

Immediate postabortal insertion of intrauterine devices (Review)

Grimes DA, Lopez LM, Schulz KF, Stanwood NL



**THE COCHRANE
COLLABORATION®**

This is a reprint of a Cochrane review, prepared and maintained by The Cochrane Collaboration and published in *The Cochrane Library* 2010, Issue 6

<http://www.thecochranelibrary.com>



TABLE OF CONTENTS

HEADER	1
ABSTRACT	1
PLAIN LANGUAGE SUMMARY	2
BACKGROUND	2
OBJECTIVES	3
METHODS	3
RESULTS	4
DISCUSSION	6
AUTHORS' CONCLUSIONS	7
ACKNOWLEDGEMENTS	7
REFERENCES	7
CHARACTERISTICS OF STUDIES	9
DATA AND ANALYSES	18
Analysis 1.1. Comparison 1 Immediate insertion: TCU 220C versus Lippes Loop, Outcome 1 Logarithms of rate ratios for discontinuation due to intrauterine pregnancy (750 days).	22
Analysis 1.2. Comparison 1 Immediate insertion: TCU 220C versus Lippes Loop, Outcome 2 Logarithms of rate ratios for discontinuation due to expulsion (750 days).	22
Analysis 1.3. Comparison 1 Immediate insertion: TCU 220C versus Lippes Loop, Outcome 3 Logarithms of rate ratios for discontinuation due to total medical removals (750 days).	23
Analysis 1.4. Comparison 1 Immediate insertion: TCU 220C versus Lippes Loop, Outcome 4 Discontinuation due to perforation (750 days).	23
Analysis 1.5. Comparison 1 Immediate insertion: TCU 220C versus Lippes Loop, Outcome 5 Discontinuation due to pelvic inflammatory disease (750 days).	24
Analysis 2.1. Comparison 2 Immediate insertion: Lippes Loop versus Copper 7, Outcome 1 Logarithms of rate ratios for discontinuation due to intrauterine pregnancy (750 days).	24
Analysis 2.2. Comparison 2 Immediate insertion: Lippes Loop versus Copper 7, Outcome 2 Logarithms of rate ratios for discontinuation due to expulsion (750 days).	25
Analysis 2.3. Comparison 2 Immediate insertion: Lippes Loop versus Copper 7, Outcome 3 Logarithms of rate ratios for discontinuation due to total medical removals (750 days).	25
Analysis 2.4. Comparison 2 Immediate insertion: Lippes Loop versus Copper 7, Outcome 4 Discontinuation due to perforation (750 days).	26
Analysis 2.5. Comparison 2 Immediate insertion: Lippes Loop versus Copper 7, Outcome 5 Discontinuation due to pelvic inflammatory disease (750 days).	26
Analysis 3.1. Comparison 3 Immediate insertion: TCU 220C versus Copper 7, Outcome 1 Logarithms of rate ratios for discontinuation due to intrauterine pregnancy (750 days).	27
Analysis 3.2. Comparison 3 Immediate insertion: TCU 220C versus Copper 7, Outcome 2 Logarithms of rate ratios for discontinuation due to expulsion (750 days).	27
Analysis 3.3. Comparison 3 Immediate insertion: TCU 220C versus Copper 7, Outcome 3 Logarithms of rate ratios for discontinuation due to total medical removals (750 days).	28
Analysis 3.4. Comparison 3 Immediate insertion: TCU 220C versus Copper 7, Outcome 4 Discontinuation due to perforation (750 days).	28
Analysis 3.5. Comparison 3 Immediate insertion: TCU 220C versus Copper 7, Outcome 5 Discontinuation due to pelvic inflammatory disease (750 days).	29
Analysis 4.1. Comparison 4 Immediate versus delayed insertion of Copper 7, Outcome 1 Discontinuation due to pregnancy at one year.	29
Analysis 4.2. Comparison 4 Immediate versus delayed insertion of Copper 7, Outcome 2 Discontinuation due to expulsion at one year.	30
Analysis 4.3. Comparison 4 Immediate versus delayed insertion of Copper 7, Outcome 3 Discontinuation due to pelvic inflammatory disease at one year.	30
Analysis 5.1. Comparison 5 Immediate insertion: Nova T versus MLCu 250, Outcome 1 Discontinuation due to pregnancy (24 months).	31

Analysis 5.2. Comparison 5 Immediate insertion: Nova T versus MLCu 250, Outcome 2 Discontinuation due to expulsion (24 months).	31
Analysis 6.1. Comparison 6 Immediate insertion: MLCu 250 versus MLCu 375, Outcome 1 Discontinuation due to pregnancy (24 months).	32
Analysis 6.2. Comparison 6 Immediate insertion: MLCu 250 versus MLCu 375, Outcome 2 Discontinuation due to expulsion (24 months).	32
Analysis 7.1. Comparison 7 Immediate insertion: Nova T versus Copper T 200, Outcome 1 Discontinuations due to pregnancy (36 months).	33
Analysis 7.2. Comparison 7 Immediate insertion: Nova T versus Copper T 200, Outcome 2 Discontinuations due to expulsion (36 months).	33
Analysis 7.3. Comparison 7 Immediate insertion: Nova T versus Copper T 200, Outcome 3 Discontinuations due to infection (36 months).	34
Analysis 9.1. Comparison 9 Immediate insertion: Lippes Loop (plain) versus Lippes Loop with copper, Outcome 1 Discontinuations due to pregnancy (10 years).	35
Analysis 9.2. Comparison 9 Immediate insertion: Lippes Loop (plain) versus Lippes Loop with copper, Outcome 2 Discontinuations due to expulsion (10 years).	36
Analysis 11.1. Comparison 11 Immediate versus delayed insertion (LNG-IUS or CuT380A IUD), Outcome 1 Expulsion by 6 months.	37
Analysis 11.2. Comparison 11 Immediate versus delayed insertion (LNG-IUS or CuT380A IUD), Outcome 2 Removal by 6 months.	37
Analysis 11.3. Comparison 11 Immediate versus delayed insertion (LNG-IUS or CuT380A IUD), Outcome 3 Use at 6 months.	38
WHAT'S NEW	38
HISTORY	38
CONTRIBUTIONS OF AUTHORS	38
DECLARATIONS OF INTEREST	39
SOURCES OF SUPPORT	39
INDEX TERMS	39

[Intervention Review]

Immediate postabortal insertion of intrauterine devices

David A Grimes¹, Lauren M Lopez¹, Kenneth F Schulz², Nancy L. Stanwood³

¹Behavioral and Biomedical Research, Family Health International, Research Triangle Park, North Carolina, USA. ²Quantitative Sciences, Family Health International, Research Triangle Park, North Carolina, USA. ³Dept. of Obstetrics and Gynecology, University of Rochester Medical Center, Rochester, New York, USA

Contact address: Lauren M Lopez, Behavioral and Biomedical Research, Family Health International, P.O. Box 13950, Research Triangle Park, North Carolina, 27709, USA. llopez@fhi.org.

Editorial group: Cochrane Fertility Regulation Group.

Publication status and date: New search for studies and content updated (conclusions changed), published in Issue 6, 2010.

Review content assessed as up-to-date: 31 March 2010.

Citation: Grimes DA, Lopez LM, Schulz KF, Stanwood NL. Immediate postabortal insertion of intrauterine devices. *Cochrane Database of Systematic Reviews* 2010, Issue 6. Art. No.: CD001777. DOI: 10.1002/14651858.CD001777.pub3.

Copyright © 2010 The Cochrane Collaboration. Published by John Wiley & Sons, Ltd.

ABSTRACT

Background

Insertion of an intrauterine device (IUD) immediately after an abortion has several advantages. The woman is known not to be pregnant. Many clinicians refuse to insert an IUD in a woman who is not menstruating. After induced abortion, a woman's motivation to use contraception may be high. However, insertion of an IUD immediately after a pregnancy ends carries risks, such as spontaneous expulsion due to recent cervical dilation.

Objectives

To assess the safety and efficacy of IUD insertion immediately after spontaneous or induced abortion.

Search strategy

We searched MEDLINE, CENTRAL, POPLINE, EMBASE, ClinicalTrials.gov, and ICTRP. We also contacted investigators to identify other trials.

Selection criteria

We sought all randomized controlled trials with at least one treatment arm that involved IUD insertion immediately after an induced abortion or after curettage for spontaneous abortion. We identified 11 trials which described random assignment.

Data collection and analysis

We evaluated the methodological quality of each report and abstracted the data. We focused on discontinuation rates for accidental pregnancy, perforation, expulsion, and pelvic inflammatory disease. We computed the weighted average of the rate ratios. We computed relative risks (RR) with 95% Confidence Intervals (CI).

Main results

Three trials randomized to immediate or delayed insertion. One showed no significant differences. Meta-analysis of two showed use of levonorgestrel-releasing intrauterine system or CuT380A was more likely for immediate versus delayed insertion (RR 1.18; 95% CI 1.08 to 1.28). Another trial randomized to the levonorgestrel IUD or Nova T; discontinuation rates due to pregnancy were 0.8 and 9.5, respectively. Sub-analysis showed higher expulsion rates for postabortal than interval insertions (levonorgestrel: 2.8 versus 6.8; Nova T: 3.0 versus 8.3).

Seven trials examined immediate insertion. From meta-analysis of two multicenter trials, pregnancy was less likely for the TCu 220C versus the Lippes Loop (RR 0.38; 95% CI 0.20 to 0.72) as was expulsion (RR 0.51; 95% CI 0.30 to 0.88). Estimates for the TCu 220 versus the Copper 7 were 0.52 (95% CI 0.36 to 0.77) and 0.58 (95% CI 0.39 to 0.87), respectively. In other work, adding copper sleeves to the Lippes Loop improved efficacy (RR 3.82; 95% CI 1.41 to 10.36) and reduced expulsion (RR 3.37; 95% CI 1.65 to 6.90).

Authors' conclusions

Insertion of an IUD immediately after abortion is safe and practical. IUD expulsion rates appear higher than after interval insertions. However, IUD use is higher at six months with immediate than with interval insertion.

PLAIN LANGUAGE SUMMARY

Inserting an IUD right after abortion or miscarriage versus a later time

Inserting an intrauterine device (IUD) right after an abortion or miscarriage can be good for many reasons. The woman is not pregnant and may be thinking about birth control. The time and place are convenient for the woman. If asked to delay IUD insertion, many women do not return to get the device. However, the IUD might be more likely to come out on its own if put in right away. This review looked how safe it was to insert an IUD right after abortion. We also looked at whether the IUD stayed in.

We did computer searches for randomized trials of IUDs inserted right after abortion or miscarriage. We also wrote to researchers to find more studies. Trials could compare types of IUDs or times for insertion. We found 11 studies to include.

Three trials randomized women to an IUD inserted right away or at a later time. One had no major differences. Two recent trials (of levonorgestrel intrauterine system or CuT380A) showed use was greater at six months for an IUD inserted right away compared to one inserted later. Another trial assigned women to the levonorgestrel IUD or Nova T; more women with the Nova T stopped use due to pregnancy. A sub-analysis showed more IUDs came out when inserted right away rather than later.

Seven trials looked at inserting the IUD right away. From two large trials, the TCu 220C was better than the Lippes Loop and the Copper 7 for preventing pregnancy and staying in. The IUD was more likely to come out on its own when inserted after a mid-pregnancy abortion than after an earlier one. In other work, when the Lippes Loop had copper arms added, fewer women got pregnant and the IUD stayed in more often.

Inserting an IUD right after an abortion or miscarriage is safe and practical. However, the IUD is more likely to come out when inserted right away rather than at a later time. Women are more likely to use an IUD at six months if they had it inserted right away compared to some weeks after the abortion.

BACKGROUND

Insertion of an intrauterine device (IUD) immediately after an abortion has several potential advantages. The woman is known not to be pregnant, a major concern for clinicians. For example, many clinicians refuse to insert an IUD in a woman who is not menstruating (Stanback 1997). After induced abortion, a woman's motivation to use contraception may be high. Among women who have limited access to a clinician, abortion care may provide a unique opportunity to address a woman's need for contraception (Mahomed 1997; McLaurin 1993; Wolf 1994). A copper T 380A or levonorgestrel-releasing IUD confers nearly the same contraceptive efficacy as does tubal sterilization (Grimes 2008), yet it is

simpler, less expensive, and promptly reversible. In addition, insertion of an IUD immediately after abortion may avoid discomfort related to insertion, and any bleeding from the insertion will be disguised by the expected bleeding after abortion. Less than a third of women who intend to have an IUD after abortion may actually have one inserted, and many prefer to have the option of immediate insertion (Stanek 2009).

However, insertion of an IUD immediately after a pregnancy ends carries potential risks as well. For example, the risk of perforation may be increased due to softening of the myometrium. Spontaneous expulsion of the device may be more common with

postabortal insertion than after interval insertion (remote from pregnancy), since the cervical canal has recently been dilated. Another potential concern is infection. Insertion of an IUD after a clandestine or unsafe abortion may increase the risk of upper genital tract infection compared with interval insertion.

OBJECTIVES

This review assesses the safety and efficacy of immediate IUD insertion after induced abortion or curettage for completion of a spontaneous abortion.

METHODS

Criteria for considering studies for this review

Types of studies

This review includes only randomized controlled trials using a least one IUD intervention arm. We included studies of both induced and spontaneous abortion. Studies could have randomized participants to immediate or delayed insertion. They could also be two- or three-arm comparisons of different types of IUDs using immediate insertion.

Types of participants

Trials included women of any age or gravidity who received an IUD immediately after induced abortion or curettage for spontaneous abortion.

Types of interventions

We included any type of IUD, regardless of its current availability.

Types of outcome measures

The principal outcome measures were accidental pregnancy, spontaneous expulsion, uterine perforation, and upper genital tract infection.

Search methods for identification of studies

Electronic searches

We searched the computerized databases MEDLINE, Cochrane Central Register of Controlled Trials (CENTRAL), POPLINE,

and EMBASE for trials of postabortal IUD insertions. We also searched for current trials via ClinicalTrials.gov and the International Clinical Trials Registry Program (ICTRP). The search strategies are given below.

MEDLINE via PubMed

(iud* OR iucd* OR intrauterine devices) AND insert* AND (postabort* OR post-abortion* OR abortion)

CENTRAL

1) post-abortion* OR postabort* OR abort* in Title, Abstract or Keywords AND IUD* OR intrauterine device* in Title, Abstract or Keywords

2) (intrauterine device OR IUD) AND ((delayed OR immediate) AND insertion) in Title, Abstract or Keywords

POPLINE

(iud*/iucd*/intrauterine device*/intrauterine contraceptive device*) & (postabortal/postabortion/post-abortion/abortion) & insert*

EMBASE

(iud?(3n)insertion? or iucd?(3n)insertion? or intrauterine(w)device?(3n)insertion?)

and

(postabort? or postpartum or puerperium or abortion)

and

clinical trial or study

ClinicalTrials.gov

(intrauterine device OR IUD) AND ((delayed OR immediate) AND insertion)

ICTRP

(intrauterine device OR IUD) AND ((delayed OR immediate) AND insertion)

Searching other resources

For the initial review, we used several comprehensive review articles to begin our search (PIP 1995; WHO 1987). We also contacted investigators in the field to find studies we might have missed, including unpublished reports.

Data collection and analysis

For the initial review, two authors read the titles and abstracts of the potential citations, and we obtained photocopies of all the articles that appeared relevant. After a preliminary review of these articles, we developed a data collection form and field tested it as described in the Cochrane Handbook (Higgins 2005). Two authors then independently examined each retrieved article for possible inclusion and examined the methodological quality of each study, with special attention to allocation concealment. Two authors abstracted information onto the data collection forms, and we resolved any discrepancies by discussion or consultation with a third author. We attempted to contact several researchers by mail for supplemental information. One author entered the data into RevMan, and another author checked the entries for accuracy. When this review was first conducted, RevMan did not provide for the aggregation of survival (life-table) data. Since this is now possible with the inverse variance method (Higgins 2005), we revised the meta-analysis in a previous update. We abstracted the life-table rates and standard errors for analysis. Only two trials (WHO 1983a; WHO 1983b) were aggregated for meta-analysis, since both used the same interventions and definitions of outcomes. The comparisons were among the TCu 220, the Lippes Loop, and the Copper 7. Events were discontinuations due to pregnancy, perforation, expulsion, total medical events, and pelvic inflammatory disease (PID), which was a subset of total medical events.

For each comparison, the natural logarithm of the rate ratio was calculated from the rates provided in the reports (Higgins 2005). The standard error (SE) for each ratio was calculated as $\sqrt{([SE_1(L)]^2 + [SE_2(L)]^2)}$, where $L = \text{natural logarithm of the standard error (s.e.) for the original rate}$ (Fleiss 1981). The log of the rate ratio and its standard error were entered into RevMan 4.2.8. We used the generic inverse variance method to compute a weighted average for each rate ratio. These outcomes included intrauterine pregnancy, expulsion, and total medical events. For the discontinuations due to perforation and PID, the rate ratios were not estimable due to having zero events in at least one of the studies (WHO 1983a; WHO 1983b). In those cases, the relative risk was computed as described below for individual studies.

Most studies could not be aggregated into a meta-analysis due to having different interventions. We estimated the relative risk (RR) and 95% Confidence Interval (CI) for most of trials using the number of events as the numerator and person-time (generally woman-years) as the denominator. We also entered the life-table rates into tables when no other data were available for analysis.

Where only the crude number of events was published for dichotomous outcomes, the Mantel-Haenszel odds ratio (OR) with 95% CI was calculated using a fixed-effect model. An example is the proportion of women with spontaneous expulsion. Fixed and random effects give the same result if no heterogeneity exists, as when a comparison includes only one study. The Peto OR can be used when a study arm has no events, e.g., pregnancy; the Peto

OR does not require correction for zero events (Higgins 2009).

RESULTS

Description of studies

See: [Characteristics of included studies](#); [Characteristics of excluded studies](#); [Characteristics of ongoing studies](#).

Included studies

Eleven trials met our inclusion criteria. Nine are 15 to 20 years old and two are recent with only preliminary results available.

Four trials examined immediate versus delayed insertion.

- Three randomized to immediate or delayed insertion of the following devices: Copper 7 (Gillett 1980); levonorgestrel-releasing intrauterine system (LNG-IUS) (Hohmann 2009); LNG-IUS or CuT380A IUD (Bednarek 2009).

- Pakarinen 2003 randomized to LNG-IUS or Nova T, but a subgroup analysis examined timing of insertion (immediate or delayed).

Seven trials studied immediate insertion of different IUDs or modifications of IUDs.

- Two large international trials studied immediate insertion. WHO 1983b examined insertions of the Lippes Loop, Copper TCu 220C, and the Copper 7 immediately after spontaneous abortion. The other trial (WHO 1983a) studied the same three devices after induced abortion.

- Three trials were two-arm comparisons of different IUDs. Nielsen 1984 compared the Nova T to the Copper T 200, while McCarthy 1985 compared the Nova T to the Multiload 250. Lim 1985 compared the Multiload 375 versus Multiload 250.

- Two trials examined immediate insertion with modifications of an IUD. In Randic 1991, copper sleeves were added to a Lippes Loop D. In Randic 1983, topical hydrogel was applied to a Spring Coil.

Excluded studies

One trial proved not to be randomized (Querido 1985). The researchers used alternate assignment of patients, so we excluded this trial from subsequent analysis.

Two trials had a sham IUD insertion arm without the knowledge of the women involved. Chowdhury 1979 stated that "Although all of the women thought that they had insertion of device, in fact one group received Lippes loop (Group B), one group Cu T (Group C), and the other group did not receive any device (Group A) in immediate post-abortion period." The researchers did not disclose when or if they informed the 100 participants in Group A that

they had a sham insertion. Similarly, [Goldsmith 1972](#) randomized 584 women to receive either a Lippes Loop or a sham insertion. The design was double blind, and the blinding ended after 30 days of observation, when the women without contraception were provided an IUD. In an addendum to the published report, the researchers acknowledged that women in the sham insertion group “were exposed to a risk of pregnancy albeit an extremely small one.” They reasoned that this “risk was more than justified.” In both studies, women lost to follow up may have incorrectly assumed they were using an IUD when they were not. We excluded both trials because of unethical research conduct.

Risk of bias in included studies

The WHO trials ([WHO 1983a](#); [WHO 1983b](#)) were of good quality. Both featured a computer-generated random sequence and sealed envelopes for allocation concealment. Communication with the researchers indicated that the envelopes were sequentially numbered and opaque. However, both WHO trials ([WHO 1983a](#); [WHO 1983b](#)) excluded from analysis patients who had problems within 48 hours of insertion. While the total numbers were small (12 and 1, respectively), these exclusions were improper and led to an underestimation of discontinuation rates.

Several reports did not describe adequately the methods of randomization or allocation concealment. Communication with researchers ([Gillett 1980](#); [Lim 1985](#) [McCarthy 1985](#); [Suvisaari](#) from [Pakarinen 2003](#)) confirmed that computer-generated randomization had been done, with allocation concealment by sealed envelopes. Whether the envelopes were opaque and sequentially numbered is unknown. Two recent trials had abstracts from conference presentations; additional information was extracted from [ClinicalTrials.gov](#) ([Bednarek 2009](#); [Hohmann 2009](#)).

Effects of interventions

Immediate versus delayed insertion

In [Gillett 1980](#), immediate insertion of the Copper 7 was associated with a higher risk of expulsion than was insertion delayed for three to five weeks. Although large, this difference did not reach statistical significance (RR 5.69; 95% CI 0.75 to 43.08) ([Analysis 4.2](#)). No other significant differences emerged. However, 42% of women assigned to delayed insertion did not return for IUD insertion.

Two recent studies randomized women to immediate or delayed insertion ([Bednarek 2009](#); [Hohmann 2009](#)). Both used the LNG-IUS and [Bednarek 2009](#) also offered the Cu T380A. When the two trials were combined in a meta-analysis, expulsion by six months was similar for the groups assigned to immediate and delayed insertion ([Analysis 11.1](#)). However, use at six months was greater in

the immediate insertion group compared to the delayed insertion group (RR 1.18; 95% CI 1.08 to 1.28) ([Analysis 11.3](#)).

From the trial comparing the Nova T and levonorgestrel-releasing device ([Luukkainen et al, 1987](#)), two subgroup analyses were published ([Pakarinen 2003](#); [Suvisaari et al, 1996](#)). In [Luukkainen et al \(1987\)](#), the researchers reported that expulsions at 12 months were more frequent with postabortal insertions than with interval insertions ([Analysis 8.1](#)). For the Nova T, the expulsion rates were 3.0 for interval and 8.3 for postabortal insertion. For the levonorgestrel system, the rates were 2.8 and 6.8, respectively. [Pakarinen 2003](#) analyzed 438 immediate postabortal insertions, with 305 women randomized to the LNG system (LNG-IUS) and 133 to the Nova T. Over five years of use, pregnancies were significantly less common with the LNG-IUS than with the Nova T; the gross discontinuation rate was 0.8 versus 9.5 per 100 women ([Analysis 8.2](#)) (reported $P < 0.001$). Five-year cumulative discontinuation rates for hormonal reasons were higher with the LNG-IUS (15.9 versus 3.9 per 100 women; reported $P < 0.01$) ([Analysis 8.4](#)). [Suvisaari et al \(1996\)](#) studied bleeding patterns, but provided limited data. They reported large differences between postabortal IUD insertions of the copper and LNG devices. The Nova T was reportedly associated with significantly more total days of bleeding and episodes of bleeding. On the other hand, amenorrhea was reported as significantly more common with the LNG-IUS.

Immediate insertion of different IUDs or IUD modifications

In two trials that compared three different IUDs ([WHO 1983a](#); [WHO 1983b](#)), the TCu 220C proved to be superior to the Lippes Loop D and the Copper 7. The Lippes Loop and Copper 7 did not differ significantly. When data from both trials were combined, the weighted average of the rate ratios for accidental (intrauterine) pregnancy with the TCu 220C compared with the Lippes Loop D was 0.38 (95% CI 0.20 to 0.72) ([Analysis 1.1](#)). Compared with the Copper 7, the effect was 0.52 (95% CI 0.36 to 0.77) ([Analysis 3.1](#)). Expulsions were also significantly less frequent with the TCu 220C than with either of the other two IUDs. The estimate for the TCu 200C compared to the Lippes Loop was 0.51 (95% CI 0.30 to 0.88) ([Analysis 1.2](#)), and compared to the Copper 7 it was 0.58 (95% CI 0.39 to 0.87) ([Analysis 3.2](#)). Uterine perforations were uncommon; four were reported ([WHO 1983a](#); [WHO 1983b](#)). Pelvic inflammatory disease was also rare with IUD use after both induced and spontaneous abortion. Cumulative discontinuation rates for PID after induced abortion ranged from 2 to 8 per 1000 woman-years of IUD use ([WHO 1983a](#)). The corresponding figures after spontaneous abortion were 0 to 4 per 1000 woman-years of use ([WHO 1983b](#)).

Furthermore, the WHO trials reported that IUDs inserted after second-trimester abortions had higher expulsion rates than did IUDs inserted after earlier abortions. In the trial of induced abortion ([WHO 1983a](#)), this difference was statistically significant for

all three IUDs. For example, after abortions at less than 13 weeks' gestation, the cumulative net probability of expulsion at 120 days was 1.9 for the TCu 220C, 4.8 for the Lippes Loop, and 4.5 for the Copper 7. The corresponding figures after abortions at 13 to 20 weeks' gestation were 19.5, 48.8, and 21.3, respectively. Although this trend was also evident after spontaneous abortion, not all of the differences reached statistical significance (WHO 1983b). Neither the type of induced abortion procedure (sharp versus suction curettage) nor the use of oxytocic drugs significantly influenced outcomes.

The Nova T offered less protection against pregnancy than did the MLCu 250 (McCarthy 1985). The RR of a failure with the Nova T was 6.45 (95% CI 0.78 to 53.51) compared with the MLCu 250 (Analysis 5.1). Other differences between these two IUDs were not significant either. The trial comparing the MLCu 250 and MLCu 375 (Lim 1985) found no significant differences between them.

In contrast, in Nielsen 1984, the Nova T was superior to the Copper T 200 in contraceptive efficacy, but the difference was not significant (RR 0.23; 95% CI 0.05 to 1.05) (Analysis 7.1). Expulsions were also somewhat higher for the Nova T (RR 1.81; 95% CI 0.92 to 3.57). No other important differences emerged between these two devices.

Addition of copper sleeves significantly improved the efficacy of the Lippes Loop D (RR 3.82; 95% CI 1.41 to 10.36) (Randic 1991). This modification also significantly reduced the likelihood of expulsion or displacement (RR 3.37; 95% CI 1.65 to 6.90) (Analysis 9.2). In contrast, addition of a hydrogel (Randic 1983) to the surface of a Spring Coil IUD did not improve tolerance of this device.

DISCUSSION

Newer data are becoming available on this topic. We found conference abstracts from two recent trials, as well as two trials that are ongoing (NCT00540046; NCT00877344). All should help inform the field in the near future.

Summary of main results

Several trials compared immediate and delayed insertion of the same IUD(s). Three randomized to the time of insertion. Meta-analysis of two recent trials showed expulsion to be similar between the groups. IUD use at six months was greater for the immediate insertion group. An older RCT showed a non-significant difference in expulsion, with the immediate group having a slightly higher frequency than the delayed group. The high drop-out rate with delayed insertion underscores a major public health point: many women who desire an IUD do not return if the insertion is

delayed (Stanek 2009). The increased risk of spontaneous expulsion with immediate postabortal insertion needs to be balanced against the high rate of loss to follow up. While some women who were lost to follow up may have adopted other contraceptive methods, an unknown proportion remained unprotected against unintended pregnancy. A fourth trial randomized to different IUDs, but a sub-analysis examined immediate versus delayed insertion. Both the Nova T and the LNG-IUS had higher expulsion rates with postabortal insertion than with interval insertion. Significance was not reported.

Randomized controlled trials comparing different IUDs found immediate postabortal insertion to be safe and effective. Perforations were rare with the devices studied, despite pregnancy-related changes in the myometrium. Postabortal IUD insertion appears to carry a perforation risk similar to that of interval insertions (Sivin 1981). PID was also uncommon. Although populations may not be directly comparable, PID rates in these trials appear similar to those reported with interval insertions (Farley 1992; Sinei 1990; Walsh 1998). Pregnancy rates were low, although some significant differences emerged between devices. For example, the levonorgestrel-releasing device was significantly more effective than the Nova T.

The configuration of the IUD influenced the risk of spontaneous expulsion. IUDs shaped like the letter T fared better than did alternative IUDs, such as the Lippes Loop or Copper 7. However, evidence is inadequate to determine which currently available IUD is best for immediate postabortal insertion. Rates of expulsion were higher after second-trimester abortion than after earlier abortion. Based on this observation, the WHO researchers (WHO 1983a) recommended against IUD insertion immediately after second-trimester abortion. This advice is likely inappropriate, given more recent evidence (Hohmann 2009).

While addition of copper sleeves to the Lippes Loop D improved the contraceptive efficacy of the device, this modification is not commercially available. The explanation for the benefit seen in terms of expulsions and displacements is unclear, although the researchers speculate that it may relate to an effect of copper on uterine motility. Further research with topical applications of hydrogel appears unwarranted.

Agreements and disagreements with other studies or reviews

Outcomes with interval or immediate IUD insertions may also be useful for comparison. In an international trial (WHO 1994), 3655 healthy parous women were randomly allocated to receive either a Multiload 375 or a TCu 380A. The gross cumulative discontinuation rates with the Multiload 375 at one year were 1.2% for pregnancy and 3.6% for expulsion; 89% were continuing with the device. At three years, these figures were 2.9%, 6.4%, and 78%, respectively. The corresponding figures for the TCu 380A at one year were 0.8% for pregnancy and 3.8% for expulsion; 88%

were continuing with the device. At three years, these figures were 1.6%, 5.2%, and 78%, respectively. In a US study of immediate insertion, 256 women were contacted six weeks after insertion (Drey 2009). The study showed 7.4% discontinuation; 1.9% had expulsions and 2.7% had suspected PID. Women with immediate insertion after first trimester abortions had slightly lower rates than those with second trimester abortions.

Insertion of an IUD at the time of abortion has several benefits compared with later insertion. After an unintended pregnancy, a woman may be highly motivated to avoid a recurrence (Mahomed 1997; McLaurin 1993; Wolf 1994). IUD insertion after abortion ensures effective contraception by the time ovulation resumes, and it eliminates the need for another visit for IUD insertion. Concerns about uterine perforation and PID, however, have limited postabortal IUD insertions. These concerns appear unwarranted.

AUTHORS' CONCLUSIONS

Implications for practice

Immediate insertion of an IUD after abortion is both safe and effective. This was true for both induced and reported 'spontaneous' abortions, many of which may have been induced under clandestine circumstances (WHO 1983b). IUD use is higher at six months with immediate insertion than with interval insertion.

Guidelines and package labeling that argue against postabortal insertions lack a scientific foundation. With immediate postabortal insertions, contraceptive efficacy is high, and PID and perforations are rare. While the risk of spontaneous expulsion of an

IUD appears to be greater in this setting than with interval insertions, this potential disadvantage may be outweighed by provision of highly effective contraception with one procedure. The one-month follow-up visit (after the next menses) may be especially important for identifying unsuspected complete or partial expulsions. IUD insertion immediately after second-trimester abortion carries a higher risk of spontaneous expulsion than insertion after first-trimester abortion.

Implications for research

Newer data are becoming available on immediate versus interval insertion. Two recent trials only had abstracts with preliminary results, but full reports should follow soon. Two ongoing trials are also directly comparing the time of insertion. Those trials should help inform the field in the near future.

Many trials compared different IUDs for immediate postabortal insertion. Hence, these trials cannot address the comparative safety and efficacy of immediate insertion versus insertion at a later time. Also, many of the reports were of suboptimal quality, and communication with researchers was needed for supplementary information. Few reports had a sample size calculation, and several had little power to detect differences. Some IUDs reviewed here are no longer widely used.

ACKNOWLEDGEMENTS

Carol Manion of Family Health International assisted with the literature search.

REFERENCES

References to studies included in this review

Bednarek 2009 *{published data only}*

Bednarek PA, Creinin MD, Reeves MF, Cwiak CA, Espey E, Jensen JT. Immediate intrauterine device insertion following suction aspiration between 5-12 weeks of gestation increases rates of insertion and utilization compared to scheduled delayed insertion (abstract). *Contraception* 2009;**80**(2):203. [NCT00562276]

Gillett 1980 *{published and unpublished data}*

Gillett PG, Lee NH, Yuzpe AA, Cerskus I. A comparison of the efficacy and acceptability of the Copper-7 intrauterine device following immediate or delayed insertion after first-trimester therapeutic abortion. *Fertility and Sterility* 1980;**34**(2):121-4.

Hohmann 2009 *{published data only}*

Hohmann HL, Reeves MF, Chen BA, Perriera L, Hayes JL, Creinin MD. Immediate versus delayed insertion of the levonorgestrel-releasing intrauterine device following dilation and evacuation: a

randomized controlled trial (abstract). *Contraception* 2009;**80**(2):209. [NCT00475228]

Lim 1985 *{published and unpublished data}*

Lim LS, McCarthy T, Yong YM, Ratnam SS. Post-abortion insertion of MLCu 250 and MLCu 375 -- a comparative trial. *Contraception* 1985;**31**(5):471-7.

McCarthy 1985 *{published and unpublished data}*

McCarthy T, Ramachandran L, Huang HS, Ratnam S. Postabortal insertion of the Nova T and MLCu250: preliminary results of a comparative study. *Advances in Contraception* 1985;**1**(2):161-5.

Nielsen 1984 *{published data only}*

Nielsen NC, Nygren K-G, Allonen H. Three years of experience after post-abortal insertion of Nova-T and Copper-T-200. *Acta Obstetrica et Gynecologica Scandinavica* 1984;**63**(3):261-4.

Pakarinen 2003 *{published and unpublished data}*

Luukkainen T, Allonen H, Haukkamaa M, Holma P, Pyorala T, Terho J, et al. Effective contraception with the levonorgestrel-

releasing intrauterine device: 12-month report of a European multicenter study. *Contraception* 1987;**36**(2):169–79.

* Pakarinen P, Toivonen J, Luukkainen T. Randomized comparison of levonorgestrel- and copper-releasing intrauterine systems immediately after abortion, with 5 years' follow-up. *Contraception* 2003;**68**(1):31–4.

Suvisaari J, Lahteenmaki P. Detailed analysis of menstrual bleeding patterns after postmenstrual and postabortal insertion of a copper IUD or a levonorgestrel-releasing intrauterine system.

Contraception 1996;**54**(4):201–8.

Randic 1983 *{published and unpublished data}*

Randic L, Balogh SA. The effect of hydrogel on the reduction of bleeding associated with IUD use: a comparative study of the plain and Hydron-coated Spring Coil. *Contraceptive Delivery Systems* 1983;**4**(4):301–10.

Randic 1991 *{published and unpublished data}*

Randic L, Haller H, Perovic M, Farr G. The effect of adding copper onto Lippes Loop IUDs: results from a ten-year study in Yugoslavia. *Contraception* 1991;**43**(3):229–39.

WHO 1983a *{published and unpublished data}*

World Health Organization Task Force on Intrauterine Devices for Fertility Regulation. IUD insertion following termination of pregnancy: a clinical trial of the TCu 220C, Lippes Loop D, and Copper 7. *Studies in Family Planning* 1983;**14**(4):99–108.

WHO 1983b *{published data only}*

World Health Organization Task Force on Intrauterine Devices for Fertility Regulation. IUD insertion following spontaneous abortion: a clinical trial of the TCu 220C, Lippes Loop D, and Copper 7. *Studies in Family Planning* 1983;**14**(4):109–14.

References to studies excluded from this review

Chowdhury 1979 *{published data only}*

Chowdhury NNR, Mandal GS, Das M. Comparative study of Lippes Loop and CuT inserted in immediate post-abortal period. *Journal of Obstetrics and Gynaecology of India* 1979;**29**(2):239–44.

Goldsmith 1972 *{published data only}*

Goldsmith A, Goldberg R, Eyzaguirre H, Lizana L. Immediate postabortal intrauterine contraceptive device insertion: a double-blind study. *American Journal of Obstetrics and Gynecology* 1972;**112**(7):957–62.

NCT00737178 *{published data only}*

Davis A. Immediate versus delayed insertion of the copper intrauterine device (IUD) after medication abortion. <http://clinicaltrials.gov/ct2/show/NCT00737178> (accessed 03 Feb 2010).

Querido 1985 *{published data only}*

Querido L, Ketting E, Haspels AA. IUD insertion following induced abortion. *Contraception* 1985;**31**(6):603–10.

References to ongoing studies

NCT00540046 *{published data only}*

Cremer ML. Immediate vs. delayed insertion of Copper T 380A IUD after termination of pregnancy over 12-weeks gestation. <http://clinicaltrials.gov/ct2/show/NCT00540046> (accessed 03 Feb 2010).

NCT00877344 *{published data only}*

Norman WV. Better contraceptive choices: immediate or delayed insertion of IUD after second trimester abortion. <http://clinicaltrials.gov/ct2/show/NCT00877344> (accessed 03 Feb 2010).

Additional references

Drey 2009

Drey EA, Reeves ME, Ogawa DD, Sokoloff A, Darney PD, Steinauer JE. Insertion of intrauterine contraceptives immediately following first- and second-trimester abortions. *Contraception* 2009;**79**(5):397–402.

Farley 1992

Farley TMM, Rowe PJ, Meirik O, Rosenberg MJ, Chen J-H. IUDs and pelvic inflammatory disease. *Lancet* 1992;**340**(8813):248–9.

Fleiss 1981

Fleiss JL. *Statistical Methods for Rates and Proportions*. Second Edition. New York: John Wiley & Sons, 1981.

Grimes 2008

Grimes DA, Mishell DR. Intrauterine contraception as an alternative to interval tubal sterilization. *Contraception* 2008;**77**(1):6–9.

Higgins 2005

Higgins JPT, Green S, editors. Cochrane Handbook for Systematic Reviews of Interventions 4.2.5 [updated May 2005]. In: The Cochrane Library, Issue 3, 2005. Chichester, UK: John Wiley & Sons, Ltd.

Higgins 2009

Higgins JPT, Green S (editors). Cochrane Handbook for Systematic Reviews of Interventions 5.0.2 [updated Sep 2009]. Available from www.cochrane-handbook.org. The Cochrane Collaboration, 2009.

Mahomed 1997

Mahomed K, Healy J, Tandom S. Family planning counselling -- a priority for post abortion care. *Central African Journal of Medicine* 1997;**43**(7):205–7.

McLaurin 1993

McLaurin KE, Senanayake P, Toubia N, Ladipo OA. Post-abortion family planning: reversing a legacy of neglect. *Lancet* 1993;**342**(8879):1099–100.

PIP 1995

Population Information Program. IUDs -- an update. *Population Reports* 1995;**Series B**(6):1–35.

Sinei 1990

Sinei SK, Schulz KF, Lamptey PR, Grimes DA, Mati JK, Rosenthal SM, et al. Preventing IUUD-related pelvic infection: the efficacy of prophylactic doxycycline at insertion. *British Journal of Obstetrics and Gynaecology* 1990;**97**(5):412–9.

Sivin 1981

Sivin I, Tatum HJ. Four years of experience with the TCu 380A intrauterine contraceptive device. *Fertility and Sterility* 1981;**36**(2):159–63.

Stanback 1997

Stanback J, Thompson A, Hardee K, Janowitz B. Menstruation requirements: a significant barrier to contraceptive access in developing countries. *Studies in Family Planning* 1997;**28**:245–50.

Stanek 2009

Stanek AM, Bednarek PH, Nichols MD, Jensen JT, Edelman AB. Barriers associated with the failure to return for intrauterine device insertion following first-trimester abortion. *Contraception* 2009;**79**(3):216–20.

Walsh 1998

Walsh T, Grimes D, Freziers R, Nelson A, Bernstein L, Coulson A, et al. Randomised controlled trial of prophylactic antibiotics before insertion of intrauterine devices. *Lancet* 1998;**351**(9108):1005–8.

WHO 1987

World Health Organization. *Mechanism of action, safety and efficacy of intrauterine devices. Technical Report Series 753*. Geneva: World

Health Organization, 1987.

WHO 1994

World Health Organization. A randomized multicentre trial of the Multiload 375 and TCu380A IUDs in parous women: three-year results. *Contraception* 1994;**49**(6):543–9.

Wolf 1994

Wolf M, Benson J. Meeting women's needs for post-abortion family planning. Report of a Bellagio Technical Working Group. *International Journal of Gynaecology and Obstetrics* 1994;**45**(Suppl): S1–S23.

* Indicates the major publication for the study

CHARACTERISTICS OF STUDIES

Characteristics of included studies [ordered by study ID]

Bednarek 2009

Methods	Randomized, blinded (subject, caregiver, investigator), safety/efficacy study. Randomization in 5:6 ratio	
Participants	575 women, 18 years or older, requesting suction aspiration for spontaneous or induced abortion. Inclusion criteria: intrauterine pregnancy documented with ultrasound with gestational age \geq 5 weeks but \leq 12 weeks; desiring intrauterine contraception; in general good health. Exclusion criteria: evidence of active cervicitis or PID, PID or STI in past 3 months, history of actinomyces, unexplained vaginal bleeding, uterine anomaly, leiomyomata, complete molar pregnancy, ectopic pregnancy, AIDS without treatment, prior surgical aspiration during this current pregnancy, use of osmotic dilators or misoprostol during aspiration procedure; allergy to polyethylene, levonorgestrel (for LNG-containing IUS), or copper (for copper T380A IUD); Wilson's disease (for copper T380A IUD)	
Interventions	Insertion of intrauterine device (IUD) immediately after a suction aspiration procedure (within minutes) (n=258) compared to inserting the IUD 2 to 6 weeks after the procedure (n=317). Women could choose LNG-IUS or CuT380A IUD.	
Outcomes	Primary: expulsion by 6 months. Secondary: continuation, adverse events, and satisfaction by 6 months	
Notes	575 women were randomized but this preliminary analysis only included 307 who had already completed the 6-month follow up (immediate n=143; delayed n=164).	
Risk of bias		
Item	Authors' judgement	Description
Allocation concealment?	Unclear	not specified (abstract and ClinicalTrials.gov)

Gillett 1980

Methods	Randomized controlled trial without blinding. Method of randomization listed only as 'balanced.' Communication with authors indicated a computer-generated randomization sequence and allocation concealment by use of sealed envelopes.	
Participants	259 women at 3 sites in Canada having vacuum aspiration abortion. The gestational ages were not described.	
Interventions	Copper 7 inserted immediately versus Copper 7 inserted 3 to 5 weeks after the abortion	
Outcomes	Primary outcome measures included pregnancy, expulsion, and removal for bleeding/pain, or other medical reason	
Notes	43 women allocated to delayed insertion failed to return for IUD insertion. The report provided no a priori hypothesis or sample size and power calculation. Denominators for rates were woman-days of use.	

Gillett 1980 (Continued)

<i>Risk of bias</i>		
Item	Authors' judgement	Description
Allocation concealment?	Yes	A - Adequate

Hohmann 2009

Methods	Randomized, open label, safety study
Participants	90 women, 18 years or older. Inclusion criteria: gestational age 15 weeks to 23 weeks 6 days, already consented to an induced abortion, desires to use the LNG-IUS for contraception for 12 months or more; lives in specified counties of Pennsylvania. Exclusion criteria: allergy to either polyethylene or levonorgestrel, urgent need for abortion (active bleeding or infection), exposure to or treatment for gonorrhoea or Chlamydia in past 90 days, PID in past year, leiomyomata > 3 cm diameter, uterine anomaly (other than repaired septate uterus) Post-enrollment pre-randomization exclusion criteria (assessed at D&E completion): uterine perforation; hemorrhage as defined by (1) need for transfusion, (2) estimated blood loss > 500 cc, (3) intrauterine placement of a Foley catheter, or (4) use of >= 3 doses of uterotonic medications; infection at time of D&E, including fever (temperature >= 38°C) or pus at the cervical os; subject no longer desires a LNG-IUS
Interventions	Insertion of LNG-IUS immediately following dilation & evacuation compared to delayed insertion (3 to 6 weeks post-abortion)
Outcomes	Primary: use at 6 months Secondary: uptake, expulsion, continuation, acceptability, utility of ultrasound in predicting expulsion
Notes	Preliminary analysis; all participants had not reached 6-month time point

Risk of bias

Item	Authors' judgement	Description
Allocation concealment?	Unclear	not specified in abstract or on ClinicalTrials.gov posting

Lim 1985

Methods	Randomized controlled trial without blinding. Communication with authors indicated use of computer-generated randomization sequence.
Participants	549 women aged 18 to 40 years in Singapore who were having induced abortions
Interventions	Immediate insertion of Multiload 250 or Multiload 375
Outcomes	Principal outcome measures included pregnancy, expulsions, removal for bleeding/pain, and other medical reasons.

Lim 1985 (Continued)

Notes	The report had no a priori hypothesis or sample size and power calculation. Denominators for rates were woman-months of use.	
Risk of bias		
Item	Authors' judgement	Description
Allocation concealment?	Yes	Pre-sealed envelopes used

McCarthy 1985

Methods	Randomized controlled trial at one hospital among women having induced abortion. Report does not describe the method of randomization or allocation concealment. Communication with authors indicated computer-generated randomization sequence.	
Participants	400 women in Singapore between the ages of 16 and 40 years. Demographic information was not provided. The report does not describe the abortion procedures.	
Interventions	Immediate insertion of Nova T or Multiload Cu250	
Outcomes	Principal outcomes included pregnancy, expulsion, pain/bleeding, and other medical reasons. Only the first two outcomes are included because of their objective nature.	
Notes	The report did not contain an a priori hypothesis or sample size and power calculation.	
Risk of bias		
Item	Authors' judgement	Description
Allocation concealment?	Yes	Sealed, opaque envelopes according to communication with authors

Nielsen 1984

Methods	Randomized controlled trial without blinding among women after first-trimester induced abortion. Report does not describe method of randomization or allocation concealment.	
Participants	331 women in Denmark and Finland. More than 96% of participants had abortions at <= 12 weeks' gestation. Report did not provide demographic information about participants.	
Interventions	Immediate insertion of Nova T or Copper T 200	
Outcomes	Principal outcomes included pregnancy; expulsion; and medical removals for bleeding and pain, infection, and other.	

Nielsen 1984 (Continued)

Notes	Report provided no a priori hypothesis or sample size and power calculations. Denominators for rates were woman-months of use. Report provided both gross and net continuation rates to 36 months. This report is a subgroup analysis of a larger trial.	
Risk of bias		
Item	Authors' judgement	Description
Allocation concealment?	Unclear	B - Unclear

Pakarinen 2003

Methods	Randomized controlled international trial without blinding among women after induced abortion at less than 12 weeks' gestation; computer-generated randomization. Randomization was 2:1 (LNG-IUS:Nova T)	
Participants	Women in Finland, Sweden, Denmark, Norway, and Hungary. Participants were 18 to 38 years old, healthy and had to have had at least one prior pregnancy. Exclusion criteria included history of ectopic pregnancy, current breastfeeding, recent injectable contraception, anemia, or acute cervicitis or vaginitis.	
Interventions	Immediate or interval insertion: Mirena levonorgestrel intrauterine system (N=1821) versus Nova T copper IUD (N=937); 438 had immediate insertion.	
Outcomes	Principal outcomes included pregnancy, expulsion, bleeding problems, pain, salpingitis, amenorrhea, hormonal problems, and overall discontinuation.	
Notes	This report was from a large trial (Luukkainen 1987). Some of the same Finnish participants are included in Pakarinen 2003. A subgroup analysis appears in Suvisaari 1996. Sample size calculation provided for overall trial.	
Risk of bias		
Item	Authors' judgement	Description
Allocation concealment?	Yes	Sequentially-numbered, sealed, opaque envelopes

Randic 1983

Methods	Randomized controlled trial with blinding. Computer-generated random number sequence.	
Participants	464 women in Rijeka, Yugoslavia, immediately after induced first-trimester abortion by dilation and curettage.	
Interventions	Immediate insertion of Hydron-coated Spring Coil versus Spring Coil. Hydron is a biocompatible hydrogel intended to decrease adverse endometrial response and improve tolerance of IUDs.	

Randic 1983 (Continued)

Outcomes	Principal outcomes included pregnancy, expulsion, removals for bleeding/pain, and continuation.	
Notes	Raw data not provided, only rates.	
Risk of bias		
Item	Authors' judgement	Description
Allocation concealment?	Yes	Labels in sealed, opaque, sequentially-numbered envelopes opened at the time of insertion

Randic 1991

Methods	Randomized controlled trial with blinding. Computer-generated random number sequence.	
Participants	400 women in Rijeka, Yugoslavia, immediately after medical abortion of first-trimester pregnancy.	
Interventions	Immediate insertion of Lippes Loop D or Lippes Loop D with addition of copper sleeves containing 200 square millimeters of copper.	
Outcomes	Principal outcomes included pregnancy, expulsion/displacement, and removals for bleeding/pain or other medical reasons.	
Notes	The report provided no a priori hypothesis or sample size calculation, although the latter is moot given the significant differences found. Denominators for rates were woman-months of use. Details of allocation concealment missing from report were obtained from investigator.	
Risk of bias		
Item	Authors' judgement	Description
Allocation concealment?	Yes	'Allocation card' opened prior to IUD insertion

WHO 1983a

Methods	Randomized controlled trial without blinding conducted at 8 centers. Randomization performed by computer-generated table of numbers and random permuted blocks. Twelve participants who had problems within 48 hr of insertion were excluded from analysis.	
Participants	2340 women who had an induced abortion at the participating centers. Study sites included Cuba, Yugoslavia, United Kingdom, Zambia, India, Korea, Singapore, and Hungary. Suction or sharp curettage was used for most of the abortions; prostaglandin use was rare. About 96% of the abortions took place at <=12 weeks' gestation.	
Interventions	One of three different devices was inserted immediately after the abortion: T Cu 220C, Lippes Loop D, or Copper 7. Prophylactic antibiotics were not used.	

WHO 1983a (Continued)

Outcomes	Pregnancy (includes ectopic pregnancies in this review), uterine perforation, expulsion, total medical removals (further broken down into pelvic inflammatory disease, pain alone, bleeding alone, pain/bleeding, and other).	
Notes	Report provided no a priori hypothesis or sample size and power calculation. Non-medical removals (such as desire for pregnancy) and other discontinuations are not included in this review. Denominators for rates were woman-months of use.	
Risk of bias		
Item	Authors' judgement	Description
Allocation concealment?	Yes	Sealed, opaque, sequentially-numbered envelopes with a method indicator card

WHO 1983b

Methods	Randomized controlled trial without blinding. Randomization by computer-generated random number table. One participant who had a problem within 48 hr of insertion was excluded from analysis.	
Participants	1060 women at 6 hospitals (in Egypt, United Kingdom, Zambia, Philippines, Chile, and Singapore) who were admitted for care of spontaneous abortions. Nearly all had sharp curettage for completion; suction curettage was rare. From 18% to 25% of the participants were 13-20 weeks pregnant at the time of spontaneous abortion.	
Interventions	Randomly assigned to one of three different IUDs: T Cu 220C, Lippes Loop D, or Copper 7 (all immediate insertion). Prophylactic antibiotics were not used.	
Outcomes	Pregnancy (none of which was ectopic), uterine perforation, expulsion, and total medical removals (further broken down as pelvic inflammatory disease, pain alone, bleeding alone, pain/bleeding, and other).	
Notes	The report provides no a priori hypothesis or sample size and power calculation. Given the high proportion of abortions after 12 weeks and that legal abortion is unavailable or inaccessible in several of these countries, many of these "spontaneous" abortions were likely induced, possibly by unsafe methods. Thus, the risk of infection may be increased in this population. Non-medical and other reasons for discontinuation (such as a desire for pregnancy) are not included in this review. Denominators for rates were woman-months of use.	
Risk of bias		
Item	Authors' judgement	Description
Allocation concealment?	Unclear	Sealed envelopes; not stated to be opaque or sequentially-numbered

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

Chowdhury 1979	Violation of informed consent: sham IUD insertion arm
Goldsmith 1972	Violation of informed consent: sham IUD insertion arm
NCT00737178	Immediate was defined as one week
Querido 1985	Although reported to be randomized assignment, methods reveal alternate allocation. Allocation concealment not possible.

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

NCT00540046

Trial name or title	Immediate vs. delayed insertion of Copper T 380A IUD after termination of pregnancy over 12-weeks gestation
Methods	RCT, open-label
Participants	157 women, 16 years or older. Inclusion criteria: intrauterine pregnancy > 14 weeks gestation, desires abortion, desires IUD for contraception, no contraindication for dilation and evacuation abortion. Exclusion criteria: uterine anomaly including fibroids if they distort the uterine cavity, acute PID, uterine or cervical neoplasia or unresolved abnormal PAP smear, untreated acute cervicitis or vaginitis, chlamydia or gonorrhea infection in past 90 days, acute liver disease or liver tumor, woman or partner currently with multiple sexual partners, history of Wilson's disease, hypersensitivity to any component of Copper T IUD
Interventions	Copper T 380A IUD: Immediate insertion - IUD inserted within 15 minutes after delivery of the placenta immediately following abortion Delayed insertion - IUD inserted at the post-operative visit 2 to 4 weeks after the abortion
Outcomes	Primary: use at 6 months Secondary: satisfaction and expulsion by 6 months
Starting date	April 2007; unable to obtain information on trial status
Contact information	ML Cremer, MD MPH; 212-263-6291, mlcremer@hotmail.com
Notes	

NCT00877344

Trial name or title	Better contraceptive choices: immediate or delayed insertion of IUD after second trimester abortion
Methods	RCT

NCT00877344 (Continued)

Participants	1372 women, 18 years or older. Inclusion criteria: completed informed consent for abortion at gestation 12 weeks to 23 weeks 6 days, choosing an IUD for contraception postabortion, residents of British Columbia. Exclusion criteria: contraindications to IUD use (current untreated PID, chlamydia or gonorrhea; uterine cavity anomalies including fibroids > 5 cm, excluding repaired uterine septum; hypersensitivity to copper or polyethylene or Wilson's Disease; intend to move from British Columbia or to conceive in 1 year. Post randomization exclusion: uterine perforation at the time of abortion, bleeding > 500 cc during abortion or use of non-routine uterotonic agents to manage hemorrhage during abortion or prior to discharge.
Interventions	Immediate or delayed timing of insertion for a copper T380A IUD after an abortion. Immediate insertion to occur during visit for abortion immediately after abortion is complete; delayed insertions scheduled for 2 to 4 weeks after abortion
Outcomes	Primary: pregnancy at 1 year
Starting date	Jun 2009; estimated completion of data collection for primary outcome, Dec 2011
Contact information	Wendy Norman, MD; 604-918-1134, wvnorman@interchange.ubc.ca
Notes	

DATA AND ANALYSES

Comparison 1. Immediate insertion: TCu 220C versus Lippes Loop

Outcome or subgroup title	No. of studies	No. of participants	Statistical method	Effect size
1 Logarithms of rate ratios for discontinuation due to intrauterine pregnancy (750 days)	2		Weighted average (Fixed, 95% CI)	0.38 [0.20, 0.72]
2 Logarithms of rate ratios for discontinuation due to expulsion (750 days)	2		Weighted average (Fixed, 95% CI)	0.51 [0.30, 0.88]
3 Logarithms of rate ratios for discontinuation due to total medical removals (750 days)	2		Weighted average (Fixed, 95% CI)	0.80 [0.26, 2.49]
4 Discontinuation due to perforation (750 days)	2	34488	Risk Ratio (M-H, Fixed, 95% CI)	0.92 [0.13, 6.60]
5 Discontinuation due to pelvic inflammatory disease (750 days)	2	34488	Risk Ratio (M-H, Fixed, 95% CI)	1.17 [0.29, 4.71]

Comparison 2. Immediate insertion: Lippes Loop versus Copper 7

Outcome or subgroup title	No. of studies	No. of participants	Statistical method	Effect size
1 Logarithms of rate ratios for discontinuation due to intrauterine pregnancy (750 days)	2		Weighted average (Fixed, 95% CI)	1.08 [0.84, 1.39]
2 Logarithms of rate ratios for discontinuation due to expulsion (750 days)	2		Weighted average (Fixed, 95% CI)	1.14 [0.63, 2.07]
3 Logarithms of rate ratios for discontinuation due to total medical removals (750 days)	2		Weighted average (Fixed, 95% CI)	1.26 [0.39, 4.09]
4 Discontinuation due to perforation (750 days)	2	32962	Risk Ratio (M-H, Fixed, 95% CI)	0.68 [0.12, 3.97]
5 Discontinuation due to pelvic inflammatory disease (750 days)	2	32962	Risk Ratio (M-H, Fixed, 95% CI)	0.41 [0.12, 1.42]

Comparison 3. Immediate insertion: TCu 220C versus Copper 7

Outcome or subgroup title	No. of studies	No. of participants	Statistical method	Effect size
1 Logarithms of rate ratios for discontinuation due to intrauterine pregnancy (750 days)	2		Weighted average (Fixed, 95% CI)	0.52 [0.36, 0.77]
2 Logarithms of rate ratios for discontinuation due to expulsion (750 days)	2		Weighted average (Fixed, 95% CI)	0.58 [0.39, 0.87]
3 Logarithms of rate ratios for discontinuation due to total medical removals (750 days)	2		Weighted average (Fixed, 95% CI)	1.01 [0.35, 2.87]
4 Discontinuation due to perforation (750 days)	2	34586	Risk Ratio (M-H, Fixed, 95% CI)	0.44 [0.04, 4.83]
5 Discontinuation due to pelvic inflammatory disease (750 days)	2	34586	Risk Ratio (M-H, Fixed, 95% CI)	0.46 [0.14, 1.50]

Comparison 4. Immediate versus delayed insertion of Copper 7

Outcome or subgroup title	No. of studies	No. of participants	Statistical method	Effect size
1 Discontinuation due to pregnancy at one year	1	34762	Risk Ratio (M-H, Fixed, 95% CI)	1.90 [0.09, 39.51]
2 Discontinuation due to expulsion at one year	1	34762	Risk Ratio (M-H, Fixed, 95% CI)	5.69 [0.75, 43.08]
3 Discontinuation due to pelvic inflammatory disease at one year	1	34762	Risk Ratio (M-H, Fixed, 95% CI)	2.66 [0.14, 51.41]

Comparison 5. Immediate insertion: Nova T versus MLCu 250

Outcome or subgroup title	No. of studies	No. of participants	Statistical method	Effect size
1 Discontinuation due to pregnancy (24 months)	1	6497	Risk Ratio (M-H, Fixed, 95% CI)	6.45 [0.78, 53.51]
2 Discontinuation due to expulsion (24 months)	1	6497	Risk Ratio (M-H, Fixed, 95% CI)	1.25 [0.58, 2.71]

Comparison 6. Immediate insertion: MLCu 250 versus MLCu 375

Outcome or subgroup title	No. of studies	No. of participants	Statistical method	Effect size
1 Discontinuation due to pregnancy (24 months)	1	9890	Risk Ratio (M-H, Fixed, 95% CI)	0.74 [0.20, 2.74]
2 Discontinuation due to expulsion (24 months)	1	9890	Risk Ratio (M-H, Fixed, 95% CI)	1.61 [0.47, 5.50]

Comparison 7. Immediate insertion: Nova T versus Copper T 200

Outcome or subgroup title	No. of studies	No. of participants	Statistical method	Effect size
1 Discontinuations due to pregnancy (36 months)	1	6784	Risk Ratio (M-H, Fixed, 95% CI)	0.23 [0.05, 1.05]
2 Discontinuations due to expulsion (36 months)	1	6784	Risk Ratio (M-H, Fixed, 95% CI)	1.81 [0.92, 3.57]
3 Discontinuations due to infection (36 months)	1	6784	Risk Ratio (M-H, Fixed, 95% CI)	1.53 [0.63, 3.75]

Comparison 8. Nova T versus levonorgestrel IUS

Outcome or subgroup title	No. of studies	No. of participants	Statistical method	Effect size
1 Discontinuation rates (1-year) per 100 women due to expulsion: interval versus postabortal insertion			Other data	No numeric data
2 Discontinuation rates per 100 women due to pregnancy after immediate insertion			Other data	No numeric data
3 Discontinuation rates per 100 women due to expulsion after immediate insertion			Other data	No numeric data
4 Discontinuation rates per 100 women due to hormonal reasons after immediate insertion			Other data	No numeric data

Comparison 9. Immediate insertion: Lippes Loop (plain) versus Lippes Loop with copper

Outcome or subgroup title	No. of studies	No. of participants	Statistical method	Effect size
1 Discontinuations due to pregnancy (10 years)	1	24685	Risk Ratio (M-H, Fixed, 95% CI)	3.82 [1.41, 10.36]
2 Discontinuations due to expulsion (10 years)	1	24685	Risk Ratio (M-H, Fixed, 95% CI)	3.37 [1.65, 6.90]

Comparison 10. Immediate insertion: Spring Coil (plain) versus Spring Coil with hydrogel

Outcome or subgroup title	No. of studies	No. of participants	Statistical method	Effect size
1 Discontinuation rates per 100 women due to pregnancy (24 months)			Other data	No numeric data
2 Discontinuation rates per 100 women due to expulsion (24 months)			Other data	No numeric data

Comparison 11. Immediate versus delayed insertion (LNG-IUS or CuT380A IUD)

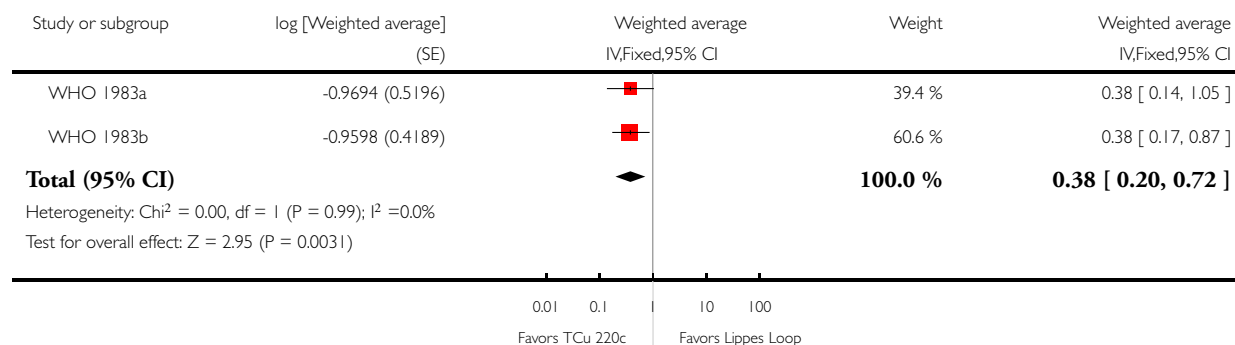
Outcome or subgroup title	No. of studies	No. of participants	Statistical method	Effect size
1 Expulsion by 6 months	2	350	Risk Ratio (M-H, Fixed, 95% CI)	2.26 [0.74, 6.86]
2 Removal by 6 months	1	286	Risk Ratio (M-H, Fixed, 95% CI)	0.8 [0.22, 2.92]
3 Use at 6 months	2	358	Risk Ratio (M-H, Fixed, 95% CI)	1.18 [1.08, 1.28]

Analysis 1.1. Comparison 1 Immediate insertion: TCU 220C versus Lippes Loop, Outcome 1 Logarithms of rate ratios for discontinuation due to intrauterine pregnancy (750 days).

Review: Immediate postabortal insertion of intrauterine devices

Comparison: 1 Immediate insertion: TCU 220C versus Lippes Loop

Outcome: 1 Logarithms of rate ratios for discontinuation due to intrauterine pregnancy (750 days)

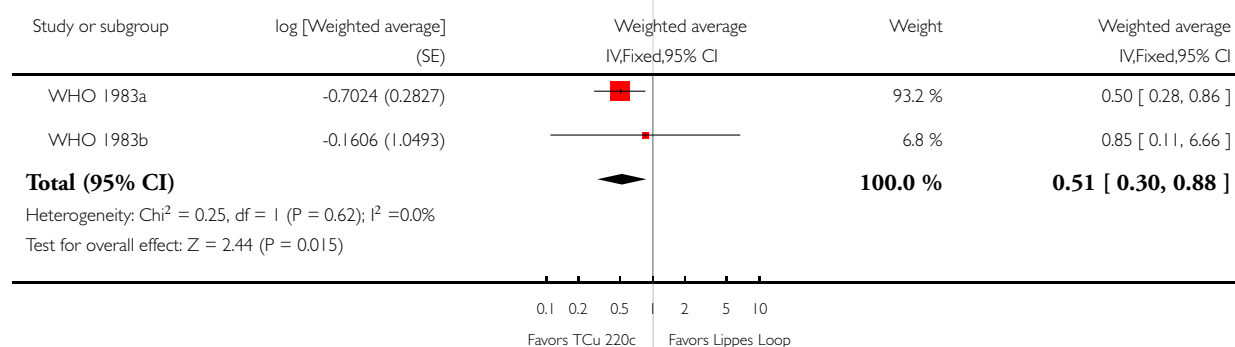


Analysis 1.2. Comparison 1 Immediate insertion: TCU 220C versus Lippes Loop, Outcome 2 Logarithms of rate ratios for discontinuation due to expulsion (750 days).

Review: Immediate postabortal insertion of intrauterine devices

Comparison: 1 Immediate insertion: TCU 220C versus Lippes Loop

Outcome: 2 Logarithms of rate ratios for discontinuation due to expulsion (750 days)

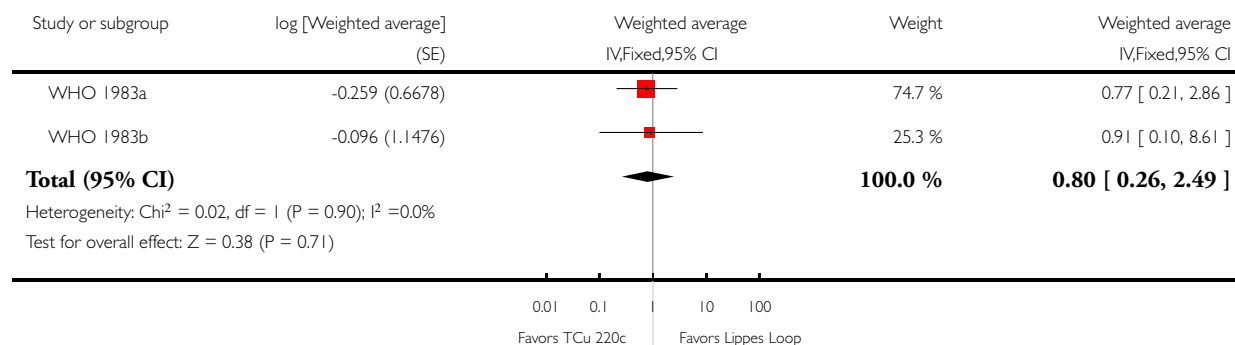


Analysis 1.3. Comparison 1 Immediate insertion: TCU 220C versus Lippes Loop, Outcome 3 Logarithms of rate ratios for discontinuation due to total medical removals (750 days).

Review: Immediate postabortal insertion of intrauterine devices

Comparison: 1 Immediate insertion: TCU 220C versus Lippes Loop

Outcome: 3 Logarithms of rate ratios for discontinuation due to total medical removals (750 days)

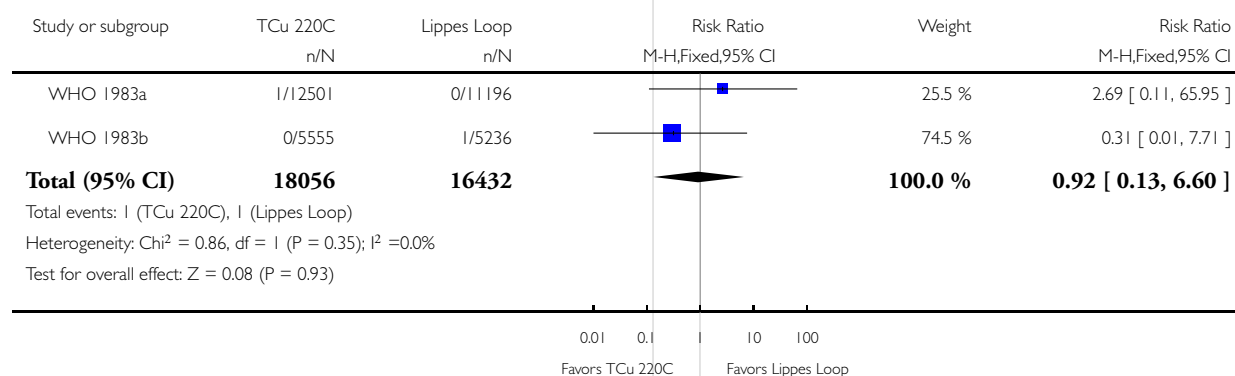


Analysis 1.4. Comparison 1 Immediate insertion: TCU 220C versus Lippes Loop, Outcome 4 Discontinuation due to perforation (750 days).

Review: Immediate postabortal insertion of intrauterine devices

Comparison: 1 Immediate insertion: TCU 220C versus Lippes Loop

Outcome: 4 Discontinuation due to perforation (750 days)

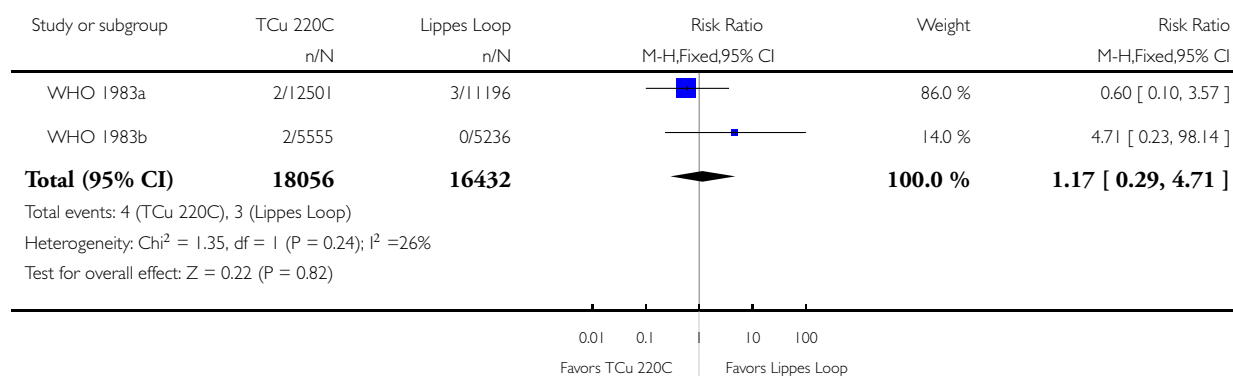


Analysis 1.5. Comparison 1 Immediate insertion: TCu 220C versus Lippes Loop, Outcome 5 Discontinuation due to pelvic inflammatory disease (750 days).

Review: Immediate postabortal insertion of intrauterine devices

Comparison: 1 Immediate insertion: TCu 220C versus Lippes Loop

Outcome: 5 Discontinuation due to pelvic inflammatory disease (750 days)

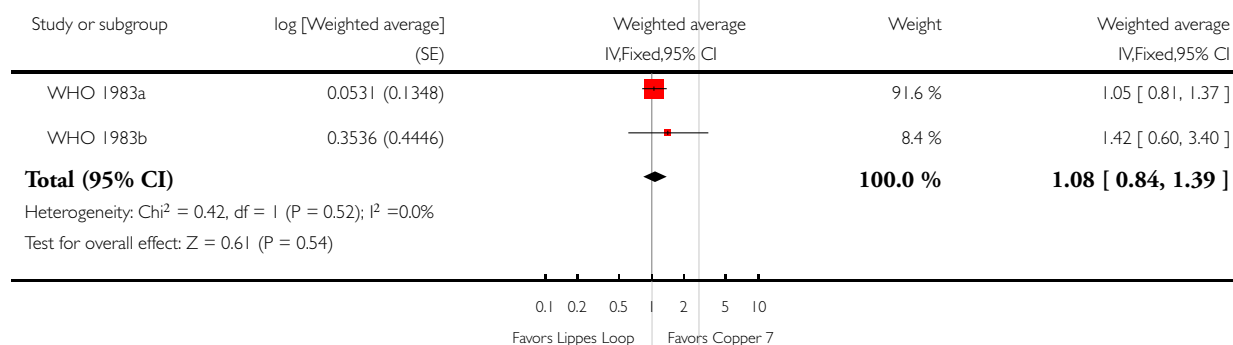


Analysis 2.1. Comparison 2 Immediate insertion: Lippes Loop versus Copper 7, Outcome 1 Logarithms of rate ratios for discontinuation due to intrauterine pregnancy (750 days).

Review: Immediate postabortal insertion of intrauterine devices

Comparison: 2 Immediate insertion: Lippes Loop versus Copper 7

Outcome: 1 Logarithms of rate ratios for discontinuation due to intrauterine pregnancy (750 days)

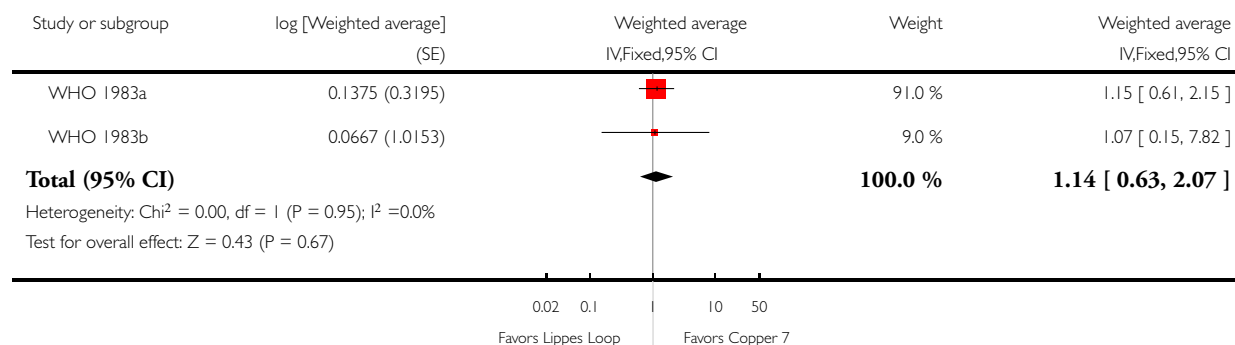


Analysis 2.2. Comparison 2 Immediate insertion: Lippes Loop versus Copper 7, Outcome 2 Logarithms of rate ratios for discontinuation due to expulsion (750 days).

Review: Immediate postabortal insertion of intrauterine devices

Comparison: 2 Immediate insertion: Lippes Loop versus Copper 7

Outcome: 2 Logarithms of rate ratios for discontinuation due to expulsion (750 days)

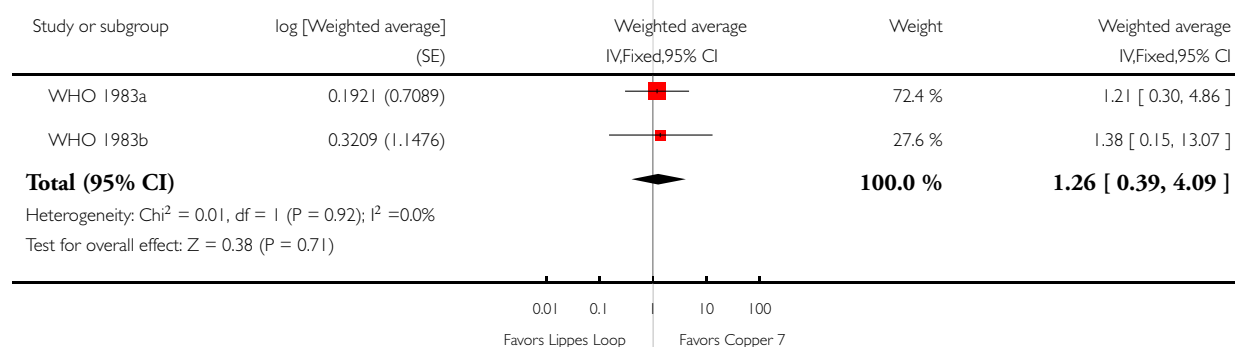


Analysis 2.3. Comparison 2 Immediate insertion: Lippes Loop versus Copper 7, Outcome 3 Logarithms of rate ratios for discontinuation due to total medical removals (750 days).

Review: Immediate postabortal insertion of intrauterine devices

Comparison: 2 Immediate insertion: Lippes Loop versus Copper 7

Outcome: 3 Logarithms of rate ratios for discontinuation due to total medical removals (750 days)

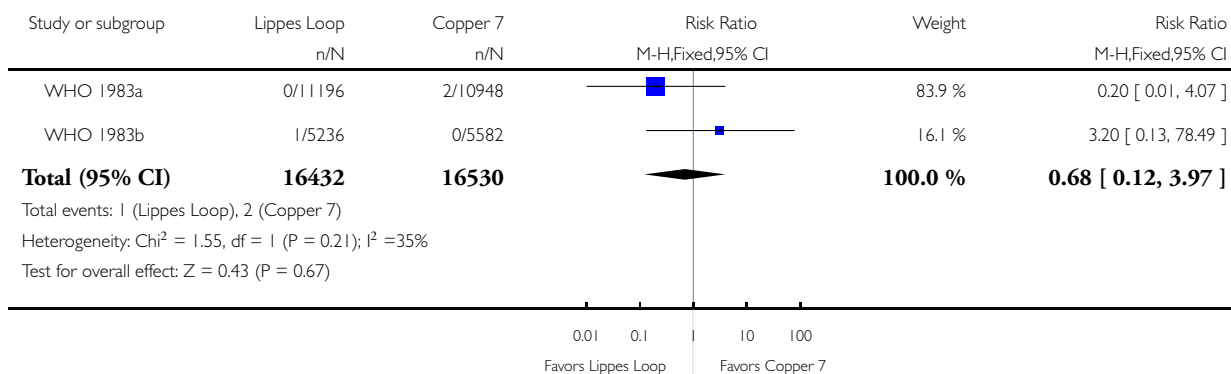


Analysis 2.4. Comparison 2 Immediate insertion: Lippes Loop versus Copper 7, Outcome 4 Discontinuation due to perforation (750 days).

Review: Immediate postabortal insertion of intrauterine devices

Comparison: 2 Immediate insertion: Lippes Loop versus Copper 7

Outcome: 4 Discontinuation due to perforation (750 days)

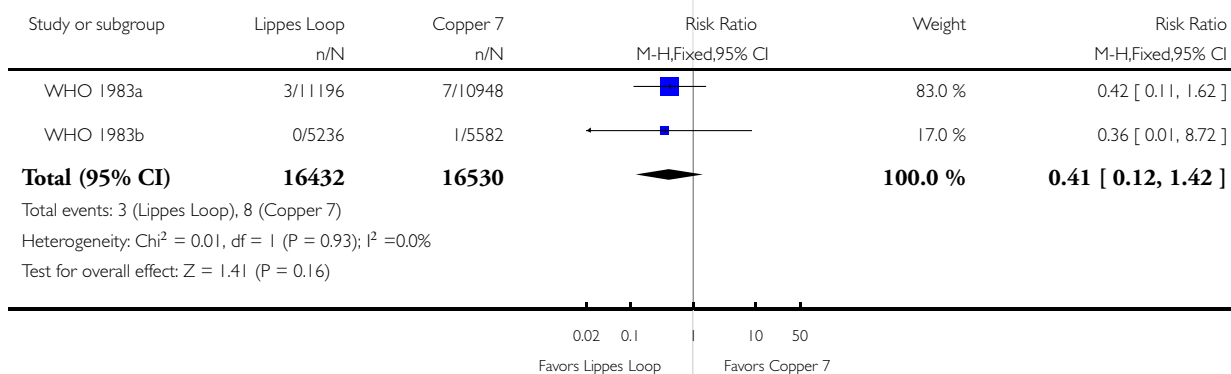


Analysis 2.5. Comparison 2 Immediate insertion: Lippes Loop versus Copper 7, Outcome 5 Discontinuation due to pelvic inflammatory disease (750 days).

Review: Immediate postabortal insertion of intrauterine devices

Comparison: 2 Immediate insertion: Lippes Loop versus Copper 7

Outcome: 5 Discontinuation due to pelvic inflammatory disease (750 days)

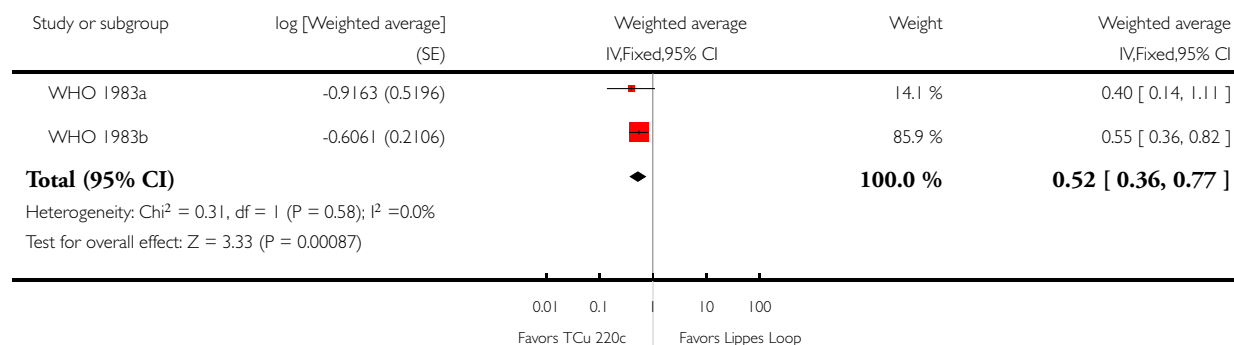


Analysis 3.1. Comparison 3 Immediate insertion: TCU 220C versus Copper 7, Outcome 1 Logarithms of rate ratios for discontinuation due to intrauterine pregnancy (750 days).

Review: Immediate postabortal insertion of intrauterine devices

Comparison: 3 Immediate insertion: TCU 220C versus Copper 7

Outcome: 1 Logarithms of rate ratios for discontinuation due to intrauterine pregnancy (750 days)

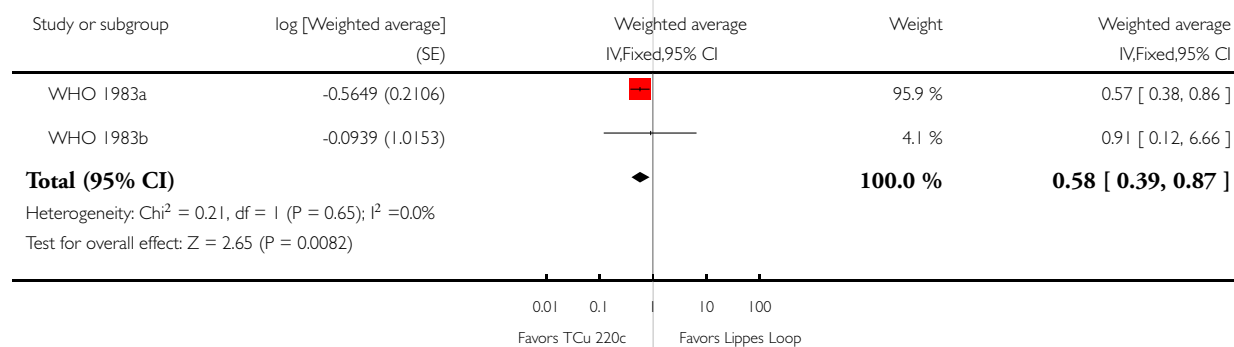


Analysis 3.2. Comparison 3 Immediate insertion: TCU 220C versus Copper 7, Outcome 2 Logarithms of rate ratios for discontinuation due to expulsion (750 days).

Review: Immediate postabortal insertion of intrauterine devices

Comparison: 3 Immediate insertion: TCU 220C versus Copper 7

Outcome: 2 Logarithms of rate ratios for discontinuation due to expulsion (750 days)

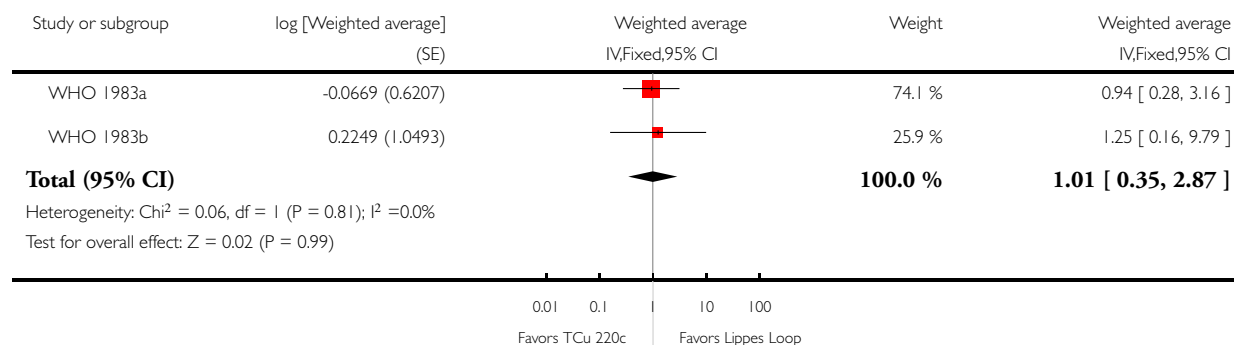


Analysis 3.3. Comparison 3 Immediate insertion: TCU 220C versus Copper 7, Outcome 3 Logarithms of rate ratios for discontinuation due to total medical removals (750 days).

Review: Immediate postabortal insertion of intrauterine devices

Comparison: 3 Immediate insertion: TCU 220C versus Copper 7

Outcome: 3 Logarithms of rate ratios for discontinuation due to total medical removals (750 days)

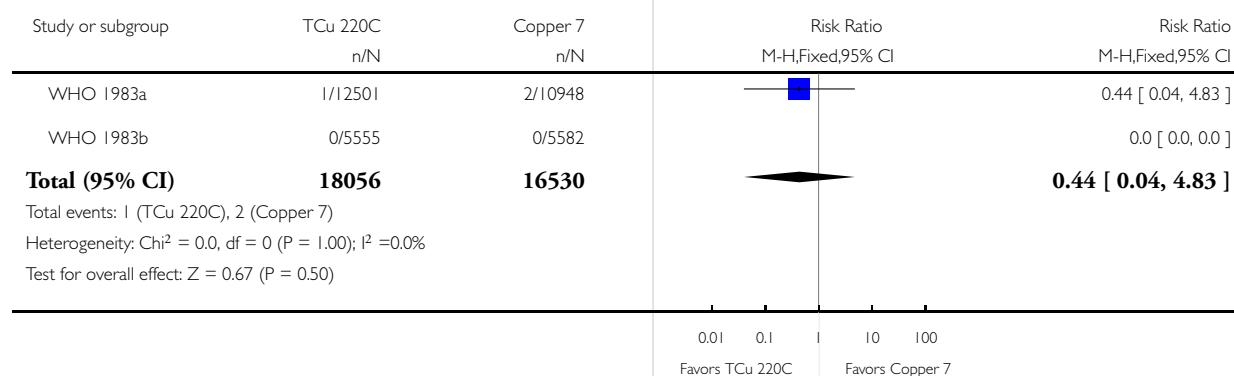


Analysis 3.4. Comparison 3 Immediate insertion: TCU 220C versus Copper 7, Outcome 4 Discontinuation due to perforation (750 days).

Review: Immediate postabortal insertion of intrauterine devices

Comparison: 3 Immediate insertion: TCU 220C versus Copper 7

Outcome: 4 Discontinuation due to perforation (750 days)

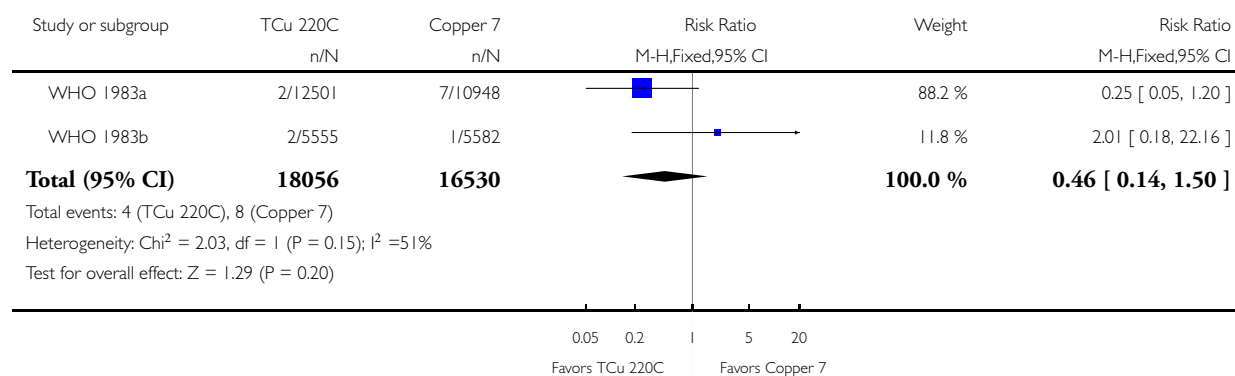


Analysis 3.5. Comparison 3 Immediate insertion: TCu 220C versus Copper 7, Outcome 5 Discontinuation due to pelvic inflammatory disease (750 days).

Review: Immediate postabortal insertion of intrauterine devices

Comparison: 3 Immediate insertion: TCu 220C versus Copper 7

Outcome: 5 Discontinuation due to pelvic inflammatory disease (750 days)

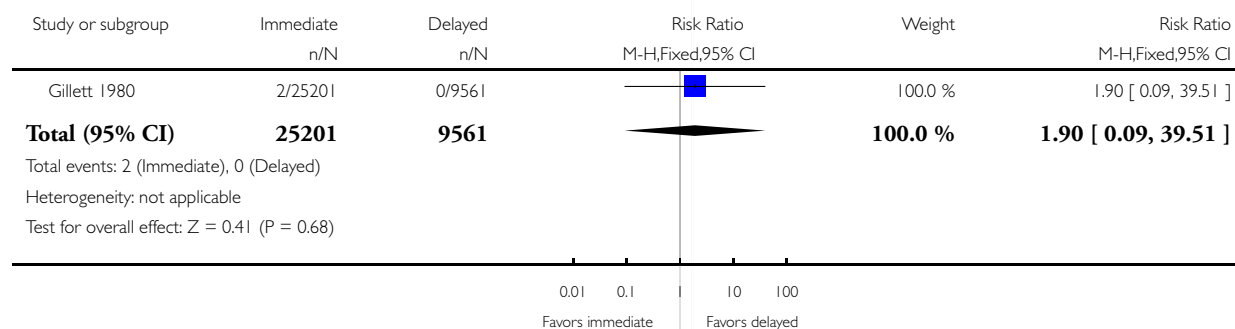


Analysis 4.1. Comparison 4 Immediate versus delayed insertion of Copper 7, Outcome 1 Discontinuation due to pregnancy at one year.

Review: Immediate postabortal insertion of intrauterine devices

Comparison: 4 Immediate versus delayed insertion of Copper 7

Outcome: 1 Discontinuation due to pregnancy at one year

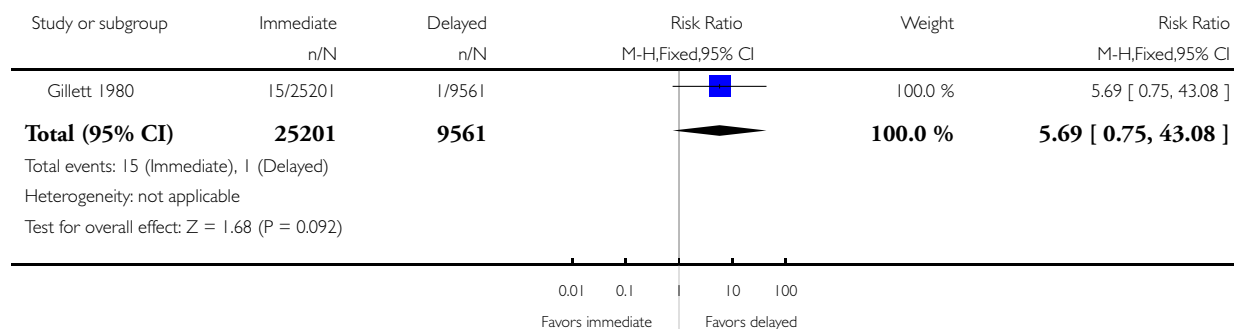


Analysis 4.2. Comparison 4 Immediate versus delayed insertion of Copper 7, Outcome 2 Discontinuation due to expulsion at one year.

Review: Immediate postabortal insertion of intrauterine devices

Comparison: 4 Immediate versus delayed insertion of Copper 7

Outcome: 2 Discontinuation due to expulsion at one year

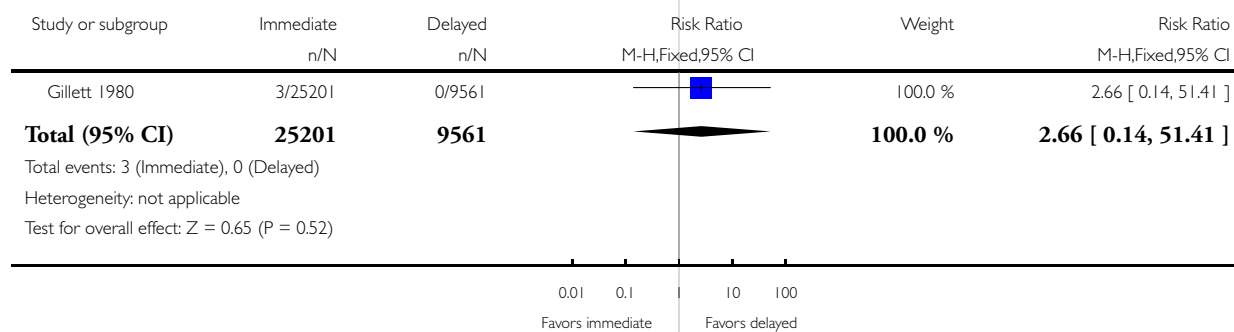


Analysis 4.3. Comparison 4 Immediate versus delayed insertion of Copper 7, Outcome 3 Discontinuation due to pelvic inflammatory disease at one year.

Review: Immediate postabortal insertion of intrauterine devices

Comparison: 4 Immediate versus delayed insertion of Copper 7

Outcome: 3 Discontinuation due to pelvic inflammatory disease at one year

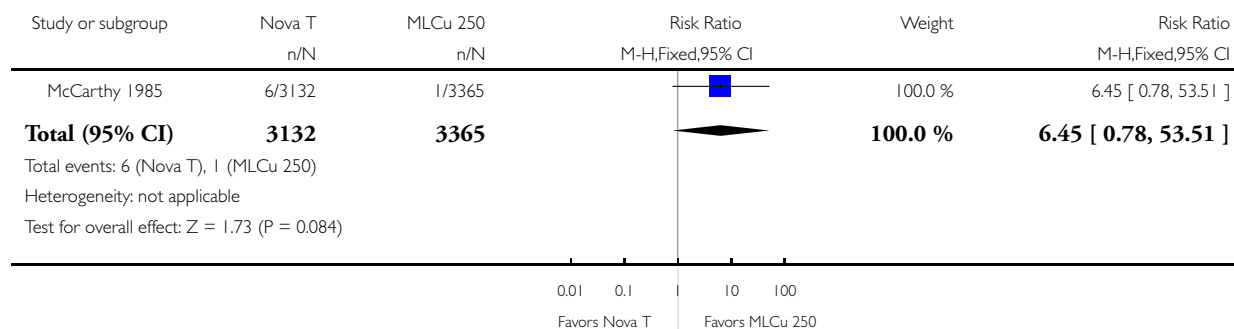


Analysis 5.1. Comparison 5 Immediate insertion: Nova T versus MLCu 250, Outcome 1 Discontinuation due to pregnancy (24 months).

Review: Immediate postabortal insertion of intrauterine devices

Comparison: 5 Immediate insertion: Nova T versus MLCu 250

Outcome: 1 Discontinuation due to pregnancy (24 months)

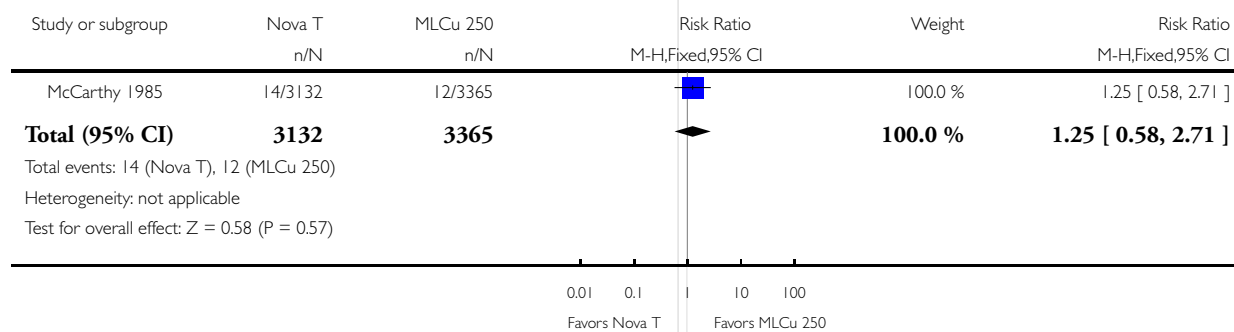


Analysis 5.2. Comparison 5 Immediate insertion: Nova T versus MLCu 250, Outcome 2 Discontinuation due to expulsion (24 months).

Review: Immediate postabortal insertion of intrauterine devices

Comparison: 5 Immediate insertion: Nova T versus MLCu 250

Outcome: 2 Discontinuation due to expulsion (24 months)

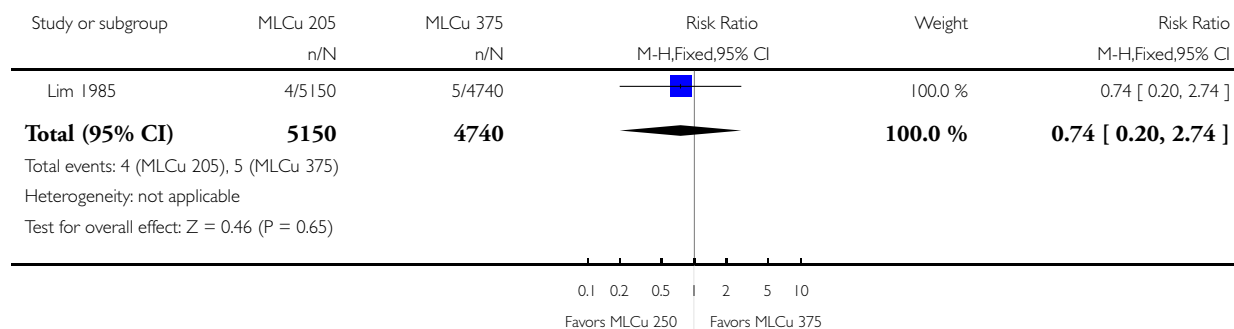


Analysis 6.1. Comparison 6 Immediate insertion: MLCu 250 versus MLCu 375, Outcome 1 Discontinuation due to pregnancy (24 months).

Review: Immediate postabortal insertion of intrauterine devices

Comparison: 6 Immediate insertion: MLCu 250 versus MLCu 375

Outcome: 1 Discontinuation due to pregnancy (24 months)

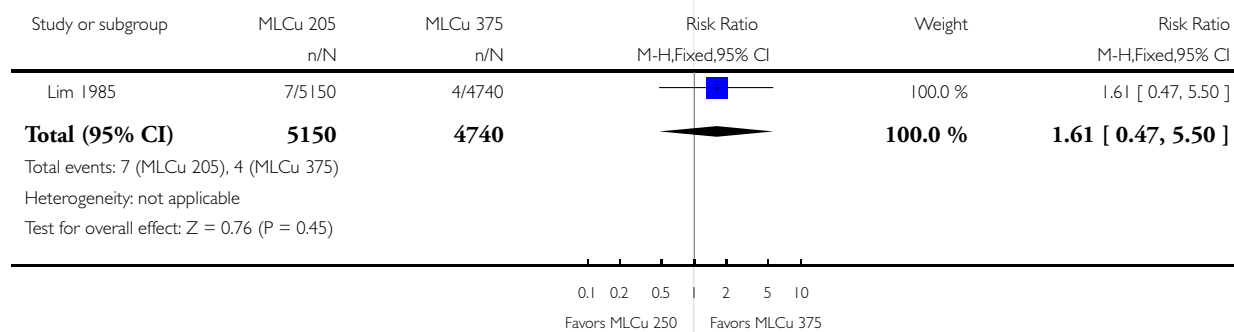


Analysis 6.2. Comparison 6 Immediate insertion: MLCu 250 versus MLCu 375, Outcome 2 Discontinuation due to expulsion (24 months).

Review: Immediate postabortal insertion of intrauterine devices

Comparison: 6 Immediate insertion: MLCu 250 versus MLCu 375

Outcome: 2 Discontinuation due to expulsion (24 months)

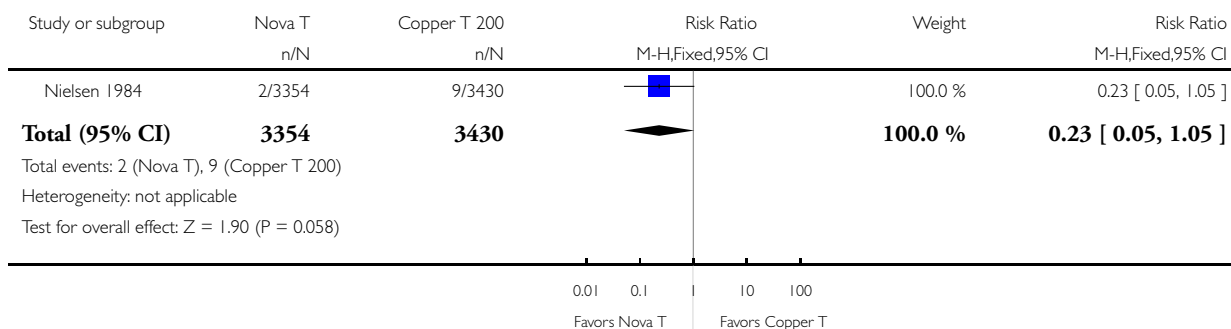


**Analysis 7.1. Comparison 7 Immediate insertion: Nova T versus Copper T 200, Outcome 1
Discontinuations due to pregnancy (36 months).**

Review: Immediate postabortal insertion of intrauterine devices

Comparison: 7 Immediate insertion: Nova T versus Copper T 200

Outcome: 1 Discontinuations due to pregnancy (36 months)

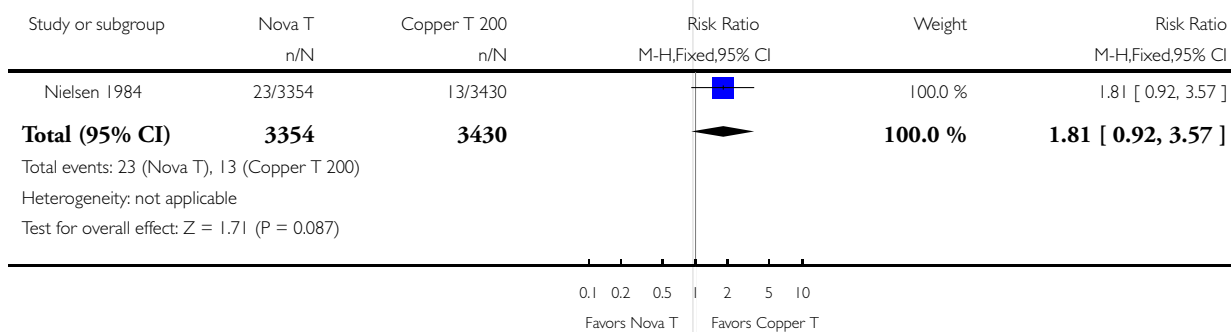


**Analysis 7.2. Comparison 7 Immediate insertion: Nova T versus Copper T 200, Outcome 2
Discontinuations due to expulsion (36 months).**

Review: Immediate postabortal insertion of intrauterine devices

Comparison: 7 Immediate insertion: Nova T versus Copper T 200

Outcome: 2 Discontinuations due to expulsion (36 months)

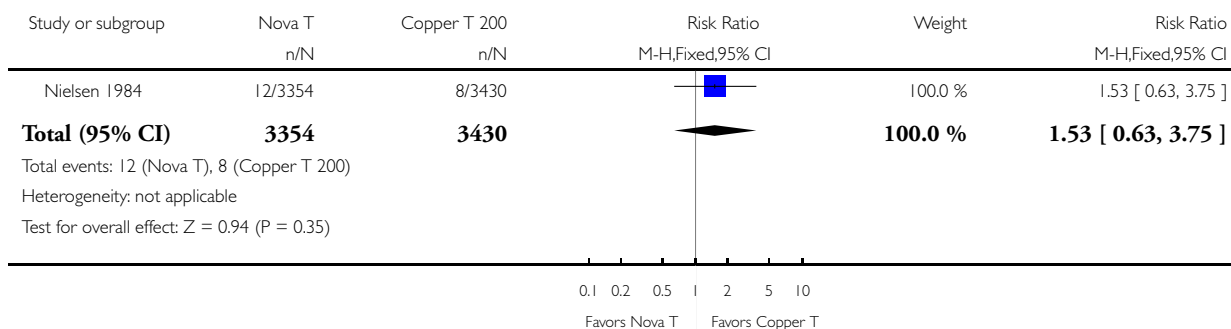


Analysis 7.3. Comparison 7 Immediate insertion: Nova T versus Copper T 200, Outcome 3 Discontinuations due to infection (36 months).

Review: Immediate postabortal insertion of intrauterine devices

Comparison: 7 Immediate insertion: Nova T versus Copper T 200

Outcome: 3 Discontinuations due to infection (36 months)



Analysis 8.1. Comparison 8 Nova T versus levonorgestrel IUS, Outcome 1 Discontinuation rates (1-year) per 100 women due to expulsion: interval versus postabortal insertion.

Discontinuation rates (1-year) per 100 women due to expulsion: interval versus postabortal insertion

Pakarinen 2003	3.0	8.3	2.8	6.8
----------------	-----	-----	-----	-----

Analysis 8.2. Comparison 8 Nova T versus levonorgestrel IUS, Outcome 2 Discontinuation rates per 100 women due to pregnancy after immediate insertion.

Discontinuation rates per 100 women due to pregnancy after immediate insertion

Pakarinen 2003	1 year	2	0
Pakarinen 2003	5 years	9.5	0.8

Analysis 8.3. Comparison 8 Nova T versus levonorgestrel IUS, Outcome 3 Discontinuation rates per 100 women due to expulsion after immediate insertion.

Discontinuation rates per 100 women due to expulsion after immediate insertion

Pakarinen 2003	1 year	8.6	7.1
Pakarinen 2003	5 years	15.4	10.5

Analysis 8.4. Comparison 8 Nova T versus levonorgestrel IUS, Outcome 4 Discontinuation rates per 100 women due to hormonal reasons after immediate insertion.

Discontinuation rates per 100 women due to hormonal reasons after immediate insertion

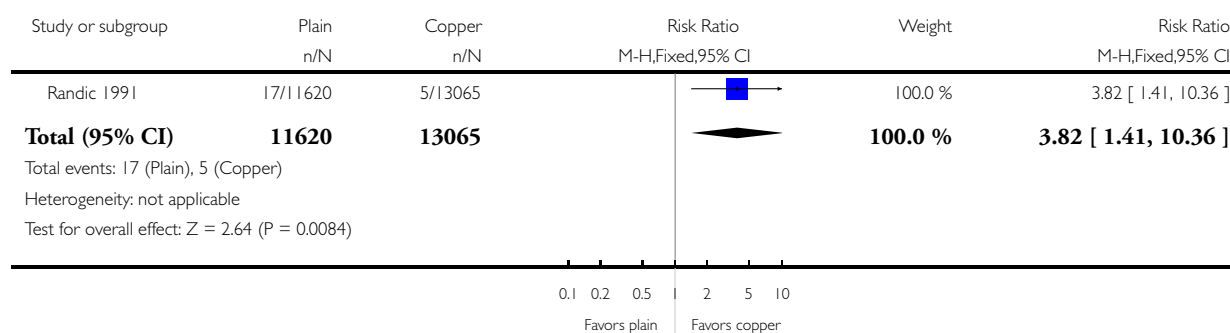
Pakarinen 2003	1 year	3.9	15.9
Pakarinen 2003	1 year	3.9	15.9

Analysis 9.1. Comparison 9 Immediate insertion: Lippes Loop (plain) versus Lippes Loop with copper, Outcome 1 Discontinuations due to pregnancy (10 years).

Review: Immediate postabortal insertion of intrauterine devices

Comparison: 9 Immediate insertion: Lippes Loop (plain) versus Lippes Loop with copper

Outcome: 1 Discontinuations due to pregnancy (10 years)

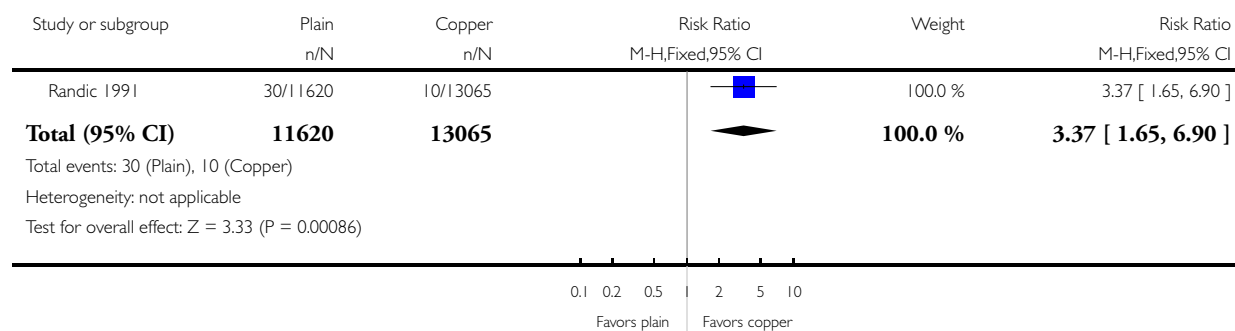


Analysis 9.2. Comparison 9 Immediate insertion: Lippes Loop (plain) versus Lippes Loop with copper, Outcome 2 Discontinuations due to expulsion (10 years).

Review: Immediate postabortal insertion of intrauterine devices

Comparison: 9 Immediate insertion: Lippes Loop (plain) versus Lippes Loop with copper

Outcome: 2 Discontinuations due to expulsion (10 years)



Analysis 10.1. Comparison 10 Immediate insertion: Spring Coil (plain) versus Spring Coil with hydrogel, Outcome 1 Discontinuation rates per 100 women due to pregnancy (24 months).

Discontinuation rates per 100 women due to pregnancy (24 months)

Randic 1983	1.6	1.9
-------------	-----	-----

Analysis 10.2. Comparison 10 Immediate insertion: Spring Coil (plain) versus Spring Coil with hydrogel, Outcome 2 Discontinuation rates per 100 women due to expulsion (24 months).

Discontinuation rates per 100 women due to expulsion (24 months)

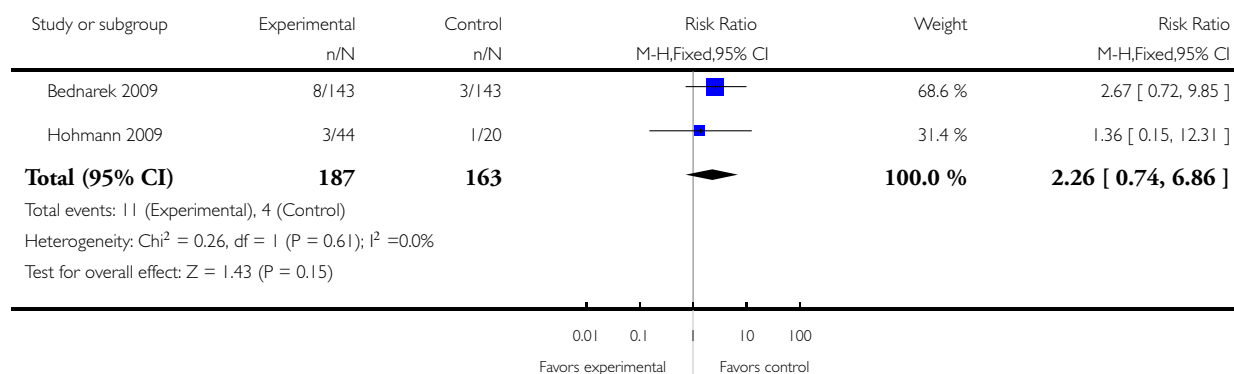
Randic 1983	4.1	4.5
-------------	-----	-----

Analysis 11.1. Comparison 11 Immediate versus delayed insertion (LNG-IUS or CuT380A IUD), Outcome 1 Expulsion by 6 months.

Review: Immediate postabortal insertion of intrauterine devices

Comparison: 11 Immediate versus delayed insertion (LNG-IUS or CuT380A IUD)

Outcome: 1 Expulsion by 6 months

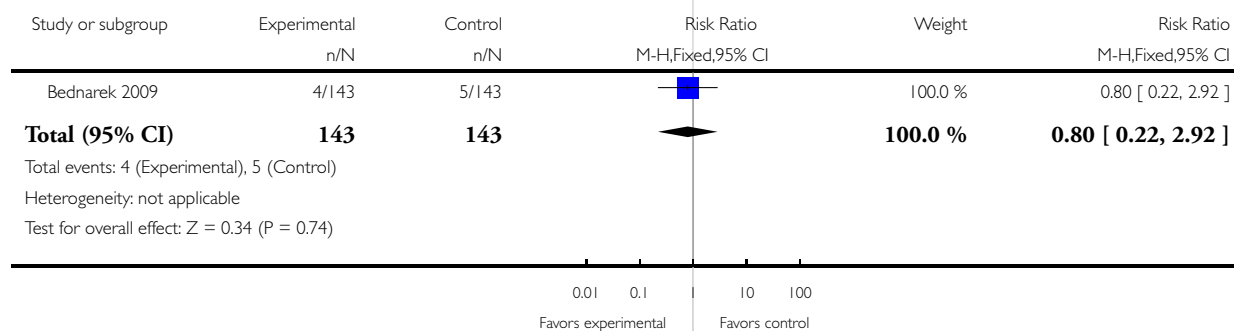


Analysis 11.2. Comparison 11 Immediate versus delayed insertion (LNG-IUS or CuT380A IUD), Outcome 2 Removal by 6 months.

Review: Immediate postabortal insertion of intrauterine devices

Comparison: 11 Immediate versus delayed insertion (LNG-IUS or CuT380A IUD)

Outcome: 2 Removal by 6 months

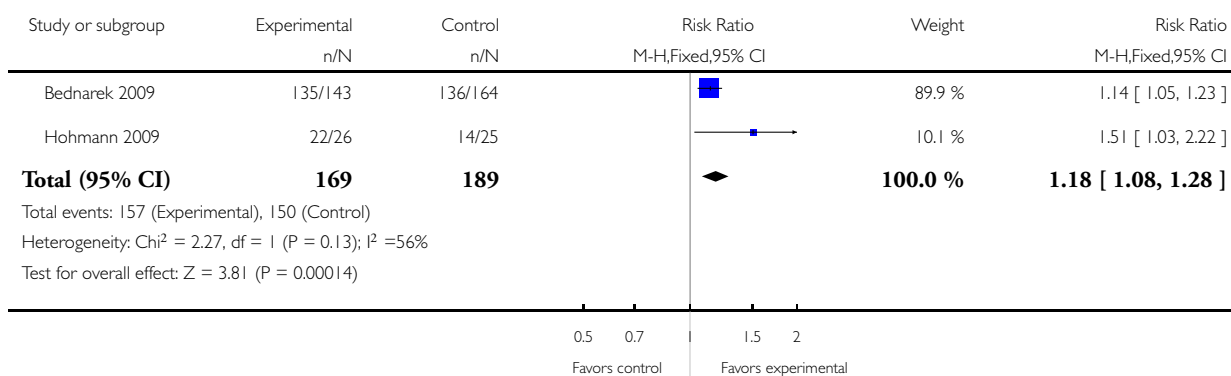


Analysis 11.3. Comparison 11 Immediate versus delayed insertion (LNG-IUS or CuT380A IUD), Outcome 3 Use at 6 months.

Review: Immediate postabortal insertion of intrauterine devices

Comparison: 11 Immediate versus delayed insertion (LNG-IUS or CuT380A IUD)

Outcome: 3 Use at 6 months



WHAT'S NEW

Last assessed as up-to-date: 31 March 2010.

17 March 2010	New citation required and conclusions have changed	Preliminary results from two new trials were added (Bednarek 2009 ; Hohmann 2009). Also, two trials in progress were identified (NCT00540046 ; NCT00877344).
16 February 2010	New search has been performed	Searches were updated.

HISTORY

Protocol first published: Issue 2, 1999

Review first published: Issue 2, 2000

15 April 2008	Amended	Converted to new review format.
3 June 2004	New citation required and conclusions have changed	Substantive amendment

CONTRIBUTIONS OF AUTHORS

Drs Grimes and Schulz developed the protocol, performed the initial literature search, and abstracted the data. All authors contributed to writing the review. Dr Lopez did the calculations for the inverse variance method and created the tables. Dr Lopez reviewed the literature searches for the 2007 and 2010 updates, incorporated the new trials, and drafted the revised review.

DECLARATIONS OF INTEREST

D Grimes has consulted with the pharmaceutical companies Bayer Healthcare Pharmaceuticals and Merck & Co, Inc.

SOURCES OF SUPPORT

Internal sources

- No sources of support supplied

External sources

- U.S. Agency for International Development, USA.
- National Institute of Child Health and Human Development, USA.

INDEX TERMS

Medical Subject Headings (MeSH)

*Abortion, Induced; *Abortion, Spontaneous; *Intrauterine Devices; Randomized Controlled Trials as Topic; Time Factors

MeSH check words

Female; Humans; Pregnancy