

ABSTRACT

FACTORS AFFECTING CHOICE OF DELIVERY AMONGST PATIENTS AND DOCTORS AND FETOMATERNAL OUTCOME IN BREECH PRESENTATION IN TWO LARGE HOSPITALS IN MALAYSIA

Dr Bheena Vyshali

MMed Obstetrics and Gynaecology

Department of Obstetrics and Gynaecology

School of Medical Sciences, Universiti Sains Malaysia

Health Campus, 16150 Kelantan, Malaysia.

Introduction : Breech presentation is defined as a fetus in longitudinal lie with the fetal buttocks or lower extremities at the pelvic brim. Although its low incidence towards term, breech presentation and its management still remains a controversy till date. Data from the annual report in Hospital Tuanku Jaa'far Seremban (2007) shows a breech delivery rate of 91% via caesarean section compared to 39% in HUSM in the same year .This clearly points that there is difference in contributing factors among both patients and doctors involved in decision making in breech delivery in these two hospitals within two different regions in Malaysia itself.

Objective: To assess the factors leading to the preference of mode delivery in breech presentation amongst women and doctors in two large hospitals and its fetomaternal outcome.

Method: 175 patients from Hospital Universiti Sains Malaysia in Kelantan and 164 patients from Hospital Tuanku Ja'afar in Seremban, Negeri Sembilan with a term breech presentation were interviewed with standard questionnaire on the preferred mode of delivery. Threshold for complication rates where patients switch preferences were documented. A total of 50 doctors were also interviewed with a standard questionnaire on the preferred mode. Difference in preference and factors affecting it were tested using Chi-square.

Results: Assisted vaginal breech delivery, External cephalic version and caesarean section was preferred mode in 36.6%, 38.9% and 24.5% of patients in HUSM and 8.5%, 28.7% and 62.8% in HTJS respectively. This confirmed a regional variation in preference. In HUSM and HTJS, a significant amount of women finally did not undergo the mode of delivery they desired (p value 0.001). Only 64.7% (44 out of 68 women) and 35.7% (5 out of 14 women) proceeded with AVBD, 23.4% (15 out of 64 women) and 42.6% (19 out of 47 women) proceeded with ECV. 93% and 98% had successful LSCS respectively. Education level, occupation, parity, religion, culture and beliefs were contributing factors to women in Kelantan while the wide availability of knowledge through the internet and making a combined decision with their doctors were contributing factors in Seremban in decision making. The fetal outcome and maternal outcome were similar in both the Assisted Vaginal Breech Delivery group and caesarean section group (p values 0.33 and 0.243 respectively). Vaginal breech delivery was a preferred choice in 62% of the trainees who were confident in the management of vaginal breech delivery as long as a strict criteria of selection was done.

Conclusion: Most women are becoming more aware of breech presentation as a high risk pregnancy and would rather opt for caesarean section. Nevertheless there are still women who are keen for vaginal breech delivery. Therefore it is not the best option to subject all

women to caesarean section for breech. With proper selection a good number of women with breech presentation will be able to achieve a vaginal delivery without complications. Supervision and credentialing of medical officers needs to be looked into and updated as it is proven that confidence and individual preferences of doctors do also play the final role in mode of delivery of term breech pregnancies.



**FACTORS AFFECTING CHOICE OF DELIVERY
AMONGST PATIENTS AND DOCTORS AND
FETOMATERNAL OUTCOME IN BREECH
PRESENTATION IN TWO LARGE HOSPITALS IN
MALAYSIA**

**BY:
Dr Bheena Vyshali**

**SUPERVISORS:
Professor Dr Nik Mohamed Zaki Nik Mahmood
Professor Dato Dr.Sivalingam Nalliah
Dr Tham Seng Woh**

**Dissertation submitted in partial fulfillment of the requirements for the
degree of Masters of Medicine
(OBSTETRICS & GYNAECOLOGY)**

**UNIVERSITI SAINS MALAYSIA
2011**

Acknowledgement

The undertaking and writing of this thesis has been a significant academic challenge that I have had to face during my masters programme. Without the support, patience and guidance of the following people, this study would not have been completed. It is to them that I owe my deepest gratitude.

First and foremost, I offer my sincerest gratitude to both my supervisors, Professor Dato Sivalingam Nalliah and Professor Nik Mohamed Zaki Nik Mahmood, who have supported me throughout my journey in completing this research. They undertook me despite their many professional and academic commitments. Their wisdom, knowledge and commitment to the highest standards inspired and motivated me.

I am heartily thankful to Universiti Sains Malaysia and International Medical University for providing such an opportunity. This experience of doing a research study is priceless and will be highly beneficial.

I thank my parents , my sister , brother and my friends for their continued support , encouragement and believe in me during all my endeavors. Lastly, I offer my regards to all of those who supported me during the completion of the project.

Bheena Vyshali Karunyam

CONTENTS

PAGE

1. Acknowledgement	2
2. Abstract	4-5
3. Abbreviations	6
4. Introduction to single term breech presentation	7-16
5. Objective of dissertation	17-18
6. Methodology	19-21
7. Results	22-55
8. Discussion	56-72
9. Conclusion	73-74
10. Limitation of study	75
11. References	76-81
12. Appendix	82-100

ABSTRAK

Objektif : Menilai faktor kecenderungan memilih cara kelahiran bagi kandungan songsang di kalangan wanita mengandung dan doktor perubatan yang menjaga, serta juga menilai impak daripadanya ke atas ibu dan bayi.

Metodologi : Seramai 175 orang pesakit daripada Hospital Universiti Sains Malaysia(HUSM) dan seramai 164 orang pesakit daripada Hospital Tuanku Ja'afar di Seremban dari kalangan wanita mengandung kandungan songsang melebihi 37minggu(term pregnancy) telah ditemubual mengenai pilihan cara kelahiran bagi kandungan songsang mengikut soalan kaji selidik yang telah diseragamkan. Seramai 50 orang doktor perubatan juga ditemubual dengan soalan yang diseragamkan mengenai tatacara kelahiran . Faktor- faktor yang di kaji di nilai dengan ujian Chi-Square untuk menentukan signifikannya.

Keputusan : Daripada kajian didapati bagi kelahiran biasa secara songsang ialah 36.6%, ECV 38.9% dan kelahiran caesarean ialah 24.5% bagi wanita yang mengandung kandungan songsang di HUSM. Manakala, di HTJS 8.5% bagi kelahiran biasa secara songsang, 28.7% untuk ECV dan 62.8% bagi kelahiran caesarean. Keputusan telah menunjukkan pemilihan cara kelahiran bagi kandungan songsang adalah dipengaruhi oleh faktor-faktor sekeliling bagi dua tatacara tersebut. Sebilangan 64.7% (HUSM) dan 37.5%(HTJS) orang wanita berjaya melalui kelahiran biasa secara songsang. Seramai 23.4% (HUSM) dan 42.6%(HTJS) telah berjaya dengan kaedah ECV. Manakala,

93.0%(HUSM) dan 98.0%(HTJS) melalui kelahiran secara caesarean. Didapati tahap pendidikan dan pekerjaan, jumlah bilangan kelahiran (pariti) dan faktor kebudayaan dan kepercayaan mempengaruhi pilihan wanita di Kelantan. Informasi yang mudah diperolehi daripada jalur lebar(internet) dan keputusan doktor yang menjaga adalah antara faktor yang menyumbang kepada pemilihan cara kelahiran di Seremban. Hasil dan impak ke atas ibu dan bayi samada kelahiran biasa secara songsang atau caesarean adalah sama. 62.0% daripada pegawai perubatan sarjana di bidang Obstetrik dan Ginekologi memilih untuk kelahiran biasa secara songsang sekiranya menepati kriteria yang disyorkan.

Kesimpulan : Pada masa kini, ramai wanita lebih peka tentang risiko kandungan songsang dan kebanyakannya telah memilih kepada kelahiran secara caesarean. Walaubagaimanapun, masih ada yang memilih untuk kelahiran biasa (assisted breech delivery). Oleh yang demikian, adalah tidak adil untuk menjurus semua wanita dengan kandungan songsang kepada kelahiran caesarean. Dengan merujuk kepada kriteria tertentu bagi wanita dengan kandungan songsang, pemilihan kelahiran biasa(assisted breech delivery)boleh dicadangkan dan komplikasi berkaitan dapat dielakkan. Pemantauan ke atas pegawai perubatan dalam menangani kes kandungan songsang adalah amat penting agar dapat membuat keputusan yang terbaik dalam pemilihan cara kelahiran kandungan songsang.

ABSTRACT

Objective: To assess the factors leading to the preference of mode delivery in breech presentation amongst women and doctors in two large hospitals and its fetomaternal outcome.

Method: 175 patients from Hospital Universiti Sains Malaysia in Kelantan and 164 patients from Hospital Tuanku Ja'afar in Seremban, Negeri Sembilan with a term breech presentation were interviewed with standard questionnaire on the preferred mode of delivery. Threshold for complication rates where patients switch preferences were documented. A total of 50 doctors were also interviewed with a standard questionnaire on the preferred mode. Difference in preference and factors affecting it were tested using Chi-square.

Results: Assisted vaginal breech delivery, External cephalic version and caesarean section was preferred mode in 36.6%, 38.9% and 24.5% of patients in HUSM and 8.5%, 28.7% and 62.8% in HTJS respectively. This confirmed a regional variation in preference. In HUSM and HTJS, a significant amount of women finally did not undergo the mode of delivery they desired (p value 0.001). Only 64.7% (44 out of 68 women) and 35.7% (5 out of 14 women) proceeded with AVBD, 23.4% (15 out of 64 women) and 42.6% (19 out of 47 women) proceeded with ECV. 93% and 98% had successful LSCS respectively. Education level, occupation, parity, religion, culture and beliefs were contributing factors to women in Kelantan while the wide availability of knowledge through the internet and making a combined decision with their doctors were contributing

factors in Seremban in decision making. The fetal outcome and maternal outcome were similar in both the Assisted Vaginal Breech Delivery group and caesarean section group (p values 0.33 and 0.243 respectively). Vaginal breech delivery was a preferred choice in 62% of the trainees who were confident in the management of vaginal breech delivery as long as a strict criteria of selection was done.

Conclusion: Most women are becoming more aware of breech presentation as a high risk pregnancy and would rather opt for caesarean section. Nevertheless there are still women who are keen for vaginal breech delivery. Therefore it is not the best option to subject all women to caesarean section for breech. With proper selection a good number of women with breech presentation will be able to achieve a vaginal delivery without complications. Supervision and credentialing of medical officers needs to be looked into and updated as it is proven that confidence and individual preferences of doctors do also play the final role in mode of delivery of term breech pregnancies.

ABBREVIATIONS

ACOG	American College of Obstetrics and Gynaecology
AFI	Amniotic Fluid Index
AS	Apgar Score
AVBD	Assited Vaginal Breech Delivery
BOH	Bad Obstetric History
ECV	External Cephalic Version
EFW	Estimate Fetal Weight
HUSM	Hospital Universiti Sains Malaysia
HTJS	Hospital Tuanku Ja'afar Seremban
IUGR	Intrauterine Growth Restriction
LSCS	Lower Segment Caesarean Section
RCOG	Royal College of Obstetrics and Gynaecology
SVD	Spontaneous Vertex Delivery
NICU	Neonatal Intensive Care Unit

INTRODUCTION

Breech presentation is defined as a fetus in longitudinal lie with the fetal buttocks or lower extremities closest to the cervix. In the breech presentation the fetus enters the birth canal with the buttocks or feet first as opposed to the normal head first presentation. The incidence of breech deliveries varies from institute to institute and is noted to vary according to the gestation of pregnancy. It is around 40% at 20 weeks, 6- 8% at 34 weeks and 3-4% by term as most babies turn spontaneously to cephalic presentation. Although its low incidence towards term, breech presentation and its management still remains a controversy till date.

There are many factors that can lead to a breech presentation, predominantly being prematurity of the baby. Other factors include multiple pregnancies, abnormal amniotic fluid volume such as oligohydramnios and polyhydramnios, uterine abnormalities, placenta previa, fetal anomalies such as anencephaly and hydrocephalus. Recurrence of breech delivery in successive siblings was also noted to be high with also what appears to be a high intergeneration recurrence.

Breech presentations are described into three main categories. The first being the frank breech (extended breech) where the babies bottom comes first followed by the legs which are flexed at the hip joint and extended at the knee joint. Nearly 65-70% of breeches are in this position. The second group is the complete breech (flexed breech). Here the babies hips and knees are flexed so that the baby is sitting cross-legged with feet beside the

bottom.10-20% are in this position. The final group comprising of 5-10% of breech presentations is the footling breech. One or both feet come first with the bottom at a higher position. This is rare at term but common with premature fetuses.

Vaginal breech deliveries were previously the norm until 1959 when it was proposed that all breech presentations should be delivered abdominally to reduce perinatal morbidity and mortality. There are three types of vaginal breech deliveries routinely practiced or described. Spontaneous breech delivery is a method whereby no traction or manipulation of the infant is used and the baby is allowed to deliver spontaneously. This occurs predominantly in very preterm, often pre-viable, deliveries. The assisted breech delivery in turn is the most common type of vaginal breech delivery. The infant is allowed to spontaneously deliver up to the umbilicus, and then maneuvers are initiated to assist in the delivery of the remainder of the body, arms, and head. The final method is the total breech extraction. Here the fetal feet are grasped, and the entire fetus is extracted. Total breech extraction should be used only for a non -cephalic second twin .It should not be used for a singleton fetus because the cervix may not be adequately dilated to allow passage of the fetal head.

Babies delivered in breech presentation are not without associated risk factors. Umbilical cord prolapse may occur especially in the complete or footling breech. This is due to the babies' lowermost part not completely filling the dilated cervix causing the cord to prolapse through this free space. This incidence varies with the type of breech: 0-2% with frank breech, 5-10% with complete breech, and 10-25% with footling breech. Cord

prolapse may not always result in severe fetal heart rate decelerations because of the lack of presenting parts to compress the umbilical cord.

Fetal head entrapment is another risk factor. This may occur due to the buttocks passing through the incompletely dilated cervix while the head lacks time to mould against the maternal pelvis. More commonly it occurs in premature babies. This is due to the fact that the head is often larger than the body in these babies. Injury to the brain and skull may occur due to the rapid passage of the baby's head through the mother's pelvis. This causes rapid decompression of the baby's head. In contrast, a baby going through labor in the head-down position usually experiences gradual molding (temporary reshaping of the skull) over the course of a few hours. This injury is more likely in preterm babies.

By 1986, that rate of caesarean deliveries for breech had increased to 86%. However, this rise has not necessarily equated with an improvement in perinatal outcome. It is incorrect to assume that caesarean breech delivery is never traumatic for the fetus. An entrapped head can still occur during cesarean delivery as the uterus contracts after delivery of the body. Entrapped heads occur more commonly with preterm breeches, especially with a low transverse uterine incision. As a result, some practitioners opt to perform low vertical uterine incisions for preterm breeches prior to 32 weeks' gestation to avoid head entrapment. Low vertical incisions usually require extension into the corpus, resulting in cesarean delivery for all future deliveries. Several retrospective studies shown that brachial plexus injury, damage to soft tissues, fractures, lacerations and intracranial hemorrhage occur in caesarean breech deliveries as well.

Caesarean sections are also not without risks for subsequent pregnancies including life threatening problems for mother and baby such as ectopic pregnancy, miscarriage, placenta previa, placental abruption, cesarean hysterectomy due to placenta accreta, reduced fertility, and long-term postoperative complications such as adhesions and chronic abdomen pain, scar dehiscence or rupture in subsequent pregnancies. There is an increased risk of undergoing cesarean delivery in future pregnancies. More commonly seen are problems with non catastrophic bleeding, postoperative infection and wound healing problems.

External cephalic version (ECV) is the transabdominal manual rotation of the fetus into a cephalic presentation. Initially popular in the 1960s and 1970s, ECV virtually disappeared after reports of fetal deaths following the procedure. However after rigorous scientific appraisal of several randomized controlled trials there has been renewed interest in external cephalic version the last few years. ECV has a success rate between 40 - 70%. Contraindications for ECV include multiple gestations with a breech presenting fetus, non reassuring fetal heart rate tracing, polyhydramnios or oligohydramnios, fetal growth restriction, uterine malformation, and major fetal anomaly. Uncommon risks of ECV include fractured fetal bones, precipitation of labor or premature rupture of membranes, abruptio placentae, feto-maternal hemorrhage (0-5%), and cord entanglement (<1.5%). A more common risk of ECV is transient slowing of the fetal heart rate (in as many as 40% of cases). This risk is believed to be a vagal reflex to head compression with ECV. It usually resolves within a few minutes after cessation of the ECV attempt and is not usually associated with adverse sequelae for the fetus.

Although having the options of assisted vaginal delivery, caesarean section and external cephalic version, a randomized multi-centered trial (Term breech trial 2000) has been used till date as the gold study in deciding the mode of delivery of breech presentation. The recommended management has changed from vaginal breech delivery to planned caesarean section. The study was conducted in 121 centers around 26 countries where 2086 women with singleton fetus in a frank or complete breech were randomly assigned to planned caesarean section or planned vaginal birth. As a conclusion it was stated that combined perinatal mortality, or serious neonatal morbidity by 6 weeks of life is significantly lower in planned caesarean section group than in the planned vaginal group. Seven elective caesarean sections need to be done to prevent or save one infant from mortality or severe morbidity. (Hannah *et al.*, 2000). It should not be forgotten that there were many limitations to this study which included poor compliance for women allocated to planned vaginal versus caesarean delivery (56.7% versus 90.4%), limited information on physician skill for delivering breech infant and possible detection bias from under reporting of significant neonatal morbidity for countries with high perinatal rates.

After the publication of the term breech trial (TBT), obstetric practice swung definitively away from vaginal delivery of the term breech infant. It is now estimated that approximately 70% of the breech presentations are delivered by caesarean section causing an overall 40% increase in caesarean section over the past decade. The liberal use of caesarean section in breech presentation has resulted from the belief that relatively high fetal mortality and morbidity rates associated with vaginal breech delivery can be lowered. A retrospective study done in Sweden (1987-1993) which included 15,818

singleton breech vaginal deliveries showed that the vaginal term breech delivery was associated with higher risk of neonatal mortality and morbidity compared with delivery by elective caesarean section. The study concluded that term breech singleton infants would benefit from an elective caesarean section (Roman *et al.*, 1998)

The two years follow up of the term breech study has been able to reassure us that the planned caesarean delivery is not associated with a reduction in risk of death or neurodevelopment delay in children at 2 yrs of age. The primary outcome, death or neuro - developmental delay was similar between the two groups(Whyte *et al.*, 2004), despite the increase in rates of caesarean section from 22% (1975) to 94% , the differences in rates of asphyxia, birth injury and perinatal deaths were not significant (Greene, 2002).The effects of abdominal delivery on newborn in breech are in many aspects poorer than in vaginal delivery.(University Medical Centre, Dept. of Obstetrics & Gynecology , Slovenia) .In units where planned vaginal delivery is a common practice and when strict criteria are met before and during labour, planned vaginal delivery remains a safe option that can be offered to women. The rate of neonatal mortality or death was considerably lower than the 5% in Term Breech Trial (Goffinet *et al.*, 2006).

In their Green-top Guideline No. 20 (April 2001), the Royal College of Obstetricians and Gynaecologists (RCOG) recommended offering all women with an uncomplicated breech presentation an external cephalic version (ECV) at term (37-42 weeks), provided there were no contraindications. If this is not performed, or is unsuccessful, an elective caesarean section at term should be offered. Two important points are highlighted in the

guideline: It remains important that clinicians and hospitals are prepared for vaginal breech delivery. Any woman who gives birth to a breech vaginally should be cared for by an attendant with suitable experience.

It is currently debated whether the findings of TBT and the guidelines of ACOG and RCOG are universally applicable or whether there are regional variables. The problem occurs when there is a population of women with high incidence of grandmultiparas and the impact of caesarean delivery on future pregnancies. It also seems evident from these recent studies that cases at low risk of complications for a vaginal delivery can be selected instead of recommending caesarean section for all women. With appropriate protocols for patient selection, trial of labor with continuous CTG monitoring, strict guidelines for emergency cesarean delivery, the presence of an experienced obstetrician and an experienced neonatologist, it should be possible to deliver a significant number of women by the vaginal route without any increased neonatal morbidity and mortality.

Although the controversy continues, practices have altered and choices available to women have diminished. Women's preference for vaginal birth has been reasonably well researched. A survey regarding birth preferences of 310 women in late pregnancy (36–40 weeks) found that most women (93.5%) reported a strong preference for vaginal delivery. Of the 20 women who preferred a caesarean section, most had a current obstetric complication or a previous complicated delivery ($p=0:001$) (Gamble and Creedy, 2001). Brown and Lumley's(1994) survey of 790 post-partum women found that having a caesarean section was related to dissatisfaction with care (OR 2.10 [1.0–4.41]). More

recently, a Swedish study posted to 3061 women after their first antenatal visit found that over 90% would prefer a vaginal delivery (Hildingsson et al.,2002), and a questionnaire randomly distributed to women attending antenatal care in Singapore (n =160) found that 95% of women indicated a preference for vaginal delivery (Chong and Mongelli,2003). For women with a preference for vaginal delivery, and a breech presentation at term, external cephalic version (ECV) offers a potential solution.

There are widespread fears amongst patients surrounding vaginal delivery of the breech presentation due to a lack of information generally available to them. There is also a lack of honesty about the risks of caesarean section and sparse knowledge of the post-caesarean difficulties many mothers encounter. These factors, together with the prevailing myths and beliefs that caesareans guarantee healthy babies, more often than not leave the woman with no option but to blindly accept the decisions made for her by her obstetrician. Many women may well be content to go along with the medical advice being presented to them and opt for an elective caesarean at 38 weeks. They may consider the risks of an elective section more acceptable, especially if their confidence that the medical profession 'know best' is strong. Other mothers too, are much more likely to understand such a decision since many have heard vague horror stories of breech births resulting in dead or brain-damaged babies. For many mothers, particularly those who have made great efforts to maximize the chances of 'as natural a birth as possible', such a position is extremely confidence- shattering and desperately upsetting.

However, increasingly women are resorting to alternatives, to avoid either operative delivery or manipulative intervention in late pregnancy. Some most popular alternatives used to encourage the fetus to turn include moxibustion, traditional chinese medicine, homeopathic remedies, hypnotherapy, chiropractic, music and yoga positions are also used by some women.

As the rate of caesarean delivery of breech babies rises, fewer and fewer midwives and doctors are learning the skills of vaginal breech delivery. There is now a compelling need to revive our old skills in this simple maneuver as many now are starting to believe that caesarian section may not be the only best choice for breech deliveries.

Data from the Annual Report in Hospital Tuanku Jaa'far Seremban (2007) shows a breech delivery rate of 91% via caesarean section compared to 39% in HUSM in the same year. This clearly points to difference in factors among both patients and doctors involved in decision making in breech delivery in these two hospitals within two different regions in Malaysia itself. This study would address factors that contribute to this difference in rate of caesarean delivery for breech presentation at term and perhaps identify the reason for differences in both patient and health provider behaviors.

OBJECTIVES OF THE STUDY

GENERAL OBJECTIVES

To compare the incidence and factors affecting on the choice in mode of delivery of breech presentation amongst patients and doctors in two different hospitals.

SPECIFIC OBJECTIVES

1) to determine the prevalence of assisted vaginal breech delivery in Hospital Universiti Sains Malaysia (HUSM) , Kubang Kerian and Hospital Tuanku Ja'afar (HTJ), Seremban.

2) to determine the prevalence of caesarean section for breech presentation at term in HUSM and HTJ

3) to determine the prevalence of external cephalic version for breech presentation in HUSM and HTJ

4) to determine the factors leading to the choice of delivery amongst patients in HUSM and HTJ

5) to determine the factors leading to the choice of delivery amongst doctors in HUSM and HTJ

6) to determine the maternal and perinatal outcome of breech delivery at term in HUSM and HTJ

Based on the previous years general statistics ,it was noted that in Hospital Tuanku Ja'afar that there was a higher rate of breech deliveries through caesarean section(91%) as compared to HUSM where vaginal breech delivery was routinely practiced as high as 71%. This shows that the universal practice of caesarean section for breech deliveries is not routinely followed. This also clearly shows that there are differences in factors affecting mode of delivery in both patients and doctors in HUSM (East Coast Malaysia) and HTJ (West Coast Malaysia). This study looked into details as to what makes vaginal delivery more acceptable in certain regions and settings while others still follow routine caesarean section. The findings from this study may have an impact on the current practice of breech delivery in Malaysia especially in reducing caesarean delivery without compromising perinatal or maternal morbidity and mortality.

METHODOLOGY

This is a cross sectional study that was carried out in the Department of Obstetrics and Gynaecology Hospital Universiti Sains Malaysia, Kelantan and Hospital Tuanku Ja'aafar, Negeri Sembilan. The duration of the study was taken between 1st January 2009 till 31st December 2009. This study involved 160 patients from each respective hospital. The sample size was calculated using single proportion sample size calculation. Only cases at 37 completed weeks of fulfilling the inclusion criteria were included in this study. Following were the inclusion and exclusion criteria which were adopted in this study making each patient recruited suitable either for External Cephalic Version, Assisted Vaginal Breech Delivery or Lower Segment Caesarean Section.

The inclusion criteria where:-

- 1) singleton pregnancies
- 2) completed 37 weeks
- 3) ultrasound estimated fetal weight not more than 3.5kg
- 4) anomalies of fetus ruled out by ultrasound
- 5) absence of hyperextension of fetal head confirmed by ultrasound
- 6) extended or flexed breech
- 7) assisted vaginal breech conducted by doctors
- 8) counseled during antenatal period

The exclusion criteria included:-

- 1) multiple pregnancy
- 2) preterm pregnancy
- 3) fetal weight more than 3.5kg
- 4) antepartum fetal death
- 5) fetuses with malformation or intrauterine growth restriction
- 6) footling presentation
- 7) previous caesarean delivery
- 8) abnormal amniotic fluid volume
- 9) patients coming in late stage of labour with cervical dilatation more than 4cm
- 10) unplanned pregnancies

The selected patients were counseled regarding this study and written informed consent were taken. The patients were allowed to withdraw from this study at any time they wished. The patients chosen would have been seen by their respective doctors and counseled on the choices of delivery they could pick which included external cephalic version, assisted vaginal breech delivery and lower segment caesarean section. Each method its risk and benefit were explained thoroughly to the patients. Once a decision was made, the patients were then interviewed by trained investigators on the choice they had opted for using a set of questionnaires which has been validated. If a change of choice was noted, the reason was documented. The medical records of these women and

their neonates were also carefully reviewed for a variety of demographic factors along with maternal and fetal outcome variables used in this study.

The doctors in each hospital setting were also interviewed separately on their views on methods of breech delivery after informed consent was obtained. This was also done by trained investigators using a set of questionnaires that were validated.

All newborn infants were examined and assigned one and five minute Apgar Scores. Depending on the clinical status, the neonates were either admitted to the postnatal ward with the mother, special care nursery for observation or the neonatal intensive care unit. The primary neonatal outcomes were measured using Apgar score, admission to neonatal intensive care unit, birth trauma and duration of hospital stay. While the maternal outcomes were febrile morbidity, postpartum haemorrhage, need of blood transfusion and length of hospital stay.

The data obtained was analyzed with the statistical package for social sciences (SPSS) 12.0. A value $p < 0.05$ was considered statistically significant.

RESULTS

DEMOGRAPHIC DATA

TABLE 1- Age distribution of term breech presentation

AGE(YEARS)	HUSM		HTJS	
	Number	Percentage	Number	Percentage
19 and less	7	4.0%	2	2.7%
20-29	88	50.3%	85	51.5%
30-39	66	37.7%	75	45.7%
40-49	14	8.0%	2	1.2%
Total	175	100.0%	164	100.0%

Term breech presentation is commoner in the 20-29 age group in both settings. HUSM in turn has a higher number of women within the age group 40-49 years.

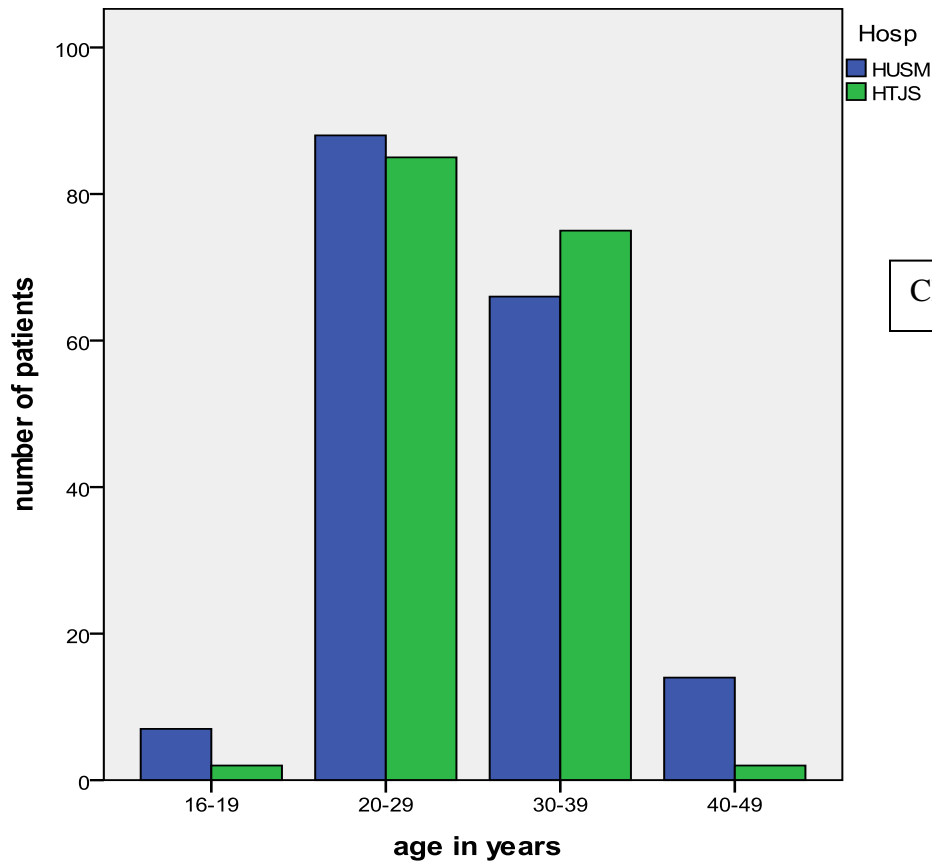


CHART 1

TABLE 2- Ethnic group distribution amongst patients in study population

RACE	HUSM		HTJS	
	Number	Percentage	Number	Percentage
Malay	168	96.0%	130	79.3%
Chinese	7	4.0%	20	12.2%
Indians	0	0.0%	10	6.1%
Others	0	0.0%	4	2.4%
Total	175	100.0%	164	100.0%

The majority of term breech presentation is within the Malay population in both hospitals while the Chinese population contributes 4.0% (HUSM) and 12.2% (HTJS) respectively. From the total of 164 patients in HTJS, 6.1% belong to the Indian and 2.4% to other ethnic groups. This proportion reflects the distribution of races in both states where the majority is Malays.

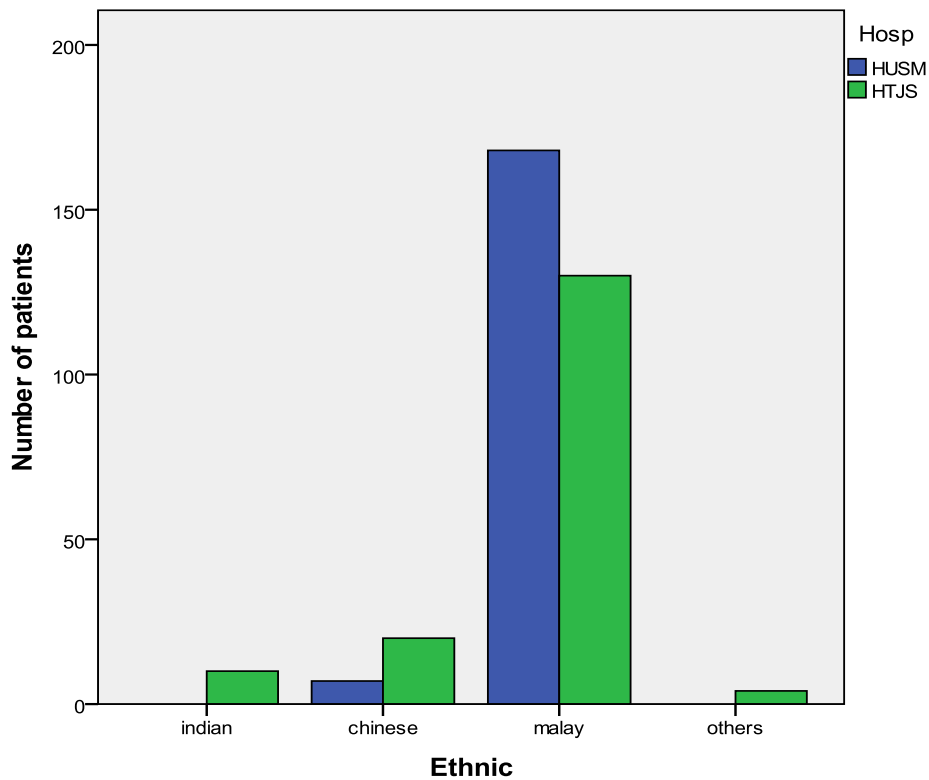


CHART 2