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## **Cover sheet**

### **Title**

Continuous support for women during childbirth

### **Reviewers**

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### **Dates**

Date edited: 28/05/2003

Date of last substantive update: 09/05/2003

Date of last minor update: / /

Date next stage expected: 01/03/2004

Protocol first published: Issue 3, 2002

Review first published: Issue 3, 2003

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## **External sources of support**

None

## **Contribution of reviewers**

Ellen Hodnett wrote the initial draft of the protocol and entered the data. Carol Sakala wrote the initial draft of the Discussion. Simon Gates wrote the initial draft of the statistical methods and provided statistical advice for the Protocol and Review. All reviewers participated in all aspects of the preparation of the protocol and in writing the text of the Review.

## **Acknowledgements**

We are very grateful to the investigators who provided additional information: R Cogan, A Gagnon, E Hemminki, A Langer, J Kennell, M Klaus, S McGrath, B Madi, and G Trueba. We thank Agnes Cho and Qian Xu for translation of a Chinese publication, and Qian Xu for contacting the trial author for additional details. Ellen Hodnett and Justus Hofmeyr also provided additional information about their trials. Tanya Webb performed the second data entry, contacted trial authors for additional information and provided secretarial support. The Consumer Panel of the Pregnancy and Childbirth Group (of which Carol Sakala is a member) provided many helpful suggestions for both the protocol and the review.

## **Potential conflict of interest**

Ellen Hodnett was the principal investigator for two labour support trials. Justus Hofmeyr was the principal investigator for one labour support trial. Carol Sakala is Director of Programs for the Maternity Center Association, a consumer advocacy organization which promotes continuous labour support.

## **What's new**

This is a new Review, replacing the Cochrane Review, "Caregiver support for women during childbirth".

### **Dates**

Protocol first published:	Issue 3, 2002
Review first published:	Issue 3, 2003
Date of last substantive update:	09/05/2003
Date of last minor update:	/ /
Date review re-formatted:	11/08/1999
Date new studies sought but none found:	/ /
Date new studies found but not yet included/excluded:	/ /
Date new studies found and included or excluded:	30/01/2003
Date reviewers' conclusions section amended:	/ /
Date comment/criticism added:	/ /
Date response to comment/criticism added:	/ /

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## **Synopsis**

Continuous labour support reduces a woman's likelihood of having pain medication, increases her satisfaction and chances for 'spontaneous' birth, and has no known risks

Supportive care during labour may involve emotional support, information, and comfort measures. Such care may enhance normal labour processes and thus reduce need for obstetric intervention. Women who received continuous labour support were less likely to use pain medications and were more likely to be satisfied and to give birth 'spontaneously' (with neither caesarean nor vacuum nor forceps). In general labour support was more effective when it was provided by women who were not part of the hospital staff.

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## **Abstract**

### **Background**

Historically, women have been attended and supported by other women during labour. However, in recent decades in hospitals worldwide, continuous support during labour has become the exception rather than the routine. Concerns about the consequent dehumanization of women's birth experiences have led to calls for a return to continuous support by women for women during labour.

### **Objectives**

Primary: to assess the effects, on mothers and their babies, of continuous, one-to-one intrapartum support compared with usual care. Secondary: to determine whether the effects of continuous support are influenced by: (1) routine practices and policies in the birth environment that may affect a woman's autonomy, freedom of movement, and ability to cope with labour; (2) whether the caregiver is a member of the staff of the institution; and (3) whether the continuous support begins early or later in labour.

### **Search strategy**

We searched the Cochrane Pregnancy and Childbirth Group trials register (30 January 2003) and the Cochrane Central Register of Controlled Trials (The Cochrane Library, Issue 1, 2003).

### **Selection criteria**

All published and unpublished randomized controlled trials comparing continuous support during labour with usual care.

### **Data collection & analysis**

Standard methods of the Cochrane Collaboration Pregnancy and Childbirth Group were used. All authors participated in evaluation of methodological quality. Data extraction was undertaken independently by one author and a research assistant. Additional information was sought from the trial authors. Results are presented using relative risk for categorical data and weighted mean difference for continuous data.

### **Main results**

Fifteen trials involving 12,791 women are included. Primary comparison: Women who had continuous intrapartum support were less likely to have intrapartum analgesia, operative birth, or to report dissatisfaction with their childbirth experiences. Subgroup analyses: In general, continuous intrapartum support was associated with greater benefits when the provider was not a member of the hospital staff, when it began early in labour, and in settings in which epidural analgesia was not routinely available.

**Reviewers' conclusions**

All women should have support throughout labour and birth.

## Background

The first version of this Cochrane Review was published in 1995 (Hodnett 2003) when the first systematic reviews in the Cochrane Collaboration Pregnancy and Childbirth Group Module were converted to the Cochrane Review format. Thus a formal Cochrane protocol was never published. The Review author, Ellen Hodnett, recently completed a trial of labour support (Hodnett 2002a) with a sample size larger than the entire sample in the most recent version of the original Review. As a protection against bias, she sought co-reviewers who were blind to the results of the new trial and who had special expertise that would enhance the quality of the Review. Discussions among the authors led to decisions to modify the background and methods. The authors decided that the best approach would be to write a new Protocol for the Review. The new protocol was submitted through the peer review process of the Cochrane Pregnancy and Childbirth Group and then developed into the present Review.

Historically and cross-culturally, women have been attended and supported by other women during labour and birth. However, since the middle of the 20th century, in many countries (in both high income and low and middle income countries) as the majority of women gave birth in hospital rather than at home, continuous support during labour has become the exception rather than the routine. Concerns about the consequent dehumanization of women's birth experiences have led to calls for a return to continuous, one-to-one support by women for women during labour (Klaus 2002). Common elements of this care include emotional support (continuous presence, reassurance, and praise), information about labour progress and advice regarding coping techniques, comfort measures (comforting touch, massage, warm baths/showers, promoting adequate fluid intake and output), and advocacy (helping the woman articulate her wishes to others).

Two complementary theoretical explanations have been offered for the effects of labour support on childbirth outcomes. Both explanations hypothesize that labour support enhances labour physiology and mothers' feelings of control and competence, reducing reliance on medical interventions. The first theoretical explanation considers possible mechanisms when companionship during labour is used in stressful, threatening and disempowering clinical birth environments (Hofmeyr 1991). During labour women may be uniquely vulnerable to environmental influences; modern obstetric care frequently subjects women to institutional routines, high rates of intervention, unfamiliar personnel, lack of privacy, and other conditions that may be experienced as harsh. These conditions may have an adverse effect on the progress of labour and on the development of feelings of competence and confidence; this may in turn impair adjustment to parenthood and establishment of breastfeeding, and increase the risk of depression. This process may to some extent be buffered by the provision of support and companionship during labour.

The second theoretical explanation does not focus on a particular type of birth environment. Rather, it describes two pathways - enhanced passage of the fetus through the pelvis and soft tissues, as well as decreased stress response - by which labour support may reduce the likelihood of operative birth and subsequent complications, and enhance women's feelings of control and satisfaction with their childbirth experiences (Hodnett 2002a). Enhanced fetopelvic relationships may be accomplished by encouraging mobility and effective use of gravity, supporting women to assume their preferred positions, and recommending specific positions for specific situations. Studies of the relationships among fear and anxiety, the stress response, and pregnancy complications have shown that anxiety

during labour is associated with high levels of the stress hormone epinephrine in the blood, which may in turn lead to abnormal fetal heart rate patterns in labour, decreased uterine contractility, a longer active labour phase with regular well-established contractions, and low Apgar scores (Lederman 1978; Lederman 1981). Emotional support, information and advice, comfort measures, and advocacy may reduce anxiety and fear and associated adverse effects during labour.

Recently continuous support has been viewed as a form of pain relief, specifically, as an alternative to epidural analgesia (Dickinson 2002), because of concerns about the deleterious effects of epidural analgesia on labour progress (Howell 2003). Many labour and birth interventions routinely involve, or increase the likelihood of, co-interventions to monitor, prevent, or treat adverse effects, in a "cascade of interventions". Continuous, one-to-one support has the potential to limit this cascade and therefore to have a broad range of different effects, in comparison to usual care. For example, if continuous support leads to reduced use of epidural analgesia, it may in turn involve less use of electronic fetal monitoring, intravenous drips, artificial oxytocin, drugs to combat hypotension, bladder catheterization, vacuum extraction or forceps, episiotomy, and less morbidity associated with these, and may increase mobility during labour and spontaneous birth (Caton 2002).

A systematic review examining factors associated with women's satisfaction with the childbirth experience suggests that continuous support can make a substantial contribution to this satisfaction. When women evaluate their experience, four factors predominate: the amount of support from caregivers, the quality of relationships with caregivers, being involved with decision-making, and having high expectations or having experiences that exceed expectations (Hodnett 2002a).

Clarification of the effects of continuous support during labour, overall and within specific circumstances, is important in light of public and social policies and programs that encourage this type of care. For example, the Congress in Uruguay passed a law in 2001 decreeing that all women have the right to companionship during labour. In several low and middle income countries (including China, South Africa, Tanzania and Zimbabwe), the Better Births Initiative promotes labour companionship as a core element of care for improving maternal and infant health (WHO 2002)

In North America, the services of women with special training in labour support have become available. Most commonly known as doula (a Greek word for 'handmaiden'), this new member of the caregiver team may also be called a labour companion, birth companion, labour support specialist, labour assistant, or birth assistant. A number of North American organizations offer doula training, certification, and professional support; and an estimated 35,000 people have received this training to date (P. Simkin, personal communication). Some North American hospitals have begun to sponsor doula services. In a recent national survey of childbearing women in the United States, 5% of respondents indicated that they had used doula services during their most recent labors (Declercq 2002). An association for doulas has recently been established in the UK (McGinnis 2001). Efforts to make doula services available are also occurring in countries such as Australia, Bermuda, Brazil, China, the Czech Republic, Israel, and South Africa.

Questions have arisen about the ability of employees (such as nurses or midwives) to provide effective labour support, in the context of modern institutional birth environments (Hodnett 1997). For example, nurses and midwives often have simultaneous responsibility for more than one labouring woman, spend a large proportion of time managing technology and keeping records, and begin or end work shifts in the middle of women's labours. They may lack labour support skills or



may work in short-staffed environments. In addition to questions about the impact of the type of provider of labour support, there are other questions about the effectiveness of support, including its impact under a variety of environmental conditions, and whether its effects are mediated by when continuous support begins (early versus active labour).

Childbearing women, policy-makers, payers of health services, health professionals and facilities, and those who provide labour support all need evidence about the effects of continuous support, overall and under specific conditions.

## **Objectives**

The primary objective was to assess the effects, on mothers and their babies, of continuous, one-to-one intrapartum support compared with usual care, in any setting. Secondary objectives were to determine whether the effects of continuous support are influenced by:

- (1) routine practices and policies in the birth environment that may affect a woman's autonomy, freedom of movement, and ability to cope with labour, including:
  - (a) policies about the presence of support people of the woman's own choosing;
  - (b) epidural analgesia; and
  - (c) continuous electronic fetal monitoring;
- (2) whether the caregiver is a member of the staff of the institution (and thus has additional loyalties and/or responsibilities); and
- (3) whether the continuous support begins early or later in labour.

## **Criteria for considering studies for this review**

### **Types of studies**

All controlled trials comparing continuous labour support by either a familiar or unfamiliar person (with or without health care professional qualifications) with usual care, in which there was random allocation to treatment and control groups, were considered for inclusion in the Review.

### **Types of participants**

Pregnant women, in labour.

### **Types of interventions**

The form of care that was evaluated was continuous presence and support during labour and birth. The person providing the support could have qualifications as a health care professional (nurse, midwife) or training as a doula or childbirth educator, or be a family member, friend or stranger with no special training in labour support. The control group received usual care, as defined by the trialists. In all cases, "usual care" did not involve continuous intrapartum support, but it could involve other measures, such as routine epidural analgesia, to help women to cope with labour.

### **Types of outcome measures**

Theoretically continuous support can have many diverse physiological and psychosocial effects (both short and long-term), and therefore a large number of outcomes were considered. The outcomes fall into the following categories: labour events, birth events, neonatal events, immediate maternal psychological outcomes, and longer-term maternal outcomes. The outcomes included:

A. LABOUR EVENTS:

1. amniotomy (artificial rupture of membranes);
2. artificial oxytocin;
3. use of electronic fetal monitoring;
4. epidural analgesia;
5. any analgesia/anaesthesia (pain medication);
6. severe pain;
7. labour length.

B. BIRTH EVENTS:

8. caesarean birth;
9. operative vaginal birth (vacuum extraction or forceps);
10. spontaneous vaginal birth;
11. episiotomy;
12. perineal trauma (defined as episiotomy or laceration requiring suturing).

C. NEWBORN EVENTS:

13. low 5-minute Apgar score (as defined by trial authors);
14. low cord pH (as defined by trial authors);
15. admission to special care nursery;
16. prolonged newborn hospital stay.

D. IMMEDIATE MATERNAL PSYCHOLOGICAL OUTCOMES:

17. feeling tense, anxious during labour;
18. negative rating of /negative feeling about the experience;
19. perceived difficulty in coping with labour;
20. perceived low control during labour.

E. LONGER-TERM MATERNAL OUTCOMES:

21. postpartum depression;
22. low self-esteem in the postpartum period;
23. anxiety in the postpartum period;
24. difficulty mothering;
25. less than full breastfeeding;
26. prolonged perineal pain;
27. pain during sexual intercourse;
28. urinary incontinence;
29. faecal incontinence;
30. poor relationship with partner.

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## **Search strategy for identification of studies**

We searched the Cochrane Pregnancy and Childbirth Group trials register (30 January 2003).

The Cochrane Pregnancy and Childbirth Group's trials register is maintained by the Trials Search Co-ordinator and contains trials identified from:

1. quarterly searches of the Cochrane Central Register of Controlled Trials (CENTRAL);
2. monthly searches of MEDLINE;
3. handsearches of 30 journals and the proceedings of major conferences;
4. weekly current awareness search of a further 37 journals.

Details of the search strategies for CENTRAL and MEDLINE, the list of handsearched journals and conference proceedings, and the list of journals reviewed via the current awareness service can be found in the 'Search strategies for identification of studies' section within the editorial information about the Cochrane Pregnancy and Childbirth Group.

Trials identified through the searching activities described above are given a code (or codes) depending on the topic. The codes are linked to review topics. The Trials Search Co-ordinator searches the register for each review using these codes rather than keywords.

In addition, the Cochrane Central Register of Controlled Trials (The Cochrane Library, Issue 1, 2003) was searched using the following search terms: labor or labour near support, caregiver near support, doula\*, labour assistant, birth assistant, childbirth near support, companion\* near labour or labor.

## **Methods of the review**

Trials under consideration were evaluated for methodological quality and appropriateness for inclusion, without consideration of their results. Included trial data were processed as described in [Clarke 2002](#). Quality scores for allocation concealment were assigned to each trial, where A = adequate, B = unclear, C = clearly inadequate. Studies rated as a C were eliminated. Wherever necessary, unpublished data were requested from the trial authors. For all data analyses in this Review, data were entered based on the principle of intention to treat. To be included in a given comparison, outcome data had to be available for at least 80% of those who were randomized.

In trials in which some participants had interventions such as analgesia and artificial oxytocin prior to enrolment, only those interventions which occurred after randomization were included in the data tables.

Where several measures of dissatisfaction were included in a single trial, we selected the measure of the outcome that was most serious and was most congruent with the particular concept. Six trials reported on aspects of women's views about their childbirth experiences. We combined 'low perceived control during labour' with other indicators of negative ratings of the birth experience, such as difficulty in coping with labour, for a combined outcome, 'dissatisfaction with/negative rating of the childbirth experience'.

Double data entry was performed, and the results were compared until 100% agreement was

achieved.

Five a priori subgroup analyses were planned and completed. The five subgroup analyses were:

*A. Three subgroup analyses that concern characteristics of the childbirth environment:*

- (1) trials in settings in which women were permitted to be accompanied by one or more support persons of their own choosing versus trials in which accompaniment was not permitted;
- (2) trials conducted in settings in which epidural analgesia was available versus trials in settings in which it was unavailable;
- (3) trials in which there was a policy of routine electronic fetal heart rate monitoring versus trials in settings in which continuous electronic fetal monitoring was not routine.

*B. One subgroup analysis that concerns characteristics of the providers of labour support:*

- (4) trials in which the caregivers were employees of the institution, compared to trials in which the caregivers were not staff members.

*C. One subgroup analysis that concerns differences in the timing of onset of continuous support:*

- (5) trials in which continuous labour support began prior to the onset of active labour, trials in which women were enrolled after the onset of active labour, and trials in which women were enrolled at both early and active labour.

Because few of the trial reports contained all of the information needed for the above subgroup analyses, the trial authors were contacted in an attempt to verify the presence/absence of routine electronic fetal monitoring (EFM), the presence/absence of epidural analgesia, and timing of onset of continuous support. Some studies included in the primary comparisons were excluded from the subgroup analyses concerning the use of EFM because their status regarding EFM use was unknown. For tests of differences between these subgroups the overall analysis was recalculated by including only the studies in which EFM use was known.

The pre-specified subgroup analyses were restricted to the following outcomes:

1. analgesia/anaesthesia;
2. ways of giving birth (caesarean, operative vaginal, and spontaneous);
3. low 5-minute Apgar score (as defined by trial authors);
4. dissatisfaction with or negative views of the childbirth experience; and
5. postpartum depression.

Studies were combined using relative risks as the measure of effect size for binary outcomes. Weighted mean differences were used for most continuous outcome measures. Where trials used different ways of measuring the same outcome, standardised mean differences were used. Scores from rating scales were either analysed as continuous variables, if the scale was sufficiently long for this to be reasonable, or converted to dichotomous variables. Fixed effects meta-analysis was used for combination of studies if the trials were sufficiently similar in their design and interventions that a fixed effects summary would be meaningful. When there were differences between the trials that were likely to lead to differences in their treatment effects, random effects meta-analysis was used. Tests for heterogeneity were performed, and when heterogeneity was identified, either by a significant result ( $p < 0.1$ ) or obvious inconsistency of the effect sizes of the trials in the analysis, random effects analysis was preferred.

When significant heterogeneity was present within one subgroup analysis in a comparison, the random effects model was used for both subgroups. Causes of heterogeneity were investigated by the pre-specified subgroup analyses. Biases in the studies included in the analyses were investigated by means of funnel plots. Chi squared tests for differences between subgroups, using the method suggested by [Deeks 2001](#), were used to determine if the subgroup analyses explained any variation among trials.

## Description of studies

Please see 'Characteristics of included studies' table.

All trials were conducted in hospitals. The trials were conducted in Australia, Belgium, Botswana, Canada, Finland, France, Greece, Guatemala, Mexico, South Africa, and the United States, under widely disparate hospital conditions, regulations, and routines. There was remarkable consistency in the descriptions of continuous support across all trials. In all instances the intervention included continuous or nearly continuous presence, at least during active labour. Thirteen of the 15 trials (all except [Cogan 1988](#) and [Dickinson 2002](#)) also included specific mention of comforting touch and words of praise and encouragement.

In nine trials ([Breart - Belgium](#); [Breart - France](#); [Cogan 1988](#); [Hodnett 1989](#); [Hemminki 1990a](#); [Hemminki 1990b](#); [Gagnon 1997](#); [Dickinson 2002](#); [Hodnett 2002a](#)), hospital policy permitted women to be accompanied by their husbands/partners or other family members during labour, while in the other six trials, no additional support people were allowed. Epidural analgesia was routinely available in all but four trials ([Breart - Greece](#); [Klaus 1986](#); [Hofmeyr 1991](#); [Madi 1999](#)). Electronic fetal heart rate monitoring was not routine in four trials ([Klaus 1986](#); [Hofmeyr 1991](#); [Langer 1998](#); [Madi 1999](#)). In eight trials ([Cogan 1988](#); [Hodnett 1989](#); [Hemminki 1990a](#); [Hemminki 1990b](#); [Kennell 1991](#); [Dickinson 2002](#); [Hodnett 2002a](#)) electronic fetal monitoring was used routinely. We were unsuccessful in obtaining information about the use of electronic fetal monitoring for three trials ([Breart - Belgium](#); [Breart - France](#); [Breart - Greece](#)).

While the form of care that was evaluated was always described as continuous one-to-one support, the timing of onset of support varied. In five trials ([Cogan 1988](#); [Dickinson 2002](#); [Hodnett 1989](#); [Klaus 1986](#); [Madi 1999](#)) the support began prior to the onset of active labour; in six trials ([Gagnon 1997](#); [Hemminki 1990a](#); [Hemminki 1990b](#); [Hofmeyr 1991](#); [Kennell 1991](#); [Langer 1998](#)) the support began in active labour, and in four trials ([Breart - Belgium](#); [Breart - France](#); [Breart - Greece](#); [Hodnett 2002a](#)) the support could begin in either early or active labour.

In addition, the persons providing the support intervention varied in their experience, qualifications, and relationship to the labouring women. In eight trials ([Breart - Belgium](#); [Breart - France](#); [Breart - Greece](#); [Dickinson 2002](#); [Gagnon 1997](#); [Hemminki 1990a](#); [Hemminki 1990b](#); [Hodnett 2002a](#)) the support was provided by a member of the hospital staff, e.g. a midwife, student midwife, or nurse. In the remaining seven trials the providers were not members of the hospital staff; they were women with or without special training ([Hodnett 1989](#); [Hofmeyr 1991](#); [Kennell 1991](#); [Klaus 1986](#)), a childbirth educator ([Cogan 1988](#)), retired nurses ([Langer 1998](#)), or a close female relative, usually the woman's mother ([Madi 1999](#)). With the exception of the latter trial ([Madi 1999](#)) all studies evaluated

support by a woman who was not part of the childbearing woman's existing social network. We found no controlled trials that have evaluated effects of husbands or partners as providers of labour support.

## Methodological quality of included studies

Allocation concealment: [Hodnett 2002a](#) used a central, computerized randomization service accessed by telephone. In 12 trials ([Breart - Belgium](#); [Breart - France](#); [Breart - Greece](#), [Dickinson 2002](#); [Gagnon 1997](#); [Hemminki 1990a](#); [Hemminki 1990b](#); [Hofmeyr 1991](#); [Kennell 1991](#); [Klaus 1986](#); [Langer 1998](#); [Madi 1999](#)) randomization was by sealed, opaque envelopes. Two trials used methods that were centrally controlled but not concealed ([Cogan 1988](#); [Hodnett 1989](#)).

Performance bias: Neither those providing nor receiving care could be blinded to the presence/absence of a person providing continuous support. [Hodnett 2002a](#) provided evidence to discount contamination and co-intervention as serious threats to validity. Attrition bias: All included trials reported complete outcome data for caesarean birth. Data for other outcomes were not included in the meta analyses if there was > 20% loss to follow up. In the trials which sought participants' evaluations of their birth experiences ([Breart - Belgium](#); [Breart - France](#); [Hofmeyr 1991](#); [Hodnett 2002a](#); [Kennell 1991](#)), efforts were made to reduce response bias, through use of an interviewer blinded to the woman's group allocation or self-administered questionnaires.

## Results

Fifteen trials involving 12,791 women met the criteria for inclusion in the Review. *The relative risks (RR) and confidence intervals (CI) reported below reflect our a priori decisions regarding use of random effects versus fixed effects analyses.*

### COMPARISON 1 (MAIN COMPARISON): CONTINUOUS SUPPORT VERSUS USUAL CARE - ALL TRIALS:

Thirty outcomes were considered. Between 1 and 15 trials contributed to the analyses of each outcome. Because of the large number of outcomes, the following summary of results is restricted to data collected and reported in at least four trials involving at least 1000 women. Please refer to the meta analyses graphs for the full results.

Women who had continuous, one-to-one support during labour were less likely to:

- (1) have regional analgesia/anaesthesia (6 trials, n = 10048; relative risk (RR) = 0.90, 95% confidence interval (CI) 0.81 to 0.99);
- (2) have any analgesia/anaesthesia (11 trials, n = 11051; RR = 0.87, 95% CI 0.79 to 0.96);
- (3) have an operative vaginal birth (14 trials; n = 12757; RR = 0.89, 95% CI 0.83 to 0.96);
- (4) have a caesarean birth (15 trials, n = 12791; RR = 0.90, 95% CI 0.82 to 0.99);
- (5) report dissatisfaction with or negative rating of the childbirth experience (6 trials, n = 9824; RR = 0.73, 95% CI 0.65 to 0.83); and
- (6) they were more likely to have a spontaneous vaginal birth (14 trials; n = 12757; RR=1.08, 95% CI 1.04 to 1.13).

Using the same criteria as above, i.e. at least four trials involving at least 1000 women, continuous support was not associated with decreased likelihood of :

- (1) artificial oxytocin during labour (9 trials, n = 10656; RR = 0.94, 95% CI 0.83 to 1.06);
- (2) low 5-minute Apgar scores (7 trials, n = 10695; RR = 0.81, 95% CI 0.56 to 1.16);
- (3) admission of the newborn to a special care nursery (4 trials, n = 8239; RR = 0.94, 95% CI 0.82 to 1.09); or
- (4) postpartum reports of severe labour pain (4 trials, n = 2497; RR = 0.97, 95% CI 0.77 to 1.23).

Nor was continuous support associated with a significant decrease in labour length (9 trials, n = 10322; weighted mean difference -0.28, 95% CI -0.64 to 0.08).

There were two other outcomes that are noteworthy because, although reported in only one or two trials, the data came from more than 1000 women. The meta analysis of two trials ([Hodnett 2002a](#); [Langer 1998](#)) indicates that continuous support was associated with a reduced likelihood that women will report feeling low levels of personal control during labour and birth (n = 7639, RR = 0.79, 95% CI 0.67 to 0.94). There was a slight decrease in the use of electronic fetal monitoring in the continuous support group in a North American trial ([Hodnett 2002a](#); n = 6915, RR = 0.95, 95% CI 0.92 to 0.97).

There remains relatively little information about the effects of continuous intrapartum support on mothers' and babies' health and well-being in the postpartum period. Perineal trauma, other neonatal outcomes, relationship with partner, urinary and faecal incontinence were assessed in one to three trials each, involving between 189 and 7639 women, and no statistically significant differences were found. No data suitable for incorporation into this Review were available for low cord pH, prolonged perineal pain, postpartum anxiety, or pain during sexual intercourse. [Hodnett 2002a](#) found that continuous support was not associated with a significantly reduced likelihood of postpartum depression (n = 6915; RR = 0.89, 95% CI 0.75, 1.05). However, the South African trial ([Hofmeyr 1991](#)) achieved a remarkable 79% follow up under extremely difficult conditions, and the results (while not included in the meta analyses because loss to follow up was > 20%) suggest important longer-term benefits of continuous support when it is provided in a resource-poor environment, including reduced likelihood of postpartum depression and anxiety, improved self-esteem, increased confidence in mothering, and greater likelihood of successful breastfeeding.

The results of the subgroup analyses are presented below. For two reasons, the number of trials in each subgroup analysis varies: (1) the number of trials that reported any given outcome was highly variable (caesarean delivery was the only outcome reported in all 15 trials); and (2) we were unable to obtain information from all trialists about the routine use of electronic fetal monitoring.

The text below does not present the results for postpartum depression or low Apgar Scores. Since only one trial ([Hodnett 2002a](#)) reported data about postpartum depression from at least 80% of those originally enrolled, subgroup analyses related to this outcome were not possible. None of the subgroup analyses provided evidence of a significant association between continuous support and environmental characteristics in the frequency of low 5-minute Apgar scores. Please refer to the individual meta analysis graphs for these results.

## **COMPARISON 2 - INFLUENCES OF VARIATIONS IN INSTITUTIONAL POLICIES AND PRACTICES**

Note: In all of the comparisons reported below, there were much larger numbers of participants, in settings in which (1) women were permitted to have support people of their own choosing with them in labour, compared to settings in which other support was not permitted; (2) in which epidural analgesia was routinely available, compared to when it was not routinely available; and (3) in which electronic fetal monitoring was routine, compared to when electronic fetal monitoring was not routine. The differing sample sizes should be taken into account, when results are interpreted.

**Outcome: Analgesia/anaesthesia**

1. Policies about whether women were permitted to have support people of their own choosing with them during labour and birth: In settings in which other support people were permitted (6 trials, n = 9152), RR = 0.97, 95% CI 0.95 to 0.99. In settings in which other support people were not permitted (5 trials, n = 1899), RR = 0.72, 95% CI 0.49 to 1.05. The effects of continuous support appeared to be stronger in settings in which other support was not permitted (chi-squared = 3.88,  $P < 0.05$ ).
2. Availability of epidural analgesia: In settings in which epidural analgesia was routinely available (8 trials, n = 10288), RR = 0.89, 95% CI 0.81 to 0.98. In settings in which epidural analgesia was not routinely available (3 trials, n = 763), RR = 0.71, 95% CI 0.54 to 0.93. The effects of continuous support appeared to be stronger in settings in which epidural analgesia was not routinely available (chi-squared = 7.35,  $P < 0.01$ ).
3. Use of routine electronic fetal monitoring: In settings in which EFM was routine (5 trials, n = 7980), RR = 0.86, 95% CI 0.71 to 1.04. In settings in which EFM was not routine (4 trials, n = 1487), RR = 0.82, 95% CI 0.61 to 1.11. The difference between subgroups was not statistically significant (Chi-squared = 0.34, non significant).

**Outcome: Spontaneous vaginal birth**

1. Policies about whether women were permitted to have support people of their own choosing with them during labour and birth: In settings in which other support people were permitted (7 trials, n = 10289), RR = 1.04, 95% CI 1.01 to 1.08. In settings in which other support was not permitted (6 trials, n = 1468), RR = 1.11, 95% CI 1.04 to 1.19. The effects of continuous support appeared to be stronger in settings in which other support was not permitted (chi-squared = 9.48,  $P < 0.01$ ).
2. Availability of epidural analgesia: In settings in which epidural analgesia was routinely available (10 trials, n = 11425), RR = 1.07, 95% CI 1.02 to 1.12. In settings in which epidural analgesia was not routinely available (4 trials, n = 1332), RR = 1.10, 95% CI 1.01 to 1.20. The effects of continuous support appeared to be stronger in settings in which epidural analgesia was not routinely available (chi-squared = 4.69,  $P < 0.05$ ).
3. Use of routine electronic fetal monitoring: In settings in which EFM was routine (7 trials, n = 9117), RR = 1.08, 95% CI 1.01 to 1.15. In settings in which EFM was not routine (4 trials, n = 1487), RR = 1.11, 95% CI 1.02 to 1.20. The effects of continuous support appeared to be stronger in settings in which EFM was not routine (chi-squared = 5.98,  $P < 0.05$ ).



**Outcome: Operative vaginal birth**

1. Policies about whether women were permitted to have support people of their own choosing with them during labour and birth: In the settings in which other support people were permitted (8 trials, n = 10289), RR = 0.91, 95% CI 0.84 to 0.98. In settings in which other support was not permitted (6 trials, n = 2468), RR = 0.68, 95% CI 0.42 to 1.10. The difference between subgroups was not statistically significant (chi-squared = 1.33, non significant).
2. Availability of epidural analgesia: In the settings in which epidural analgesia was routinely available (10 trials, n = 11425), RR = 0.90, 95% CI 0.83 to 0.97. In the settings in which epidural analgesia was not routinely available (4 trials, (n = 1332), RR = 0.87, 95% CI 0.63 to 1.20. The difference between subgroups was not statistically significant (chi-squared = -0.07, non significant).
3. Routine use of EFM: In the settings in which EFM was routine (7 trials, n = 9117), RR = 0.86, 95% CI 0.71 to 1.04. In the settings in which EFM was not routine (4 trials, n = 1487), RR = 0.72, 95% CI 0.38 to 1.36. The difference between subgroups was not statistically significant (chi-squared = 0.43, non significant).

**Outcome: Caesarean birth**

1. Policies about whether women were permitted to have support people of their own choosing with them during labour and birth: In settings in which other support was permitted (9 trials, n = 10323), RR = 0.96, 95% CI 0.87 to 1.07. In settings in which other support was not permitted (6 trials, n = 2468), RR = 0.74, 95% CI 0.61 to 0.89. The effects of continuous support appeared to be stronger in settings which did not permit the presence of additional support people (chi-squared = 4.46, P < 0.05).
2. Availability of epidural analgesia: In settings in which epidural analgesia was routinely available (11 trials, n = 11459), RR = 0.94, 95% CI 0.85 to 1.03. In settings in which epidural analgesia was not routinely available (4 trials, n = 1332), RR = 0.62, 95% CI 0.45 to 0.85. The effects of continuous support appeared to be stronger in settings in which epidural analgesia was not routinely available (chi-squared = 4.97, P < 0.05).
3. Routine use of EFM: In settings in which EFM was routine (8 trials, n = 9151), RR = 0.94, 95% CI 0.84 to 1.04. In settings in which EFM was not routine (4 trials, n = 1487), RR = 0.65, 95% CI 0.41 to 1.04. The difference between subgroups was not statistically significant (chi-squared = 2.34, non significant).

**Outcome: Dissatisfaction with/negative views of childbirth experience**

1. Policies about whether women were permitted to have support people of their own choosing with them during labour and birth: In settings in which women were permitted other support (3 trials, n = 8499), RR = 0.83, 95% CI 0.67 to 1.02. In settings in which other support was not permitted (3 trials, n = 1325), RR = 0.67, 95% CI 0.58 to 0.78. The difference between subgroups was not statistically significant (chi-squared = 3.09, non significant).
2. Availability of epidural analgesia: In settings in which epidural analgesia was routine (5 trials, n =

9635), RR = 0.77, 95% CI 0.67 to 0.88. Only 1 trial (n = 189) in a setting without epidural analgesia reported data about women's views; RR = 0.55, 95% CI 0.42 to 0.72. The effects of continuous support may be stronger in settings in which epidural analgesia was not routinely available (chi-squared = 4.68, P < 0.05).

3. Use of routine EFM: Two trials (n = 7327) were conducted in settings with routine EFM; RR = 0.73, 95% CI 0.55 to 0.95. Two trials (n = 913) were conducted in settings in which EFM was not routine; RR = 0.65, 95% CI 0.47 to 0.91. The difference between subgroups was not statistically significant (chi-squared = 0.52, non significant).

### COMPARISON 3 - IMPACT OF TYPE OF PROVIDER

#### *Outcome: Analgesia/anaesthesia*

When the providers of continuous support were members of the staff of the institution (6 trials, n = 9152), RR = 0.97, 95% CI 0.95 to 0.99. When the providers of support were not staff members (5 trials, n = 1899), RR = 0.72, 95% CI 0.49 to 1.05. The effects of continuous support appear to be stronger when the provider was not a member of the staff (chi-squared = 3.88, P < 0.05).

#### *Outcome: Spontaneous vaginal birth*

When the providers of continuous support were members of the staff (8 trials, n = 10713), RR = 1.03, 95% CI 1.01 to 1.06. When the providers of support were not staff members (6 trials, n = 2044), RR = 1.12, 95% CI 1.07 to 1.18. The effects of continuous support appeared to be stronger when the provider was not a member of the staff (chi-squared = 12.79, P < 0.001).

#### *Outcome: Operative vaginal birth*

When the providers of continuous support were members of the staff (8 trials, n = 10713), RR = 0.92, 95% CI 0.85 to 0.99. When the providers of support were not staff members (6 trials, n = 2044), RR = 0.59, 95% CI 0.42 to 0.81. The effects of continuous support appeared to be stronger when the provider was not a member of the staff (chi-squared = 5.72, P < 0.05).

#### *Outcome: Caesarean birth*

A significant reduction in the likelihood of caesarean birth was only seen in the 7 trials (n = 2078) in which the support providers were not members of the staff; RR = 0.74, 95% CI 0.61 to 0.90. In the other 8 trials (n = 10713), RR = 0.95, 95% CI 0.86 to 1.06. Although the results were of borderline statistical significance, the effects of continuous support appeared to be stronger when the provider was not a member of the staff (chi-squared = 3.63, P = 0.05).

#### *Outcome: Dissatisfaction with/negative rating of childbirth experience*

When the providers of continuous support were members of the staff (3 trials, n = 8499), RR = 0.83, 95% CI 0.67 to 1.02. When the providers of support were not staff members (3 trials, n = 1325), RR = 0.64, 95% CI 0.58 to 0.78. The difference between subgroups was not statistically significant (chi-squared = 3.09, non significant).

**COMPARISON 4 - IMPACT OF TIMING OF ONSET OF CONTINUOUS SUPPORT*****Outcome: Analgesia/anaesthesia***

When continuous support began before active labour (2 trials, n = 574), RR = 0.61, 95% CI 0.30 to 1.26. When continuous support could begin in either early or active labour (3 trials, n = 8499), RR = 0.94, 95% CI 0.82 to 1.03. When continuous support began in active labour (6 trials, n = 1978), RR = 0.85, 95% CI 0.70 to 1.04. The effects of continuous support appeared to be stronger when support began before labour became active (chi-squared = 11.78, P < 0.01).

***Outcome: Spontaneous vaginal birth***

When continuous support began before active labour (4 trials, n = 1711), RR = 1.16, 95% CI 1.08 to 1.24. When continuous support could begin in either early or active labour (4 trials, n = 9068), RR = 1.02, 95% CI 1.00 to 1.05. When continuous support began in active labour (6 trials, n = 1978), RR = 1.07, 95% CI 1.02 to 1.13. The effects of continuous support appear to be stronger when support began before labour became active (chi-squared = 16.61, P < 0.001).

***Outcome: Operative vaginal birth***

When continuous support began before active labour (4 trials, n = 1711), RR = 0.76, 95% CI 0.53 to 1.07. When continuous support could begin in either early or active labour (4 trials, n = 9068), RR = 0.91, 95% CI 0.81 to 1.01. When continuous support began in active labour (6 trials, n = 1978), RR = 0.82, 95% CI 0.52 to 1.30. The differences among subgroups was not statistically significant (chi-squared = 1.08, non significant).

***Outcome: Caesarean birth***

When continuous support began before active labour (5 trials, n = 1745), RR = 0.71, 95% CI 0.56 to 0.90. When continuous support could begin in either early or active labour (4 trials, n = 9068), RR = 0.99, 95% CI 0.88 to 1.11. When continuous support began in active labour (6 trials, n = 1978), RR = 0.81, 95% CI 0.67 to 0.99. The difference between subgroups was of borderline statistical significance (chi-squared = 5.93, P = 0.05), favouring support that began before labour became active.

***Outcome: Dissatisfaction with/negative rating of childbirth experience***

No trials in which continuous support began in early labour reported information about women's views of their childbirth experiences. Only six trials included data suitable for incorporation in this subgroup analysis. In 3 trials (n = 8499) in which continuous support could begin in early or active labour, RR = 0.83, 95% CI 0.67 to 1.02. In 3 trials (n = 1325) in which continuous support began in active labour, RR = 0.67, 95% CI 0.58 to 0.78. The difference between the two subgroups was not statistically significant (chi-squared = 3.09, non significant).

**Discussion**

This Review summarizes results of 15 trials involving 12,791 women, that took place in 11 countries

under a wide variety of circumstances. The methodological quality of the included trials was good to excellent. All trials involved continuous one-to-one support provided by women who were experienced, through having given birth themselves and/or through education and practice as nurses, midwives, doulas, or childbirth educators.

In the primary comparison, women who experienced continuous one-to-one support during labour were more likely to give birth without using analgesia or anesthesia, less likely to have a caesarean or instrumental vaginal birth, and less likely to report dissatisfaction with their childbirth experiences. The trial reports do not list any adverse effects, and none are plausible. This form of care appears to confer important benefits without attendant risks. The results of earlier versions of this Review prompted organizations in Canada, the UK, and the USA to issue practice guidelines, advocating continuous support ([SOGC 1995](#), [MIDIRS 1999](#), [AWHONN 2002](#)). The results of the primary comparison in the current Review offer continued justification for these practice guidelines.

The subgroup analyses should be interpreted with caution, but consistent patterns suggest that the effectiveness of continuous intrapartum support may be enhanced or reduced by policies in the birth setting, type of provider, and timing of onset of support.

We chose three aspects of the birth environment - routine use of electronic fetal monitoring, availability of epidural analgesia, and policies about the presence of additional support people of the woman's own choosing - as proxies for environmental conditions that may mediate the effectiveness of labour support. The Review cannot answer questions about the mechanisms whereby settings with epidural analgesia limit the effectiveness of labour support. The impact of epidural analgesia may be direct ([Howell 2003](#)) or indirect, as part of the 'cascade of interventions' described in the Background. These results raise questions about the ability of labour support to act as a buffer against adverse aspects of routine medical interventions. In contrast, labour support appears to be effective in reducing the adverse consequences of the fear and distress associated with labouring alone in an unfamiliar environment. A report of a qualitative component of one of the included trials ([Langer 1998](#)), aptly titled "Alone, I wouldn't have known what to do", provides further justification for this argument.

A major finding of this Review is that effects of continuous labour support appear to vary by type of provider. The reduction in operative birth and the increase in spontaneous birth were lower in magnitude when women received support from women whose training, role, and/or identity involved responsibilities that extended beyond labour support (i.e. members of the staff of the institution), compared to women who were cared for by women whose training, role and/or identity focused on labour support (i.e. women who were not part of the staff and were there solely to provide support). This Review cannot answer questions about the reasons why support provided by non-staff members was generally more effective than support by institutional staff. Divided loyalties, additional duties besides labour support, self-selection, and the constraints of institutional policies and routine practices may all have played a role. Childbirth environments influence the health care professionals who work in them as well as the women who labour and give birth in them.

This Review provides evidence of a dose-response phenomenon: a strong and prolonged 'dose' of continuous support may be most effective. Continuous labour support appears to be more effective when it is provided by caregivers who are not employees of an institution (and thus have no obligation to anyone other than the labouring woman) and who have an exclusive focus on this task.

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Continuous labour support that begins earlier in labour appears to be more effective than support that begins later in labour.

## **Reviewers' conclusions**

### **Implications for practice**

Continuous support during labour should be the norm, rather than the exception. All women should be allowed and encouraged to have support people with them continuously during labour. In general, continuous support from a caregiver during labour appears to confer the greatest benefits when the provider is not an employee of the institution, when epidural analgesia is not routinely used, and when support begins in early labour.

Policy makers and hospital administrators in high income countries who wish to effect clinically important reductions in inappropriately high caesarean rates should be cautioned that continuous support by nurses or midwives may not achieve this goal, in the absence of other changes to policies and routines. In many settings, the labour ward functions according to a risk-oriented, technology-dominated approach to care. Institutional staff are unlikely to be able to offer labouring women benefits comparable to non-staff members, in the absence of fundamental changes in the organization and delivery of maternity care. Changes to the content of health professionals' education and to the core identity of professionals may also be important. Policy makers and administrators must look at system reform and rigorous attention to evidence-based use of interventions that were originally developed to diagnose or treat problems and are now used routinely during normal labours.

Every effort should be made to ensure that women's birth environments are empowering, nonstressful, afford privacy, communicate respect, and are not characterized by routine interventions that add risk without clear benefit.

In most areas of the world at this time, childbearing women have limited access to trained doulas. Where available, costs of doula services are frequently borne by childbearing families and may be a barrier to access. It may be possible to increase access to one-to-one continuous labour support worldwide by encouraging women to invite a family member or friend to commit to being present at the birth and assuming this role. A comprehensive guidebook for designated companions is available for those with good English literacy ([Simkin 2001](#)).

### **Implications for research**

There remains relatively little information about the effects of continuous intrapartum support on mothers' and babies' health and well-being in the postpartum period. The trials in resource-constrained countries were relatively small, and additional, large trials may be required in such settings, where the cost of providing continuous support may compete with other resource priorities. Particular attention should be paid to outcomes that have been under-researched in resource-poor settings, but are causes of significant morbidity, including urinary and faecal incontinence, pain during intercourse, prolonged perineal pain, and depression. All trials should include economic analyses of the relative costs and benefits.

Questions remain about the best approach to ensuring effective continuous support, under varying conditions. Comparisons of different models of continuous support would be helpful. Specific attention should be given to evaluating support by non-institutional staff. One model that should be

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evaluated is the one most commonly used in North America. The mother selects her doula during pregnancy; they establish a relationship (which is likely to involve the woman's partner, if any) and discuss the mother's and partner's preferences and concerns before labour. The doula brings her experience and training (often to the level of certification) to the labour support role during childbirth, and the mother and doula frequently have telephone and/or face-to-face contact in the early postpartum period. Other models of support, for which there are little or no data, include support by a female family member and support by the husband/partner. All comparisons of different models of the provision of support should include cost-effective analyses.

## Characteristics of included studies

Study ID	Methods	Participants	Interventions	Outcomes	Notes	Allocation concealment
<b>Breart - Belgium</b>	RCT, random allocation by sealed, opaque envelopes, prepared by the co-ordinating centre.	3 trials are reported separately, within 1 publication. Participants were nulliparous, healthy, in spontaneous labour, term, with singleton vertex presentations. Trial in Belgium: n = 264.	Permanent presence of a midwife compared to varying degrees of presence. Fathers were allowed to be present.	Oxytocin, epidural analgesia, labour length, mode of birth, Apgar scores, mothers' views of their experiences.		A
<b>Breart - France</b>	See Breart - Belgium.	See Breart - Belgium. Trial in France: n = 1320.	See Breart - Belgium. Fathers were allowed to be present.	See Breart - Belgium.		A
<b>Breart - Greece</b>	See Breart - Belgium.	See Breart - Belgium. Trial in Greece: n = 569.	See Breart - Belgium. Fathers/family members were not permitted to be present.	See Breart - Belgium, except that mothers' views were not reported.		A
<b>Cogan 1988</b>	RCT, admitting nurse telephoned research assistant who "randomly assigned the women" to the study groups.	34 women (primigravidas and multigravidas) at 26-37 weeks gestation in 2 Texas hospitals. They were in early, uncomplicated preterm labour.	Support provided by a Lamaze childbirth preparation instructor compared to usual intermittent nursing care. Support included continuous presence, acting as a liaison with hospital staff, providing information, and teaching relaxation and breathing measures. Family members allowed to be present.	Fetal distress, caesarean birth, artificial oxytocin, labour length, Apgar scores, neonatal intensive care.		B
<b>Dickinson 2002</b>	RCT. Randomisation on presentation in the labour and delivery unit, "by	992 nulliparous women at term, cephalic fetal presentation, cervical	Group 1: Continuous physical and emotional support by midwifery staff,	Labour length (expressed as median and interquartile range), epidural analgesia,	The stated purpose was to compare the effects of intrapartum analgesic	A



selection from a blocked group of eight sealed opaque envelopes, replenished from blocks of 12." Prospective stratification for spontaneous or induced labour.

dilatation < 5 cm, in a hospital in Perth, Western Australia.

and women were encouraged to use pharmacologic and nonpharmacologic alternatives to epidural analgesia.  
Group 2: Continuous midwifery support was not provided and women were encouraged to have epidural analgesia as their primary method of pain relief in labour.

mode of delivery, 5 min Apgar Score < 7, arterial cord pH.

techniques on labour outcomes. Continuous midwifery support was conceptualized as an analgesic technique. Both groups had access to opioids and nitrous oxide. No data were presented about the number of women who used no pharmacologic analgesia. Because the type of analgesia used was a measure of compliance rather than an outcome, no data on analgesic outcomes are included in this Review.

**Gagnon 1997**

Participants were recruited after admission to the delivery suite. Group assignments were in sequentially numbered, sealed, opaque envelopes. Nurses were hired to provide the experimental intervention; they had a 30 hour training program and quarterly refresher workshops. The training program included critical reviews of the literature concerning the effects of intrapartum medical and nursing practices, as well as discussions of stress and pain management techniques.

413 women admitted to an intrapartum unit at a tertiary care teaching hospital in Montreal, Canada, were randomly allocated to experimental (n = 209) or control (n = 204) groups. All but 3 in the experimental group and 6 in the control group were accompanied by a spouse, relative, or friend during labor. All participants were nulliparous, with singleton fetuses, > 37 weeks gestation, and in labour.

Group 1: One-to-one nursing care from on-call nurses who had been hired and trained for the study, from randomization until 1 hour post birth. The nurse provided the usual nursing care plus physical comfort, emotional support, and instruction on relaxation and coping techniques. The nurse took meal breaks and brief rest breaks. Women in the comparison group received usual nursing care by the regular unit staff, consisting of intermittent support and monitoring.

Caesarean birth, caesarean birth for cephalopelvic disproportion or failure to progress, post-randomization artificial oxytocin augmentation, post-randomization analgesia/anaesthesia, instrumental vaginal delivery (forceps or vacuum extraction), NICU admission, perineal trauma, mean duration of labour post randomization, postpartum urinary catheterization.

The participants had been admitted to the unit for an average of 5 hours (SD = 4 hours) prior to randomization. 36 women in the experimental group and 41 in the control group had epidural analgesia prior to randomization. 55 women in the experimental group and 45 in the control group had intravenous oxytocin augmentation of labour prior to randomization. Mean duration of labour post randomization was 9.2 hours (SD = 4.3).

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<b>Hemminki 1990a</b>	Two RCTs reported in the same publication. RCT; random allocation in both trials was by sealed opaque envelopes.	Healthy nulliparous and parous women in labour at a hospital in Finland. 80 women were enrolled in Trial A.	Trial A: in 1987, support by midwifery students, who were also responsible for other routine intrapartum care, compared to the usual routine care. The students were not specially trained in support. Over 70% of fathers were present.	Labour length, medical interventions, complications (mother and baby), pharmacologic pain relief, method of birth, mothers' evaluations of their experiences.	A	
<b>Hemminki 1990b</b>	See Hemminki 1990a.	See Hemminki 1990a. 161 women were enrolled in Trial B.	Trial B: in 1988, support by a new group of midwifery students. The students were permitted to leave their patients to witness other interventions and deliveries. Slightly less than 70% of fathers were present.	See Hemminki 1990a.	A	
<b>Hodnett 1989</b>	RCT, research assistant telephoned project staff member who used computer-generated table of random numbers.	145 nulliparous women in the last trimester of a healthy pregnancy, booked for delivery at a Toronto, Canada, hospital.	Support provided by a monitrice (community 'lay' midwife or midwifery apprentice) compared to usual hospital care, defined as the intermittent presence of a nurse. Support described as including physical comfort measures, continuous presence, information, emotional support, and advocacy. The monitrice met with the woman twice in the latter weeks of pregnancy, to discuss her birth plans. Comparable prenatal	Intrapartum interventions, perceived control, method of delivery.	All subjects blinded to the intervention. Control subjects received prenatal and postpartum support (after the end of data collection); experimental subjects received prenatal and intrapartum support. Because of > 20% loss to follow up on most outcomes, the only usable outcomes were method of delivery.	C

			attention was provided to the controls. All but 1 woman also had husbands or partners present during labour. Support began in early labour at home or in hospital and continued through delivery.		
<b>Hodnett 2002</b>	Multi-centre RCT with prognostic stratification for parity and centre. Women were randomized when staff member telephoned the computerised, centrally controlled randomization system at the data co-ordinating centre.	6915 nulliparous and parous women in labour at 13 hospitals in the USA and Canada. Eligibility criteria: live singleton fetus or twins, no contraindications to labour, in labour. Women were excluded if gestational age was < 34 weeks or if they were so high-risk that a 1:1 patient-nurse ratio was medically necessary.	Continuous support from staff labour and delivery nurses who had volunteered for and received a 2-day training workshop in labour support, compared to usual intrapartum nursing care, defined as intermittent support from a nurse who had not received labour support training. Prior to the trial, the support nurses had opportunities to practice their skills. They also had opportunities to continue learning from each other and the labour support trainer, throughout the trial. The nurses with training were part of the regular staffing complement of the unit and they provided care to the continuous support group but not to the usual care group.	Intrapartum interventions, method of birth, immediate complications (mother or baby), complications (mother or baby) in the first 6-8 weeks postpartum, perceived control, postpartum depression, breastfeeding at 6-8 weeks, relationship with partner and with baby, likes and dislikes about birth experience and future preferences for labour support .	A
<b>Hofmeyr 1991</b>	RCT, randomization by	189 nulliparous women in	Support by carefully	Intrapartum interventions, The report by Wolman	A

	sealed opaque envelopes.	active labour at a community hospital serving low-income women in South Africa.	trained, volunteer lay women, for at least several hours (supporters not expected to remain after dark), compared to intermittent care on a busy ward. Husbands/family members were not permitted.	method of birth, complications (mother and baby), anxiety, pain, mothers' perceptions of labour, breastfeeding.	1993 is a further report of the Hofmeyr trial.	
<b>Kennell 1991</b>	RCT plus a retrospective non-random additional control group. Random assignment by sealed opaque envelopes.	412 nulliparous women aged 13-34, with singleton, term, healthy pregnancies, many not English-speaking, in active labour at a public hospital in Texas which provides care for low-income patients.	Continuous support by a doula compared to routine intermittent presence of a nurse. Family members were not allowed to be present.	Analgesia/anaesthesia, labour length, artificial oxytocin use, method of birth, complications (mother and baby), neonatal health, number of women who rated their experience as negative.	The description of the setting, the participants, and the type of care echo developing world conditions. This review is restricted to comparisons of the outcomes of the participants who were randomly assigned. In instances in which outcome data (such as analgesia/anaesthesia use) in the published report were only provided for subgroups, the primary author was contacted and he provided complete outcome data for all women who were originally randomized.	A
<b>Klaus 1986</b>	RCT, randomized via sequentially numbered, sealed opaque envelopes. The pool of envelopes contained more assignments	465 healthy nulliparous women in labour at the Social Security Hospital in Guatemala.	Continuous emotional and physical support by a doula compared to usual hospital routines (described as no consistent support). No	Labour length, use of artificial oxytocin, method of birth, problems during labour and birth, fetal distress, Apgar scores,	Mother-infant pairs were excluded when the mother developed a serious complication requiring special care, if the baby's	A

	to the control group. Of the 465 women enrolled in the study, 48 were excluded, leaving 249 in the control group and 168 in the experimental group. Unpublished data on the excluded women were provided by the author, thereby permitting intent-to-treat analyses.		family members permitted to be present.	transfer to neonatal intensive care nursery.	weight was below 5.5 lbs or above 8 lbs, if there were twins or congenital malformations. Because labour length data were only available for 48.4% of the sample (225 of 465), the labour length comparison in this review excludes the data from Klaus 1986.	
<b>Langer 1998</b>	RCT. Randomization was centrally controlled, with sealed opaque envelopes containing computer-generated random numbers. 20/361 in the intervention group and 36/363 controls were lost to follow up at the one month post delivery.	724 women admitted for delivery at a large social security hospital in Mexico City, who met the following criteria: singleton fetus, no previous vaginal delivery, < 6 cm cervical dilatation, and no indications for an elective caesarean delivery.	Group 1: Continuous support from one of ten women who had received doula training (six were retired nurses), throughout labour, birth, and the immediate postpartum period. Support included: emotional support, information, physical comfort measures, social communication, ensuring immediate contact between mother and baby after birth, and offering advice about breastfeeding during a single brief session postnatally. Women in the comparison group received "routine care". Partners and family members were not permitted.	The main outcomes were exclusive and full breastfeeding at one month postpartum. Other outcomes included labour length, epidural anaesthesia, forceps birth, caesarean birth, meconium staining, and Apgar scores, as well as mothers' perceived control during childbirth, anxiety, pain, satisfaction, and self-esteem.		A
<b>Madi 1999</b>	RCT, randomization by opaque, numbered, sealed	109 Black Botswana, mean age 19 years, 80%	Continuous presence of female relative (usually her	Spontaneous vaginal birth, vacuum extraction,		A

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envelopes that were shuffled in the woman's presence. No exclusions post randomization.

unmarried, mostly students, who had met the following criteria: nulliparous, in labour, pregnancy at term, no history of pregnancy complications, cephalic presentation, normal spontaneous labour with cervical dilation 1-6 cm, female relative present who was willing to remain with the woman for the duration of labour.

mother) in addition to usual hospital care. was compared to usual hospital care, which involved staff:patient ratios of 1:4, and no companions permitted during labour.

caesarean birth, analgesia, amniotomy, artificial oxytocin during labour, Apgar scores (1- and 5-minute).

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*NICU: neonatal intensive care unit*

*RCT: randomized controlled trial*

*SD: standard deviation*

## Characteristics of excluded studies

<b>Study ID</b>	<b>Reason for exclusion</b>
<b>Gordon 1999</b>	30% of those enrolled were excluded postrandomization, 73/232 in the doula group and 69/246 in the control group. A letter was sent to the first author, asking for data on the excluded subjects that would permit an intent-to-treat analysis. If and when a response is received, the trial report will be evaluated again.
<b>Lindow 1998</b>	Support was not continuous, and was quite brief in duration. Sixteen women in active labour were randomized to either one hour with a supportive companion or one hour without. The only outcome was maternal oxytocin level for 16 minutes post support or control period.
<b>McGrath 1999</b>	An abstract. Insufficient details to permit evaluation of the quality of the trial, and insufficient details regarding results. Thus far, attempts to locate a full report of the trial have been unsuccessful.
<b>Orenstein 1998</b>	Not a randomized trial. Women chose to either have a doula or have Lamaze preparation for childbirth.
<b>Pinheiro 1996</b>	An abstract of a paper presented at the Xth World Congress of Psychiatry in Madrid, 1996. Preliminary results were reported. Efforts to locate a published report of the full trial have been unsuccessful. The abstract provides insufficient details regarding methods, to permit evaluation of the quality of the trial. The purpose was to compare the effectiveness of female vs male doulas vs routine care without doulas. The doulas were medical and psychology students.
<b>Scott 1999</b>	Not a trial. A review of selected studies of intrapartum support.
<b>Sosa 1980</b>	Strong evidence of selection bias. "A woman was removed from the study if labor was false or prolonged; if .. fetal distress necessitated an intervention such as oxytocin, caesarean delivery, or forceps"; or if the infant was asphyxiated or ill at birth, etc. "If a woman was removed, her group assignment was inserted at random into the pool of unused assignments. Women were enrolled in the study until there were 20 in the control group and 20 in the experimental group." The total study sample of 127 mothers includes 95 in the control group and 32 in the experimental group. Thus assignment was not random.
<b>Trueba 2000</b>	Direct contact with investigator revealed that randomization was not used. On arrival at the hospital, women were asked if they wanted to have a

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doula. If they accepted, a doula was assigned to them. Also support was not continuous throughout active labour for most women, since admission to the labour ward (and assignment of a doula) did not usually occur until 8 cm.

**Tryon 1966**

Not an RCT: "After a random start, the matched groups were alternately assigned to experimental and control groups." Women who developed severe complications in labour (number not specified), such as fetal distress, were dropped from the study.

**Zhang 1996**

Not a trial of continuous one-to-one support. On admission to the labour ward, women received instruction about normal labour, nonpharmacological methods to ease pain, and how to push in second stage, from a team of physicians and nurses. Support was continuous, depending on the women's needs, but not one-to-one.

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*vs: versus*



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## References to studies

### Included studies

#### Breart - Belgium

{published data only}

\* Breart G, Garel M, Mlika-Cabanne N. Evaluation of different policies of management of labour for primiparous women. Trial B: Results of the continuous professional support trial. In: Kaminski M, editor(s). Evaluation in pre-, peri-, and post-natal care delivery systems. France: INSERM, 1992:57-68.

Breart G, Mlika-Cabane N, Thornton J, Trakas D, Alexander S, Mandruzzato P et al. European trials on artificial rupture of membranes and professional support during labour. *Journal of Perinatal Medicine* 1992;20(Suppl 1):37.

Breart G, Mlika-Cabane N, Kaminski M, Alexander S, Herruzo-Nalda A, Mandruzzato P et al. Evaluation of different policies for the management of labour. *Early Human Development* 1992;29:309-12.

Breart G, Mlika-Cabane N, Kaminski M. The evaluation of different policies for the management of labour. In: *Proceedings of 3rd European Health Services Research Meeting*; 1991; London, UK, 1991.

#### Breart - France

{published data only}

\* Breart G, Garel M, Mlika-Cabanne N. Evaluation of different policies of management of labour for primiparous women. Trial B: Results of the continuous professional support trial. In: Kaminski M, editor(s). Evaluation in pre-, peri-, and post-natal care delivery systems. France: INSERM, 1992:57-68.

Breart G, Mlika-Cabane N, Thornton J, Trakas D, Alexander S et al. European trials on artificial rupture of membranes and professional support during labour. *Journal of Perinatal Medicine* 1992;20(Suppl 1):37.

Breart G, Mlika-Cabane N, Kaminski M, Alexander S, Herruzo-Nalda A, Mandruzzato P et al. Evaluation of different policies for the management of labour. *Early Human Development* 1992;29:309-12.

Breart G, Mlika-Cabane N, Kaminski M. The evaluation of different policies for the management of labour. In: *Proceedings of 3rd European Health Services Research Meeting*; 1991; London, UK, 1991.

#### Breart - Greece

{published data only}

\* Breart G, Garel M, Mlika-Cabanne N. Evaluation of different policies of management of labour for primiparous women. Trial B: Results of the continuous professional support trial. In: Kaminski M, editor(s). Evaluation in pre-, peri-, and post-natal care delivery systems. France: INSERM, 1992:57-68.

Breart G, Mlika-Cabane N, Thornton J, Trakas D, Alexander S et al. European trials on artificial

rupture of membranes and professional support during labour. *Journal of Perinatal Medicine* 1992;20(Suppl 1):37.

Breart G, Mlika-Cabane N, Kaminski M, Alexander S, Herruzo-Nalda A, Mandruzzato P et al. Evaluation of different policies for the management of labour. *Early Human Development* 1992;29:309-12.

Breart G, Mlika-Cabane N, Kaminski M. The evaluation of different policies for the management of labour. In: *Proceedings of 3rd European Health Services Research Meeting*; 1991; London, UK, 1991.

**Cogan 1988** {published and unpublished data}

Cogan R, Spinnato JA. Social support during premature labor: effects on labor and the newborn. *Journal of Psychosomatic Obstetrics and Gynaecology* 1988;8:209-16.

**Dickinson 2002** {published data only}

Dickinson JE, Paech MJ, McDonald SJ, Evans SF. The impact of intrapartum analgesia on labour and delivery outcomes in nulliparous women. *Australian and New Zealand Journal of Obstetrics and Gynaecology* 2002;42(1):59-66.

**Gagnon 1997** {published and unpublished data}

\* Gagnon A, Waghorn K, Covell C. A randomized trial of one-to-one nurse support of women in labor. *Birth* 1997;24:71-7.

Gagnon A, Waghorn K. One-to-one nurse labor support of nulliparous women stimulated with oxytocin. *Journal of Obstetric, Gynecologic and Neonatal Nursing* 1999;28:371-6.

**Hemminki 1990a** {published data only}

Hemminki E, Virta AL, Koponen P, Malin M, Kojo-Austin H, Tuimala R. A trial on continuous human support during labor: feasibility, interventions and mothers' satisfaction. (Trial A - Pilot study with volunteered midwifery students). *Journal of Psychosomatic Obstetrics and Gynaecology* 1990;11:239-50.

**Hemminki 1990b** {published data only}

Hemminki E, Virta AL, Koponen P, Malin M, Kojo-Austin H, Tuimala R. A trial on continuous human support during labor: feasibility, interventions and mothers' satisfaction. (Trial A - Pilot study with volunteered midwifery students). *Journal of Psychosomatic Obstetrics and Gynaecology* 1990;11:239-50.

**Hodnett 1989** {published data only}

Hodnett ED, Osborn RW. A randomized trial of the effects of monitrice support during labor: mothers'

views two to four weeks postpartum. *Birth* 1989;16:177-83.

Hodnett ED, Osborn RW. Effects of continuous intrapartum professional support on childbirth outcomes. *Research in Nursing and Health* 1989;12:289-97.

**Hodnett 2002**

{published and unpublished data}

Hodnett ED, Lowe NK, Hannah ME, Willan AR, Stevens B et al. Effectiveness of nurses as providers of birth labor support in North American hospitals. A randomized controlled trial. *Journal of the American Medical Association* 2002;288(11):1373-81.

**Hofmeyr 1991**

{published and unpublished data}

Chalmers B, Wolman WL, Hofmeyr GJ, Nikodem C. Companionship in labour and the mother-infant relationship: preliminary report of a randomised trial. *Proceedings of the 9th Conference on Priorities in Perinatal Care*; 1990; South Africa, 1990:139-41.

Chalmers B, Wolman WL, Hofmeyr GJ, Nikodem C. Companionship in labour: Effect on the mother-infant relationship. *Proceedings of the International Conference on Primary Care Obstetrics and Perinatal Health*; 1991; Utrecht, The Netherlands, 1991:50.

Gulmezoglu AM, Chalmers BE, Nikodem VC, Wolman WL, Hofmeyr GJ. Companionship in labour: do the personality characteristics of labour supporters influence effectiveness? *Proceedings of the 11th Conference on Priorities in Perinatal Care in South Africa*; 1992; Caledon, South Africa, 1992:115-6.

Hofmeyr GJ, Nikodem VC, Chalmers BE, Kramer T. Clinically orientated care during labour reduces the chance of successful breastfeeding. *Proceedings of the 10th Conference on Priorities in Perinatal Care in South Africa*; 1991; Eastern Transvaal, South Africa, 1991:107-9.

\* Hofmeyr GJ, Nikodem VC, Wolman WL, Chalmers BE, Kramer T. Companionship to modify the clinical birth environment: effects on progress and perceptions of labour, and breastfeeding. *British Journal of Obstetrics and Gynaecology* 1991;98:756-64.

Hofmeyr GJ, Nikodem VC, Mahomed K, Gulmezoglu AM, et al. Companionship to modify the clinical birth environment: no measurable effect on stress hormone levels. *Journal of Obstetrics and Gynaecology* 1995;15:178-81.

Hofmeyr GJ, Nikodem C, Gulmezoglu M, Wolman WL. Companionship to modify the clinical birth environment: long-term effects on mother and child. *Proceedings of the 11th Conference on Priorities in Perinatal Care in South Africa*; 1992; Caledon, South Africa, 1992:113-4.

Hofmeyr GJ, Nikodem C, Gulmezoglu M, Wolman WL. Companionship to modify the clinical birth environment: Long-term effects on mother and child. *Proceedings of the 26th British Congress of Obstetrics and Gynaecology*; 1992; Manchester, UK, 1992:34.

Nikodem VC, Nolte AG, Wolman W, Gulmezoglu AM, Hofmeyr GJ. Companionship by a lay labour

supporter to modify the clinical birth environment: long-term effects on mother and child. *Curationis* 1998;21(1):8-12.

Wolman WL, Chalmers B, Hofmeyr J, Nikodem VC. Postpartum depression and companionship in the clinical birth environment: a randomized, controlled study. *American Journal of Obstetrics and Gynecology* 1993;168:1388-93.

**Kennell 1991** {published and unpublished data}

\* Kennell J, Klaus M, McGrath S, Robertson S, Hinkley C. Continuous emotional support during labor in a US hospital. *JAMA* 1991;265:2197-201.

Kennell J, Klaus M, McGrath S, Robertson S, Hinkley C. Medical intervention: the effect of social support during labour. *Proceedings of annual meeting of American Pediatric Society/Society for Pediatric Research*; 1988 May; USA, 1988.

Kennell J, McGrath S, Klaus M, Robertson S, Hinkley C. Labor support: What's good for the mother is good for the baby. *Pediatric Research* 1989;25:15A.

**Klaus 1986** {published and unpublished data}

Klaus MH, Kennell JH, Robertson SS, Sosa R. Effects of social support during parturition on maternal and infant morbidity. *BMJ* 1986;293:585-7.

**Langer 1998** {published and unpublished data}

Campero L, Garcia C, Diaz C, Ortiz O, Reynoso S, Langer A. "Alone, I wouldn't have known what to do": a qualitative study on social support during labor and delivery in Mexico. *Social Science and Medicine* 1998;47:395-403.

\* Langer A, Campero L, Garcia C, Reynoso S. Effects of psychosocial support during labour and childbirth on breastfeeding, medical interventions, and mothers' wellbeing in a Mexican public hospital: a randomised clinical trial. *British Journal of Obstetrics and Gynaecology* 1998;105:1056-63.

**Madi 1999** {published and unpublished data}

Madi BC, Sandall J, Bennett R, MacLeod C. Effects of female relative support in labor: a randomized controlled trial. *Birth* 1999;26:4-8.

## Excluded studies

**Gordon 1999** {published data only}

Gordon NP, Walton D, McAdam E, Derman J, Gallitero G, Garrett L. Effects of providing hospital-based doulas in health maintenance organization hospitals. *Obstetrics & Gynecology*

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1999;93:422-6.

**Lindow 1998** {published data only}

Lindow SW, Hendricks MW, Thompson JW, van der Spuy ZM. The effect of emotional support on maternal oxytocin levels in labouring women. *European Journal of Obstetrics & Gynecology and Reproductive Biology* 1998;79:127-9.

**McGrath 1999** {published data only}

McGrath S, Kennell J, Suresh M, Moise K, Hinkley C. Doula support vs epidural analgesia: impact on cesarean rates. *Pediatric Research* 1999;45(4):16A.

**Orenstein 1998** {published data only}

Manning Orenstein G. A birth intervention: the therapeutic effects of doula support versus Lamaze preparation on first-time mothers' working models of caregiving. *Alternative Therapies in Medicine* 1998;4(4):73-81.

**Pinheiro 1996** {published data only}

Pinheiro RT, Sousa PLR, Horta B, de Souza RM, de Sousa MGR, de Sousa FR. Male and female young doulas - effective on labour? [abstract] Xth World Congress of Psychiatry; 1996 August 23-28; Madrid, Spain, 1996.

**Scott 1999** {published data only}

Scott KD, Klaus PH, Klaus MH. The obstetrical and postpartum benefits of continuous support during childbirth. *Journal of Women's Health & Gender-Based Medicine* 1999;8(10):1257-64.

**Sosa 1980** {published data only}

Sosa R, Kennell J, Klaus M, Urrutia J. The effect of a supportive woman on mothering behavior and the duration and complications of labor. *Pediatric Research* 1979;13:338.

\* Sosa R, Kennell JH, Klaus MH, Robertson S, Urrutia J. The effect of a supportive companion on perinatal problems, length of labor, and mother-infant interaction. *New England Journal of Medicine* 1980;303:597-600.

**Trueba 2000** {published and unpublished data}

Trueba G, Contreras C, Velazco MT, Lara EG, Martinez HB. Alternative strategy to decrease cesarean section: support by doulas during labor. *Journal of Perinatal Education* 2000;9(2):8-13.

**Tryon 1966** {published data only}

Tryon PA. Use of comfort measures as support during labor. *Nursing Research* 1966;15(2):109-18.

---

**Zhang 1996**

{published data only}

Zhang CL, Yu ZJ, Feng AH. Study of psychological nursing to ease pain during labour (translation).  
Chinese Journal of Nursing 1996;31(6):311-3.

*\* indicates the primary reference for the study*

## **Other references**

### **Additional references**

#### **AWHONN 2002**

Association of Women's Health, Obstetric, and Neonatal Nurses. Professional nursing support of laboring women. <http://www.awhonn.org> [accessed 2002].

#### **Caton 2002**

Caton D, Corry MP, Frigoletto FD, Hopkins DP, Lieberman E, Mayberry L et al. The nature and management of labor pain: executive summary. *American Journal of Obstetrics and Gynecology* 2002;186(5):S1-15.

#### **Clarke 2002**

Clarke M, Oxman AD, editors. *Cochrane Reviewer's Handbook* 4.1.5 [updated April 2002]. In: *The Cochrane Library*, Issue 2, 2002. Oxford: Update Software. Updated quarterly.

#### **Declercq 2002**

Declercq ER, Sakala C, Corry MP, Applebaum S, Risher P. Listening to mothers: report of the first national US survey of women's childbearing experiences. New York: Maternity Center Association, October 2002.

#### **Deeks 2001**

Deeks JJ, Altman DG, Bradburn MJ. Statistical methods for examining heterogeneity and combining results from several studies in meta-analysis. In: Egger M, Davey Smith G, Altman DG, editor(s). *Systematic reviews of health care: meta-analysis in context*. London: BMJ Books, 2001.

#### **Hodnett 1997**

Hodnett E. Are nurses effective providers of labor support? Should they be? Can they be? *Birth* 1997;24:78-80.

#### **Hodnett 2002a**

Hodnett ED. Pain and women's satisfaction with the experience of childbirth: a systematic review. *American Journal of Obstetrics and Gynecology* 2002;186(5):S160-72.

#### **Howell 2003**

Howell CJ. Epidural versus non-epidural analgesia for pain relief in labour (Cochrane Review). In: *The Cochrane Library*, Issue 1, 2003. Oxford: Update Software.

### **Klaus 2002**

Klaus MH, Kennell JH, Klaus PH. The doula book: how a trained labor companion can help you have a shorter, easier and healthier birth. 2nd edition. Cambridge, MA: Perseus Books, 2002.

### **Lederman 1978**

Lederman RP, Lederman E, Work BA, Jr, McCann DS. The relationship of maternal anxiety, plasma catecholamines, and plasma cortisol to progress in labor. *American Journal of Obstetrics and Gynecology* 1978;132(5):495-500.

### **Lederman 1981**

Lederman E, Lederman RP, Work BA, Jr, McCann DS. Maternal psychological and physiologic correlates of fetal-newborn health status. *American Journal of Obstetrics and Gynecology* 1981;139(8):956-8.

### **McGinnis 2001**

McGinnis S. On being a doula. *MIDIRS Midwifery digest* 2001;11(3):362-4.

### **MIDIRS 1999**

MIDIRS and the NHS Centre for Reviews and Dissemination. Support in labour: informed choice for professionals leaflet. *Midwives Information and Resource Service* 1999.

### **Simkin 2001**

Simkin P. The birth partner: everything you need to know to help a woman through childbirth. 2nd edition. Boston: Harvard Common Press, 2001.

### **SOGC 1995**

Society of Obstetricians and Gynaecologists of Canada. SOGC policy statement: fetal health surveillance in labour. *SOGC News* 1995:41-5.

### **WHO 2002**

Effective Care Research Unit and the Reproductive Health Research Unit. Better Births Initiative. WHO Reproductive Health Library (Issue 5, 2002) Geneva: WHO.

## **Other published versions of this review**

### **Hodnett 2003**

Hodnett ED. Caregiver support for women during childbirth. In: *The Cochrane Library*, Issue 2, 2003.



Oxford: Update Software.

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## Table of comparisons

### 01 Continuous support versus usual care - all trials

- 01 Amniotomy
- 02 Artificial oxytocin during labour
- 03 Regional analgesia/anaesthesia
- 04 Any analgesia/anaesthesia
- 05 Electronic fetal monitoring
- 06 Labour length
- 07 Spontaneous vaginal birth
- 08 Operative vaginal birth
- 09 Caesarean birth
- 10 Episiotomy
- 11 Perineal trauma
- 12 Low 5-minute Apgar score
- 13 Low cord pH
- 14 Admission to special care nursery
- 15 Prolonged neonatal hospital stay
- 16 Postpartum report of severe labour pain
- 17 Postpartum report of difficulty in coping with labour
- 18 Postpartum report of low control during labour
- 19 Postpartum report of high anxiety during labour
- 20 Dissatisfaction with/negative views of birth experience
- 21 Prolonged perineal pain
- 22 Difficulty mothering
- 23 Not breastfeeding at 1-2 months postpartum
- 24 Postpartum depression
- 25 Postpartum anxiety/tension
- 26 Low postpartum self-esteem
- 27 Poor relationship with partner postpartum
- 28 Pain during sexual intercourse
- 29 Postpartum urinary incontinence
- 30 Postpartum faecal incontinence

### 02 Continuous support during labour versus usual care - variations in institutional policies and practices

- 01 Use of analgesia/anaesthesia
  - 01 Other support permitted
  - 02 Other support not permitted
  - 03 Epidural analgesia routinely available
  - 04 Epidural analgesia not routinely available
  - 05 Setting had routine EFM

- 06 Setting did not have routine EFM
- 02 Spontaneous vaginal birth
  - 01 Other support permitted
  - 02 Other support not permitted
  - 03 Epidural analgesia routinely available
  - 04 Epidural analgesia not routinely available
  - 05 Setting had routine EFM
  - 06 Setting did not have routine EFM
- 03 Operative vaginal birth
  - 01 Other support permitted
  - 02 Other support not permitted
  - 03 Epidural analgesia routinely available
  - 04 Epidural analgesia not routinely available
  - 05 Setting had routine EFM
  - 06 Setting did not have routine EFM
- 04 Caesarean birth
  - 01 Other support permitted
  - 02 Other support not permitted
  - 03 Epidural analgesia routinely available
  - 04 Epidural analgesia not routinely available
  - 05 Setting had routine EFM
  - 06 Setting did not have routine EFM
- 05 Low 5-minute Apgar score
  - 01 Other support permitted
  - 02 Other support not permitted
  - 03 Epidural analgesia routinely available
  - 04 Epidural analgesia not routinely available
  - 05 Setting had routine EFM
  - 06 Setting did not have routine EFM
- 06 Dissatisfaction with/negative views of childbirth experience
  - 01 Other support permitted
  - 02 Other support not permitted
  - 03 Epidural analgesia routinely available
  - 04 Epidural analgesia not routinely available
  - 05 Setting had routine EFM
  - 06 Setting did not have routine EFM
- 07 Postpartum depression
  - 01 Other support permitted
  - 02 Other support not permitted
  - 03 Epidural analgesia routinely available
  - 04 Epidural analgesia not routinely available

- 05 Setting had routine EFM
- 06 Setting did not have routine EFM
- 03 Continuous support during labour versus usual care - variations in type of provider
  - 01 Use of analgesia/anaesthesia
    - 12 Support people were hospital staff
    - 13 Support people were not hospital staff
  - 02 Spontaneous vaginal birth
    - 01 Support people were hospital staff
    - 02 Support people were not hospital staff
  - 03 Operative vaginal birth
    - 01 Support people were hospital staff
    - 02 Support people were not hospital staff
  - 04 Caesarean birth
    - 01 Support people were hospital staff
    - 02 Support people were not hospital staff
  - 05 Low 5-minute Apgar score
    - 01 Support people were hospital staff
    - 02 Support people were not hospital staff
  - 06 Dissatisfaction with/negative views of childbirth experience
    - 01 Support people were hospital staff
    - 02 Support people were not hospital staff
  - 07 Postpartum depression
    - 01 Support people were hospital staff
    - 02 Support people were not hospital staff
- 04 Continuous support during labour versus usual care - variations in timing of onset of support
  - 01 Use of analgesia/anaesthesia
    - 01 Support began before active labour
    - 02 Support began at any time in first stage labour
    - 03 Support began in active labour
  - 02 Spontaneous vaginal birth
    - 01 Support began before active labour
    - 02 Support began at any time in first stage labour
    - 03 Support began in active labour
  - 03 Operative vaginal birth
    - 01 Support began before active labour
    - 02 Support began at any time in first stage labour
    - 03 Support began in active labour
  - 04 Caesarean birth
    - 01 Support began before active labour
    - 02 Support began at any time in first stage labour
    - 03 Support began in active labour

- 05 Low 5-minute Apgar score
  - 01 Support began before active labour
  - 02 Support began at any time in first stage labour
  - 03 Support began in active labour
- 06 Dissatisfaction with/negative views of childbirth experience
  - 01 Support began before active labour
  - 02 Support began at any time in first stage labour
  - 03 Support began in active labour
- 07 Postpartum depression
  - 01 Support began before active labour
  - 02 Support began at any time in first stage labour
  - 03 Support began in active labour

## **Notes**

### **Unpublished CRG notes**

Exported from Review Manager 4.2.1

### **Published notes**

#### **Amended sections**

Cover sheet

Background

Objectives

Criteria for considering studies for this review

Methods of the review

Description of studies

Methodological quality of included studies

Results

Discussion

Reviewers' conclusions

Acknowledgements

References to studies

Other references

Characteristics of included studies

Characteristics of excluded studies

Comparisons, data or analyses

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## Review: Continuous support for women during childbirth

Total number of included studies: 15

Comparison or outcome	Studies	Participants	Statistical method	Effect size
01 Continuous support versus usual care - all trials				
01 Amniotomy	2	298	RR (random), 95% CI	0.78 [0.43, 1.43]
02 Artificial oxytocin during labour	9	10656	RR (random), 95% CI	0.94 [0.83, 1.06]
03 Regional analgesia/anaesthesia	6	10048	RR (random), 95% CI	0.90 [0.81, 0.99]
04 Any analgesia/anaesthesia	11	11051	RR (random), 95% CI	0.87 [0.79, 0.96]
05 Electronic fetal monitoring	1	6915	RR (fixed), 95% CI	0.95 [0.92, 0.97]
06 Labour length	9	10322	WMD (random), 95% CI	-0.28 [-0.64, 0.08]
07 Spontaneous vaginal birth	14	12757	RR (random), 95% CI	1.08 [1.04, 1.13]
08 Operative vaginal birth	14	12757	RR (fixed), 95% CI	0.89 [0.83, 0.96]
09 Caesarean birth	15	12791	RR (fixed), 95% CI	0.90 [0.82, 0.99]
10 Episiotomy	1	6915	RR (fixed), 95% CI	0.97 [0.90, 1.05]
11 Perineal trauma	2	7328	RR (fixed), 95% CI	0.99 [0.95, 1.03]
12 Low 5-minute Apgar score	7	10695	RR (fixed), 95% CI	0.81 [0.56, 1.16]
13 Low cord pH	0	0	RR (random), 95% CI	Not estimable
14 Admission to special care nursery	4	8239	RR (fixed), 95% CI	0.94 [0.82, 1.09]
15 Prolonged neonatal hospital stay	1	412	RR (fixed), 95% CI	0.61 [0.37, 1.01]
16 Postpartum report of severe labour pain	4	2497	RR (random), 95% CI	0.97 [0.77, 1.23]
17 Postpartum report of difficulty in coping with labour	1	189	RR (fixed), 95% CI	0.55 [0.42, 0.72]
18 Postpartum report of low control during labour	2	7639	RR (fixed), 95% CI	0.79 [0.67, 0.94]
19 Postpartum report of high anxiety during labour	3	1773	RR (random), 95% CI	0.88 [0.43, 1.78]
20 Dissatisfaction with/negative views of birth experience	6	9824	RR (fixed), 95% CI	0.73 [0.65, 0.83]
21 Prolonged perineal pain	0	0	RR (random), 95% CI	Not estimable
22 Difficulty mothering	1	6915	RR (random), 95% CI	1.03 [0.95, 1.11]
23 Not breastfeeding at 1-2 months postpartum	2	7639	RR (fixed), 95% CI	1.06 [0.99, 1.13]
24 Postpartum depression	1	6915	RR (fixed), 95% CI	0.89 [0.75, 1.05]
25 Postpartum anxiety/tension	0	0	RR (random), 95% CI	Not estimable
26 Low postpartum self-esteem	1	724	RR (fixed), 95% CI	1.07 [0.82, 1.40]
27 Poor relationship with partner postpartum	1	6915	RR (fixed), 95% CI	1.00 [0.80, 1.23]
28 Pain during sexual intercourse	0	0	RR (random), 95% CI	Not estimable
29 Postpartum urinary incontinence	1	6915	RR (fixed), 95% CI	0.93 [0.81, 1.06]
30 Postpartum faecal incontinence	1	6915	RR (fixed), 95% CI	0.89 [0.64, 1.24]
02 Continuous support during labour versus usual care - variations in institutional policies and practices				
01 Use of analgesia/anaesthesia			RR (random), 95% CI	Subtotals only

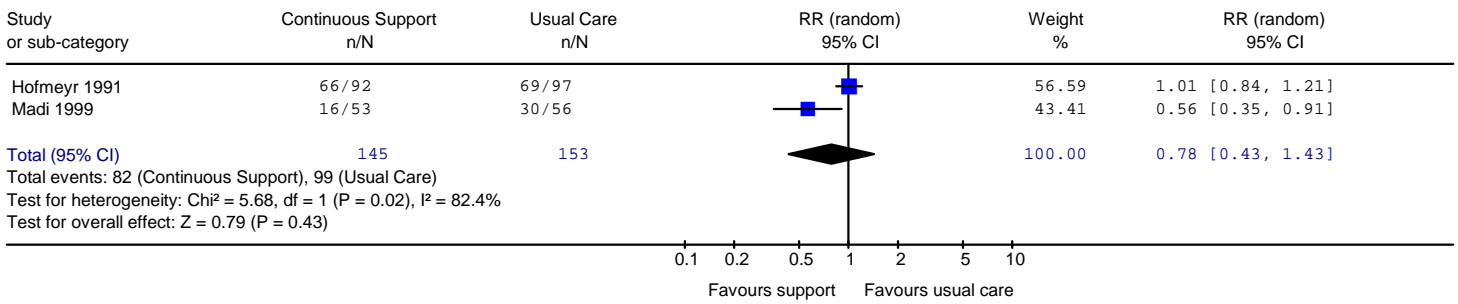


## Review: Continuous support for women during childbirth

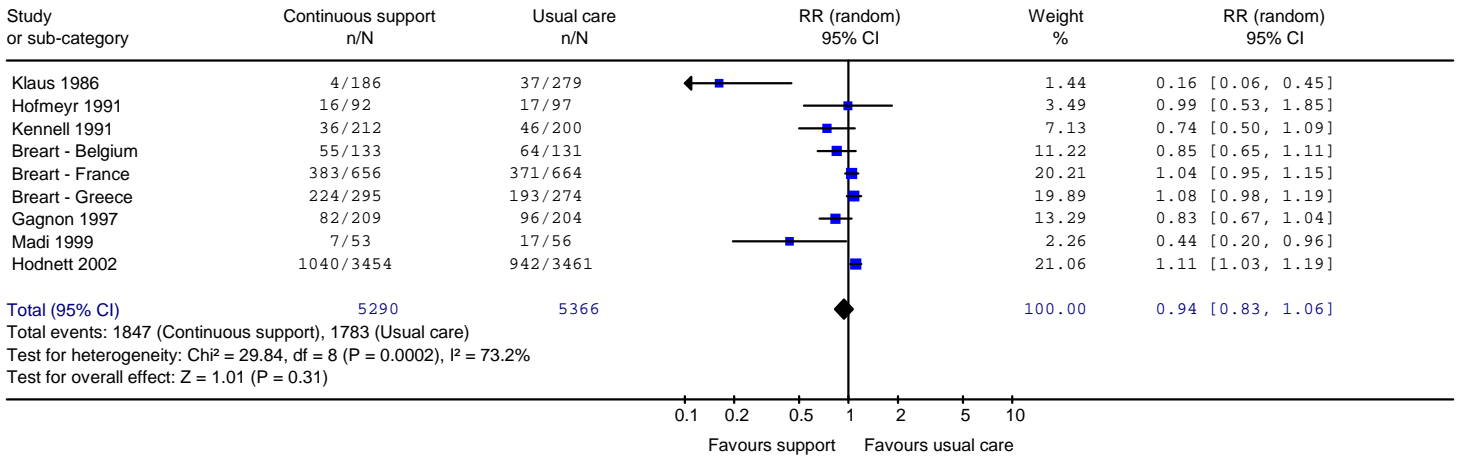
Total number of included studies: 15

Comparison or outcome	Studies	Participants	Statistical method	Effect size
02 Spontaneous vaginal birth			RR (random), 95% CI	Subtotals only
03 Operative vaginal birth			RR (random), 95% CI	Subtotals only
04 Caesarean birth			RR (random), 95% CI	Subtotals only
05 Low 5-minute Apgar score			RR (random), 95% CI	Subtotals only
06 Dissatisfaction with/negative views of childbirth experience			RR (fixed), 95% CI	Subtotals only
07 Postpartum depression			RR (fixed), 95% CI	Subtotals only
03 Continuous support during labour versus usual care - variations in type of provider				
01 Use of analgesia/anaesthesia			RR (random), 95% CI	Subtotals only
02 Spontaneous vaginal birth			RR (fixed), 95% CI	Subtotals only
03 Operative vaginal birth			RR (fixed), 95% CI	Subtotals only
04 Caesarean birth			RR (fixed), 95% CI	Subtotals only
05 Low 5-minute Apgar score			RR (fixed), 95% CI	Subtotals only
06 Dissatisfaction with/negative views of childbirth experience			RR (fixed), 95% CI	Subtotals only
07 Postpartum depression			RR (fixed), 95% CI	Subtotals only
04 Continuous support during labour versus usual care - variations in timing of onset of support				
01 Use of analgesia/anaesthesia			RR (random), 95% CI	Subtotals only
02 Spontaneous vaginal birth			RR (fixed), 95% CI	Subtotals only
03 Operative vaginal birth			RR (random), 95% CI	Subtotals only
04 Caesarean birth			RR (fixed), 95% CI	Subtotals only
05 Low 5-minute Apgar score			RR (fixed), 95% CI	Subtotals only
06 Dissatisfaction with/negative views of childbirth experience			RR (fixed), 95% CI	Subtotals only
07 Postpartum depression			RR (fixed), 95% CI	Subtotals only

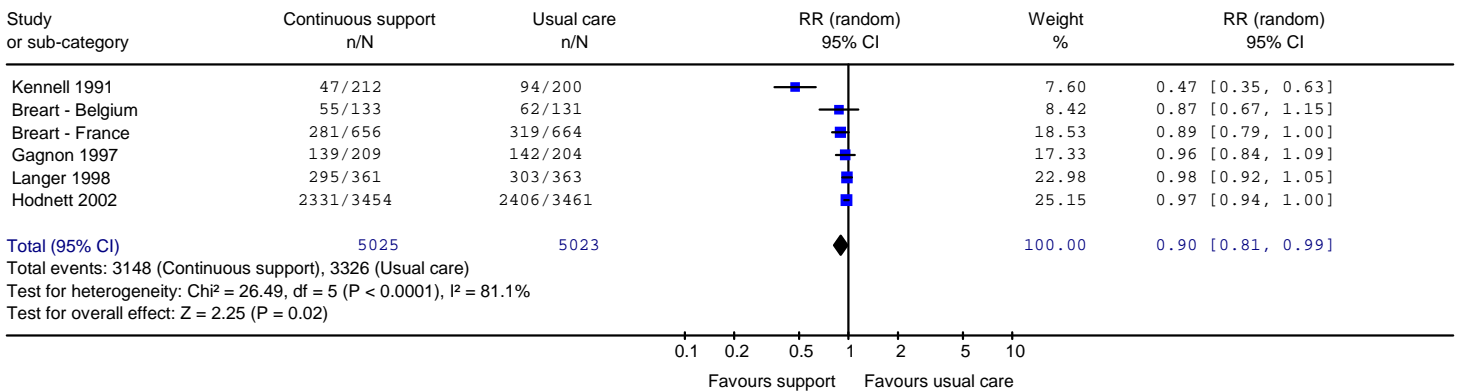
Review: Continuous support for women during childbirth  
 Comparison: 01 Continuous support versus usual care - all trials  
 Outcome: 01 Amniotomy



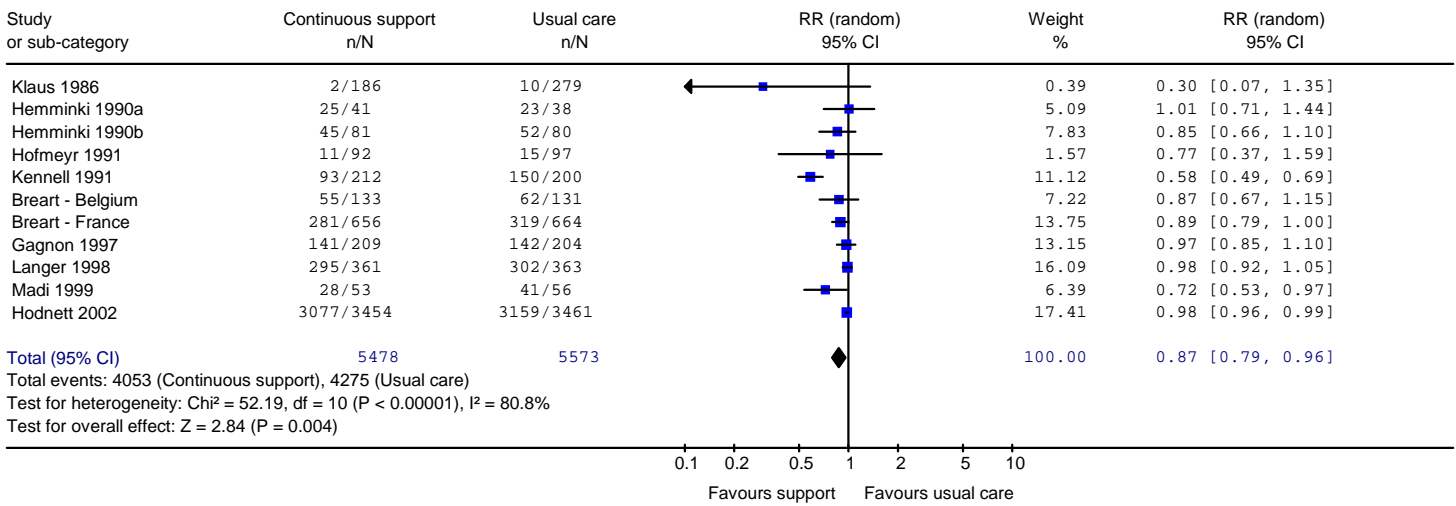
Review: Continuous support for women during childbirth  
 Comparison: 01 Continuous support versus usual care - all trials  
 Outcome: 02 Artificial oxytocin during labour



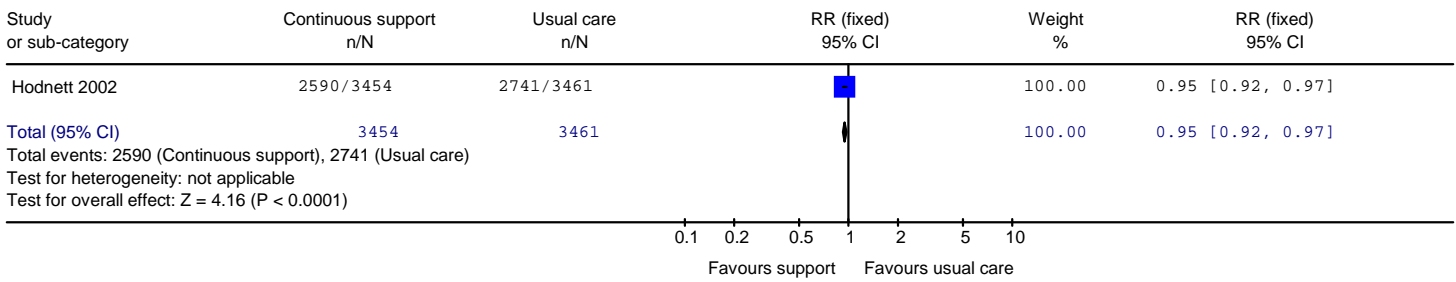
Review: Continuous support for women during childbirth  
 Comparison: 01 Continuous support versus usual care - all trials  
 Outcome: 03 Regional analgesia/anaesthesia



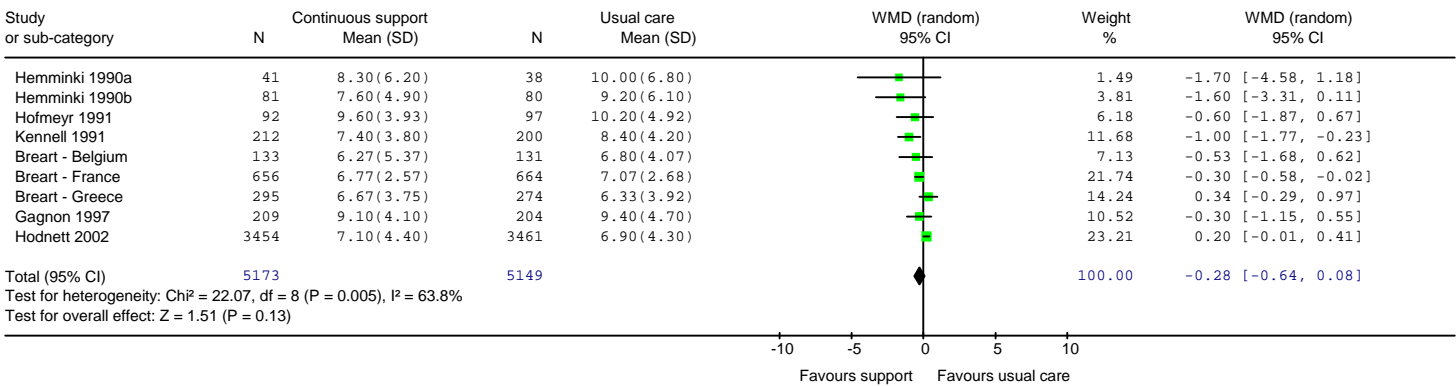
Review: Continuous support for women during childbirth  
 Comparison: 01 Continuous support versus usual care - all trials  
 Outcome: 04 Any analgesia/anaesthesia



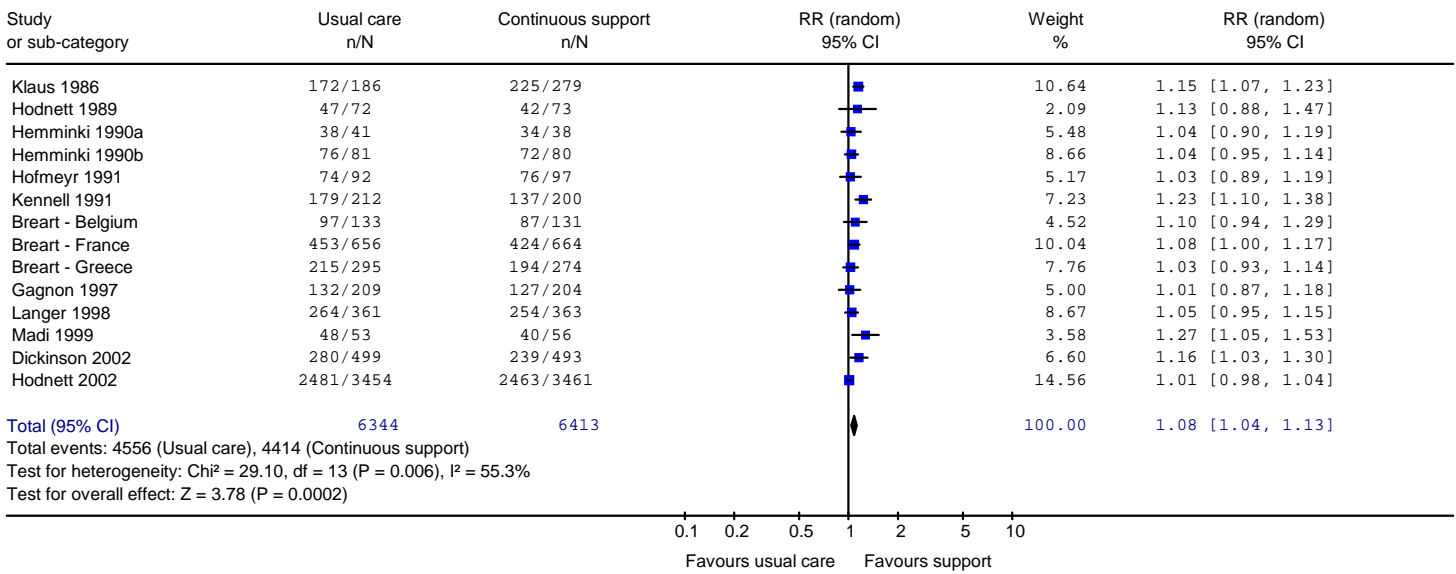
Review: Continuous support for women during childbirth  
 Comparison: 01 Continuous support versus usual care - all trials  
 Outcome: 05 Electronic fetal monitoring



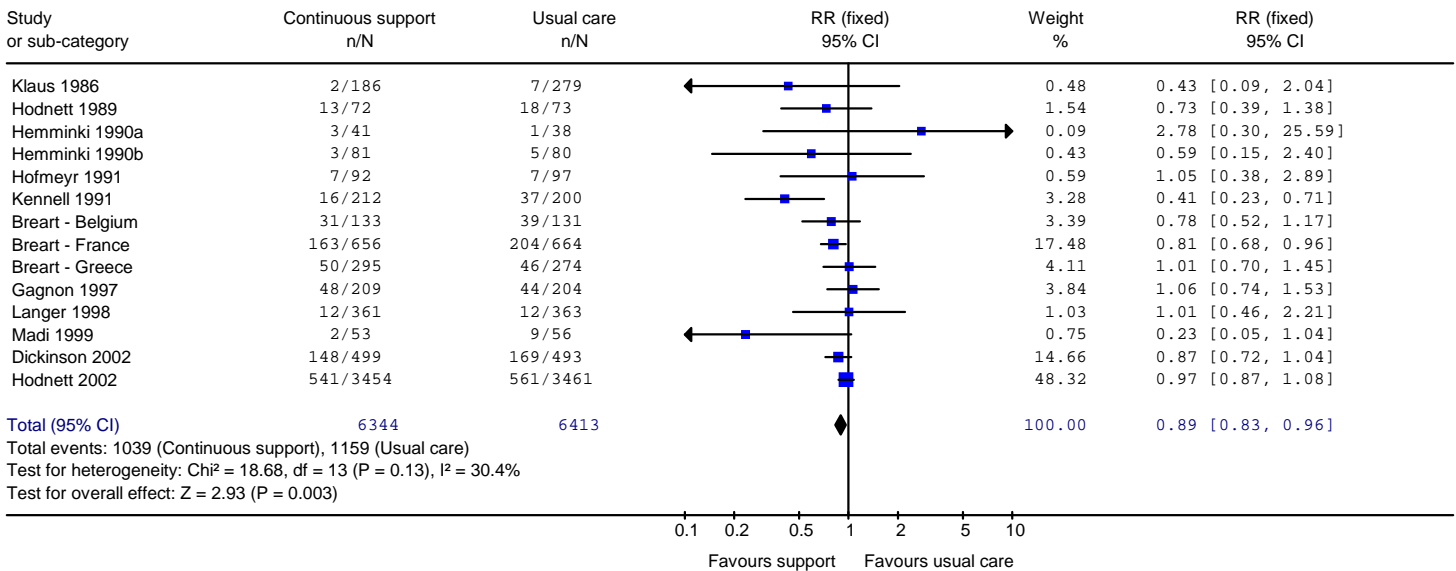
Review: Continuous support for women during childbirth  
 Comparison: 01 Continuous support versus usual care - all trials  
 Outcome: 06 Labour length



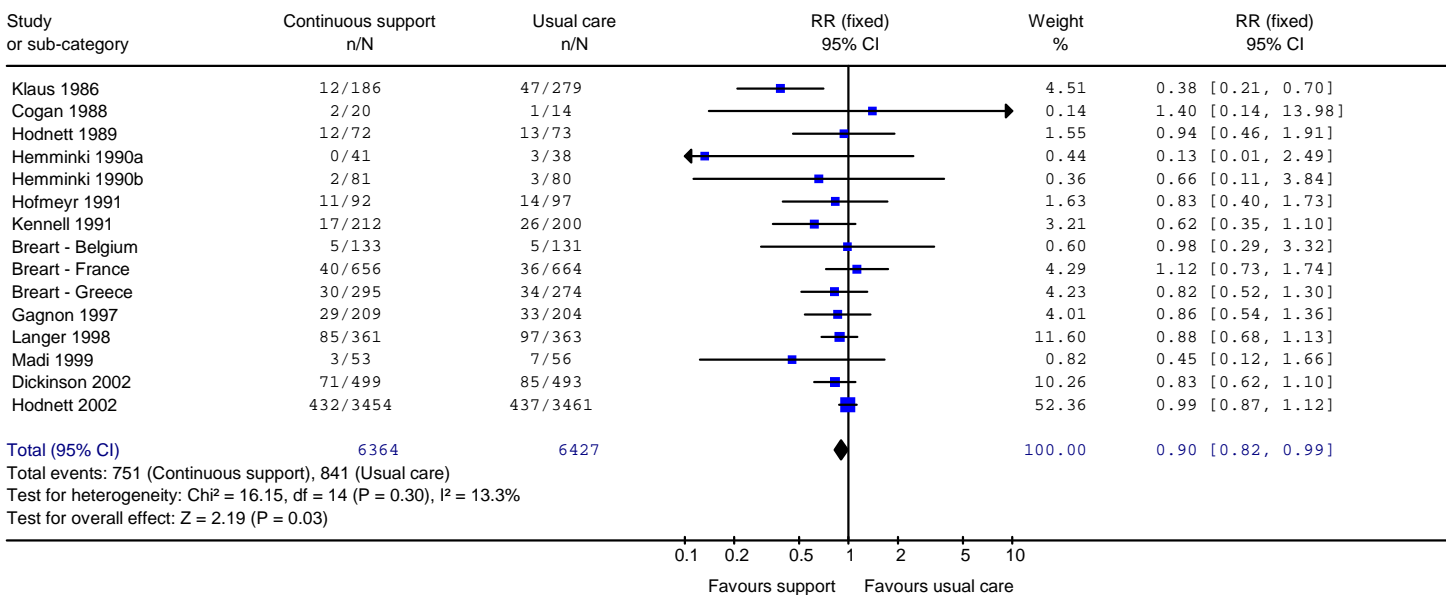
Review: Continuous support for women during childbirth  
 Comparison: 01 Continuous support versus usual care - all trials  
 Outcome: 07 Spontaneous vaginal birth



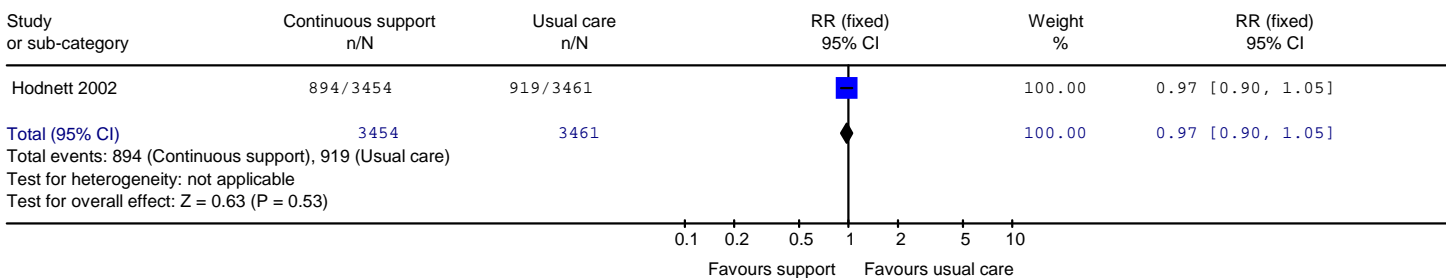
Review: Continuous support for women during childbirth  
 Comparison: 01 Continuous support versus usual care - all trials  
 Outcome: 08 Operative vaginal birth



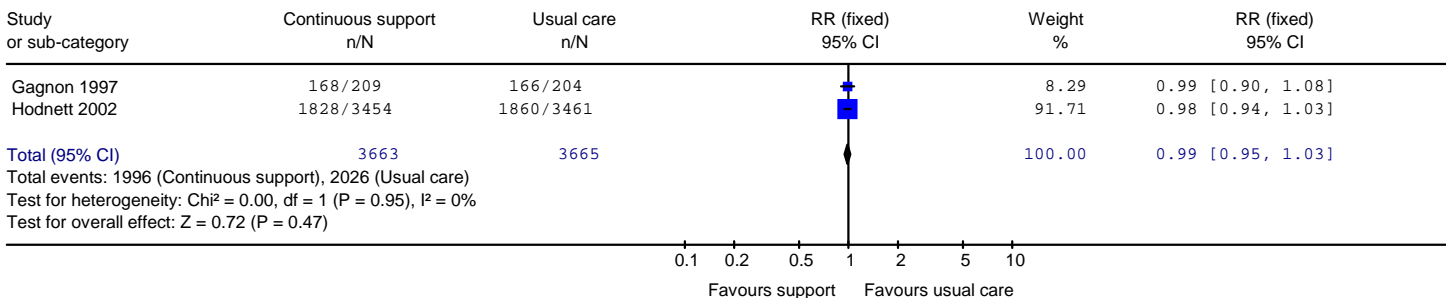
Review: Continuous support for women during childbirth  
 Comparison: 01 Continuous support versus usual care - all trials  
 Outcome: 09 Caesarean birth



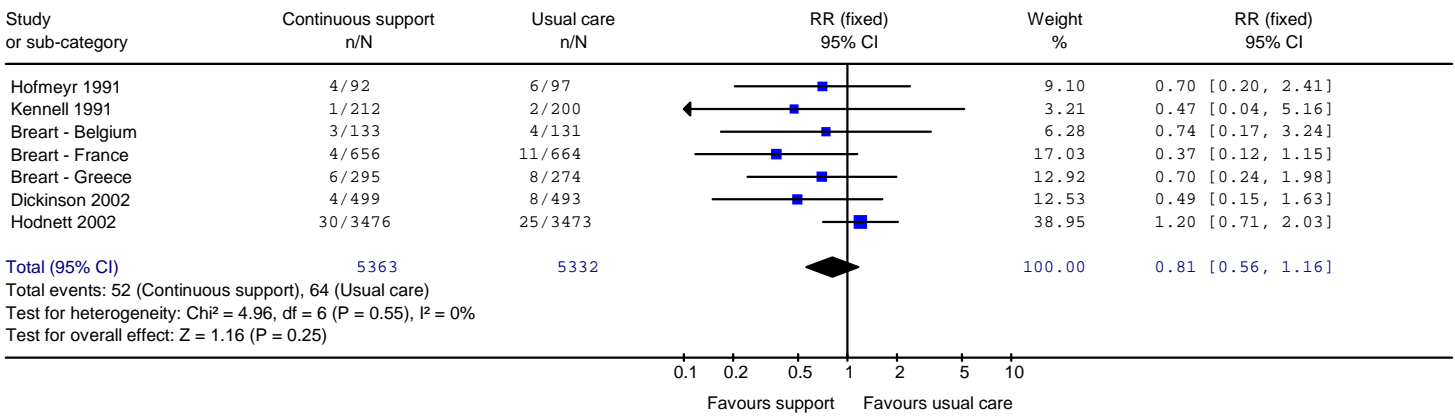
Review: Continuous support for women during childbirth  
 Comparison: 01 Continuous support versus usual care - all trials  
 Outcome: 10 Episiotomy



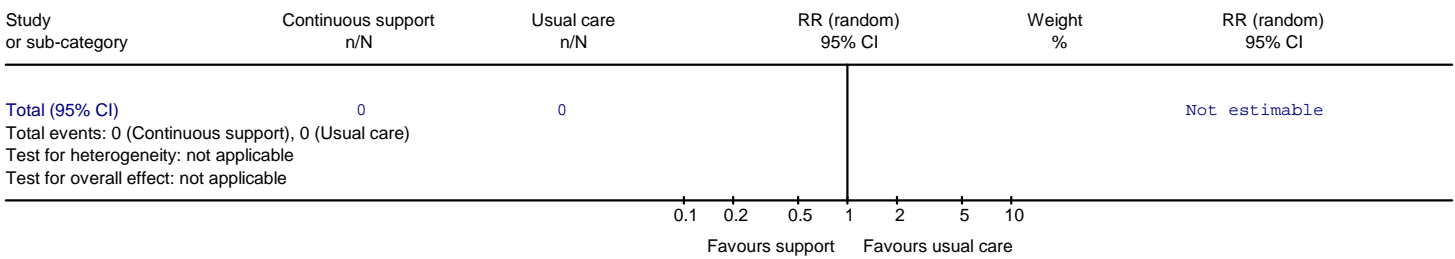
Review: Continuous support for women during childbirth  
 Comparison: 01 Continuous support versus usual care - all trials  
 Outcome: 11 Perineal trauma



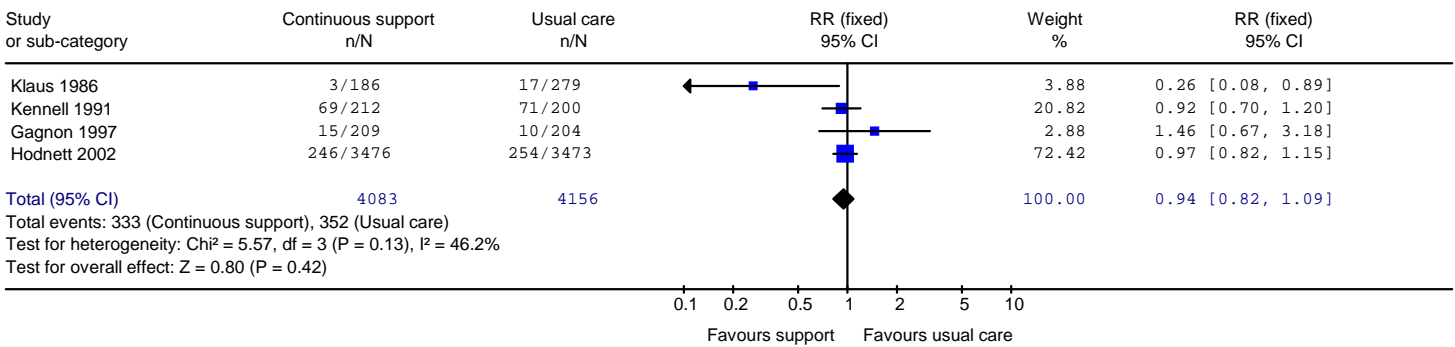
Review: Continuous support for women during childbirth  
 Comparison: 01 Continuous support versus usual care - all trials  
 Outcome: 12 Low 5-minute Apgar score



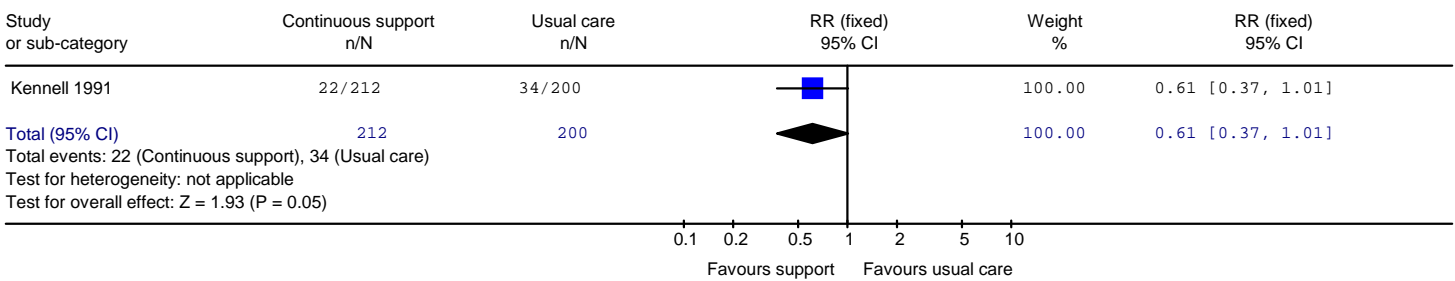
Review: Continuous support for women during childbirth  
 Comparison: 01 Continuous support versus usual care - all trials  
 Outcome: 13 Low cord pH



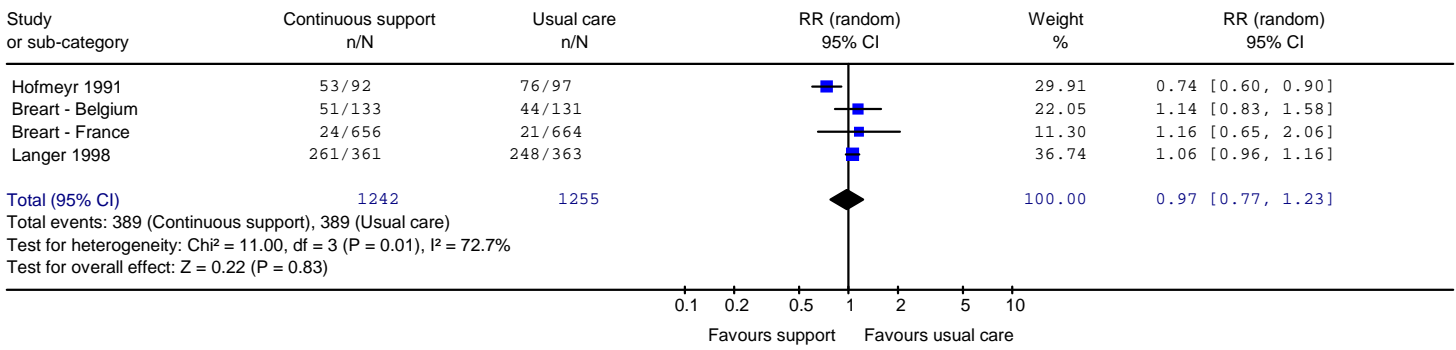
Review: Continuous support for women during childbirth  
 Comparison: 01 Continuous support versus usual care - all trials  
 Outcome: 14 Admission to special care nursery



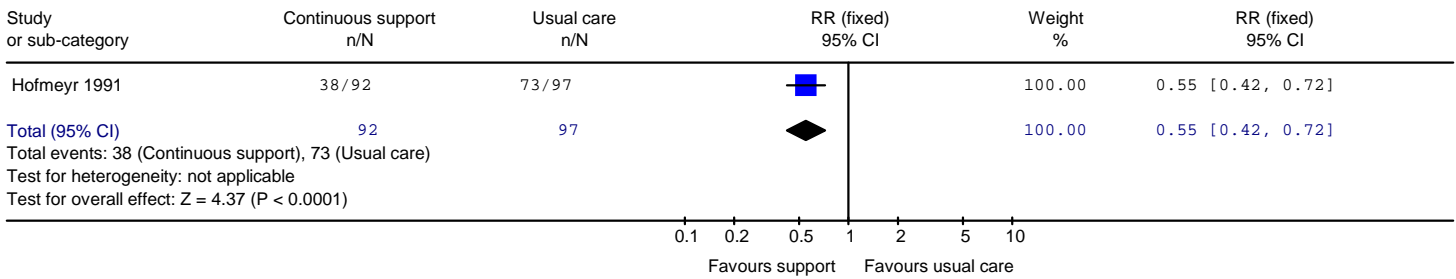
Review: Continuous support for women during childbirth  
 Comparison: 01 Continuous support versus usual care - all trials  
 Outcome: 15 Prolonged neonatal hospital stay



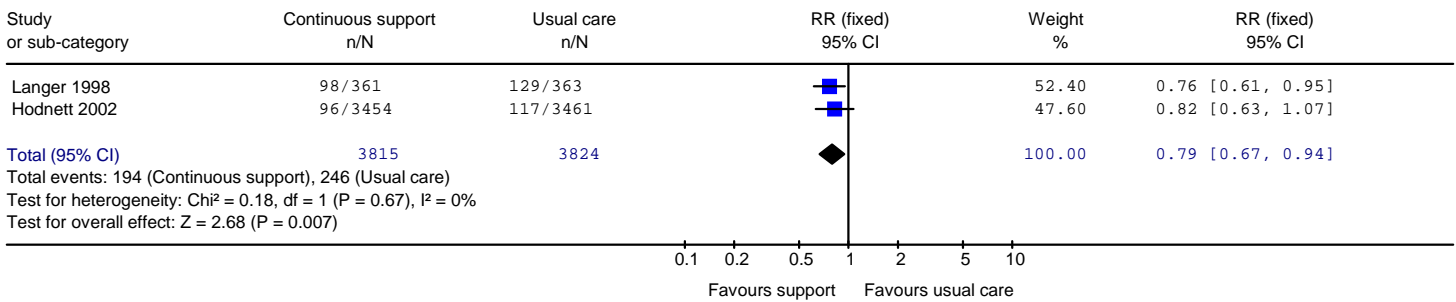
Review: Continuous support for women during childbirth  
 Comparison: 01 Continuous support versus usual care - all trials  
 Outcome: 16 Postpartum report of severe labour pain



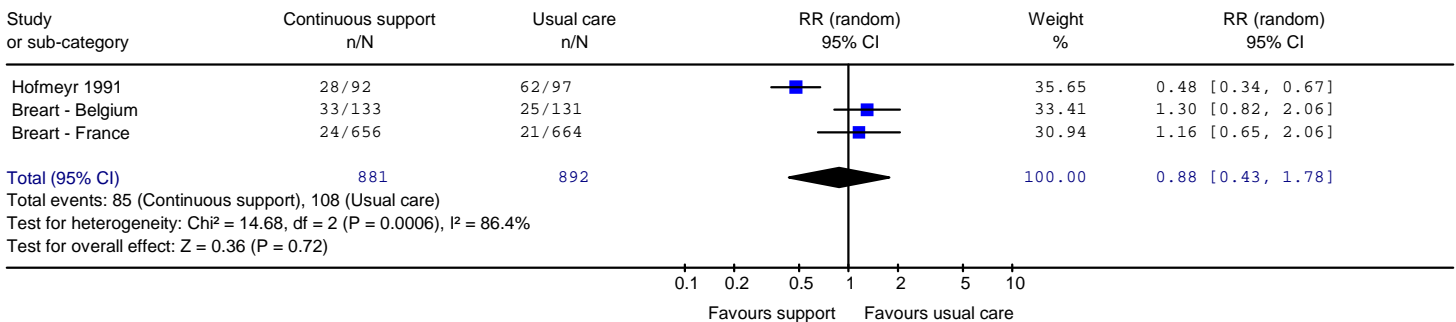
Review: Continuous support for women during childbirth  
 Comparison: 01 Continuous support versus usual care - all trials  
 Outcome: 17 Postpartum report of difficulty in coping with labour



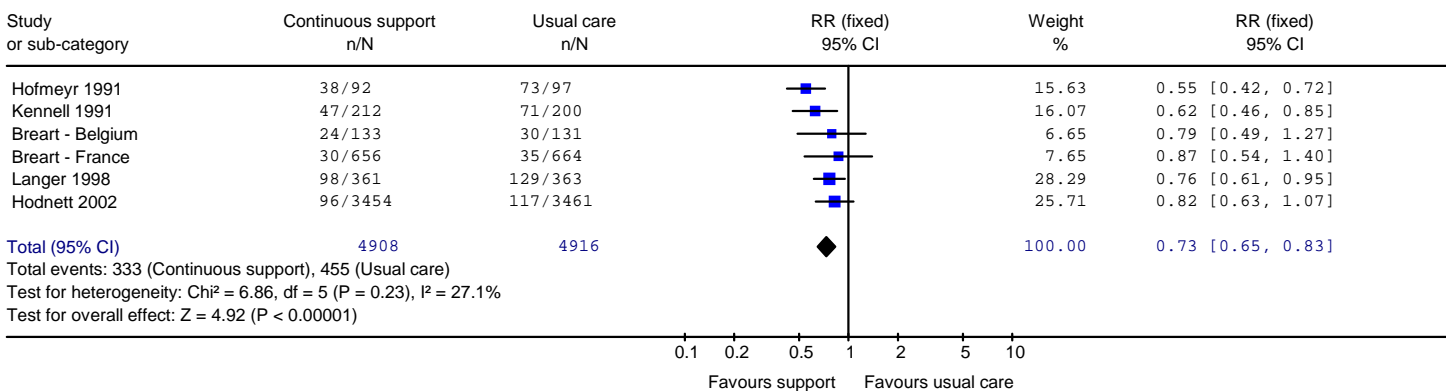
Review: Continuous support for women during childbirth  
 Comparison: 01 Continuous support versus usual care - all trials  
 Outcome: 18 Postpartum report of low control during labour



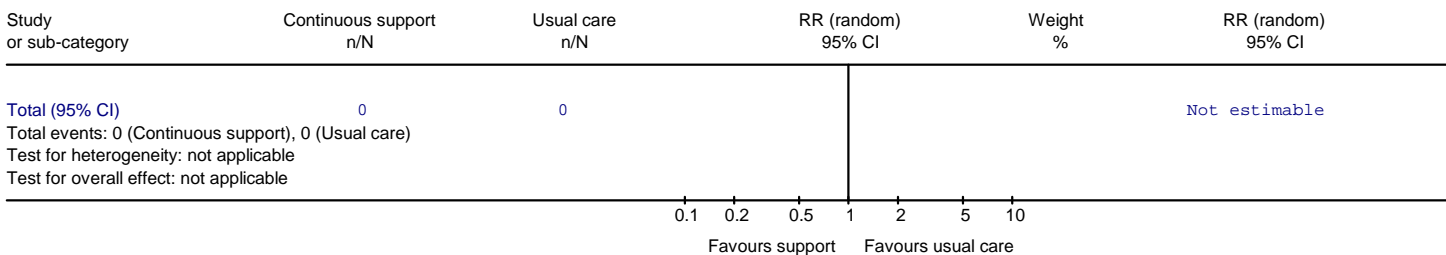
Review: Continuous support for women during childbirth  
 Comparison: 01 Continuous support versus usual care - all trials  
 Outcome: 19 Postpartum report of high anxiety during labour



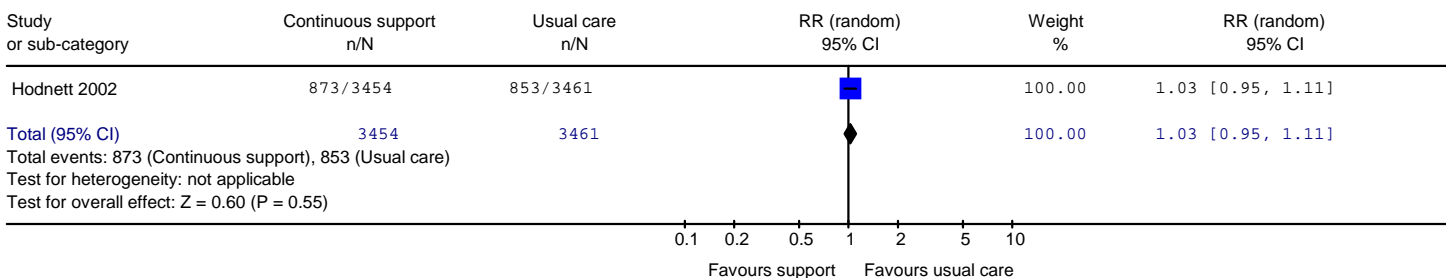
Review: Continuous support for women during childbirth  
 Comparison: 01 Continuous support versus usual care - all trials  
 Outcome: 20 Dissatisfaction with/negative views of birth experience



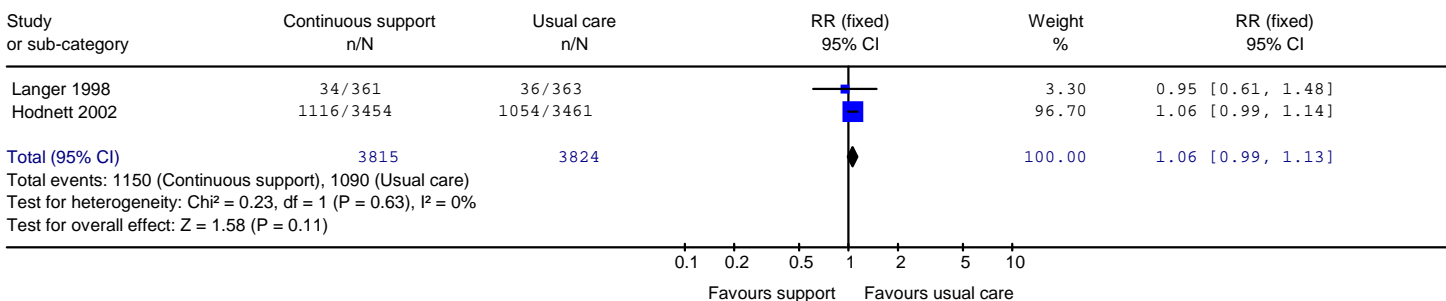
Review: Continuous support for women during childbirth  
 Comparison: 01 Continuous support versus usual care - all trials  
 Outcome: 21 Prolonged perineal pain



Review: Continuous support for women during childbirth  
 Comparison: 01 Continuous support versus usual care - all trials  
 Outcome: 22 Difficulty mothering

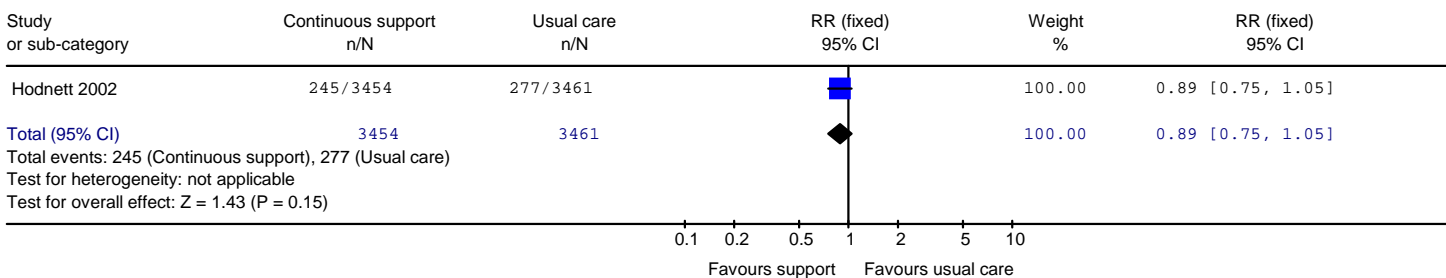


Review: Continuous support for women during childbirth  
 Comparison: 01 Continuous support versus usual care - all trials  
 Outcome: 23 Not breastfeeding at 1-2 months postpartum

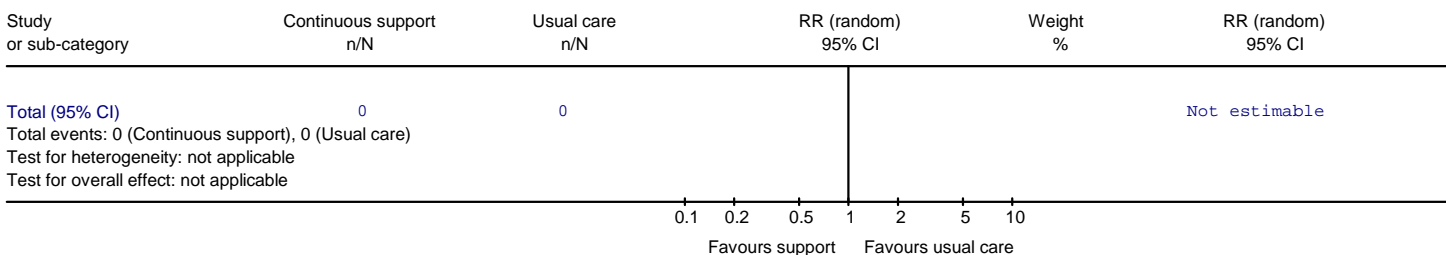




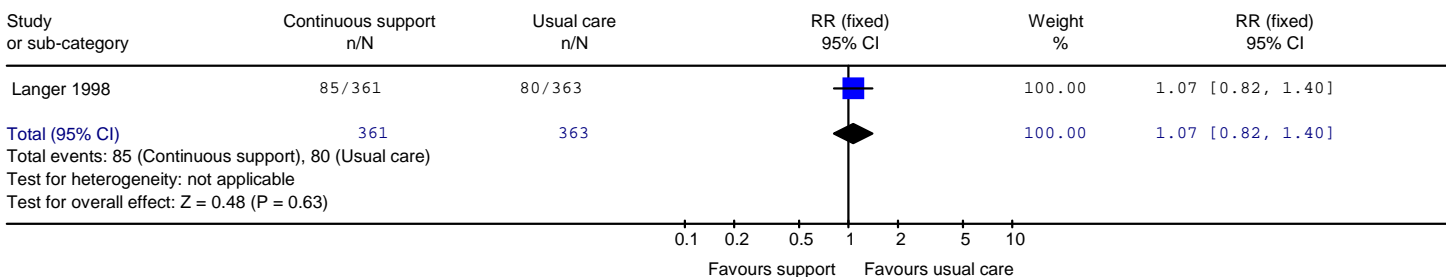
Review: Continuous support for women during childbirth  
 Comparison: 01 Continuous support versus usual care - all trials  
 Outcome: 24 Postpartum depression



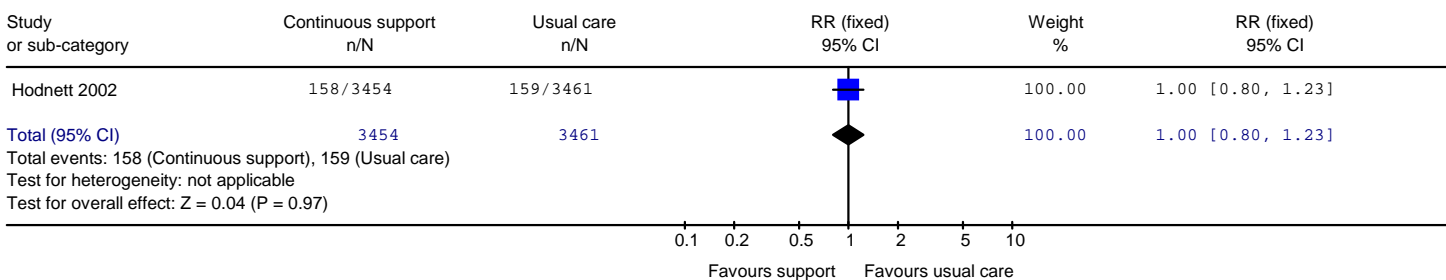
Review: Continuous support for women during childbirth  
 Comparison: 01 Continuous support versus usual care - all trials  
 Outcome: 25 Postpartum anxiety/tension



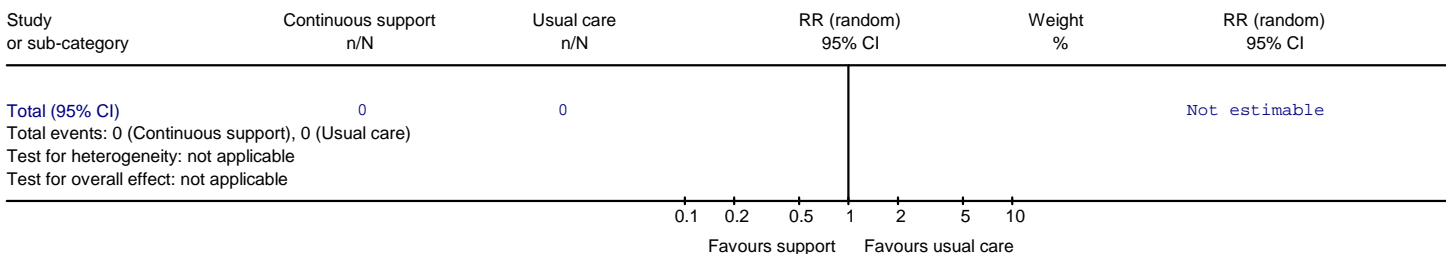
Review: Continuous support for women during childbirth  
 Comparison: 01 Continuous support versus usual care - all trials  
 Outcome: 26 Low postpartum self-esteem



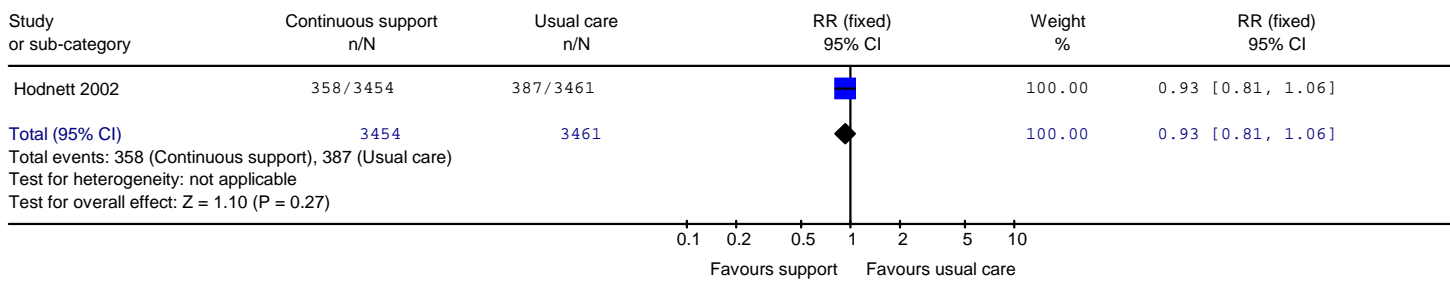
Review: Continuous support for women during childbirth  
 Comparison: 01 Continuous support versus usual care - all trials  
 Outcome: 27 Poor relationship with partner postpartum



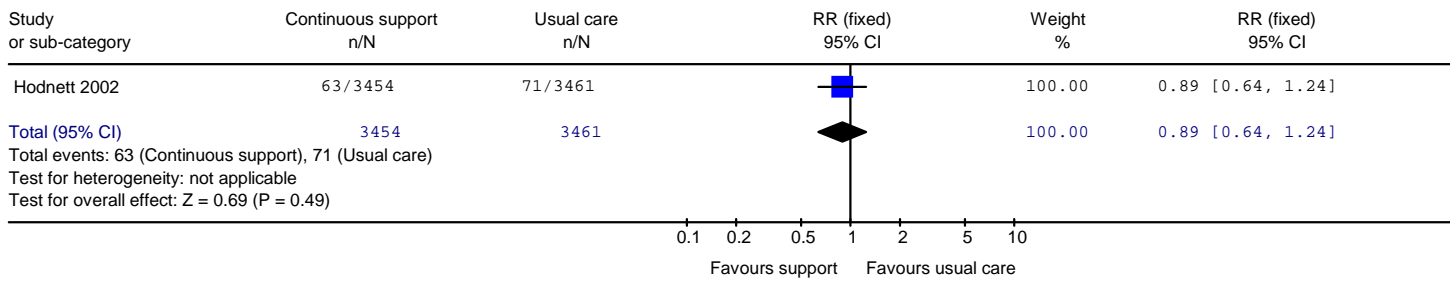
Review: Continuous support for women during childbirth  
 Comparison: 01 Continuous support versus usual care - all trials  
 Outcome: 28 Pain during sexual intercourse



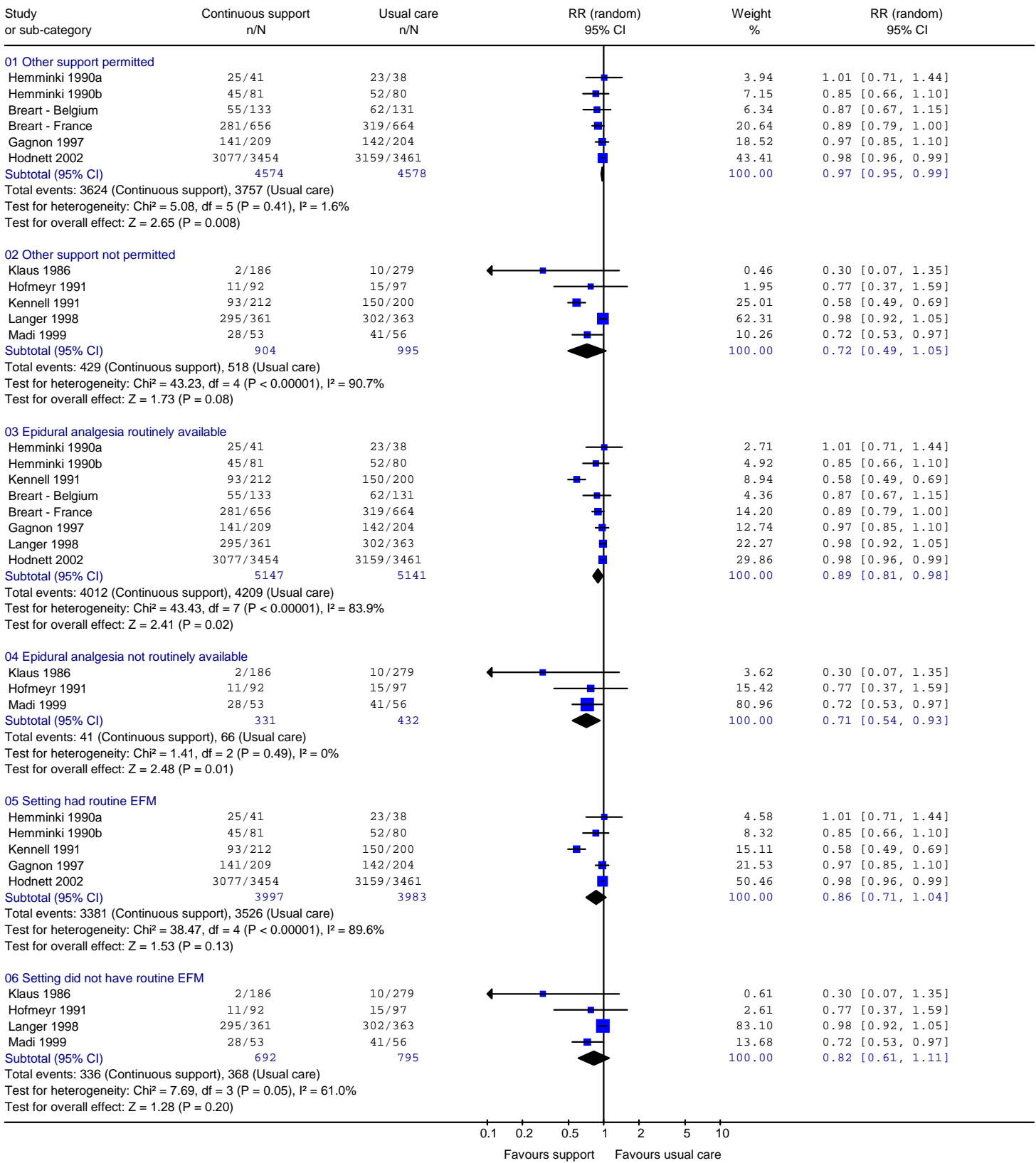
Review: Continuous support for women during childbirth  
 Comparison: 01 Continuous support versus usual care - all trials  
 Outcome: 29 Postpartum urinary incontinence



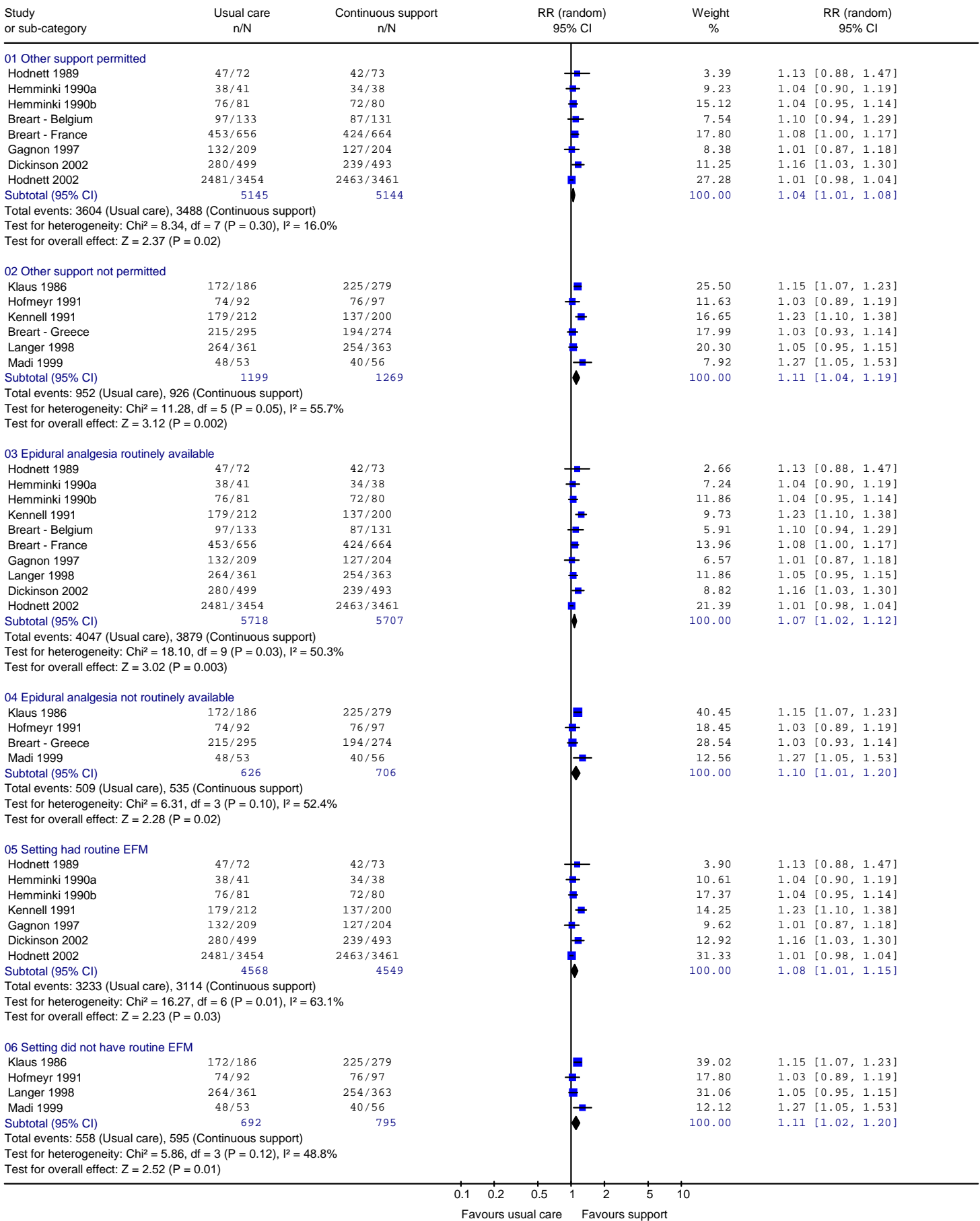
Review: Continuous support for women during childbirth  
 Comparison: 01 Continuous support versus usual care - all trials  
 Outcome: 30 Postpartum faecal incontinence



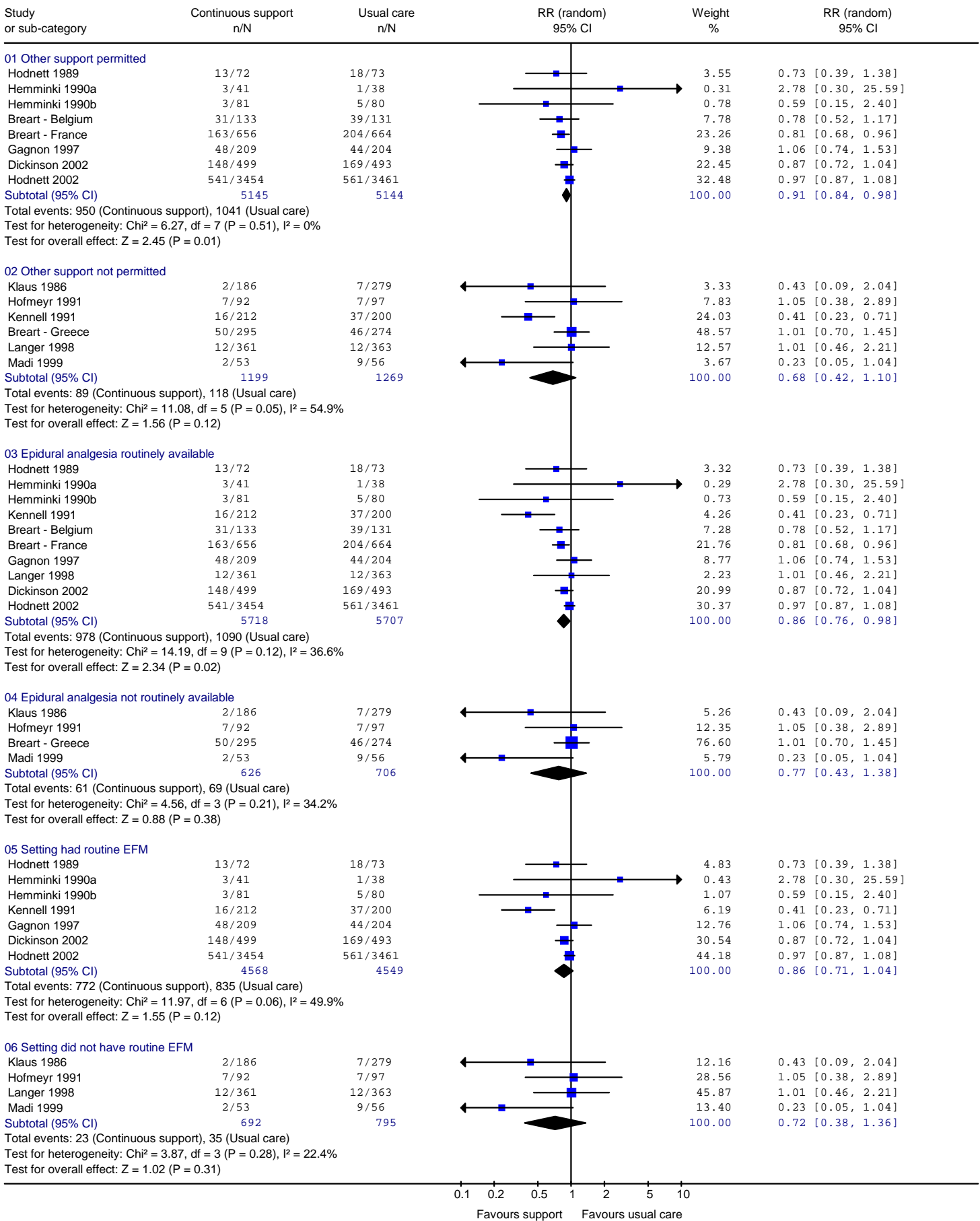
Review: Continuous support for women during childbirth  
 Comparison: 02 Continuous support during labour versus usual care - variations in institutional policies and practices  
 Outcome: 01 Use of analgesia/anaesthesia



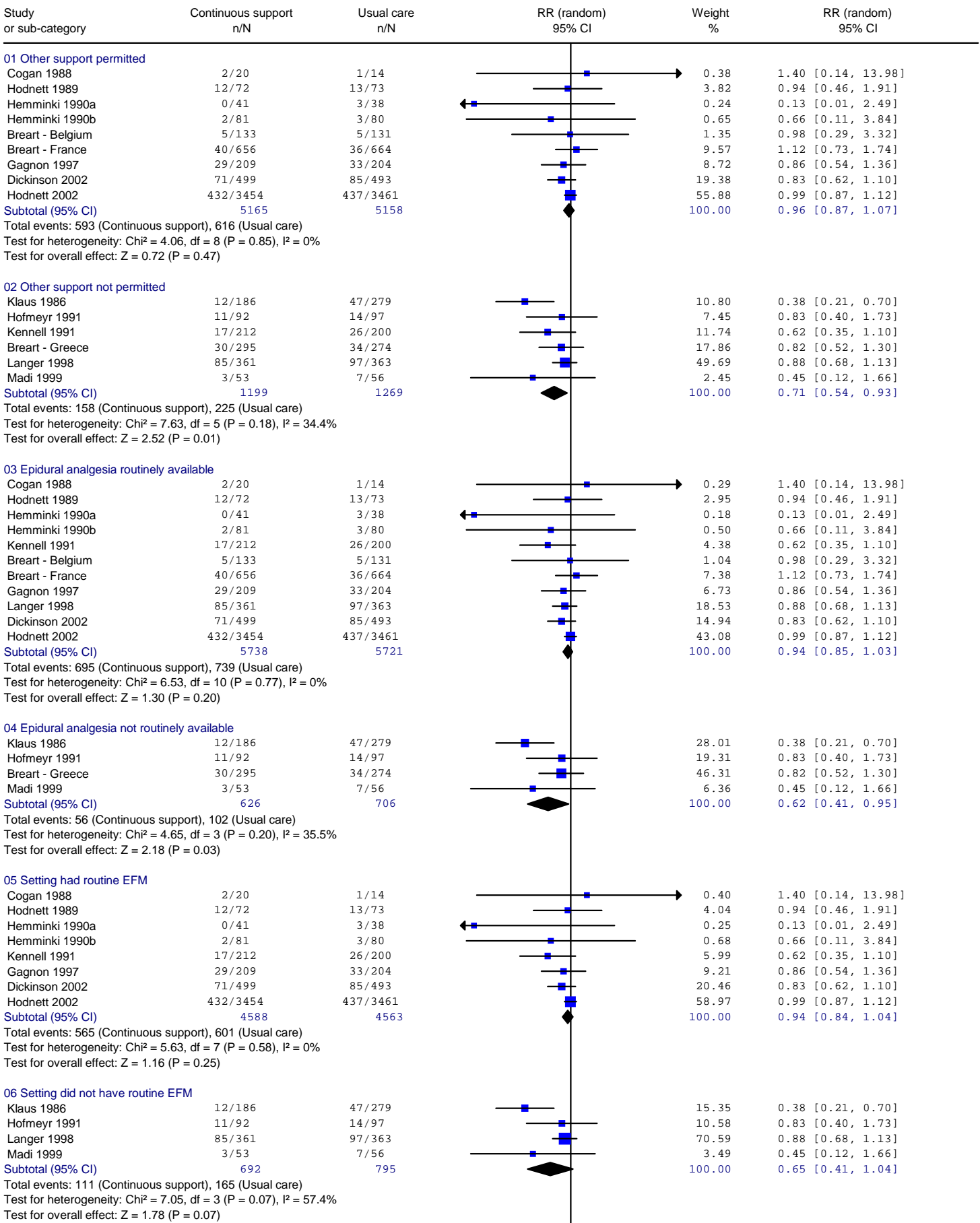
Review: Continuous support for women during childbirth  
 Comparison: 02 Continuous support during labour versus usual care - variations in institutional policies and practices  
 Outcome: 02 Spontaneous vaginal birth



Review: Continuous support for women during childbirth  
 Comparison: 02 Continuous support during labour versus usual care - variations in institutional policies and practices  
 Outcome: 03 Operative vaginal birth



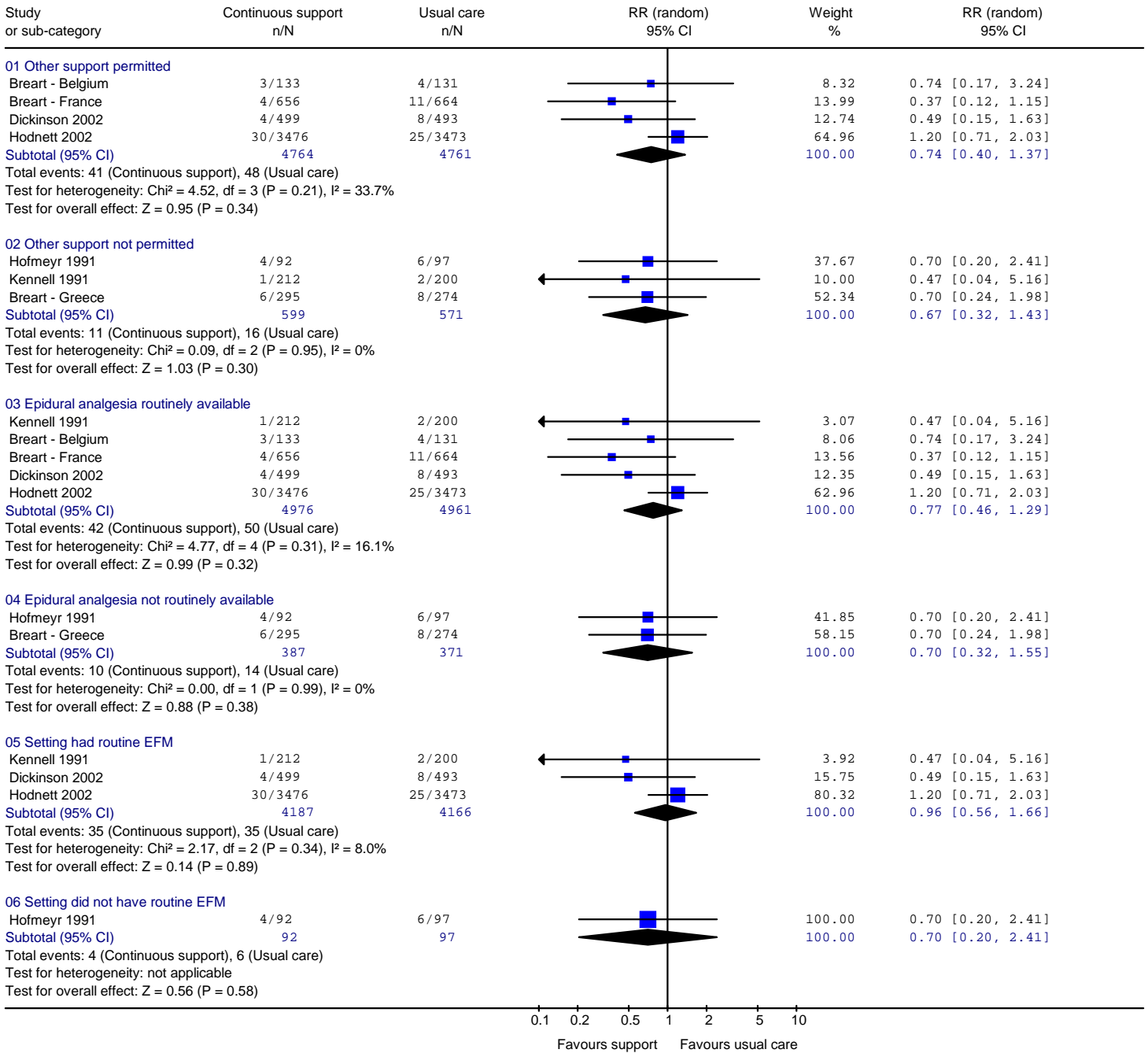
Review: Continuous support for women during childbirth  
 Comparison: 02 Continuous support during labour versus usual care - variations in institutional policies and practices  
 Outcome: 04 Caesarean birth



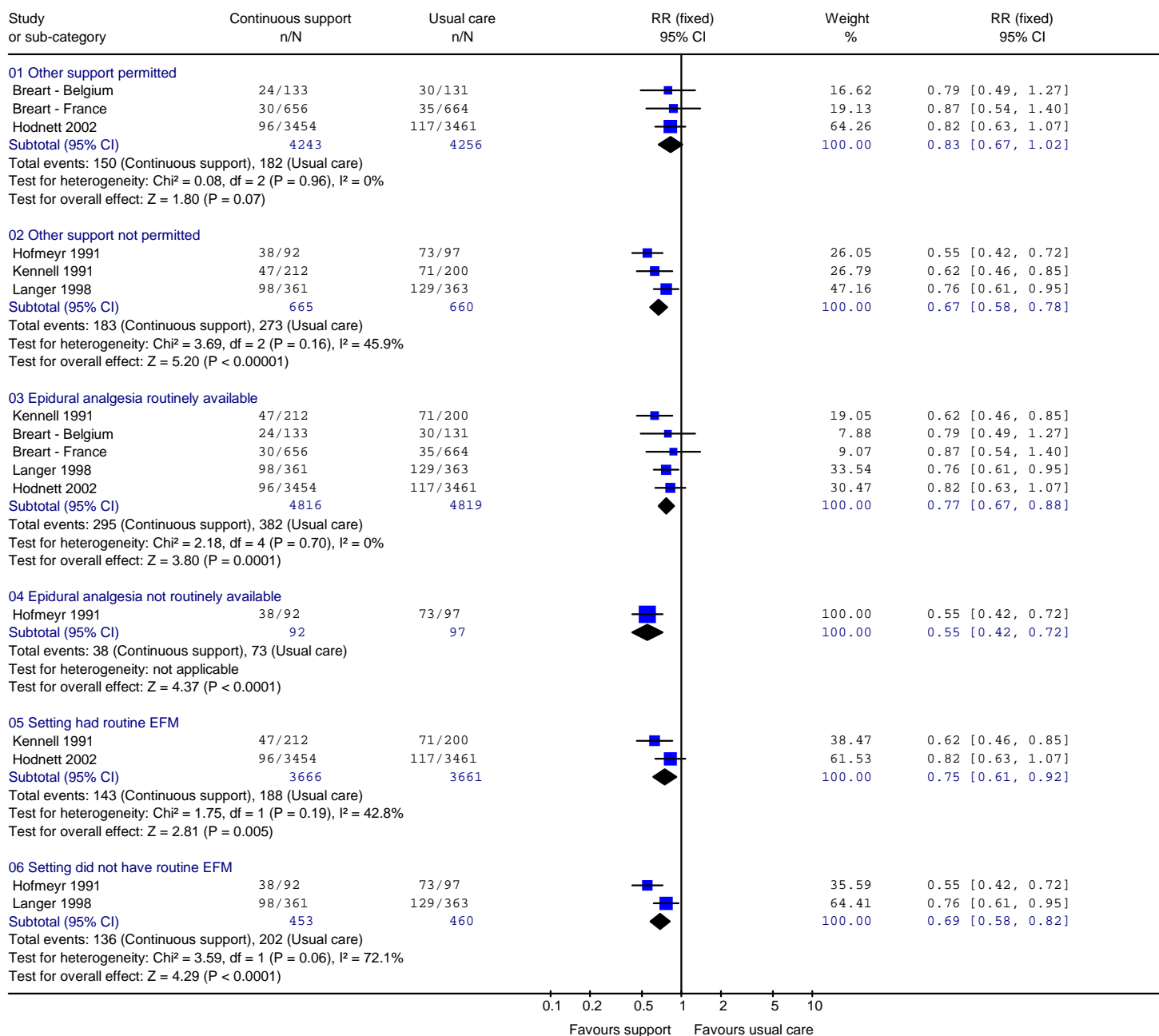
0.1 0.2 0.5 1 2 5 10

Favours support Favours usual care

Review: Continuous support for women during childbirth  
 Comparison: 02 Continuous support during labour versus usual care - variations in institutional policies and practices  
 Outcome: 05 Low 5-minute Apgar score

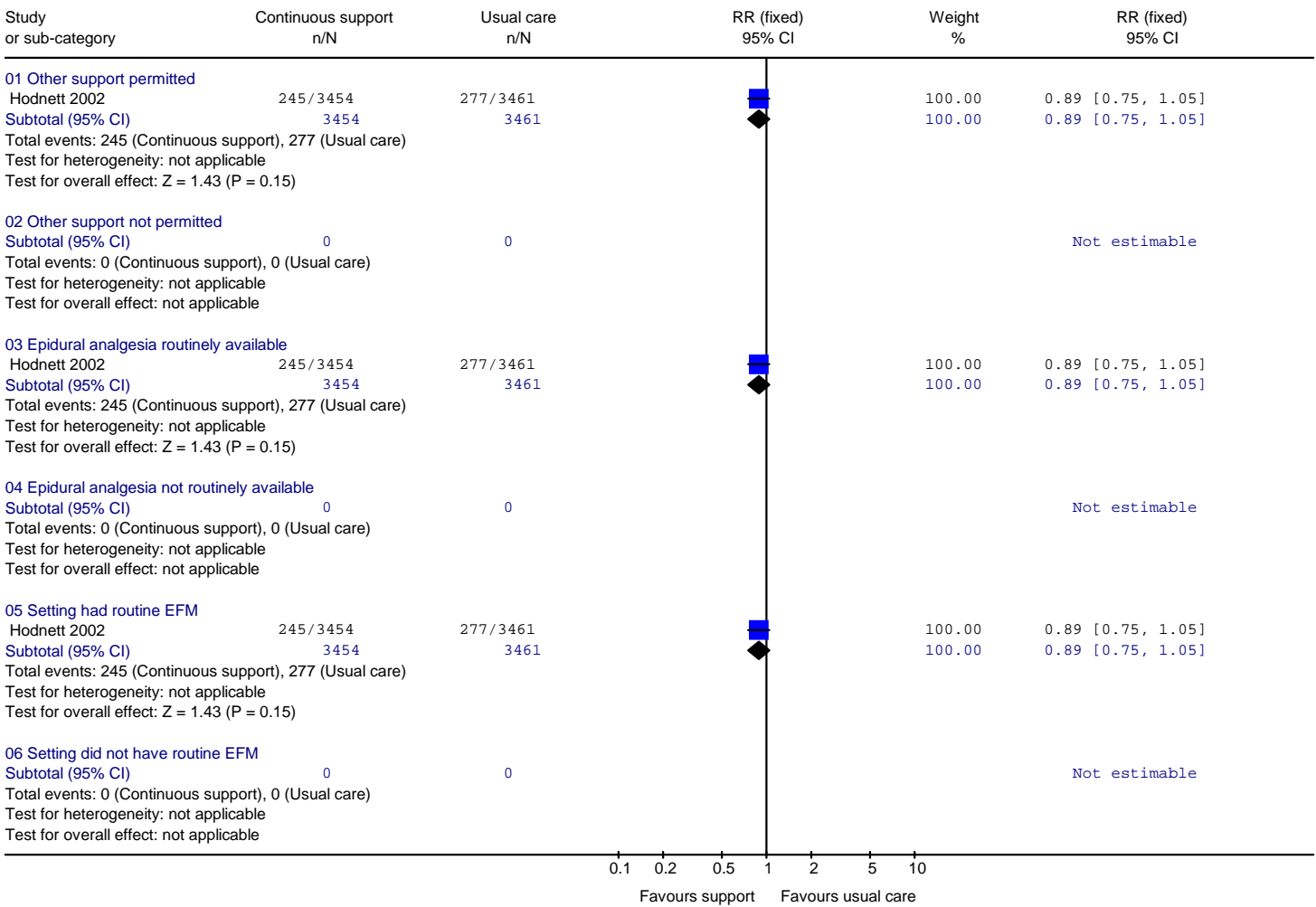


Review: Continuous support for women during childbirth  
 Comparison: 02 Continuous support during labour versus usual care - variations in institutional policies and practices  
 Outcome: 06 Dissatisfaction with/negative views of childbirth experience

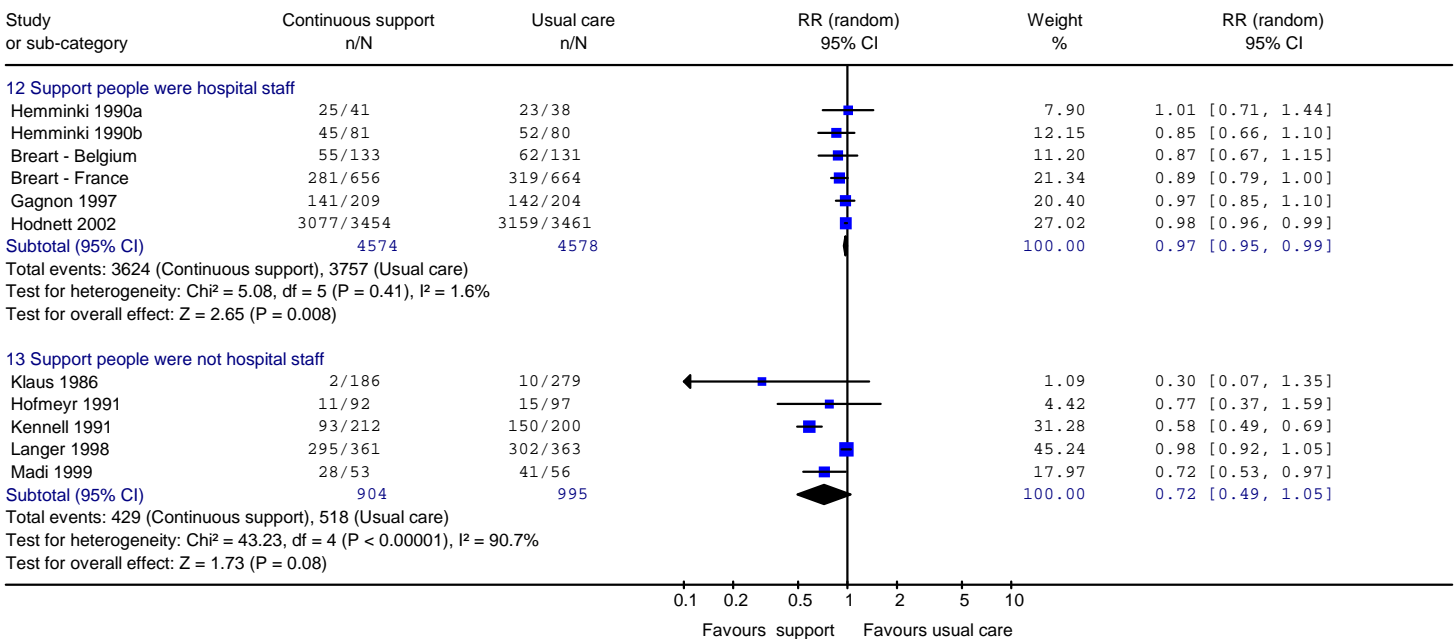




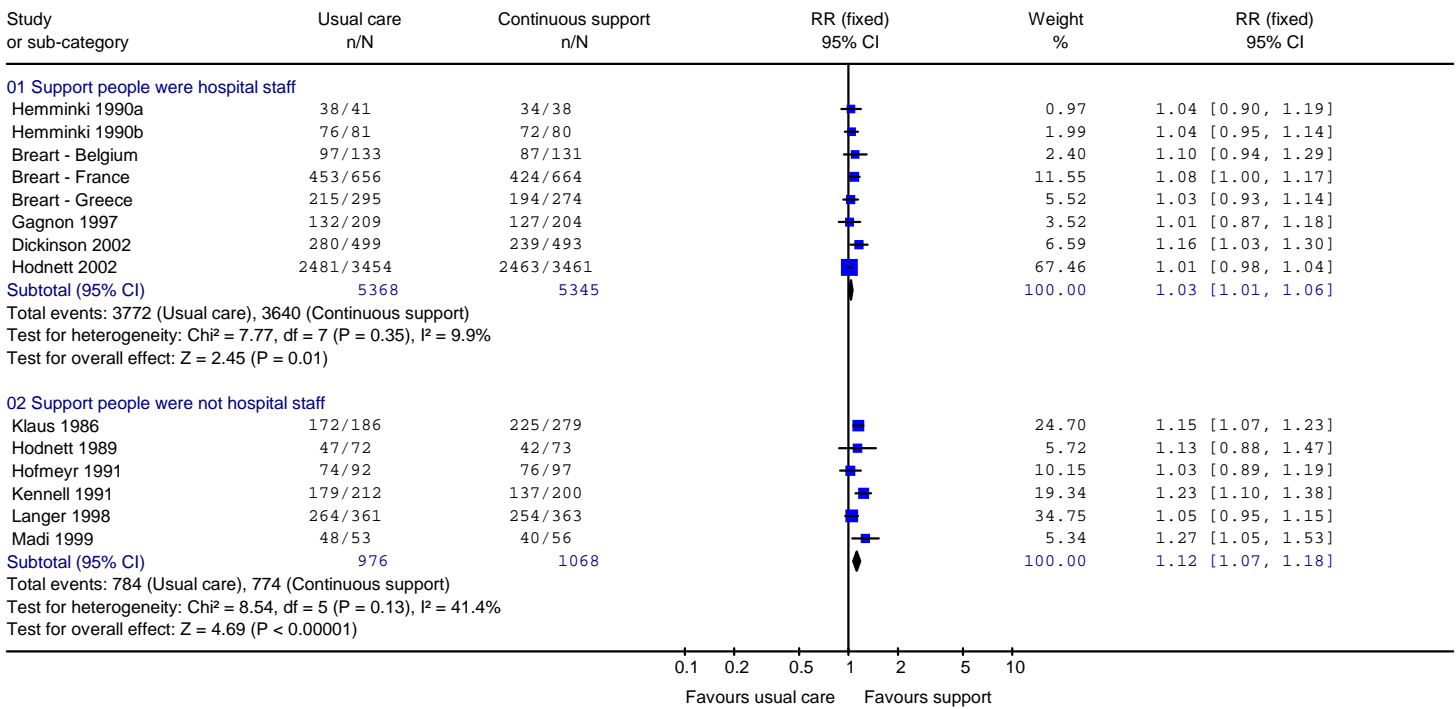
Review: Continuous support for women during childbirth  
 Comparison: 02 Continuous support during labour versus usual care - variations in institutional policies and practices  
 Outcome: 07 Postpartum depression



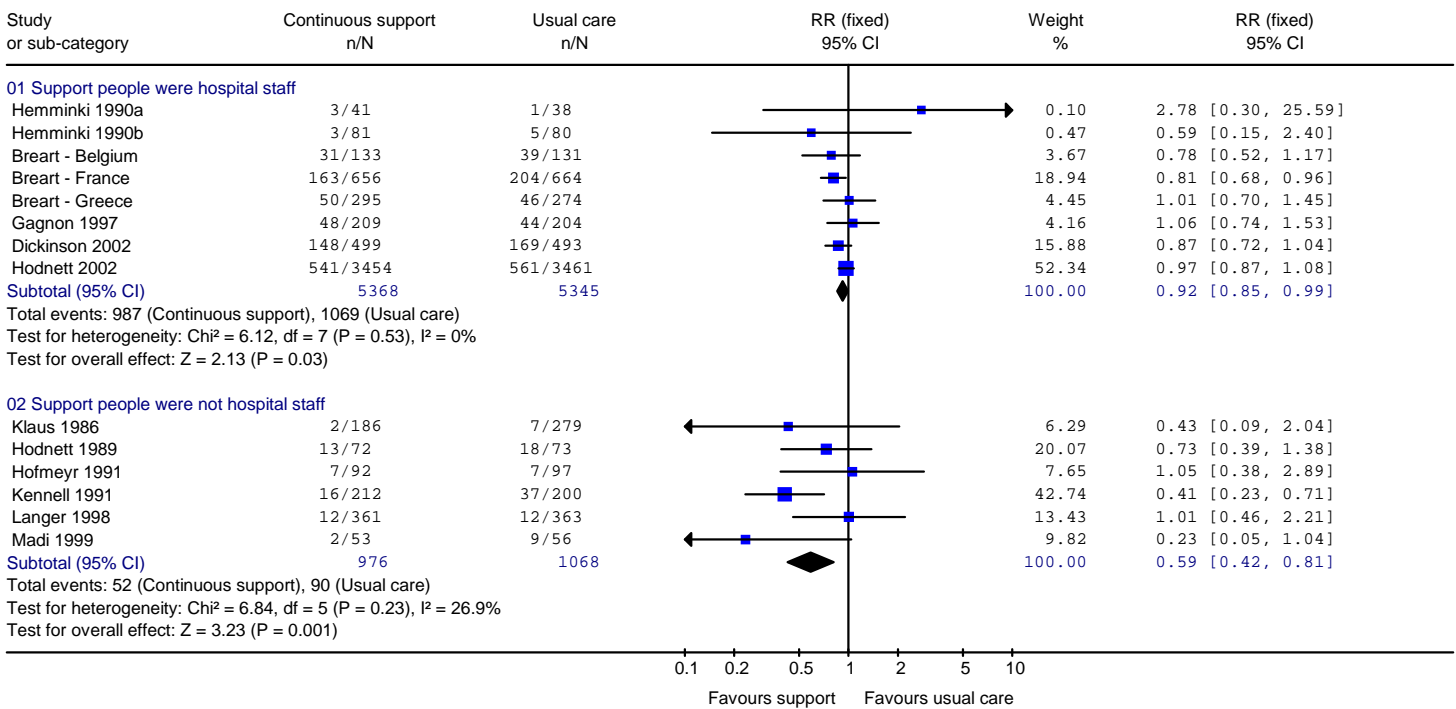
Review: Continuous support for women during childbirth  
 Comparison: 03 Continuous support during labour versus usual care - variations in type of provider  
 Outcome: 01 Use of analgesia/anaesthesia



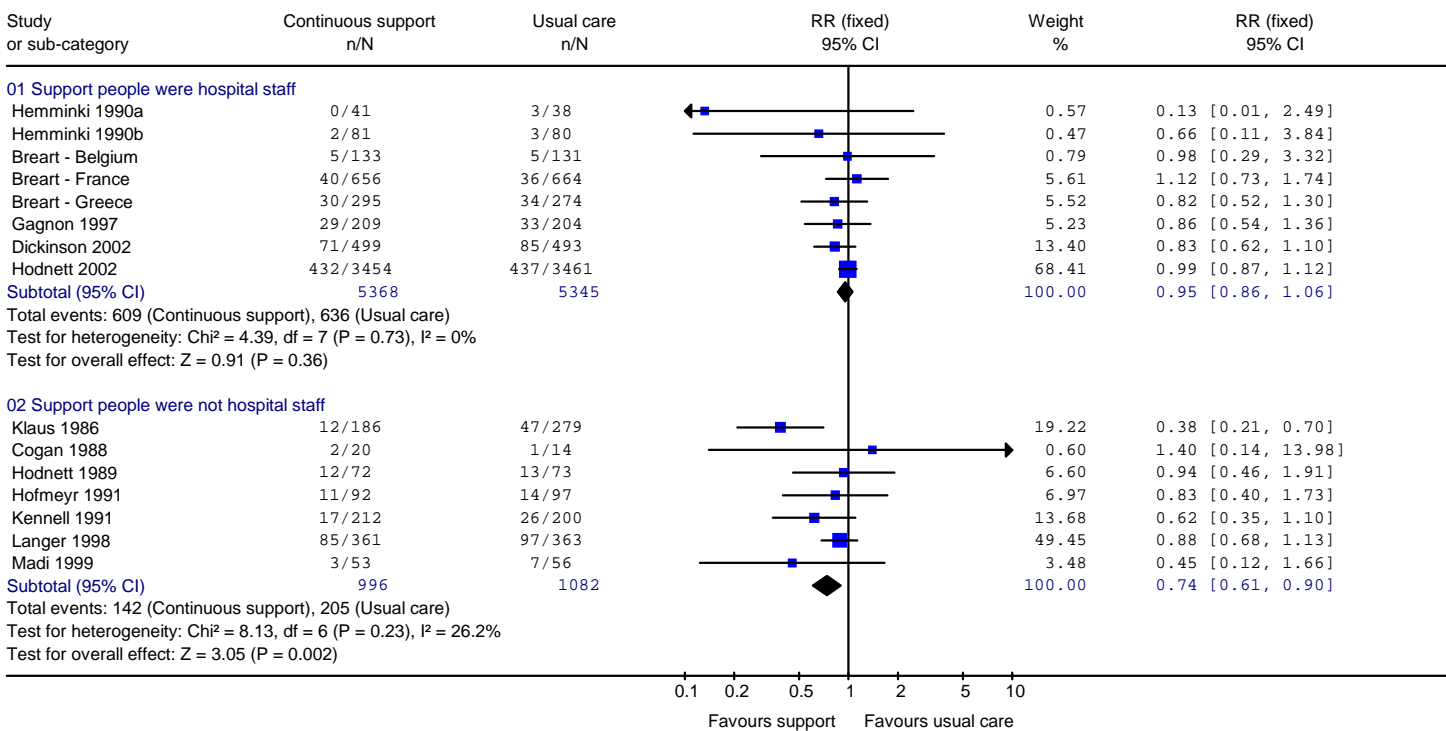
Review: Continuous support for women during childbirth  
 Comparison: 03 Continuous support during labour versus usual care - variations in type of provider  
 Outcome: 02 Spontaneous vaginal birth



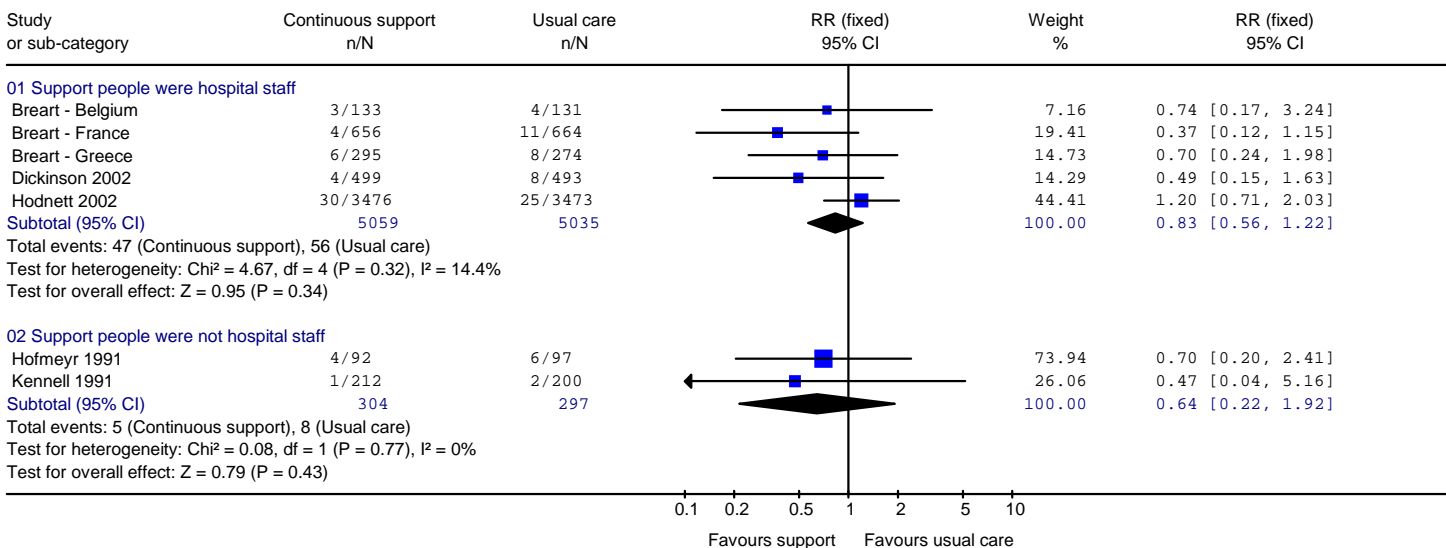
Review: Continuous support for women during childbirth  
 Comparison: 03 Continuous support during labour versus usual care - variations in type of provider  
 Outcome: 03 Operative vaginal birth



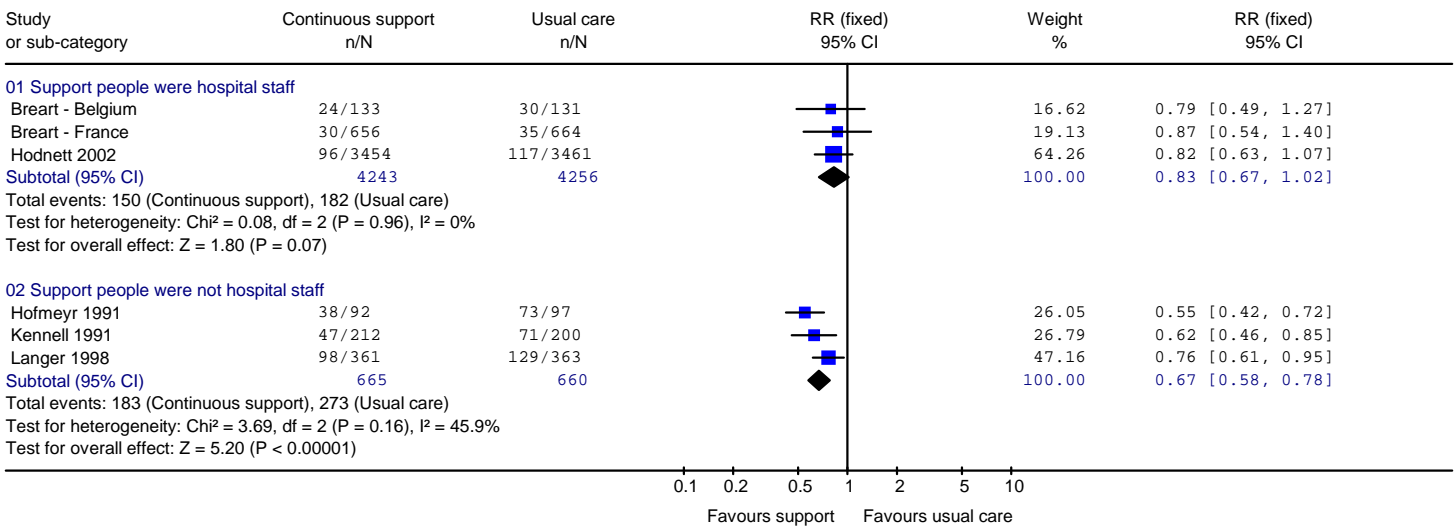
Review: Continuous support for women during childbirth  
 Comparison: 03 Continuous support during labour versus usual care - variations in type of provider  
 Outcome: 04 Caesarean birth



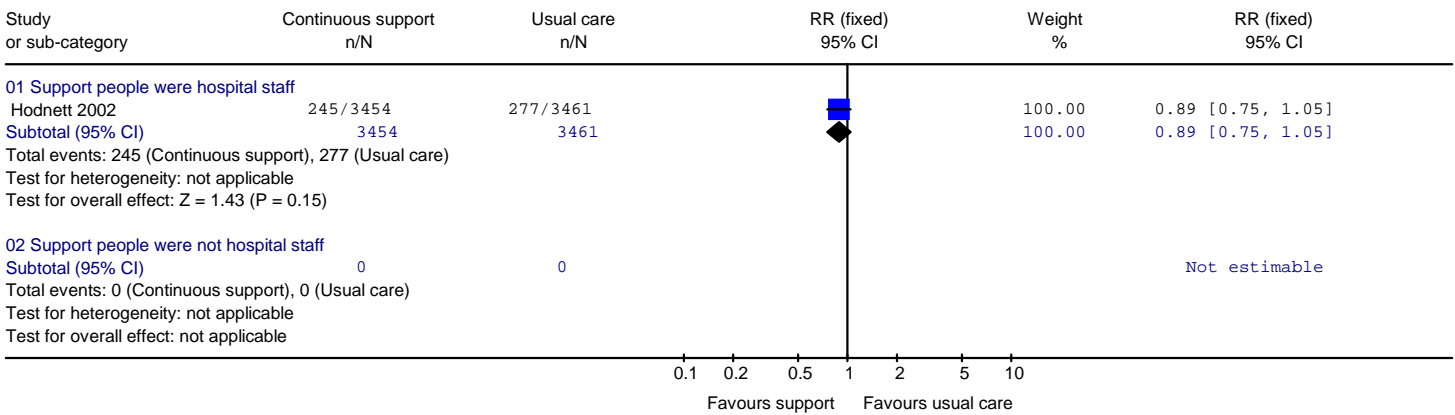
Review: Continuous support for women during childbirth  
 Comparison: 03 Continuous support during labour versus usual care - variations in type of provider  
 Outcome: 05 Low 5-minute Apgar score



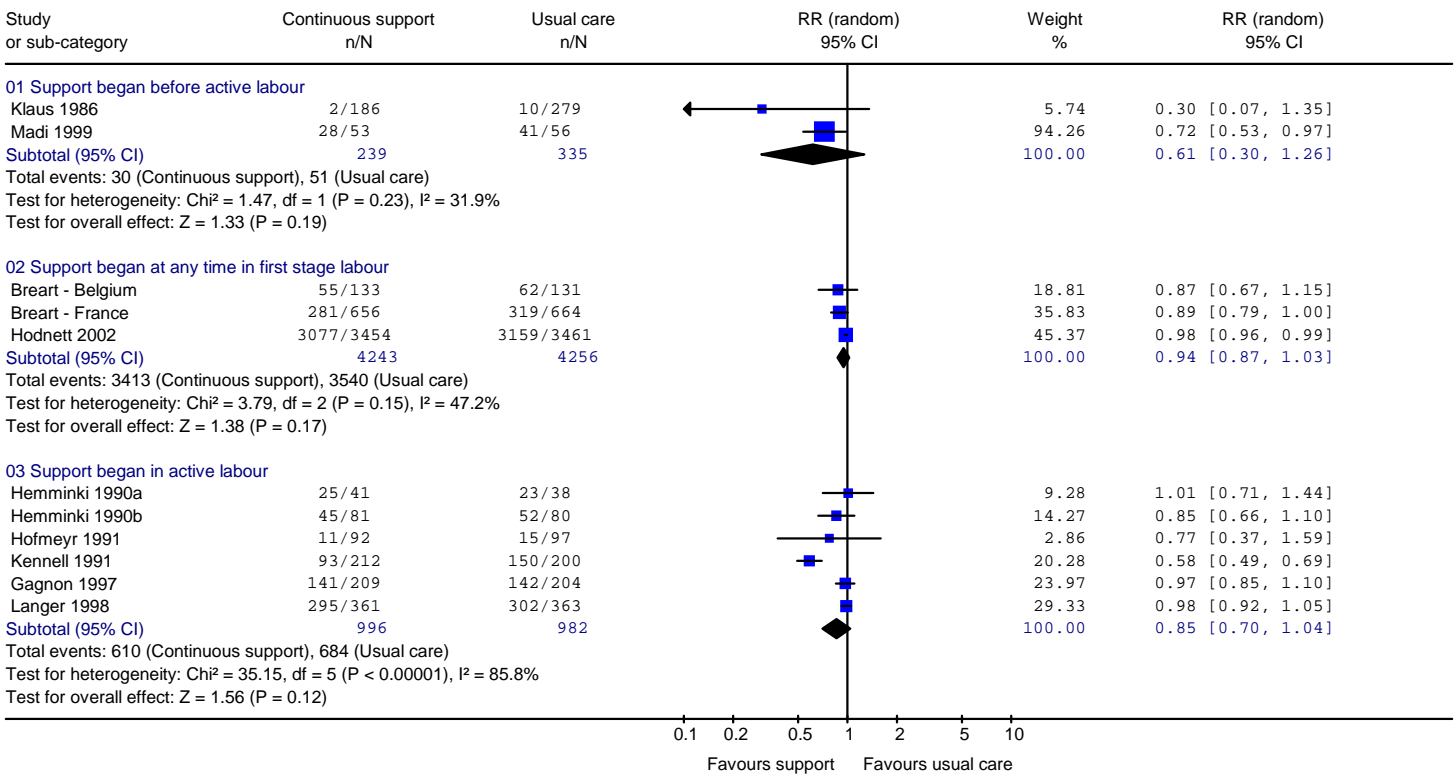
Review: Continuous support for women during childbirth  
 Comparison: 03 Continuous support during labour versus usual care - variations in type of provider  
 Outcome: 06 Dissatisfaction with/negative views of childbirth experience



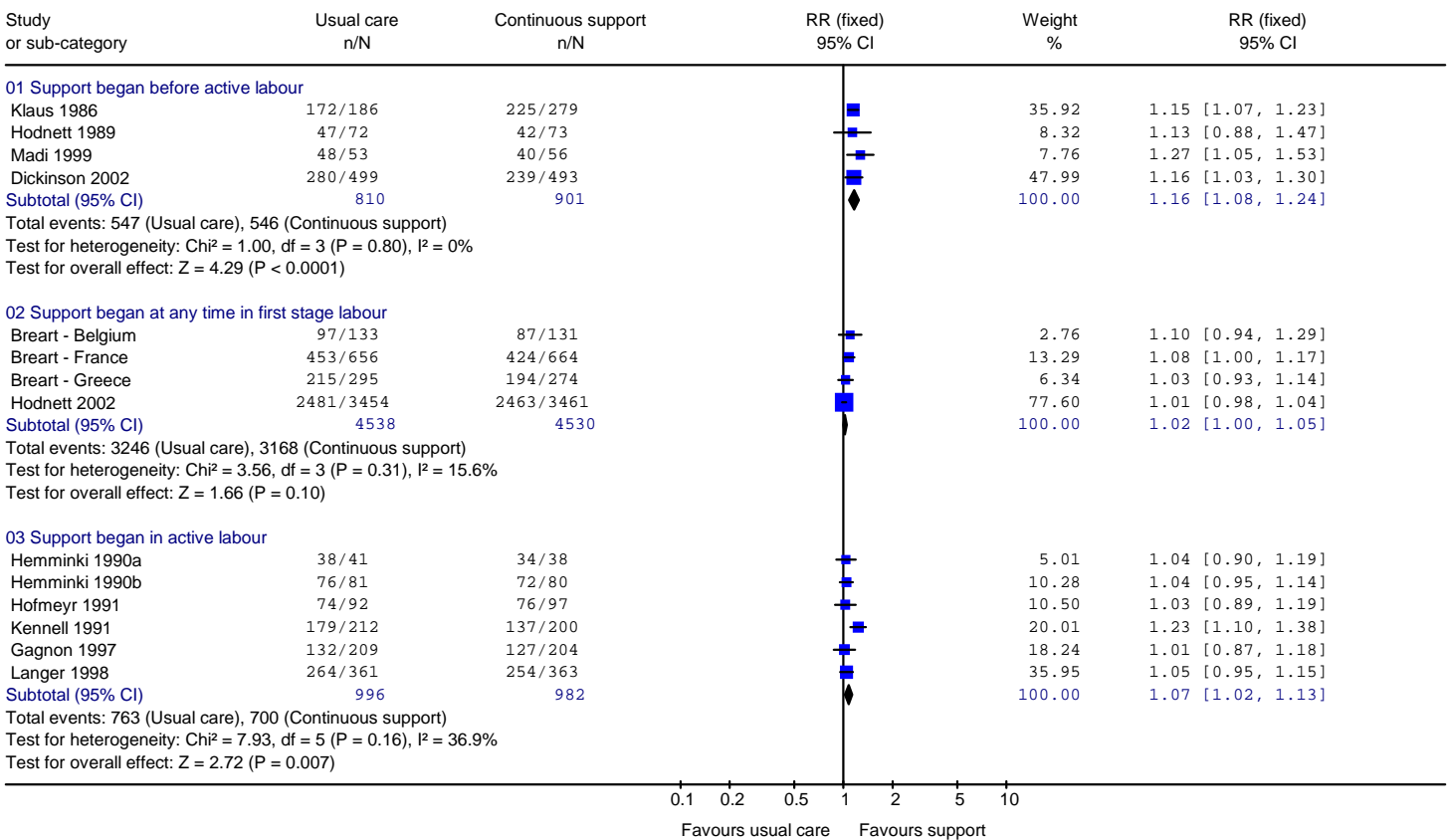
Review: Continuous support for women during childbirth  
 Comparison: 03 Continuous support during labour versus usual care - variations in type of provider  
 Outcome: 07 Postpartum depression



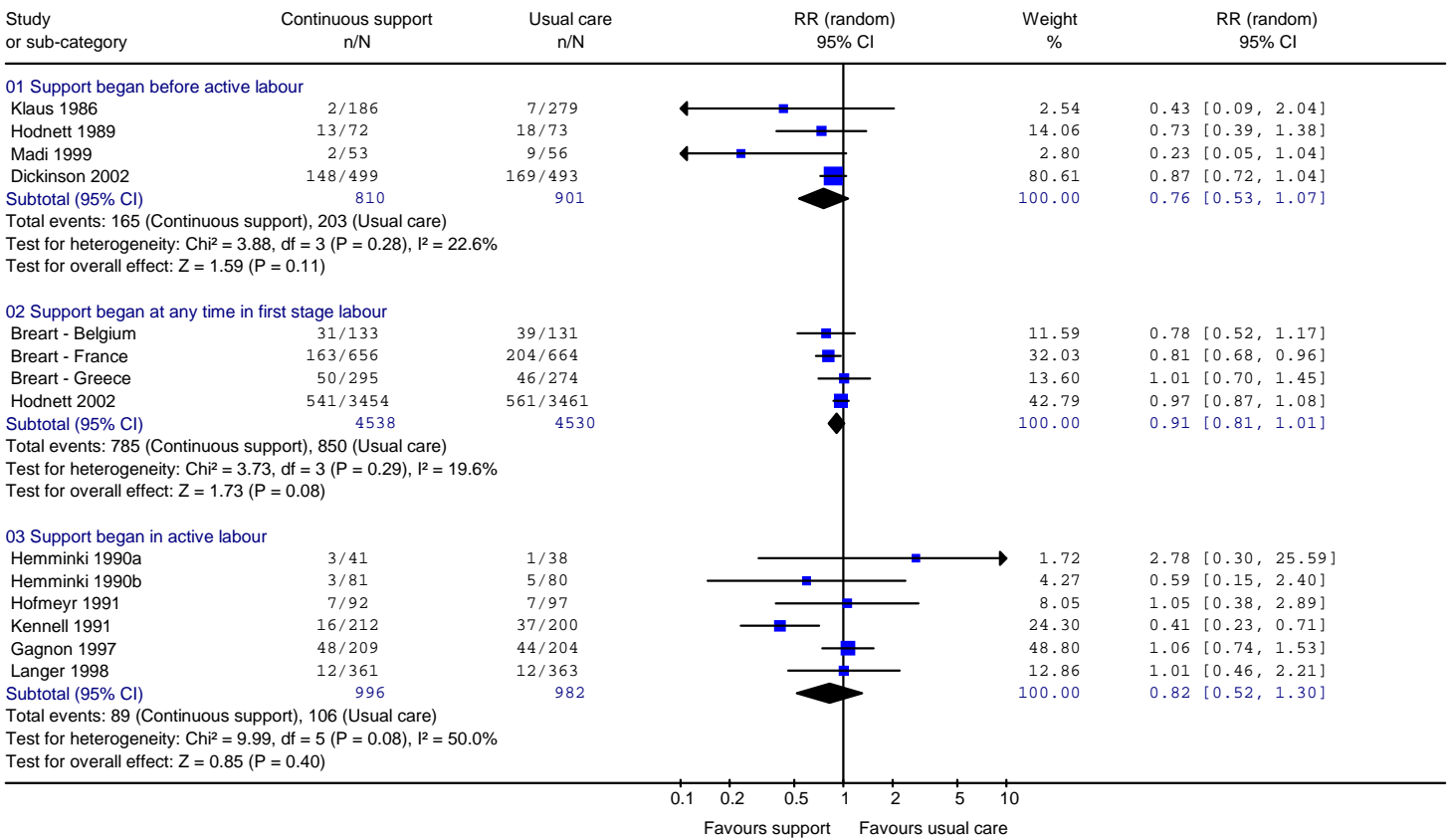
Review: Continuous support for women during childbirth  
 Comparison: 04 Continuous support during labour versus usual care - variations in timing of onset of support  
 Outcome: 01 Use of analgesia/anaesthesia



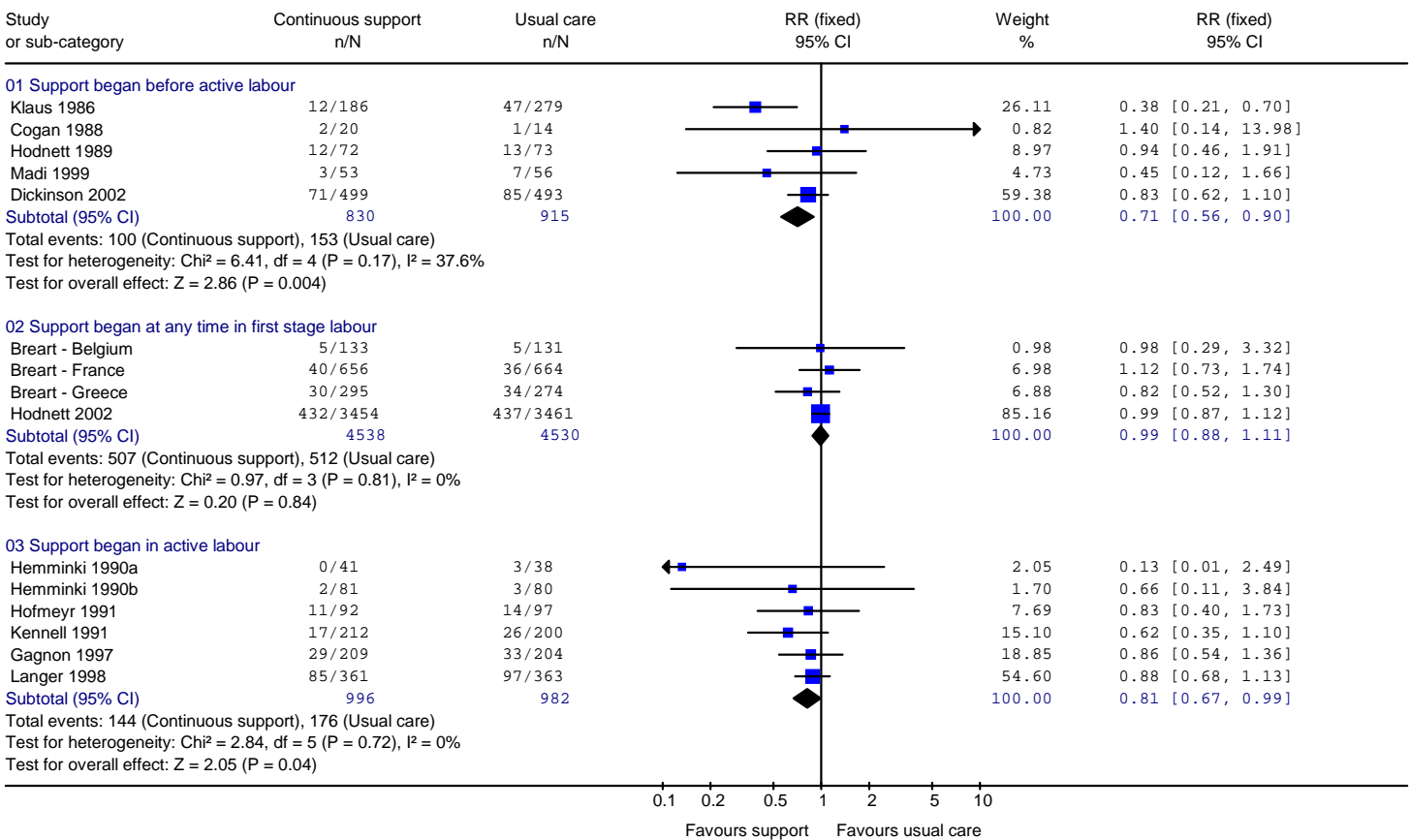
Review: Continuous support for women during childbirth  
 Comparison: 04 Continuous support during labour versus usual care - variations in timing of onset of support  
 Outcome: 02 Spontaneous vaginal birth



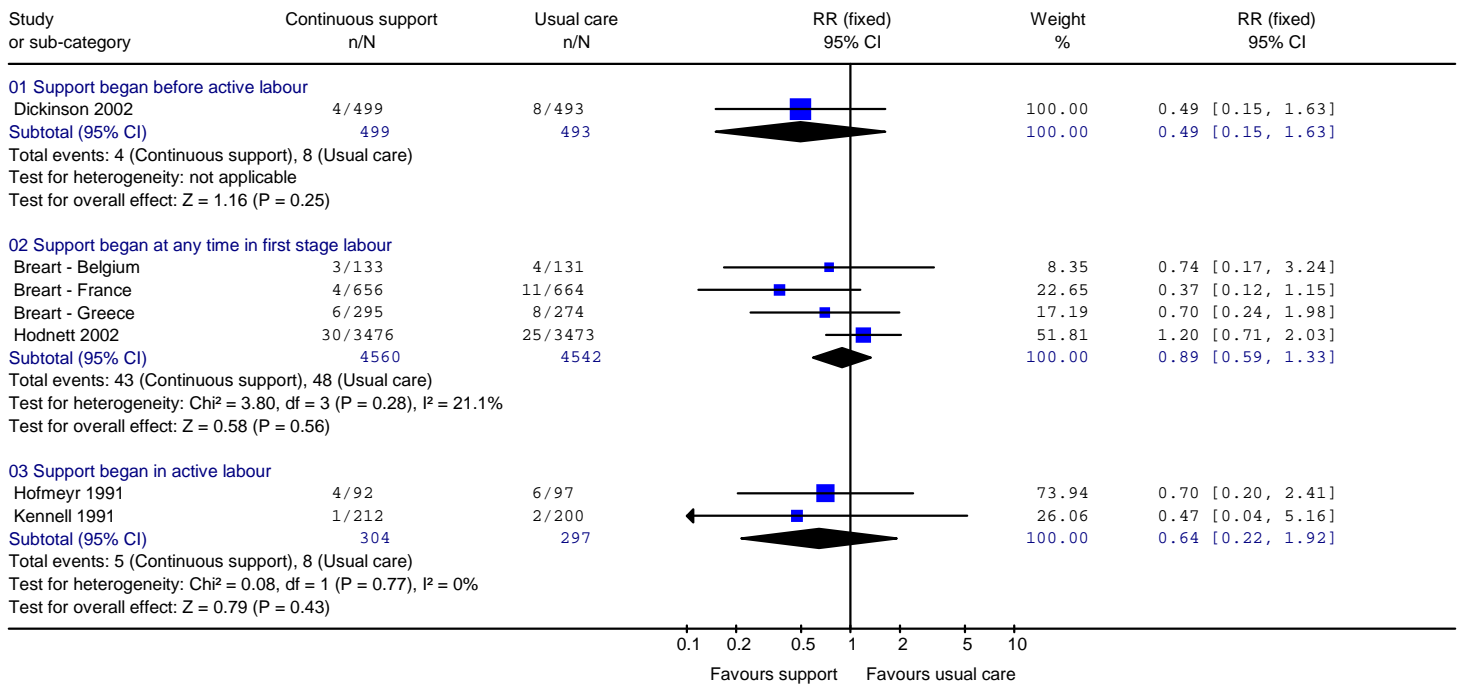
Review: Continuous support for women during childbirth  
 Comparison: 04 Continuous support during labour versus usual care - variations in timing of onset of support  
 Outcome: 03 Operative vaginal birth



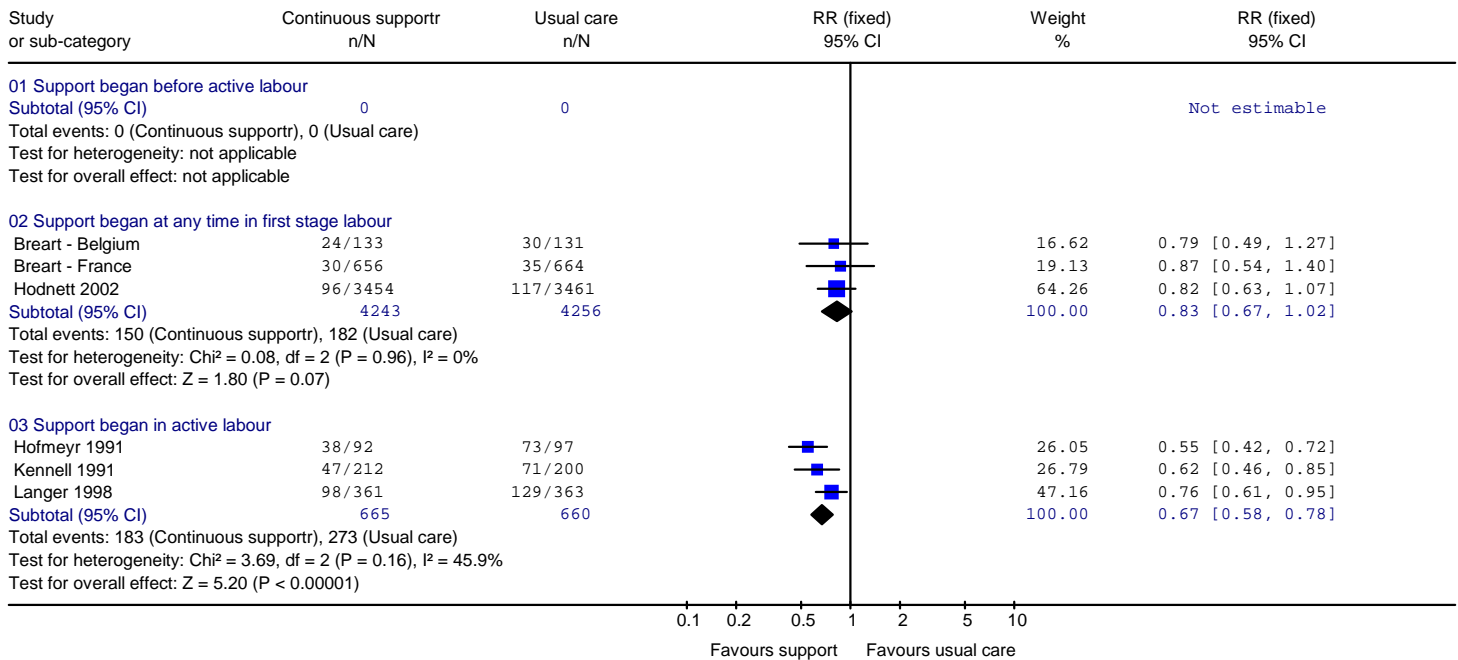
Review: Continuous support for women during childbirth  
 Comparison: 04 Continuous support during labour versus usual care - variations in timing of onset of support  
 Outcome: 04 Caesarean birth



Review: Continuous support for women during childbirth  
 Comparison: 04 Continuous support during labour versus usual care - variations in timing of onset of support  
 Outcome: 05 Low 5-minute Apgar score



Review: Continuous support for women during childbirth  
 Comparison: 04 Continuous support during labour versus usual care - variations in timing of onset of support  
 Outcome: 06 Dissatisfaction with/negative views of childbirth experience



Review: Continuous support for women during childbirth  
 Comparison: 04 Continuous support during labour versus usual care - variations in timing of onset of support  
 Outcome: 07 Postpartum depression

