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# Exploration of Real-World Obstetric Data Regarding Cesarean Delivery Rate Since the ARRIVE Trial

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## Abstract

The cesarean delivery rate reported for the USA is an important element which impacts parturients in many ways, and which is a measurable factor. It is essential to determine if this rate compares with what had been predicted according to a previously published randomized controlled trial recommending an early term induction of labor. Such a comparison is possible, and should be reviewed, and which follows.

**Keywords:** Cesarean delivery rate, Randomized controlled trials, Elective induction of labor

## Editorial

Evidence obtained from published randomized controlled trials (RCTs) may need to be compared with real-world observational analyses, in order to determine the clinical applicability of the conclusions of those RCTs [1]. While RCTs are often considered the gold standard of medical evidence, other sources also contribute significantly to our understanding of medical concepts. Medical evidence can come from a variety of sources, from RCTs, to cohort studies, to meta-analyses, and to observational case series and population studies. The quality of any investigation depends on many factors, including the size and diversity of the subjects, minimization of bias, and the scientific plausibility of the investigation. Large-scale population studies and other investigative methods can equally illuminate our understanding of medical concepts. The size of the study population ('n')—whether 5 or 5 million—significantly influences the reliability and applicability of the findings for clinicians.

A consequential RCT, the ARRIVE trial [2] (A Randomized Trial of Induction Versus Expectant Management), published in 2018, may be worthy of such an analysis, given its significant clinical impact [3]. It is important to consider the personal impact that induction of labor (IOL) can have on parturients [4], the impact on obstetricians and their institutions, and the resultant perinatal outcomes (both maternal and neonatal). Various references counter the claimed benefit of IOL in reducing the cesarean delivery rate (CDR) after IOL [3]. Though the notion that elective induction of labor at 39 weeks and 4 days would lower the CDR was initially postulated, recent national delivery data in the US [5] suggests otherwise to be true, in that the CDR rose to 32.5% in 2023.

For maximal patient benefit, it is important to consider the nuances of IOL. Different methodologies used for IOL, such as fetal membrane sweeping, laminaria, amniotomy, misoprostol, dinoprostone, cervical balloon traction, and oxytocin, have varying effectiveness in achieving vaginal delivery [6]. Therefore, comparing a single or combination of IOL methods against expectant management should take this variability into account.

Moreover, the timing of IOL in gestation (e.g. early term, term, or post-term) can make for an important difference in such effectiveness, given that cervical ripeness (e.g. as measured

by the Bishop Score) continues to advance in gestation, and strongly predicts the success of IOL [7]. Obstetric clinicians may need to logically apply caution when comparing the conclusions of a potentially selection-biased RCT of 3,062 subjects [2] with a much larger population study of 3.67 Million subjects [5]. Patients and their obstetricians may prefer the natural spontaneity of the birthing process when deciding on the timing of delivery. For these reasons and considering the limited clinical value of elective IOL at 39 weeks and 4 days of gestation, the increasing prevalence of this practice should be critically evaluated.

## Conflicts of Interest

Authors deny any conflicts of interest.

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