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S. Z. WANYONYI, A. M. MUKAINDO and W. STONES

ABSTRACT

Background: **The increasing Caesarean section rates being observed in most facilities will ultimately result in a larger proportion of women with previous scar. Choices need to be made by both the patient and the health worker between attempted Vaginal Birth after Caesarean section (VBAC) and Elective Repeat Caesarean section (ERCS). Both practices are associated with perinatal risks and benefits that call for certain objectivity and prudence in decision making especially where resources are scarce.**
Objective: **To determine perceptions on the practice of vaginal birth after Caesarean section among maternity service providers in East Africa.**
Design: **A semi-qualitative cross sectional survey using self administered questionnaires.**
Setting: **The study was undertaken among delegates attending a regional Obstetrics and Gynaecology conference in Mombasa, Kenya.**
Subject: **Sixty three consenting delegates were interviewed**
Results: **A majority (69.8%) of the respondents were consultants and midwives working in government facilities. Fifty eight out of the 63 respondents offered VBAC in their institutions despite acknowledging sub-optimal antenatal preparation. The main concerns identified were; deficiencies in healthcare delivery systems, inadequate human resources, lack of unit guidelines, inappropriate maternal education and inappropriate foetal monitoring tools.**
Conclusion: **The practice of vaginal birth after Caesarean section was perceived to be sub-optimal with many existing deficiencies that need urgent action to ensure the safety of mothers and newborns. We therefore recommend that unless these concerns raised by maternity providers are addressed then the practice of VBAC in the region should not be encouraged.**

INTRODUCTION

The overall rate of Caesarean birth is increasing worldwide with wide geographical variations from the developing countries and industrialised nations (1). Reasons for the rise include fear of litigation, inappropriate use of electronic foetal heart rate monitoring and the dwindling training in operative and vaginal breech deliveries(2-4). Population-based rates for Caesarean section in Africa are however lower (0.6 to 6.7%) than hospital based rates (15% to over 24%) (5,6).

High rates of Caesarean delivery result in a large proportion of women with previous uterine scarring. Consequently, choices have to be made between attempted vaginal birth after Caesarean section (VBAC) and elective repeat Caesarean section (ERCS). ERCS is the most common primary obstetric indication for repeat Caesarean in Western countries and accounts for over 40% of Caesarean births in North America (7). The same is true for most tertiary institutions in Kenya (8).

Several initiatives to increase the proportion of vaginal deliveries have been attempted. These include external cephalic version for persistent breech presentation and vaginal birth after Caesarean section (VBAC), also referred to as "trial of scar". In the US, the use of the latter approach saw a rise in the number of mothers opting for VBAC rise from 3% in 1981 to 31% in 1998(9). However, concerns about the safety and appropriateness of VBAC coupled with litigation pressures and stringent measures for a trial of labour led to a substantial decline of the rate to 12.7% in 2002(3, 10). Rates of planned vaginal

birth of between 54 and 97% have been reported in sub-Saharan African countries with a success rate of 69%. Perinatal morbidity associated with VBAC was also reported to be similar to that of developed countries (11). The minimum criteria for allowing a trial of scar (ToS) in mothers with a previous scar used in most countries in sub-Saharan Africa included: single previous Caesarean section, low transverse scar and single foetus. Clinical pelvimetry was also mandatory; however, foetal monitoring in labour was not a prerequisite (12-15). Clinical pelvimetry has however fallen out of favour in modern obstetrics as it is now widely accepted that the foetal head is the best pelvimeter.

The benefits and hazards associated with both ERCS and VBAC are known. However, there is still paucity of evidence from randomised studies on absolute risks and benefits of each (16) . Meta-analyses of the available cohort studies suggest that elective planned vaginal delivery for women with a previous Caesarean section is associated with a higher risk of uterine rupture, foetal and neonatal mortality and low Apgar score at five minutes, but has a reduced risk of maternal febrile morbidity, need for blood transfusion and hysterectomy (17,18). A prospective study later confirmed a greater perinatal risk among women who underwent a trial of scar (19). These data reflect the practice in developed countries presumably with well equipped units that have the capacity to perform immediate Caesarean section and to monitor intrapartum events reliably. The absolute risk of VBAC in resource poor settings where morbidity could be higher is unknown. In the absence of such data or reliable tools to predict outcome, the safety of mothers undergoing a trial of labour is questionable (20, 21), resulting in litigation fears among obstetricians practicing in urban areas (22).

It was in the light of these concerns that the present study was undertaken among key service providers to determine their perceptions on the practice of VBAC in their clinical settings. The study also aimed to identify possible solutions to problems encountered in the practice of VBAC among health workers in East Africa.

MATERIALS AND METHODS

A cross sectional survey was undertaken in February 2009 among participants at the East Central and Southern Africa Obstetrics and Gynecological Societies conference in Kenya. This is a triennial conference for reproductive health workers in the region. The study was restricted to conference participants actively involved in obstetric care. Non-medical personnel and participants from the developed countries attending the conference were excluded. Permission was obtained from the conference organisers. Ethical clearance was not required as per the Aga Khan University's ethics and research regulations; however the study design and data collection received relevant institutional approvals.

The participants were considered to reflect key informants in obstetrics from the region. Participants were drawn from the public, private, faith-based and non-governmental service institutions, reflecting the diverse reproductive health service mix in the region. They included midwives, medical officers, residents, specialist registrars, consultants and professors.

This purposive sampling was not intended to be statistically representative but was considered to contain an appropriate diversity in professional practice context, institutional variety and individual characteristics.

Self administered, semi-structured questionnaires were used and where appropriate the researcher was available to offer assistance. Written notes were made of any other comments made.

The interview schedule covered socio-demographic data as well as with questions to investigate the practice of VBAC in the participant's institution. Questions on antenatal preparations for mothers with one previous scar, availability of unit protocols, frequency of foetal monitoring in labour, methods of pain relief used and awareness of local unit audits on the practice were included.

Challenges and problems encountered in the practice and possible recommendations and solutions were also sought using open ended questions to encourage participants to divulge their opinions.

Response bias was addressed by ensuring both confidentiality and anonymity during the interviews. Every participant had an equal chance to participate hence minimising selection bias.

Quantitative data were managed and analysed using SPSS® version (13). Descriptive statistics were used. A sub-analysis of different variables was undertaken. Notes and comments from the questionnaires were collated and analysed for content.

RESULTS

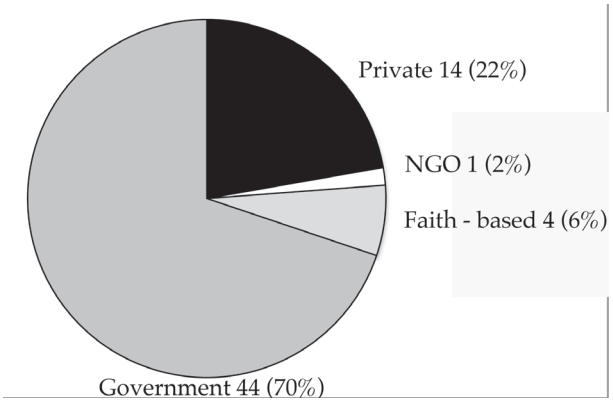
A total of 80 questionnaires were distributed to eligible participants. Sixty three (63) were fully completed, giving an overall response rate of 81.2%. The distribution of the respondents by professional role is presented in Table 1.

The average level of experience in obstetric practice among the respondents was 10.2 years (SD 9.3). Fifty three (53) of the respondents were Kenyan reflecting the location of the conference in that country. The rest were from Uganda, five; Tanzania, four and Ethiopia, one. The participants' institutions of practice are presented in figure 1.

Table 1
The professional qualification of the respondents

Level of qualification	Frequency	Percentage
Professor	4	6.3
Consultant	31	49.2
Specialist registrar	7	11.1
Resident	6	9.5
Medical officer	2	3.2
Midwife	13	20.6
Total	63	100

Figure 1
Participant institutions of Practice (n,%)



Only five (8%) respondents did not offer vaginal delivery as an option to women with one previous scar. The reasons given were fear of uterine rupture, lack of adequate monitoring facilities in labour and scarcity of personnel during labour.

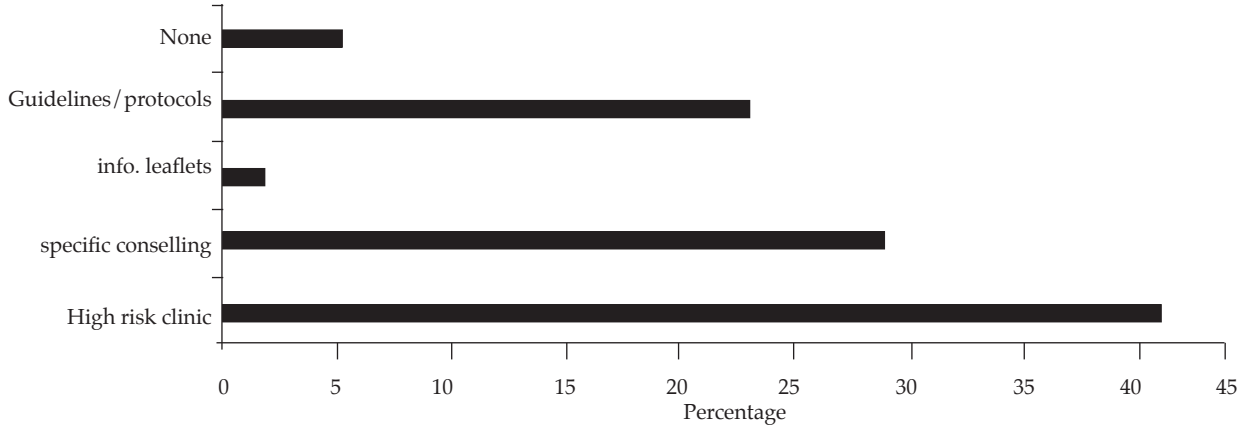
Antenatal preparation for VBAC varied as shown in figure 2; 18 (29%) participants utilised more than one method of antenatal preparation. Most (58) maternity users were not aware on any written protocol or guidelines on VBAC in their units.

Induction of labour among mothers with one previous scar was offered by 21 practitioners using either Foley's catheter and saline; 11 or amniotomy and membrane stripping; seven. Only five respondents used oxytocin for labour induction; none used prostaglandins.

Approximately two thirds (53) of the respondents use the Pinard's stethoscope for foetal monitoring, and only three were able to offer continuous foetal monitoring. No participant from the government-based institutions had access to electronic foetal monitoring.

In the event an urgent Caesarean section was needed it was reported to take a mean of 48 minutes (SD 32) during the day and 39 minutes (SD 23) at night before the mother was taken to theatre.

Figure 2
Methods of antenatal preparations for VBAC mothers



A third of the healthcare workers were not aware of any audits on the outcome of mothers who underwent a trial of labour in their units.

The perceptions expressed on the practice of VBAC by the respondents are presented below. This analysis describes the thematic content within each category with representative examples being quoted.

Category 1: Healthcare delivery: The participants identified that mothers presented to hospital late after attempts to deliver at home were unsuccessful. In the event a mother was labouring in the hospital delays in accessing the doctor or theatre when needed were reported. Lack of blood for transfusion was quoted as one reason for referral to 'bigger' [sic] hospitals. One accoucheur states: 'when you need

to deliver immediately by Caesarean section you may be delayed by the anaesthetists....' This could be reflective of lack of team work between theatre and maternity staff in managing a mother with a previous scar in labour.

Category 2: Human resources: In this category the emerging issue was lack of nursing staff to monitor mothers in labour, with one respondent recommending a 1:1 nursing ratio as ideal for high risk cases but proceed to add: '…it is not possible in our setup due to lack of nurses…'

Training of the available midwives in managing mothers on trial of labour was also noted as a key aspect. Some respondents reported that; 'midwives were unwilling to monitor the mothers….there was fear of uterine rupture among the nursing staff…fear of the unknown…poor monitoring is due to shortage of staff…' There were also concerns on lack of theatre staff in emergency situations.

Category 3: Unit guidelines: Respondents wanted clearly defined national guidelines on managing VBAC and to be informed on availability of any screening tools for mother with previous scars. '… to standardise care and dispel fear among accouchers.. .' A respondent even suggested tagging mothers with one previous scar; '… since in our unit they are managed like any other mother in labour…' '… until proper laid down guidelines and personnel are provided it should not be encouraged ….'

Category 4: Antenatal preparedness: This was reported as one of the reasons mother accessed healthcare after several attempts to deliver at home and uncertainty on mode of delivery once in labour. This is evident in this statement: 'evaluate mothers at 36 weeks. Let her come to labour ward fully prepared and counseled where a trial of scar is clinically indicated' another comments 'inadequate information to mothers makes them fear labouring!..' Lack of information from the mother on the indication of the previous scar also hinders any progress in antenatal counselling. Mothers need to be fully informed by the health workers before and after a primary Caesarean section on the indication of the current section and prospects for a future vaginal delivery. An accoucher asked 'How do I try a scar I know nothing about...'

Category 5: Foetal monitoring: Respondents reported 'fear' of VBAC for lack of proper maternal and foetal monitoring. 'How do I tell when a rupture has occurred yet the mother is in pain'. The need for modern user- friendly equipment in hospitals was a recurrent concern among the participants. Fear of poor neonatal outcomes was noted; '…we cannot monitor the foetus continuously…why try a scar…'

DISCUSSION

This semi qualitative study indicates that the practice of VBAC in the region is perceived to be sub-optimal and needs urgent improvement if perinatal safety is to be ensured. The emerging concern on maternal safety is shared by local maternity care providers. Since VBAC in western countries is associated with greater perinatal risks than ERCS these concerns are appropriate (18,19) considering the absolute risk could even be higher in resource limited maternity units. It is with this background that some professional bodies recommend standards for VBAC. These include; capacity to perform an emergency Caesarean section, continuous electronic foetal monitoring in labour, involvement of consultants in decision making and maternal awareness of the risks and benefits of both VBAC and ERCS (24). Whether any of these criteria are met locally is uncertain. It is however evident from the present study that most maternity units do not have guidelines for VBAC (or if present the health workers are unaware of their existence), consequently auditing outcomes becomes difficult.

Even though there are no evidence-based guidelines on how fast a Caesarean section should be done once a decision is made, a one hour delay is long enough to affect perinatal outcomes. In events of uterine rupture an immediate Caesarean section is required but is not easily achievable in our settings. VBAC therefore becomes more potentially complicated without this assurance.

Delays in accessing healthcare by mothers who have had a previous Caesarean birth may be due to lack of awareness of the dangers associated with VBAC. There could be a misunderstanding of the whole concept during antenatal care and it is likely that this issue is not sufficiently addressed. However, no amount of effort made in informing the mother can substitute for proper monitoring during labour.

Local data on the success rates of VBAC and case fatality rates, "near miss" morbidity and perinatal outcomes associated with the practice are lacking. This deficiency in outcomes evident from the local setting, together with the limitations in resources make the practice of VBAC difficult to recommend in the current service environment in developing countries. Furthermore, it can also be argued that beyond urban private practice the Caesarean section rate in sub-Saharan Africa is too low to warrant any efforts at reducing it (25).

The participants in this study felt that the practice of VBAC in their units was sub-optimal and unsafe (though the latter was not assessed objectively in this study). Why they continued to offer it was unclear. The open interviews did identify areas that needed to be addressed. These included; strengthening of the health care delivery systems, adequate emergency staffing, formulation of guidelines, maternal education on the

dangers and benefits of VBAC and lastly the need for appropriate foetal monitoring tools.

The results of the present study should be interpreted with caution. The possibility of bias should be considered noting that this was a highly selected group of maternity service providers. Randomised control trials on the safety of ERCS versus VBAC in this setting would be more appropriate if a change of practice is anticipated but this could only be contemplated were the necessary tools and infrastructure for safe VBAC are in place. However, the present study has reflected opinions that are likely to be typical of local practice and the views expressed in this study may be considered to be reflective of the region. The distribution of health facilities represented also reflects the service context of health facilities in the region. Furthermore, most people attending such regional meetings tend to be opinion leaders in their institutions with influence on practice. The level of clinical experience among this cohort was high.

In conclusion, overall, these findings reveal that healthcare workers in the region have genuine concerns about the current practice of VBAC. Several structural deficiencies in intrapartum care and antenatal information provision have been identified, which if addressed could improve the practice of safe VBAC. There is a need for investment in maternity service infrastructure, training and resources, formulation of appropriate local guidelines for the care of women with previous Caesarean sections, and regular audit of the practice in all institutions providing obstetric care.

We therefore recommend that unless the concerns raised by the maternity care providers are addressed it may be imprudent to offer VBAC in our units.

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REFERENCES

1. RCOG Clinical Effectiveness Support Unit. The Sentinel National Caesarean Section Audit Report. RCOG Press, 2001.
2. Australian Institute of Health and Welfare. Australia's mothers and babies 2000. Perinatal Statistics Series Number 12, 2003.
3. Hamilton, B.E., Martin, J.A. and Sutton, P.D. Births: preliminary data for 2002. National Vital Statistics Report 2003; **51:**1-20.
4. Belizan, J., Althabe F., Barros F. and Alexander, S. Rates and implication of Caesarean sections in Latin America: ecological study. *Brit. Med. J.* 1999; **319:**1397-1402.
5. Buekens, P., Curtis S, Alayón S. Demographic and Health Surveys: Caesarean section rates in sub-Saharan Africa. *Brit. Med. J.* 2003; **326:**136.
6. MEASUREDHS+. Demographic and Health Surveys. Providing formation for informed decisions in population, health, and nutrition. www.measuredhs.com (accessed 6th July 2009)
7. Curtin, S.C., Kozak, L.J. and Gregory, K.D. U.S Caesarean and VBAC rates stalled in the mid-1990s. *Birth.* 2000; **27:**54-57.
8. Wanyonyi, S., Sequeira, E. and Obura, T. Caesarean section rates and perinatal outcome at the aga khan university hospital, Nairobi. *East Afr. Med. J.* 2006; **83:** 651-658.
9. Menacker, F. and Curtin, S. Trends in Caesarean birth and vaginal birth after previous cesarean 1991-99. *National Vital Statistics Report.* 2001; **49:**1-16.
10. Sachs, B., Kobelin, C., Castro, M. and Frigoletto, F. The risks of lowering the Caesarean delivery rate. *N. Engl. J. Med.* 1999; **340:**54-57.
11. Boulvain, M., Fraser, W.D., Brisson-Carroll, *et al*. Trial of labour after Caesarean section in sub-Saharan Africa: a meta-analysis. *BJOG.* 1997; **104:**1385-1390.
12. Mock, C.N., Viser, L., Elkins, T.E. and Wilson, J.B. Vaginal delivery after previous Caesarean section in a rural West African Hospital. *Int. J. Gynecol. Obstet.* 1991; **36:** 187-193
13. Sebhatu, B. An experience with trial of scar in 66 Ethopian women. *East Afr. Med. J.* 1994; **71:** 676-678.
14. Nyirjesy, P. and Nyirjesy, K.M. Vaginal birth after Caeserean section in rural Zaire. *J. Reprod. Med.* 1992; **37:** 457-460
15. Van Roosmalen, J. Vaginal birth after cesarean section in rural Tanzania. *Int. J. Gynecol. Obstet.* 1991; **34:**211-215
16. Dodd, J.M., Crowther, C.A., Huertas, E., *et al.* . Planned elective repeat Caesarean section versus planned vaginal birth for women with a previous Caesarean birth. Cochrane Database of Systematic Reviews 2004, Issue 4. Art. No.: CD004224. DOI: 10.1002/14651858.CD004224.pub2.
17. Mozurkewich, E.L. and Hutton, E.K. Elective repeat Caesarean delivery versus trial of labor: a meta-analysis of the literature from 1989 to 1999. *Am. J. Obstet. Gynecol.* 2000; **183:**1187-1197.
18. Rosen, M.G., Dickinson, J.C. and Westhoff, C.L. Vaginal birth after Caesarean: A meta-analysis of morbidity and mortality. *Obstet & Gynecol.* 1991; **77:**465-470.
19. Landon, M.B., Hauth, J.C., Leveno, K.J., *et al.* Maternal and perinatal outcomes associated with a trial of labour after prior Caesarean delivery. *N. Engl. J. Med.* 2004; **351:**2581-2589.
20. Grobman, W., Lai, Y. and Landon, M. Development of a normogram for prediction of vaginal birth after Caesarean delivery. *Obstet. Gynecol.* 2007; **109:**806-812.
21. Srinivas, S., Stamilio, D., Stevens, E., *et al*. Predicting failure of a vaginal birth attempt after Caesarean delivery. *Obstet. Gynecol.* 2007;**109:**800-805.
22. Koigi-Kamau, R., Leiting, P.K. and Kiarie, J.N. Perception and practices of vaginal birth after Caesarean section among privately practicing obstetricians in Kenya. *Easy Afr. Med. J.* 2005; **82**: 524-530.
23. Boyatzis, R. Transforming qualitative information, 1st edition. London: Sage, 1998
24. Guidelines for Vaginal Birth after Previous Caesarean Birth. SOGC practice guideline no 155. *J. Obstet. Gynaecol. Can.* 2005; **27:**164-174.
25. Gichangi, P., Apers, L. and Termmerman, M. Rate of Ceaserean section as a process indicator of safemotherhood programmes: The case of Kenya. *J. Hlth. Popol. Nutr.* 2001; **19:** 52-58.