The American College of Obstetricians and Gynecologists
WOMEN'S HEALTH CARE PHYSICIANS

Society for Maternal-Fetal Medicine

ACOG COMMITTEE OPINION

Number 765

(Replaces Committee Opinion No. 561, April 2013)

Committee on Obstetric Practice
Society for Maternal-Fetal Medicine

This Committee Opinion was developed by the Committee on Obstetric Practice in collaboration with committee members Ann E.B. Borders, MD, MSc, MPH, and Meredith L. Birsner, MD, and with the Society for Maternal-Fetal Medicine liaison member Cynthia Gyamfi-Bannerman, MD, MSc.

Avoidance of Nonmedically Indicated Early-Term Deliveries and Associated Neonatal Morbidities

ABSTRACT: There are medical indications in pregnancy for which there is evidence or expert opinion to support delivery versus expectant management in the early-term period. However, the risk of adverse outcomes is greater for neonates delivered in the early-term period compared with neonates delivered at 39 weeks of gestation. In addition to immediate adverse perinatal outcomes, multiple studies have shown increased rates of adverse long-term infant outcomes associated with late-preterm and early-term delivery compared with full-term delivery. A recent systematic review found that late-preterm and early-term children have lower performance scores across a range of cognitive and educational measures compared with their full-term peers. Further research is needed to better understand if these differences are primarily based on gestational age at delivery versus medical indications for early delivery. Documentation of fetal pulmonary maturity alone does not necessarily indicate that other fetal physiologic processes are adequately developed. For this reason, amniocentesis for fetal lung maturity is not recommended to guide timing of delivery, even in suboptimally dated pregnancies. Avoidance of nonmedically indicated delivery before 39 0/7 weeks of gestation is distinct from, and should not result in, an increase in expectant management of patients with medical indications for delivery before 39 0/7 weeks of gestation. Management decisions, therefore, should balance the risks of pregnancy prolongation with the neonatal and infant risks associated with early-term delivery. Although there are specific indications for delivery before 39 weeks of gestation, a nonmedically indicated early-term delivery should be avoided. This document is being revised to reflect updated data on nonmedically indicated early-term deliveries.

Recommendations

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

- Nonmedically indicated delivery, including cesarean delivery, inductions of labor, and cervical ripening should not occur before 39 0/7 weeks of gestation.
- Implementation of a policy to decrease the rate of nonmedically indicated deliveries before 39 0/7 weeks of gestation has been found to decrease the number of these deliveries and, as a result, improve overall neonatal outcomes.
- Avoidance of a nonmedically indicated delivery before 39 0/7 weeks of gestation is distinct from, and should not result in, an increase in expectant management of patients with medical indications for delivery before 39 0/7 weeks of gestation.
- Indications for delivery before 39 0/7 weeks of gestation should be documented clearly and discussed with the patient.
- Because nonrespiratory morbidities also are increased in early-term deliveries, documentation of fetal pulmonary maturity does not justify an early nonmedically indicated delivery. Amniocentesis for the determination of fetal lung maturity should not be used to guide the timing of delivery, even in suboptimally dated pregnancies.

Background

This document is being revised to reflect updated data on nonmedically indicated early-term deliveries. Historically, ACOG and SMFM have advocated delaying elective (ie, not medically indicated) deliveries until 39 weeks of gestation or beyond. Further, ACOG and SMFM have stated that a mature fetal lung maturity profile is not an indication for delivery in the absence of other clinical indications (1). In 2009, several large cohort studies, including a study from the *Eunice Kennedy Shriver* National Institute of Child Health and Human Development (NICHD) Maternal-Fetal Medicine Units Network, reported that early-term delivery (37 0/7–38 6/7 weeks of gestation) was associated with increased neonatal and infant morbidity and mortality compared with deliveries at 39 weeks of gestation or more. The NICHD study also found that more than one third of nonmedically indicated cesarean deliveries occurred at less than 39 weeks of gestation (2–5). After these reports in August 2009, ACOG and SMFM published recommendations to discourage nonmedically indicated deliveries at less than 39 0/7 weeks of gestation (6). In 2013, ACOG and SMFM reiterated the cessation of nonmedically indicated deliveries at less than 39 0/7 weeks of gestation (1). Between 1981 and 2006, the proportion of births at less than 39 weeks increased nearly 60%, whereas births at 39 weeks of gestation or more decreased more than 20%. However, since 2006, with state and national focus on reducing nonmedically indicated early delivery, births at less than 39 weeks of gestation have decreased by 12% and births at 39 weeks of gestation or more have increased by 9%. In addition, inductions at 36–38 weeks of gestation have been reduced nationally, with the greatest reduction at 38 weeks of gestation (7, 8).

There are medical indications in pregnancy for which there is evidence or expert opinion to support delivery versus expectant management in the early-term period (Box 1). The reader is referred to ACOG's *Medically Indicated Late-Preterm and Early-term Deliveries* Committee Opinion (1) and ACOG's Indicated Delivery Calculator (www.acog.org/acogapp) for more information. This document focuses on neonatal and infant outcomes and the potential neonatal complications related to nonmedically indicated early-term delivery. In this document, 36 weeks of gestation means 36 0/7–36 6/7 weeks of gestation, 37 weeks of gestation means 37 0/7–37 6/7 weeks of gestation, 38 weeks of gestation means 38 0/7–38 6/7 weeks of gestation, 39 weeks of gestation means 39 0/7–39 6/7 weeks of gestation, and 40 weeks of gestation means 40 0/7–40 6/7 weeks of gestation.

Box 1. Examples of Medical Indications for Late-Preterm or Early-Term Deliveries*

- Preeclampsia, eclampsia, gestational hypertension, or complicated chronic hypertension
- Oligohydramnios
- Prior classical cesarean delivery or prior myomectomy
- Placenta previa or placenta accreta
- Multiple gestations
- Fetal growth restriction
- Pregestational diabetes with vascular disease
- Pregestational or gestational diabetes—poorly controlled
- Premature rupture of membranes
- Cholestasis of pregnancy
- Alloimmunization of pregnancy with known or suspected fetal effects

*The reader is referred to ACOG's and SMFM's Medically Indicated Late-Preterm and Early-Term Deliveries Committee Opinion (1) and ACOG's Indicated Delivery Calculator applet at www.acog.org/acogapp for more information.

Neonatal and Infant Morbidity and Mortality

Perinatal Outcomes

The risk of adverse outcomes is greater for neonates delivered in the early-term period (37 0/7–38 6/7 weeks of gestation) compared with neonates delivered at 39 weeks of gestation (Box 2). Because pulmonary development continues well into early childhood, respiratory morbidity is relatively common in neonates delivered in the early-term period. (9) A retrospective cohort study by the Consortium on Safe Labor, which included 233,844 births, found that among all infants delivered at 37 weeks of gestation, regardless of indication, there were higher rates of respiratory failure (adjusted odds ratio [OR], 2.8; 95% CI, 2.0–3.9) and ventilator use (adjusted OR, 2.8; 95% CI, 2.3–3.4) compared with infants delivered at 39 weeks of gestation (10). In addition, higher rates of respiratory distress syndrome, transient tachypnea of the newborn, pneumonia, and surfactant and oscillator use were reported for infants delivered at 37 weeks of gestation compared with those delivered at 39 weeks of gestation. Slightly higher rates of respiratory failure (adjusted OR, 1.4; 95% CI, 1.0–1.9) and ventilator use (adjusted OR, 1.2; 95% CI, 1.0–1.5) were reported for infants delivered at 38 weeks of gestation versus 39 weeks of gestation; however, the differences did not reach statistical significance and there was no commonly reported difference in any other measure of respiratory morbidity between these two groups (10).

In a secondary analysis of data from the *Eunice Kennedy Shriver* NICHD, neonates delivered during the early-term period by cesarean delivery, in the absence of indications for delivery, were associated with a higher risk of a composite outcome of neonatal respiratory and nonrespiratory morbidities compared with neonates delivered at 39 weeks of gestation (4). Of these

Box 2. Neonatal Morbidities Associated With Early-Term Delivery

- Respiratory distress syndrome
- Transient tachypnea of the newborn
- Ventilator use
- Pneumonia
- Respiratory failure
- Neonatal intensive care unit admission
- Hypoglycemia
- 5-minute Apgar score less than 7
- Neonatal mortality

nonmedically indicated deliveries, 35.8% were performed before 39 weeks of gestation. The rate of composite morbidity was higher for neonates delivered at 37 weeks of gestation (adjusted OR, 2.1; 95% CI, 1.7–2.5) and at 38 weeks of gestation (adjusted OR, 1.5; 95% CI, 1.3–1.7) compared with neonates delivered at 39 weeks of gestation. In addition, the morbidity for neonates delivered at 38 4/7–38 6/7 weeks of gestation remained significantly increased (relative risk, 1.21; 95% CI, 1.04–1.40). These findings suggest that scheduled cesarean delivery even a day before 39 weeks of gestation should be avoided.

In a large cohort of *planned term deliveries* (defined as deliveries not initiated by labor or ruptured membranes) during a 3-month period in 27 hospitals across the United States, neonatal intensive care unit (NICU) admission rates were higher among neonates delivered in the early-term period (2). A comparison of NICU admission rates for neonates delivered at 37 weeks of gestation or 38 weeks of gestation with those for neonates delivered at 39 weeks of gestation revealed that 31% of 17,794 deliveries had no medical indication. Admission to the NICU, which can be dependent on a variety of factors, was required for 17.8% of infants delivered without medical indication at 37 weeks of gestation and for 8% delivered without medical indication at 38 weeks of gestation, compared with 4.6% of infants delivered at 39 weeks of gestation or beyond ($P<.001$ for deliveries at 38 weeks of gestation and 39 weeks of gestation).

Another large study found that although the rates of meconium aspiration were lower among neonates delivered at 37 weeks of gestation (adjusted OR, 0.62; 95% CI, 0.52–0.74) and 38 weeks of gestation (adjusted OR, 0.70; 95% CI, 0.62–0.79) compared with neonates delivered at 39 weeks of gestation, the rates of hyaline membrane disease were higher at 37 weeks of gestation (adjusted OR, 3.12; 95% CI, 2.90–3.38) and 38 weeks of gestation (adjusted OR, 1.30; 95% CI, 1.19–1.43) (11). When these two etiologies of pulmonary disease were examined as the combined metric of need for neonatal ventilation, the rates of disease were increased at 37 weeks of gestation (adjusted OR, 2.02; 95% CI, 1.88–2.18) and 38 weeks of gestation (adjusted OR, 1.15; 95% CI, 1.08–1.23). Additionally, in this study, the risk of a 5-minute Apgar score less than 7 decreased from 1.01% at 37 weeks of gestation to 0.69% at 38 weeks of gestation and 0.61% at 39 weeks of gestation ($P<.001$).

Mortality rates are also higher among neonates and infants delivered during the early-term period compared with those delivered at full term (12). Using 39 weeks of gestation as the reference group, the relative risk of neonatal mortality is 2.3 (95% CI, 2.1–2.6) at 37 weeks of gestation and 1.4 (95% CI, 1.3–1.5) at 38 weeks of gestation (Table 1). Mortality rates are also significantly higher among infants delivered at 37 weeks of gestation and 38 weeks of gestation compared with those delivered at 39 weeks of gestation (Table 1). These increased mortality rates need to be balanced against the ongoing risk of stillbirth from week to week in an early-term pregnancy. In a study that compared the risk of neonatal mortality at a given week of gestation to the risk of expectant management, including stillbirth and neonatal mortality at the next week of gestation, there was an increased risk of mortality from delivery at 37 weeks of gestation (14.4 per 10,000 live births) compared with expectant management up to 38 weeks of gestation (12.6 per 10,000 live births, $P<.05$) (13). At 38 weeks of gestation, the risk of mortality was 10.5 per 10,000 live births compared with 11.6 per 10,000 live births from expectant management up to 39 weeks of gestation. This risk difference of 1.1 per 10,000 pregnancies reached statistical significance (95% CI, 0.03–2.18 per 10,000 deliveries), but would require 9,042 deliveries at 38 weeks of gestation to prevent one death.

Adverse Long-Term Infant Outcomes

In addition to immediate adverse perinatal outcomes, multiple studies have shown increased rates of adverse long-term infant outcomes associated with late-preterm and early-term delivery compared with full-term delivery. Studies have reported that compared with children born full term, children born late preterm and early term experience additional long-term adverse consequences including increased hospitalizations up to age 18 (14, 15), slower neurologic development (16–18), worse cognitive performance (19), more school-related problems, and poorer academic achievement (20, 21). A recent systematic review found that late-preterm and early-term children have lower performance scores across a range of cognitive and educational measures compared with their full-term peers (22). Further research is needed to better understand if these differences are primarily based on gestational age at delivery versus the medical indications for early delivery (23).

Fetal Lung Maturity

The previously discussed literature suggests that the rate of respiratory morbidity remains higher among neonates delivered during the late-preterm and early-term periods

Table 1. Neonatal and Infant Mortality for Singleton Births From 34 Weeks of Gestation to 41 Weeks of Gestation

		Neonatal Mortality: Neonatal Deaths per 1,000 Births			Infant Mortality: Infant Deaths per 1,000 Births		
GA, Week	Total	Count	Rate	RR (95% CI)	Count	Rate	RR (95% CI)
34	50,717	359	7.1	9.5 (8.4–10.8)[a]	599	11.8	5.4 (4.9–5.9)[a]
35	85,218	405	4.8	6.4 (5.6–7.2)[a]	732	8.6	3.9 (3.6–4.3) [a]
36	156,692	437	2.8	3.7 (3.3–4.2)[a]	890	5.7	2.6 (2.4–2.8)[a]
37	320,169	546	1.7	2.3 (2.1–2.6)[a]	1,323	4.1	1.9 (1.8–2.0)[a]
38	674,892	700	1.0	1.4 (1.3–1.5)[a]	1,842	2.7	1.00 (reference)
39	966,281	721	0.8	1.00 (reference)	2,118	2.2	0.9 (0.9–1.0)
40	821,934	625	0.8	1.0 (0.9–1.1)	1,704	2.1	0.9 (0.9–1.0)
41	407,593	326	0.8	1.1 (0.9–1.2)	888	2.2	1.1 (1.0–1.1)

Abbreviations: GA, gestational age; RR, relative risk.

[a] $P<.001$ when compared with the reference group of 39 weeks of gestation deliveries.

Reprinted from Reddy UM, Ko CW, Raju TN, Willinger M. Delivery indications at late-preterm gestations and infant mortality rates in the United States. Pediatrics 2009;124:234–40.

when compared with neonates delivered at 39 weeks of gestation. However, because nonrespiratory morbidities also are increased in early-term deliveries, documentation of fetal pulmonary maturity does not justify an early nonmedically indicated delivery. A retrospective cohort study of 459 neonates delivered at 36 0/7 weeks of gestation up to 38 6/7 weeks of gestation after documented fetal lung maturity evaluated a composite outcome of respiratory and nonrespiratory complications. The researchers found that the incidence of the composite outcome decreased with increasing gestational age (P for trend $<.001$): 9.2% (CI=5.9–14.1%) at 36 weeks of gestation, 3.2% (CI=1.5–6.8%) at 37 weeks of gestation, 5.2% (CI=2.0–12.6%) at 38 weeks of gestation, and 2.5% (CI=2.2–2.8%) at 39–40 weeks of gestation (24). In addition, a secondary analysis of an observational study from the *Eunice Kennedy Shriver* NICHD Maternal-Fetal Medicine Units Network that monitored births from 115,502 women in 25 hospitals in the United States from 2008 to 2011 showed that even with confirmed pulmonary maturity, early-term birth in the absence of medical or obstetric indications is associated with worse neonatal respiratory and other neonatal outcomes compared with full-term birth (25). Thus, although fetal lung maturity testing may help identify fetuses at risk of respiratory distress syndrome, mature fetal pulmonary test results do not reliably predict all potential neonatal respiratory and other adverse outcomes and should not be used to justify a delivery in the absence of other indications.

The role of amniocentesis in determining fetal pulmonary maturity was discussed at the 2011 *Eunice Kennedy Shriver* NICHD and SMFM medicine workshop titled "Timing of Indicated Late-Preterm and Early-Term Birth" (26). The consensus was that if significant maternal or fetal risk warrants delivery, amniocentesis does not provide additional aid in guiding management. The converse also is thought to be true: If delivery could be delayed awaiting pulmonary maturity, then the indication is less urgent, and prompt delivery is not likely indicated. As mentioned previously, documentation of fetal pulmonary maturity alone does not necessarily indicate that other fetal physiologic processes are adequately developed. For this reason, amniocentesis for fetal lung maturity is not recommended to guide timing of delivery, even in suboptimally dated pregnancies (27).

Prevention of Nonmedically Indicated Early-Term Deliveries

Implementation of a policy to decrease the rate of nonmedically indicated deliveries before 39 0/7 weeks of gestation has been found to decrease the number of these deliveries and, as a result, improve overall neonatal outcomes. A recent study examined the implementation of three approaches to this issue: 1) a hard-stop policy, which prohibited nonmedically indicated deliveries at the hospital level; 2) a soft-stop policy, in which health care providers agreed not to perform nonmedically indicated deliveries before 39 weeks of gestation; and 3) an education program that informed health care providers about the risks associated with delivery before 39 weeks of gestation. Overall, these approaches contributed to a greater than 50% reduction in the rate of nonmedically indicated early-term deliveries, regardless of the policy used (28). However, the reduction was the greatest in the hard-stop policy group, with a reduction from 8.2% to 1.7% ($P=.007$). The reduction was slightly less in the soft-stop policy group, with a reduction from 8.4% to 3.3% ($P=.025$), and the least in the educational

approach group, with a reduction from 10.9% to 6.0% (P=.135), which was not statistically significant.

In a parallel effort, the Ohio Perinatal Quality Collaborative chose to focus on the reduction of nonmedically indicated deliveries at 36 0/7–38 6/7 weeks of gestation (29). Twenty hospitals in Ohio were enrolled in the study, and a range of approaches were provided to reduce nonmedically indicated deliveries, including improved determination of gestational age, use of ACOG's and SMFM's criteria for indication for delivery, education of patients and health care providers regarding these indications and the risks of a nonmedically indicated delivery before 39 weeks of gestation, and measurement of the outcome of a scheduled delivery without a documented indication. The researchers reported a reduction in the rate of nonmedically indicated deliveries at 36 0/7–38 6/7 weeks of gestation from 13% to 8% (P=.003).

In South Carolina, there was a 4.7% decrease in late-preterm birth from 2011 to 2012 after the South Carolina Birth Outcomes Initiative instituted a hard-stop policy to prevent nonmedically indicated early-term deliveries in South Carolina. This collaboration between state health departments, hospitals, and other stakeholders led to an almost 50% reduction in nonmedically indicated early-term deliveries in South Carolina (30).

In Oregon, implementation of a hard-stop policy limiting early elective deliveries led to a reduction in elective inductions from 4.0% to 2.5% (P<.001) and in elective early-term cesarean deliveries from 3.4% to 2.1% (P<.001) before 39 weeks of gestation with no change in neonatal intensive care unit admission, stillbirth, or assisted ventilation (31).

A multistate quality improvement program, the Big 5 State Prematurity Initiative, included 26 hospitals from the five most populous states focused on reducing singleton elective deliveries before 39 weeks of gestation and showed that implementation of a comprehensive rapid-cycle change approach was effective in decreasing the rate of elective early-term deliveries from 27.8% to 4.8%, an 83% decrease within 1 year (32).

As states have effectively reduced early elective delivery, multiple studies using national population level data have shown that even as the gestational age at term has increased in response to efforts to reduce early elective delivery, these efforts have not adversely affected stillbirth rates nationally or even in states with the greatest reductions in early elective delivery (3, 23, 32–35). A single center study did report that after implementation of a hard-stop policy they reduced 37–38 weeks of gestation deliveries and reduced the rate of NICU admissions for neonates delivered at term, but also reported an increase in stillbirth rates at 37 weeks of gestation and 38 weeks of gestation, from 2.5 per 10,000 births to 9.1 per 10,000 births (P=.03), although the absolute risk was small (36). A sequential ecological study of partial state data also reported an increase in term stillbirth across a 7-year period between 2007 and 2013 (37). However, other studies with considerably larger sample sizes and population-based data have shown either a decrease in stillbirth (3) or no statistically significant change (32–34), and no association with increasing gestational age at term and stillbirth (23). In an analysis of 3.5 million births in the United States using state-level birth certificate and fetal death data from 2005 to 2011, early-term births decreased from 31.8% to 28.5%, with no increase in overall stillbirth risk at term observed (123/1,000 term still birth rate to 130/1,000 term still birth rate: P=.189) (34). In another analysis comparing births in the United States between 2006 to 2012, the stillbirth rate across preterm and term gestational ages remained unchanged at 6.05 per 1,000 despite a 10–16% reduction in births at 34–38 weeks of gestation and a 17% increase in births at 39 weeks of gestation (35).

These programs demonstrate that a reduction in nonmedically indicated early-term and late-preterm deliveries can be achieved. Studies clearly have shown short-term and long-term outcomes are improved for infants born at full term (39 0/7–40 6/7 weeks of gestation) versus late preterm (34 0/7–36 6/7 weeks of gestation) or early term (37 0/7–38 6/7 weeks of gestation). Importantly, multiple studies using national population level data have shown that even as the gestational age at term has increased in response to efforts to reduce early elective delivery, these efforts have not adversely affected stillbirth rates nationally or even in states with the greatest reductions in early elective delivery. Nonmedically indicated early delivery before 39 weeks of gestation and induction of labor or cervical ripening before 39 weeks of gestation should be avoided, given short-term and long-term adverse outcomes for the neonate. However, more research is necessary to further characterize pregnancies at risk of in utero morbidity or mortality and optimal timing of medically indicated early delivery.

Conclusions

Although there are specific indications for delivery before 39 weeks of gestation, a nonmedically indicated early-term delivery should be avoided. For certain medical conditions, available data and expert opinion support optimal timing of delivery in the late-preterm or early-term period for improved neonatal and infant outcomes (1, 26). However, for nonmedically indicated early-term deliveries, such an improvement has not been demonstrated. In fact, there are higher reported rates of short-term and long-term morbidity and mortality among neonates and infants delivered during the early-term period compared with those delivered at 39 weeks of gestation and 40 weeks of gestation. The differences in outcomes between 37 weeks of gestation and 39 weeks of gestation are consistent with statistically significant worse outcomes at 37 weeks of gestation across multiple studies. Even when comparing neonates and infants delivered at 38 weeks of gestation with those delivered

at 39 weeks of gestation there is still an increased (albeit clinically small) risk of adverse outcomes. Therefore, nonmedically indicated delivery, including cesarean delivery, inductions of labor, and cervical ripening should not occur before 39 0/7 weeks of gestation. Finally, amniocentesis for the determination of fetal lung maturity should not be used to guide the timing of delivery, even in suboptimally dated pregnancies (27).

Indications for delivery before 39 0/7 weeks of gestation should be documented clearly and discussed with the patient. Avoidance of a nonmedically indicated delivery before 39 0/7 weeks of gestation is distinct from, and should not result in, an increase in expectant management of patients with medical indications for delivery before 39 0/7 weeks of gestation (26). Management decisions, therefore, should balance the risks of pregnancy prolongation with the neonatal and infant risks associated with early-term delivery. More research is needed to determine optimal timing of delivery when early delivery is indicated by maternal or fetal status.

References

1. Medically indicated late-preterm and early-term deliveries. ACOG Committee Opinion No. 764. American College of Obstetricians and Gynecologists. Obstet Gynecol 2019;133:e151–55.
2. 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;200:156.e1–4.
3. Oshiro BT, Henry E, Wilson J, Branch DW, Varner MW. Decreasing elective deliveries before 39 weeks of gestation in an integrated health care system. Women and Newborn Clinical Integration Program. Obstet Gynecol 2009;113:804–11.
4. Tita AT, Landon MB, Spong CY, Lai Y, Leveno KJ, Varner MW, et al. Timing of elective repeat cesarean delivery at term and neonatal outcomes. Eunice Kennedy Shriver NICHD Maternal-Fetal Medicine Units Network. N Engl J Med 2009;360:111–20.
5. Zhang X, Kramer MS. Variations in mortality and morbidity by gestational age among infants born at term. J Pediatr 2009;154;358–62, 362.e1.
6. Induction of labor. ACOG Practice Bulletin No. 107. American College of Obstetricians and Gynecologists. Obstet Gynecol 2009;114:386–97.
7. Osterman MJ, Martin JA. Recent declines in induction of labor by gestational age. NCHS Data Brief 2014;155:1–8.
8. Schoen CN, Tabbah S, Iams JD, Caughey AB, Berghella V. Why the United States preterm birth rate is declining. Am J Obstet Gynecol 2015;213:175–80.
9. Parikh LI, Reddy UM, Mannisto T, Mendola P, Sjaarda L, Hinkle S, et al. Neonatal outcomes in early term birth. Am J Obstet Gynecol 2014;211:265.e1–11.
10. Hibbard JU, Wilkins I, Sun L, Gregory K, Haberman S, Hoffman M, et al. Respiratory morbidity in late preterm births. Consortium on Safe Labor. JAMA 2010;304:419–25.
11. Cheng YW, Nicholson JM, Nakagawa S, Bruckner TA, Washington AE, Caughey AB. Perinatal outcomes in low-risk term pregnancies: do they differ by week of gestation? Am J Obstet Gynecol 2008;199:370.e1–7.
12. Reddy UM, Ko CW, Raju TN, Willinger M. Delivery indications at late-preterm gestations and infant mortality rates in the United States. Pediatrics 2009;124:234–40.
13. Rosenstein MG, Cheng YW, Snowden JM, Nicholson JM, Caughey AB. Risk of stillbirth and infant death stratified by gestational age. Obstet Gynecol 2012;120:76–82.
14. Walfisch A, Beharier O, Wainstock T, Sergienko R, Landau D, Sheiner E. Early-term deliveries as an independent risk factor for long-term respiratory morbidity of the offspring. Pediatr Pulmonol 2017;52:198–204.
15. Walfisch A, Wainstock T, Beharier O, Landau D, Sheiner E. Early term deliveries and the risk of pediatric obstructive sleep apnoea in the offspring. Paediatr Perinat Epidemiol 2017;31:149–56.
16. Munakata S, Okada T, Okahashi A, Yoshikawa K, Usukura Y, Makimoto M, et al. Gray matter volumetric MRI differences late-preterm and term infants. Brain Dev 2013;35:10–6.
17. Petrini JR, Dias T, McCormick MC, Massolo ML, Green NS, Escobar GJ. Increased risk of adverse neurological development for late preterm infants. J Pediatr 2009;154:169–76.
18. Pitcher JB, Riley AM, Doeltgen SH, Kurylowicz L, Rothwell JC, McAllister SM, et al. Physiological evidence consistent with reduced neuroplasticity in human adolescents born preterm. J Neurosci 2012;32:16410–6.
19. Baron IS, Weiss BA, Baker R, Khoury A, Remsburg I, Thermolice JW, et al. Subtle adverse effects of late preterm birth: a cautionary note. Neuropsychology 2014;28:11–8.
20. Shapiro-Mendoza C, Kotelchuck M, Barfield W, Davin CA, Diop H, Silver M, et al. Enrollment in early intervention programs among infants born late preterm, early term, and term. Pediatrics 2013;132:e61–9.
21. Woythaler M, McCormick MC, Mao WY, Smith VC. Late preterm infants and neurodevelopmental outcomes at kindergarten. Pediatrics 2015;136:424–31.
22. Dueker G, Chen J, Cowling C, Haskin B. Early developmental outcomes predicted by gestational age from 35 to 41 weeks. Early Hum Dev 2016;103:85–90.
23. Tita AT. What we have learned about scheduling elective repeat cesarean delivery at term. Eunice Kennedy Shriver National Institute of Child Health and Human Development Maternal-Fetal Medicine Units Network. Semin Perinatol 2016;40:287–90.
24. Bates E, Rouse DJ, Mann ML, Chapman V, Carlo WA, Tita AT. Neonatal outcomes after demonstrated fetal lung maturity before 39 weeks of gestation. Obstet Gynecol 2010;116:1288–95.
25. Tita AT, Jablonski KA, Bailit JL, Grobman WA, Wapner RJ, Reddy UM, et al. Neonatal outcomes of elective early-term births after demonstrated fetal lung maturity. Eunice Kennedy Shriver National Institute of Child Health and Human Development Maternal-Fetal Medicine Units Network. Am J Obstet Gynecol 2018;219:296.e1–8.

26. Spong CY, Mercer BM, D'alton M, Kilpatrick S, Blackwell S, Saade G. Timing of indicated late-preterm and early-term birth. Obstet Gynecol 2011;118:323–33.

27. Management of suboptimally dated pregnancies. Committee Opinion No. 688. American College of Obstetricians and Gynecologists. Obstet Gynecol 2017;129:e29–32.

28. Clark SL, Frye DR, Meyers JA, Belfort MA, Dildy GA, Kofford S, et al. Reduction in elective delivery at <39 weeks of gestation: comparative effectiveness of 3 approaches to change and the impact on neonatal intensive care admission and stillbirth. Am J Obstet Gynecol 2010;203:449.e1–6.

29. Donovan EF, Lannon C, Bailit J, Rose B, Iams JD, Byczkowski T. A statewide initiative to reduce inappropriate scheduled births at 36(0/7)–38(6/7) weeks' gestation. Ohio Perinatal Quality Collaborative Writing Committee [published erratum appears in Am J Obstet Gynecol 2010;202:603]. Am J Obstet Gynecol 2010;202:243.e1–8.

30. National Institute for Health Care Management. Born too early: improving maternal and child health by reducing early elective deliveries. Washington, DC: NIHCM; 2014. Available at: https://www.nihcm.org/pdf/Early_Elective_Delivery_Prevention_Brief_2014.pdf. Retrieved September 21, 2018.

31. Snowden JM, Muoto I, Darney BG, Quigley B, Tomlinson MW, Neilson D, et al. Oregon's hard-stop policy limiting elective early-term deliveries: association with obstetric procedure use and health outcomes. Obstet Gynecol 2016;128:1389–96.

32. Oshiro BT, Kowalewski L, Sappenfield W, Alter CC, Bettegowda VR, Russell R, et al. A multistate quality improvement program to decrease elective deliveries before 39 weeks of gestation [published erratum appears in Obstet Gynecol 2013;122:160]. Obstet Gynecol 2013;121:1025–31.

33. Little SE, Robinson JN, Puopolo KM, Mukhopadhyay S, Wilkins-Haug LE, Acker DA, et al. The effect of obstetric practice change to reduce early term delivery on perinatal outcome. J Perinatol 2014;34:176–80.

34. Little SE, Zera CA, Clapp MA, Wilkins-Haug L, Robinson JN. A multi-state analysis of early-term delivery trends and the association with term stillbirth. Obstet Gynecol 2015;126:1138–45.

35. MacDorman MF, Reddy UM, Silver RM. Trends in stillbirth by gestational age in the United States, 2006–2012. Obstet Gynecol 2015;126:1146–50.

36. Ehrenthal DB, Hoffman MK, Jiang X, Ostrum G. Neonatal outcomes after implementation of guidelines limiting elective delivery before 39 weeks of gestation. Obstet Gynecol 2011;118:1047–55.

37. Nicholson JM, Kellar LC, Ahmad S, Abid A, Woloski J, Hewamudalige N, et al. US term stillbirth rates and the 39-week rule: a cause for concern? Am J Obstet Gynecol 2016;214:621.e1–9.

Published online on January 24, 2019.

American College of Obstetricians and Gynecologists
409 12th Street, SW, PO Box 96920, Washington, DC 20090-6920

Avoidance of nonmedically indicated early-term deliveries and associated neonatal morbidities. ACOG Committee Opinion No. 765. American College of Obstetricians and Gynecologists. Obstet Gynecol 2019;133:e156–63.

This information is designed as an educational resource to aid clinicians in providing obstetric and gynecologic care, and use of this information is voluntary. This information should not be considered as inclusive of all proper treatments or methods of care or as a statement of the standard of care. It is not intended to substitute for the independent professional judgment of the treating clinician. Variations in practice may be warranted when, in the reasonable judgment of the treating clinician, such course of action is indicated by the condition of the patient, limitations of available resources, or advances in knowledge or technology. The American College of Obstetricians and Gynecologists reviews its publications regularly; however, its publications may not reflect the most recent evidence. Any updates to this document can be found on www.acog.org or by calling the ACOG Resource Center.

While ACOG makes every effort to present accurate and reliable information, this publication is provided "as is" without any warranty of accuracy, reliability, or otherwise, either express or implied. ACOG does not guarantee, warrant, or endorse the products or services of any firm, organization, or person. Neither ACOG nor its officers, directors, members, employees, or agents will be liable for any loss, damage, or claim with respect to any liabilities, including direct, special, indirect, or consequential damages, incurred in connection with this publication or reliance on the information presented.

All ACOG committee members and authors have submitted a conflict of interest disclosure statement related to this published product. Any potential conflicts have been considered and managed in accordance with ACOG's Conflict of Interest Disclosure Policy. The ACOG policies can be found on acog.org. For products jointly developed with other organizations, conflict of interest disclosures by representatives of the other organizations are addressed by those organizations. The American College of Obstetricians and Gynecologists has neither solicited nor accepted any commercial involvement in the development of the content of this published product.