Education for contraceptive use by women after childbirth (Review)

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This is a reprint of a Cochrane review, prepared and maintained by The Cochrane Collaboration and published in *The Cochrane Library* 2012, Issue 8

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[Intervention Review]

Education for contraceptive use by women after childbirth

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Editorial group: Cochrane Fertility Regulation Group.
Publication status and date: New search for studies and content updated (no change to conclusions), published in Issue 8, 2012.
Review content assessed as up-to-date: 1 June 2012.

Citation: Lopez LM, Hiller JE, Grimes DA, Chen M. Education for contraceptive use by women after childbirth. *Cochrane Database of Systematic Reviews* 2012, Issue 8. Art. No.: CD001863. DOI: 10.1002/14651858.CD001863.pub3.

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ABSTRACT

Background

Providing contraceptive education is now considered a standard component of postpartum care. The effectiveness is seldom examined. Questions have been raised about the assumptions on which such programs are based, e.g., that postpartum women are motivated to use contraception and that they will not return to a health center for family planning advice. Surveys indicate that women may wish to discuss contraception both prenatally and after hospital discharge. Nonetheless, two-thirds of postpartum women may have unmet needs for contraception. In the USA, many adolescents become pregnant again within a year a giving birth.

Objectives

Assess the effects of educational interventions for postpartum mothers about contraceptive use

Search methods

In May 2012, we searched the computerized databases of MEDLINE, CENTRAL, CINAHL, PsycINFO, and POPLINE. We also searched for current trials via ClinicalTrials.gov and ICTRP. Previous searches also included EMBASE. In addition, we examined reference lists of relevant articles, and contacted subject experts to locate additional reports.

Selection criteria

Randomized controlled trials were considered if they evaluated the effectiveness of postpartum education about contraceptive use. The intervention must have started postpartum and have occurred within one month of delivery.

Data collection and analysis

We assessed for inclusion all titles and abstracts identified during the literature searches with no language limitations. The data were abstracted and entered into RevMan. Studies were examined for methodological quality. For dichotomous outcomes, the Mantel-Haenszel odds ratio (OR) with 95% confidence interval (CI) was calculated. For continuous variables, we computed the mean difference (MD) with 95% CI. Due to varied study designs, we did not conduct meta-analysis.

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Main results

Ten trials met the inclusion criteria. Of four trials that provided one or two counseling sessions, two showed some evidence of effectiveness. In a study from Nepal, women with an immediate postpartum and a session three months later were more likely to use contraception at six months than those with only the later session (OR 1.62; 95% CI 1.06 to 2.50). However, most comparisons did not show evidence of effectiveness. In a trial conducted in Pakistan, women in the counseling group were more likely than those without counseling to use contraception at 8 to 12 weeks postpartum (OR 19.56; 95% CI 11.65 to 32.83). The assessments were short-term. The remaining two studies were from the USA; one did not provided sufficient data and one had too small a sample to detect differences.

Six trials provided multifaceted programs with many contacts. Three showed evidence of effectiveness. Of those, two USA studies focused on adolescents. Adolescents in a home-visiting program were less likely to have a second birth in two years compared to adolescents who received usual care (OR 0.41; 95% CI 0.17 to 1.00). In the other trial, adolescents receiving enhanced well-baby care were less likely to have a repeat pregnancy by 18 months compared to those with usual well-baby care (OR 0.35; 95% CI 0.17 to 0.70). In an Australian study, teenagers in a structured home-visiting program were more likely to use contraception at six months than those who had standard home visits (OR 3.24; 95% CI 1.35 to 7.79). The trials without evidence of effectiveness included two for adolescents in the USA (computer-assisted motivational interviewing and cell phone counseling) and a home-visiting program for women in Syria.

Authors' conclusions

The overall quality of evidence was moderate. Half of these postpartum interventions led to fewer repeat pregnancies or births or more contraceptive use. However, the evidence of intervention effectiveness was of low to moderate quality. Trials with evidence of effectiveness included two that provided one or two sessions and three that had multiple contacts. The former had limitations, such as self-reported outcomes and showing no effect for many comparisons. The interventions with multiple sessions were promising but would have to be adapted for other locations and then retested. Researchers and health care providers will have to determine which intervention might be appropriate for their setting and level of resources.

PLAIN LANGUAGE SUMMARY

Education about family planning for women who have just given birth

Counseling about family planning is standard care for most women who have just given birth. Many women feel this service is provided as part of a checklist. Few providers and researchers have looked at how well the counseling works. Some people have questioned the basis for such programs. We do not know if postpartum women want to use family planning or whether they will return to a health center for family planning advice. Women may wish to discuss family planning before they have the baby and after they leave the hospital. Women may also prefer to talk about birth control along with other health issues. In this review, we looked at the effects of educational programs about family planning for women who have just had a baby.

In May 2012, we did computer searches to find trials of education about family planning after having a baby. We also wrote to researchers to find other trials. The trials had to study how much the program affected family planning use. The program must have occurred within a month after the birth. We had no language limits for the searches. We entered the data into RevMan and used the odds ratio to examine effect. We also looked at the quality of the research methods.

We found 10 trials. Of four trials with one two contacts, two gave the women education while in the hospital. One showed more women in the counseling group used birth control than those without counseling at 8 to 12 weeks. In the other, more women with counseling both right after birth and later used birth control at six months than those with only the later session. Of the other two trials, one did not have enough data and the other was a very small study. Three of six trials with longer and more complex programs made a difference. Two showed fewer pregnancies or births among teenagers in the group with extra services. Also, a special home-visiting program showed more birth control use.

The overall results were of moderate quality. However, the five studies that showed some effect were low to moderate quality. These programs would have to be adapted for other settings and then retested. Researchers and health care providers can decide which ones might fit their setting and budget.

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BACKGROUND

The provision of contraceptive education is now considered a standard component of postpartum care. Education is frequently provided as part of discharge planning, but many women experience a perfunctory discussion in a checklist of topics (Glasier 1996). Midwifery and obstetric texts routinely refer to the provision of such education as a responsibility in postpartum care, but the effectiveness is seldom questioned (Keith 1980; Semeraro 1996). Postpartum contraception counseling is often limited to one encounter, which is unlikely to affect behavior. Decisions about contraception made right after counseling may differ considerably from contraceptive use postpartum (Engin-Üstün 2007). As common as postpartum contraceptive education has become, research evaluating such interventions is still sparse (FHI 2009; Glazer 2011). We know more about contraceptive methods appropriate for postpartum women (Shaw 2007; FHI 2009) than we do about how to help postpartum women choose and use a contraceptive.

In 1966, the Population Council sponsored demonstration projects on postpartum family planning, focusing primarily on developing countries, and including 25 hospitals in 14 countries (Zatuchni 1970). These projects were based on the assumptions that women are receptive to family planning education in the postpartum period, and that they will not return to health centers for contraception once they have been discharged from hospital. The demonstration projects were declared a success given their ability to reach large numbers of women, and they were expanded to include hospitals in 21 countries (Winikoff 1991). Randomized controlled trials were not used to assess the effectiveness of the program.

Demographic and Health Surveys indicate that nearly two-thirds of women in their first postpartum year have an unmet need for family planning (Ross 2001; USAID 2012). Data from 17 countries show that return to sexual activity is associated with the return of menses, breastfeeding status, and postpartum duration but not generally associated with contraceptive use (Borda 2010). In the USA, adolescents often have repeat pregnancies within a year of giving birth (Thurman 2007). While adolescents may start using contraception during the postpartum period, they often discontinue due to lack of information or support (Wilson 2011).

Postpartum women may wish to discuss contraception prenatally or after hospital discharge, preferably in the context of general education about maternal and child health (Glasier 1996; Ozvaris 1997). Many women are comfortable with advice and a prescription from their physician during well-baby visits (Fagan 2009). The Matlab project examined the impact of providing experimental maternal and child health and family planning programs in a rural area in Bangladesh; intensive provision of family planning services resulted in increased uptake of contraceptives (Koenig 1992). A current trial is studying the effect on contraceptive use from integrating family planning into infant immunization services (Dulli 2010). This review examines randomized controlled trials of postpartum interventions to educate women about contraceptive choices.

OBJECTIVES

Primary objective was to determine the effectiveness of educational interventions for postpartum mothers about contraceptive use. Effects include unplanned pregnancies; contraceptive knowledge, attitudes, and practices; breast feeding behavior; and satisfaction with care.

Secondary objective was to determine the effectiveness of the interventions according to the following:

- Mode of delivery (pamphlet or other written material, video or audio recording, one-to-one or group counseling);
- Type of health professional providing the intervention (midwife or nurse, physician, or specially trained lay person);
- Timing (immediately postpartum, postpartum visit in a health care facility or at home, or another occasion).

METHODS

Criteria for considering studies for this review

Types of studies

Randomized controlled trials (RCTs) were considered if they examined postpartum education about contraceptive use, whether delivered to individuals or to groups of women. We excluded trials focused on the needs of women with alcohol or drug problems and trials focused on women with chronic health conditions such as HIV or diabetes.

Types of participants

All women giving birth at 20 weeks' gestation or more.

Types of interventions

Trials were included if they evaluated postpartum education provided to influence uptake of contraception including lactational amenorrhea. Educational interventions may have been based on written materials, video or audio recordings, or individual or group counseling. The intervention must have started postpartum and occurred within one month of delivery.

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Types of outcome measures

Primary outcomes

The main outcomes of interest were unplanned pregnancies and choice or use of contraception. Trials had to have one of these outcomes to be included in this review.

Secondary outcomes

Additional outcomes included knowledge about contraception, breast feeding, and satisfaction with postnatal care.

Search methods for identification of studies

Electronic searches

In May 2012, we conducted searches of MEDLINE, Cochrane Central Register of Controlled Trials (CENTRAL), POPLINE, CINAHL, and PsycINFO. We also searched for current trials via ClinicalTrials.gov and ICTRP. The search strategies are given in Appendix 1. Previous search strategies also included EMBASE and are shown in Appendix 2 and Appendix 3.

Searching other resources

Reference lists of relevant papers were examined for additional citations. We also contacted investigators in the field to seek unpublished trials or published trials we may have missed in our searches. For the initial review, the following organizations were contacted requesting advice about relevant research: Guttmacher Institute, California Family Health Council, Contraceptive Research and Development, Couple to Couple League, Engender Health, European Commission, Health, Family Planning and AIDS Unit, Family Planning Association of Queensland, Family Planning Councils of America, Family Planning International Assistance, Family Planning Management Development, Healthy Women, Johns Hopkins University Center for Communication Programs, Marie Stopes International, National Family Planning and Reproductive Health Association, Planned Parenthood Global Partners, Population and Community Development Association, Population Reference Bureau, Prime II, Program of Appropriate Technology in Health.

For the original review, the authors also searched databases listing publications by the Population Council, Family Health International, and the World Health Organization.

Data collection and analysis

Selection of studies

For the initial review, the three authors independently assessed the studies to determine which were suitable for inclusion in the review. In the event of disagreement, the authors resolved the differences by discussion. For the 2009 and 2012 updates, one author reviewed the search results. A second author examined the reports identified for appropriate categorization. We excluded studies that appeared to randomize clusters rather than individuals and did not account for the clustering in the analysis.

Data extraction and management

One author abstracted the data and entered the information into RevMan. A second author or staff person conducted the secondary data abstraction and verified correct data entry. Any discrepancies were resolved by discussion.

We used the framework in Borrelli 2005 to extract information on the intervention. The categories most pertinent to this work were in the intervention design, i.e., treatment dose for both experimental and comparison groups, and information on implementation fidelity (e.g., training of providers and quality assurance. The dose information is similar to what is usually extracted for pharmacologic interventions, such as the length and number of sessions (rather than pills), the content, and the duration of contacts. Consequently, the 'dose' information is shown in the Characteristics of included studies. Information on implementation fidelity is shown in Table 3 if provided in the trial report.

Assessment of risk of bias in included studies

Included trials were evaluated for methodological quality in accordance with recommended principles (Higgins 2011). Factors considered included randomization method, allocation concealment, blinding, and losses to follow-up and early discontinuation. This information was entered into the Risk of bias tables (Characteristics of included studies).

Measures of treatment effect

For the dichotomous outcomes, the Mantel-Haenszel odds ratio (OR) with 95% confidence interval (CI) was calculated using a fixed-effect model. An example is the proportion of women who initiated use of a particular contraceptive method. Fixed and random effects give the same result if no heterogeneity exists, as when a comparison includes only one study. For continuous variables, the mean difference (MD) was computed with 95% CI using a fixed effect model. RevMan uses the inverse variance approach. Due to varied study designs, we did not conduct any meta-analysis.

Assessment of heterogeneity

Due to varied study designs, we were unable to conduct meta-analysis. Therefore, we did not need to assess statistical hetero-

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geneity. However, we address heterogeneity due to differences in interventions, study design, and populations in the Discussion.

Data synthesis

We applied principles from GRADE to assess the quality of evidence and address confidence in the effect estimates (Balshem 2011). We did not intend to conduct a formal GRADE assessment, i.e., with an evidence profile and summary of findings table (Guyatt 2011). When a meta-analysis is not viable, as in this review due to varied interventions, a summary of findings table is not feasible.

We had two levels for assessment, both of which were developed post hoc. First we assessed the quality of the intervention design, implementation, and reporting. We downgraded studies for each of the following: a) fewer than two sessions provided; b) intervention fidelity information reported for fewer than three items (Table 3); c) follow-up was less than six months. We incorporated quality of intervention evidence (Table 1) into the overall assessment of evidence quality (Table 2). We considered RCTs to be high quality then downgraded a level for each of the following: a) no information on randomization sequence generation or allocation concealment, or no allocation concealment; b) low intervention quality; c) outcome assessment (no objective assessment, e.g., pregnancy test, or no structured questionnaire for contraceptive use); d) losses to follow-up greater than 20%; e) other (selective outcome reporting or exclusions after randomization). We upgraded one level if some blinding was used. Due to the types of interventions, blinding of investigators and participants to assignment would be difficult, although blinding of outcome assessors was more feasible. We included evidence of intervention effectiveness to compare evidence quality with results. Our assessment of the body of evidence is based on the quality of evidence from the studies.

RESULTS

Description of studies

See: Characteristics of included studies; Characteristics of excluded studies; Characteristics of ongoing studies.

Results of the search

The 2012 search produced 217 new references. After reviewing the titles and abstracts, 212 were discarded due to not meeting the Criteria for considering studies for this review. We examined the full text of five reports; two were later excluded. Three reports from two trials were added to the eight trials included in earlier versions of this review. In addition, we included two ongoing trials identified in clinical trials databases.

Included studies

Ten trials met our inclusion criteria. A total of 3505 women participated in these trials, ranging from 33 to 904 per trial (median = 246). Six studies were conducted in the USA and one was done in each of Australia, Nepal, Pakistan, and Syria. Five trials focused on adolescents (Barnet 2009; Black 2006; Katz 2011; O'Sullivan 1992; Quinlivan 2003) and one on young women (Gilliam 2004), while the other four did not have age limits.

The studies varied in the content and format of the education provided.

- Three trials focused on contraception and provided one session prior to discharge. In Saeed 2008, the control had no educational intervention. The other two trials had routine or alternative care as the comparison (Gilliam 2004; Proctor 2006).
- Seven trials addressed broader health education or parenting issues as well as contraception. These studies involved the following: multiple home visits (Barnet 2009; Bashour 2008; Black 2006; Quinlivan 2003), multiple clinic contacts (O'Sullivan 1992), and multiple phone sessions (Katz 2011). One trial provided a session in the hospital and another contact at home (Bolam 1998); one study arm had no health education.

All reports had some information regarding intervention fidelity (Table 3). In most trials, clinicians provided the education and had some intervention training although the intensity of training varied. In a few studies, the women who provided the intervention had demographics similar to those of the participants. All reports had information on the intervention content or its development. Outcomes included pregnancy and contraceptive use. Six trials reported on repeat pregnancy or second birth. Six assessed contraceptive use, but only five had data for analysis in this review. Only Proctor 2006 did not have any follow-up after discharge.

Risk of bias in included studies

Allocation

Five trials provided information on sequence generation and used sealed envelopes to conceal the allocation (Bashour 2008; Bolam 1998; Gilliam 2004; Proctor 2006; Quinlivan 2003). Three had information on the randomization procedure but nothing on allocation concealment (Barnet 2009; Katz 2011; Saeed 2008). Two provided no information on sequence generation or concealment (Black 2006; O'Sullivan 1992).

Blinding

Blinding of assignment was not possible in most trials, given the nature of the interventions. However, the outcome assessors were blind to group of allocation in three trials (Bashour 2008;

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Bolam 1998; Saeed 2008). Research team members were reportedly blinded in Gilliam 2004. The other six trials had no information on blinding.

Incomplete outcome data

Losses to follow-up were greater than 20% in two trials: Bolam 1998 (25% at three months and 27% at six months) and Gilliam 2004 (52% by one year).

Other potential sources of bias

Two trials excluded participants after randomization due to missing data (Black 2006; Proctor 2006). In addition, Barnet 2009 excluded one with a stillborn infant and one whose two-month old infant died.

Proctor 2006 reported the primary outcome was satisfaction. However, the researchers only used one dichotomous item to assess satisfaction, thus limiting the validity and reliability of the assessment.

Effects of interventions

Counseling (one or two contacts)

Three trials provided a single counseling session focused on contraception (Gilliam 2004; Proctor 2006; Saeed 2008). A fourth covered a broader range of health education issues in one or two sessions (Bolam 1998).

In Gilliam 2004, the experimental and comparison groups were not significantly different in the proportions that continued oral contraceptive use at one year (Analysis 1.1), those who switched the type of contraceptive used (Analysis 1.2), or known pregnancies (Analysis 1.3). The sample size was too small to detect differences with adequate power.

Proctor 2006 reported satisfaction with the counseling, but the results were limited due to a one-item dichotomous scale. Women who had counseling from a physician were more likely to be satisfied than those who watched a video (OR 0.27; 95% CI 0.07 to 0.98) (Analysis 2.1). The satisfaction of the video watchers was not significantly different from that of the pamphlet-receivers (Analysis 2.2). The researchers also examined contraceptive choice prior to discharge, but presented the results in a graph without specific numbers. Reportedly, the study groups were not significantly different in their choices of contraceptive method.

At 8 to 12 weeks postpartum in Saeed 2008, women in the counseling group were more likely to report using contraception (OR 19.56; 95% CI 11.65 to 32.83) (Analysis 3.1). For choice of contraceptive, all women in the counseling group planned to use a modern contraceptive method by six months postpartum compared to a third of the control group (OR 1038.09; 95% CI 64.15 to 6799.73) (Analysis 3.2). The wide 95% CI might be related to the women in the intervention group providing the socially desirable response, although the physician-assessor was reportedly blinded to study arm.

Bolam 1998 provided up to two health education sessions, depending on the study arm. Two of the four study groups had health education during their postpartum hospital stay. One of those two had a second session at three months, which included family planning. A third arm had the educational session at three months, and a fourth received no health education (Types of interventions). We first grouped those with a health education session during their postpartum hospital stay and those without such an immediate session. The groups did not differ significantly at three months (Analysis 4.1). At six months, the group with the immediate postpartum session was more likely to use contraception than the group with no immediate session (OR 1.62; 95% CI 1.06 to 2.50) (Analysis 4.2). We also compared the arms within the larger groups at six months (three-month data were not available). The group with two sessions did not differ significantly in contraceptive use from the group with one immediate session (Analysis 4.3). Also, contraceptive use in the group with only the later session was not significantly different from the group with no educational session (Analysis 4.4). Exclusive breastfeeding was emphasized in the immediate postpartum session. The study arms did not differ significantly in exclusive breastfeeding in any of the comparisons (Analysis 4.5 to Analysis 4.8).

Programs with multiple contacts (home, phone, or clinic)

All six trials provided interventions that covered a range of health and lifestyle issues, including contraception. Five studies targeted adolescents; four were conducted in the eastern USA (O'Sullivan 1992; Black 2006; Barnet 2009; Katz 2011) and one in Australia (Quinlivan 2003). Bashour 2008, which was conducted in Syria, did not focus on a specific age group.

- In O'Sullivan 1992, the experimental group had special services provided within the well-baby clinic, including reminder contacts. The comparison group had the usual well-baby care. The teenagers in the experimental group were less likely to have a repeat pregnancy (self-reported) by 18 months compared to the control group (OR 0.35; 95% CI 0.17 to 0.70) (Analysis 5.1). The difference in pregnancies was largely within the subgroup of clinic dropouts. Of the control group, 29/91 had a repeat pregnancy versus 9/60 in the experimental group (data not shown).
- For Quinlivan 2003, young women in the experimental group were more likely to have effective contraceptive use at six months than the comparison group (OR 3.24; 95% CI 1.35 to 7.79) (Analysis 6.1). Women in the experimental group had a structured home-visiting program as opposed to standard home visits. We did not have sufficient data to analyze contraceptive knowledge in this review. Reportedly, the mean difference in

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contraceptive knowledge at six months favored the experimental group (reported MD 0.92; 95% CI 0.32 to 1.52).

- Black 2006 evaluated second births during home visits. The experimental group had multiple home visits over two years, while the controls had usual care. The mean number of intervention visits was 6.63 (standard deviation 6.58). The adolescents in the treatment group were less likely to have had a second birth within two years than the usual care group (OR 0.41; 95% CI 0.17 to 1.00) (Analysis 7.1).
- The study groups in Barnet 2009 did not differ significantly for repeat births by 24 months from index birth (Analysis 8.1). Births were assessed through Vital Statistics; 100% of the index births were located. While the repeat birth rates for both CAMI groups were lower than, but not significantly different from, the rate for the usual care group. The figures were 13.8% for CAMI plus parenting curriculum (CAMI+), 17.2% for CAMI-only, and 25% for usual care. Abortion information was obtained at the follow-up interview. The researchers communicated that the percentages for reported abortions were as follows: CAMI+ 22%, CAMI-only 20%, and usual care 21%.
- Katz 2011 assessed subsequent pregnancy via cell phone calls at 3, 9, 15, and 21 months. Pregnancy status was confirmed by urine pregnancy tests at 6, 12, 18 and 24 months. Pregnancy rates did not differ significantly between the study groups during the two-year follow-up (Analysis 9.1). The rates were 31% for the group with the cell phone intervention and 36% for the usual care group.

Bashour 2008 did not focus on a specific age group. At four months, the study groups did not differ significantly in contraceptive use (Analysis 10.1; Analysis 10.2) or self-reported pregnancy (Analysis 10.3; Analysis 10.4). The experimental group had up to four home visits, with the last one focusing on family planning. One study group had a single visit without family planning and the control group had usual care, which did not include a home visit.

DISCUSSION

Summary of main results

Of the four interventions with one or two sessions, one trial had too small a sample to detect differences with adequate power (Gilliam 2004), and one did not have sufficient data on contraceptive use for analysis here (Proctor 2006). The remaining two showed some evidence of effect on contraceptive use (Bolam 1998; Saeed 2008). The experimental groups had some counseling in the immediate postpartum period while the comparison group did not. These outcome measures were based on self-report. In addition, in Bolam 1998, one of four contraceptive outcome measures showed a positive effect, and the groups did not differ significantly for the exclusive breastfeeding comparisons. For Saeed 2008, use of contraception was only assessed at 8 to 12 weeks.

Of the six programs with multiple contacts, three showed some evidence of effect on pregnancy or contraceptive use. Family planning education was integrated with other health education or health services. Of five that focused on adolescents, two showed fewer repeat pregnancies or second births within the experimental group (Black 2006; O'Sullivan 1992). The experimental groups had enhanced services compared to the controls. Black 2006 assessed second births during home visits, while O'Sullivan 1992 used self-report in clinic. In O'Sullivan 1992, the researchers assessed other outcomes with independent sources, such as school attendance (for the teenager returning to school) and child immunization via chart audits. In Quinlivan 2003, the structured home-visiting program for teen mothers favored contraceptive use in the experimental group. The control group had standard home visits. The researchers attempted to verify self-reports against an independent source, including pill packets and prescriptions (clinic or physician). Of the other three trials that did not show evidence of effectiveness, two focused on adolescents (Barnet 2009; Katz 2011) while one did not have any age limits (Bashour 2008).

Two studies addressed costs (Barnet 2009; O'Sullivan 1992). In O'Sullivan 1992, both groups received well-baby care in the clinic. The hospital estimated the cost per visit to be lower for special care than routine care. The savings were attributed to several factors, such as combining services and not using medical residents who would need training and faculty supervision. In a 2010 article from Barnet 2009, the reported weighted mean costs for any CAMI were US $2064 per teen. Costs per teen were US $1449 for CAMI-only and US $2635 for CAMI + parenting curriculum.

Overall completeness and applicability of evidence

The included trials represented various types of postpartum educational interventions: one or two sessions and multiple-contact programs in four countries. Several interventions were provided during the postpartum hospital stay, while others began two or three weeks later. Unfortunately, two trials did not contribute much to this review, given insufficient data or an inadequate sample size. Of the five trials showing positive effects, two were conducted in the USA and the others were from Australia, Nepal, and Pakistan. We did not examine interventions focused on postpartum contraception that began during the prenatal period.

Quality of the evidence

All reports provided some documentation of intervention content and most had implementation information (Table 3). A few did

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not provide much or any information on training of providers for the specific intervention. Only three reported on how the researchers assessed delivery adherence, i.e., whether the intervention was provided as intended. The intervention evidence was high or moderate quality for eight studies (Table 1). Four trials provided only one or two educational sessions, generally in the hospital setting. Three had limited follow-up of less than six months.

In terms of research design and implementation, five trials had some allocation concealment. Only one early study had no information on either generation of the randomization sequence or allocation concealment. Four mentioned some type of blinding, usually of the assessors. Outcome assessment was limited in several studies. That is, three of six trials that assessed pregnancies or repeat births had some objective validation. However, some studies assessed or reported contraceptive use with one dichotomous item. Two trials had high losses to follow-up. However, losses to follow-up were not as high overall as some trials in contraceptive education (Lopez 2011). The short-term nature of several interventions or the follow-up period may have limited losses in some cases but may also have limited the measures of effectiveness.

The overall quality of evidence was moderate (Table 2) due to having six studies that provided moderate or high quality evidence and four of low or very low quality. Most of the trials were published since the 2001 CONSORT guidelines (CONSORT 2009), and would be expected to have adequate reporting. However, only two of the six trials with moderate or high quality evidence showed any intervention effectiveness. The other evidence of effectiveness came from three trials of low or very low quality. Consequently, the evidence of effect was of low to moderate quality.

AUTHORS' CONCLUSIONS

Implications for practice

Half of these interventions led to fewer unplanned pregnancies or more contraceptive use. The interventions that showed some effectiveness included two with one or two sessions and three with multiple contacts. The former were limited by self-reported outcomes or showing no effect for many comparisons. The programs involving multiple contacts showed promise but would need adapting for other locations and then retesting. Health care providers would have to decide which intervention might be appropriate for their setting and level of resources.

Implications for research

The overall quality of evidence was moderate. However, the evidence of intervention effectiveness was of low to moderate quality. The interventions with one or two sessions often had self-reported outcomes or short-term assessments or showed no evidence of effect for many comparisons. Researchers should validate outcome measures and then examine different short-term interventions in randomized trials. The longer-term interventions were promising, and some researchers verified self-report with other sources. However, the programs have to be adapted for other situations and resources and then retested.

ACKNOWLEDGEMENTS

M Gulmezoglu of WHO extracted data from Nacar 2003, which was published in Turkish. From FHI 360, C Manion searched the electronic databases.

The original Cochrane Review was an update of a pre-Cochrane review (Hay-Smith 1994). The original authors acknowledge the assistance provided by A Lusher of the Oxford Cochrane Centre in developing the search strategy for the 2002 update, the assistance provided by V Kallianes and B Winikoff of the Population Council in identifying research on this topic for the 1999 version of the review, and the support provided by the Cochrane Health Promotion and Public Health Field.

For the 2012 update, S Mullins of FHI 360 helped review search results. She also conducted the second data abstraction for the new trials.

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* *Indicates the major publication for the study*

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CHARACTERISTICS OF STUDIES

Characteristics of included studies *[ordered by study ID]*

Barnet 2009

Methods	RCT conducted in Baltimore, MD (USA)
Participants	237 pregnant adolescents from 5 prenatal care clinics serving low-income, mainly African American communities. Inclusion criteria: 12 to 18 years old, pregnancy 24 or more weeks' gestation. Exclusion criteria: pregnancy did not result in a live birth and withdrawn if the infant died in the neonatal period, since parenting was an intervention focus
Interventions	Computer-assisted motivational intervention (CAMI) on quarterly basis; motivational interviewing on contraception by CAMI counselors; parenting curriculum from Black 2006, which included contraception. 1) CAMI+: multi-component home-visiting intervention (parent training and case management); 2) CAMI-only: single component, home-based intervention 3) Usual care Duration: 6 weeks to 24 months postpartum with maximum of 9 quarterly sessions
Outcomes	Repeat birth by 24 months postpartum (assessed via Vital Statistics); abortion since index child's birth Additional data provided by researcher: losses by arm to help interpret abortion information obtained at 24-month interview
Notes	If participant became pregnant, CAMI was stopped because questions on contraception were no longer relevant and the program did not allow skipping Sample size calculation (and outcome of focus): not specified (ns) Secondary article (Barnet 2010) examined cost-effectiveness.

Risk of bias

Bias	Authors' judgement	Support for judgement
Random sequence generation (selection bias)	Low risk	Randomly assigned, 'computer-generated permuted blocks'. In communications, researcher stated the ratio was 3:3:2; with 6 used for intervention groups and 4 for control. Block size of 16 would account for the ratio rather than block size of 6 that was reported in paper
Allocation concealment (selection bias)	Unclear risk	No information
Blinding (performance bias and detection bias) All outcomes	Unclear risk	No information

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Barnet 2009 (*Continued*)

Incomplete outcome data (attrition bias) All outcomes	Low risk	Researcher provided losses by study arm (counts and %) at 24 month-interview Losses to follow-up: overall loss 19%; by group, 17% CAMI+, 16% CAMI-only, 24% Usual care Exclusions after randomization: 1 participant with stillborn infant and 1 whose 2-month-old infant died

Bashour 2008

Methods	RCT with 3 arms; conducted at Maternity Teaching Hospital in Damascus, Syria
Participants	903 women who recently gave birth. Inclusion criteria: delivered healthy newborn, lived within 30 km of hospital, and available for 6 months. Exclusion criteria: delivered prematurely; baby weighed < 2500 g or had congenital anomaly
Interventions	Home visits to educate and support women who had recently given birth. Registered midwives had 5 days of special training for the home visits. Breastfeeding was addressed in visits 2 and 3; family planning in visit 4. Group A: 4 home visits on days 1, 3, 7, 30 following delivery Group B: visit on day 3, similar to visit to Group A (included breastfeeding but not family planning) Group C: standard of care in Syria - no visit after discharge
Outcomes	Primary outcomes included self-reported pregnancy and contraceptive use and type (pills, IUD, condoms, others); assessed at 4 months postpartum
Notes	Power analysis based on postpartum morbidity, i.e., hemorrhoids: ability to detect decrease from 15% in control to 7% in treatment group

Risk of bias

Bias	**Authors' judgement**	**Support for judgement**
Random sequence generation (selection bias)	Low risk	Communication with researcher indicated block size was 21 with 7 assigned to each study arm Report had indicated randomization in 'blocks of 7...caseload of 21 eligible deliveries per day was assumed'
Allocation concealment (selection bias)	Low risk	Numbered opaque and sealed envelopes; process supervised by midwives not otherwise involved in the study

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Bashour 2008 (*Continued*)

Blinding (performance bias and detection bias) All outcomes	Low risk	Midwives who did home visits were not blinded. Outcome assessors were blinded to assignment; they could tell the assignment from interviews but not fully aware of study objectives
Incomplete outcome data (attrition bias) All outcomes	Low risk	903 women randomized; 876 completed study. Losses of 3% were due to refusals (N= 9) or bad addresses (N=18). 'Bad addresses' by group: 5% Group A (N=15); 1% Group B (N=3); none from Group C

Black 2006

Methods	RCT conducted in 3 urban hospitals in Baltimore, MD (USA)
Participants	181 female adolescents. Inclusion criteria: low income (< 185% poverty level), < 18 years old, first-time delivery, black race, no indication of cocaine or heroin use in chart, no chronic illness that would interfere with parenting or adolescent development; infant was term (>=37 weeks) and > 2500 g; infant had no congenital problem, chronic illness, or disability
Interventions	Study focus: delaying second births - parenting, contraception 1) Home-based curriculum for adolescent mothers, maximum of 19 lessons; participants were seen twice per month until infant's first birthday. Intervention included information about access to birth control, and condoms were provided at each visit. After the first 2 visits, facilitators could vary the order of sessions, as well as combine or repeat them. 2) Usual care Duration: maximum of 19 visits for experimental group at 2 per month (40% had >= 8 visits); evaluation visits occurred at 6, 13, and 24 months for both groups
Outcomes	Primary: Second birth by 24 months (assessed in home); contraceptive use was presented by second birth rather than by randomized group
Notes	Sample size calculation (and outcome of focus): not specified We were unsuccessful in obtaining data on contraceptive use by study arm

Risk of bias

Bias	**Authors' judgement**	**Support for judgement**
Random sequence generation (selection bias)	Unclear risk	"Randomization procedure" stratified on maternal age and child's gender
Allocation concealment (selection bias)	Unclear risk	No information

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Black 2006 (*Continued*)

Blinding (performance bias and detection bias) All outcomes	Unclear risk	No information
Incomplete outcome data (attrition bias) All outcomes	Unclear risk	Losses to follow-up: overall, 18%; by group, intervention 20% (17/87); control 16% (15/94) Exclusions after randomization: excluded from analysis 32 mothers who did not have a 24-month evaluation (17 treatment and 15 control), purportedly because the intent was to assess second births. These young women may have had 6-month or 13-month evaluations

Bolam 1998

Methods	RCT, single site, conducted in main public maternity hospital in Kathmandu, Nepal from Nov 1994 to May 1996
Participants	540 women. Inclusion criteria: all pregnant women admitted to the hospital for delivery who resided in two communities
Interventions	Experimental: One-to-one 20-minute health education session, interactive and supportive covering infant feeding, treatment of diarrhea, management of acute respiratory infection in infants, immunization, and contraception. The intervention was provided before discharge from hospital (with some emphasis on exclusive breastfeeding) with a second education session in the home 3 months post-delivery (with some emphasis on family planning). Group A: Health education immediately after birth and at 3 months Group B: Health education immediately after birth Group C: Health education at 3 months Group D: No health education
Outcomes	Primary: Duration of exclusive breast feeding and uptake of postnatal family planning (reported as one dichotomous item)
Notes	The intervention was designed to cover a range of important issues for maternal and infant health in Nepal. Sample size was estimated for a range of outcomes; for family planning, sample size was based on 20% uptake in control and 33% in experimental group

Risk of bias

Bias	**Authors' judgement**	**Support for judgement**

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Bolam 1998 (*Continued*)

Random sequence generation (selection bias)	Low risk	Individual women were randomly allocated either when in labor or shortly after delivery. Restricted randomization in blocks of 20
Allocation concealment (selection bias)	Low risk	Details in sealed envelopes for consecutively recruited mothers
Blinding (performance bias and detection bias) All outcomes	Low risk	Patients and health educators were not blinded; outcome assessors were blind to the group of assignment
Incomplete outcome data (attrition bias) All outcomes	Low risk	Loss to follow-up: 25% at 3 months and 27% at 6 months. Main reason was mother moving back to parental home (cultural tradition). Exclusions (withdrawn from study): 10 infant deaths spread across all study arms and 2 stillbirths

Gilliam 2004

Methods	RCT conducted at Northwestern Memorial Hospital, Chicago, IL (USA) from 1998 to 1999
Participants	33 African American low-income females attending Prentice Ambulatory Care. Participants were enrolled during prenatal care and randomized after delivery. This resident-run clinic serves low-income women receiving public assistance. Inclusion criteria: 25 years or younger; with unplanned pregnancy; intending to use OCs postpartum. Exclusion criterion: history of consistent or successful oral contraceptive (OC) use prior to pregnancy
Interventions	Postpartum, multi-component intervention consisting of counseling, a videotape about OCs, and written material versus resident-physician counseling (usual care) Intervention was one-time, post-delivery. Follow-up: one year.
Outcomes	Continuation rate at one year; switch to other contraceptives at one year; pregnancy rate at one year (most by self-report) Adherence assessed through collection of pill packs and self-reports. Multiple questions asked to assess continuation
Notes	Knowledge of OCs mentioned, but data reported elsewhere. 43 women were enrolled but only 33 were randomized. Reasons for enrollment without randomization included participants changing their mind about using OCs, delivering at an outside hospital, and failure of the study team to randomize the participant prior to leaving the hospital due to miscommunication with nursing staff or leaving after a 24-hour rather than 48-hour stay

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Gilliam 2004 (*Continued*)

Risk of bias		
Bias	**Authors' judgement**	**Support for judgement**
Random sequence generation (selection bias)	Low risk	Computer-generated random numbers table; randomized following delivery
Allocation concealment (selection bias)	Low risk	Study packets were in envelopes that "concealed the contents"
Blinding (performance bias and detection bias) All outcomes	Unclear risk	Research team members were reportedly blind to group participation; details not provided
Incomplete outcome data (attrition bias) All outcomes	Low risk	Losses by 1 year: 17/33 = 52% dropped out. Pregnancy data obtained on 9 of the women that dropped out via records or contacting participant, leaving data loss for 8/33 = 24%

Katz 2011

Methods	RCT conducted in Washington, DC (USA) and adjoining metropolitan area
Participants	249 pregnant or newly parenting teens recruited from prenatal clinics and local high schools Inclusion criteria: African American or Latina primiparous pregnant teens, aged 15 to 18 years as well as 19-year-olds who had not graduated from high school
Interventions	1) Intervention group (N=125): curriculum goal was to improve reproductive health planning and motivate teens to delay further childbearing; focused on knowledge of health risks and positive teen attitudes. Other issues included sexual partner communication and negotiation, resisting peer pressure for risk behaviors, and connectedness with family, health care provider, school and work; minimal content on parenting Process: Teens received cell phones for 18 months of counseling sessions, and quarterly group sessions. Counselors met with each teen face-to-face, provided cell phones, and scheduled weekly cell phone counseling calls for first 6 months. Each teen was assigned one counselor for duration of study. Biweekly phone sessions were scheduled during subsequent 12 months for maximum of 42 phone counseling sessions over 18-month postpartum interval. Two-hour dinner group sessions, at one of the hospitals serving pregnant and parenting teens, were held quarterly over the two-year course of the study 2) Usual care (N=124): health and education services generally provided through schools or healthcare facilities Duration: 24 months
Outcomes	Time to subsequent conception. Pregnancy status assessed via telephone at 3, 9, 15 and 21 months; confirmed by urine pregnancy test at 6, 12, 18 and 24 months

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Katz 2011 (*Continued*)

Notes	Analysis according to treatment assignment.	
Risk of bias		
Bias	**Authors' judgement**	**Support for judgement**
Random sequence generation (selection bias)	Low risk	Random numbers table programmed within web-based data management system Stratified by age 15 to 17 or >= 18 years and by hospital of delivery
Allocation concealment (selection bias)	Unclear risk	No information
Blinding (performance bias and detection bias) All outcomes	Unclear risk	No information
Incomplete outcome data (attrition bias) All outcomes	Low risk	Losses: Intervention N=5 (4%) and control N= 7 (5.6%) (dropped out < 21 months postpartum or > 3 months before study close)

O'Sullivan 1992

Methods	RCT conducted in large urban teaching hospital in eastern USA
Participants	243 postpartum teenagers. Inclusion criteria: <= 17 years old, delivered a healthy baby at the specified hospital, no previous children (though previous pregnancy acceptable) . Exclusion criterion: planned to place child for adoption. All participants were single, African American, and received Medicaid
Interventions	Special care versus routine well-baby care. Special care differed from routine care in staffing and services: clinic was directed by nurse practitioner, staffed by pediatrician, another nurse practitioner, and social worker; goals included preventing repeat pregnancy, mother's return to school, up-to-date immunizations for infant, and less use of emergency care for infant; used reminder phone calls and letters for appointments Routine care included 8 appointments from 2 weeks postpartum to 18 months Duration for both programs was 18 months.
Outcomes	Repeat pregnancy (self-report) and return to school by interview; attendance at clinic, full immunization, and emergency room visit by chart review
Notes	No apparent sample size estimation
Risk of bias	

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O'Sullivan 1992 (*Continued*)

Bias	Authors' judgement	Support for judgement
Random sequence generation (selection bias)	Unclear risk	No information
Allocation concealment (selection bias)	Unclear risk	No information
Blinding (performance bias and detection bias) All outcomes	Unclear risk	No information
Incomplete outcome data (attrition bias) All outcomes	Low risk	Programs had high dropout rates, but 91% overall were located for 18-month interview. Program dropouts by 6 months were 37% experimental and 63% routine care; by 18 months, dropouts were 60% experimental and 82% routine care

Proctor 2006

Methods	RCT conducted in Carolinas Medical Center; Charlotte, NC (USA)
Participants	329 women. Inclusion criteria: delivered live infant at > 34 weeks gestation, speak English or Spanish, willing to be contacted at 3 and 6 months postpartum. Exclusion criteria: delivered premature infant, had fetal death, wanted sterilization, were illiterate, had no prenatal care, or had care outside the Center's prenatal system
Interventions	Contraceptive counseling on postpartum day 1 by a) 20-minute video presentation ('Hope Is Not a Method' in English or Spanish), b) educational literature with same content as video, or c) physician-patient counseling session (similar content to other 2 methods but not scripted)
Outcomes	Patient satisfaction with method of 'counseling' (questionnaire after counseling session) . Satisfaction was assessed with only 1 dichotomous item. Data for contraceptive choice (on postpartum day 2) were presented in a graph and could not be used in analysis here. Unable to obtain data from researcher
Notes	Power analysis based on detecting 10% difference between groups in satisfaction, but estimate of baseline satisfaction not provided

Risk of bias

Bias	Authors' judgement	Support for judgement
Random sequence generation (selection bias)	Low risk	Block randomization with "computer-generated numbers." Stratified by English- or Spanish-speaking status

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Proctor 2006 (*Continued*)

Allocation concealment (selection bias)	Low risk	Sealed, opaque envelopes
Blinding (performance bias and detection bias) All outcomes	Unclear risk	None apparent
Incomplete outcome data (attrition bias) All outcomes	Low risk	Excluded 10 cases after randomization due to incomplete questionnaire (4), discharge prior to counseling (3), patient withdrawal (2), or illiteracy (1)

Quinlivan 2003

Methods	RCT conducted in Australia clinic from Jul 1998 to Dec 2000. Enrolled prenatally; randomized immediately after delivery
Participants	139 teenagers, first-time mothers. Inclusion criteria: < 18 years old, speak English, intend to continue with pregnancy and to keep infant. Exclusion criteria: living > 150 km from hospital or known fetal abnormality
Interventions	Both groups had routine postnatal support, counseling, and information from the hospital, including access to routine home-visiting. Experimental group also had structured home visits (1 to 4 hours each) from nurse midwives at week 1 and 2 and at months 1, 2, 4, and 6
Outcomes	Primary included knowledge regarding contraception and breastfeeding; insufficient data available for analysis here Secondary included effective use of contraception (defined as following manufacturer's guidelines and without use of emergency contraception)
Notes	Sample size estimate based on ability to detect increase in knowledge score. Due to the age of the study (conducted 1998 to 2000), we did not request additional data from the researcher

Risk of bias

Bias	**Authors' judgement**	**Support for judgement**
Random sequence generation (selection bias)	Low risk	"Generated by computer"
Allocation concealment (selection bias)	Low risk	Numbered, sealed, opaque envelopes
Blinding (performance bias and detection bias) All outcomes	Unclear risk	no information

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Quinlivan 2003 (*Continued*)

Incomplete outcome data (attrition bias) All outcomes	Low risk	3 withdrawn before randomization due to late fetal loss. 136 randomized; 124 completed trial. 11 withdrawals due to adverse neonatal outcomes (identified in flow chart) and 1 consent withdrawn

Saeed 2008

Methods	RCT conducted in hospital in Islamabad, Pakistan from Feb 2006 to Sep 2007
Participants	Women admitted to labor ward from Feb 2006 to Sep 2007 after delivery (N=648), regardless of pregnancy duration, delivery mode or fetal outcome
Interventions	Intervention: 20-minute informal counseling regarding contraception in presence of husband or other close relative. Didactic approach used with opportunity to ask questions. One-page pamphlet provided on contraceptive methods. Providers had 40-minute training on counseling leaflet and interview methods. Control: no counseling or pamphlet provided. Follow-up at 8 to 12 weeks postpartum
Outcomes	Contraceptive use postpartum (any being used or planned; method chosen) We examined modern contraceptive use, i.e., we excluded coitus interruptus
Notes	No information on sample size estimation

Risk of bias

Bias	**Authors' judgement**	**Support for judgement**
Random sequence generation (selection bias)	Low risk	Randomized into 2 groups by "block of 4 randomization charts"
Allocation concealment (selection bias)	Unclear risk	no information
Blinding (performance bias and detection bias) All outcomes	Low risk	Physician recording follow-up data was blinded to study arms
Incomplete outcome data (attrition bias) All outcomes	Low risk	Losses to follow-up: 48/648 (7.4%). Complete data for 299 intervention and 301 control women

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Characteristics of excluded studies *[ordered by study ID]*

Study	Reason for exclusion
Barnet 2007	Intervention began in the third trimester of pregnancy.
Christie 2011	No mention of contraception.
El-Kamary 2004	Family planning only had to be provided within 12-month period of the program for 90% of clients. Therefore, contraception education was not an integral part of the intervention
Foreit 1993	Two maternity floors and their associated outpatient clinics were randomly selected and randomly assigned to treatment and control groups. Women were assigned to a maternity floor based on availability. Analysis could not be adjusted for the cluster assignment with only two units (floors)
Lee 2007	Assignment adapted from Sayegh 1976. Coin flip determined which rooms were assigned to program first. Even-numbered rooms were the experimental group and odd-numbered were the control group. Cluster assignment (by room) not addressed in the analysis
Lee 2011	Assignment adapted from Sayegh 1976 and similar to that used in Lee 2007. Odd-numbered wards were the experimental group and were divided in half (wards 1,3,5,7,11 and wards 13,15,17,19,21,23). Even numbered wards were the control group. Coin flip determined which half of the experimental group received the program first; midway through the study, the other half received the program. Rooms with double occupancy were assigned as a unit. Cluster assignment (by room) not addressed in the analysis
Nacar 2003	Allocation likely to have been alternate. Questionnaire about eligibility criteria was administered to intervention and control groups on alternate days. The intervention was given immediately following the questionnaire.
Norr 2003	No apparent education on contraception
Olds 2002	Enrolled prenatally; no clear starting point for home visits after delivery - could have been a month or longer
Omu 1989	Intervention began during pregnancy.
Ransjo-Arvidson 1998	No apparent education on contraception (no standard health education)
Sayegh 1976	Alternate rooms allocated to educational program using a coin toss to determine starting point. Patients were allocated to 1 of 10 rooms (2 beds each) based on availability. Cluster assignment (by room) not addressed in the analysis
Smith 2002	Experimental group did not receive any education postpartum (only prenatally). Some of the controls (standard local counseling) had some postpartum education

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Characteristics of ongoing studies *[ordered by study ID]*

Dulli 2010

Trial name or title	Improving access to and uptake of postpartum family planning service through enhanced family planning (FP) in immunization services in Rwanda.
Methods	Randomized trial; open label Two-group, pretest and posttest design
Participants	800 women attending vaccination services for their infants, as well as vaccination and FP providers Inclusion criteria for clients: adult women, aged 21 years and older, or married women ages 18 to 20 who have achieved legal majority status by emancipation due to marriage; bring their infants age 6 to 12 months to immunization services at study sites Inclusion criteria for providers: health care providers who provide immunization services to infants or family planning services within selected facilities
Interventions	1) Family planning for postpartum women included: • Group education sessions regarding pregnancy risk, benefits of FP, and family planning options during postpartum period. • Materials that deliver messages about benefits of spacing pregnancies by at least 2 years, LAM (lactational amenorrhea), return to fecundity and pregnancy risk during postpartum period and contraceptive options for postpartum women. • Use of screening tool to assess pregnancy risk for postpartum women coupled with brief counseling message and referral to FP services. • Convenient offer of FP services to women attending vaccination services for their infants. 2) Control: Standard of care infant immunization services. 12-month intervention period
Outcomes	Use of a modern contraceptive method among postpartum women
Starting date	Feb 2010
Contact information	Principal Investigator: Lisa S. Dulli, ldulli@fhi360.org; +254-71-479-1057
Notes	ClinicalTrials.gov last updated 3 May 2010. Communications with L Dulli (Apr 2012): recently completed data collection and currently analyzing data

Sadler 2011

Trial name or title	Minding the baby home visiting: program evaluation
Methods	Randomized trial, single blind (outcomes assessor) at two sites in New Haven, CT (USA)
Participants	150 first-time mothers, age 14 to 25 years Inclusion criteria: having a first child, speak English, and obtain primary care from community health center Exclusion criteria: no psychosis or terminal illness

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Sadler 2011 (*Continued*)

Interventions	Experimental: weekly home visits for one year, followed by bi-weekly home visits until child is 24 months of age, provided to young at-risk families by team of nurse practitioner and social worker home visitors No Intervention: routine primary care at community health center
Outcomes	Primary: maternal life course outcomes (delay rapid subsequent childbearing within 24 months of older child's birth), as well as maternal reflective capacities, infant attachment, and child abuse or neglect Secondary: dose of intervention, cost analysis for program, and description of reflective functioning in pregnant adolescents
Starting date	Sep 2009; estimated completion Aug 2014
Contact information	Patricia Miller: 1-203-785-5589; patricia.miller@yale.edu Andrea Miller: 1-203-785-5589; andrea.miller@yale.edu
Notes	ClinicalTrials.gov last updated 20 Oct 2011

Tang 2012

Trial name or title	Study of Birth Control Use After Childbirth Official title: A Randomized Controlled Trial of a Brief Educational Script on Postpartum Contraceptive Uptake
Methods	Randomized trial conducted at one hospital in Raleigh, North Carolina (USA). Double blind (investigator and outcomes assessor)
Participants	800 healthy postpartum women. Inclusion criteria: • Women who are admitted to the postpartum unit at WakeMed Hospital • Delivery of a live infant >24 weeks gestational age • Age 14 to 45 years • Ability to speak either English or Spanish fluently • Willing to be contacted by phone until at least 8 weeks after delivery Exclusion criteria: • History of a tubal ligation or hysterectomy • Partner has already had a vasectomy • History of fertility treatment to conceive this pregnancy • Previous randomization into the study.
Interventions	1) Routine postpartum counseling plus one-minute script ("LARC script"), given to women during their postpartum admission. The script informs women about long-acting reversible contraceptive (LARC) methods, specifically the contraceptive implant and the intrauterine device 2) Routine postpartum counseling (no LARC script)
Outcomes	Primary: self-reported use of LARC method after six-week postpartum visit Secondary: Self-reported interest in use of a LARC method, self-reported use of any contraceptive method, self-reported reasons for not using the contraceptive method of choice (all after six-week postpartum visit)

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Tang 2012 (*Continued*)

Starting date	May 2011; data collection completed May 2012. Data are currently being analyzed, according to PI
Contact information	Jennifer Tang, Principal Investigator, University of North Carolina at Chapel Hill jennifer.h.tang@gmail.com
Notes	Correspondence with principle investigator indicated comparison group has routine postpartum counseling with no LARC script. ClinicalTrials.gov posting will be updated to reflect this

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DATA AND ANALYSES

Comparison 1. Oral contraceptive education program (one time) versus routine counseling

Outcome or subgroup title	No. of studies	No. of participants	Statistical method	Effect size
1 Continuation of oral contraceptives at one year	1	25	Odds Ratio (M-H, Fixed, 95% CI)	0.67 [0.11, 3.99]
2 Switched contraceptives by one year	1	25	Odds Ratio (M-H, Fixed, 95% CI)	2.0 [0.37, 10.92]
3 Known pregnancy by one year	1	25	Odds Ratio (M-H, Fixed, 95% CI)	0.81 [0.11, 6.04]

Comparison 2. Contraceptive information (one time): physician counseling versus video versus pamphlet

Outcome or subgroup title	No. of studies	No. of participants	Statistical method	Effect size
1 Satisfied with 'counseling' after the session: video versus physician	1	218	Odds Ratio (M-H, Fixed, 95% CI)	0.27 [0.07, 0.98]
2 Satisfied with 'counseling' after the session: video versus written information	1	218	Odds Ratio (M-H, Fixed, 95% CI)	0.75 [0.29, 1.92]

Comparison 3. Contraceptive counseling (one time) versus no counseling

Outcome or subgroup title	No. of studies	No. of participants	Statistical method	Effect size
1 Use of any contraceptive at 8 to 12 weeks postpartum	1	600	Odds Ratio (M-H, Fixed, 95% CI)	19.56 [11.65, 32.83]
2 Choice of modern contraceptive (using or plan to use) at 8 to 12 weeks postpartum	1	600	Odds Ratio (M-H, Fixed, 95% CI)	1038.09 [64.15, 16799.73]

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Comparison 4. Health education including contraception: immediate, later, and no session

Outcome or subgroup title	No. of studies	No. of participants	Statistical method	Effect size
1 Use of contraception at 3 months: immediate session versus no immediate session	1	402	Odds Ratio (M-H, Fixed, 95% CI)	1.50 [0.88, 2.54]
2 Use of contraception at 6 months: immediate session versus no immediate session	1	393	Odds Ratio (M-H, Fixed, 95% CI)	1.62 [1.06, 2.50]
3 Use of contraception at 6 months: immediate plus later sessions versus immediate session	1	199	Odds Ratio (M-H, Fixed, 95% CI)	0.85 [0.48, 1.52]
4 Use of contraception at 6 months: later session versus no session	1	194	Odds Ratio (M-H, Fixed, 95% CI)	0.95 [0.50, 1.80]
5 Exclusive breastfeeding at 3 months: immediate session versus no immediate session	1	403	Odds Ratio (M-H, Fixed, 95% CI)	1.00 [0.67, 1.49]
6 Exclusive breastfeeding >= 5 months: immediate session versus no immediate session	1	390	Odds Ratio (M-H, Fixed, 95% CI)	1.01 [0.65, 1.57]
7 Exclusive breastfeeding >= 5 months: immediate and later sessions versus immediate session only	1	198	Odds Ratio (M-H, Fixed, 95% CI)	1.55 [0.83, 2.90]
8 Exclusive breastfeeding >= 5 months: later session versus no session	1	192	Odds Ratio (M-H, Fixed, 95% CI)	1.06 [0.56, 1.99]

Comparison 5. Special postpartum care (including contraception) versus routine services (multiple well-baby contacts)

Outcome or subgroup title	No. of studies	No. of participants	Statistical method	Effect size
1 Repeat pregnancy (self-report) by 18 months	1	221	Odds Ratio (M-H, Fixed, 95% CI)	0.35 [0.17, 0.70]

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Comparison 6. Home visiting: structured versus routine

Outcome or subgroup title	No. of studies	No. of participants	Statistical method	Effect size
1 Effective contraception use at 6 months	1	124	Odds Ratio (M-H, Fixed, 95% CI)	3.24 [1.35, 7.79]

Comparison 7. Home-based mentoring (multiple visits) versus usual care

Outcome or subgroup title	No. of studies	No. of participants	Statistical method	Effect size
1 Second birth by 24 months	1	149	Odds Ratio (M-H, Fixed, 95% CI)	0.41 [0.17, 1.00]

Comparison 8. Computer-assisted motivational interviewing (CAMI) with parenting curriculum versus CAMI-only versus usual care

Outcome or subgroup title	No. of studies	No. of participants	Statistical method	Effect size
1 Repeat birth by 24 months	1		Odds Ratio (M-H, Fixed, 95% CI)	Subtotals only
1.1 CAMI + parenting curriculum versus usual care	1	148	Odds Ratio (M-H, Fixed, 95% CI)	0.48 [0.21, 1.11]
1.2 CAMI-only versus usual care	1	155	Odds Ratio (M-H, Fixed, 95% CI)	0.63 [0.29, 1.37]

Comparison 9. Phone counseling versus usual services

Outcome or subgroup title	No. of studies	No. of participants	Statistical method	Effect size
1 Repeat pregnancy by 24 months	1	249	Odds Ratio (M-H, Fixed, 95% CI)	0.80 [0.47, 1.35]

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Comparison 10. Home visiting: four visits versus one visit versus usual care

Outcome or subgroup title	No. of studies	No. of participants	Statistical method	Effect size
1 Contraception use at 4 months: 4 visits versus 1 visit	1	565	Odds Ratio (M-H, Fixed, 95% CI)	1.25 [0.89, 1.75]
2 Contraception use at 4 months: 1 visit versus usual care	1	580	Odds Ratio (M-H, Fixed, 95% CI)	0.86 [0.62, 1.20]
3 Pregnancy (self-reported) at 4 months postpartum: 4 visits versus 1 visit	1	554	Odds Ratio (M-H, Fixed, 95% CI)	1.49 [0.33, 6.74]
4 Pregnancy (self-reported) at 4 months postpartum: 1 visit versus usual care	1	585	Odds Ratio (M-H, Fixed, 95% CI)	1.00 [0.20, 5.01]

Analysis 1.1. Comparison 1 Oral contraceptive education program (one time) versus routine counseling, Outcome 1 Continuation of oral contraceptives at one year.

Review: Education for contraceptive use by women after childbirth

Comparison: 1 Oral contraceptive education program (one time) versus routine counseling

Outcome: 1 Continuation of oral contraceptives at one year

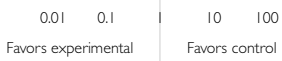
Study or subgroup	Experimental n/N	Control n/N	Odds Ratio M-H,Fixed,95% CI	Weight	Odds Ratio M-H,Fixed,95% CI
Gilliam 2004	4/16	3/9		100.0 %	0.67 [0.11, 3.99]
Total (95% CI)	**16**	**9**		**100.0 %**	**0.67 [0.11, 3.99]**

Total events: 4 (Experimental), 3 (Control)

Heterogeneity: not applicable

Test for overall effect: Z = 0.44 (P = 0.66)

Test for subgroup differences: Not applicable



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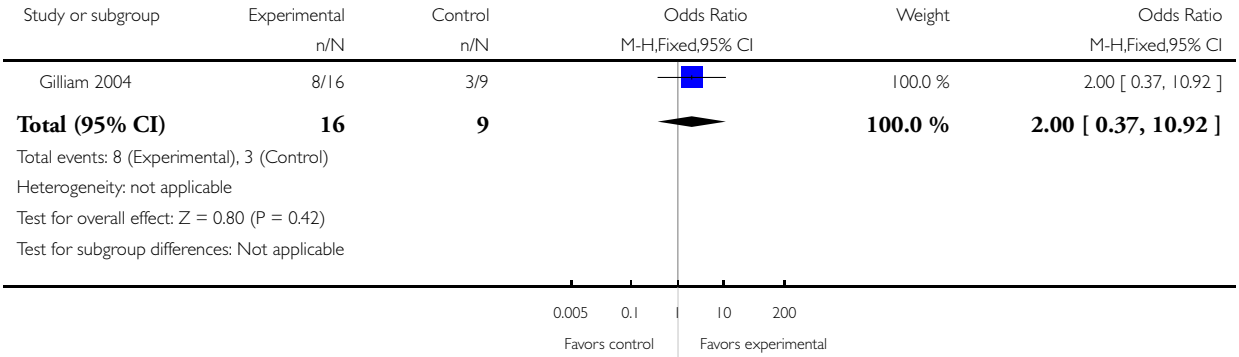
Analysis 1.2. Comparison 1 Oral contraceptive education program (one time) versus routine counseling, Outcome 2 Switched contraceptives by one year.

Review: Education for contraceptive use by women after childbirth

Comparison: 1 Oral contraceptive education program (one time) versus routine counseling

Outcome: 2 Switched contraceptives by one year

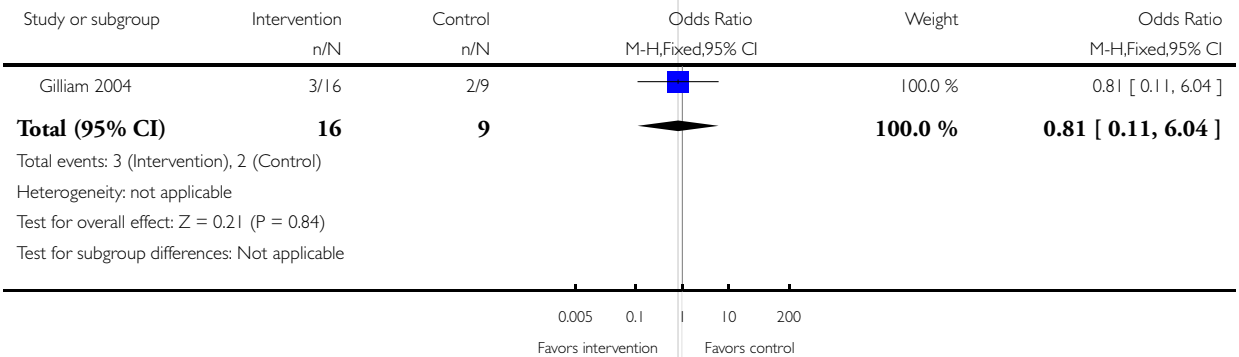


Analysis 1.3. Comparison 1 Oral contraceptive education program (one time) versus routine counseling, Outcome 3 Known pregnancy by one year.

Review: Education for contraceptive use by women after childbirth

Comparison: 1 Oral contraceptive education program (one time) versus routine counseling

Outcome: 3 Known pregnancy by one year



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Analysis 2.1. Comparison 2 Contraceptive information (one time): physician counseling versus video versus pamphlet, Outcome 1 Satisfied with 'counseling' after the session: video versus physician.

Review: Education for contraceptive use by women after childbirth

Comparison: 2 Contraceptive information (one time): physician counseling versus video versus pamphlet

Outcome: 1 Satisfied with 'counseling' after the session: video versus physician

Study or subgroup	Experimental n/N	Control n/N	Odds Ratio M-H,Fixed,95% CI	Weight	Odds Ratio M-H,Fixed,95% CI
Proctor 2006	105/117	98/101		100.0 %	0.27 [0.07, 0.98]
Total (95% CI)	**117**	**101**		**100.0 %**	**0.27 [0.07, 0.98]**

Total events: 105 (Experimental), 98 (Control)
Heterogeneity: not applicable
Test for overall effect: Z = 1.99 (P = 0.046)
Test for subgroup differences: Not applicable

Analysis 2.2. Comparison 2 Contraceptive information (one time): physician counseling versus video versus pamphlet, Outcome 2 Satisfied with 'counseling' after the session: video versus written information.

Review: Education for contraceptive use by women after childbirth

Comparison: 2 Contraceptive information (one time): physician counseling versus video versus pamphlet

Outcome: 2 Satisfied with 'counseling' after the session: video versus written information

Study or subgroup	Experimental n/N	Control n/N	Odds Ratio M-H,Fixed,95% CI	Weight	Odds Ratio M-H,Fixed,95% CI
Proctor 2006	105/117	93/101		100.0 %	0.75 [0.29, 1.92]
Total (95% CI)	**117**	**101**		**100.0 %**	**0.75 [0.29, 1.92]**

Total events: 105 (Experimental), 93 (Control)
Heterogeneity: not applicable
Test for overall effect: Z = 0.59 (P = 0.55)
Test for subgroup differences: Not applicable

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Analysis 3.1. Comparison 3 Contraceptive counseling (one time) versus no counseling, Outcome 1 Use of any contraceptive at 8 to 12 weeks postpartum.

Review: Education for contraceptive use by women after childbirth

Comparison: 3 Contraceptive counseling (one time) versus no counseling

Outcome: 1 Use of any contraceptive at 8 to 12 weeks postpartum

Study or subgroup	Experimental n/N	Control n/N	Odds Ratio M-H,Fixed,95% CI	Weight	Odds Ratio M-H,Fixed,95% CI
Saeed 2008	170/299	19/301		100.0 %	19.56 [11.65, 32.83]
Total (95% CI)	**299**	**301**		**100.0 %**	**19.56 [11.65, 32.83]**
Total events: 170 (Experimental), 19 (Control)					
Heterogeneity: not applicable					
Test for overall effect: Z = 11.25 (P < 0.00001)					
Test for subgroup differences: Not applicable					

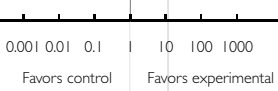
Analysis 3.2. Comparison 3 Contraceptive counseling (one time) versus no counseling, Outcome 2 Choice of modern contraceptive (using or plan to use) at 8 to 12 weeks postpartum.

Review: Education for contraceptive use by women after childbirth

Comparison: 3 Contraceptive counseling (one time) versus no counseling

Outcome: 2 Choice of modern contraceptive (using or plan to use) at 8 to 12 weeks postpartum

Study or subgroup	Experimental n/N	Control n/N	Odds Ratio M-H,Fixed,95% CI	Weight	Odds Ratio M-H,Fixed,95% CI
Saeed 2008	299/299	110/301		100.0 %	1038.09 [64.15, 16799.73]
Total (95% CI)	**299**	**301**		**100.0 %**	**1038.09 [64.15, 16799.73]**
Total events: 299 (Experimental), 110 (Control)					
Heterogeneity: not applicable					
Test for overall effect: Z = 4.89 (P < 0.00001)					
Test for subgroup differences: Not applicable					



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Analysis 4.1. Comparison 4 Health education including contraception: immediate, later, and no session, Outcome 1 Use of contraception at 3 months: immediate session versus no immediate session.

Review: Education for contraceptive use by women after childbirth

Comparison: 4 Health education including contraception: immediate, later, and no session

Outcome: 1 Use of contraception at 3 months: immediate session versus no immediate session

Study or subgroup	Experimental n/N	Control n/N	Odds Ratio M-H,Fixed,95% CI	Weight	Odds Ratio M-H,Fixed,95% CI
Bolam 1998	40/203	28/199		100.0 %	1.50 [0.88, 2.54]
Total (95% CI)	**203**	**199**		**100.0 %**	**1.50 [0.88, 2.54]**
Total events: 40 (Experimental), 28 (Control)					
Heterogeneity: not applicable					
Test for overall effect: Z = 1.50 (P = 0.13)					
Test for subgroup differences: Not applicable					

Analysis 4.2. Comparison 4 Health education including contraception: immediate, later, and no session, Outcome 2 Use of contraception at 6 months: immediate session versus no immediate session.

Review: Education for contraceptive use by women after childbirth

Comparison: 4 Health education including contraception: immediate, later, and no session

Outcome: 2 Use of contraception at 6 months: immediate session versus no immediate session

Study or subgroup	Experimental n/N	Control n/N	Odds Ratio M-H,Fixed,95% CI	Weight	Odds Ratio M-H,Fixed,95% CI
Bolam 1998	73/199	51/194		100.0 %	1.62 [1.06, 2.50]
Total (95% CI)	**199**	**194**		**100.0 %**	**1.62 [1.06, 2.50]**
Total events: 73 (Experimental), 51 (Control)					
Heterogeneity: not applicable					
Test for overall effect: Z = 2.21 (P = 0.027)					
Test for subgroup differences: Not applicable					

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Analysis 4.3. Comparison 4 Health education including contraception: immediate, later, and no session, Outcome 3 Use of contraception at 6 months: immediate plus later sessions versus immediate session.

Review: Education for contraceptive use by women after childbirth

Comparison: 4 Health education including contraception: immediate, later, and no session

Outcome: 3 Use of contraception at 6 months: immediate plus later sessions versus immediate session

Study or subgroup	Experimental n/N	Control n/N	Odds Ratio M-H,Fixed,95% CI	Weight	Odds Ratio M-H,Fixed,95% CI
Bolam 1998	33/95	40/104		100.0 %	0.85 [0.48, 1.52]
Total (95% CI)	**95**	**104**		**100.0 %**	**0.85 [0.48, 1.52]**
Total events: 33 (Experimental), 40 (Control)					
Heterogeneity: not applicable					
Test for overall effect: Z = 0.54 (P = 0.59)					
Test for subgroup differences: Not applicable					

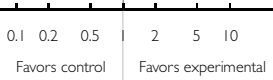
Analysis 4.4. Comparison 4 Health education including contraception: immediate, later, and no session, Outcome 4 Use of contraception at 6 months: later session versus no session.

Review: Education for contraceptive use by women after childbirth

Comparison: 4 Health education including contraception: immediate, later, and no session

Outcome: 4 Use of contraception at 6 months: later session versus no session

Study or subgroup	Experimental n/N	Control n/N	Odds Ratio M-H,Fixed,95% CI	Weight	Odds Ratio M-H,Fixed,95% CI
Bolam 1998	25/97	26/97		100.0 %	0.95 [0.50, 1.80]
Total (95% CI)	**97**	**97**		**100.0 %**	**0.95 [0.50, 1.80]**
Total events: 25 (Experimental), 26 (Control)					
Heterogeneity: not applicable					
Test for overall effect: Z = 0.16 (P = 0.87)					
Test for subgroup differences: Not applicable					



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Analysis 4.5. Comparison 4 Health education including contraception: immediate, later, and no session, Outcome 5 Exclusive breastfeeding at 3 months: immediate session versus no immediate session.

Review: Education for contraceptive use by women after childbirth

Comparison: 4 Health education including contraception: immediate, later, and no session

Outcome: 5 Exclusive breastfeeding at 3 months: immediate session versus no immediate session

Study or subgroup	Experimental n/N	Control n/N	Odds Ratio M-H,Fixed,95% CI	Weight	Odds Ratio M-H,Fixed,95% CI
Bolam 1998	120/204	117/199		100.0 %	1.00 [0.67, 1.49]
Total (95% CI)	**204**	**199**		**100.0 %**	**1.00 [0.67, 1.49]**
Total events: 120 (Experimental), 117 (Control)					
Heterogeneity: not applicable					
Test for overall effect: Z = 0.01 (P = 1.0)					
Test for subgroup differences: Not applicable					

Analysis 4.6. Comparison 4 Health education including contraception: immediate, later, and no session, Outcome 6 Exclusive breastfeeding >= 5 months: immediate session versus no immediate session.

Review: Education for contraceptive use by women after childbirth

Comparison: 4 Health education including contraception: immediate, later, and no session

Outcome: 6 Exclusive breastfeeding >= 5 months: immediate session versus no immediate session

Study or subgroup	Experimental n/N	Control n/N	Odds Ratio M-H,Fixed,95% CI	Weight	Odds Ratio M-H,Fixed,95% CI
Bolam 1998	56/198	54/192		100.0 %	1.01 [0.65, 1.57]
Total (95% CI)	**198**	**192**		**100.0 %**	**1.01 [0.65, 1.57]**
Total events: 56 (Experimental), 54 (Control)					
Heterogeneity: not applicable					
Test for overall effect: Z = 0.03 (P = 0.97)					
Test for subgroup differences: Not applicable					

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Analysis 4.7. Comparison 4 Health education including contraception: immediate, later, and no session, Outcome 7 Exclusive breastfeeding >= 5 months: immediate and later sessions versus immediate session only.

Review: Education for contraceptive use by women after childbirth

Comparison: 4 Health education including contraception: immediate, later, and no session

Outcome: 7 Exclusive breastfeeding >= 5 months: immediate and later sessions versus immediate session only

Study or subgroup	Experimental n/N	Control n/N	Odds Ratio M-H,Fixed,95% CI	Weight	Odds Ratio M-H,Fixed,95% CI
Bolam 1998	31/94	25/104		100.0 %	1.55 [0.83, 2.90]
Total (95% CI)	**94**	**104**		**100.0 %**	**1.55 [0.83, 2.90]**
Total events: 31 (Experimental), 25 (Control)					
Heterogeneity: not applicable					
Test for overall effect: Z = 1.39 (P = 0.16)					
Test for subgroup differences: Not applicable					

Analysis 4.8. Comparison 4 Health education including contraception: immediate, later, and no session, Outcome 8 Exclusive breastfeeding >= 5 months: later session versus no session.

Review: Education for contraceptive use by women after childbirth

Comparison: 4 Health education including contraception: immediate, later, and no session

Outcome: 8 Exclusive breastfeeding >= 5 months: later session versus no session

Study or subgroup	Experimental n/N	Control n/N	Odds Ratio M-H,Fixed,95% CI	Weight	Odds Ratio M-H,Fixed,95% CI
Bolam 1998	27/94	27/98		100.0 %	1.06 [0.56, 1.99]
Total (95% CI)	**94**	**98**		**100.0 %**	**1.06 [0.56, 1.99]**
Total events: 27 (Experimental), 27 (Control)					
Heterogeneity: not applicable					
Test for overall effect: Z = 0.18 (P = 0.86)					
Test for subgroup differences: Not applicable					

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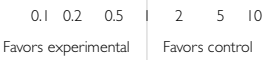
Analysis 5.1. Comparison 5 Special postpartum care (including contraception) versus routine services (multiple well-baby contacts), Outcome 1 Repeat pregnancy (self-report) by 18 months.

Review: Education for contraceptive use by women after childbirth

Comparison: 5 Special postpartum care (including contraception) versus routine services (multiple well-baby contacts)

Outcome: 1 Repeat pregnancy (self-report) by 18 months

Study or subgroup	Experimental n/N	Control n/N	Odds Ratio M-H,Fixed,95% CI	Weight	Odds Ratio M-H,Fixed,95% CI
O'Sullivan 1992	13/108	32/113		100.0 %	0.35 [0.17, 0.70]
Total (95% CI)	**108**	**113**		**100.0 %**	**0.35 [0.17, 0.70]**
Total events: 13 (Experimental), 32 (Control)					
Heterogeneity: not applicable					
Test for overall effect: Z = 2.93 (P = 0.0034)					
Test for subgroup differences: Not applicable					



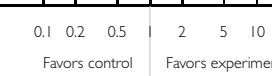
Analysis 6.1. Comparison 6 Home visiting: structured versus routine, Outcome 1 Effective contraception use at 6 months.

Review: Education for contraceptive use by women after childbirth

Comparison: 6 Home visiting: structured versus routine

Outcome: 1 Effective contraception use at 6 months

Study or subgroup	Experimental n/N	Control n/N	Odds Ratio M-H,Fixed,95% CI	Weight	Odds Ratio M-H,Fixed,95% CI
Quinlivan 2003	53/62	40/62		100.0 %	3.24 [1.35, 7.79]
Total (95% CI)	**62**	**62**		**100.0 %**	**3.24 [1.35, 7.79]**
Total events: 53 (Experimental), 40 (Control)					
Heterogeneity: not applicable					
Test for overall effect: Z = 2.63 (P = 0.0087)					
Test for subgroup differences: Not applicable					



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Analysis 7.1. Comparison 7 Home-based mentoring (multiple visits) versus usual care, Outcome 1 Second birth by 24 months.

Review: Education for contraceptive use by women after childbirth

Comparison: 7 Home-based mentoring (multiple visits) versus usual care

Outcome: 1 Second birth by 24 months

Study or subgroup	Treatment n/N	Control n/N	Odds Ratio M-H,Fixed,95% CI	Weight	Odds Ratio M-H,Fixed,95% CI
Black 2006	8/70	19/79		100.0 %	0.41 [0.17, 1.00]
Total (95% CI)	**70**	**79**		**100.0 %**	**0.41 [0.17, 1.00]**
Total events: 8 (Treatment), 19 (Control)					
Heterogeneity: not applicable					
Test for overall effect: Z = 1.96 (P = 0.050)					
Test for subgroup differences: Not applicable					

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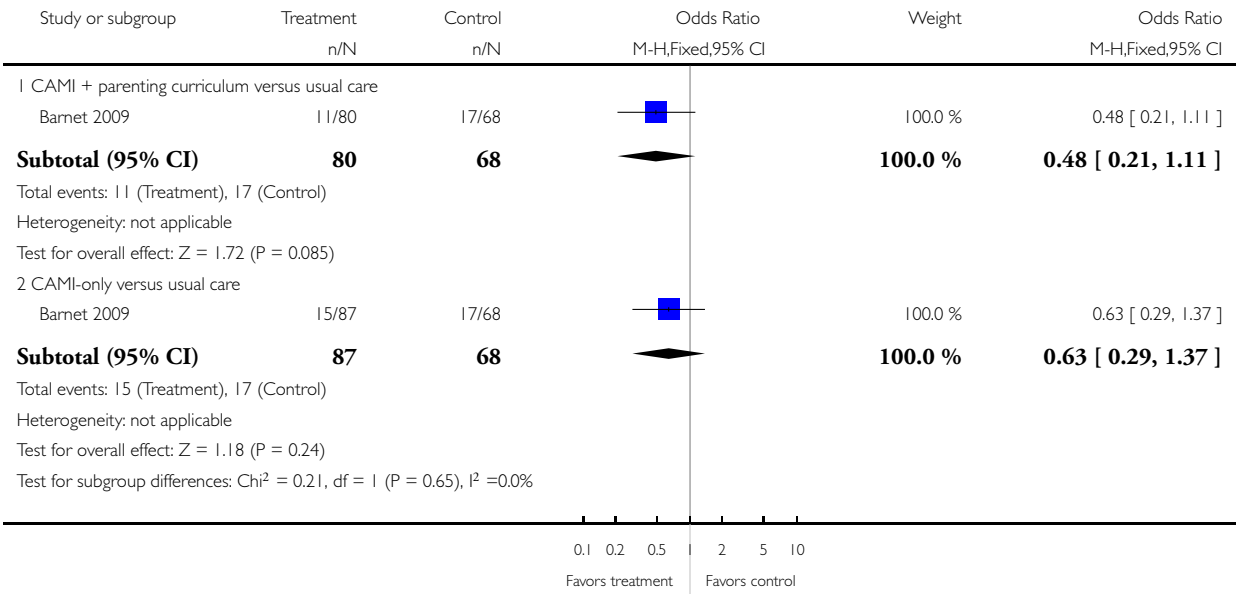
Analysis 8.1. Comparison 8 Computer-assisted motivational interviewing (CAMI) with parenting curriculum versus CAMI-only versus usual care, Outcome 1 Repeat birth by 24 months.

Review: Education for contraceptive use by women after childbirth

Comparison: 8 Computer-assisted motivational interviewing (CAMI) with parenting curriculum versus CAMI-only versus usual care

Outcome: 1 Repeat birth by 24 months



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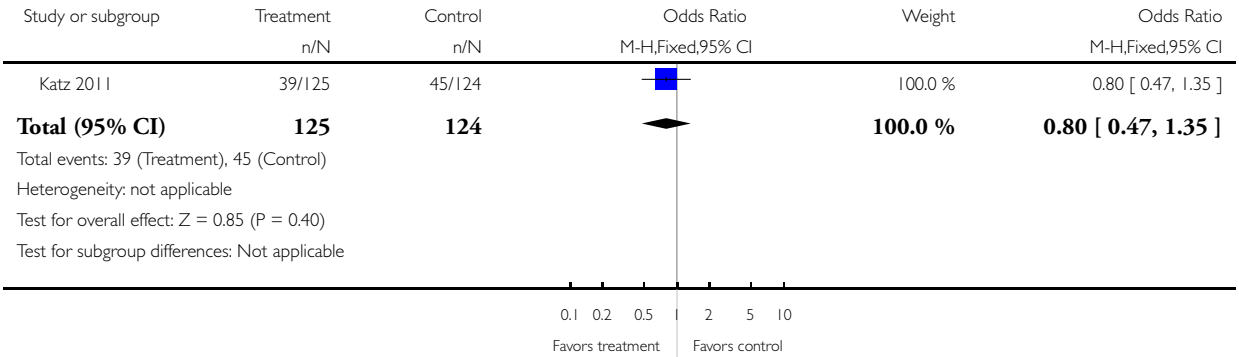
Analysis 9.1. Comparison 9 Phone counseling versus usual services, Outcome 1 Repeat pregnancy by 24 months.

Review: Education for contraceptive use by women after childbirth

Comparison: 9 Phone counseling versus usual services

Outcome: 1 Repeat pregnancy by 24 months

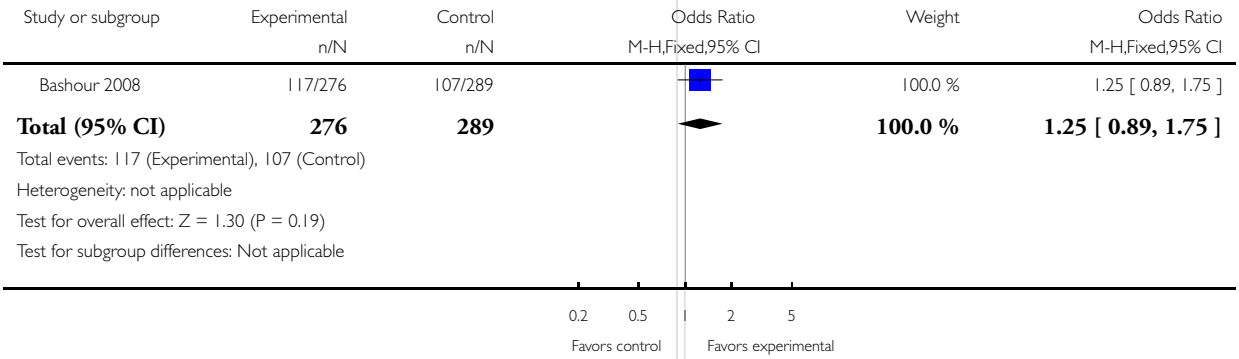


Analysis 10.1. Comparison 10 Home visiting: four visits versus one visit versus usual care, Outcome 1 Contraception use at 4 months: 4 visits versus 1 visit.

Review: Education for contraceptive use by women after childbirth

Comparison: 10 Home visiting: four visits versus one visit versus usual care

Outcome: 1 Contraception use at 4 months: 4 visits versus 1 visit



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Analysis 10.2. Comparison 10 Home visiting: four visits versus one visit versus usual care, Outcome 2 Contraception use at 4 months: 1 visit versus usual care.

Review: Education for contraceptive use by women after childbirth

Comparison: 10 Home visiting: four visits versus one visit versus usual care

Outcome: 2 Contraception use at 4 months: 1 visit versus usual care

Study or subgroup	Experimental n/N	Control n/N	Odds Ratio M-H,Fixed,95% CI	Weight	Odds Ratio M-H,Fixed,95% CI
Bashour 2008	107/289	118/291		100.0 %	0.86 [0.62, 1.20]
Total (95% CI)	**289**	**291**		**100.0 %**	**0.86 [0.62, 1.20]**

Total events: 107 (Experimental), 118 (Control)
Heterogeneity: not applicable
Test for overall effect: Z = 0.87 (P = 0.38)
Test for subgroup differences: Not applicable

Analysis 10.3. Comparison 10 Home visiting: four visits versus one visit versus usual care, Outcome 3 Pregnancy (self-reported) at 4 months postpartum: 4 visits versus 1 visit.

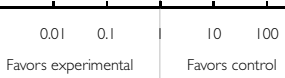
Review: Education for contraceptive use by women after childbirth

Comparison: 10 Home visiting: four visits versus one visit versus usual care

Outcome: 3 Pregnancy (self-reported) at 4 months postpartum: 4 visits versus 1 visit

Study or subgroup	Experimental n/N	Control n/N	Odds Ratio M-H,Fixed,95% CI	Weight	Odds Ratio M-H,Fixed,95% CI
Bashour 2008	4/262	3/292		100.0 %	1.49 [0.33, 6.74]
Total (95% CI)	**262**	**292**		**100.0 %**	**1.49 [0.33, 6.74]**

Total events: 4 (Experimental), 3 (Control)
Heterogeneity: not applicable
Test for overall effect: Z = 0.52 (P = 0.60)
Test for subgroup differences: Not applicable



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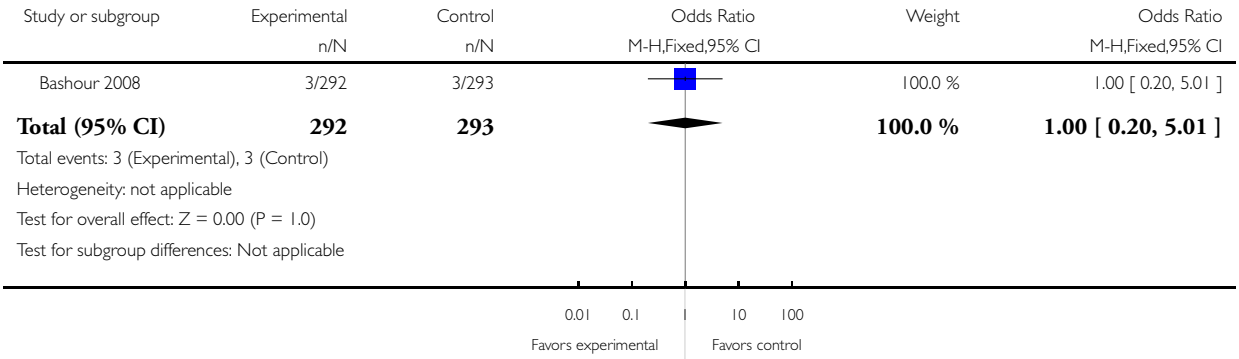
Analysis 10.4. Comparison 10 Home visiting: four visits versus one visit versus usual care, Outcome 4 Pregnancy (self-reported) at 4 months postpartum: 1 visit versus usual care.

Review: Education for contraceptive use by women after childbirth

Comparison: 10 Home visiting: four visits versus one visit versus usual care

Outcome: 4 Pregnancy (self-reported) at 4 months postpartum: 1 visit versus usual care



ADDITIONAL TABLES

Table 1. Quality of intervention evidence

Study	Population	Intervention location; medium	Intervention content	Sessions <= 2	Follow-up < 6 months	Intervention fidelity < 3 items	Quality[1]
Barnet 2009	Adolescents	Home; CAMI	Parenting (included contraception); case management	---	---	---	High (0)
Bashour 2008	Women	Home	Education and support, including breastfeeding and contraception	---	-1	---	Moderate (-1)
Black 2006	Adolescents	Home	Parenting (included contraception)	---	---	---	High (0)

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Table 1. Quality of intervention evidence (*Continued*)

Bolam 1998	Women	Hospital and home	Health education, including infant care and family planning	-1	---	---	Moderate (-1)
Gilliam 2004	Young women (age <= 25)	Hospital	Oral contraceptive use	-1	---	---	Moderate (-1)
Katz 2011	Adolescents	Community; cell phone	Health risks and teen attitudes; included reproductive health planning	---	---	-1	Moderate (-1)
O'Sullivan 1992	Adolescents	Well-baby clinic	Special well-baby care	---	---	---	High (0)
Proctor 2006	Women	Hospital	Contraceptive use	-1	-1	---	Low (-2)
Quinlivan 2003	Adolescents	Home	Structured support and counseling	---	---	-1	Moderate (-1)
Saeed 2008	Women	Hospital	Contraceptive use	-1	-1	---	Low (-2)

[1]RCTs were considered high quality then downgraded for each of the following: a) fewer than two sessions provided; b) follow-up duration less than 6 months; c) intervention fidelity information reported for fewer than 3 items (Table 3).

Table 2. Quality of evidence

Study	Randomization; allocation concealment	Intervention quality	Outcome assessment	Losses > 20%	Other	Blinding	Quality of evidence[1]	Effectiveness[2]
Barnet 2009	-1	---	---	---	---	---	Moderate (-1)	---
Bashour 2008	---	---	-1	---	---	+1	High (0)	---

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Table 2. Quality of evidence (*Continued*)

Black 2006	-1	---	---	---	-2[a,b]	---	Very low (-3)	Fewer repeat births
Bolam 1998	---	---	-1	-1	---	+1	Moderate (-1)	Use of contraception
Gilliam 2004	---	---	---	-1	---	+1	High (0)	---
Katz 2011	-1	---	---	---	---	---	Moderate (-1)	---
O'Sullivan 1992	-1	---	-1	---	---	---	Low (-2)	Fewer repeat pregnancies
Proctor 2006	---	-1	-1	NA	-1[b]	---	Very low (-3)	---
Quinlivan 2003	---	---	-1	---	---	---	Moderate (-1)	'Effective' use of contraception
Saeed 2008	-1	-1	-1	---	---	+1	Low (-2)	Use of contraception

[1]Quality could be high, moderate, low, or very low. We considered these RCTs to be high quality then downgraded a level for each of the following: a) no information on randomization sequence generation or allocation concealment, or no concealment; b) low intervention quality (Table 1); c) outcome assessment (no objective assessment, e.g., pregnancy test, or no structured questionnaire on contraceptive use); d) losses to follow-up > 20%; e) other ([a]selective outcome reporting or [b]exclusion after randomization). We upgraded one level if some blinding was used. Due to the types of interventions, blinding of investigators and participants to assignment was difficult although blinding of outcome assessors was more feasible.

[2]Evidence of difference between study groups in contraceptive use, repeat pregnancies, or repeat births.

Table 3. Intervention fidelity information

Study	Provider credentials	Provider training	Standardized delivery	Delivery adherence
Barnet 2009	African American paraprofessional women from participants' communities; hired for empathetic qualities, rapport with adolescents, and knowledge of the community	2.5 days on Transtheoretical model, motivational interviewing (MI) , and computer-assisted motivational intervention (CAMI)	CAMI was structured software developed for study; counseling was 20-minute stage-matched MI session; parenting curriculum (Black 2006)	During first 4 months of program, counselors met biweekly with MI supervisor, who discussed audiotapes and provided feedback
Bashour 2008	Registered midwives	5 days of special training	Objectives listed for each visit. Breastfeeding was addressed in visits 2 and 3; family planning in visit 4	No information

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Table 3. Intervention fidelity information (*Continued*)

Black 2006	2 Black women, college-educated, in their 20s, single mothers and living independently	"Extensive" training was provided	Curriculum with 19 lessons; order could vary after 2 sessions	Weekly supervisory sessions
Bolam 1998	3 health educators, 2 midwives, 1 community health worker	Providers "trained" to give the health education	Format and content identified for sessions, including key messages	Investigators monitored weekly and provided feedback
Gilliam 2004	Resident physicians plus nurses for additional counseling	Training session for resident physicians and nurses	Researchers developed the counseling program, video, and pamphlet for this study. Development was described	No information
Katz 2011	Masters-level young women of similar racial-ethnic background as the teens	No information	Curriculum manual provided standardized format and structure to counseling sessions. Teens were given workbooks with visual material related to topics	No information
O'Sullivan 1992	Directed by master's prepared nurse practitioner. Providers: social worker, pediatrician and nurse practitioners, and volunteers (for health teaching)	Volunteers were "trained"	Four goals and specific services identified, as well as which professionals would provide each component	No information
Proctor 2006	Resident physicians	Didactic session on contraceptive methods and outline for talking points	Existing materials for 3 intervention methods were based on the same content	No information
Quinlivan 2003	Certified midwives	No information	Structured home visits were outlined in report	No information
Saeed 2008	Physicians	Providers had 40-minute training on leaflet and interview methods	Counseling leaflet used	No information

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APPENDICES

Appendix 1. Search 2012

MEDLINE via PubMed (01 Jan 2009 to 29 May 2012)

("Contraception"[Mesh] OR "Contraception Behavior"[Mesh] OR "Contraceptive Agents"[Mesh] OR "Contraceptive Devices"[Mesh] OR "family planning") AND (educat* OR counsel* OR communicat* OR "information dissemination" OR intervention* OR choice OR choose OR use) AND ("Postpartum Period"[Mesh] OR "Postnatal Care"[Mesh] OR postpartum OR post-partum OR postnatal)
Limits Activated: Clinical Trial, Randomized Controlled Trial

CENTRAL (2009 to 29 May 2012)

contracept* OR family planning in Title, Abstract or Keywords
AND counsel* OR communicat* OR educat* OR information disseminat* OR intervention OR choice OR choose OR use in Title, Abstract or Keywords
AND postpartum OR post-partum OR postnatal in Title, Abstract or Keywords

POPLINE (2009 to 29 May 2012)

title/keyword -(counseling/clinic activities/counselors/family planning education/health education/population education/family planning program*/sex education/family planning center*/teaching material*/counsel*/debrief*/educat*/teach*/birth control*/ family planning) & (postpartum program*/puerperium/postpartum women/maternal-child health service*/maternal health service*/postnatal*/ post-partum/postpartum/postpartal*/puerperium/maternity/maternal/mother*)
& (clinical trial/random*)
OR
abstract -(counseling/clinic activities/counselors/family planning education/health education/population education/family planning program*/sex education/family planning center*/teaching material*/counsel*/debrief*/educat*/teach*/birth control*/ family planning) & (postpartum program*/puerperium/postpartum women/maternal-child health service*/maternal health service*/postnatal*/post-partum/postpartum/postpartal*/puerperium/maternity/maternal/mother*)
& (clinical trial/random*)

CINAHL (through Ebscohost) (2009 to 30 May 2012)

counseling or sex education or client education or health promotion or teaching or counsel* or debrief* or educat* or teach*
AND
postnatal period or postnatal* or post?natal* or postpartum or post?partum or post-partum or postpartal* or maternity or maternal or mother* or puerperium
AND
birth control or contraceptive devices or family planning or sterilization?sex or (family n6 planning) or contracept* or (pregnan* n6 prevent*) or (birth n6 control)
AND
clinical trial* or clinical stud* or randomized n controlled n trial* or randomised n controlled n trial* or random*

PsycINFO (2009 to 30 May 2012)

(counseling or sex education or client education or health promotion or teaching or counsel* or debrief* or educat* or teach*) AND (postnatal period or postnatal* or post?natal* or postpartum or post?partum or post-partum or postpartal* or maternity or maternal or mother* or puerperium) AND (birth control or contraceptive device* or contraceptive agent* or "family planning" or sterilization?sex or family N6 planning or contracept* or pregnan* N6 prevent* or birth N6 control) AND (clinical trial* or clinical stud* or randomized N1 controlled N1 trial* or randomised N1 controlled N1 trial* or random*)

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ClinicalTrials.gov (29 May 2012)

Search terms: (postpartum OR post-partum OR postnatal OR matern* OR mothers) AND (contraceptive OR contraception OR births OR home visit* OR family planning)
Conditions: NOT (preterm OR low birth weight OR HIV OR pregnancy OR labor OR congenital OR influenza OR drug)
Interventions: NOT (insertion OR supplement* OR caesarean)

ICTRP (29 May 2012)

Title: postpartum OR post-partum OR postnatal OR maternal OR maternity OR mothers
Condition: NOT (preterm OR low birth weight OR HIV OR pregnancy)
Intervention: (contraceptive OR contraception OR births OR home visits OR family planning)

Appendix 2. Search 2009

MEDLINE via Pubmed (20 May 2009)

("Contraception"[Mesh] OR "Contraception Behavior"[Mesh] OR "Contraceptive Agents"[Mesh] OR "Contraceptive Devices"[Mesh] OR "family planning") AND (educat* OR counsel* OR communicat* OR "information dissemination" OR intervention* OR choice OR choose OR use) AND ("Postpartum Period"[Mesh] OR "Postnatal Care"[Mesh] OR postpartum OR post-partum OR postnatal) AND (Clinical Trial[ptyp] OR Randomized Controlled Trial[ptyp] OR Clinical Trial, Phase I[ptyp] OR Clinical Trial, Phase II[ptyp] OR Clinical Trial, Phase III[ptyp] OR Clinical Trial, Phase IV[ptyp] OR Comparative Study[ptyp] OR Controlled Clinical Trial[ptyp] OR Evaluation Studies[ptyp])

CENTRAL (20 May 2009)

contracept* OR family planning in Title, Abstract or Keywords AND counsel* OR communicat* OR educat* OR information disseminat* OR intervention OR choice OR choose OR use in Title, Abstract or Keywords AND postpartum OR post-partum OR postnatal in Title, Abstract or Keywords

EMBASE (19 Feb 2009)

1. exp COUNSELING/
2. exp HEALTH EDUCATION/
3. SEXUAL EDUCATION/ or TEACHING/ or PATIENT SATISFACTION/
4. (counsel$ or debrief$ or educat$ or teach$).ti,ab.
5. 1 or 2 or 3 or 4
6. exp POSTNATAL CARE/
7. exp MATERNAL CARE/
8. MATERNAL BEHAVIOR/
9. HOSPITAL DISCHARGE/
10. (postnatal$ or postpartum or post-partum or post partum or postpartal$).ti,ab.
11. (maternity or maternal or mother$).ti,ab.
12. puerperium.ti,ab.
13. 6 or 7 or 8 or 9 or 10 or 11 or 12
14. exp BIRTH CONTROL/ or exp CONTRACEPTION/
15. exp CONTRACEPTIVE DEVICE or exp CONTRACEPTIVE AGENT/
16. exp GESTAGEN/
17. ((family adj6 planning) or contracept$ or (pregnan$ adj6 prevent$)).ti,ab.
18. (birth adj6 control).ti,ab.
19. 14 or 15 or 16 or 17 or 18
20. 5 and 13 and 19

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21. CLINICAL STUDY/ or CLINICAL ARTICLE/ or CASE CONTROL STUDY/ or LONGITUDINAL STUDY/ or MAJOR CLINICAL STUDY/ or PROSPECTIVE STUDY/ or CLINICAL TRIAL/ or MULTICENTER STUDY/ or PHASE 3 CLINICAL TRIAL/ or PHASE 4 CLINICAL TRIAL/ or RANDOMIZED CONTROLLED TRIAL/ or CONTROLLED STUDY/ or CROSSOVER PROCEDURE/ or DOUBLE BLIND PROCEDURE/ or INTERMETHOD COMPARISON/ or SINGLE BLIND PROCEDURE/ or PLACEBO/
22. (allocat$ or assign$ or compar$ or control$ or cross over$ or crossover$ or factorial$ or latin square or latin-square or followup or follow up or placebo$ or prospective$ or random$ or trial$ or versus or vs).ti,ab.
23. (clinic$ adj25 study).ti,ab.
24. (clinic$ adj25 trial).ti,ab.
25. (singl$ or doubl$ or trebl$ or tripl$) adj25 (blind$ or mask$)).ti,ab.
26. 21 or 22 or 23 or 24 or 25
27. NONHUMAN/ OR ANIMAL/ OR ANIMAL EXPERIMENT/
28. HUMAN/ AND (NONHUMAN/ OR ANIMAL OR ANIMAL EXPERIMENTATION/)
29. 27 not 28
30. 26 not 29
31. 20 and 30

POPLINE (19 Feb 2009)

title/keyword -(counseling/clinic activities/counselors/family planning education/health education/population education/family planning program*/sex education/family planning center*/teaching material*/counsel*/debrief*/educat*/teach*/birth control*/ family planning) & (postpartum program*/puerperium/postpartum women/maternal-child health service*/maternal health service*/postnatal*/post-partum/postpartum/postpartal*/puerperium/maternity/maternal/mother*)
& (clinical trial/random*)
OR
abstract -(counseling/clinic activities/counselors/family planning education/health education/population education/family planning program*/sex education/family planning center*/teaching material*/counsel*/debrief*/educat*/teach*/birth control*/ family planning) & (postpartum program*/puerperium/postpartum women/maternal-child health service*/maternal health service*/postnatal*/post-partum/postpartum/postpartal*/puerperium/maternity/maternal/mother*)
& (clinical trial/random*)

CINAHL (19 Feb 2009)

counseling or sex education or client education or health promotion or teaching or counsel* or debrief* or educat* or teach*
AND
postnatal period or postnatal* or post?natal* or postpartum or post?partum or post-partum or postpartal* or maternity or maternal or mother* or puerperium
AND
birth control or contraceptive devices or family planning or sterilization?sex or (family n6 planning) or contracept* or (pregnan* n6 prevent*) or (birth n6 control)
AND
clinical trial* or clinical stud* or randomized n controlled n trial* or randomised n controlled n trial* or random*

PsycINFO (19 Feb 2009)

(counseling or sex education or client education or health promotion or teaching or counsel* or debrief* or educat* or teach*) AND (postnatal period or postnatal* or post?natal* or postpartum or post?partum or post-partum or postpartal* or maternity or maternal or mother* or puerperium) AND (birth control or contraceptive device* or contraceptive agent* or "family planning" or sterilization?sex or family N6 planning or contracept* or pregnan* N6 prevent* or birth N6 control) AND (clinical trial* or clinical stud* or randomized N1 controlled N1 trial* or randomised N1 controlled N1 trial* or random*)

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ClinicalTrials.gov (16 Jun 2009)

Search terms: postpartum OR post-partum OR postnatal OR matern* OR mothers
Conditions: NOT (preterm OR low birth weight OR HIV OR pregnancy)
Interventions: (contraceptive OR contraception OR births OR home visit* OR family planning) NOT (insertion OR supplement* OR caesarean)

ICTRP (16 Jun 2009)

Title: postpartum OR post-partum OR postnatal OR maternal OR maternity OR mothers
Condition: NOT (preterm OR low birth weight OR HIV OR pregnancy)
Intervention: (contraceptive OR contraception OR births OR home visits OR family planning)

Appendix 3. Search 2001

MEDLINE OvidWeb (1966-2001 Aug) and The Cochrane Controlled Trials Register

1. COUNSELING/
2. SEX COUNSELING/
3. PATIENT EDUCATION/
4. HEALTH EDUCATION/
5. HEALTH PROMOTION/
6. exp TEACHING/
7. (counsel$ or debrief$ or educat$ or teach$).ti,ab.
8. 1 or 2 or 3 or 4 or 5 or 6 or 7
9. POSTNATAL CARE/
10. exp PUERPERIUM/
11. MATERNAL HEALTH SERVICES/
12. MATERNAL-CHILD HEALTH CENTERS/
13. MATERNAL BEHAVIOR/
14. PATIENT DISCHARGE/
15. (postnatal$ or post-partum or postpartum or post partum or postpartal$).ti,ab.
16. (maternity or maternal or mother$).ti,ab.
17. puerperium.ti,ab.
18. discharg$.ti,ab.
19. 9 or 10 or 11 or 12 or 13 or 14 or 15 or 16 or 17 or 18
20. CONTRACEPTION BEHAVIOR/
21. exp CONTRACEPTION/
22. exp CONTRACEPTIVE AGENTS/
23. exp CONTRACEPTIVE DEVICES/
24. exp FAMILY PLANNING/
25. FAMILY PLANNING POLICY/
26. POPULATION CONTROL/
27. ((family adj6 planning) or contracept$ or (pregnan$ adj6 prevent$)).ti,ab.
28. (birth adj6 control).ti,ab.
29. 20 or 21 or 22 or 23 or 24 or 25 or 26 or 27 or 28
30. 8 and 19 and 29
31. 30 and human/
32. RANDOMIZED CONTROLLED TRIAL.pt.
33. CONTROLLED CLINICAL TRIAL.pt.
34. RANDOMIZED CONTROLLED TRIALS/
35. RANDOM ALLOCATION/

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36. DOUBLE-BLIND METHOD/
37. SINGLE-BLIND METHOD/
38. CLINICAL TRIAL.pt.
39. exp CLINICAL TRIALS
40. (clin$ adj25 trial$).ti,ab.
41. ((singl$ or doubl$ or trebl$ or tripl$) adj25 (blind$ or mask$)).ti,ab.
42. PLACEBOS/
43. (placebo$ or random$).ti,ab.
44. RESEARCH DESIGN/
45. COMPARATIVE STUDY/
46. exp EVALUATION STUDIES/
47. exp CASE-CONTROL STUDIES/ or exp COHORT STUDIES/
48. (control$ or prospective$ or volunteer$).ti,ab.
49. (latin square or latin-square).ti,ab.
50. (cross-over$ or cross over$).ti,ab.
51. factorial$.ti,ab.
52. CROSS-OVER STUDIES/
53. 32 or 33 or 34 or 35 or 36 or 37 or 38 or 39 or 40 or 41 or 42 or 43 or 44 or 45 or 46 or 47 or 48 or 49 or 50 or 51 or 52
54. (animal not (human and animal)).sh.
55. 53 not 54
56. 55 and 31

N.B. for searching The Cochrane Controlled Trials Register please substitute "*" for "$" and "near" for "adj"

EMBASE, OvidWeb (1980-2001 Aug)

1. exp COUNSELING/
2. exp HEALTH EDUCATION/
3. SEXUAL EDUCATION/ or TEACHING/ or PATIENT SATISFACTION/
4. (counsel$ or debrief$ or educat$ or teach$).ti,ab.
5. 1 or 2 or 3 or 4
6. exp POSTNATAL CARE/
7. exp MATERNAL CARE/
8. MATERNAL BEHAVIOR/
9. HOSPITAL DISCHARGE/
10. (postnatal$ or postpartum or post-partum or post partum or postpartal$).ti,ab.
11. (maternity or maternal or mother$).ti,ab.
12. puerperium.ti,ab.
13. 6 or 7 or 8 or 9 or 10 or 11 or 12
14. exp BIRTH CONTROL/ or exp CONTRACEPTION/
15. exp CONTRACEPTIVE DEVICE or exp CONTRACEPTIVE AGENT/
16. exp GESTAGEN/
17. ((family adj6 planning) or contracept$ or (pregnan$ adj6 prevent$)).ti,ab.
18. (birth adj6 control).ti,ab.
19. 14 or 15 or 16 or 17 or 18
20. 5 and 13 and 19
21. CLINICAL STUDY/ or CLINICAL ARTICLE/ or CASE CONTROL STUDY/ or LONGITUDINAL STUDY/ or MAJOR CLINICAL STUDY/ or PROSPECTIVE STUDY/ or CLINICAL TRIAL/ or MULTICENTER STUDY/ or PHASE 3 CLINICAL TRIAL/ or PHASE 4 CLINICAL TRIAL/ or RANDOMIZED CONTROLLED TRIAL/ or CONTROLLED STUDY/ or CROSSOVER PROCEDURE/ or DOUBLE BLIND PROCEDURE/ or INTERMETHOD COMPARISON/ or SINGLE BLIND PROCEDURE/ or PLACEBO/
22. (allocat$ or assign$ or compar$ or control$ or cross over$ or crossover$ or factorial$ or latin square or latin-square or followup or follow up or placebo$ or prospective$ or random$ or trial$ or versus or vs).ti,ab.
23. (clinic$ adj25 study).ti,ab.

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24. (clinic$ adj25 trial).ti,ab.
25. (singl$ or doubl$ or trebl$ or tripl$) adj25 (blind$ or mask$)).ti,ab.
26. 21 or 22 or 23 or 24 or 25
27. NONHUMAN/ OR ANIMAL/ OR ANIMAL EXPERIMENT/
28. HUMAN/ AND (NONHUMAN/ OR ANIMAL OR ANIMAL EXPERIMENTATION/)
29. 27 not 28
30. 26 not 29
31. 20 and 30

POPLINE (1970-2001 Aug)

1. COUNSELING/
2. CLINIC ACTIVITIES/
3. COUNSELORS/
4. FAMILY PLANNING EDUCATION/
5. HEALTH EDUCATION/
6. POPULATION EDUCATION/
7. FAMILY PLANNING PROGRAMS/
8. SEX EDUCATION
9. FAMILY PLANNING CENTERS/
10. TEACHING MATERIALS/
11. counsel$ or debrief$ or educat$ or teach$ or birth control$ or family planning
12. 1 or 2 or 3 or 4 or 5 or 6 or 7 or 8 or 9 or 10 or 11
13. POSTPARTUM PROGRAMS/
14. PUERPERIUM/
15. POSTPARTUM WOMEN/
16. MATERNAL-CHILD HEALTH SERVICES/
17. MATERNAL HEALTH SERVICES/
18. postnatal$ or post-partum or postpartum or postpartal$ or puerperium
19. maternity or maternal or mother$
20. 13 or 14 or 15 or 16 or 17 or 18 or 19
21. 12 and 20

CINAHL, SliverPlatter (1982-2001 Oct)

1. “Counseling”/ all topical subheadings / all age subheadings
2. “Sexual-Counseling”/ all topical subheadings / all age subheadings
3. “Patient-Education”/ all topical subheadings / all age subheadings
4. “Patient-Discharge-Education”/ all topical subheadings / all age subheadings
5. “Health-Education”/ all topical subheadings / all age subheadings
6. “Sex-Education”/ all topical subheadings / all age subheadings
7. “Health-Promotion”/ all topical subheadings / all age subheadings
8. “Teaching”/ all topical subheadings / all age subheadings
9. (counsel* or debrief* or educat* or teach*) in ti,ab
10. “Postnatal-Care”/ all topical subheadings / all age subheadings
11. “Postnatal-Period”/ all topical subheadings / all age subheadings
12. “Puerperium”/ all topical subheadings / all age subheadings
13. “Maternal-Health-Services”/ all topical subheadings / all age subheadings
14. “Maternal-Child-Health”/ all topical subheadings / all age subheadings
15. “Maternal-Behavior”/ all topical subheadings / all age subheadings
16. (postnatal* or post natal* or post-natal* or post-partum or post partum or postpartum or postpartal*) in ti,ab
17. (maternity or maternal or mother*) in ti,ab
18. puerperium in ti,ab

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19. discharg* in ti,ab
20. #1 or #2 or #3 or #4 or #5 or #6 or #7 or #8 or #9
21. #10 or #11 or #12 or #13 or #14 or #15 or #16 or #17 or #18 or #19
22. explode "Contraception"/ all topical subheadings / all age subheadings
23. explode "Contraceptive-Agents"/ all topical subheadings / all age subheadings
24. explode "Contraceptive-Devices"/ all topical subheadings / all age subheadings
25. explode "Family-Planning"/ all topical subheadings / all age subheadings
26. ((family near6 planning) or contracept* or (pregnan* near6 prevent*) or (birth near6 control*)) in ti,ab
27. #22 or #23 or #24 or #25 or #26
28. #20 and #21 and #27

PsycINFO SilverPlatter (1899-2001 Oct)

1. "Counseling-" in DE
2. "Sex-Education" in DE
3. "Client-Education" in DE
4. "Health-Education" in DE
5. "Health-Promotion" in DE
6. "Teaching-" in DE
7. (counsel* or debrief* or educat* or teach*) in ti,ab
8. #1 or #2 or #3 or #4 or #5 or #6 or #7
9. "Postnatal-Period" in DE
10. (postnatal* or post natal* or post-natal* or postpartum or post partum or post-partum or postpartal*) in ti,ab
11. (maternity or maternal or mother*) in ti,ab
12. puerperium in ti,ab
13. #9 or #10 or #11 or #12
14. explode "Birth-Control"
15. explode "Contraceptive-Devices"
16. "Family-Planning" in DE
17. explode "Sterilization-Sex"
18. (family near6 planning) or contracept* or (pregnan* near6 prevent*) or (birth near6 control*)
19. #14 or #15 or #16 or #17 or #18
20. #8 and #13 and #19

SIGLE SilverPlatter (1980-2001 Jun)

1. (counsel* or debrief* or educat* or teach*)
2. postnatal* or post natal* or post-natal* or postpartum or post partum or post-partum or postpartal*
3. maternity or maternal or mother*
4. puerperium
5. #2 or #3 or #4
6. (family near6 planning) or contracept* or (pregnan* near6 prevent*) or (birth near6 control*)
7. #1 and #5 and #6

ASSIA Bowker Saur CD-ROM (1987-2001 Nov)

1. ft=educat$
2. ft=advice
3. ft=advise$
4. ft=debrief$
5. ft=teach$
6. ft=counsel$
7. cs=1 or cs=2 or cs=3 or cs=4 or cs=5 or cs=6

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8. ft=postpartum
9. ft=postnatal$
10. ft=puerperium
11. cs=8 or cs=9 or cs=10
12. ft=pregnan$ prevent$
13. ft=contracept$
14. ft=family planning
15. ft=abstinen$
16. ft=birth control$
17. ft=fertility regulat$
18. ft=fertility control$
19. cs=12 or cs=13 or cs=14 or cs=15 or cs=16 or cs=17 or cs=18
20. cs=7 and cs=11 and cs=19
21. cs=7 and cs=11
22. cs=11 and cs=19

WHAT'S NEW

Last assessed as up-to-date: 1 June 2012.

Date	Event	Description
28 June 2012	New citation required but conclusions have not changed	New trials did not show evidence of effectiveness. We assessed the quality of evidence (Data synthesis), which included quality of intervention evidence (Table 1) and then overall quality of evidence (Table 2).
30 May 2012	New search has been performed	Searches updated; two new trials included (Barnet 2009; Katz 2011).

HISTORY

Protocol first published: Issue 1, 1998

Review first published: Issue 4, 1999

Date	Event	Description
9 November 2009	New citation required and conclusions have changed	We had 7 trials to add. We excluded studies that had issues regarding unit of analysis, i.e., 2 studies from the original review (Foreit 1993; Sayegh 1976).Consequently, the conclusions changed in this version.
25 June 2009	New search has been performed	New trials added (Bashour 2008; Black 2006; Gilliam 2004; Proctor 2006; Quinlivan 2003; Saeed 2008). O'Sullivan 1992 was moved to 'included studies,' due to

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(*Continued*)

		defining postpartum education as that which occurred within 1 month of delivery. Added searches of clinical trial databases
15 June 2009	Amended	Expanded time frame for postpartum education to include programs initiated in less than a month after delivery. Included use of health care services as an outcome
21 May 2009	Amended	Authors added to lead update (LM Lopez, DA Grimes)
15 April 2008	Amended	Converted to new review format.
1 March 2002	New citation required and conclusions have changed	Substantive amendment

CONTRIBUTIONS OF AUTHORS

Original review

J Hiller and E Griffith contributed to the preparation of the protocol. J Hiller, E Griffith, and F Jenner examined trials found after the literature search and the finalization of the original report. J Hiller and E Griffith abstracted data for the original review. J Hiller was responsible for the literature search, examination of literature used for background information, input of the data, and drafting the report through 2002.

2009 update and revision

L Lopez reviewed the search results, conducted the primary data abstraction, incorporated the trials into the report, and drafted the revised manuscript. J Hiller provided input on the inclusion and exclusion criteria for trials and edited the manuscript. D Grimes conducted the second data abstraction, checked the data entry, and edited the manuscript. M Chen provided statistical consultation on cluster randomized trials.

2012 update

L Lopez reviewed the search results, conducted the primary data abstraction, incorporated the trials into the report, and drafted the revised manuscript. M Chen reviewed the methods and interpretation of results. J Hiller reviewed the quality assessment information. DA Grimes identified another ongoing trial. All authors reviewed and commented on the manuscript.

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DECLARATIONS OF INTEREST

None known

SOURCES OF SUPPORT

Internal sources

- Adelaide University (JEH, through 2002), Australia.
- Health Services Research Unit, University of Aberdeen (JEH, 1997), UK.

External sources

- Cochrane Health Promotion and Public Health Field, Australia.

Support for conducting the review (JEH, through 2002)

- U.S. Agency for International Development, USA.

Support for conducting the review (LML, MC; DAG (2009 only))

- National Institute of Child Health and Human Development, USA.

Support for conducting the review (LML, MC; DAG (2009 only))

INDEX TERMS

Medical Subject Headings (MeSH)

*Contraception; *Patient Education as Topic; *Postpartum Period; Program Evaluation; Randomized Controlled Trials as Topic

MeSH check words

Adolescent; Adult; Female; Humans; Young Adult

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