 0/7 weeks of gestation
Viral load ≤1,000 copies/mL with antiretroviral therapy	Full term (early term birth not indicated)	39 0/7 weeks of gestation or later
Intrahepatic cholestasis of pregnancy: total bile acid levels <100 micromol/L	Late preterm/early term	36 0/7–39 0/7 weeks of gestation or at diagnosis if diagnosed later[#]
Intrahepatic cholestasis of pregnancy: total bile acid levels ≥100 micromol/L	Late preterm	36 0/7 weeks of gestation or at diagnosis if diagnosed later[#]
Obstetric Conditions		
Preterm PROM	Late preterm	34 0/7–36 6/7 weeks of gestation [**]
PROM (37 0/7 weeks of gestation and beyond)	Generally, at diagnosis	Generally, at diagnosis
Previous stillbirth	Full term (early term birth not routinely recommended)	Individualized [††]

Abbreviations: EFW, estimated fetal weight; HELLP, hemolysis, elevated liver enzymes, and low platelet count; PROM, prelabor rupture of membranes (also referred to as premature rupture of membranes); S/D, systolic/diastolic.

*In situations in which there is a wide gestational age range for acceptable delivery thresholds, the lower range is not automatically preferable, and medical decision making for the upper or lower part of a range should depend on individual patient factors and risks and benefits.

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

[‡]Prior myomectomy may require earlier delivery similar to prior classical cesarean (36 0/7–37 0/7 weeks of gestation) in situations with more extensive or complicated myomectomy. Data are conflicting regarding specific timing of delivery. Furthermore, timing of delivery may be influenced by the degree and location of the prior uterine surgery, with the possibility of delivering as late as 38 6/7 weeks of gestation for a patient with a less extensive prior surgery. Timing of delivery should be individualized based on prior surgical details available and the clinical situation.

[§]Consultation with maternal-fetal medicine subspecialist is recommended.

[||]Expectant management beyond 39 0/7 weeks of gestation should only be done after careful consideration of the risks and benefits and with appropriate surveillance.

[¶]Management individualized to particulars of maternal-fetal condition and gestational age.

[#]Measurement of serum bile acid levels and liver transaminase is recommended in patients with suspected intrahepatic cholestasis of pregnancy. Delivery before 36 weeks of gestation occasionally may be indicated depending on laboratory and clinical circumstances.

[**] The balance between benefit and risk, from both maternal and neonatal perspectives, should be carefully considered, and patients should be counseled clearly. Although a period of expectant management may be considered for women who request additional time for the onset of spontaneous labor, the potential maternal and neonatal risks associated with prolonged expectant management should be discussed. Care should be individualized through shared decision making, and expectant management should not extend beyond 37 0/7 weeks of gestation. Outside the scenario of unknown GBS status, latency antibiotics are not appropriate in this setting. If expectant management is being considered in a patient with unknown GBS status, an initial GBS culture should be obtained, and an antibiotic regimen active against GBS should be started until results of the GBS culture return. Women with PPROM who are colonized with GBS are at an increased risk of neonatal infection with expectant management. The potential additional neonatal risks associated with prolonged expectant management in the setting of maternal GBS colonization should be discussed and the reasons for discouraging such management reviewed and documented in the medical record. Abbreviations: GBS, group B streptococcus; PPROM, preterm prelabor rupture of membranes.

[††]Deliveries before 39 weeks of gestation are associated with an increased risk of admission to neonatal special care units for respiratory complications and other neonatal morbidities; however, maternal anxiety with a history of stillbirth should be considered and may warrant an early term delivery (37 0/7 weeks to 38 6/7 weeks) in women who are educated regarding, and accept, the associated neonatal risks.

39 0/7 weeks of gestation are well described (1, 2). Based on these and other data, timing of elective delivery at 39 weeks of gestation or later is recommended (3).

However, there are a number of maternal, fetal, and placental complications in which either a late-preterm or early-term delivery is warranted. The timing of delivery in such cases must balance the maternal and newborn risks of late-preterm and early-term delivery with the risks associated with further continuation of pregnancy. Deferring delivery to the 39th week of gestation is not recommended if there is a medical or obstetric indication for earlier delivery. To address the issue of appropriate indications for delivery at less than 39 weeks of gestation, the *Eunice Kennedy Shriver* National Institute of Child Health and Human Development and the Society for Maternal-Fetal Medicine convened a workshop that summarized the available evidence and made recommendations (4). This Committee Opinion integrates the findings in this report, as well as more recent evidence, to provide recommendations regarding timing of delivery for frequent obstetric, maternal, fetal, and placental or uterine conditions that would necessitate delivery before 39 weeks of gestation. Still, the evidence regarding timing of indicated delivery for most conditions is limited, with recommendations based largely on expert consensus and relevant observational studies.

There are several important principles to consider in the timing of delivery. First, the decisions regarding delivery timing are complex and must take into account relative maternal and newborn risks, practice environment, and patient preferences. Second, late-preterm or early-term deliveries may be warranted for maternal benefit or newborn benefit, or both. In some cases, health care providers will need to weigh competing risks and benefits for the woman and her fetus. For these reasons, and because the recommendations for timing of delivery are based on limited data, decisions regarding timing of delivery always should be individualized to the needs of the patient. Additionally, recommendations for timing of delivery before 39 weeks of gestation are dependent on an accurate determination of gestational age.

Amniocentesis for the determination of fetal lung maturity should not be used to guide the timing of delivery, even in suboptimally dated pregnancies (5). The reasons for this are multiple and interrelated. First, if there is a clear indication for a late-preterm or early-term delivery for either maternal or newborn benefit, then delivery should occur regardless of the results of lung maturity testing. Conversely, if delivery could be delayed safely in the context of an immature lung profile result, then no clear indication for a late-preterm or early-term delivery exists. Second, mature amniotic fluid indices are imperfect in the prediction of neonatal respiratory outcomes and are not necessarily reflective of maturity in other organ systems (6).

In the case of an anticipated late-preterm delivery, a single course of antenatal betamethasone is recommended within 7 days of the delivery in select women who have not received a previous course of antenatal corticosteroids (7). However, a medically indicated late-preterm delivery should not be delayed for the administration of antenatal corticosteroids.

Table 1 presents recommendations for the timing of delivery for many specific conditions. This list is not meant to be all-inclusive, but rather is a compilation of indications commonly encountered in clinical practice. "General timing" describes the concept of whether a condition is appropriately managed with either a late-preterm or early-term delivery. "Suggested specific timing" refers to more defined timing of delivery within the broader categories of late-preterm or early-term delivery. These are recommendations only and will need to be individualized and reevaluated as new evidence becomes available. Also there remain several conditions for which data to guide delivery timing are not available. Some examples of these conditions include uterine dehiscence or chronic placental abruption. Delivery timing in these circumstances should be individualized and based on the current clinical situation. In situations in which there is a wide gestational age range for acceptable delivery thresholds, the lower range is not automatically preferable and medical decision making for the upper or lower part of a range should depend on individual patient factors and risks and benefits. Not uncommonly, a patient may have multiple indications for possible late-preterm or early-term delivery. The American College of Obstetricians and Gynecologists has developed an applet https://www.acog.org/membership/member-benefits/acog-app to address and adjudicate competing delivery indications.

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