

# Data Confirms Firstborns Take Their Time, Younger Siblings Born Sooner

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## Key Findings:

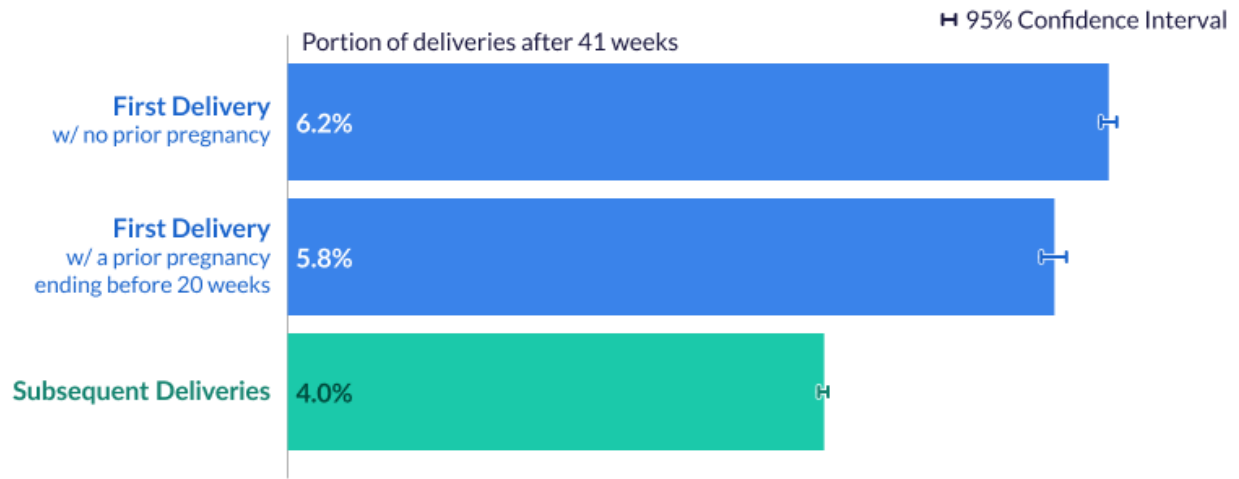
- In support of the widely held understanding that first babies are more likely to be born “late,” we found that deliveries go beyond 41 weeks’ gestation 1.53 times more frequently among mothers with a first-time delivery compared to those who have previously delivered, confirming anecdotal wisdom.
- The average pregnancy length, known as the gestational period, is longer for first-time deliveries (275.9 days) compared to those with a prior delivery (274.5 days). A full-term gestation is considered 273–286 days.

Obstetricians and expectant parents often note that first-time births are more likely to be delayed, attributing this to the body’s initial physiological adjustment to labor. While some literature suggests first births may be more prone to late deliveries,<sup>1</sup> other studies have found first births to be more prone to a preterm delivery.<sup>2</sup> This study aims to quantify how birth order affects the likelihood of a “late” delivery, helping expectant mothers and their clinicians better understand what is typical for first births compared to subsequent ones.

To understand the relationship between birth order and “late” delivery, we studied more than 2 million pregnancies resulting in a live, full-term, single birth between 37- and 43-weeks’ gestation, excluding inductions or cesarean deliveries. We compared gestational duration and rate of delivery beyond 41 weeks between those who have had a prior delivery and those who have not.

When evaluating the rate of deliveries taking place past 41 weeks’ gestation, we found that 6.2% of first-time deliveries among mothers with no prior pregnancy extended beyond this point. This was 1.53 times more often than for those with a prior delivery, where only 4.0% delivered after 41 weeks. Among mothers with a prior pregnancy loss before 20 weeks, 5.8% of first full-term births occurred after 41 weeks.

## Rate of Deliveries Beyond 41 Weeks Gestation



N=2,150,721 deliveries

"Rate of Deliveries Beyond 41 Weeks Gestation," 2025. EpicResearch.org

Figure 1. The rate of deliveries occurring after 41 weeks' gestation by prior pregnancy and delivery status.

When looking at the distribution of gestational age at delivery, we found that patients who have not had a prior delivery have an average gestation of 275.9 days compared to 274.5 days among mothers who have delivered before, a statistically significant difference, as seen in Figure 1.

## Gestational Age Distribution by Prior Delivery Status

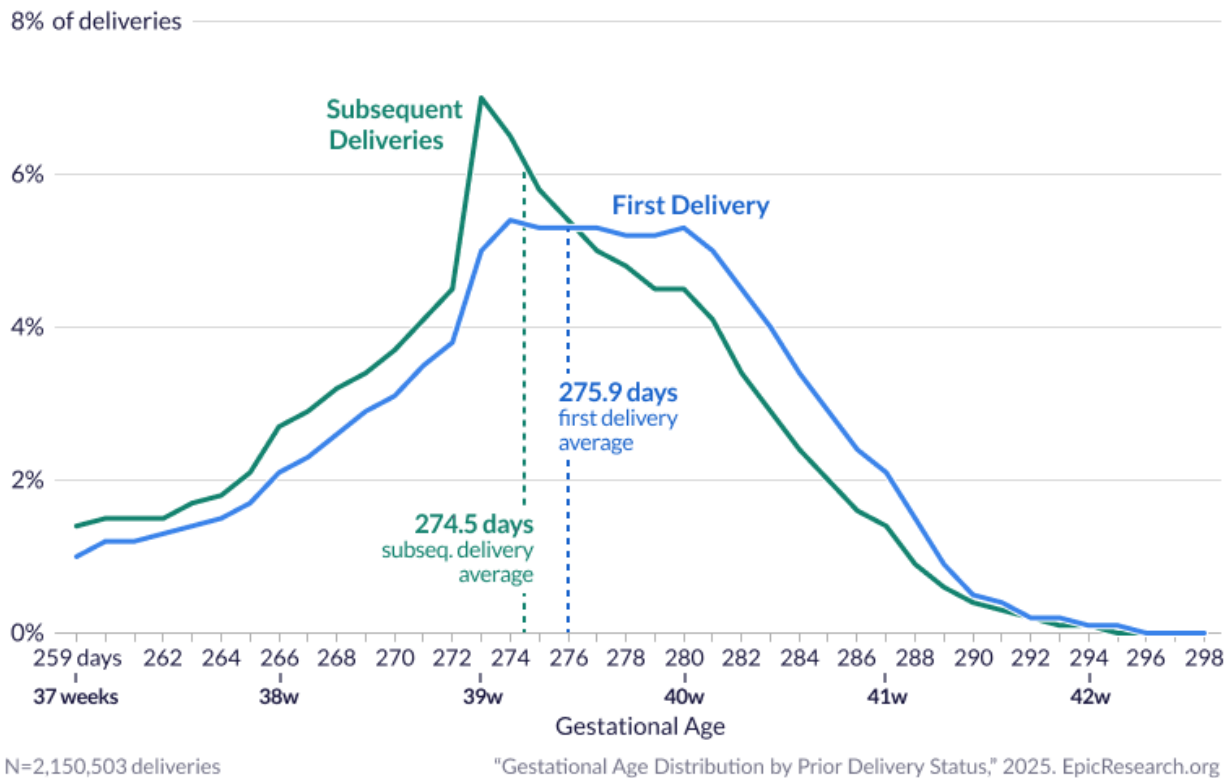


Figure 2. The distribution of gestational ages at delivery by prior delivery status.

These data come from Cosmos, a dataset created in collaboration with a community of Epic health systems representing more than 300 million patient records from 1,700 hospitals and more than 40,000 clinics from all 50 U.S. states, Lebanon, and Saudi Arabia. This study was completed by two teams that worked independently, each composed of a clinician and research scientists. The two teams came to similar conclusions. Graphics by Brian Olson.

## References

1. Caughey AB, Stotland NE, Washington AE, Escobar GJ. Who is at risk for prolonged and postterm pregnancy?. *Am J Obstet Gynecol.* 2009;200(6):683.e1-683.e6835. doi:10.1016/j.ajog.2009.02.034
2. Astolfi P, Zonta LA. Risks of preterm delivery and association with maternal age, birth order, and fetal gender. *Hum Reprod.* 1999;14(11):2891-2894. doi:10.1093/humrep/14.11.2891

## Data Definitions

Term	Definition
Study period	1/1/2007 to 1/30/2025
Study population	Study population is pregnancies with <b>full- or late-term deliveries</b> involving a single fetus Exclusions: <ul style="list-style-type: none"> <li>• Induced births</li> <li>• Births documented as cesarean deliveries</li> </ul>
Exposures	First live birth with no prior pregnancy

	First live birth with prior pregnancy and no delivery after 20 weeks' gestation Live birth with prior delivery
<b>Outcomes</b>	Average gestational age Risk of delivery past 41 weeks' gestation
<b>Confounders</b>	Established type 1 diabetes or type 2 diabetes: E08*-E13*, O24.1*, or O24.4* Established hypertension: I10, O10*-O16* Polycystic ovary syndrome (PCOS): E28.2* Pre-Pregnancy BMI: 30-<40, 40+ Younger maternal age (<20) Older maternal age (>=35) <b>Social Vulnerability Index</b> quintile <b>RUCA</b> <b>Race and ethnicity</b>
<b>Race and ethnicity</b>	Patients were grouped in exclusive categories of self-reported race and ethnicity as Hispanic, Non-Hispanic Asian, Non-Hispanic Black, Non-Hispanic White, Non-Hispanic Other Race, or Multi-Racial
Full- or late-term deliveries	A pregnancy that resulted in a live birth with a gestational age between 37 weeks and 43 weeks
Late-term birth	Gestation age greater than 41 weeks
Induced birth	Marked as such on the pregnancy episode, or one of the following medications administered during birth encounter: <ul style="list-style-type: none"> <li>• Misoprostol: RxNorm code 42331</li> <li>• Dinoprostone: RxNorm code 3478</li> <li>• Mifepristone: RxNorm code 6964</li> </ul>

**Table 1: Rate of Deliveries Beyond 41 Weeks Gestation**

Birth Sequence	Count	Late Term Deliveries	Mean	Low CI	High CI
<b>no past pregnancy</b>	578694	35867	6.20%	6.14%	6.26%
<b>past pregnancy ending before 20 weeks</b>	221535	12819	5.79%	5.69%	5.88%
<b>a second or later delivery</b>	1350492	54667	4.05%	4.01%	4.08%

**Table 2: Gestational Age Distribution by Prior Delivery Status**

Gestational Age in Days	1st Delivery Frequency	2nd+ Delivery Frequency
259	1.0%	1.4%
260	1.2%	1.5%
261	1.2%	1.5%
262	1.3%	1.5%
263	1.4%	1.7%
264	1.5%	1.8%
265	1.7%	2.1%
266	2.1%	2.7%
267	2.3%	2.9%

268	2.6%	3.2%
269	2.9%	3.4%
270	3.1%	3.7%
271	3.5%	4.1%
272	3.8%	4.5%
273	5.0%	7.0%
274	5.4%	6.5%
275	5.3%	5.8%
276	5.3%	5.4%
277	5.3%	5.0%
278	5.2%	4.8%
279	5.2%	4.5%
280	5.3%	4.5%
281	5.0%	4.1%
282	4.5%	3.4%
283	4.0%	2.9%
284	3.4%	2.4%
285	2.9%	2.0%
286	2.4%	1.6%
287	2.1%	1.4%
288	1.5%	0.9%
289	0.9%	0.6%
290	0.5%	0.4%
291	0.4%	0.3%
292	0.2%	0.2%
293	0.2%	0.1%
294	0.1%	0.1%
295	0.1%	0.0%
296	0.0%	0.0%
297	0.0%	0.0%
298	0.0%	0.0%