

# Florida Perinatal Quality Collaborative

AT THE LAWTON AND RHEA CHILES CENTER FOR HEALTHY MOTHERS AND BABIES



Partnering to Improve Health Care Quality  
for Mothers and Babies

## Literature E-Bulletin on Non-Medically Indicated Deliveries <39 Weeks Gestation

Dear Perinatal Care Providers: Below is a list of recent literature on the issue of non-medically indicated deliveries <39 weeks gestational age. These references are provided to you by the Florida Perinatal Quality Collaborative through the generous support of a grant from the March of Dimes. You can click on the reference and go directly to the PubMed abstract for the article and access available full text articles. If you have any questions, please contact us at [fpqc@health.usf.edu](mailto:fpqc@health.usf.edu) or by phone at 813-974-8888.

[Wetta L, Tita ATN. Early term births: considerations in management. \*Obstet Gynecol Clin North Am.\* 2012;39:89-97.](#)

In this extensive review, the authors provide evidence for approximate rates of early term births, including those that were considered non-medically indicated (elective); current evidence for neonatal and maternal outcomes for birth before 39 weeks of gestation; evidence for lung maturity testing before 39 weeks and neonatal outcomes; and recommendations for management and prevention of early elective deliveries. Rates of early term deliveries vary depending on patient, provider, and system characteristics, but in some practices as many as one-third (35.8%) of births occur before 39 weeks. In one study, one-third of elective cesarean deliveries were performed before 39 weeks. When non-medically indicated deliveries occur before 39 weeks, the neonate is at increased risk of morbidity and mortality, including: respiratory distress syndrome or transient tachypnea of the newborn, hypoglycemia, newborn sepsis, confirmed seizures, necrotizing enterocolitis, hypoxic-ischemic encephalopathy, cardiopulmonary resuscitation or ventilator support, umbilical cord pH below 7.0, a 5-minute Apgar of 3 or below, cerebral palsy, admission to the NICU, and/or prolonged hospitalization, even in babies born within 3 days before 39 0/7 weeks. Stillbirth rates did not increase significantly after interventions to reduce the rates of early non-medically indicated deliveries were implemented. Testing for fetal lung maturity only addresses one of many adverse outcomes for which early term babies are at increased risk. Studies demonstrate that even with a mature fetal lung test, babies born before 39 weeks of gestation have increased respiratory morbidity (7.3% vs. 1.6% among those delivered after 39 weeks) and NICU admission (9.6% vs. 3.2%). The authors conclude that a simple intervention including administrative support, review of indications, and feedback to providers can dramatically reduce the frequency of early term births, improving outcomes for neonatal and maternal health.

[Liu S, Joseph KS, Hutcheon JA, et al. Gestational age-specific severe maternal morbidity associated with labor induction. \*Am J Obstet Gynecol.\* 2013;209:209.e1-8.](#)

This study was conducted to examine an association between induction of labor and gestational age-specific severe maternal morbidity. Canadian births (excluding Quebec) from 2003-2010 were included for women with singleton pregnancies, no prenatal complications, and who delivered between 37-42 gestational weeks. Using logistical regression analysis, the authors found that induction of labor increased the rate of postpartum hemorrhage requiring blood transfusion at 38 weeks (adjusted OR 1.28; 95% CI, 1.11-1.49) and 39 weeks gestation (adjusted OR 1.21; 95% CI, 1.06-1.38). Induction was also associated with increased rates of puerperal sepsis and venous thromboembolism at 38 and 39 weeks gestation. The authors conclude that although the absolute risks are low, women without pregnancy complications are at greater risk for severe morbidities when labor induction occurs in the early term.

[Struchen-Shellhorn W. Consumer opinions on pregnancy and delivery methods: baseline survey results. Florida Association of Healthy Start Coalitions, Inc. March 2012.](#)

The Florida Association of Healthy Start Coalitions conducted a survey of Florida women to better understand their perception of a full-term pregnancy and their belief of the safety of delivery at various gestational ages, similar to a nation-wide study conducted by Goldenberg et al. (2009). Participants were either pregnant or had a baby  $\leq 18$  months, 43% were between 24-29 years old, one-third had no college, one-third some college, and one-third had graduated college; about half of the pregnant women were between 21-36 weeks and 78% of those with children had delivered between 37-40 weeks. When respondents were asked at what gestational age they believed a baby reaches full-term, 87% indicated at least 37 weeks with 60% indicating 39 weeks or later, only 11% indicated less than 37 weeks. When women were asked the earliest gestational age that it is safe for a baby to be born, almost half (46%) indicated that delivery before 37 weeks was safe, 32% indicated 37-38 weeks and 17% responded 39+ weeks. The author notes that this is important because if women do not perceive a risk to delivering early, they may be more likely to elect to deliver early as the due date approaches. Participants were asked whether they were offered the option of scheduling an induction or C-section, the following indicated they were: 58.2% of White women, 47.7% of Hispanic women, and 41.4% of Black women; insured women were more likely to report being offered this option than uninsured or publicly insured women (57% vs. 35.7%). The data from this study indicated that the Florida population surveyed had better knowledge of a full-term pregnancy and the safety of delivery at various gestational ages than the population from Goldenberg et al.; this may, in part, be due to public awareness campaigns that had been underway since the Goldenberg study and the variation in populations surveyed.

[Bailit JL, Gregory KD, Reddy UM, et al. Maternal and neonatal outcomes by labor onset type and gestational age. Am J Obstet Gynecol. 2010;202:245.e1-12.](#)

This retrospective study analyzed electronic medical records from 10 U.S. institutions in the Consortium on Safe Labor and included 115,528 deliveries from 2002 through 2008. The deliveries were grouped based on labor onset type (spontaneous, elective induction, indicated induction, and unlabored cesarean) and neonatal and maternal outcomes were calculated by labor onset type and gestational age. There was a statistically significant decrease in NICU admissions and sepsis with each increasing week of gestational age until 39 weeks. The study also demonstrated an increased risk of hysterectomy with an elective induction of labor (RR 3.21; 95% CI, 1.08-9.54) and an unlabored cesarean (RR 6.57; 95% CI, 1.78-24.30) compared to spontaneous labor. The authors also state that although they didn't report postpartum hemorrhage rates, their findings add to the evidence that elective induction increases hemorrhage rates as evidenced by the increased rate of hysterectomies. Among many other findings, the study also demonstrated that elective unlabored cesareans were also associated with an increased risk of poorer neonatal outcomes in all categories as well as increased risk of maternal ICU admission. The authors conclude, "given that the advantages of elective delivery are primarily social or logistical and not medical, an argument could be made not to offer an elective delivery at all, given the maternal risks. At a minimum, patients should be well informed of the fetal and maternal risks of elective delivery." The authors also note that a large number of the 'elective' deliveries occurred before  $< 37$  weeks, possibly indicating that physicians are "under documenting", or not explicitly specifying all reasons for induction; this makes interpreting data even more challenging.



[Wilmink FA, Hukkelhoven CWPM, Lunshof S, et al. Neonatal outcome following elective cesarean section beyond 37 weeks of gestation: a 7-year retrospective analysis of a national registry. \*Am J Obstet Gynecol.\* 2010;202:250.e1-8.](#)

\*This article is referenced in the March of Dimes educational slide deck on eliminating non-medically indicated deliveries <39 weeks gestational age

This retrospective cohort study, from the Netherlands, included all elective cesarean sections of singleton pregnancies at term with neonatal follow-up (n=20,973) to assess associations between elective cesarean section and neonatal outcomes by gestational age. The primary outcome was defined as a composite of neonatal morbidities and mortality including: severe resuscitation, sepsis, respiratory complications, respiratory support, hypoglycemia, neurologic morbidity, NICU admission, and 5-minute Apgar  $\leq 3$ . The results demonstrated that more than half of the neonates were born before 39 weeks of gestation and these babies were at significantly higher risk for the composite primary outcome than neonates born after 39 weeks. The absolute risks were 20.6% and 12.5% for birth at <38 and <39 weeks, respectively, as compared to 9.5% for neonates born after 39 weeks. Adjusted odds ratios were 2.4 (95% CI, 2.1-2.8) and 1.4 (95% CI, 1.2-1.5), respectively. The authors conclude that with more than 50% of the elective cesarean sections occurring <39 weeks, neonatal outcomes are being jeopardized.

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### **The Florida Perinatal Quality Collaborative has enhanced its website!**

For the latest information on our current initiatives as well as new resources, newsletters and more, please visit us at <http://health.usf.edu/publichealth/chilescenter/fpqc>.