

Active versus expectant management in the third stage of labour (Review)

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ABSTRACT

Background

Expectant management of the third stage of labour involves allowing the placenta to deliver spontaneously or aiding by gravity or nipple stimulation. Active management involves administration of a prophylactic oxytocic before delivery of the placenta, and usually early cord clamping and cutting, and controlled cord traction of the umbilical cord.

Objectives

The objective of this review was to assess the effects of active versus expectant management on blood loss, post partum haemorrhage and other maternal and perinatal complications of the third stage of labour.

Search strategy

We searched the Cochrane Pregnancy and Childbirth Group trials register.

Selection criteria

Randomised trials comparing active and expectant management of the third stage of labour in women who were expecting a vaginal delivery.

Data collection and analysis

Trial quality was assessed and data were extracted independently by the reviewers.

Main results

Five studies were included. Four of the trials were of good quality. Compared to expectant management, active management (in the setting of a maternity hospital) was associated with the following reduced risks: maternal blood loss (weighted mean difference -79.33 millilitres, 95% confidence interval -94.29 to -64.37); post partum haemorrhage of more than 500 millilitres (relative risk 0.38, 95% confidence interval 0.32 to 0.46); prolonged third stage of labour (weighted mean difference -9.77 minutes, 95% confidence interval -10.00 to -9.53). Active management was associated with an increased risk of maternal nausea (relative risk 1.83, 95% confidence interval 1.51 to 2.23), vomiting and raised blood pressure (probably due to the use of ergometrine). No advantages or disadvantages were apparent for the baby.

Authors' conclusions

Routine 'active management' is superior to 'expectant management' in terms of blood loss, post partum haemorrhage and other serious complications of the third stage of labour. Active management is, however, associated with an increased risk of unpleasant side effects (eg nausea and vomiting), and hypertension, where ergometrine is used. Active management should be the routine management of choice for women expecting to deliver a baby by vaginal delivery in a maternity hospital. The implications are less clear for other settings including domiciliary practice (in developing and industrialised countries).

PLAIN LANGUAGE SUMMARY

Active management of the third stage of labour reduces blood loss and haemorrhage after birth

The third stage of labour is that period from the birth of the baby until delivery of the placenta. Uterine muscles contract to stop maternal blood loss once the placenta separates. If this process does not work efficiently, the mother can haemorrhage. The review of trials found that active management of the third stage of labour, including drug administration, early cord clamping and controlled cord traction was more effective than expectant management, using none of these. Some of the drugs can cause side effects of nausea and vomiting. No effects were apparent for the baby.

BACKGROUND

The third stage of labour is that period from delivery of the baby until delivery of the placenta. After delivery of the baby and cessation of umbilical cord pulsation the placenta separates from the uterine wall through the decidua spongiosa and is delivered through the birth canal. The placenta separates as a result of capillary haemorrhage and the shearing effect of uterine muscle contraction. The degree of blood loss associated with placental separation and delivery depends on how quickly the placenta separates from the uterine wall and how effectively uterine muscle contracts around the placental bed during and after separation.

There are two quite different approaches to the clinical management of the third stage - expectant management and active management, and these have been the subject of a number of recent critical reviews (Elbourne 1995; Gyte 1992; Prendiville 1996; Prendiville 1989). Expectant management involves waiting for signs of separation and allowing the placenta to deliver spontaneously or aided by gravity or nipple stimulation. Expectant management is also known as conservative or physiological management and is popular in some northern European countries and in some units in the USA and Canada. It is also the usual practice in domiciliary practice in the developing world.

In contrast, with 'active' management the clinician chooses to intervene in this process by using the following interlocking interventions:

- (i) administration of a prophylactic oxytocic after delivery of the baby, and usually also;
- (ii) early cord clamping and cutting, and;
- (iii) controlled cord traction of the umbilical cord.

These interventions may be implemented routinely and prophylactically in an attempt to reduce the blood loss associated with the third stage of labour and to reduce the risk of post partum haemorrhage (PPH) (> 500mls) or severe PPH (> 1000mls). The package of active management is virtually standard practice in the UK, Australia, and several other countries.

Haemorrhage is the main cause of maternal death in a number of countries. It has been estimated that at least 25% of these deaths are due to haemorrhage - the majority due to postpartum haemorrhage (Abouzahr 1998). The vast majority of these happen in

the developing world. PPH is therefore the most important complication of the third stage of labour. It is perhaps surprising that, as yet, no consensus exists amongst clinicians concerning the best way to prevent post partum haemorrhage, ie the optimum routine prophylactic management of the third stage of labour.

Because of the importance of determining which policy is most likely to prevent PPH and the current differences in practice, five randomized controlled trials have been undertaken in the last decade. These are reviewed here.

OBJECTIVES

To compare the effects of active versus expectant management of the third stage of labour on blood loss and other maternal and perinatal complications of the third stage of labour.

CRITERIA FOR CONSIDERING STUDIES FOR THIS REVIEW

Types of studies

All randomized controlled trials of the package of active versus expectant management of the third stage of labour.

Types of participants

All women who expected a vaginal delivery.

Types of intervention

(a) Active management of the third stage of labour, which is here defined as the package of interventions comprising:

- (i) administration of a prophylactic oxytocic with or immediately after delivery of the baby and usually;
- (ii) early cord clamping and cutting;
- (iii) controlled cord traction to deliver the placenta.

(b) Expectant management of the third stage of labour which is here defined as a 'hands off' policy, where signs of separation are awaited and the placenta allowed to deliver spontaneously or with the aid of gravity or nipple stimulation. The components of active management described above are not routinely employed.

Types of outcome measures

Maternal and perinatal complications of the third stage of labour included in this review are listed below, for all women and for women at low risk of PPH:

PPH (clinically estimated blood loss greater than or equal to 500mls);
severe PPH (clinically estimated blood loss greater than or equal to 1000mls);
mean blood loss (mls);
maternal haemoglobin concentration (Hb) < 9gms/decilitre 24 to 48 hours post partum;
blood transfusion;
iron tablets during the puerperium;
therapeutic oxytocics;
third stage > 20 minutes;
third stage > 40 minutes;
mean length of third stage (minutes);
manual removal of the placenta;
subsequent surgical evacuation of retained products of conception;
diastolic blood pressure >100mmHg between delivery of baby and discharge from the labour ward;
vomiting between delivery of baby and discharge from the labour ward;
nausea between delivery of baby and discharge from the labour ward;
headache between delivery of baby and discharge from the labour ward;
maternal pain during third stage of labour;
maternal dissatisfaction with third stage management;
secondary PPH (after 24 hours and before 6 weeks);
bleeding needing readmission or antibiotics;
maternal fatigue at 6 weeks;
Apgar score < 7 at 5 minutes;
admission to special care baby unit;
jaundice (as defined by the authors);
not breastfeeding at discharge from hospital;
not breastfeeding at 6 weeks.

SEARCH METHODS FOR IDENTIFICATION OF STUDIES

See: methods used in reviews.

This review has drawn on the search strategy developed for the Pregnancy and Childbirth Group as a whole. See Review Group's details for more information.

In addition, the Cochrane Controlled Trials Register was searched using the key words 'third, 3rd, active, expectant, labour/labor'.

METHODS OF THE REVIEW

Trials under consideration were evaluated for methodological quality and appropriateness for inclusion, without consideration of their results. Further information was sought from individual authors.

Included trial data were processed as described in Clarke 1999.

DESCRIPTION OF STUDIES

Abu Dhabi 1997;
Brighton 1993;
Bristol 1988;
Dublin 1990;
Hinchingbrooke 1998.

All of these trials were undertaken in maternity units (in the UK or Ireland or Abu Dhabi). In the first four, active management of the third stage of labour was routine practice, and in the fifth trial both managements were routinely practised. The last four trials all restricted entry criteria to women with singleton, cephalic fetal presentations, but the first trial included women with multiple pregnancies and breech presentations. The oxytocic in active management was ergometrine given intravenously in Dublin; oxytocin given intramuscularly in Abu Dhabi; and a mixture of oxytocin and ergometrine given intramuscularly in the other three trials. For fuller details, see table of included studies.

METHODOLOGICAL QUALITY

Four of the trials (Bristol 1988; Dublin 1990; Hinchingbrooke 1998; Abu Dhabi 1997) are of good methodological quality. Randomization in all five trials was by consecutively numbered sealed opaque envelopes. Although some data presented in the published report of the Dublin 1990 trial by Begley 1989 are biased due to post randomization withdrawals, the data presented in this review are based on the randomized groups. The data from the Brighton 1993 trial also suffer from post randomization withdrawal and the information to correct this potential bias has so far not been made available. There is potential for assessment bias, as none of the trials could easily be 'blinded', but the effect of this was minimised, where feasible, by using objective indices of blood loss as well as clinical estimates.

RESULTS

Active management of the third stage of labour is associated with important reductions in clinically important outcomes, including PPH and severe PPH, post partum anaemia and the need for blood transfusion during the puerperium. Active management is

associated with a reduced risk of prolonged third stage of labour, and with a reduction in the use of therapeutic oxytocic drugs.

As far as adverse effects are concerned, active management results in an increase in nausea, vomiting, headache and hypertension when ergometrine is used as a component of the oxytocic drug used. Manual removal of the placenta and secondary PPH were more common after active management in the Dublin trial, but these effects were not seen in the other trials (and only one woman in the much smaller Brighton trial had a retained placenta). The greater use of manual removal of the placenta in the Dublin trial was reflected in an increased proportion of women in whom the third stage of labour lasted more than 40 minutes.

Neonatal outcomes were assessed in the Bristol and Hinchingsbrook trials. No clinically important differences between the groups were detected. The rate of breastfeeding at hospital discharge and at six weeks was, however, higher in the active group.

Further analyses focussed specifically on the sub-group of women who were at low risk of post partum haemorrhage (ie excluding those women at higher risk in the Bristol trial). The conclusions did not differ substantially from those derived from all women, except that the reduction in manual removal of the placenta was statistically significant at the 5% level. There was, however, considerable heterogeneity between the trials for this outcome (see 'Results' above, and 'Discussion' below).

DISCUSSION

Meta-analyses of the available data from these randomized controlled trials provides convincing evidence that blood loss and the risk of PPH will be reduced in women offered active management of the third stage of labour. This applies to all women, and also specifically to women considered to be at low risk of third stage complications.

In general these results are very similar across the four trials. The major inconsistency is in the need for manual removal of the placenta. The reasons for this are not clear. A possible explanation might be that the oxytocic used as part of the active management was either oxytocin alone or syntometrine (5iu oxytocin + 0.5mgms ergometrine) which was usually given by intramuscular injection, whereas in the Dublin trial 0.5mgms of ergometrine was given by intravenous injection. The choice of oxytocics is the subject of other reviews (McDonald 1998; Gulmezoglu 2004).

Another inconsistency between the Dublin and Bristol trials was in women's views of pain during the third stage of labour. The greater apparent frequency of pain reported in the active management arm in the Dublin trial may have been due to fundal pressure employed by the midwives.

Four of the trials were undertaken in units where active management was and is the routine practice. The Hinchingsbrook

trial showed that the benefits of active management persisted even where expectant management was also part of routine practice.

Active and expectant managements have variable definitions in different settings. The trials in this review were not designed to evaluate the relative benefits of the individual components of active or expectant management. These will be the subject of further reviews.

AUTHORS' CONCLUSIONS

Implications for practice

Routine 'active management' is superior to 'expectant management' in terms of blood loss, PPH and severe PPH and other serious complications of the third stage of labour. When ergometrine is a component of the oxytocic, active management is associated with an increased risk of unpleasant side effects (eg nausea and vomiting), and hypertension. Active management should be routine for women expecting a vaginal delivery in a maternity hospital. There is no evidence to suggest that this recommendation should not also include home births and birth centre births in a developed country situation.

Implications for research

The individual components of active management warrant separate evaluation in randomized controlled trials (RCTs).

There is a need for a randomized controlled trial of active versus expectant management of the third stage of labour in different clinical settings, such as in domiciliary practice in the developing world, where the risk of maternal mortality associated with the third stage of labour is high.

FEEDBACK

McAlpine, August 2002

Summary

I have some questions. In the four included studies, how many women were in each study and when were the studies done? Was a comparison made between maternity hospitals, birth centres, and home delivery? For postpartum haemorrhage of more than 500 mls, what does "relative risk 0.38, 95% confidence interval 0.32 to 0.46" mean in terms of numbers?

Why do you conclude that active management should be the 'routine' management of choice in a maternity hospital? What are the implications for other settings?

Author's reply

A new review team are currently preparing an update for this review and will respond to the feedback when the update has been completed.

[Reply from Cecily Begley, June 2007]

Contributors

Summary of comments from Elizabeth McAlpine, August, 2002

Matthews, December 2004

Summary

My anecdotal observation, having changed my practice to include physiological management of the third stage, is that women who choose this option have a decrease in the amount of lochia postpartum and a shorter duration of vaginal discharge. I have not seen any studies that could confirm or refute this.

Author's reply

A new review team are currently preparing an update for this review and will respond to the feedback when the update has been completed.

[Reply from Cecily Begley, June 2007]

Contributors

Comment received from Mary Jo Matthews, December 2004

POTENTIAL CONFLICT OF INTEREST

Two of the authors of the review are also authors of two of the trials in the review.

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Internal sources of support

- No sources of support supplied

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TABLES**Characteristics of included studies**

Study	Abu Dhabi 1997
Methods	Numbered sealed envelopes. Women only excluded after opening envelope if caesarean section. Otherwise all women followed-up in allocated group.
Participants	Women expected to deliver vaginally and who consented to participate
Interventions	Active: 10 IU oxytocin intramuscularly with delivery of anterior shoulder (given after delivery of baby if breech); cord clamped and cut immediately after delivery of baby; controlled cord traction after signs of separation and then every 2–3 minutes if unsuccessful. Expectant: no oxytocin before delivery of placenta (but 10 IU oxytocin in 500ml saline given intravenously after delivery of placenta); cord clamped and cut immediately after delivery of baby; no controlled cord traction after signs of separation and then every 2–3 minutes if unsuccessful.
Outcomes	Blood loss (measured by attending midwife or obstetrician and confirmed by second independent midwife unaware of allocation); PPH (loss \geq 500ml); severe PPH (loss \geq 1000ml); Hb and haematocrit 2 days postpartum; retained placenta (undelivered after 30 minutes); manual removal.
Notes	
Allocation concealment	A – Adequate

Study	Brighton 1993
Methods	Randomized trial. Allocation by recourse to 'standard randomized tables' on admission in labour. No prior power calculations performed.
Participants	Low risk population, ie gestation $>$ 37 weeks; para $<$ 5; cephalic presentation of singleton fetuses; no history of caesarean section, antepartum haemorrhage, PPH, pregnancy induced hypertension or intrauterine death;

Characteristics of included studies (Continued)

	103 women were allocated to active management and 90 to physiological management. The number of women not recruited but delivered during the trial period is not known nor are the reasons for exclusion presented in the publication. Exclusion criteria included augmentation of labour, operative delivery, third degree perineal tears or cervical lacerations. These exclusion criteria were grounds for withdrawal from the study following allocation.
Interventions	Active versus physiological management of the third stage of labour. See 'criteria for considering studies for the review' in the text of review for definitions.
Outcomes	1) Blood loss as assessed by a number of different indices including clinical assessment; perinatal haemoglobin estimation; need for therapeutic oxytocics; need for blood transfusion. 2) Length of third stage and diagnosis of retained placenta. No neonatal outcome data were collected. A secondary analysis of a low risk population was also performed and data from this subgroup are also included in this review.
Notes	
Allocation concealment	B – Unclear

Study	Bristol 1988
Methods	Randomized trial. Women recruited and consented prior to labour. Allocation by sealed preassigned envelopes which were opened just prior to delivery by the attendant midwife.
Participants	All women expected to deliver vaginally were eligible for recruitment. Of 4709 mothers who delivered during the trial period (1/1/86 - 31/1/87), 1695 were randomly allocated to either active (846) or physiological (849) management of the third stage of labour. The main reasons for exclusion were patient refusal, ante partum haemorrhage, cardiac disease, breech presentation or multiple pregnancy.
Interventions	Active or expectant (ie physiological) management of the third stage of labour. See criteria for considering studies in the text of review for definitions. Syntometrine was the routine oxytocic for active management.
Outcomes	1) Blood loss as assessed by a number of different indices including clinical estimation, diagnosis of PPH (500mls), diagnosis of PPH (1000mls) need for blood transfusion and post partum haemoglobin. 2) Time to deliver placenta, again using different criteria eg delivery within 20 minutes, delivery within 40 minutes, diagnosis of retained placenta, manual removal of placenta. 3) Neonatal outcomes including Apgar score, admission to special care unit, respiratory problems, neonatal haematocrit and bilirubin level. 4) Maternal side effects ie nausea, vomiting and hypertension. 5) Breastfeeding status at discharge from hospital. 6) Mothers' views of third stage management.
Notes	A secondary analysis of a low risk population was also performed and data from this subgroup are also included in this review.
Allocation concealment	A – Adequate

Study	Dublin 1990
Methods	Randomized trial. Allocation by preassigned sealed envelopes which were stapled to the eligible women's notes antenatally. Allocation revealed during second stage in anticipation of imminent delivery. The published results presented data from study groups according to treatment received. In this review, data are analysed from the study groups on an intention to treat basis.
Participants	Low risk women only recruited antenatally. Low risk criteria: singleton pregnancy, cephalic presentation, gestation > 35 weeks, no cardiac disease, no heparin therapy, no hypertension, age < 35, < para 5, no history of PPH, not anaemic (Hb < 11gms/l). Further exclusion criteria were epidural analgesia, antepartum haemorrhage, operative delivery, prolonged labour (< 15 hours). The most common reasons for exclusion were epidural anaesthesia, operative delivery, caesarean section, rapid delivery and hypertension. The study

population comprised 1429 women. Of these, 705 were allocated to active management and 724 to physiological. The number of women who delivered during the study period who were not recruited to the study is not known.

Interventions	Active versus physiological management of the third stage of labour. See criteria for considering studies for review in the text of review for definitions. IV ergometrine was the oxytocic of choice.
Outcomes	1) Blood loss as assessed by a number of different indices including clinical assessment, a diagnosis of PPH, need for therapeutic oxytocic therapy and post partum haemoglobin. 2) Time to deliver the placenta again using different indices including: manual removal of placenta, third stage length 20 minutes, third stage length 40 minutes and diagnosis of retained placenta. 3) Maternal side effects including nausea, vomiting, hypertension, headache and 'afterpains requiring analgesia'. Neonatal outcome data were not collected.
Notes	
Allocation concealment	A – Adequate

Study **Hinchingbrooke 1998**

Methods	Randomized controlled trial. Women recruited and consented prior to labour. Allocation by sealed pre-signed envelopes which were opened just prior to delivery by the attendant midwife.
Participants	Low risk women expecting a normal vaginal delivery at Hinchingbrooke Hospital, UK were eligible to participate. Exclusion criteria were: placenta praevia, previous PPH, antepartum haemorrhage after 20 weeks' gestation, anaemia (Hb < 10g/dL or MCV < 75fL), non-cephalic presentation, multiple pregnancy, intrauterine death, epidural anaesthesia, parity greater than 5, uterine fibroid, oxytocin infusion, anticoagulation therapy, intended instrumental/operative delivery, duration of pregnancy less than 32 weeks, any other contra-indication to either management. 6446 women gave birth during the period of the trial, and 4934 were ineligible or declined to participate, so 1512 were in the trial.
Interventions	Active or expectant management of the third stage of labour. See criteria for considering studies for review in the text of review for definitions. IM Syntometrine was the oxytocic of choice. A further comparison of upright or supine position was also made.
Outcomes	1) Blood loss as assessed by a number of different indices including clinical estimation, diagnosis of PPH (500mls), diagnosis of PPH (1000mls) need for blood transfusion and post partum haemoglobin. 2) Time to deliver placenta, again using different criteria, eg delivery within 20 minutes, delivery within 40 minutes, diagnosis of retained placenta, manual removal of placenta. 3) Neonatal outcomes including Apgar score, admission to special care unit, respiratory problems, neonatal haematocrit and bilirubin level. 4) Maternal side effects ie nausea, vomiting and hypertension. 5) Breastfeeding status at discharge from hospital. 6) Mothers' views of third stage management. 7) Maternal and infant wellbeing 6 weeks postnatally.

Notes

Allocation concealment D – Not used

Hb = haemoglobin

IM = intramuscular

IV = intravenous

MCV = mean corpuscular volume

PPH = postpartum haemorrhage

ANALYSES

Comparison 01. Active vs expectant management (all women)

Outcome title	No. of studies	No. of participants	Statistical method	Effect size
01 PPH clinically estimated blood loss greater than or equal to 500mls	4	6284	Relative Risk (Fixed) 95% CI	0.38 [0.32, 0.46]
02 Severe PPH clinically estimated blood loss greater than or equal to 1000mls	4	6284	Relative Risk (Fixed) 95% CI	0.33 [0.21, 0.51]
03 Mean blood loss (mls)	2	2941	Weighted Mean Difference (Fixed) 95% CI	-79.33 [-94.29, -64.37]
04 Maternal Hb < 9 g/dl 24 - 48 hours post partum	4	4255	Relative Risk (Fixed) 95% CI	0.40 [0.29, 0.55]
05 Blood transfusion	5	6477	Relative Risk (Fixed) 95% CI	0.34 [0.22, 0.53]
06 Iron tablets during the puerperium	1	1447	Relative Risk (Fixed) 95% CI	0.60 [0.49, 0.74]
07 Therapeutic oxytocics	5	6477	Relative Risk (Fixed) 95% CI	0.20 [0.17, 0.25]
08 Third stage > 20 minutes	3	4637	Relative Risk (Fixed) 95% CI	0.15 [0.12, 0.19]
09 Third stage > 40 minutes	3	4636	Relative Risk (Fixed) 95% CI	0.18 [0.14, 0.24]
10 Mean length of third stage (minutes)	3	4589	Weighted Mean Difference (Fixed) 95% CI	-9.77 [-10.00, -9.53]
11 Manual removal of placenta	5	6477	Relative Risk (Fixed) 95% CI	1.21 [0.82, 1.78]
12 Subsequent surgical evacuation of retained products of conception	3	4636	Relative Risk (Fixed) 95% CI	0.74 [0.43, 1.28]
13 Diastolic blood pressure > 100 mmHg between delivery of baby and discharge from labour ward	3	4636	Relative Risk (Fixed) 95% CI	3.46 [1.68, 7.09]
14 Vomiting between delivery of baby and discharge from labour ward	3	3407	Relative Risk (Fixed) 95% CI	2.19 [1.68, 2.86]
15 Nausea between delivery of baby and discharge from labour ward	3	3407	Relative Risk (Fixed) 95% CI	1.83 [1.51, 2.23]
16 Headache between delivery of baby and discharge from labour ward	3	3405	Relative Risk (Fixed) 95% CI	1.97 [1.01, 3.82]
17 Maternal pain during third stage of labour	2	391	Relative Risk (Fixed) 95% CI	1.01 [0.55, 1.86]
18 Maternal dissatisfaction with third stage management	1	1466	Relative Risk (Fixed) 95% CI	0.56 [0.35, 0.90]
19 Secondary PPH (after 24 hours and before 6 weeks)	2	3124	Relative Risk (Fixed) 95% CI	0.88 [0.49, 1.60]
20 Bleeding needing readmission or antibiotics	1	1429	Relative Risk (Fixed) 95% CI	11.30 [0.63, 203.91]
21 Maternal fatigue at 6 weeks	1	1507	Relative Risk (Fixed) 95% CI	0.95 [0.74, 1.22]
22 Apgar score < 7 at 5 minutes	1	1695	Relative Risk (Fixed) 95% CI	1.00 [0.38, 2.66]

Active versus expectant management in the third stage of labour (Review)

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23 Admission to special care baby unit	2	3207	Relative Risk (Fixed) 95% CI	0.82 [0.60, 1.11]
24 Jaundice (as defined by the authors)	2	3142	Relative Risk (Fixed) 95% CI	0.91 [0.66, 1.24]
25 Not breastfeeding at discharge from hospital	2	3142	Relative Risk (Fixed) 95% CI	0.92 [0.82, 1.04]
26 Not breastfeeding at 6 weeks	1	1447	Relative Risk (Fixed) 95% CI	0.93 [0.83, 1.04]

Comparison 02. Active vs expectant management (women at low risk of PPH)

Outcome title	No. of studies	No. of participants	Statistical method	Effect size
01 PPH clinically estimated blood loss greater than or equal to 500mls	3	3616	Relative Risk (Fixed) 95% CI	0.34 [0.27, 0.43]
02 Severe PPH clinically estimated blood loss greater than or equal to 1000mls	3	3616	Relative Risk (Fixed) 95% CI	0.47 [0.27, 0.82]
03 Mean blood loss (mls)	2	2941	Weighted Mean Difference (Fixed) 95% CI	-79.33 [-94.29, -64.37]
04 Maternal Hb < 9 g/dl 24 - 48 hours post partum	4	3417	Relative Risk (Fixed) 95% CI	0.29 [0.19, 0.44]
05 Blood transfusion	4	3809	Relative Risk (Fixed) 95% CI	0.27 [0.13, 0.55]
06 Iron tablets during the puerperium	1	1447	Relative Risk (Fixed) 95% CI	0.60 [0.49, 0.74]
07 Therapeutic oxytocics	4	3809	Relative Risk (Fixed) 95% CI	0.16 [0.12, 0.21]
08 Third stage > 20 minutes	3	3617	Relative Risk (Fixed) 95% CI	0.18 [0.14, 0.23]
09 Third stage > 40 minutes	3	3616	Relative Risk (Fixed) 95% CI	0.20 [0.14, 0.28]
10 Mean length of third stage (minutes)	2	2941	Weighted Mean Difference (Fixed) 95% CI	-3.39 [-4.66, -2.13]
11 Manual removal of placenta	4	3809	Relative Risk (Fixed) 95% CI	2.05 [1.20, 3.51]
12 Subsequent surgical evacuation of retained products of conception	3	3616	Relative Risk (Fixed) 95% CI	0.73 [0.36, 1.49]
13 Diastolic blood pressure > 100 mmHg between delivery of baby and discharge from labour ward	3	3616	Relative Risk (Fixed) 95% CI	9.65 [2.25, 41.30]
14 Vomiting between delivery of baby and discharge from labour ward	3	2387	Relative Risk (Fixed) 95% CI	2.21 [1.50, 3.27]
15 Nausea between delivery of baby and discharge from labour ward	3	2387	Relative Risk (Fixed) 95% CI	1.88 [1.44, 2.45]
16 Headache between delivery of baby and discharge from labour ward	3	2385	Relative Risk (Fixed) 95% CI	2.37 [0.98, 5.72]
17 Maternal pain during third stage of labour	1	200	Relative Risk (Fixed) 95% CI	3.53 [0.97, 12.93]
18 Maternal dissatisfaction with third stage management	1	1466	Relative Risk (Fixed) 95% CI	0.56 [0.35, 0.90]

19 Secondary PPH (after 24 hours and before 6 weeks)	2	2104	Relative Risk (Fixed) 95% CI	1.17 [0.56, 2.44]
20 Bleeding needing readmission or antibiotics	1	1429	Relative Risk (Fixed) 95% CI	11.30 [0.63, 203.91]
21 Maternal fatigue at 6 weeks	1	1507	Relative Risk (Fixed) 95% CI	0.95 [0.74, 1.22]
22 Apgar score < 7 at 5 minutes	2	677	Relative Risk (Fixed) 95% CI	0.99 [0.14, 6.95]
23 Admission to special care baby unit	2	2120	Relative Risk (Fixed) 95% CI	0.90 [0.58, 1.41]
24 Jaundice (as defined by the authors)	2	2119	Relative Risk (Fixed) 95% CI	1.13 [0.75, 1.72]
25 Not breastfeeding at discharge from hospital	2	2122	Relative Risk (Fixed) 95% CI	0.94 [0.81, 1.09]
26 Not breastfeeding at 6 weeks	1	1447	Relative Risk (Fixed) 95% CI	0.93 [0.83, 1.04]

INDEX TERMS

Medical Subject Headings (MeSH)

Delivery, Obstetric [*methods]; *Labor Stage, Third; Postpartum Hemorrhage [*prevention & control]

MeSH check words

Female; Humans; Pregnancy

COVER SHEET

Title	Active versus expectant management in the third stage of labour
Authors	Prendiville WJ, Elbourne D, McDonald S
Contribution of author(s)	Information not supplied by author
Issue protocol first published	1997/1
Review first published	1997/1
Date of most recent amendment	14 June 2007
Date of most recent SUBSTANTIVE amendment	09 March 2000
What's New	June 2007 This review is being updated by a new review team, who are currently updating the protocol.
Date new studies sought but none found	Information not supplied by author
Date new studies found but not yet included/excluded	Information not supplied by author
Date new studies found and included/excluded	Information not supplied by author
Date authors' conclusions section amended	Information not supplied by author
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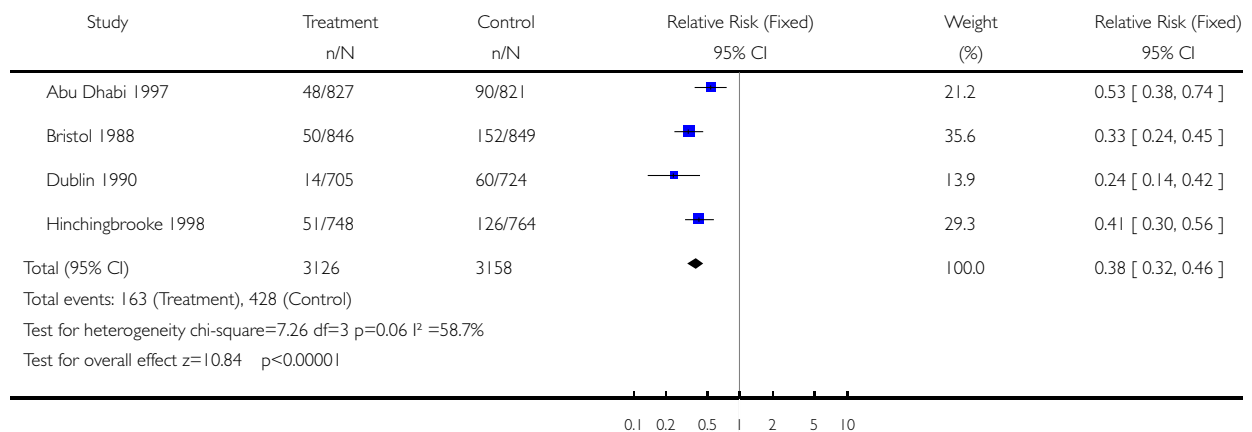
GRAPHS AND OTHER TABLES

Analysis 01.01. Comparison 01 Active vs expectant management (all women), Outcome 01 PPH clinically estimated blood loss greater than or equal to 500mls

Review: Active versus expectant management in the third stage of labour

Comparison: 01 Active vs expectant management (all women)

Outcome: 01 PPH clinically estimated blood loss greater than or equal to 500mls

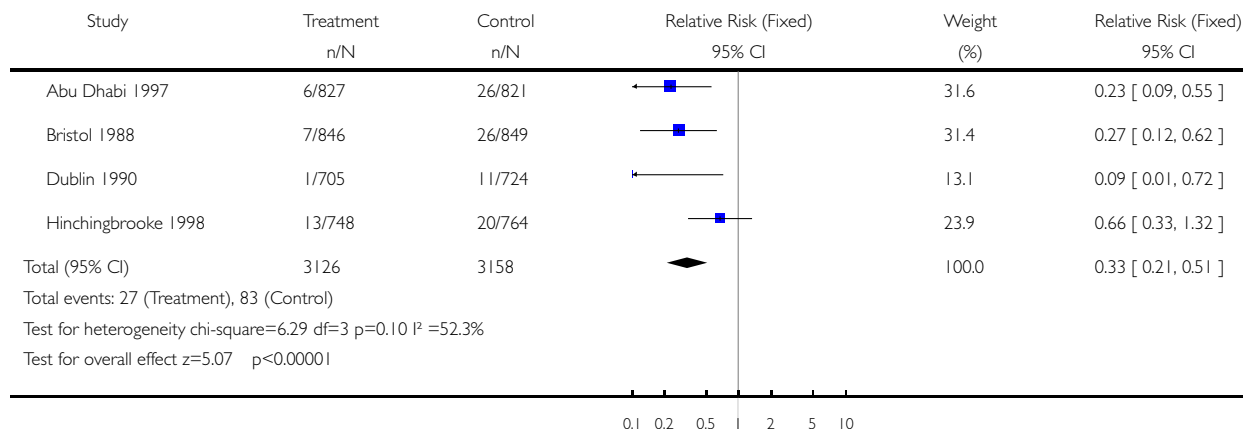


Analysis 01.02. Comparison 01 Active vs expectant management (all women), Outcome 02 Severe PPH clinically estimated blood loss greater than or equal to 1000mls

Review: Active versus expectant management in the third stage of labour

Comparison: 01 Active vs expectant management (all women)

Outcome: 02 Severe PPH clinically estimated blood loss greater than or equal to 1000mls

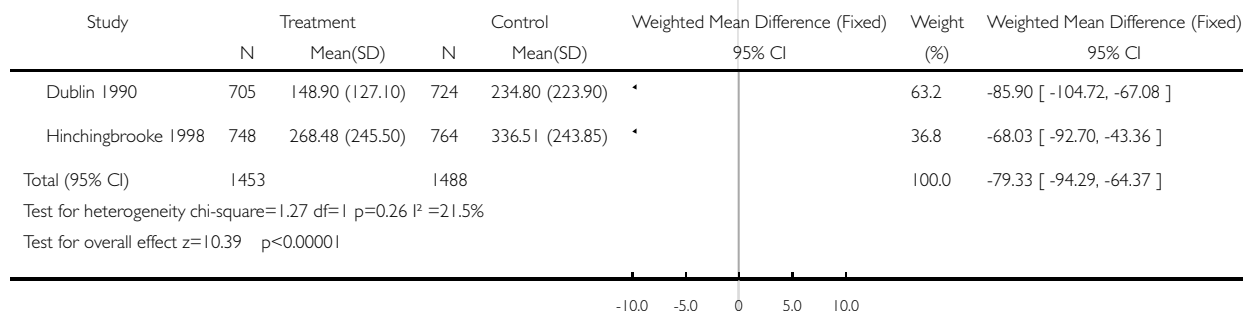


Analysis 01.03. Comparison 01 Active vs expectant management (all women), Outcome 03 Mean blood loss (mls)

Review: Active versus expectant management in the third stage of labour

Comparison: 01 Active vs expectant management (all women)

Outcome: 03 Mean blood loss (mls)

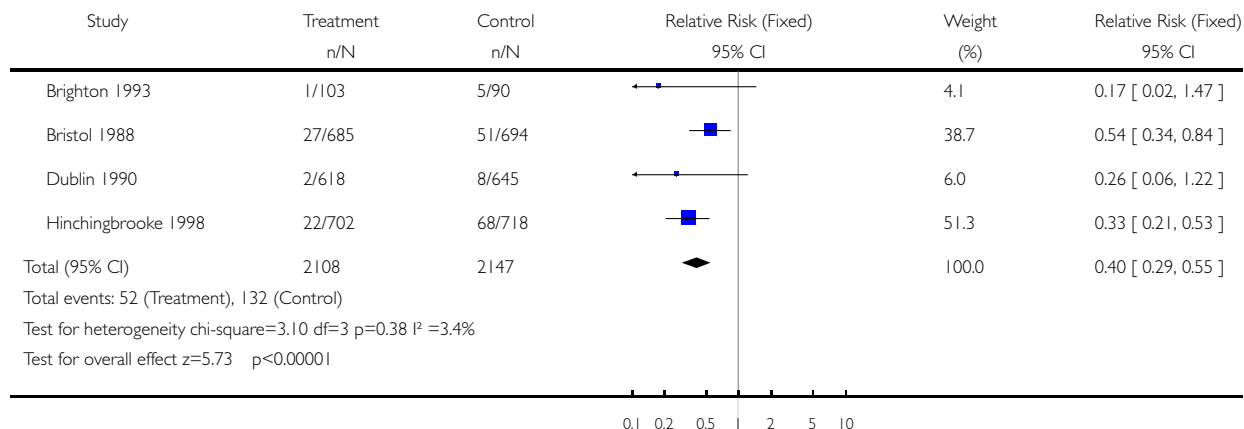


Analysis 01.04. Comparison 01 Active vs expectant management (all women), Outcome 04 Maternal Hb < 9 g/dl 24 - 48 hours post partum

Review: Active versus expectant management in the third stage of labour

Comparison: 01 Active vs expectant management (all women)

Outcome: 04 Maternal Hb < 9 g/dl 24 - 48 hours post partum

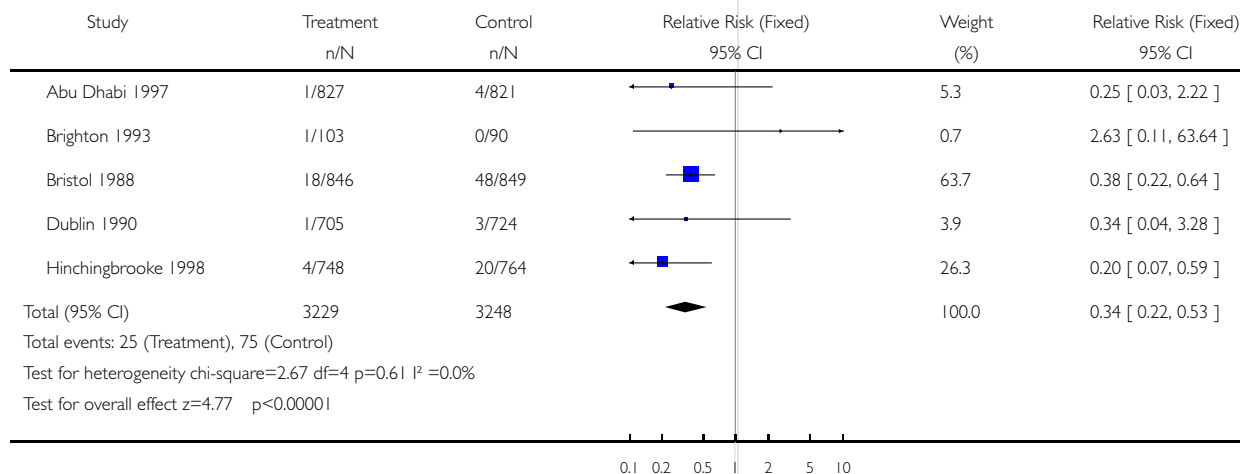


Analysis 01.05. Comparison 01 Active vs expectant management (all women), Outcome 05 Blood transfusion

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Comparison: 01 Active vs expectant management (all women)

Outcome: 05 Blood transfusion

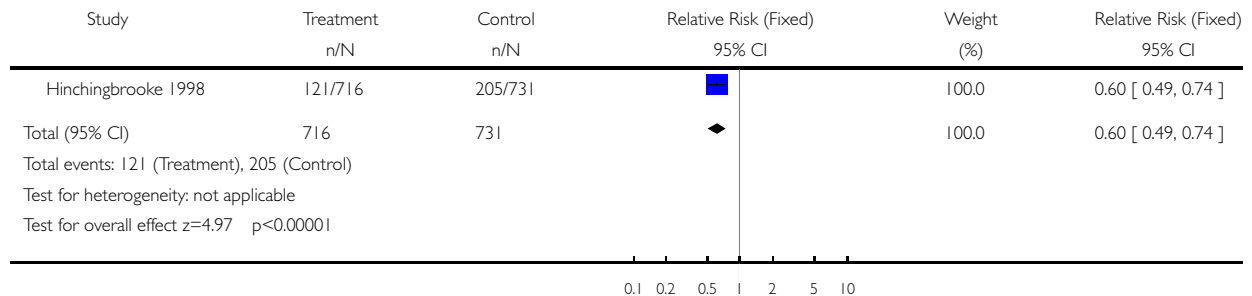


Analysis 01.06. Comparison 01 Active vs expectant management (all women), Outcome 06 Iron tablets during the puerperium

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Comparison: 01 Active vs expectant management (all women)

Outcome: 06 Iron tablets during the puerperium

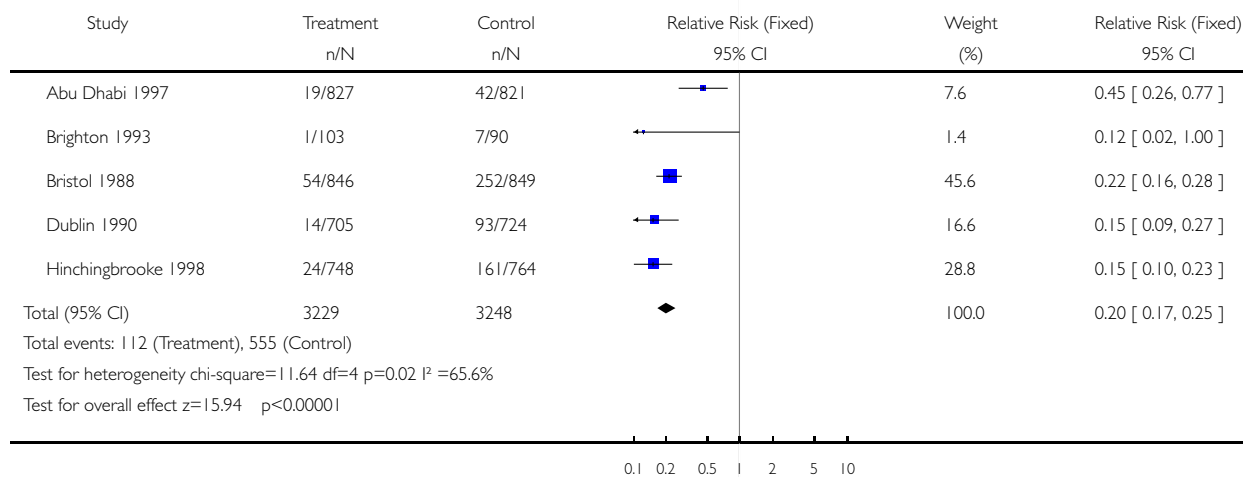


Analysis 01.07. Comparison 01 Active vs expectant management (all women), Outcome 07 Therapeutic oxytocics

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Comparison: 01 Active vs expectant management (all women)

Outcome: 07 Therapeutic oxytocics

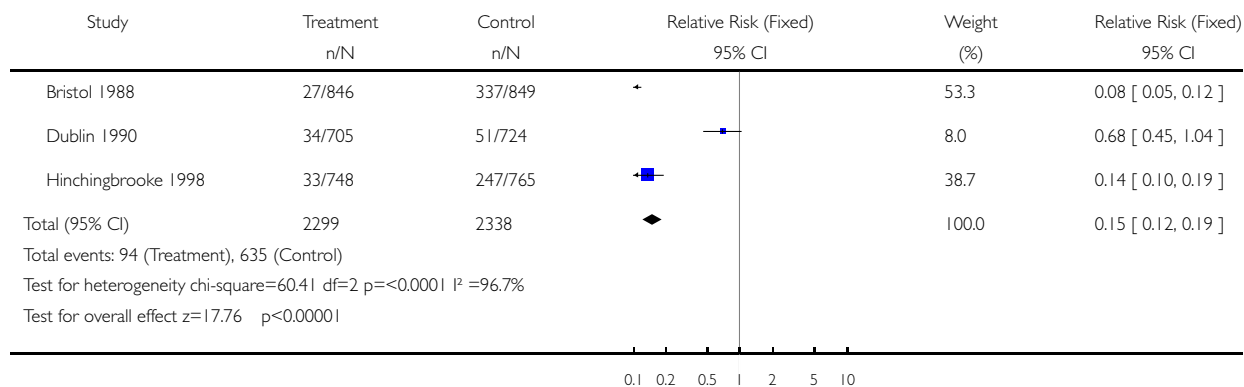


Analysis 01.08. Comparison 01 Active vs expectant management (all women), Outcome 08 Third stage > 20 minutes

Review: Active versus expectant management in the third stage of labour

Comparison: 01 Active vs expectant management (all women)

Outcome: 08 Third stage > 20 minutes

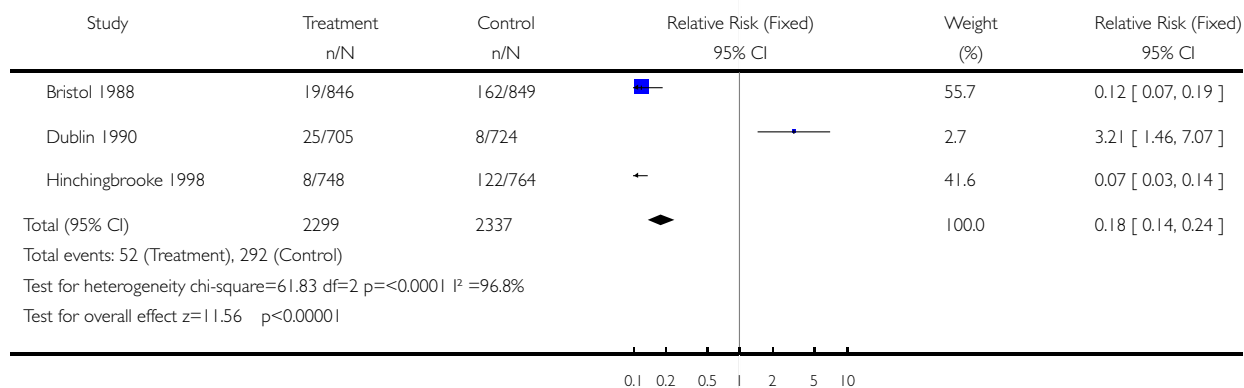


Analysis 01.09. Comparison 01 Active vs expectant management (all women), Outcome 09 Third stage > 40 minutes

Review: Active versus expectant management in the third stage of labour

Comparison: 01 Active vs expectant management (all women)

Outcome: 09 Third stage > 40 minutes

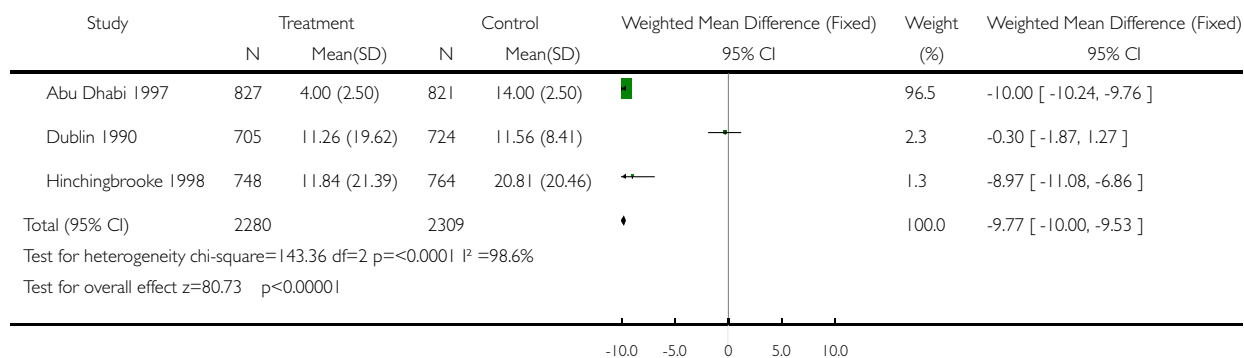


Analysis 01.10. Comparison 01 Active vs expectant management (all women), Outcome 10 Mean length of third stage (minutes)

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Comparison: 01 Active vs expectant management (all women)

Outcome: 10 Mean length of third stage (minutes)

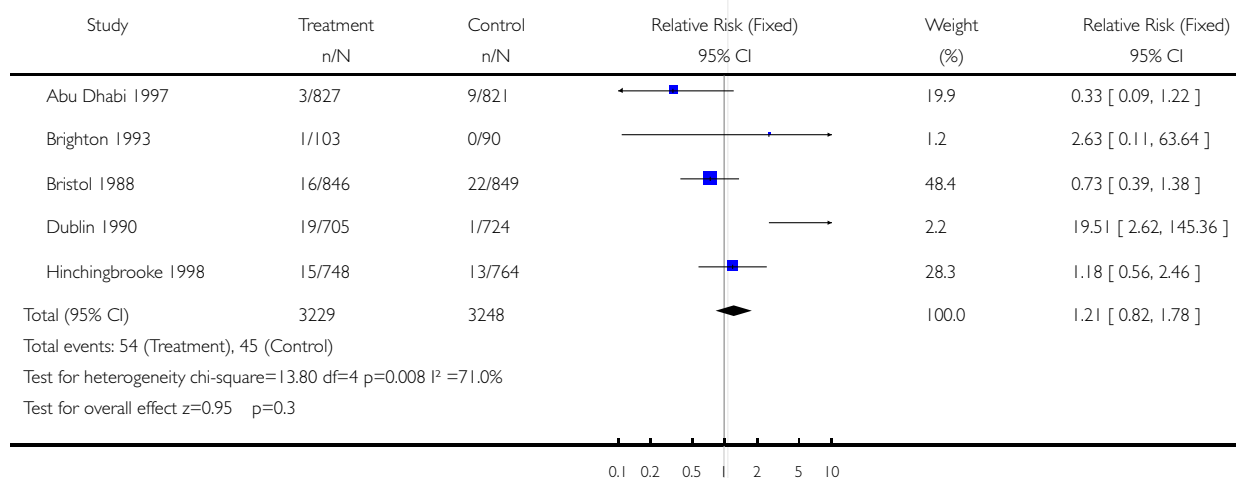


Analysis 01.11. Comparison 01 Active vs expectant management (all women), Outcome 11 Manual removal of placenta

Review: Active versus expectant management in the third stage of labour

Comparison: 01 Active vs expectant management (all women)

Outcome: 11 Manual removal of placenta

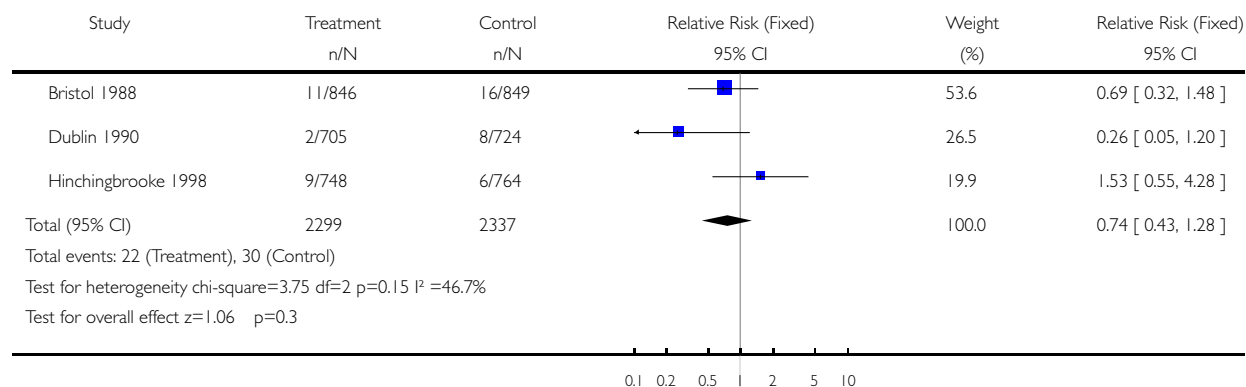


Analysis 01.12. Comparison 01 Active vs expectant management (all women), Outcome 12 Subsequent surgical evacuation of retained products of conception

Review: Active versus expectant management in the third stage of labour

Comparison: 01 Active vs expectant management (all women)

Outcome: 12 Subsequent surgical evacuation of retained products of conception

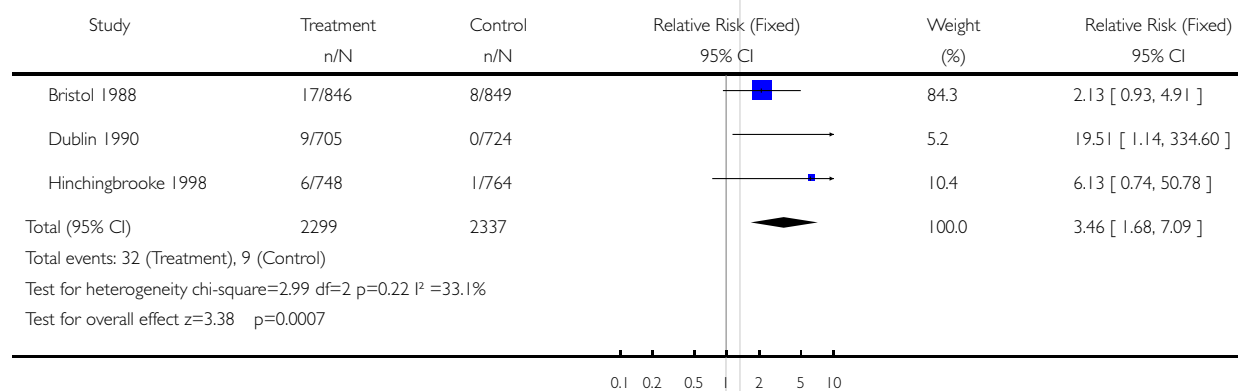


Analysis 01.13. Comparison 01 Active vs expectant management (all women), Outcome 13 Diastolic blood pressure > 100 mmHg between delivery of baby and discharge from labour ward

Review: Active versus expectant management in the third stage of labour

Comparison: 01 Active vs expectant management (all women)

Outcome: 13 Diastolic blood pressure > 100 mmHg between delivery of baby and discharge from labour ward

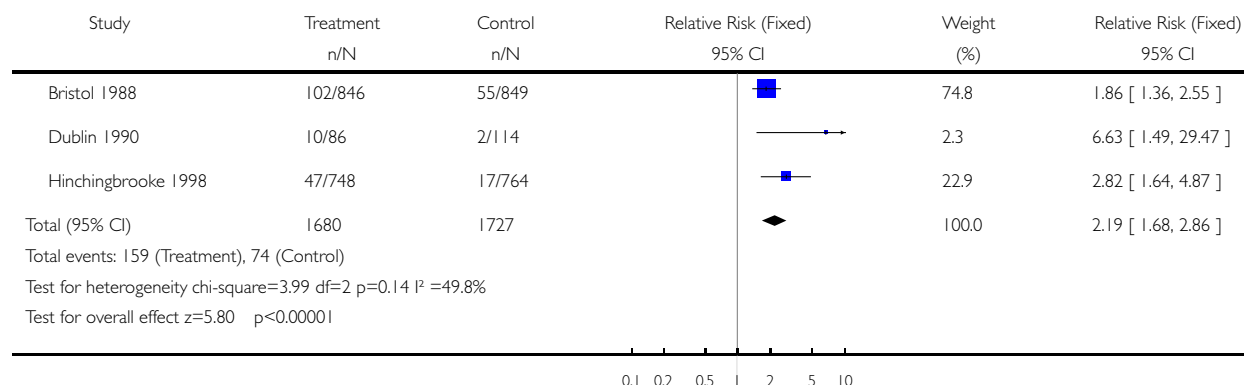


Analysis 01.14. Comparison 01 Active vs expectant management (all women), Outcome 14 Vomiting between delivery of baby and discharge from labour ward

Review: Active versus expectant management in the third stage of labour

Comparison: 01 Active vs expectant management (all women)

Outcome: 14 Vomiting between delivery of baby and discharge from labour ward

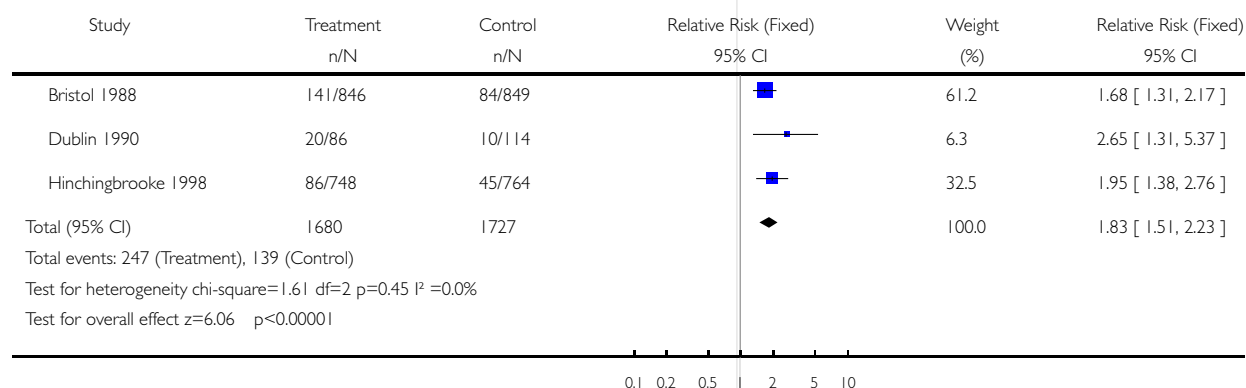


Analysis 01.15. Comparison 01 Active vs expectant management (all women), Outcome 15 Nausea between delivery of baby and discharge from labour ward

Review: Active versus expectant management in the third stage of labour

Comparison: 01 Active vs expectant management (all women)

Outcome: 15 Nausea between delivery of baby and discharge from labour ward

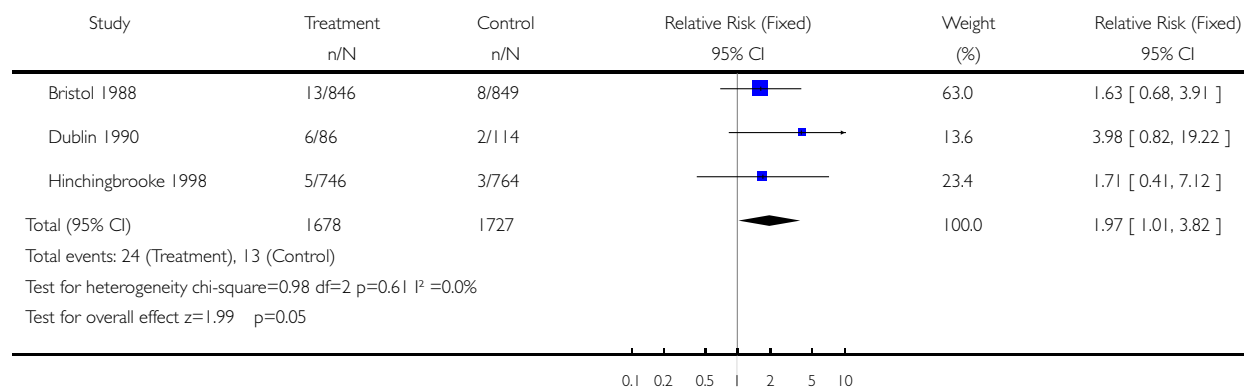


Analysis 01.16. Comparison 01 Active vs expectant management (all women), Outcome 16 Headache between delivery of baby and discharge from labour ward

Review: Active versus expectant management in the third stage of labour

Comparison: 01 Active vs expectant management (all women)

Outcome: 16 Headache between delivery of baby and discharge from labour ward

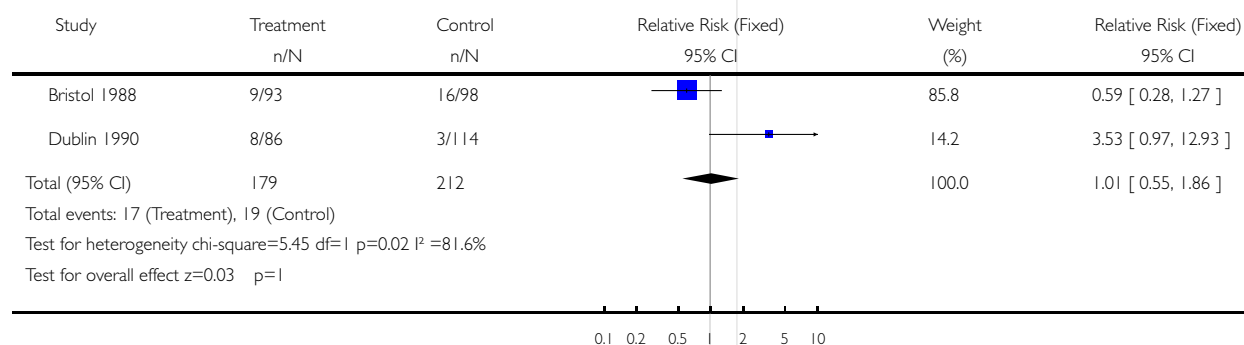


Analysis 01.17. Comparison 01 Active vs expectant management (all women), Outcome 17 Maternal pain during third stage of labour

Review: Active versus expectant management in the third stage of labour

Comparison: 01 Active vs expectant management (all women)

Outcome: 17 Maternal pain during third stage of labour

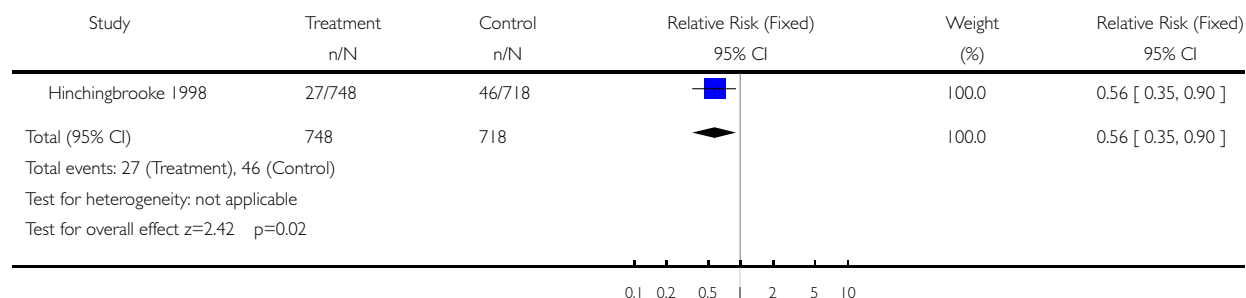


Analysis 01.18. Comparison 01 Active vs expectant management (all women), Outcome 18 Maternal dissatisfaction with third stage management

Review: Active versus expectant management in the third stage of labour

Comparison: 01 Active vs expectant management (all women)

Outcome: 18 Maternal dissatisfaction with third stage management

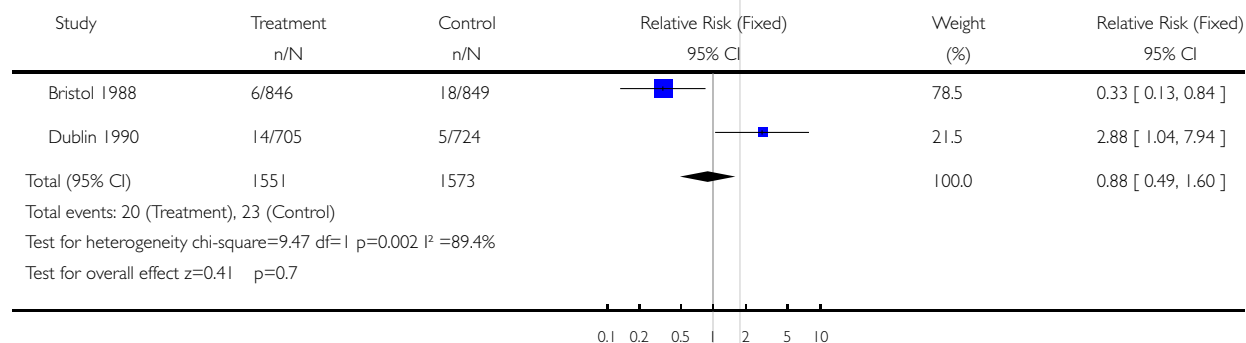


Analysis 01.19. Comparison 01 Active vs expectant management (all women), Outcome 19 Secondary PPH (after 24 hours and before 6 weeks)

Review: Active versus expectant management in the third stage of labour

Comparison: 01 Active vs expectant management (all women)

Outcome: 19 Secondary PPH (after 24 hours and before 6 weeks)

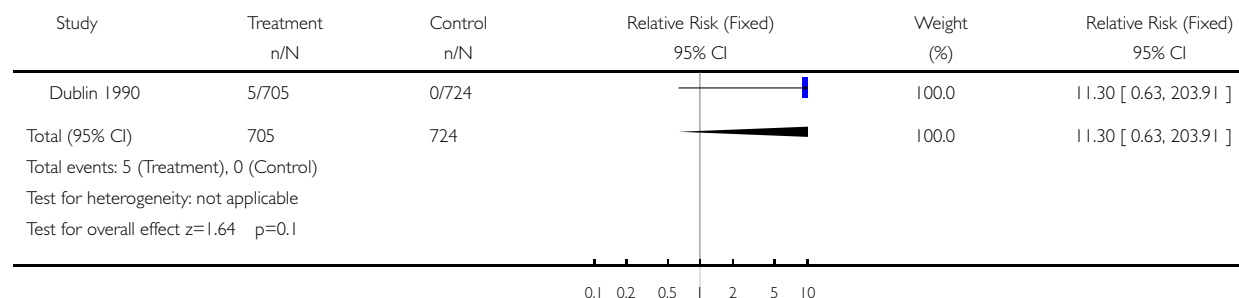


Analysis 01.20. Comparison 01 Active vs expectant management (all women), Outcome 20 Bleeding needing readmission or antibiotics

Review: Active versus expectant management in the third stage of labour

Comparison: 01 Active vs expectant management (all women)

Outcome: 20 Bleeding needing readmission or antibiotics

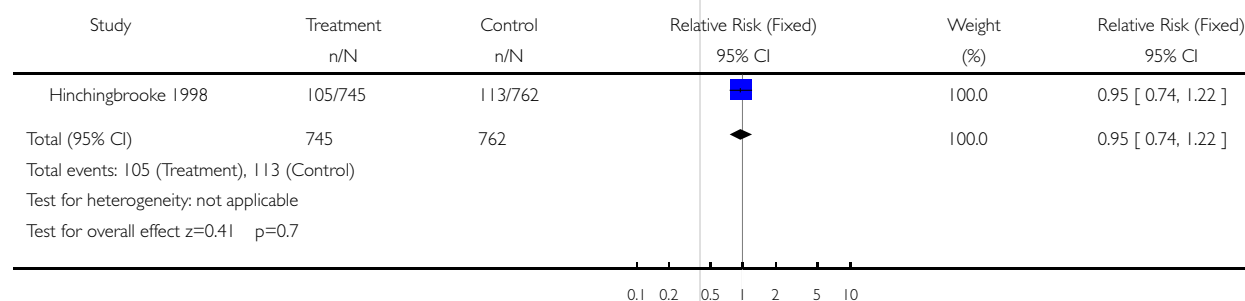


Analysis 01.21. Comparison 01 Active vs expectant management (all women), Outcome 21 Maternal fatigue at 6 weeks

Review: Active versus expectant management in the third stage of labour

Comparison: 01 Active vs expectant management (all women)

Outcome: 21 Maternal fatigue at 6 weeks

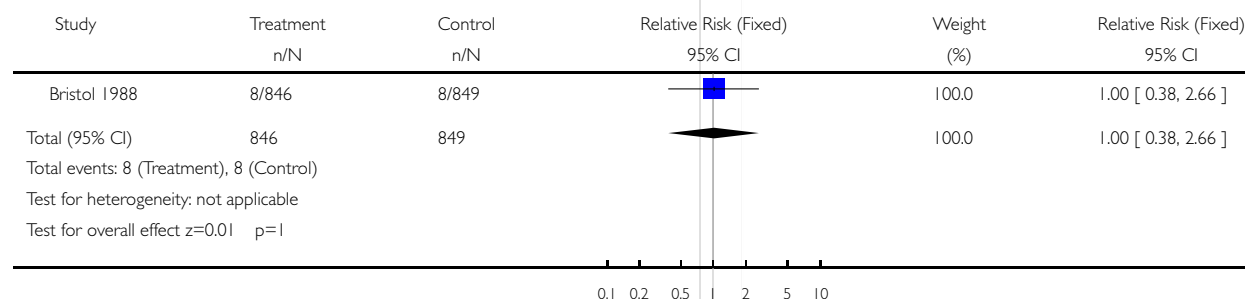


Analysis 01.22. Comparison 01 Active vs expectant management (all women), Outcome 22 Apgar score < 7 at 5 minutes

Review: Active versus expectant management in the third stage of labour

Comparison: 01 Active vs expectant management (all women)

Outcome: 22 Apgar score < 7 at 5 minutes

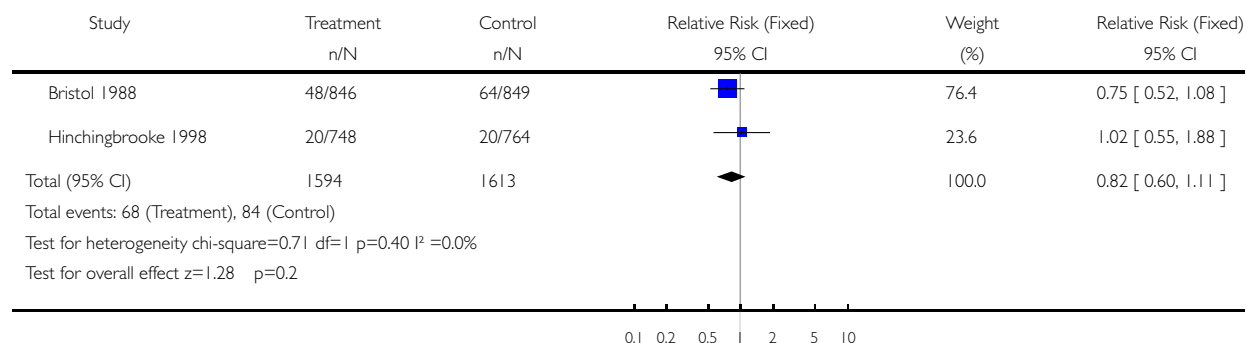


Analysis 01.23. Comparison 01 Active vs expectant management (all women), Outcome 23 Admission to special care baby unit

Review: Active versus expectant management in the third stage of labour

Comparison: 01 Active vs expectant management (all women)

Outcome: 23 Admission to special care baby unit

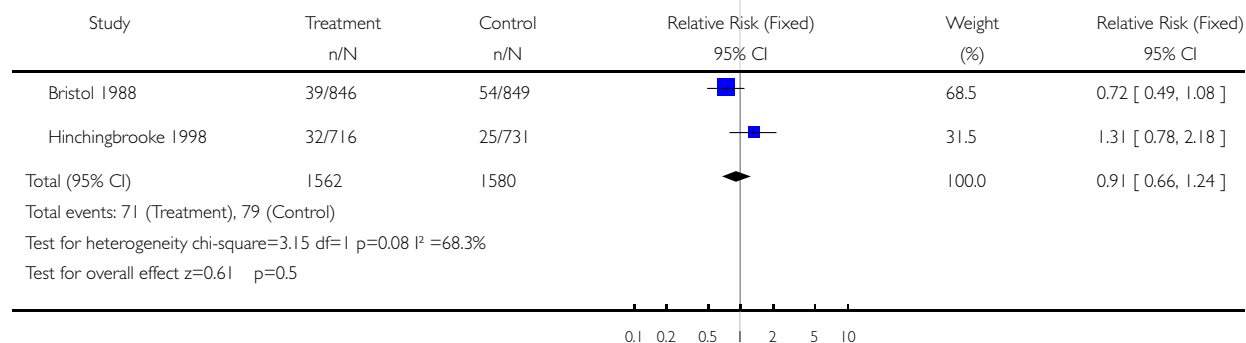


Analysis 01.24. Comparison 01 Active vs expectant management (all women), Outcome 24 Jaundice (as defined by the authors)

Review: Active versus expectant management in the third stage of labour

Comparison: 01 Active vs expectant management (all women)

Outcome: 24 Jaundice (as defined by the authors)

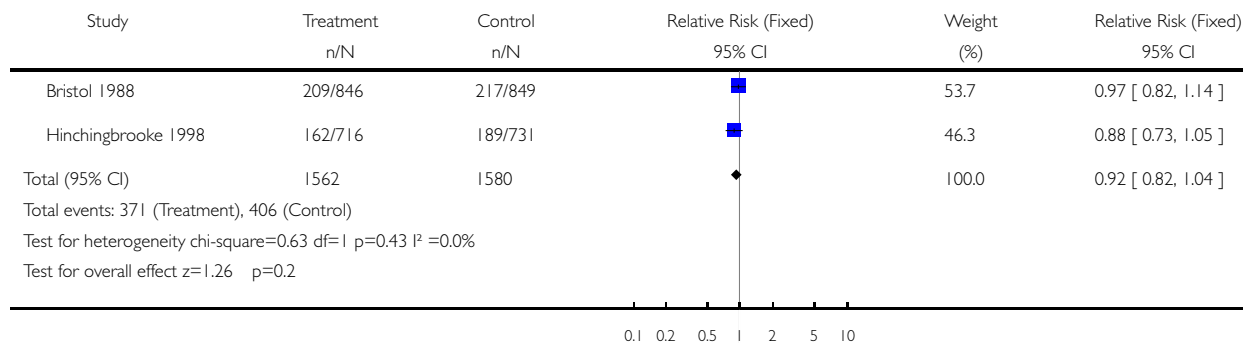


Analysis 01.25. Comparison 01 Active vs expectant management (all women), Outcome 25 Not breastfeeding at discharge from hospital

Review: Active versus expectant management in the third stage of labour

Comparison: 01 Active vs expectant management (all women)

Outcome: 25 Not breastfeeding at discharge from hospital

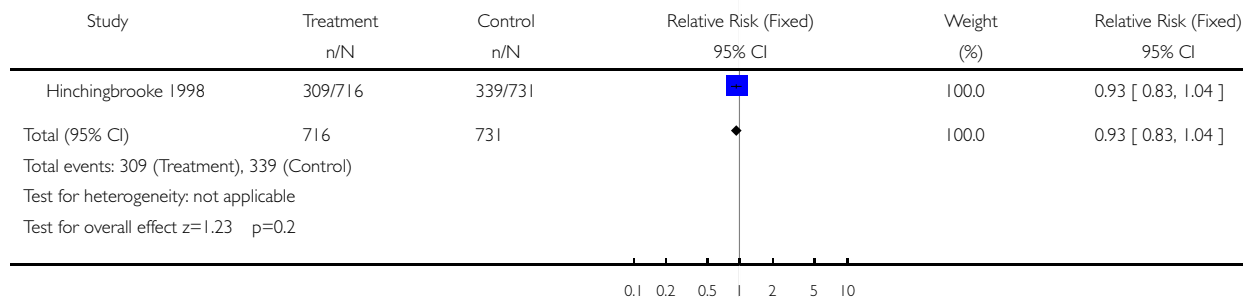


Analysis 01.26. Comparison 01 Active vs expectant management (all women), Outcome 26 Not breastfeeding at 6 weeks

Review: Active versus expectant management in the third stage of labour

Comparison: 01 Active vs expectant management (all women)

Outcome: 26 Not breastfeeding at 6 weeks

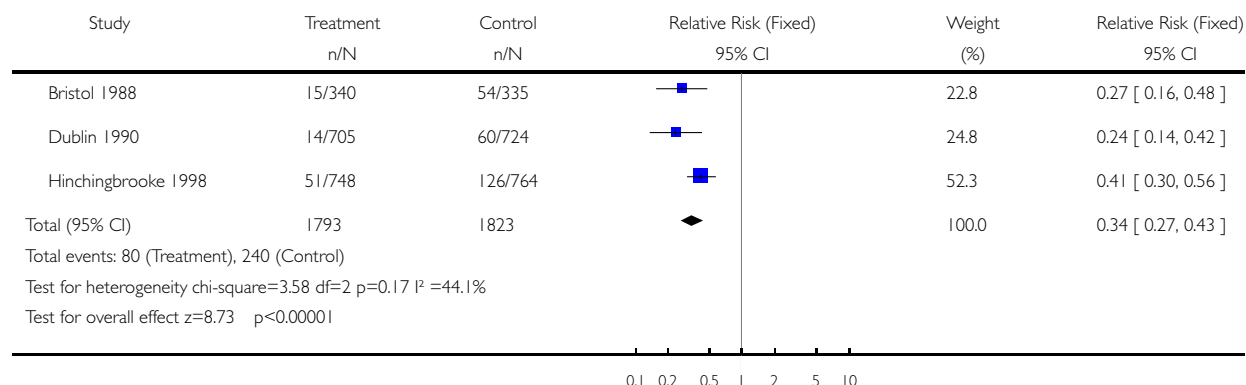


Analysis 02.01. Comparison 02 Active vs expectant management (women at low risk of PPH), Outcome 01 PPH clinically estimated blood loss greater than or equal to 500mls

Review: Active versus expectant management in the third stage of labour

Comparison: 02 Active vs expectant management (women at low risk of PPH)

Outcome: 01 PPH clinically estimated blood loss greater than or equal to 500mls

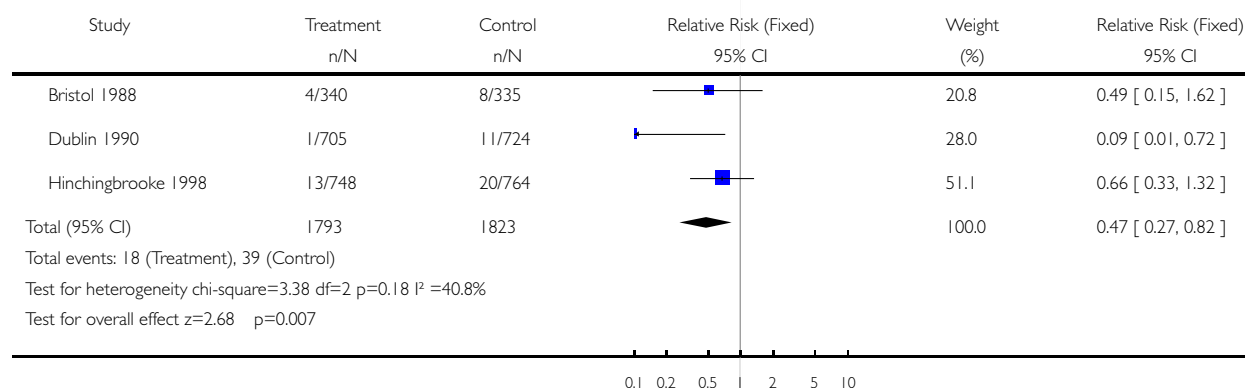


Analysis 02.02. Comparison 02 Active vs expectant management (women at low risk of PPH), Outcome 02 Severe PPH clinically estimated blood loss greater than or equal to 1000mls

Review: Active versus expectant management in the third stage of labour

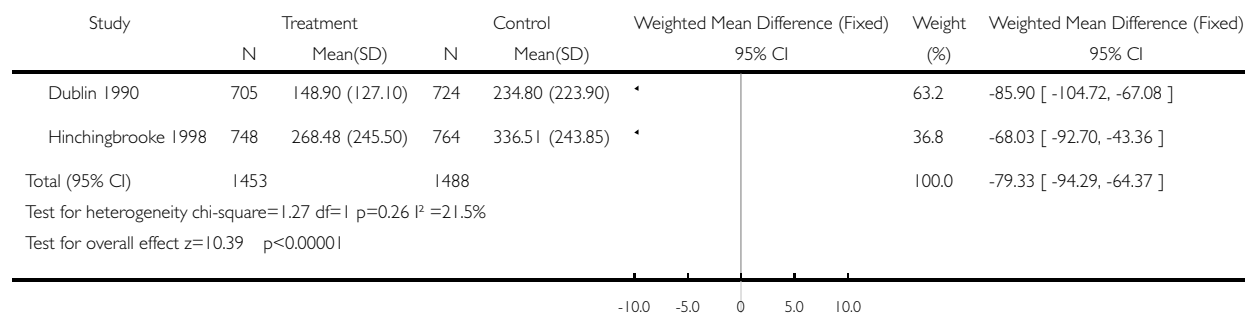
Comparison: 02 Active vs expectant management (women at low risk of PPH)

Outcome: 02 Severe PPH clinically estimated blood loss greater than or equal to 1000mls



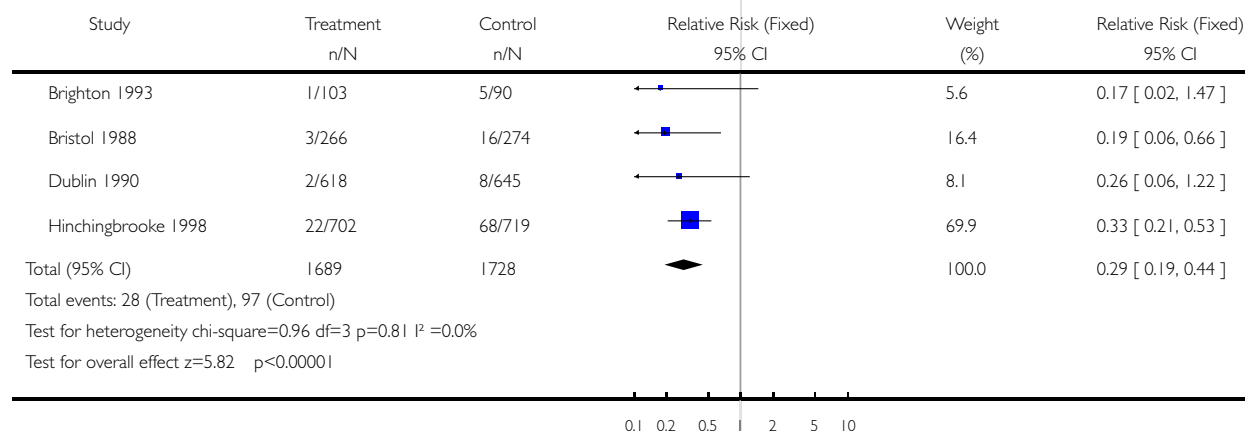
Analysis 02.03. Comparison 02 Active vs expectant management (women at low risk of PPH), Outcome 03 Mean blood loss (mls)

Review: Active versus expectant management in the third stage of labour
Comparison: 02 Active vs expectant management (women at low risk of PPH)
Outcome: 03 Mean blood loss (mls)



Analysis 02.04. Comparison 02 Active vs expectant management (women at low risk of PPH), Outcome 04 Maternal Hb < 9 g/dl 24 - 48 hours post partum

Review: Active versus expectant management in the third stage of labour
Comparison: 02 Active vs expectant management (women at low risk of PPH)
Outcome: 04 Maternal Hb < 9 g/dl 24 - 48 hours post partum

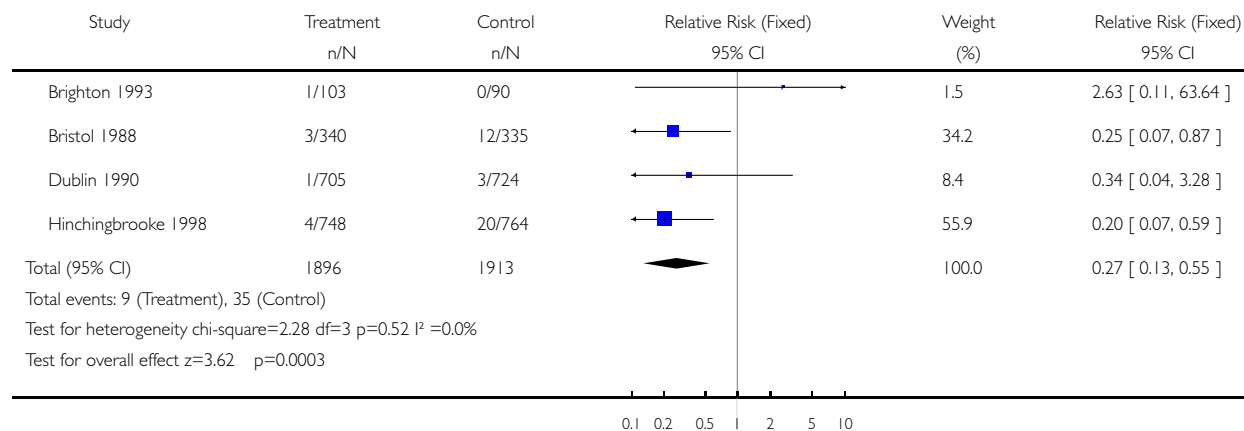


Analysis 02.05. Comparison 02 Active vs expectant management (women at low risk of PPH), Outcome 05 Blood transfusion

Review: Active versus expectant management in the third stage of labour

Comparison: 02 Active vs expectant management (women at low risk of PPH)

Outcome: 05 Blood transfusion

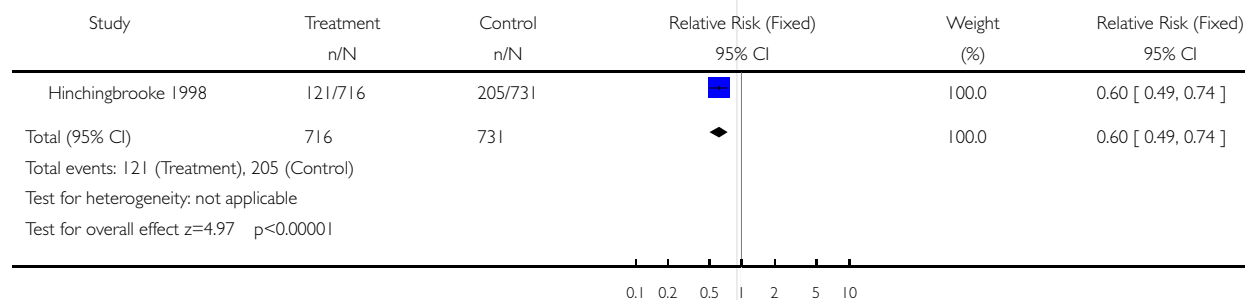


Analysis 02.06. Comparison 02 Active vs expectant management (women at low risk of PPH), Outcome 06 Iron tablets during the puerperium

Review: Active versus expectant management in the third stage of labour

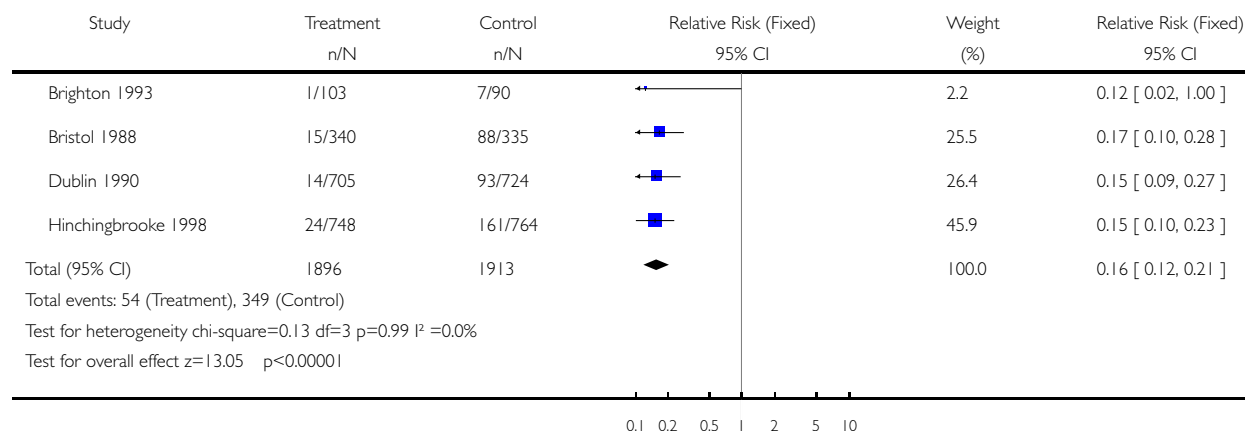
Comparison: 02 Active vs expectant management (women at low risk of PPH)

Outcome: 06 Iron tablets during the puerperium



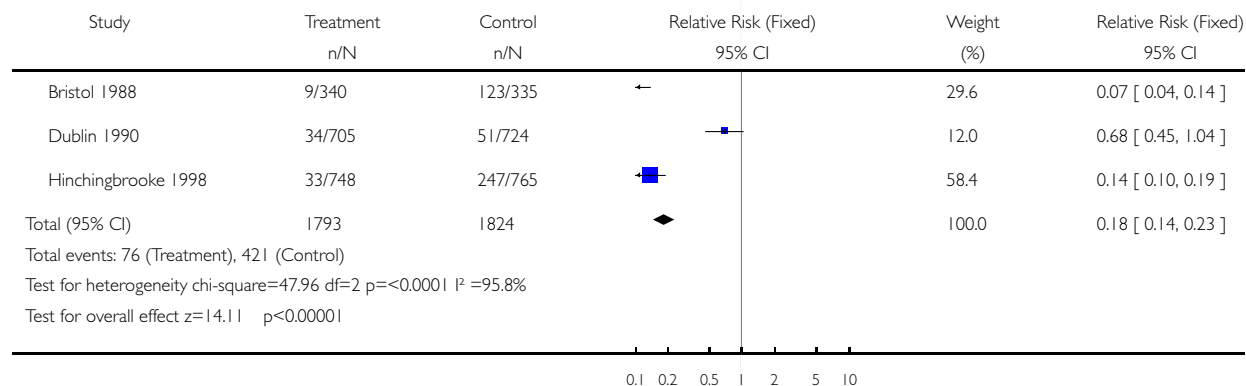
Analysis 02.07. Comparison 02 Active vs expectant management (women at low risk of PPH), Outcome 07 Therapeutic oxytocics

Review: Active versus expectant management in the third stage of labour
Comparison: 02 Active vs expectant management (women at low risk of PPH)
Outcome: 07 Therapeutic oxytocics



Analysis 02.08. Comparison 02 Active vs expectant management (women at low risk of PPH), Outcome 08 Third stage > 20 minutes

Review: Active versus expectant management in the third stage of labour
Comparison: 02 Active vs expectant management (women at low risk of PPH)
Outcome: 08 Third stage > 20 minutes

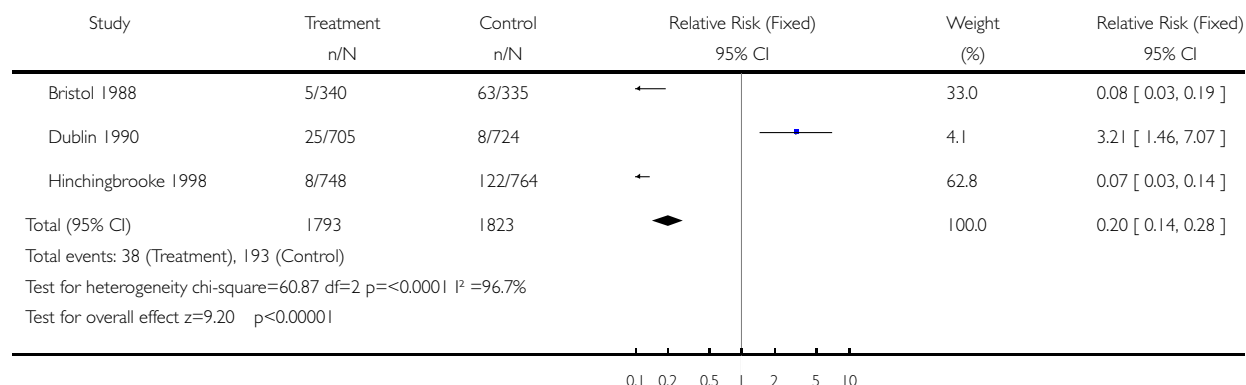


Analysis 02.09. Comparison 02 Active vs expectant management (women at low risk of PPH), Outcome 09 Third stage > 40 minutes

Review: Active versus expectant management in the third stage of labour

Comparison: 02 Active vs expectant management (women at low risk of PPH)

Outcome: 09 Third stage > 40 minutes

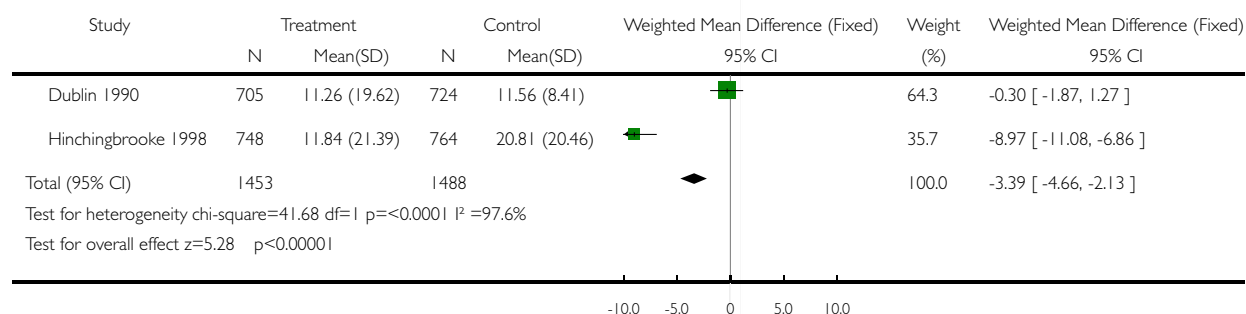


Analysis 02.10. Comparison 02 Active vs expectant management (women at low risk of PPH), Outcome 10 Mean length of third stage (minutes)

Review: Active versus expectant management in the third stage of labour

Comparison: 02 Active vs expectant management (women at low risk of PPH)

Outcome: 10 Mean length of third stage (minutes)

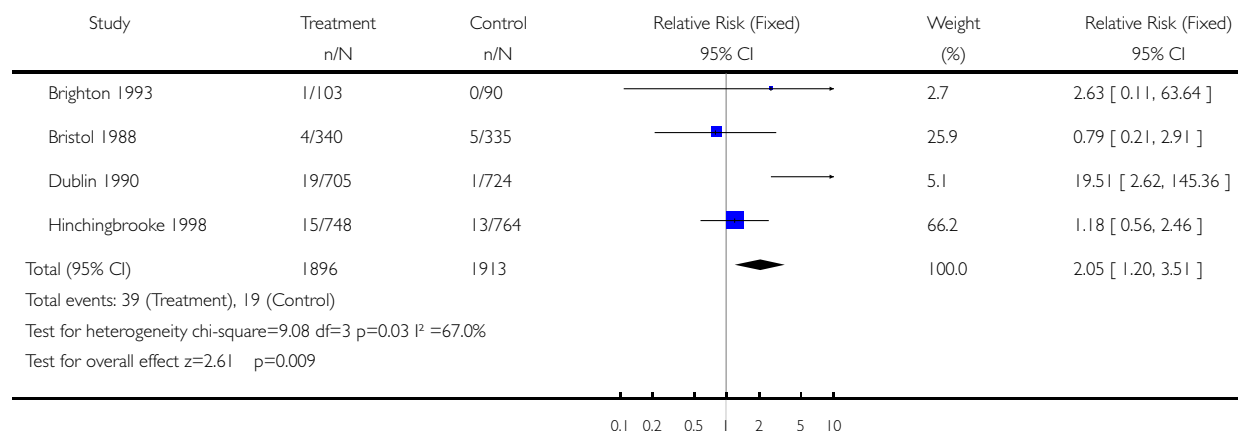


Analysis 02.11. Comparison 02 Active vs expectant management (women at low risk of PPH), Outcome 11 Manual removal of placenta

Review: Active versus expectant management in the third stage of labour

Comparison: 02 Active vs expectant management (women at low risk of PPH)

Outcome: 11 Manual removal of placenta

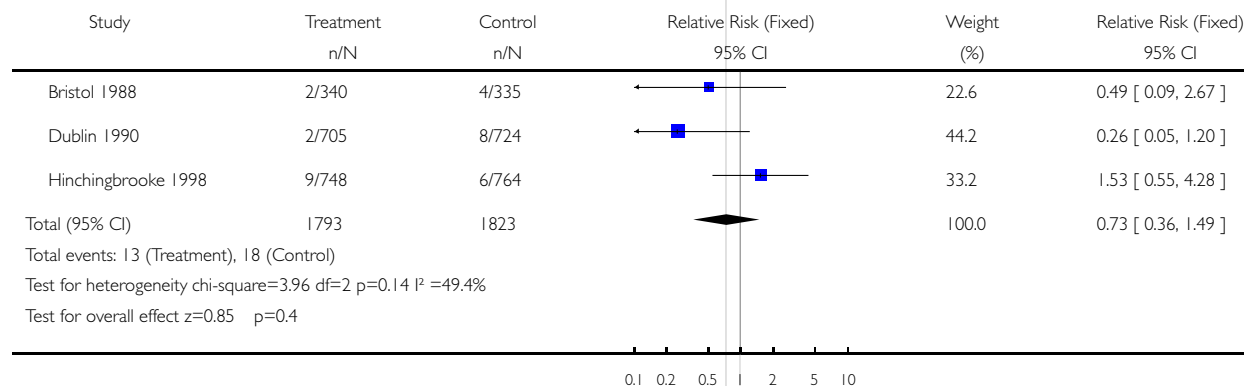


Analysis 02.12. Comparison 02 Active vs expectant management (women at low risk of PPH), Outcome 12 Subsequent surgical evacuation of retained products of conception

Review: Active versus expectant management in the third stage of labour

Comparison: 02 Active vs expectant management (women at low risk of PPH)

Outcome: 12 Subsequent surgical evacuation of retained products of conception

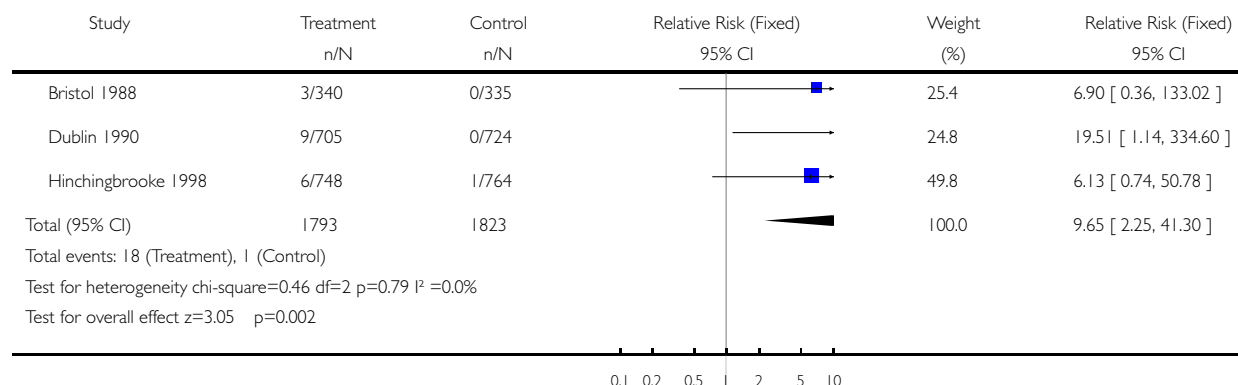


Analysis 02.13. Comparison 02 Active vs expectant management (women at low risk of PPH), Outcome 13 Diastolic blood pressure > 100 mmHg between delivery of baby and discharge from labour ward

Review: Active versus expectant management in the third stage of labour

Comparison: 02 Active vs expectant management (women at low risk of PPH)

Outcome: 13 Diastolic blood pressure > 100 mmHg between delivery of baby and discharge from labour ward

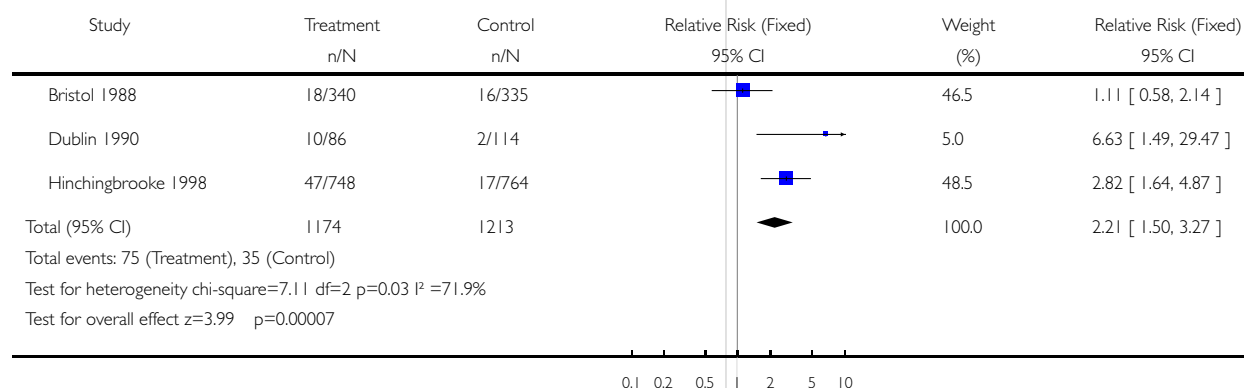


Analysis 02.14. Comparison 02 Active vs expectant management (women at low risk of PPH), Outcome 14 Vomiting between delivery of baby and discharge from labour ward

Review: Active versus expectant management in the third stage of labour

Comparison: 02 Active vs expectant management (women at low risk of PPH)

Outcome: 14 Vomiting between delivery of baby and discharge from labour ward

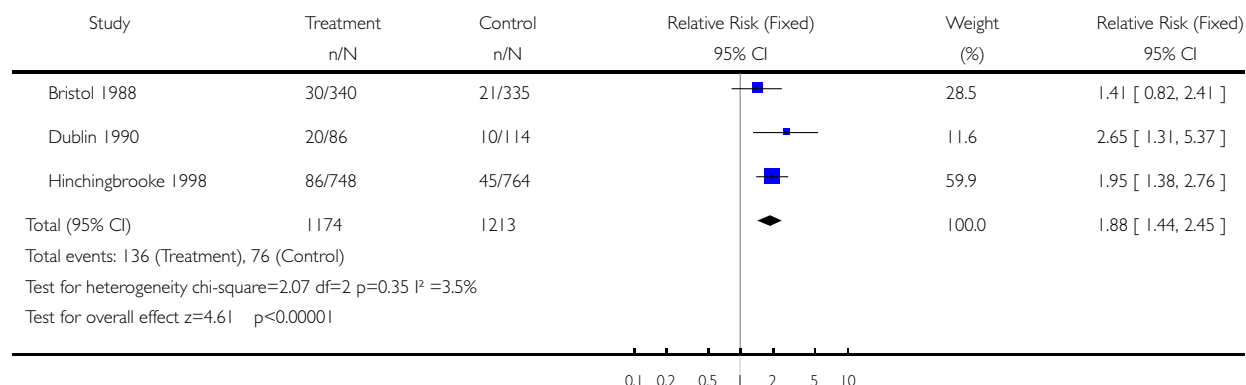


Analysis 02.15. Comparison 02 Active vs expectant management (women at low risk of PPH), Outcome 15 Nausea between delivery of baby and discharge from labour ward

Review: Active versus expectant management in the third stage of labour

Comparison: 02 Active vs expectant management (women at low risk of PPH)

Outcome: 15 Nausea between delivery of baby and discharge from labour ward

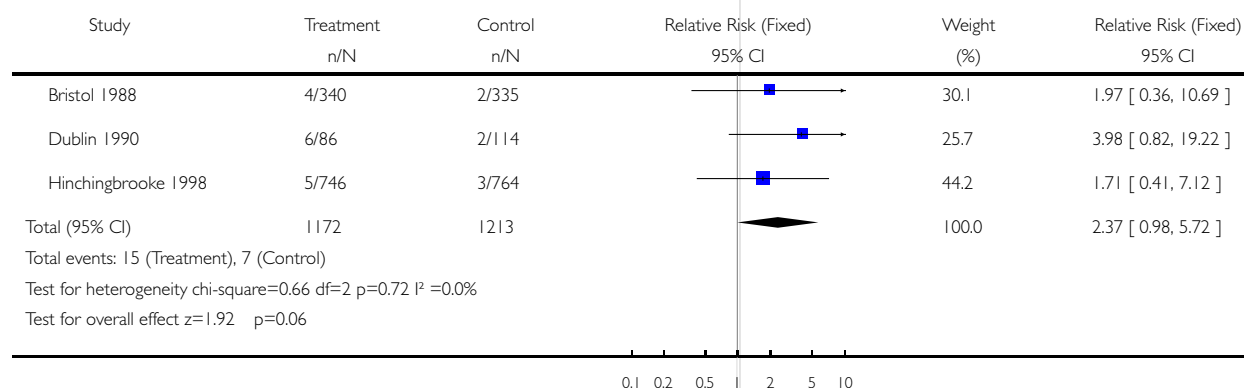


Analysis 02.16. Comparison 02 Active vs expectant management (women at low risk of PPH), Outcome 16 Headache between delivery of baby and discharge from labour ward

Review: Active versus expectant management in the third stage of labour

Comparison: 02 Active vs expectant management (women at low risk of PPH)

Outcome: 16 Headache between delivery of baby and discharge from labour ward

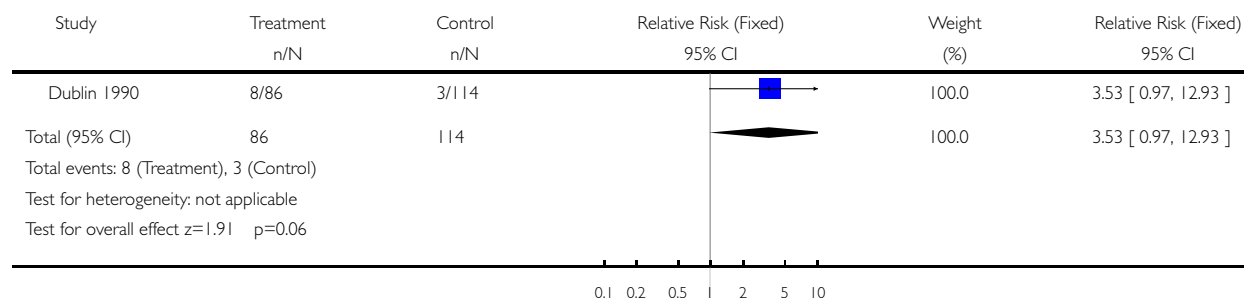


Analysis 02.17. Comparison 02 Active vs expectant management (women at low risk of PPH), Outcome 17 Maternal pain during third stage of labour

Review: Active versus expectant management in the third stage of labour

Comparison: 02 Active vs expectant management (women at low risk of PPH)

Outcome: 17 Maternal pain during third stage of labour

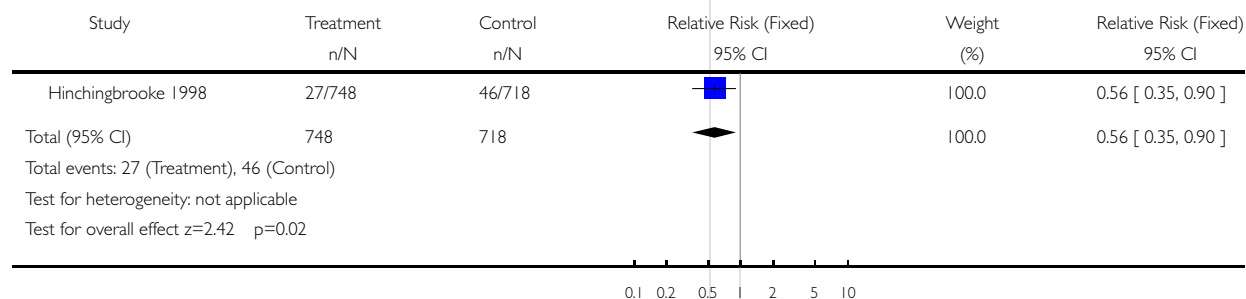


Analysis 02.18. Comparison 02 Active vs expectant management (women at low risk of PPH), Outcome 18 Maternal dissatisfaction with third stage management

Review: Active versus expectant management in the third stage of labour

Comparison: 02 Active vs expectant management (women at low risk of PPH)

Outcome: 18 Maternal dissatisfaction with third stage management

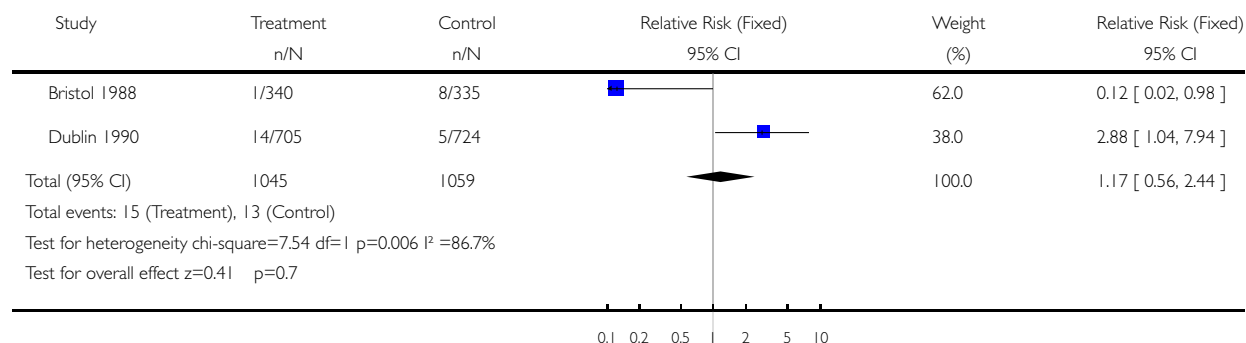


Analysis 02.19. Comparison 02 Active vs expectant management (women at low risk of PPH), Outcome 19 Secondary PPH (after 24 hours and before 6 weeks)

Review: Active versus expectant management in the third stage of labour

Comparison: 02 Active vs expectant management (women at low risk of PPH)

Outcome: 19 Secondary PPH (after 24 hours and before 6 weeks)

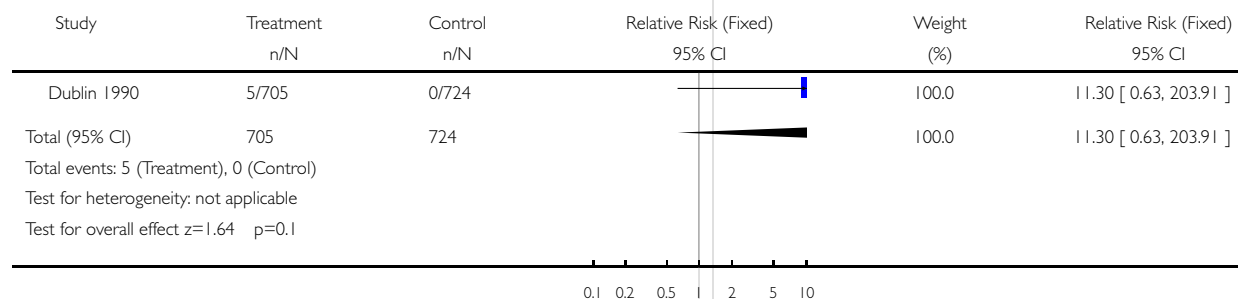


Analysis 02.20. Comparison 02 Active vs expectant management (women at low risk of PPH), Outcome 20 Bleeding needing readmission or antibiotics

Review: Active versus expectant management in the third stage of labour

Comparison: 02 Active vs expectant management (women at low risk of PPH)

Outcome: 20 Bleeding needing readmission or antibiotics

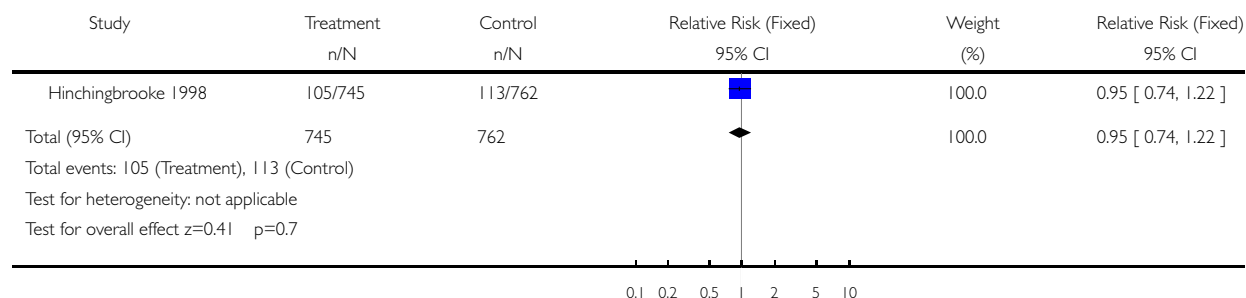


Analysis 02.21. Comparison 02 Active vs expectant management (women at low risk of PPH), Outcome 21 Maternal fatigue at 6 weeks

Review: Active versus expectant management in the third stage of labour

Comparison: 02 Active vs expectant management (women at low risk of PPH)

Outcome: 21 Maternal fatigue at 6 weeks

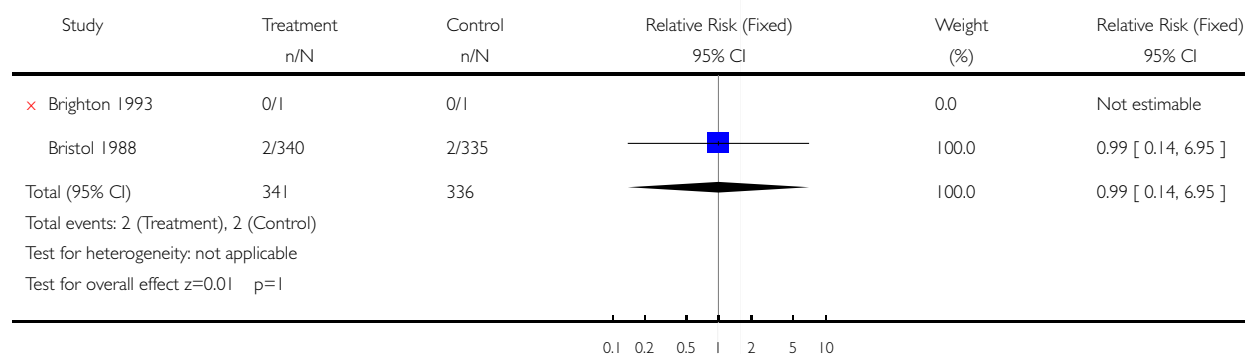


Analysis 02.22. Comparison 02 Active vs expectant management (women at low risk of PPH), Outcome 22 Apgar score < 7 at 5 minutes

Review: Active versus expectant management in the third stage of labour

Comparison: 02 Active vs expectant management (women at low risk of PPH)

Outcome: 22 Apgar score < 7 at 5 minutes

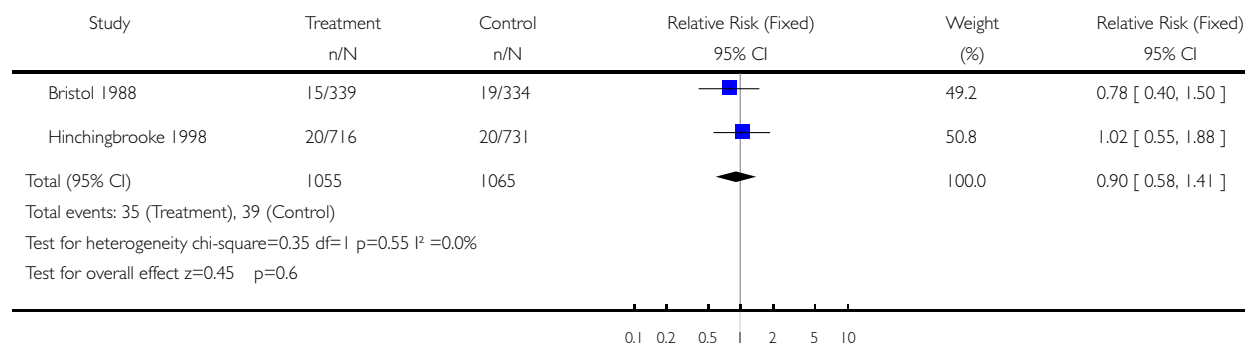


Analysis 02.23. Comparison 02 Active vs expectant management (women at low risk of PPH), Outcome 23 Admission to special care baby unit

Review: Active versus expectant management in the third stage of labour

Comparison: 02 Active vs expectant management (women at low risk of PPH)

Outcome: 23 Admission to special care baby unit

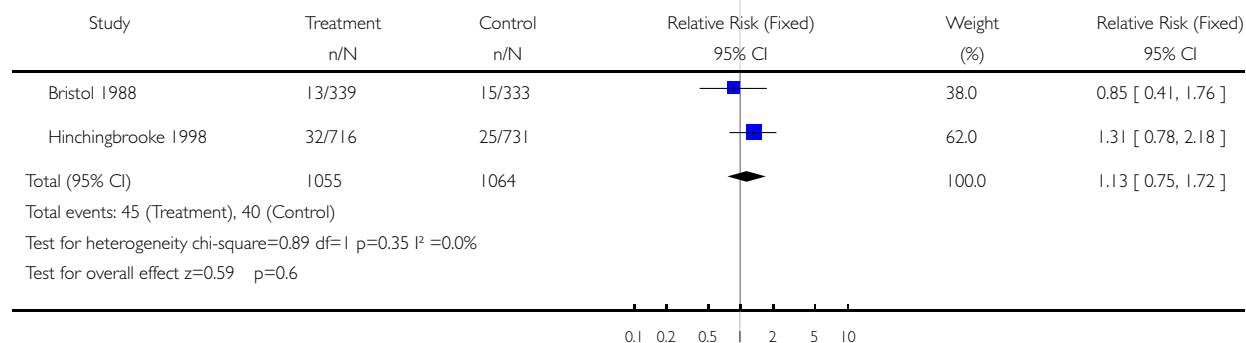


Analysis 02.24. Comparison 02 Active vs expectant management (women at low risk of PPH), Outcome 24 Jaundice (as defined by the authors)

Review: Active versus expectant management in the third stage of labour

Comparison: 02 Active vs expectant management (women at low risk of PPH)

Outcome: 24 Jaundice (as defined by the authors)

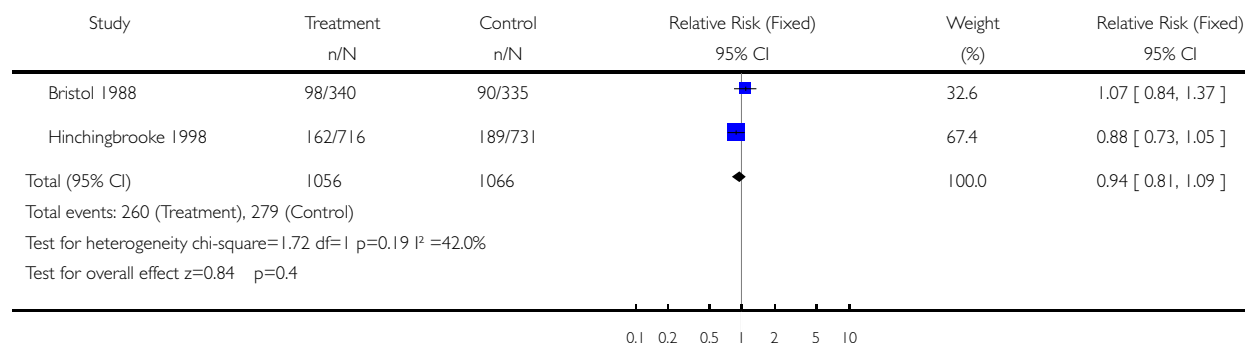


Analysis 02.25. Comparison 02 Active vs expectant management (women at low risk of PPH), Outcome 25 Not breastfeeding at discharge from hospital

Review: Active versus expectant management in the third stage of labour

Comparison: 02 Active vs expectant management (women at low risk of PPH)

Outcome: 25 Not breastfeeding at discharge from hospital



Analysis 02.26. Comparison 02 Active vs expectant management (women at low risk of PPH), Outcome 26 Not breastfeeding at 6 weeks

Review: Active versus expectant management in the third stage of labour

Comparison: 02 Active vs expectant management (women at low risk of PPH)

Outcome: 26 Not breastfeeding at 6 weeks

