Clinical Indications Associated With Primary Cesarean Birth

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Cesarean birth is the most common surgical procedure for women in the United States. Of nearly 4 million births a year, one in three is now a cesarean. The rate of cesarean births has increased more than 50 percent, from 20.7 percent in 1996 to 32.8 percent in 2011 (Hamilton, Martin, & Ventura, 2012; Menacker & Hamilton, 2010), without concurrent improvement in health outcomes. Further, there is wide regional and hospital variation (Clark, Belfort, Hankins, Meyers, & Houser, 2007). In one study, for example, a 15-fold variation (2.4 percent to 36.5 percent) in cesarean birth rates across hospitals in the United States was shown among low-risk women (Kozhimannil, Law, & Virnig, 2013). Although cesarean births can be lifesaving when medically indicated, the current prevalence and variability contributes to excess perinatal morbidity and mortality as well as significantly higher health care costs compared to vaginal birth (Clark et al., 2008; Gibbons et al., 2010; NIH, 2006).

Abstract: Cesarean birth is the most common surgical procedure in the United States and is associated with increased morbidity and mortality when compared to vaginal birth. Of the more than 4 million births a year, one in three is now a cesarean. A better understanding of the clinical indications contributing to the current prevalence in primary cesarean rates can inform prevention strategies. This column takes a second look at two recent studies in which researchers evaluated the clinical indications associated with primary cesarean birth rates. DOI: 10.1111/1751-486X.12126

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To lower the total cesarean rate, which is the sum of all repeat and primary cesareans, experts agree that decreasing the number of primary cesarean births is a key strategy (Zhang et al., 2010). A primary cesarean is defined as one performed on a women who has previously never had a cesarean. A repeat cesarean is defined as one performed on a woman who has previously had at least one cesarean. The *Healthy People 2020* target for primary cesarean birth is 23.9 percent among a group of women considered low risk for the procedure (U.S. Department of Health and Human Services, 2011a)—nulliparous, full-term, singleton and vertex (NTSV) presentation births. In 2010, 26.4 percent of low-risk women gave birth by cesarean (U.S. Department of Health and Human Services, 2011b).

Factors Associated With Birth Type

A complex interplay of clinical and nonclinical factors are thought to influence decisions regarding birth type (Wu, Viswanathan, & Ivy, 2011), such as changes in maternal demographics (e.g., increasing maternal age), maternal preference (e.g., maternal request) and clinical risk profiles (e.g., obesity and diabetes). A low-risk tolerance among clinicians and women alike may also be contributing to the escalating rate of cesarean births (Fuglenes, Øian, & Kristiansen, 2009; Weaver, Statham, & Richards, 2007). However, a growing body of evidence suggests that clinician practice patterns are mainly responsible (Clark et al., 2007; Declercq, Menacker, & MacDorman, 2005, 2006). Of the clinical obstetric, fetal and maternal indications for primary cesareans, most depend on the clinician's interpretation, recommendation or action (Spong, Berghella, Wenstrom, Mercer, & Saade, 2012). Clinician practice patterns resulting in decisions that promote successful vaginal births and, in turn, prevent non medically indicated cesarean births, need to be understood and incorporated into the standard of practice to reduce the prevalence of primary cesarean births.

In this column, we take a second look at two of the most recent studies in which researchers evaluated the clinical indications associated with primary cesarean birth rates and discussed potential prevention strategies. Both of these studies provide level II-2 evidence (see Box 1).

First Study

The authors of the first study examined physician-documented indications for cesarean births to determine the factors contributing to the increase in cesarean birth rates observed over a 7-year period at their academic medical center (Barber et al., 2011).

Box 1.

Levels of Evidence

The quality of evidence for a study is based on a grading system that evaluates the scientific rigor of a design, as developed by the U.S. Preventive Services Task Force. The levels are as follows:

Level I:	Evidence obtained from at least one properly randomized controlled trial.
Level II-1:	Evidence obtained from well-designed controlled trials without randomization.
Level II-2:	Evidence obtained from well-designed cohort or case-control analytic studies, preferably from more than one center or research group.
Level II-3:	Evidence obtained from multiple time series with or without intervention. Dramatic results in uncontrolled experiments (such as the results of the introduction of penicillin treatment in the 1940s) could also be regarded as this type of evidence.
Level III:	Opinions of respected authorities, based on clinical experience; descriptive studies and case reports or reports of expert committees.

Source: U.S. Preventive Services Task Force (1996).

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