

# Labor induction doesn't always reduce caesarean birth risk or improve outcomes for term pregnancies

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In recent years, experts have debated whether most birthing individuals would benefit from labor induction once they reach a certain stage of

pregnancy. But a new statewide study in Michigan suggests that inducing labor at the 39th week of pregnancy for people having their first births with a single baby that is in a head down position, or low risk, [doesn't necessarily reduce the risk of caesarian births](#). In fact, for some birthing individuals, it may even have the opposite effect if hospitals don't take a thoughtful approach to induction policies.

"Some people in the field have suggested that after 39 weeks of gestation, medical induction should be [standard practice](#)," said lead author Elizabeth Langen, M.D., a high-risk maternal fetal medicine physician and researcher at University of Michigan Health Von Voigtlander Women's Hospital, of Michigan Medicine.

"We collaborated with peer hospitals to better understand how [labor](#) induction may influence cesarean birth outcomes in real world maternity units outside of a clinical trial. In our study sample, we found inducing labor in this population of women and birthing people did not reduce their risk of cesarean birth."

The new research, published in the *American Journal of Perinatology*, was based on more than 14,135 deliveries in 2020 analyzed through a statewide maternity care quality collaborative registry. The collaborative, known as the Obstetrics Initiative and which began in 2018, includes at least 74 birthing hospitals and centers on reducing primary cesarean birth rates in low-risk pregnancies.

## **Results conflict with national trial findings**

The study was conducted in response to published research in 2018 from a multicenter trial known as "ARRIVE" (A Randomized Trial of Induction Versus Expectant Management.)

Findings from ARRIVE indicated that medical induction at 39 weeks

gestation in first time low risk pregnancies resulted in a lower rate of cesarean deliveries compared to expectant management—or waiting for labor to occur on its own or for a medical need for labor induction.

Michigan researchers mimicked the same framework used in the national trial and analyzed data from the collaborative's data registry, comparing 1,558 patients who underwent a proactively induced labor versus 12,577 who experienced expectant management.

"We designed an analytic framework mirroring the previous trial's protocol using retrospective data, but our results didn't reinforce a link between elective induced labor in late pregnancy and a reduction in caesarian births," said senior author and U-M professor of nursing [Lisa Kane Low, Ph.D., C.N.M.](#), a midwife and researcher at Michigan Medicine and the U-M School of Nursing.

In fact, results from the general Michigan sample were contradictory to the ARRIVE trial: Women who underwent elective induction were more likely to have a cesarean birth compared with those who underwent expectant management (30% versus 24%.)

In a subset of the sample, matching patient characteristics for a more refined analysis, there were no differences in c-section rates. Authors noted that time between admission and delivery was also longer for those induced.

Expectantly managed women were also less likely to have a postpartum hemorrhage (8 % versus 10 %) or operative vaginal delivery (9 % versus 11 %), whereas women who underwent induction were less likely to have a hypertensive disorder of pregnancy (6 % versus 9%.) There were no other differences in neonatal outcomes.

Authors point to several possible explanations for why the two studies

had conflicting results. One key difference was that the Michigan study collected data after births for the purpose of quality improvement in a general population of low-risk births. The ARRIVE trial, however, used data collected in real time as part of a research study.

A significant difference between individuals in a clinical trial and the general birthing population, Low says, may revolve around shared decision-making. Before trial enrollment, participants undergo a thorough informed consent process from trained study team members.

For the ARRIVE trial, this meant 72% of women approached to be in the study declined participation. Meanwhile, previous research has indicated that women in the general U.S. population often may feel pressured into agreeing to have their labor induced.

"Better outcomes may have occurred in the trial because the participants were fully accepting of this process," Low said.

"Further research is needed to identify best practices to support people undergoing [labor induction](#)," she added. "Prior to initiating an elective induction of labor policy, clinicians should also ensure resources and a process to fully support shared decision-making."

## **Inequities impacting likelihood of induced labor**

Michigan researchers also found that the practice of inducing labor at 39 weeks was not applied equally across demographic groups, with those being induced more likely to be birthing people who are at least 35 years old, identify as White non-Hispanic and who are privately insured.

The racial disparity in the data is consistent with the Centers for Disease Control and Prevention (CDC) data that shows more white women undergo induced labor than birthing individuals of any other racial or

ethnic group.

"These findings suggest that the practice of elective induction of labor may not be equitably applied across birthing people," Langen said. "We can only speculate about the reasons for these differences, but it's important that we pursue equitable application of evidence-based practices for all who would benefit."

Hospitals across the Michigan collaborative varied in size, teaching status and location but the sample size for induced deliveries was not adequate to analyze the impact of specific hospital factors on outcomes, authors note.

However, the team's additional analysis found cesarean birth rate after induced delivery did not differ between large hospitals and the rest of the collaborative.

"Inductions of labor for both medical indications and individual preferences will continue to be part of modern obstetrics, making it important to pursue strategies that optimize the induction process and outcomes," Langen said. "Future work should include a health equity approach and include the voices of pregnant people and their experiences of changes in care management."

**More information:** Elizabeth S. Langen et al, Outcomes of Elective Induction of Labor at 39 Weeks from a Statewide Collaborative Quality Initiative, *American Journal of Perinatology* (2023). [DOI: 10.1055/s-0043-1761918](https://doi.org/10.1055/s-0043-1761918)

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