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Evidence that Empowers!

Evidence on: The ARRIVE Trial

By Rebecca Dekker, PhD, RN of EvidenceBasedBirth.com

Question: Why did researchers conduct the ARRIVE trial?

Answer: A group of researchers carried out the ARRIVE study (A Randomized tRial of Induction Versus Expectant management) to find out if elective induction of labor (using medicine to start labor without a medical reason) during the 39th week of pregnancy would result in a lower rate of death and serious complications for babies, compared to waiting until at least 40 weeks and 5 days for elective induction (Grobman et al. 2018). They also wanted to see if inductions had an effect on the risk of Cesareans.

Question: Who was in the study?

Answer: The ARRIVE trial took place at 41 hospitals in the United States. (U.S.) Participants had to be giving birth for the first time with a single, head-down baby and no major medical conditions. Researchers found 22,533 people eligible to be in the study, but only 6,106 of them (27%) agreed to participate. Participants were randomly assigned to elective induction at 39 weeks or expectant management. Expectant management included waiting for labor to begin on its own, induction for medical reasons, or elective induction after 40 weeks and 5 days.

Question: What did the researchers find?

Answer: Inducing labor at 39 weeks did not improve the primary outcome of death or serious complications for babies. For birthing people, induction at 39 weeks was linked to a lower rate of Cesarean (19% versus 22%) and a lower chance of developing pregnancy-induced high blood pressure (9% versus 14%). Birthing people in the early induction group spent more time in the hospital in labor, but less time in the hospital postpartum.

Question: What has other research shown about the impact of elective inductions at 39 weeks on health outcomes?

Answer: Elective inductions at 39 weeks have increased since the ARRIVE study was published, but post-ARRIVE studies do not show an overall improvement in health outcomes. Several studies using hospital medical records found no decreases in Cesareans after the ARRIVE trial (Nethery et al. 2023; Langen et al. 2023; Jelks et al. 2023). Large studies using U.S. birth certificate data found slight decreases in Cesarean rates (Wood et al. 2023; Gilroy et al. 2022). Findings on health issues in babies are mixed, with some studies showing no differences and others finding slight increases in some issues, like shoulder dystocia (Langen et al. 2022; Nethery et al., 2023). Research does suggest a potential decrease in pregnancy-related high blood pressure with elective inductions (Langen et al. 2023; Nethery et al. 2023; Futterman et al. 2023).

Question: So, should everyone be induced at 39 weeks to lower the rate of Cesareans?

Answer: Although this research may be helpful with making informed decisions, it does not mean "everyone" should be induced. For example, most of this research does not apply to people who have given birth before.

The ARRIVE study **did find** that inducing low-risk, first-time birthing people with accurately estimated due dates at 39 weeks may lower the Cesarean rate from 22% to 19% if care providers follow the same induction practices as they did in this study. Researchers think this is because the risk of Cesarean goes up the longer a pregnancy continues.

The ARRIVE study **does not mean** that elective induction at 39 weeks lowers the risk of Cesarean for every individual. Post-ARRIVE research does not clearly favor elective induction at 39 weeks over expectant management (Nethery et al. 2023; Langen et al. 2023; Jelks et al. 2023).

Also, some birthing people may prefer to wait for spontaneous labor, including:

- **Those who prefer to avoid medical interventions.** Some birthing people would prefer to wait for labor to start on its own, if possible. This could be why so many people (73%) refused to participate in the study (although some may have refused because they knew they wanted early induction and didn't want to wait). Some birthing people want to avoid medications and procedures to induce labor. They may also want to avoid other medical interventions that go along with induction, such as IV fluids, continuous fetal monitoring, and mobility/eating restrictions.
- **Those whose care providers have high Cesarean rates with inductions.** In this study, providers followed best practices for induction, such as cervical ripening for anyone who had an unfavorable cervix. Researchers also recommended that birthing people be given at least 12 hours in early labor (not counting time spent ripening the cervix) before diagnosing a "failed" induction. Most providers probably did follow these guidelines, because they were able to get a Cesarean rate of 19% with early induction in first-time birthing people—this rate is unusually low.
- **Those choosing midwifery care or having an out-of-hospital birth.** Most of the birthing people in this study were cared for by physicians (94%), and all gave birth in a hospital. Studies on out-of-hospital births and births attended by midwives show lower rates of Cesareans (Nethery et al. 2021; Reitsma et al. 2022; Souter et al. 2019). Cesarean rates range from 6-12% in planned freestanding birth center births and 5% for planned home births.

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Question: Are there other ways to lower my risk of Cesarean?

Answer: There are many other ways to lower your risk of Cesarean. The ARRIVE trial reported a Cesarean rate of 19% with elective induction compared to 22% with expectant management. That was the *absolute risk* of having a Cesarean, or how often Cesareans actually happened in each group. Absolute risk is the actual, or true risk of something happening to you. Relative risk is the risk of something happening to you in comparison to someone else, and you have to carry out a math formula to report the reduction in relative risk. The *relative risk* of having a Cesarean was 16% less in the early induction group compared to the expectant management group.

Researchers have found larger decreases in the relative risk of Cesarean with other approaches. For example, when people are randomly assigned to continuous support during labor (such as with a doula), they are 25% less likely to have a Cesarean (Bohren et al. 2017). Also, when people are assigned to a less-invasive type of fetal monitoring called hands-on listening (also known as intermittent auscultation), they are 39% less likely to have a Cesarean compared to people assigned to continuous electronic fetal monitoring (Alfirevic et al. 2017). Other comfort measures, such as walking around during labor, or planning a waterbirth, have also been shown in randomized trials to lower your risk of Cesarean by more than 16%.

Question: What do the professional guidelines say?

Answer: The American College of Obstetricians and Gynecologists (ACOG) states that it is reasonable to offer elective induction to low-risk, first-time birthing people at 39 weeks of pregnancy. However, care providers should consider several factors: the values and preferences of the pregnant person, the staffing and facility resources available to assist longer labors, and the protocol for preventing "failed" inductions.

The American College of Nurse-Midwives (ACNM) promotes normal healthy physiologic birth and a person's right to make decisions during pregnancy. They generally discourage elective inductions and strongly recommend shared decision-making between care providers and birthing people.

> **"There are a variety of evidence-based approaches to reducing first-time Cesareans."**

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