

Why not induce everyone at 39 weeks?

J. Christopher Glantz MD, MPH

Departments of Obstetrics and Gynecology and Public Health Sciences, University of Rochester School of Medicine, Rochester, NY, USA

Correspondence

J. Christopher Glantz, Departments of Obstetrics and Gynecology and Public Health Sciences, University of Rochester School of Medicine, Rochester, NY, USA.
Email: chris_glantz@urmc.rochester.edu

Debates on controversial topics are popular at national conferences, and one at the 2016 American College of Obstetricians and Gynecologists (ACOG) annual meeting was titled “If No Elective Inductions Before 39 Weeks, Why Not Induce Everyone at 39 Weeks.” The title is a riposte to recent professional consensus against elective deliveries before full term, along the lines of, “if we can’t do elective inductions before 39 weeks anymore, see how you like *this!*” With labor already induced in 23% of all United States pregnancies as of 2014,¹ it may astonish some that this provocatively titled concept is being put forth, but perhaps even more astonishing is that both “debaters,” Drs. Charles Lockwood and Errol Norwitz, apparently were in agreement with delivering every still-pregnant woman at 39 weeks; neither took the opposing side.

In support of their mutual position, Drs. Lockwood and Norwitz cited large epidemiologic studies, small randomized trials, and meta-analyses, focusing on potential prevention of the stillbirths and maternal/neonatal morbidity that could occur if pregnancy progressed beyond 39 weeks. Using a mathematical simulation model, Dr. Lockwood concluded, “It’s overwhelmingly evident that elective induction is the logical strategy.”² Dr. Norwitz, after declaring that “Nature is a terrible obstetrician,” summarized with “My position is 39 weeks and out!”^{3,4} Dr. Lockwood, more thoughtful and less inflammatory, later modified his “overwhelmingly evident” statement to the less-definitive “Current literature is equivocal and not easily applied to the general OB population...extensive research is needed before (routine 39 week induction) can be safely and widely adopted.”³

What did the obstetrician-gynecologists in the audience think about this? A pre-debate poll found 20% in agreement with routine elective induction of labor of all pregnant women at 39 weeks. After the debate, 70% agreed. In contrast, 80 of 80 (no doubt highly selected) readers who commented on an article in *The Washington Post* on the subject opposed it.³ One respondent (J. Corbett) concluded “Nature may be a lousy obstetrician, but she’s a great midwife!”

1 | THE CASE FOR 39-WEEK DELIVERY

There *are* plausible possible benefits to this approach in terms of limiting certain maternal and neonatal complications that are less likely or no longer can occur after one already has delivered (e.g., infection, hemorrhage, meconium, low Apgar score, neonatal intensive care unit admissions) and preventing rare-but-devastating stillbirths occurring after 39 weeks. Some epidemiologic studies and meta-analyses report reductions in some morbidities, but the actual degree of risk reduction in low-risk populations is very small and the number of 39-week inductions required to prevent one complication is very large.^{5–11} No data exist as to whether there are any differences in long-term morbidity.

The prospective rate of stillbirth increases as gestational age increases past 37 weeks. Although the vast majority of stillbirths occur before 39 weeks and the risk of fetal demise in a healthy woman at term is extremely low,¹² there is no disagreement that a fetal death at full term is a tragedy, and advocates of 39-week elective induction cite avoidance of this potentially preventable outcome. Two large epidemiologic studies and a Cochrane systematic review reported fewer stillbirths with 39-week induction of labor. As with morbidities, the numbers of fetal deaths were very low and the number of inductions needed to prevent one stillbirth ranged from 410 to 2400.^{11,13,14} Two other retrospective population studies did not find an increase in stillbirth with expectant management,^{6,7} and a large population study examining whether avoiding elective deliveries before 39 weeks led to excess stillbirths did not find an increase.¹⁵ Although one can expect that, in a delivery population sufficiently large, there will be a rare stillbirth at 40 or 41 weeks that could have been prevented had all deliveries occurred at 39 weeks, the excess risk is exceedingly small and the number needed to induce exceedingly large.

2 | INDUCTION AND CESAREAN SECTION: THE COMPLEXITIES OF A SIMPLE QUESTION

Then there is the question of whether induced labors are more likely to lead to a cesarean delivery. In a given week, induction of labor approximately doubles the likelihood of cesarean delivery compared with spontaneous labor.^{16,17} More than 90% of multiparous women deliver vaginally regardless of the type of labor onset, but this is less true for nulliparous women. Because one cannot choose the week of spontaneous labor, in 2006, Caughey et al. published a 15-year retrospective review of deliveries from one institution in which they redefined the group to which induction at a given week was compared.¹⁸ Instead of women laboring spontaneously the same week as the induction group, they defined the comparison group as all those women *not* induced or entering spontaneous labor during that week, that is, an expectant management group of those still “at risk” for cesarean delivery in coming weeks. Because the likelihood of labor induction increases with increasing gestational age, as does the probability of cesarean regardless of type of labor onset, the additive nature of this prospective approach leads to progressively higher cumulative risks of cesarean delivery in the expectant group, whereas cesarean risk following 39-week induction of labor remains constant. Using this “at-risk” approach, Caughey et al. reported a higher cumulative risk of cesarean delivery in the expectant group of nulliparous women as compared with 39-week induction of labor.¹⁸

There were several concerns with the Caughey et al. study. First, the expectant group began the week *after* the induction group, biasing in favor of induction. Second, all deliveries were at one institution, limiting generalizability. Third, practices can change in 15 years. In 2010, Glantz published a study of deliveries over 4 years from a nine-county region of upstate New York, with the expectant group starting the *same* week as the induction of labor group.¹⁶ In that study, the odds of cesarean delivery were *lower* in the expectant group. Since that time, several other large epidemiologic studies, mostly using Caughey et al.’s definition of “expectant,” have reported either no difference in cesarean delivery or a protective effect of induction.^{5–9}

Using epidemiologic data to make practice recommendations and applying them to individuals can be problematic. In this case, the baseline cesarean rate following 39-week induction of labor is derived from a subset of women induced that week, women who may be quite different from those not induced (e.g., in Bishop scores). Unlike this selected subset, electively inducing *all* women at 39 weeks may result in a higher cesarean rate, making expectant management more favorable in comparison. Another problem is that hospital practices and subsequent outcome statistics vary widely¹⁹ such

that, if a given clinician or hospital has a higher-than-average rate of failed induction at 39 weeks, epidemiologic generalizations about cesarean risk will not apply to women delivering there. Even if the provider or hospital rates approximate those reported in large population studies, many individuals do not behave according to statistical means, and population models will fit them poorly.

A modest number of randomized controlled trials on routine induction of labor have been published, although many are old, small, and on postdates induction. Of the three most recent randomized trials, two showed no significant difference in cesarean delivery rates between groups.^{20,21} The third reported a trend toward higher cesarean rates in the induction group.²² A 2012 Cochrane systematic review reported a small decrease in cesarean risk in the induction group, with an odds ratio of 0.9.¹¹

3 | PROCESSING RISK: MORE THAN JUST NUMBERS

The 39-week delivery thesis is based on statistical modeling, mostly of large population studies, the results of which may or may not apply to a given woman. If one accepts the model’s legitimacy, the tenet is that a woman will go with odds said to be in her pregnancy’s favor, regardless of actual degree of benefit. Of course, by this logic, nobody would ever go to a casino or play the lottery because the odds are always against you, and nobody would overeat or get less than the recommended amount of exercise, because on average, these are associated with worse health outcomes.

“The odds,” to the debatable degree that they are established, certainly are not the only issues to be considered in birth decisions. The justification for routine 39-week induction reduces normal birth to numerics based on computerized mathematical models that take no account of pregnant women’s beliefs and desires. People evaluate risk in many ways, occasionally statistically but also incorporating personal values and perceptions. Some women demand scheduled deliveries for various reasons, while routine intervention in uncomplicated pregnancy is anathema to others. From “Listening to Mothers,” 59% of women agreed with the statement, “Giving birth is a natural process that should not be interfered with unless medically necessary.”²³ They attach higher value to nonintervention than do the 26% who were neutral or the remainder who disagreed with the statement. Relative risks and/or nonintuitive odds ratios derived from population models often inflate small risk differences to frightening proportions. Counseling all pregnant women that the safest choice for their baby is to be delivered at 39 weeks does not account for women’s preferences, inappropriately extends conclusions that are tentative at best to many women, and may “guilt” large numbers of susceptible women into

agreeing to have unnecessary interventions and procedures. Who wants to take risks with one's baby, even when the actual risks are very small or based on convoluted mathematical models? An individual woman is not a statistical mean, and women should not be coerced into interventions by directive use of modeled statistics.

Dr. Lockwood's model was based on a "Monte Carlo" simulation of possible outcomes.² Some women may indeed take a gambler's approach to the decision, but not necessarily choose elective induction of labor. A low-risk woman reaching 39 weeks might assume she has about a 1-in-3 chance of laboring spontaneously in the next 7 days, and if she does, she halves her risk of cesarean delivery compared with if she is induced that week. Given this, she may decide against elective 39-week induction of labor, going with a 33% chance of the lowest possible likelihood of a cesarean delivery. If she goes to 40 weeks, the same decision applies: another roughly 1-in-3 chance of spontaneous labor, with half the risk of a cesarean with spontaneous labor compared with induced labor, even though her baseline cesarean risk now is higher than it was the previous week. If she is in the minority reaching 41 weeks, her chance of a cesarean now may equal or exceed that had she been induced at 39 weeks, but this decision pathway was based on her values and choices, not on model means.

In addition, it is not an all-or-none choice: the option is not to have elective induction of labor at 39 weeks or refuse elective induction of labor completely. A woman may choose not to be induced at 39 weeks, but may change her mind at 40 weeks. The model's odds will change under these circumstances.

One might hope that Drs. Lockwood and Norwitz were being intentionally provocative during the nondebate. They did acknowledge to *The Washington Post* that "Obviously our message—how you talk—does make a difference" (Norwitz) and "Needless to say, it is expectant women who should have the final say" (Lockwood).³ One also hopes they will be this circumspect and nondirective when counseling pregnant women about the "overwhelming evidence" supporting their position of "39 weeks and out!"

4 | WHY EVERYONE SHOULD NOT BE INDUCED AT 39 WEEKS

Although 50% of the audience at the ACOG nondebate were swayed, epidemiologic-based recommendations about routine elective induction of labor at 39 weeks should not be so uncritically accepted. Such recommendations rely on models with little prospective testing that often will not apply to given hospitals, providers, and women. They inflate risks of awaiting spontaneous labor, do not factor in women's preferences, and would be an enormous increase

in medicalization of childbirth. Using the 2015 birth data from the Finger Lakes Region of upstate New York where I practice, routine 39-week elective induction of labor would increase the induction rate from its current 28% to 66%, greatly increasing resource use. Induction of labor often requires more time and resources than spontaneous labor. However, the mathematical models do not take into consideration the strain this would place on obstetrical staff accommodating such high volumes of elective inductions, or how this would affect a labor and delivery ward's capacity to care for higher-risk women. Such practice recommendations in the absence of adequate prospective testing are entirely inappropriate.

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