

# Comparing Rates of Trial of Labour Attempts, VBAC Success, and Fetal and Maternal Complications Among Family Physicians and Obstetricians

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## Abstract

**Objectives:** To determine differences between family physicians and obstetricians in rates of trial of labour (TOL) attempt, vaginal birth after Caesarean section (VBAC) success, and maternal-fetal complications.

**Methods:** We undertook a database evaluation study in an urban Quebec secondary care hospital centre that serves a multiethnic population. Study subjects were pregnant women with at least one previous Caesarean section (CS), who delivered singletons at St. Mary's Hospital Center between January 1995 and December 2003. Outcomes were rates of TOL attempt, of VBAC success and failure, and of uterine rupture or dehiscence.

**Results:** Of 32 500 singleton deliveries, 3694 (11.4%) women met study criteria. Of these, 3493 (94.6%) were patients of obstetricians, and 201 (5.4%) were patients of family physicians. The TOL attempt rate was 50.6% (1768) and 81.1% (163) for obstetricians and family physicians, respectively ( $P < 0.001$ ). For women having TOL, the VBAC success rate was 64.3% for obstetricians and 76.1% for family physicians ( $P = 0.002$ ). Rates of uterine rupture or dehiscence in the combined failed and successful VBAC groups were 2.9% for obstetricians and 4.3% for family physicians ( $P = 0.33$ ) whereas in the failed VBAC group the rates were 7.9% versus 17.9% for the family physicians ( $P = 0.04$ ). Within delivery outcomes for successful and failed VBAC there were no differences in maternal characteristics and newborn outcomes by physician group.

**Conclusion:** More patients of family physicians than of obstetricians attempted TOL and had successful VBAC. Newborn outcomes were similar in the two groups, except that in the failed VBAC group, the family doctors had slightly higher uterine rupture or dehiscence rates; given the low power of this study, further studies are needed to confirm and explain this result. Also, given the similarity in patient profiles, the differences in delivery outcomes may be attributable to differences in physician practice styles.

## Résumé

**Objectifs :** Identifier les différences entre les médecins de famille et les obstétriciens en matière de taux d'essai de travail (EDT), de taux de réussite de l'accouchement vaginal après une césarienne (AVAC) et de taux de complications materno-fœtales.

**Méthodes :** Nous avons mené une étude d'évaluation de base de données au sein d'un centre hospitalier de soins secondaires urbain québécois qui dessert une population multiethnique. Cette étude portait sur les femmes enceintes qui, ayant déjà connu au moins une césarienne, avaient accouché d'un enfant unique au St. Mary's Hospital Center entre janvier 1995 et décembre 2003. Parmi les critères d'évaluation, on trouvait le taux d'EDT, les taux de réussite et d'échec de l'AVAC et le taux de rupture ou de dehiscence utérine.

**Résultats :** Dans le cadre de notre étude, 3 694 (11,4 %) des 32 500 femmes ayant connu un accouchement simple ont satisfait aux critères de sélection. Parmi celles-ci, 3 493 (94,6 %) étaient des patientes d'obstétriciens et 201 (5,4 %) étaient des patientes de médecins de famille. Les taux d'EDT étaient de 50,6 % (1 768) dans le cas des obstétriciens et de 81,1 % (163) dans celui des médecins de famille ( $P < 0,001$ ). Chez les femmes tentant un EDT, le taux de réussite de l'AVAC était de 64,3 % pour les obstétriciens et de 76,1 % pour les médecins de famille ( $P = 0,002$ ). Les taux de rupture ou de dehiscence utérine totaux (combinaison des résultats des groupes « échec de l'AVAC » et « réussite de l'AVAC ») étaient de 2,9 % pour les obstétriciens et

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de 4,3 % pour les médecins de famille ( $P = 0,33$ ), alors que dans le groupe « échec de l'AVAC », les taux étaient de 7,9 % pour les obstétriciens et de 17,9 % pour les médecins de famille ( $P = 0,04$ ). En ce qui concerne les issues d'accouchement au sein des groupes « échec de l'AVAC » et « réussite de l'AVAC », aucune différence n'a été constatée entre les obstétriciens et les médecins de famille en matière de caractéristiques maternelles et d'issues néonatales.

**Conclusion :** Un plus grand nombre de patientes de médecins de famille, par comparaison avec les patientes d'obstétriciens, ont tenté un EDT et connu un AVAC réussi. Les issues néonatales étaient semblables dans les deux groupes; cependant, dans le groupe « échec de l'AVAC », les médecins de famille ont connu des taux légèrement supérieurs de rupture ou de déhiscence utérine. Compte tenu de la faible envergure de cette étude, d'autres études s'avèrent requises pour confirmer et expliquer ces résultats. De plus, compte tenu de la similarité des profils de patiente, les différences en matière d'issues d'accouchement pourraient être attribuables à des différences en ce qui concerne les styles de pratique des médecins en question.

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## INTRODUCTION

The management of women with previous CS has long been subject to debate. The increased rate of uterine rupture and the subsequent concern for maternal and perinatal morbidity have challenged the safety of vaginal births after previous CS. In general, physicians in Europe, Asia, and Africa are more inclined than those in the US and Canada to attempt a trial of vaginal delivery.<sup>1</sup> The overall rate of CS in the US has risen from 5% in 1970 to a high of 26% in 2002, and in Canada from 6% in 1970 to 21.2% in 2000–2001.<sup>2,3</sup>

In 1981, concerned with the rising rate of CS, the US National Institutes of Health Consensus Development Task Force recommended that “properly selected” women should be encouraged to labour and deliver vaginally after a prior CS.<sup>4</sup> By the end of the 1980s, the rate of VBAC had risen, reaching a peak of 28.3% in 1996, with a CS rate of approximately 20%.<sup>5</sup> However, after 1997, the VBAC rate steadily decreased to 10.6% in 2003, and the CS rate rose to approximately 27%, partly because of rising medical-legal claims from adverse outcomes.<sup>6</sup>

Although the most frequent indications for CS are previous CS, dystocia, malpresentation, and non-reassuring fetal status, the practice of repeat CS nonetheless exerts a major influence on the overall increase in CS rate<sup>7,8</sup>; repeat CS accounted for 39% of all CS in 2001.<sup>9</sup> An estimated 60% to

82% of trials of labour after previous CS result in successful vaginal birth. Evidence suggests that family physicians and obstetricians take different approaches to the management of labour and delivery of women with previous CS.<sup>10,11</sup> For example, comparison of the intrapartum management by family physicians and obstetricians shows that family physicians intervene less often during labour without adversely affecting maternal or fetal outcome.<sup>12</sup> When family physicians do intervene, for example with vacuum-assisted deliveries, their complication rates are similar to those of obstetricians.<sup>13</sup> However, it is not clear whether the management of VBAC deliveries differs according to physician speciality. The purpose of this study was to determine whether there were differences in rates of VBAC success, trials of labour, and fetal and maternal complications between family practitioners and obstetricians and if there were differences, how they could be explained and how management of these patients should be changed to decrease morbidity and mortality.

## METHODS

The data source for this cross-sectional study was the labour and delivery database of the St. Mary's Hospital Center, a secondary care, urban hospital in Montreal serving a large multiethnic population, with approximately 3500 deliveries per year. The labour and delivery database is constructed from information recorded on standardized delivery forms that are part of the patients' charts, and contains information on all deliveries performed at the hospital from 1993 to the present. The study included 13 family medicine physicians with obstetrical privileges (excluding performance of CS) and 30 obstetricians. The obstetricians take 24-hour in-house call and are available for emergency calls. The family physicians also have an on-call system but are not in-house 24 hours a day. Access to emergency CS and support for patients in labour was the same for both physician groups.

The study included all pregnant women who had at least one previous CS and who had a singleton pregnancy (birth weight at least 500 g) at St. Mary's Hospital Center between January 1995 and December 2003. We extracted the following maternal and neonatal data from the database: gestational age by ultrasound, date of admission to caseroom, patient date of birth, obstetric history, diabetes in pregnancy, hypertension, admitted with spontaneous or induced labour, indication for induction, rupture of membranes, labour duration, augmentation, fetal distress, fever in labour, antibiotics in labour, complications, number and rank of fetus, number of previous CS, presentation, CS indication (primary or failed VBAC), reason for repeat CS, maternal hemorrhage, live or stillbirth, birth weight,

## ABBREVIATIONS

CS	Caesarean section
TOL	trial of labour
VBAC	vaginal birth after Caesarean section

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