Cephalic version by postural management for breech presentation (Review)

Hofmeyr GJ, Kulier R

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ABSTRACT

Background
Babies with breech presentation (bottom first) are at increased risk of complications during birth, and are often delivered by caesarean section. The chance of breech presentation persisting at the time of delivery, and the risk of caesarean section, can be reduced by external cephalic version (ECV - turning the baby by manual manipulation through the mother's abdomen). It is also possible that maternal posture may influence fetal position. Many postural techniques have been used to promote cephalic version.

Objectives
The objective of this review was to assess the effects of postural management of breech presentation on measures of pregnancy outcome. Procedures in which the mother rests with her pelvis elevated were evaluated. These include the knee-chest position, and a supine position with the pelvis elevated with a wedge-shaped cushion.

Search strategy
The Cochrane Pregnancy and Childbirth Group trials register (searched September 2001) and the Cochrane Controlled Trials Register (Cochrane Library, Issue 3, 2001) were searched.

Selection criteria
Randomised and quasi-randomised trials comparing postural management with pelvic elevation for breech presentation, with a control group.

Data collection and analysis
Eligibility and trial quality were assessed by one or both reviewers.

Main results
Five studies involving a total of 392 women were included. No effect of postural management on the rate non-cephalic births was detected, either for the subgroup in which no external cephalic version was attempted, or for the group overall (relative risk 0.95, 95% confidence interval 0.81 to 1.11). No differences were detected for caesarean sections or Apgar scores below seven at one minute.

Authors' conclusions
There is insufficient evidence from well-controlled trials to support the use of postural management for breech presentation. The numbers of women studied to date remain relatively small. Further research is needed.

PLAIN LANGUAGE SUMMARY

Not enough evidence on encouraging the mother to adopt different postures during pregnancy to change a breech baby's position in the womb

Babies born in the breech position (bottom first) are more likely to have problems during birth than babies born head first (cephalic). There are different ways of trying to encourage the baby to turn so that he/she can be born head first. Some of these involve the mother adopting different postures. The review of trials found too little evidence to support the use of certain postures to change the baby's position in pregnancy to head down. Further research is required.

BACKGROUND

Babies with breech presentation (bottom first) are at increased risk of complications during birth. This risk can be reduced by planned caesarean section (Hofmeyr 2002a). The chance of breech presentation persisting at the time of delivery, and the risk of caesarean section, can be reduced by external cephalic version (ECV - turning the baby by manual manipulation through the mother's abdomen)(Hofmeyr 2002b). Other methods used to attempt to correct the position of the baby include acupuncture, homoeopathy and postural methods. Over the years many postural techniques have been used by midwives, doctors and traditional birth attendants to promote cephalic version (Hofmeyr 1989). Little, however, has appeared in the medical literature on this subject. Elkins (Elkins 1982) reported an uncontrolled trial of the knee-chest position, assumed for 15 minutes every two hours of waking for five days. Use of this procedure in 71 women with ultrasound-confirmed breech presentation after 37 weeks' gestation was followed by a normal cephalic birth in 65 cases. This method has been modified by researchers (eg knee-chest position assumed with full urinary bladder three times a day for seven days)(Chenia 1987). Another postural method is 'Indian version', assuming the supine, head-down position with the pelvis supported by a wedge-shaped cushion for 10 to 15 minutes once or twice a day (Bung 1987).

OBJECTIVES

To assess the effects on presentation at and method of delivery, and perinatal morbidity and mortality, of postural management for breech presentation.

CRITERIA FOR CONSIDERING STUDIES FOR THIS REVIEW

Types of studies

Clinical trials comparing the effects of postural management with pelvic elevation for breech presentation on clinically meaningful outcomes, with a control group (no treatment); random or quasi-random allocation to a treatment and control group; violations of allocated management and exclusions after allocation not sufficient to materially affect outcomes.

Types of participants

Women with singleton breech presentation.

Types of intervention

Postural management entailing relaxation with the pelvis in an elevated position.

Types of outcome measures

Presentation at and method of delivery; perinatal outcome.

Outcomes included if clinically meaningful; reasonable measures taken to minimise observer bias; missing data insufficient to materially influence conclusions; data available for analysis according to original allocation, irrespective of protocol violations; data available in format suitable for analysis.

SEARCH METHODS FOR IDENTIFICATION OF STUDIES

See: methods used in reviews.

This review has drawn on the search strategy developed for the Cochrane Pregnancy and Childbirth Group as a whole. The full list of journals and conference proceedings as well as the search strategies for the electronic databases, which are searched by the Group on behalf of its reviewers, are described in detail in the 'Search strategies for the identification of studies section' within the editorial information about the Cochrane Pregnancy and Childbirth Group. Briefly, the Group searches on a regular basis MEDLINE, the Cochrane Controlled Trials Register and reviews the Contents tables of a further 38 relevant journals received via ZETOC, an electronic current awareness service.

Relevant trials, which are identified through the Group's search strategy, are entered into the Group's Specialised Register of Controlled Trials. Please see Review Group's details for more detailed information. Date of last search: September 2001.

In addition, the Cochrane Controlled Trials Register (Cochrane Library Issue 3, 2001) was searched with the terms: breech-presentation:*me or breech and version-fetal:*me or version or position* or postur*.

METHODS OF THE REVIEW

Trials under consideration were evaluated for methodological quality and appropriateness for inclusion according to the prestated selection criteria, without consideration of their results. Individual outcome data were included in the analysis if they met

the prestated criteria in 'Types of outcome measures'. Included trial data were processed as described in Clarke 2000.

Data were extracted from the sources and entered onto the Review Manager computer software (RevMan 2000), checked for accuracy, and analysed as above using the RevMan software. For dichotomous data, relative risks and 95% confidence intervals were calculated, and in the absence of heterogeneity, results were pooled using a fixed effects model.

DESCRIPTION OF STUDIES

See table of 'Characteristics of included studies'.

METHODOLOGICAL QUALITY

See table of 'Characteristics of included studies', particularly the 'Methods' and 'Notes' sections.

Chenia and Crowther (Chenia 1987) have modified Elkins's procedure to be used three times a day for seven days, and with a full urinary bladder. Seventy-six black women with breech presentation beyond 37 weeks' gestation were allocated by randomised sealed envelope to a study and a control group.

Bung et al (Bung 1987) reported a controlled trial of 'Indian' version. The women were encouraged to lie down once or twice a day for 10 to 15 minutes in the supine, head-down position, the pelvis being supported by a wedge-shaped cushion. Sixty-one women with breech presentation between the 30th and 35th weeks of pregnancy were allocated according to odd and even days of the month to a study and a control group.

Hartadottir and Thornton (Hartadottir 1992) 'randomised' women with breech presentation after 34 weeks' gestation to a group taught to assume the knee-chest position for 15 minutes twice a day, or to a control group. There were three exclusions after randomisation, and compliance was poor in some women.

Obwegeser et al (Obwegeser 1999) randomly allocated 103 women to an 'Indian version' or control group, but three were withdrawn for poor compliance.

The trial of Smith et al (Smith 1999) evaluated the knee-chest position, and differed from the others in that external cephalic version was offered to the women if the breech presentation persisted after a week (47/51 in the postural group, 44/49 in the control group). This may have obscured the effect of the procedure to some extent. For this reason, sub-group analysis has been performed for trials with and without external cephalic version (ECV) attempt. ECV was successful in one of the postural group and four of the control group (Smith 1999).

In other respects, the studies were methodologically sound. Double blinding was not possible, but the measures of outcome other than Apgar score were not subject to observer bias. The results may, however, have been affected by a chance preponderance of nulliparous women in the experimental group in three studies (11/39 versus 4/37 (Chenia 1987), 15/30 versus 11/31 (Bung 1987), and 19/30 versus 13/25 (Hartadottir 1992).

Because the basic principle of the two techniques investigated is similar, namely relaxation in a position in which the pelvis is elevated above the level of the shoulders, the findings of the studies have been combined. It should, however, be noted that the gestation at enrolment differed between the studies.

RESULTS

Five studies involving a total of only 392 women were included. The small differences in non-cephalic births (five trials, 392 women), overall caesarean section rate (four trials, 292 women) and rate of low Apgar score at one minute (three trials, 237 women), could all be the result of chance. They are consistent, at the 95 per cent confidence level, with anything between a moderate positive and a negative effect. These findings held for the subgroup in which external cephalic version was not attempted, and the group overall. The two trials which showed a tendency to reduced non-cephalic births were those in which the procedure was started as early as 30 weeks' gestation (Bung 1987; Obwegeser 1999).

DISCUSSION

The studies must be regarded as too small to establish conclusively whether or not postural management is effective.

The results of the trials are consistent with each other.

AUTHORS' CONCLUSIONS

Implications for practice

There is to date insufficient evidence from well-controlled trials to support the routine use of postural management in clinical practice.

Implications for research

The controlled trials reported to date are too small to support or refute the evidence from uncontrolled trials of the value of postural management for breech presentation.

Because of the simplicity of postural management and its wide potential application in developing as well as developed communities, it is reasonable that the procedure be evaluated further by means of larger randomised clinical trials. These should include

evaluation of the effect of the gestational age on the effectiveness of these procedures, and exploration of women's views.

POTENTIAL CONFLICT OF INTEREST

None known.

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Obwegeser 1999 *{published data only}*

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Smith 1999 *{published data only}*

Smith C, Crowther C, Wilkinson C, Pridmore B, Robinson J. Knee-chest postural manangement for breech at term: a randomized controlled trial. *Birth* 1999;**26**:71–5.

References to studies excluded from this review

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Hofmeyr 1995

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TABLES

Characteristics of included studies

Study	Bung 1987
Methods	Allocated according to odd and even days of the month.
Participants	Singleton breech presentation at 30 to 35 weeks.
Interventions	'Indian version' (10 to 15 minutes once or twice a day in the supine, head-down position with the pelvis supported by a wedge-shaped cushion) (n = 30), compared with control group (n = 31).
Outcomes	Non-cephalic births; caesarean sections; Apgar score < 7 at 1 minute.
Notes	More primiparous in study group (15/30 vs 11/31).
Allocation concealment	C – Inadequate

Characteristics of included studies (*Continued*)

Study	**Chenia 1987**
Methods	Randomized sealed envelopes used.
Participants	Singleton breech presentation beyond 37 weeks. All participants were black women.
Interventions	Knee-chest position assumed with full urinary bladder 3 times a day for 7 days (n = 39), compared with control group (n = 37).
Outcomes	Non-cephalic births; caesarean sections; Apgar score < 7 at 1 minute.
Notes	More primiparous in the study group (11/39 vs 4/37).
Allocation concealment	B – Unclear

Study	**Hartadottir 1992**
Methods	'Randomized', method not specified. Three withdrawals after randomization (two found to be cephalic on sonar, one lost to follow-up). The women in the control group were not informed that they were participating in a trial.
Participants	Singleton breech presentation beyond 34 weeks.
Interventions	Women asked to assume knee-chest position for 15 minutes twice a day (n = 30), compared with control group (n = 31). Compliance was poor in some women.
Outcomes	Non-cephalic births; caesarean section.
Notes	More primiparous in study group (19/30 versus 13/25).
Allocation concealment	C – Inadequate

Study	**Obwegeser 1999**
Methods	Separate computerised randomisation for primips and multips.
Participants	Inclusion criteria: ultrasound-confirmed, uncomplicated singleton breech pregnancy, 30-32 weeks' gestation. Exclusion criteria: uterine or pelvic abnormalities, maternal or fetal disease.
Interventions	Asked to assume a supine position with the pelvis elevated by a 30-35cm cushion, for periods of 10 minutes, twice daily (n = 50); compared with control group (n = 50).
Outcomes	Spontaneous version.
Notes	Universitatsfrauenklinik, Vienna. Three women withdrawn from the study group because of poor compliance. Pilot study to calculate sample size. Study ended after the first year because of the large sample size needed to show a small difference.
Allocation concealment	B – Unclear

Study	**Smith 1999**
Methods	Randomised sealed envelopes using variable blocks and stratified by parity. No blinding of allocation.
Participants	Inclusion criteria: singleton breech presentation, gestational age 36 weeks or more. Exclusion criteria: placenta praevia, antepartum haemorrhage, fetal growth restriction, hypertensive disease, previous uterine surgery, uterine anomaly, ruptured membranes, fetal anomaly, contraindication to vaginal delivery, fetal death.
Interventions	Asked to assume the knee-chest position for 15 minutes, 3 times a day, for a week (n = 51). Compared with no postural management (n = 49). Both groups offered external cephalic version if still a breech presentation after a week.
Outcomes	Breech presentation at birth; caesarean section; fetal and maternal complications.
Notes	1990 to 1997. Adelaide, Australia. Estimated sample size 288. Stopped after 100 due to slow enrolment.
Allocation concealment	B – Unclear

vs = versus

Characteristics of excluded studies

Study	Reason for exclusion
Bullough 1987	Excluded because the planned trial was not conducted.
Cardini 1998	Excluded because posture was not used. May be included in a separate review. 130 primigravidas in the 33rd week of gestation were randomized to receive stimulation of acupoint BL 67 by moxa rolls for seven to 14 days. The 130 in the control group received routine care. The intervention group experienced a mean of 48.45 fetal movements per day versus 35.35 in the control group (95% confidence interval [CI] for difference, 10.56 to 15.60). During the 35th week of gestation, 98 in the intervention group were cephalic versus 62 in the control group (relative risk [RR], 1.58; 95% CI, 1.29 to 1.94). Despite the fact that 24 subjects in the control group and one subject in the intervention group underwent external cephalic version, 98 in the intervention group were cephalic at birth versus 81 in the control group (RR, 1.21; 95% CI, 1.02 to 1.43).
Van Drooge 1984	Excluded because the technique of hyperextension is fundamentally different from the techniques used in the other studies. Allocation of women at 32 to 38 weeks was by envelope. Unfortunately, there were more nulliparous women in the study than the control group (11/20 versus 7/20). Version was less common, but not significantly so, in the study than in the control group (7/20 versus 9/20).

ANALYSES

Comparison 01. Cephalic version by postural management

Outcome title	No. of studies	No. of participants	Statistical method	Effect size
01 Non-cephalic births	5	392	Relative Risk (Fixed) 95% CI	0.95 [0.81, 1.11]
02 Caesarean section	4	292	Relative Risk (Fixed) 95% CI	1.07 [0.85, 1.33]
03 Apgar score < 7 at 1 minute	3	237	Relative Risk (Fixed) 95% CI	0.88 [0.50, 1.55]
04 Apgar score < 7 at 5 minutes	1	100	Relative Risk (Fixed) 95% CI	0.32 [0.01, 7.68]

INDEX TERMS

Medical Subject Headings (MeSH)

*Breech Presentation; Cesarean Section; Confidence Intervals; *Delivery, Obstetric; *Posture

MeSH check words

Female; Humans; Pregnancy

COVER SHEET

Title	Cephalic version by postural management for breech presentation
Authors	Hofmeyr GJ, Kulier R
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What's New	Information not supplied by author
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Date new studies found but not yet included/excluded	Information not supplied by author
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Date authors' conclusions section amended	Information not supplied by author
Contact address	Prof G Justus Hofmeyr Director/Hon. Professor, Effective Care Research Unit Department of Obstetrics and Gynaecology, East London Hospital Complex University of the Witwatersrand, University of Fort Hare, Eastern Cape Department of Health Frere and Cecilia Makiwane Hospitals Private Bag X 9047 East London Eastern Cape 5200 SOUTH AFRICA E-mail: gjh@global.co.za Tel: +27 43 7092483 Fax: +27 43 7092483
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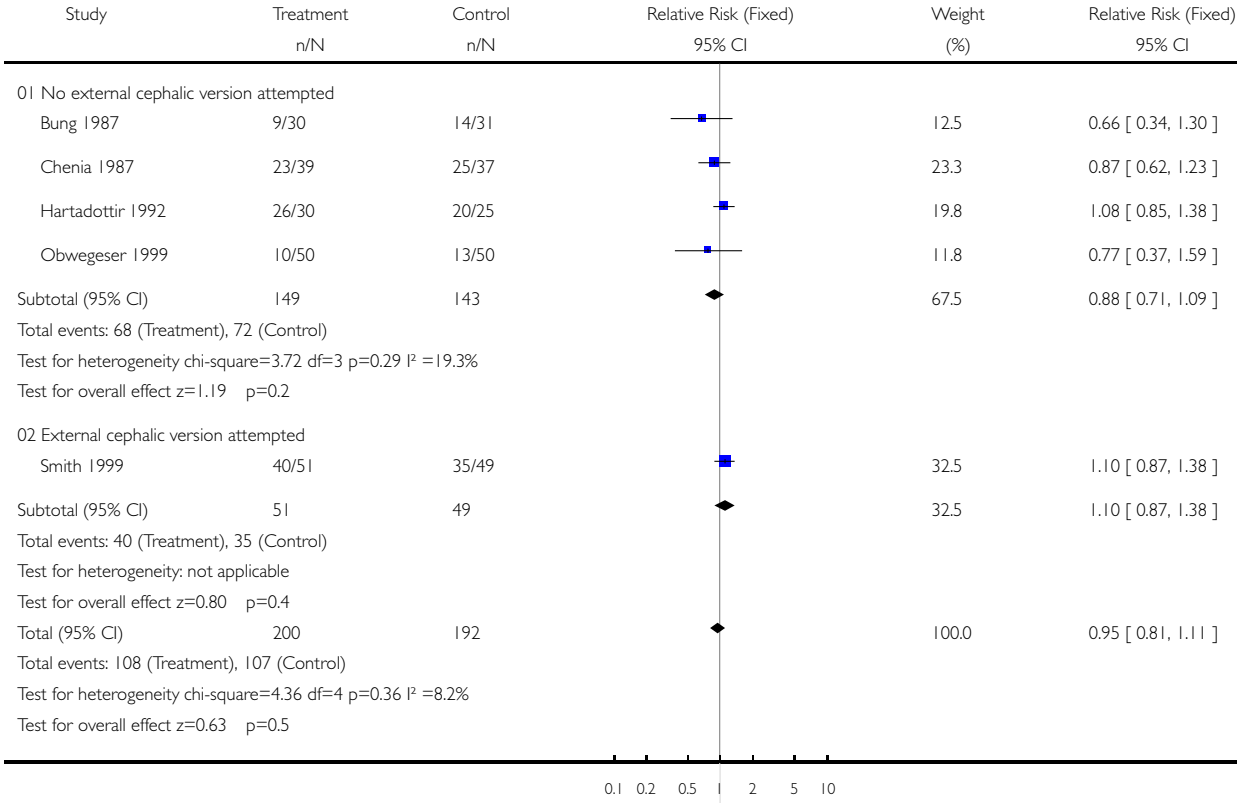
GRAPHS AND OTHER TABLES

Analysis 01.01. Comparison 01 Cephalic version by postural management, Outcome 01 Non-cephalic births

Review: Cephalic version by postural management for breech presentation

Comparison: 01 Cephalic version by postural management

Outcome: 01 Non-cephalic births

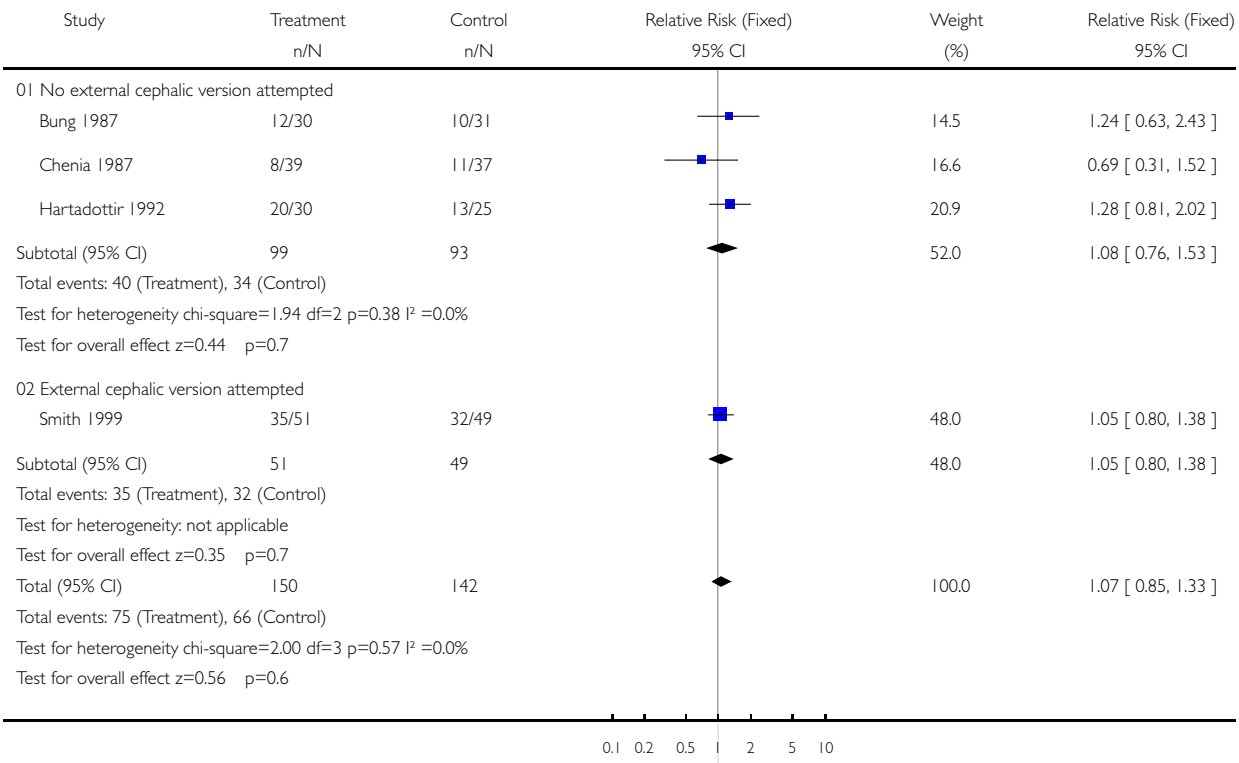


Analysis 01.02. Comparison 01 Cephalic version by postural management, Outcome 02 Caesarean section

Review: Cephalic version by postural management for breech presentation

Comparison: 01 Cephalic version by postural management

Outcome: 02 Caesarean section

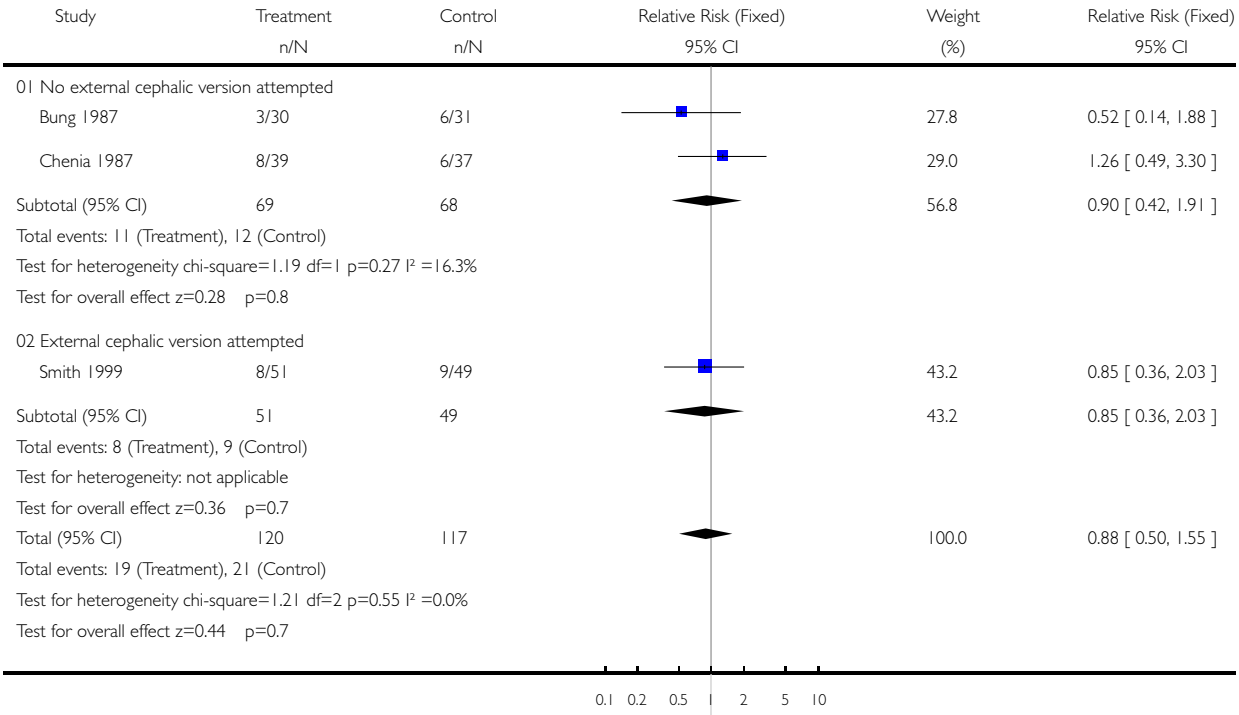


Analysis 01.03. Comparison 01 Cephalic version by postural management, Outcome 03 Apgar score < 7 at 1 minute

Review: Cephalic version by postural management for breech presentation

Comparison: 01 Cephalic version by postural management

Outcome: 03 Apgar score < 7 at 1 minute



Analysis 01.04. Comparison 01 Cephalic version by postural management, Outcome 04 Apgar score < 7 at 5 minutes

Review: Cephalic version by postural management for breech presentation

Comparison: 01 Cephalic version by postural management

Outcome: 04 Apgar score < 7 at 5 minutes

Study	Treatment n/N	Control n/N	Relative Risk (Fixed) 95% CI	Weight (%)	Relative Risk (Fixed) 95% CI
01 No external cephalic version attempted					
Subtotal (95% CI)	0	0		0.0	Not estimable
Total events: 0 (Treatment), 0 (Control)					
Test for heterogeneity: not applicable					
Test for overall effect: not applicable					
02 External cephalic version attempted					
Smith 1999	0/51	1/49		100.0	0.32 [0.01, 7.68]
Subtotal (95% CI)	51	49		100.0	0.32 [0.01, 7.68]
Total events: 0 (Treatment), 1 (Control)					
Test for heterogeneity: not applicable					
Test for overall effect z=0.70 p=0.5					
Total (95% CI)	51	49		100.0	0.32 [0.01, 7.68]
Total events: 0 (Treatment), 1 (Control)					
Test for heterogeneity: not applicable					
Test for overall effect z=0.70 p=0.5