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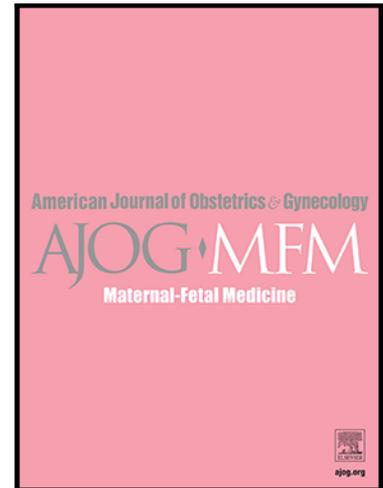
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Changes in obstetrical practices during the 2020 COVID-19 pandemic

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Objective: The COVID-19 pandemic disrupted almost every aspect of healthcare in the US. Here, we take advantage of an ongoing investigation of practice patterns in the wake of the ARRIVE trial¹ to evaluate if the COVID pandemic was associated with a change in the trends we previously reported. Prior to the pandemic, there was an upward trend in 39-week labor inductions among low-risk, nulliparous patients population.² In this report we sought to determine if that trend was affected by the pandemic.

Study Design: This was an IRB exempt, population-based study of low-risk nulliparous deliveries that occurred between 39+0 to 42+6 weeks. US Natality data from 2020 were released subsequent to our initial analysis.³ Similar to our previous publication, obstetrical practice (induction, deliveries from 39+0 to 39+6 weeks, and cesarean delivery) in the pre-ARRIVE group (births between 2015-2017) were compared to the post-ARRIVE group (births in 2019, which now also included 2020). Multivariate logistical regression was used to adjust for confounders.

We also focused on obstetrical practice rates by month during 2020 to determine how the initial surge and consequent lockdown affected trends.

Results: There were an additional 589,300 39+0-42+6 week deliveries added in 2020. Significant demographic differences between the pre- and post-ARRIVE groups remained after incorporating the 2020 data.² After adjusting for these differences, patients in the post-ARRIVE group were again, as reported in the previous cohort, more likely to undergo labor induction (37.4% vs 30.2%, aOR 1.43 [1.42-1.43]), more likely to be delivered by 39+6 weeks (43.2% vs 39.9%, aOR 1.17 [1.16-1.18]), and less likely to undergo cesarean delivery (27.3% vs 27.9%, aOR 0.93 [0.93-0.94]).

Of particular interest, in 2020, there was a six month pause in the upward-trend of labor induction starting in May, followed by a recovery and then a further increase (from 38.5% to 40.1%) in December resulting in a higher overall end-of-year rate. Deliveries by 39+6 weeks decreased in May (to 42.7%), but rebounded to a rate higher than pre-pandemic (44.7%) by December (Figure 1). The overall cesarean delivery rate increased by 0.1 percentage point from 2019 to 2020, ending the year at 27.7%.

Conclusion: There were further overall increases in labor induction and 39th week deliveries among low-risk nulliparous pregnant patients in 2020. However, from May-November, there was a noticeable dip in 39th week deliveries, with a plateau in labor induction during this interval, suggesting an effect of the pandemic on patterns of practice. The data raise the question of why 39th week births did not plateau when induction rates did. One theoretic possibility is that spontaneous births in the 39th week declined, due to sheltering, stress, or some unknown factor that could have delayed the onset of labor. Although the cesarean delivery rate remained lower in the post-ARRIVE group after including the 2020 data, the month-by-month rates in 2020 showed an increased rate by the end of the year. It is difficult to correlate specific spikes or nadirs in these 2020 practice rates with “waves” of the COVID-19 pandemic, given that periods of high disease prevalence affected US geographic regions at

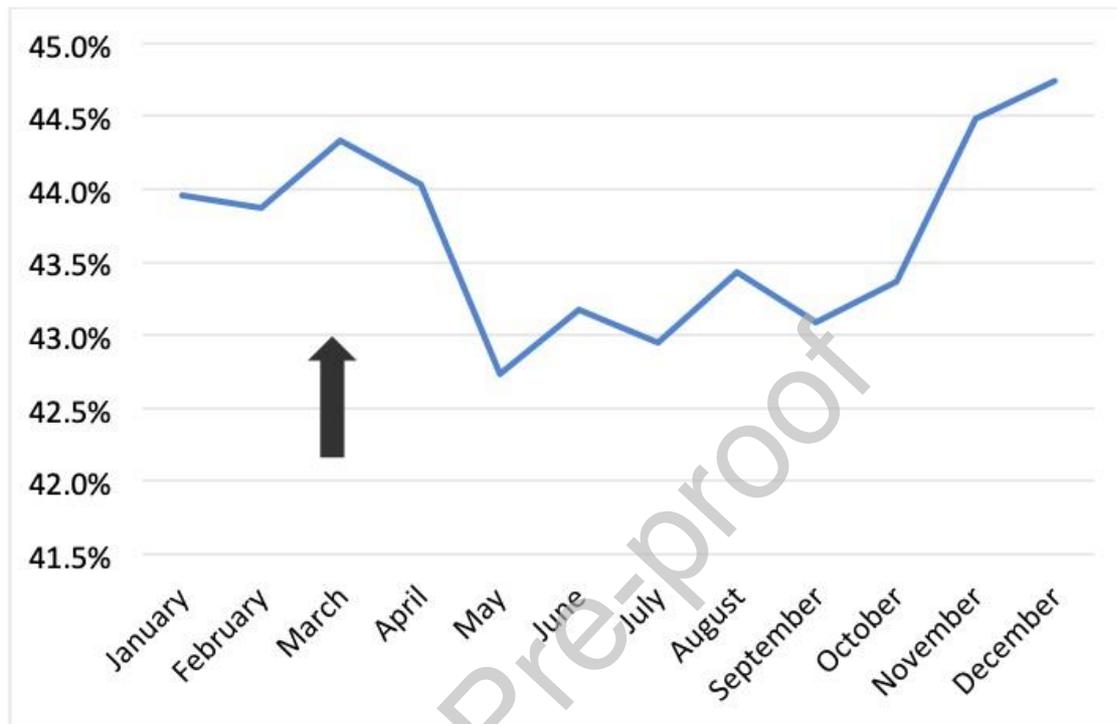
different time periods.⁶ Also, lockdown timing and adherence differed greatly by state in the US, making nationwide data more difficult to interpret. In conclusion, while the overall rates of these practices in 2020 are consistent with the trend established in 2019, reflecting a potential continued influence of the ARRIVE trial on obstetrical practices in the US, there was an apparent albeit transitory effect of the COVID-pandemic.

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Figure 1: Month-by-month deliveries between 39+0-39+6 in 2020



Dark arrow signifies the time of COVID lockdown in the US