

## Vaginal Birth after Cesarean in German Out-of-Hospital Midwifery Care

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**Background:** The increasing rate of cesareans worldwide means more women with a prior cesarean are starting labor under midwifery care in an out-of-hospital setting.<sup>1 2</sup> Vaginal birth after cesarean (VBAC) is the recommended mode of birth for most women.<sup>3</sup> However, due to the risk of uterine rupture and placental complications, VBAC in non-hospital settings is considered controversially.<sup>4 5</sup> In Germany in 2011, among planned out-of-hospital births cared for by midwives, 567 (5.5%) had a prior cesarean documented as the directly preceding mode of birth.<sup>1</sup>

**Questions:** What are the maternal and neonatal outcomes of VBAC, when the labor starts in an out-of-hospital setting? What is the difference between primiparous women and women who have a cesarean as their last mode of birth?

**Method:** Secondary analysis of German planned out-of-hospital birth data from 2005 to 2011. Include 25,000 primiparae and 2,217 women with a prior cesarean. Inclusion criteria: singleton pregnancy, cephalic presentation, at term (37 to 42 weeks gestation). Outcome variables: vaginal birth, transfer to hospital, placental complications, postpartum bleeding, and Apgar score. The chi-square test was used to compare the two groups. A p-value <0.05 was determined as being significant.

Table 1: Maternal outcome

	Prior cesarean section		Primiparae		Chi-square	
	n	%	n	%	p-Value	
Women	2,217		25,000			
Total vaginal births	1,500	77.8	22,438	89.8	<0.05	sig
Intrapartum transfer	739	38.3	6,797	27.2	<0.05	sig
Vaginal birth after transfer	335	45.3	4,235	62.3	<0.05	sig
Postpartum transfer	43	1.9	451	1.8	0.44	NS
Retained placenta	56	2.5	661	2.6	0.46	NS
Hemorrhage >1000ml	43	1.9	451	1.8	0.44	NS

Table 2: Neonatal outcome

	Prior cesarean section		Primiparae		Chi-square	
	n	%	n	%	p-Value	
Newborns	2,217		25,000			
Apgar score ≤ 7 5 min	39	1.8	445	1.8	0.49	NS
Apgar score ≤ 7 10 min	13	0.6	162	0.6	0.46	NS
Transfer to hospital	61	2.8	845	3.4	0.11	NS

**Results:** The total VBAC rate for this study population was 78% with a 90% vaginal birth rate for primiparae (p<0.05). The risk for intrapartum transfer for women attempting VBAC was 1.17 (95% CI: 1.10-1.25). The rate of vaginal birth after transfer is higher in the group of the primiparae than in the cesarean group (p<0.05). No differences were found between the two groups of women for postpartum issues related to transfer, placental problems, or hemorrhage (Table 1). There was also no difference found for neonatal outcomes as measured by 1 minute and 5 minute Apgar scores, and neonatal transfers (Table 2).

**Discussion:** Women cared for by midwives in out-of-hospital birth settings in Germany have both high VBAC and vaginal birth rates. Although there was small increased risk (17%) for intrapartum transfer for VBAC women, the actual rate (nearly 40%), is high compared to American studies documenting transfer rates ~ 25%<sup>5</sup>. These results may demonstrate midwives are not waiting a long time to identify labor abnormalities, e.g., labor dystocia. The lack of differences in postpartum complications and in neonatal outcomes strengthen this thesis.

### Literature:

- <sup>1</sup> Gesellschaft für Qualität in der außerklinischen Geburtshilfe (QUAG e.V.) Qualitätsbericht 2011 Zwickau, 2013
- <sup>2</sup> MacDorman, M.F.; Declercq, E.; Mathews, T.J.; Stotland, N. (2012): Trends and Characteristics of Home VBAC Delivery in the U.S. and Selected States. In *Obstetrics & Gynecology* 119 (4), pp. 737–744.
- <sup>3</sup> Foureur, M.; Ryan, C.L.; Nicholl, M.; Homer, C. (2010): Inconsistent Evidence: Analysis of Six National Guidelines for Vaginal Birth After Cesarean Section. In: *Birth* 37 (1), pp. 3–10.
- <sup>4</sup> David, M. Gross M.M. Wiemer A. Pachaly J.; Vetter K. (2009): Prior cesarean section--an acceptable risk for vaginal delivery at free-standing midwife-led birth centers? In: *European Journal of Obstetrics & Gynecology and Reproductive Biology* 142 (2), pp. 106–110.
- <sup>5</sup> Lieberman, E.; Ernst, E.K.; Rooks, J.P.; Stapleton, S.; Flamm, B. (2004): Results of the National Study of Vaginal Birth After Cesarean in Birth Centers. In: *Obstetrics & Gynecology* 104 (5, part 1), pp. 933–942.