"Doing something" about the cesarean delivery rate

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There is a general consensus that the cesarean delivery rate in the United States is too high, and that practice patterns of obstetricians are largely to blame for this situation. In reality, the US cesarean delivery rate is the result of 3 forces largely beyond the control of the practicing clinician: patient expectations and misconceptions regarding the safety of labor, the medical-legal system, and limitations in technology. Efforts to "do something" about the cesarean delivery rate by promulgating practice directives that are marginally evidence-based or influenced by social pressures are both ineffective and potentially harmful. We examine both the recent American Congress of Obstetricians and Gynecologists (ACOG)/Society for Maternal-Fetal Medicine Care Consensus Statement "Safe Prevention of Primary Cesarean Delivery" document and the various iterations of the ACOG guidelines for vaginal birth after cesarean delivery in this context. Adherence to arbitrary time limits for active phase or second-stage arrest without incorporating other clinical factors into the decision-making process is unwise. In a similar manner, ever-changing practice standards for vaginal birth after cesarean driven by factors other than changing data are unlikely to be effective in lowering the cesarean delivery rate. Whether too high or too low, the current US cesarean delivery rate is the expected result of the unique demographic, geographic, and social forces driving it and is unlikely to change significantly given the limitations of current technology to otherwise satisfy the demands of these forces.

Key words: cesarean delivery rate, labor arrest, vaginal birth after cesarean

For decades there has been a general consensus that the cesarean delivery rate in the United States is too high.[1–3] The practicing obstetrician is continually bombarded with this conclusion from all sides, including the lay press, social media, medical journals, and insurance companies.[1–6] Implicit in this idea seems to be an assumption that were it not for ignorance, laziness, greed, a failure to practice evidence-based medicine, a lack of empathy for the wonders of anesthetic-free natural childbirth, a culture of misogyny, or some other related moral failing, US obstetricians could achieve identical perinatal outcomes while performing far fewer cesarean deliveries. Of more concern is our observation that many within the obstetric community have fallen for this fallacy and echo voices urging us to "do something" about the "problem." This has led to decades of editorials, revisions, and re-revisions of practice guidelines, and an emerging willingness to stretch the definition of "evidence-based" labor management well beyond limits allowable in most areas of practice. Yet despite these efforts, a significant, sustainable decrease in the US cesarean delivery rate has yet to be demonstrated.[7]

How do we explain the failure of decades of effort by capable, well-meaning clinicians, scientists, and professional organizations to effectively address this issue? In part, obstetrics is a victim of its own success, as technologic advances have made cesarean delivery incredibly safe, in fact safe to the point of being available in the United States as an acceptable birth option, even without indication.[8,9] More importantly, we believe the answer lies in a lack of recognition of 3 fundamental forces that drive the current US cesarean delivery rate and are beyond the control of practicing clinicians: patient expectations, the US tort system, and technologic limitations. We believe that the current US cesarean rate perfectly reflects the demands of these forces. Just as supply of any product is, according to microeconomic theory, determined by demand and price, the current US cesarean delivery rate represents a perfect balance between the demands of these forces and the price (in terms of dollars and maternal morbidity) of meeting them.[10,11] Attempts to tweak current practice patterns without addressing these fundamental issues will likely be as unsuccessful in reducing the US cesarean delivery rate in the future as they have been in the past.

What is driving the current cesarean delivery rate? First, public expectations and the culture of blame. Every parent hopes for and expects a perfect pregnancy outcome. And so they should. While most parents do acknowledge the occurrence of an occasional, unpreventable birth defect, most expect the birth process to result in a child born in the same condition as when labor began. In reality, only cesarean delivery at term prior to or at the onset of labor can consistently deliver such an outcome. No degree of clinical expertise can prevent uncommon sudden catastrophic intrapartum events.[12–14] Nor can ongoing fetal central nervous system tolerance of labor be assured by even the most expert fetal heart rate pattern interpretation.[15]

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In contrast, the possibility of ongoing or subsequent intrapartum injury is eliminated when labor is terminated. In a society that increasingly embraces the notion that adverse life events are invariably someone's fault, and most commonly the fault of an establishment figure, expectations regarding normal labor outcome are heightened.[16,17] Cesarean delivery is a ready answer, and the cost is relatively low.

The second force is related to the first, and involves the application of the US tort system to medicine. Allegations of labor mismanagement remain the dominant theme of most obstetric malpractice suits. Decisions regarding best obstetric practices so complex, intricate, and difficult that they would evenly divide any group of board-certified obstetrician-gynecologists are ultimately decided by a group of intelligent and well-meaning lay persons who have been presented with select facts of the case. Further, since a single specialty-specific expert is typically offered on either side of a given case, medical decisions that would fall out as 999 to 1 within this same group of qualified clinicians may appear as 50/50 propositions. It is beyond the scope of this article to suggest changes to this system.[18,19] Rather, we simply observe that management of labor according to accepted standards of care offers little protection from litigation. In contrast, achievement of an ideal labor outcome offers complete protection. Terminating labor immediately terminates the possibility of intrapartum injury, and of allegations of labor mismanagement. Again, cesarean delivery is a ready answer, and the cost is relatively low.

Finally, attempts to safely reduce the cesarean delivery rate are limited by current technology. Such limitations are the only 1 of these 3 forces potentially amenable to modification by the medical community; indeed, this is the only factor with the potential to be modified significantly in the foreseeable future.

In managing labor, 2 fundamental questions face the obstetrician. Which babies can successfully negotiate the maternal pelvis and deliver vaginally and which babies will tolerate this passage without hypoxic injury or physical trauma? In truth, in terms of answering these questions, technologic limitations leave us largely flying sight-impaired, if not blind. We currently have no means of prospectively determining, with any useful probability, most women's chances of successful vaginal birth based on prelabor observations. Neither clinical nor radiographic pelvimetry nor sonographic estimation of fetal weight has proven to be of much use, except in rare, extreme cases.[20–22] Nor do we even have a very good method of assessing the forces of uterine contractions essential to achieving vaginal delivery. The current gold standard of uterine contraction measurement, the Montevideo unit, was described well over a half-century ago, and this rough, semiquantitative approach has, since its introduction, remained our primary tool for assessment of this critical determinant of successful labor.[23] It seems to us incongruous that we can accurately counsel a woman regarding the chances that her fetus is karyotypically normal to 2 decimal places, but cannot tell her the prospective odds that she will deliver the same baby vaginally with any useful probability.[24,25] This inadequate state of knowledge reflects research priorities, funding, and interest in the subject. The limitations of electronic fetal heart rate monitoring in differentiating fetuses who do or do not tolerate labor without incurring neurologic injury are also well known; basing a decision to perform a cesarean delivery on a technology with a positive predictive value for fetal acidemia and morbidity of $<20\%$ is guaranteed to result in a $>80\%$ rate of retrospectively unnecessary cesareans.[15,26] Indeed, traditional assumptions regarding the thresholds for levels of acidemia necessary for neurologic injury and detectable by electronic fetal heart rate monitoring are themselves increasingly recognized to have poor predictive value, as the human fetus exhibits wide biologic variability in this respect.[27,28] Even in the absence of a sentinel event, a traditionally reassuring fetal heart rate tracing cannot guarantee the absence of intrapartum metabolic acidemia.[15]

Until significant technologic progress is made in these 2 areas, we have little choice but to perform many cesarean deliveries that are, in retrospect, unnecessary, given the social and legal demands outlined above. Labor management algorithms and protocols may assist in this effort, but we can only go so far with currently available technologies. Until reliable technologies are developed to predict true cephalopelvic disproportion and directly assess fetal central nervous system oxygenation during labor, a focus on reducing the US cesarean delivery rate is misguided. Most US obstetricians are doing the best they can with imperfect technologies given the social and legal exigencies outlined above. No amount of fine-tuning of approaches to labor management or fetal heart rate interpretation is likely to make a significant difference, and, as outlined below, has the potential to make things worse.

Ideally, we would acknowledge the limitations of our current technology, frankly inform women of the implications of these limitations and of the logical delivery options that emanate from them, and focus research efforts on new technologies that might deliver real change. Instead, we sometimes make things worse in our desperation to "do something" about the cesarean delivery rate. Two examples will suffice: the recent American Congress of Obstetricians and Gynecologists (ACOG)/Society for Maternal-Fetal Medicine Care Consensus Statement "Safe Prevention of Primary Cesarean Delivery," which discourages intervention for labor arrest until the patient has remained at ≥ 6 cm with adequate contractions for at least 4 hours, and the ever-changing sequence of ACOG directives regarding vaginal birth after cesarean (VBAC).[7,29,30]

Little controversy exists regarding management of the latent phase of the first stage of labor. Not so with the active phase where even the definition remains controversial. While it has become common practice to consider the onset of the active phase as cervical dilatation