

Toward normal birth—but at what cost?

Hans Peter Dietz, PhD; Stuart Campbell, DSc (Med)

The rate of cesarean delivery (CD) has been rising, seemingly inexorably, across the Western world as well as in developing countries. This trend is clear in the United States,¹ United Kingdom,² and Australia,³ although there is some evidence that CD rates have plateaued in the last 5 years.³ In the United States, CD has become the commonest surgical procedure.¹

In the United Kingdom and Australia, policymakers have been particularly active in trying to reduce CD rates. The results are guidelines, eg, those issued by the National Institute for Health and Care Excellence (NICE) in the United Kingdom⁴ and policy directives such as “Towards Normal Birth” in New South Wales.⁵ The American Congress of Obstetricians and Gynecologists (ACOG) and the Society for Maternal-Fetal Medicine⁶ have recently published documents that promote forceps and encourage a permissive approach to longer second stages as a means of reducing CD rates, and the Clinical Excellence Commission in New South Wales has issued recommendations that are likely to result in higher forceps rates.⁷ At times, the involvement of obstetricians in the production of such documents has been nominal.⁸

There likely are multiple factors driving the increase in CD rates internationally, and across very different health care delivery systems. However,

The rate of cesarean delivery has become an important health care issue, and has attracted the attention of governments, professional organizations, health care administrators, clinicians, and patients. This has resulted in the generation of guidelines, clinical recommendations, and other documents aimed at increasing the likelihood of vaginal delivery. Sometimes, these recommendations are formulated with limited input from clinicians. In some countries, such as the United Kingdom, external pressure exerted on clinicians to reduce the rate of cesarean delivery has been the subject of public debate, and has led to unintended consequences, including an increase in medicolegal tensions. In the United States and Australia, recent recommendations generated by professional bodies have advocated that clinicians should change practice to reduce the rate of cesarean delivery. We do not summarize the risks and benefits of cesarean birth in different clinical situations, which have been the subject of numerous reviews. Rather, we try to examine the potential implications of such policies in light of recent observations made in maternity units, judicial decisions, and clinical research. The emphasis is on maternal morbidity and patient autonomy. This may include the negative consequences of increasingly risky attempts at vaginal birth after cesarean delivery such as uterine rupture, higher rates of pelvic floor and anal sphincter trauma due to rising forceps rates, and a bias against elective cesarean delivery on maternal request.

Key words: birth, birth trauma, cesarean delivery, guidelines, pelvic floor, policy directives

several predictors of CD can consistently be identified: a reduction in multiparity in the obstetric population, an increase in maternal age at first delivery, and the obesity epidemic and associated increases in medical morbidity such as gestational diabetes.⁹ The obesity epidemic has multiple consequences, none of them favorable to maternal and perinatal health.^{10,11}

In the United States, changes in reimbursement levels, medicolegal concerns, and patient choice in favor of a delivery mode that provides greater control over timing and reduces the risk of pelvic floor damage also seem to contribute.¹²

Demographic factors are strong predictors of cesarean birth in the developed world and at least partly explain the rise in CD rates. In fact, it seems remarkable that perinatal³ and maternal¹³ mortality indicators are still trending downward despite these substantial demographic shifts toward

ever-increasing numbers of pregnancies at high risk of complications.

Policymakers strive to reduce the number of cesarean births to limit immediate costs, since maternity services take an ever-larger share of health budgets. In addition to administrators and government officials being anxious about the increasing use of scarce health care resources, there is a strong movement that believes that obstetricians are primarily responsible (indeed, to blame) for the rise in intervention rates. As a result there is pressure on services and individuals to change clinical practice. The CD rate has become a primary key performance indicator of obstetric services, and this at a time when it is becoming increasingly clear that even solid obstetric morbidity measures such as postpartum hemorrhage, peripartum infection, severe perineal laceration, neonatal morbidity, and venous thromboembolism are of limited use as

From Obstetrics and Gynecology, Sydney Medical School Nepean, Penrith, Australia (Dr Dietz); and Obstetrics and Gynecology, St George's Hospital, University of London, London, United Kingdom (Dr Campbell).

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Corresponding author: Hans Peter Dietz, PhD.
hpdietz@bigpond.com

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key performance indicators, even with optimal data collection.¹⁴

Clinical consequences

The results of this development are increasingly becoming visible. Much can be learned from the experience in the United Kingdom where the National Health Service (NHS) has exerted considerable micromanagement of clinical practice for over a decade. We have selected 2 areas in which the pressure on clinicians to reduce CD rates is particularly likely to place mothers and babies in danger:

Increasing emphasis on vaginal birth after CD

One of the few options available for lowering CD rates is to increase vaginal birth after CD (VBAC) and utilization has fluctuated widely in the United States. In the United Kingdom and Australia, VBAC or trial of labor after cesarean has not always been well received by patients, and this has resulted in the establishment of dedicated clinics designed to promote trials of labor in patients with previous CD, and the increased use of labor augmentation under these circumstances. It appears that pressure on CD rates is leading to increasingly risky VBAC attempts: historical complication data may no longer be applicable to current practice. And even data obtained under conservative criteria show increased risks for mother and child compared to elective CD.¹⁵ The risks of VBAC are considerably diminished if the woman has had a previous vaginal delivery but <20% are in that situation.¹⁶ In a large Canadian study, of 28,406 women with no prior vaginal deliveries, 7614 planned a vaginal birth but only 3297 delivered vaginally. The risk of life-threatening outcomes was significantly increased in those who planned a vaginal birth.¹⁶ In a recent study conducted in a VBAC clinic at St George's Hospital in Sydney,¹⁷ 567 women with previous CD were included, of whom 396 were deemed VBAC candidates; 226 (40%) agreed to VBAC, of whom 160 (28%) had a trial of labor. This resulted in 75 normal vaginal deliveries, 28 instrumental deliveries,

and 57 emergency CD, which implies that 13% of all women with prior CD eventually delivered normally, and 18% via the vaginal route. There were 2 perinatal deaths: 1 from a stillbirth at 40+6 weeks, another from a uterine rupture while receiving oxytocin stimulation. There was another uterine rupture that was survived by mother and child. On an intention-to-treat basis these figures translate to a perinatal mortality of 1:113.¹⁷ While this may be described as anecdotal evidence, it provides data on contemporaneous practice under increasing pressure to enhance VBAC uptake.

Increasing forceps rates

Forceps use has been decreasing all over the developed world, with the great majority of vaginal operative deliveries in continental Europe, Scandinavia, and North America now being done by vacuum. In 1989, Chalmers and Chalmers¹⁸ declared that the "obstetric vacuum extractor is the instrument of choice for operative vaginal delivery." In the United States and Germany, forceps rates have now dropped to <1%.^{19,20}

Forceps use is rare in Scandinavia and Italy, and there has been no forceps use in Denmark for over 10 years. Curiously, this trend is being reversed in some jurisdictions. In England, forceps rates have doubled since 2004, from 3.3–6.8%,²¹ and this development is also evident in Australia. In addition, there seems to be a trend toward increasingly difficult and rotational forceps use in an attempt to avoid CD.^{22,23} In the United States, recent ACOG statements seem to encourage a greater use of forceps to avoid CD.²⁴

It has been known for many years that forceps can be traumatic to the fetus.²⁵ However, this concern is balanced by the risk of cephalhematoma in vacuum birth,²⁶ and the relative advantages and disadvantages of forceps and vacuum as regards the newborn is a complex subject outside the scope of this piece.

The situation as regards the mother is much clearer. Encouraging the use of forceps is worrisome, given recent evidence linking this type of operative vaginal delivery with pelvic floor trauma.

Forceps use is well established as the major risk factor for both anal sphincter and levator trauma or "avulsion."²⁷ Avulsion in particular is not yet generally recognized as a major form of obstetric trauma due to the fact that it is usually occult. In simple terms, the levator ani is disconnected or peeled off its insertion on the os pubis at crowning. Due to the greater elasticity of the vagina itself, the tear remains invisible behind intact vaginal skin, although it is occasionally exposed by a large lateral vaginal tear.²⁸ Once peripartum changes have settled down, avulsion is palpable,^{29,30} although the diagnostic gold standard is tomographic ultrasound.³¹ It has recently become clear that such tears are the missing link between vaginal childbirth and prolapse, especially of the bladder and uterus.^{32,33} In the presence of avulsion, prolapse is much more likely to recur.³⁴

This specific form of pelvic trauma was forgotten only to recently be rediscovered almost 70 years after its first description by De Lee³⁵ in 1938. A recent direct comparison between 2 Sydney teaching hospitals showed marked differences in trauma rates, explained almost entirely by variations in forceps utilization.³⁶ Odds ratios for levator avulsion with forceps relative to vacuum are between 3.4–11.4,²⁷ and sphincter trauma is also much more common with forceps, with an odds ratio of 1.83 (1.66–2.03) in a recently completed metaanalysis (63 studies, n = 546,796 forceps, n = 1,397,193 vacuum) (unpublished data).

On the basis of our own modeling³⁷ we have calculated that doubling the forceps rates in the United Kingdom between 2004 and 2014 may now have resulted in over 100,000 additional major levator and anal sphincter tears. The same modeling suggests that women in the United Kingdom now are exposed to a 30–40% higher risk of such major tears compared to women delivering in the United States or Germany—and this is without considering the effects of rotational forceps. This is likely to cause substantial future morbidity: anal sphincter tears are the primary modifiable risk factor for anal incontinence in

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