Influence of Alternative Birth Methods on Traditional Birth Management

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PD Dr. med. Jakob **Eberhard**, MD, Director of the clinic for obstetrics and gynecology of the cantonal hospital (Thurgauisches Kantonsspital), 8501 Frauenfeld/Switzerland, and "Privat-dozent" at the University of Zurich/Switzerland.

Dr. med. Verena **Geissbuehler**, MD, Head of the clinic for obstetrics and gynecology of the cantonal hospital (Thurgauisches Kantonsspital), 8501 Frauenfeld/Switzerland

Requests for reprints at the following address:

Dr. med. Verena **Geissbuehler**
Leitende Aerztin Frauenklinik
Thurgauisches Kantonsspital
CH-8501 Frauenfeld/Switzerland

Tel: 0041- 52- 723 72 53 (office hours)
Fax: 0041- 52- 723 73 64
e-mail: vgeissbuehler@bluewin.ch

Correspondence to:

PD Dr.med Jakob **Eberhard**
Chefarzt Frauenklinik
Thurgauisches Kantonsspital
CH-8501 Frauenfeld/Switzerland

Tel: 0041- 52- 723 72 53 (office hours)
Fax: 0041- 52- 723 73 64
e-mail: vgeissbuehler@bluewin.ch

Summary

Background

Because of popular demand for more natural childbirth, a new concept was introduced in 1991 in our clinic. It consisted of careful monitoring and birth management, restrictive use of invasive methods, and free choice of different birth methods including waterbirths and other alternative birth methods. Our aim was to determine the influence of our new birth concept on the way women give birth and on the birth management in our clinic.

Methods

In a total of 9,418 births between 1991 and 1997 (new birth concept KSF (KSF = Kantonsspital Frauenfeld) the changing pattern of birth methods and birth management in our clinic under the influence of the new birth concept were analysed. The results were compared to a historical group in our clinic, a total of 5,602 births from 1986 to 1990, and to data from a contemporary group from Swiss clinics, a total of 344,328 births from 1986 to 1997.

Findings

Our study shows that alternative birth methods are very popular. The waterbirth rates have risen steadily and stabilized at around 40% to 50% of the spontaneous births. The Maia-birthing stool births rates reached a peak of popularity in 1993 (23%) five years after their introduction, dropping again to 10% of the spontaneous births. The bedbirth rates have stabilized at around 40% of the spontaneous births. Other birth methods such as standing, supported by a rope, on the mat or on all fours are much less popular.

The impact of our new birth concept on different aspects of birth management differs greatly from one to another. The episiotomy rate has dropped from a previous rate higher than 80% to a rate lower than 15%. The caesarean section rate in our clinic (around 10%) has remained substantially below the Swiss average (around 15%). The rate of the spinal and epi-

dural analgesia was maintained at a constant level, around 13%, while the Swiss average rates doubled and reached 23% in 1997. The induction and amniotomy rates as well as the use of oxytocin were not influenced by the new birth concept and are comparable to the Swiss average.

Conclusion

Alternative birth methods and in particular waterbirths are very sought after. This popular pressure insisting upon less invasive, more natural birth management can be well integrated into the security-oriented way of thinking of classical medicine. In our clinic the general trend towards more invasive measures in birth management could be countered by the introduction of a new birth concept with alternative birth methods.

KEYWORDS: Waterbirth
Alternative birth method
Birth concept
Maia- birthing stool
Episiotomy
Perineal laceration
Bedbirth

Introduction

Alternative birth methods including waterbirths were introduced in the clinic of obstetrics and gynecology in Frauenfeld/ Switzerland, as part of a new birth concept containing the following main themes:

- Careful monitoring and birth management.
- Restrictive use of invasive methods and promotion of the natural birth process
- Participation of the parents in the decision-making during labor and birth, including the free choice of the birth method.

The introduction of this new birth concept came as a response to the growing dissatisfaction of the population with hospital birth management. Midwives' organization accused hospital births of being technique-dominated, inhuman, and hostile to nature. They perceived the parturient as helpless in the hands of decision-making midwives and doctors, obliged to give birth on narrow beds, in cold rooms while attached to monitors. Amniotomy, oxytocin, painkillers, episiotomies and operative vaginal births were seen as part of the routine in which there was no room for freedom of movement, individual wishes, participation in the decision-making, or basic comfort. They felt the conditions contrary to those essential to having a satisfying birth experience.

Their arguments had triggered in us a process of rethinking the birth management that our clinic was offering. The quality-oriented hospital birth management that we had striven to attain did clearly not correspond to the wishes of the young population bearing children and they were losing confidence in our midwives, doctors, our obstetrics and our hospital.

Along with different groups interested in birth management- midwives, doctors, birth preparation class teachers, leaders of women's organizations and pregnant women- we discussed

criticism and wishes, and looked for possible solutions to regain the confidence of the child bearing population.

The new policy being the result of the common efforts of different groups, including some of the ones directly concerned with care-giving in our clinic (midwives and doctors), it could be integrated into the clinical routine within a very short time. Courses were organized to inform all our midwives, doctors and birth preparation class teachers of our new concept. A film was produced that shows a birth on a Maia-birthing stool as well as a waterbirth (1). The people in non-professional circles were informed about the changes by the newspapers and television, as well as through talks and evening classes organized for this purpose.

The delivery room set-up was also changed after the introduction of the new birth concept: the narrow birthbeds were replaced by wide ones, every delivery room was equipped with a Maia-birthing stool, large inflatable balls, a hanging rope, a mat, wall bars, colourful bed-linen and curtains as well as CD-players. We built three big tubs (figure 1) for relaxation and waterbirths, and a room for a hammock-like birth wheel: the Roma wheel.

In this new atmosphere we try to meet the parturients' needs for their physical and psychological comfort. Controversial routine interventions like i.v.'s, enemas, shortening of pubic hair etc. are reduced to a minimum. The parturients can eat and drink during labor. Technique is relegated to the background without compromising on high-quality fetal heart rate monitoring and birth management. The EFM (electronical fetal monitoring) is assessed mostly intermittently during the first stage of labor and continuously in the second stage of labor because this seems to be less disrupting at this point than intermittent monitoring. Where it is possible a telemetrical monitoring system is used to attain more freedom of movement. Because of safety reasons cableless monitoring is of course the only possibility in water.

During labor the parturients have a chance to try different positions and choose accordingly the birth method they feel most comfortable with. They can choose between giving birth in bed, on the Maia-birthing stool, in the water, on the Roma wheel, in different positions on a mat or "on all fours" on the mat or the bed, in an upright position supporting themselves by means of a rope or on the birthing bag. In this way the parturients may choose a standing, squatting, sitting or lying position for birth.

The midwife gives the parturient the support she wishes for during the first stage of labor; consequently her presence might be continuous during the first stage of one birth and sporadic during another. The midwife is always present during the second stage of labor; both the midwife and the doctor are present at the birth itself. The parturient may request any other person to accompany her: the partner/husband is almost always present at birth, a mother, a friend or even – although rarely - an older child may also accompany the mother-to-be.

In 1991, after the new concept was introduced and the described changes took place, an observational study was started to assess the influence of this policy on the way women give birth and on different parameters concerning both mother and child. The present paper examines which birth methods the women have preference for as well as how the new birth concept has influenced various other aspects of birth management such as caesarean section-, episiotomy-, birth induction-, amniotomy rates and the use of oxytocin and regional analgesia over the years since its introduction (1991). The influence on the parameter (of health or morbidity?) of the mother and child are presented in another paper (29).

Methods

Our hospital lies in a small town (25'000 inhabitants) in the north-eastern part of Switzerland (Frauenfeld) and meets the obstetrical needs of a clearly defined, mostly rural region of 150'000 inhabitants. Home births are rare in our region (less than 1%). Except for 2% of the patients who will be referred to a larger clinic of obstetrics and gynecology mainly because of preterm births before the end of the 33rd week of pregnancy, all parturients of the region give birth in our clinic, ours being the only birth clinic of the above mentioned region. The referral rate and the reasons for referral remained basically the sam e during the period of this study. A basic health insurance coverage has been compulsory on the Swiss national level since 1996, but already before that almost 100% of the population had insurance coverage. The expenses incurred during all births (including homebirths, traditional hospital births and alternative birthing procedures in a hospital) are covered exactly the same way throughout the country. 25% of our yearly 1000 to 1400 parturients are non-Swiss (mostly from south and eastern Europe), this rate remained constant over the period of observation and corresponds to the Swiss average.

To assess the influence of our new birth concept on the way women give birth and on the birth management (incidence of operative delivery, episiotomy, birth induction, analgesia) we analysed the changing panorama of these parameters in our clinic between 1991 and 1997 (seven years of new birth concept) with a total of 9,418 births. These data we compared with two similar and well-defined groups: a historical group and a contemporary group.

For the historical group (historical group Kantonsspital Frauenfeld, KSF) we used the data of our own clinic during a five year period of time (1986 to 1990, 5602 births) before the introduction of the new concept. This group is caracterized by the same catchment area, the same referral rates, the same head Ob./Gyn. and in part the same team of midwives as the group after the introduction of the new birth concept (1991 – 1997, 9418 births). The Swiss

insurance policy covering birth has not fundamentally changed from 1986 to 1997. The referral rates as well as the reason for referral has also remained the same during this time.

For the contemporary group we chose the data of the ASF statistics (2) from 1986 to 1997 with a total of 344,328 births (ASF = Arbeitsgemeinschaft Schweizerischer Frauenkliniken). The ASF statistics include data from most of the teaching obstetrical and gynecological clinics of Switzerland and represent a Swiss average we can compare ourselves to. Most university hospitals with their high rates of referred high-risk cases and most private clinics do not participate in this statistical study of the Swiss Ob./Gyn. clinics.

Dr. Heinz Sulger Buel of the Statistical Department of the canton of Thurgau/Switzerland, as well as Prof. T. Gasser, Department for Biostatistics of the Institute of Social and Preventive medicine of the University of Zurich/Switzerland, supervised the descriptive statistical review of the data.

Results

Alternative birth methods and waterbirths

Figure 2 shows which birth methods were chosen in spontaneous single births with cephalic presentation in our clinic over the past ten years (1988-1997).

In 1988, 99.8% of the spontaneous single births with cephalic presentation were **bedbirths.** They were then continuously more often rejected by those in favour of alternative birth methods till they reached the lowest rate of 29.8% in 1996. In 1997 we notice for the first time a rising bedbirth rate which reaches 44.1% of the spontaneous births.

The **Maia-birthing stool birth** was at first very popular. The rates of Maia-birthing stool births rose and reached a maximum of 23.3% in 1993, five years after its introduction, then fell back to 9.6% of the spontaneous births in 1997.

Waterbirths (figure 1) were introduced in the beginning of 1991. They became rapidly the favourite alternative birth method. In 1995 waterbirths were the most frequently chosen birth method altogether (42.5%), leaving even the bedbirths in second position (33.7%). Today waterbirths are very popular so that over 40% of the spontaneous single births with cephalic presentations are waterbirths, a rate comparable to that of bedbirths.

The **various other alternative birth methods** such as births standing or sitting, on the mat, in the upright position holding a rope, in the position "on all fours" on the mat or the bed as well as the newer methods like the Roma wheel and the birth bag are not chosen very often (around 5%).

New birth concept and different aspects of birth management

Table 1 and figures 3 to 5 show the evolution of different aspects of our birth management (KSF) compared to that of the other Swiss clinics (ASF) over the past twelve years (1986-1997).

In the alternative birth concept group the **caesarean section rates** remain low and are comparable to the rates in the historical group (around or lower than 10% of all births) up until 1996. During the same period of time the caesarean section rate rose significantly in the ASF group from 11.8% in 1991 to 14.3% in 1996. The caesarean section rate in our clinic rose suddenly from 9.9% in 1996 to 13.1% in 1997 (12% caesarean section rate in 1998).

After an initial rise at the introduction of the new concept, the **operative vaginal delivery rate** of our clinic fell from 11.1% in 1991 to 7.2% in 1997. In contrast the ASF statistics show a slight increase from 9.7% to 10.2% during the same period in the Swiss clinics.

The **episiotomy rates** in our clinic, with rates between 80% and 90% of all births, was very high at the beginning of the historical period (84.8% in 1986). Between 1986 and 1997 the episiotomy rate dropped steadily and stabilized between 10% and 15% of all births. The drop in episiotomy rates in the Swiss clinics (ASF) started later, and was not as rapid. In 1997 the ASF episiotomy rate was still 47.1% compared to 13.1% episiotomies in our clinic (KSF).

Since the introduction of our new concept we have seen no change in the frequency of **induction** (fluctuation between 11% and 15%) or in the **use of oxytocin** in labor stimulation (fluctuation between 25% and 36%). However the terms induction and stimulation in the statistics seem vague, so that the data should be evaluated carefully.

On the other hand **amniotomy** is clearly defined and well documented. We notice a decrease in amniotomy rates in our clinic (KSF) as well as in the Swiss clinics (ASF). In 1987

artificial rupture of the membranes was still performed in 47.4% of the births in our clinic; in 1990 amniotomy rates dropped to 31%. After the introduction of the new birth concept in our clinic the rates dropped further to 22.5% in 1996 (the lowest rate) and to 25.5% in 1997 respectively. The Swiss clinics (ASF) show, with 37.8% in 1987, a lower amniotomy rate than that of our clinic to start with; the drop in other Swiss clinics began later, and reached 26.6% in 1997, a rate similar to that of our clinic.

The **epidural and spinal analgesia** which are used for vaginal deliveries as well as for caesarean sections remained low with our new concept (fluctuation between 11% and 15%). During the same period of time (1991 – 1997) there was a rise in the rates in the Swiss clinics (ASF) in general – from 11% to 23.8% of all births.

Discussion

In the 20th century maternal and perinatal mortality and morbidity (3) have dropped to very low figures. Medical interventions, technique and drugs seemed to be the solution to obtain even better results.

The first publications that questioned the benefits of active medical management such as high caesarean section rates (4), routine episiotomies (5), general monitoring (6), the use of tokolytika and oxytocin (7), operative deliveries for breech presentations (8) and multiple pregnancies (7), as well as the reports concerning the importance of support during labor (9) and on paramedical measures (10), were hardly noticed in medical circles. On the other hand homebirths (11) and births in clinics without intensive birth management were discussed at length and widely rejected. Similarly the demands for more respect of the natural course of birth and for more humanity in birth management and prenatal care are questioned (12, 13, 14, 15, 16).

In this setting, it is not surprising that innovations for more natural birth management came mainly from outsiders such as psychologists (17), sociologists (18), ethnologists (18, 19) birth preparation class teachers (18), midwives' and women's organisations (20) or even non conforming doctors (21, 22, 23, 24, 25).

We were the first Swiss teaching clinic to introduce waterbirths and other alternative births in 1991 as part of a new birth concept consisting of careful monitoring and birth management, restrictive use of invasive methods and free choice of the birth method. The population in general, the parturients, our midwives and doctors were very receptive to the changes. By asking parturients what they wished for, and by taking their desires seriously, an atmosphere of mutual confidence and acceptance was created. Moral conflicts between medical necessity and the desires of the parturients never became a problem.

Alternative birth methods became very popular in our clinic. Given the choice, around 60% of the parturients with spontaneous single births with cephalic presentation will choose not to give birth on a bed, waterbirths being their favourite (40%), followed by Maia-birthing stool births (10% to 15%). The share of bedbirths - and today the beds are wide and inviting - stabilized at around 40% to 50% of the spontaneous births. Other alternative birth methods which have been thoroughly discussed (19, 26) by midwives and by other groups interested in birth management, like standing, holding a rope, kneeling, in the position "on all fours", squatting or on the Roma wheel (27) are less often chosen.

Our study shows that with the new birth concept it was possible to keep a constant caesarean section rate (around 10%). During the same period the caesarean section rates in comparable Swiss clinics (ASF) rose and reached more than 15%. This demonstrates that it is possible to avoid a rise in caesarean section rates with less aggressive birth management. These results contradict the conclusions of the Dublin experience (28) which interpret their low caesarean section rates to be the result of their rather invasive active birth management. It is still unclear why the caesarean section rates in our clinic rose suddenly in 1997 while the birth concept and the rates of the different birth methods remained constant. We suspect there may be a link between a rise in caesarean section and the drop in our operative vaginal delivery rates. The growing wish of the parturients for a caesarean section (respecting the women's choices is a central part of our policy), might explain further this rising rate. This will have to be examined over the next few years.

The operative vaginal delivery rates in our clinic show yearly fluctuations in the historical group (7.3% to 9.8%), as well as in the group with new birth concept (5.1% and 11.1%). The cause for these fluctuations are yet unclear. The operative vaginal delivery rates are stable in the Swiss clinic group (ASF) with a slight tendency to rise in the past few years.

The drop in episiotomy rates is a particularly interesting aspect of the changes of our new concept. We can say that episiotomies were part of the routine of almost every vaginal birth in the past, while today an episiotomy is performed almost exclusively in the case of fetal distress (i.e. asphyxia and failing to progress in the second stage of labor). It should be underlined that our prospective study (29) demonstrates that 3rd and 4th degree lacerations have not become more frequent.

The introduction of our new birth concept with alternative birth methods have no or only very little influence on many birth management parameters such as induction rates and rates of use of oxytocin. The explanation for the drop in the rate of artificial rupture of the membranes in 1990 lies probably in the changes in technical apparatus, and in the introduction of the electronical fetal heart rate monitoring by ultrasound. Before that, amniotomy was often performed for the internal electronical fetal heart rate monitoring and also because of the belief that it would shorten labor.

Our new concept has had a great influence on the need for analgesia. While in our group (KSF) the epidural and spinal rates have remained low, the rates in the Swiss clinics (ASF) have doubled and reached 23.8% of all births in 1997. Our prospective observational study (29) showed that the need for analgesia varies between the different birth methods, the waterbirth group needing the least analgesia.

Through these changes not only have we won back the confidence of our parturients in our birth management, but we have also improved its quality. While the new mothers are very enthusiastic about the alternative birth methods and say in no uncertain terms that they experience a more satisfying birth, the level of security for mother and child remain unchanged and are comparable to those of the high standard of classical birth management.

Because of the unexpected interest of the media, the public and the parturients for our birth management, our birth concept and especially waterbirths have become popular. An inquiry revealed that in 1998 80% of the Swiss clinics had a tub and 50% already performed waterbirths (30).

Our experience, as well as the results of our study (29), demonstrate that alternative birth methods are very popular and that society's wishes for less invasive, more natural birth management can very well be integrated into classical obstetrical medicine without compromising on the security of mother or child.

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		Historical group KSF					Waterbirths + new birth concept KSF						
Years		**1986**	**1987**	**1988**	**1989**	**1990**	**1991**	**1992**	**1993**	**1994**	**1995**	**1996**	**1997**
Births total													
- KSF	n	1'077	1'103	1'139	1'113	1'170	1'216	1'353	1'314	1'373	1'421	1'373	1'368
- ASF	n	26'579	25'649	31'967	26'592	29'278	26'711	29'370	30'269	27'545	26'933	28'870	34'565
Caesarean section													
- KSF	n	101	94	116	107	114	119	131	128	113	120	136	179
	%	*9.4*	*8.6*	*10.2*	*9.6*	*9.7*	*9.8*	*9.7*	*9.7*	*8.2*	*8.4*	*9.9*	*13.1*
- ASF	%	*10,9*	*11,2*	*13,0*	*12,9*	*12,7*	*11,8*	*13,1*	*12,8*	*12,7*	*13,5*	*14,3*	*15,5*
Vaginal operative (forceps, vacuum)													
- KSF	n	88	108	83	91	93	135	143	133	118	115	70	98
	%	*8.2*	*9.8*	*7.3*	*8.2*	*7.9*	*11.1*	*10.5*	*10.1*	*8.6*	*8.1*	*5.1*	*7.2*
- ASF	%	*9.0*	*8.9*	*9.3*	*9.5*	*9.4*	*9.7*	*9.5*	*9.6*	*9.6*	*9.8*	*10.1*	*10.2*
Episiotomy													
- KSF	n	914	933	941	829	722	631	547	476	394	264	172	180
	%	*84.8*	*84.6*	*82.6*	*74.4*	*61.7*	*51.9*	*40.4*	*36.2*	*28.7*	*18.6*	*12.5*	*13.1*
- ASF	%	*88.6*	*88.4*	*87.0*	*83.2*	*80.2*	*76.8*	*72.1*	*60.7*	*58.1*	*54.9*	*51.1*	*47.1*
Artificial rupture of the membrane													
- KSF	n	435	523	499	426	363	309	346	339	316	393	309	349
	%	*40.3*	*47.4*	*43.8*	*38.3*	*31.0*	*25.4*	*25.6*	*25.8*	*23.0*	*27.7*	*22.5*	*25.5*
- ASF	%	*37.0*	*37.8*	*36.6*	*35.6*	*34.9*	*32.1*	*30.8*	*29.4*	*29.8*	*30.5*	*27.3*	*26.6*
Birth induction													
- KSF	n	91	144	138	115	121	138	206	167	152	165	163	179
	%	*8.4*	*13.1*	*12.1*	*10.3*	*10.3*	*11.3*	*15.2*	*12.7*	*11.1*	*11.6*	*11.9*	*13.1*
- ASF	%	*8.6*	*8.7*	*9.4*	*10.2*	*9.2*	*	*	*	*	*	*	*
Oxytocin													
- KSF	n	333	479	487	427	370	384	488	330	413	512	427	390
	%	*30.9*	*43.4*	*42.8*	*38.4*	*31.6*	*31.6*	*36.1*	*25.1*	*30.1*	*36.0*	*31.1*	*28.5*
- ASF	%	*36.4*	*36.9*	*37.0*	*37.1*	*35.6*	*	*	*	*	*	*	*
Epidural and spinal analgesia for birth + c.sections													
- KSF	n	90	139	99	119	133	158	184	159	153	182	183	201
	%	*8.4*	*12.6*	*8.7*	*10.7*	*11.4*	*13.0*	*13.6*	*12.1*	*11.1*	*12.8*	*13.3*	*14.7*
- ASF	%	*5.2*	*6.3*	*8.9*	*10.8*	*9.0*	*11.0*	*12.7*	*13.7*	*15.6*	*17.5*	*20.5*	*23.8*

Table 1: **Incidence of operative deliveries (caesarean section and operative vaginal delivery) and the use of invasive methods in birth management (episiotomy, amniotomy, birth induction, oxytocin, epidural and spinal analgesia) in percent of the total birth figures of the obstetrical and gynecological clinic in Frauenfeld (KSF) and of the Swiss clinics of the Arbeitsgemeinschaft Schweizerischer Frauenkliniken (ASF) during the period from 1986 to 1997.**
(* Missing figures in the ASF-statistics).

Birth method in spontaneous Single births / cephalic presentation		**1988**	**1989**	**1990**	**1991**	**1992**	**1993**	**1994**	**1995**	**1996**	**1997**
Bed	n	939	894	854	837	516	414	449	373	334	461
	%	*99.8*	*97.2*	*90.3*	*84.2*	*49.9*	*40.4*	*40.1*	*33.7*	*29.8*	*44.1*
Maia-birthing stool	n	0	21	84	89	226	239	212	151	173	100
	%	*0*	*2.3*	*8.9*	*9.0*	*21.9*	*23.3*	*19.0*	*13.6*	*15.4*	*9.6*
Waterbirth	n	0	0	0	53	194	329	354	471	482	440
	%	*0*	*0*	*0*	*5.3*	*18.8*	*32.1*	*31.6*	*42.5*	*43.0*	*42.1*
Roma wheel	n	0	0	0	0	0	19	28	28	34	9
	%	*0*	*0*	*0*	*0*	*0*	*1.9*	*2.5*	*2.5*	*3.0*	*0.9*
On the mat (sitting or standing)	n	0	0	1	1	5	6	9	8	14	9
	%	*0*	*0*	*0.1*	*0.1*	*0.5*	*0.6*	*0.8*	*0.7*	*1.2*	*0.9*
Holding onto the rope	n	0	0	1	1	14	5	30	10	30	3
	%	*0*	*0*	*0.1*	*0.1*	*1.4*	*0.5*	*2.7*	*0.9*	*2.7*	*0.3*
"On all fours"	n	0	1	2	8	34	9	19	27	11	5
	%	*0*	*0.1*	*0.2*	*0.8*	*3.3*	*0.9*	*1.7*	*2.4*	*1.0*	*0.5*
Birthing bag	n	0	0	0	0	0	0	9	33	35	14
	%	*0*	*0*	*0*	*0*	*0*	*0*	*0.8*	*3.0*	*3.1*	*1.3*
Other birth methods	n	2	4	4	5	5	4	9	6	5	5
	%	*0.2*	*0.4*	*0.4*	*0.5*	*0.5*	*0.4*	*0.8*	*0.5*	*0.4*	*0.5*
Total of birth methods spontaneous single births / cephalic presentation	n	941	920	946	994	1034	1025	1119	1107	1121	1046

Table 2: **Birth method rates in spontaneous single births with cephalic presentation at the Kantonsspital Frauenfeld (KSF) during the past ten years, while alternative birth methods were introduced: 1989 Maia-birthing stool, 1990 mat and rope, 1991 waterbirth, 1993 Roma wheel, 1994 birthing bag.**

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Legend for the illustration

Fig. 1 The "Frauenfeld" birthing tub (inside measures: length 160cm / width 140cm / depth 62cm / capacity 560 litres)