

# The Bottom Line: When is Induction Appropriate?



When a pregnancy is considered healthy and low-risk, when is the best time for a baby to be born? According to research cited by Dekker in her 2019 updated article, *The Evidence on Due Dates*<sup>1</sup>, 50% of all women giving birth for the first time gave birth by 40 weeks and 5 days, while 75% gave birth by 41 weeks and 2 days. Although experts define pregnancies lasting between 37 and 42 weeks as “term” and as “normal,”<sup>2</sup> many healthcare providers and organizations recommend routine induction for healthy pregnancies earlier than 42 completed weeks of gestation. The [World Health Organization](#)<sup>3</sup> discourages routine induction until (and at) 41 weeks. [Draft guidelines](#)<sup>4</sup> published in 2021 by the National Institute for Health and Care Excellence (NICE) in the UK also recommend routine induction at 41 weeks. Our survey of other countries around the

world indicates that routine induction for healthy women with uncomplicated pregnancies is most often recommended at 41 weeks or between 41 and 42 weeks.

As far as we can find, obstetricians in the U.S. (the American College of Obstetricians and Gynecologists) are the only maternity providers who say that it is reasonable to offer elective induction at 39 weeks to healthy, full-term women. This [clinical recommendation](#)<sup>5</sup> was issued in response to the publication of the controversial ARRIVE Trial in 2018. The authors of this large randomized controlled trial (RCT) concluded that, “Induction of labor at 39 weeks in low-risk nulliparous women did not result in a significantly lower frequency of a composite adverse perinatal outcome, but it did result in a significantly lower frequency of cesarean delivery.”<sup>6</sup> (For a critical analysis of this study, see [Talking Points – The ARRIVE Trial](#)<sup>7</sup> at [www.thefamilyway.com](http://www.thefamilyway.com) (go to “Handouts”). The Society of Obstetricians and Gynaecologists of Canada (SOGC) disagrees with the recommendation to offer induction at 39 weeks. They issued a [press release](#)<sup>8</sup> following the publication of the ARRIVE Trial, stating that, “It is not appropriate to recommend elective induction solely to reduce the risk of caesarean section in an otherwise low risk nulliparous patient at this time.” [SOGC’s current recommendation](#)<sup>9</sup> is that labor induction be offered to healthy pregnant women between 41 and 42 weeks. Following the publication of the ARRIVE Trial, U.S. midwives (ACNM - The American College of Nurse-Midwives) also issued a [press release](#)<sup>10</sup> affirming their support for normal, physiologic childbirth including the spontaneous onset of labor. A healthy woman should make an informed decision about elective induction. This decision should be based on any risk factors she may have, the availability of fetal surveillance at 41 weeks, and on whether she is planning for a physiologic birth with no or few interventions or whether she is accepting of the medical interventions that go along with induction. A choice of waiting until 41 or 42 weeks with fetal surveillance will increase the likelihood of labor beginning on its own, with [the benefits of late-pregnancy physiological changes in the mother’s body that prepare both mother and baby for the birth](#).<sup>11</sup>

Let’s take a look at the current evidence about routine induction of labor as compared to expectant management.

## WHAT RECENT EVIDENCE SAYS

### **BMJ Open**, *Intrapartum interventions and outcomes for women and children following elective induction at term in Australia*,<sup>12</sup> 2021

In this retrospective Australian study of almost a half million births using population linked data for healthy women giving birth at 37+0 to 41+6 weeks, researchers found that induction for non-medical reasons was associated with higher birth interventions, particularly in primiparous women, and more adverse maternal, neonatal, and child outcomes for most variables assessed.

*“The size of effect varied by parity and gestational age, making these important considerations when informing women about the risks and benefits of induction of labor.”*

### **European Journal of Obstetrics & Gynecology and Reproductive Biology**,<sup>13</sup> 2021

In this retrospective cohort in a single location in IL (USA) over a 7 year period (n = 16,044), researchers investigated the difference in cesarean delivery rate between induction of labor and spontaneous labor among nulliparous, term, singleton, and vertex-presenting women at each term gestational age of labor initiation. Researchers also looked at neonatal morbidity, using a 5-minute Apgar score of <5. They found a statistically significant increase in cesarean deliveries among the induction group at each term gestational age of labor initiation. There was no difference between the two groups for neonatal morbidity. The researchers stated,

*“Awaiting the natural onset of labor, if there are no maternal or fetal reasons to interfere, may yield no worse a perinatal outcome than an earlier induction of labor. The consequences of a cesarean delivery are known to be associated with immediate and longer-term maternal morbidity, and this may be potentially avoided, if elective inductions of labor can be minimized.”*

### **BMJ Open**, *SWedish Post-Term Induction Study, SWEPIIS*,<sup>14</sup> 2019

In this Swedish RCT, 2760 women with low-risk uncomplicated singleton pregnancies were randomized to routine induction at 41 weeks or to expectant management and routine induction at 42 weeks. The study was stopped early because of a significantly higher rate of perinatal mortality in the expectant management group (6 deaths versus none in the induction at 41 weeks group). There was no difference between groups in the cesarean section rate.

- There was 3 days difference in the mean gestational age between the two groups (289 versus 292 days.)
- There were no stillbirths or neonatal deaths among multiparous women in either group.

*Continued on next page*

## WHAT RECENT EVIDENCE SAYS

### **BMJ Open**, SWedish Post-Term Induction Study, SWEPIs,<sup>14</sup> 2019 continued

- There were no stillbirths or neonatal deaths in the women in the Stockholm clinics who had a routine ultrasound at 41 weeks, including measurement of amniotic fluid. Other women in the study did not have any fetal surveillance at 41 weeks.
- One stillborn infant had a cardiovascular malformation not considered to be lethal; another stillbirth was small for gestational age (SGA).
- The occurrence of endometritis was significantly higher in the induction group.

### **BMJ**, INDuction of labour at 41 weeks, with a policy of EXpectant management until 42 weeks, INDEX<sup>15</sup>, 2019

In this Dutch RCT, 1801 low risk women with uncomplicated singleton pregnancies were randomized to induction at 41 weeks or expectant management and induction (if needed) at 42 weeks. Researchers found a significant increase in the risk for adverse perinatal outcomes in the expectant management group, although the chances of a good perinatal outcome were high with both strategies and the incidence of perinatal mortality, Apgar score < 4 at 5 minutes, and NICU admission was low. There were no significant differences in the composite adverse maternal outcomes or in the cesarean section rates between the 2 groups.

- As with the ARRIVE Trial in the U.S., a high % of women (70%) who were invited to participate in the study declined.
- There was a higher % of nulliparous women (56.7%) in the expectant management group than in the induction group (50.8%).
- There were 2 days difference in the mean gestational age between the two groups (289 days versus 287 days [induction]).
- Unlike the Swedish study on the previous page, all study participants DID HAVE routine fetal assessment at 41-42 wks.
- **Mid-trial, ACOG & AAP CHANGED the recommended cut-off for Apgar score at 5 minutes indicating a non-specific sign of illness from 7 to 4. “Most of the primary composite [perinatal adverse] outcome scores can be attributed solely to the component Apgar score <7 at 5 minutes which means that these neonates did not have any other adverse outcome besides the Apgar score being <7 at 5 minutes.”**

### **BMJ Open**, Comparison of perinatal and maternal outcomes before and after policy change<sup>16</sup>, 2019

In Denmark prior to 2011, routine induction for post-dates was not done until a pregnancy reached 42 weeks. In this 2019 Danish study, which had 152,887 participants, researchers compared maternal and fetal outcomes from 2000 to 2010 before a new policy of routine induction at 41 weeks was adopted with outcomes from 2012 to 2016 after the policy was adopted. Researchers found no differences between the two time periods in the primary outcomes of stillbirths, perinatal deaths, or low Apgar scores. There was no significant change in the trend for cesarean section or instrumental birth after the new policy was adopted. There were, however, significant increases in the use of augmentation, epidural analgesia, induction of labor, and uterine rupture in the time period following the new policy.

*“The study highlights a need for a more balanced discussion among health providers on routine induction in late term.”*

### **New England Journal of Medicine**, ARRIVE Trial<sup>6</sup>, 2018

The RCT compared nulliparous low-risk women who were assigned to be induced at 39 0/7 weeks to 39 4/7 weeks (routine induction group) to women who were assigned to go either into labor spontaneously or to be induced between 40 5/7 weeks and 42 2/7 weeks (expectant management [EM] group). The primary outcome was a composite of adverse perinatal events; the secondary outcome was cesarean delivery. Researchers found no significant difference between the two groups in the composite of adverse perinatal events and a small reduction in the cesarean rate from 22.2% (EM) to 18.6% in the routine induction group.<sup>3</sup>

There are concerns about the generalizability of this study, and some have questioned whether routine inductions in all settings will lower the risk for cesarean surgery.<sup>7</sup>

### **Cochrane Library**<sup>17</sup>, 2018 (considered the “gold standard” for research)

Researchers looked at evidence mostly of moderate quality. “The trials compared a policy to induce labor at or later than term (**usually after 41 completed weeks of gestation [>287 days]**) with waiting for labour to start and/or waiting for a period before inducing labour.”

They found, “A policy of labour induction at or beyond term compared with expectant management is associated with fewer perinatal deaths and fewer cesarean sections; but more operative vaginal births. NICU admissions were lower and fewer babies had low Apgar scores with induction. No important differences were seen for most of the other maternal and infant outcomes.... The optimal timing of offering induction of labour to women at or beyond term warrants further investigation...”

*Links (in blue) are live in AdobeReader. See “Handouts” page at [www.thefamilyway.com](http://www.thefamilyway.com) for complete list of references.*

### **Additional Recommended Reading**

Dekker, R. (2020). Evidence on: Inducing for due dates.

<https://evidencebasedbirth.com/evidence-on-inducing-labor-for-going-past-your-due-date/>

Updated June 2021. Chart compiled by Debby Amis for The Family Way Publications, [www.thefamilyway.com](http://www.thefamilyway.com).

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