

# Copper containing intra-uterine devices versus depot progestogens for contraception (Review)

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[Intervention Review]

# Copper containing intra-uterine devices versus depot progestogens for contraception

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## ABSTRACT

### Background

Highly effective contraception is essential to reduce unintended pregnancies and the effect these have on individuals, society and public health resources. Intrauterine devices (IUDs) and depot progestogens are two commonly used long-acting, reversible contraceptive methods with different risk and benefit profiles.

### Objectives

To compare the contraceptive and non-contraceptive benefits and risks of using the copper-containing IUD versus depot progestogens for contraception.

### Search strategy

In June 2009 we searched the Cochrane Pregnancy and Childbirth Group Trials Register, the Cochrane Central Register of Controlled Trials, Pubmed, Popline, Clinical Trials.gov, the Current Controlled Trials metaRegister, EMBASE and LILACS, and contacted study authors.

### Selection criteria

Randomized trials comparing women using copper-containing IUDs with women using depot progestogens.

### Data collection and analysis

We assessed eligibility and trial quality, extracted and double-entered data.

### Main results

Two studies were included in the review. In the one study in HIV infected women, the IUD was compared with depot progestogen or the oral contraceptive, according to the women's choice. As the majority of women chose depot progestogen, we have included this study in the review, within a mixed hormonal contraception sub-group.

Overall, the copper IUD was more effective than depot progestogens/hormonal contraception at preventing pregnancy (risk ratio (RR) 0.45; 95% confidence interval (CI) 0.24 to 0.84). HIV disease progression was reduced in the IUD group (RR 0.58; 95% CI 0.39 to 0.87). There was no significant difference in pelvic inflammatory disease rates between the two groups. Discontinuation of the allocated method was less frequent with the IUD in one study, and less frequent with hormonal contraception in the other study (in which women were allowed to switch between various hormonal methods).

### Authors' conclusions

In the populations studied, the IUD was more effective than hormonal contraception with respect to pregnancy prevention. High quality research is urgently needed to compare the effects, if any, of these two commonly used contraception methods on HIV acquisition/seroconversion and HIV/AIDS disease progression.

## PLAIN LANGUAGE SUMMARY

### Copper IUDs versus long-acting hormone injections and implants for contraception

Reversible, longterm contraception is relied on by millions of women to prevent unwanted pregnancy. Two very common methods of pregnancy prevention are the use of a copper-containing intrauterine device (IUD) or an injection of a progestogen hormone.

We reviewed studies that compared these two highly effective methods and found the IUD to be better at preventing pregnancy than depot medroxyprogesterone acetate (DMPA). Relevant to HIV positive women are the results of one small trial that found that women using the IUD for contraception were less likely to experience a worsening of their HIV disease than those using hormonal contraception. A large, high quality study is urgently needed to shed light on these findings.

## BACKGROUND

Unintended pregnancies have important physical, emotional and social consequences for individuals and society, place a burden on health services and contribute to maternal and perinatal mortality. There is considerable evidence to show that the Millennium Development Goal to reduce maternal mortality will not be achievable with current levels of population growth in the least developed countries and regions (APPG 2007; Campbell 2007).

As women respond differently to the various methods of contraception, the utilization of contraceptive services is directly related to the range of contraceptive choices offered. In many areas, the use of the intrauterine contraceptive device (IUD) has virtually disappeared, and contraceptive service providers are not trained in its use.

Injectable progestogen contraceptives (depot progestogen) account for a large proportion of modern-day contraception use in many countries, including South Africa (80%), Indonesia (67%), Peru (55%), Kenya (42%) and Nepal (40%) (Ortayli 2006). In Uzbekistan, however, most women use the IUD (Barrett 2007).

### Depot progestogen contraceptives

Injectable progestogen contraceptives are acceptable to many women, and are considered to have several advantages:

1. convenience
2. infrequent dosage (two or three monthly)
3. adherence not related to intercourse
4. protection against endometrial cancer
5. some protection against pelvic infection

However, they are considered to have disadvantages which may lead to discontinuation and unwanted pregnancies. These include the following:

1. irregular vaginal bleeding
2. amenorrhoea (considered an advantage by some women)
3. delayed return of fertility
4. nausea
5. weight gain
6. loss of bone density
7. the need to remember the repeat injections
8. dependence on supplies at clinics
9. difficulty of knowing when to stop use in perimenopausal women

In a Cochrane systematic review, the rate of discontinuing depot progestogen contraception within 12 months was found to be 49% for depot MPA and 48% for norethisterone enanthate, the

main reason for which was menstrual disturbances (Draper 2006). In a double-blind, placebo controlled study, depot progestogen contraception (norethisterone enanthate) in the postpartum period was associated with increased depression and reduced serum estradiol and progesterone levels (Lawrie 1998). It is possible that reduced estrogen levels may result in thinning of the vaginal epithelium and that exogenous steroids may cause humoral and cell-mediated immunological changes, increasing the risk of genital tract infection. A recent review of highly effective contraception (Morrison 2009) that included two large prospective cohort studies (Morrison 2007; Myer 2007) found no association between DMPA and HIV acquisition in the general population, although data was equivocal for high-risk groups (e.g. sex workers). Regarding sexually transmitted infections (STIs), the review found some evidence to support an increased risk of chlamydial infection, but not gonorrhoea.

## The copper IUD

The copper IUD is also considered to have advantages and disadvantages.

Advantages include the following:

1. no hormonal effects
2. no amenorrhoea
3. immediate return to fertility on removal
4. single insertion lasts from five to ten years, depending on the type of device
5. may be left in place until after the menopause (Bhathena 2006; Sivin 2007)
6. reduced risk of hemorrhagic stroke compared with hormonal contraceptive use (Li 2006)
7. lower rates of discontinuation than other contraceptive methods (Youssef 2005)
8. in a recent randomized trial in HIV infected women, the IUD was found to be a suitable contraceptive (Stringer 2007)
9. IUD use does not increase the risk of ectopic pregnancy (Barnhart 2006)
10. adherence is not intercourse related

Disadvantages include the following:

1. initial insertion, which requires a skilled provider, and may be painful
2. increased menstrual flow and menstrual pain in some women
3. rare complications such as uterine perforation and migration, which may be provider-related (El-Hefnawy 2007)
4. an increased risk of pelvic infection in the initial 30 days following insertion (Mohllajee 2006)

Insertion of the IUD immediately following pregnancy (meaning within 48 hours) (Grimes 2003; WHO 2009) or abortion (Grimes 2004) appears safe, but the expulsion rate appears to be higher than for interval insertion. Copper IUDs can be fitted immediately after both surgical and medical abortion (Grimes 2004).

Nulliparous women (women who have not previously given birth) may experience more discomfort on insertion and higher rates of expulsion (Hubacher 2007). However, difficult and failed insertion in nulliparous women has been shown to be reduced with misoprostol pre-treatment (Sääv 2007). A randomized trial in nulliparous women found that IUDs specifically designed for nulliparous women had lower discontinuation and pregnancy rates than the standard IUD (Otero-Flores 2003).

Modern intrauterine contraceptive devices (IUDs) are safe, effective, and quickly reversible long-term contraceptives that require little attention after insertion. However, safety concerns and programmatic challenges have held back IUD services in many countries. For example, declining use of the IUD in Ghana has been attributed to rumours about adverse effects, and worries about bleeding and weight loss (Osei 2005). Uptake of the IUD has been found to be linked to the quality of contraceptive services (Hong 2006).

New assessment of research findings, recently translated into guidance by the World Health Organization, should help reassure providers that most women can use IUDs safely (Salem 2006). A case control study has also found that IUD failure was associated only with a history of previous IUD expulsion, and not with use of medication, gynecological factors such as fibroids or polyps, or previous abortion (Thonneau 2006).

The primary reasons for requesting removal of the IUD are menstrual bleeding and pain. One randomized trial of prophylactic ibuprofen found no reduction in removal with this treatment (Hubacher 2006), while other randomized trials have found that the increase in menstrual blood loss with the IUD was prevented with ibuprofen (Mäkäräinen 1986), tranexamic acid (Ylikorkala 1983; Lin 2007) and to a lesser extent diclofenac sodium (Hubacher 2006). Naproxen was found to be effective in reducing dysmenorrhoea associated with the IUD (Lalos 1983). Another strategy to reduce complications is use of the frameless IUD (Wildemeersch 2007). To date, however, evidence of benefit for the frameless IUD over the conventional IUD is limited to a lower pregnancy rate (though the absolute reduction is small) (O'Brien 2005).

The effectiveness of the IUD with > 250 mm<sup>2</sup> copper is equivalent to that of the more expensive progestogen-impregnated IUD, but with lower rates of expulsion and discontinuation for amenorrhoea (French 2004). A systematic review found the most effective framed copper IUD to be the Copper T 380A (Kulier 2006). In a population-based study in France, the IUD had the lowest failure rate among contraceptive methods (Moreau 2007).

Several epidemiological studies have found the IUD to be associated with a reduced risk of endometrial cancer (Tao 2006; Curtis 2007).

## The IUD and infection

The main reason limiting the use of the IUD in young women is the belief that it may cause pelvic infection. Other than during the immediate post-insertion period, this belief has not been borne out by research evidence (Meirik 2007). A recent review concluded that the use of the IUD is not contraindicated for women with HIV/AIDS, multiple sexual partners, previous actinomyces colonization, most types of fibroids, or previous ectopic pregnancy. The review also concluded that the risk to IUD users of developing pelvic inflammatory disease (PID) is similar to women using no contraception and that IUD use of up to three and a half years is not associated with decreased fertility (Paladine 2006). A subsequent study also confirmed that the use of the IUD is acceptable in high-risk women with a previous history of STIs (Campbell 2007b).

Pelvic infection in women with an IUD in place responds more rapidly to treatment if the IUD is removed (Altunyurt 2003). In one study, use of a stringless IUD was not shown to reduce the risk of pelvic infection (Potts 1991). However, in another randomized trial, leaving the strings inside the uterine cavity was associated with fewer infections (Pap-Akeson 1992). The threads were easily retrieved without analgesia in 84% of women using a Retrieve®. Both the Retrieve® and the 'Emmett' thread retriever have been shown to be highly effective in retrieving missing threads (Bounds 1992). Intrauterine lidocaine may relieve pain during retrieval of 'lost' IUDs (Güney 2007).

A systematic review concluded that the use of prophylactic doxycycline or azithromycin at the time of insertion did not reduce the risk of infection, which was rare with or without antibiotic prophylaxis (Grimes 1999). In a trial conducted in Kenya where rates of genital tract infections were high, there was a trend towards reduced infection, and a significantly reduced number of women returning with problems when doxycycline 200 mg was administered at the time of IUD insertion (Sinei 1990). A specific risk of the IUD is actinomyces infection, which is rare and responds well to treatment with penicillin (Quercia 2006).

### Comparisons of the IUD and hormonal contraception

A randomized trial of the progestogen-impregnated IUD versus oral contraception in young nulliparous women found the rate of discontinuation of the IUD to be somewhat lower than that for oral contraception (Suhonen 2004). In a non-randomized study in Kenya, the rate of discontinuation of the IUD was lower than that for depot medroxyprogesterone acetate (Sekadde-Kigundu 1996), and in Kuwait lower than for oral contraceptives (Shah 2007).

In a randomized trial in HIV infected women, both pregnancy and disease progression were less common in women allocated to the IUD than to hormonal contraception (Stringer 2007). The copper bearing IUD has been considered to have similar effectiveness to injectable progestogens (Trussell 2004). The feasibility of enrolling women into a randomized trial of IUD versus depot progestogen

contraception has been confirmed in a pilot trial conducted by Family Health International (Feldblum 2005).

Despite an extensive literature of observational studies, there is a shortage of high quality randomized trials comparing different family planning methods (Helmerhorst 2006). This review will evaluate the data available and the need for further trials.

## OBJECTIVES

To determine, from the best available evidence, the effectiveness, complications and continuation rates of the copper-containing IUD compared with depot progestogen contraception.

## METHODS

### Criteria for considering studies for this review

#### Types of studies

All published, unpublished and ongoing trials with random allocation to IUD versus depot progestogen contraception and adequate allocation concealment (*see 'Methods of the review'*).

#### Types of participants

Women in the childbearing age group.

Potential subgroup analyses included:

- parity (nulliparous, multiparous)
- STI risk (high, low)
- HIV status (positive, negative, unknown)
- types of copper IUDs or depot progestogens (injectables, implants, mixed hormonal)

#### Types of interventions

Copper-containing IUD compared with depot progestogen contraception alone or compared to mixed hormonal contraception (including a depot progestogen).

#### Types of outcome measures

#### Primary outcomes

1. Unintended pregnancy
2. Discontinuation of the allocated method

## Secondary outcomes

1. time to unintended pregnancy
2. time to discontinuation of the allocated method
3. genital tract infection (within four weeks of initiation and long-term)
4. HIV seroconversion
5. oligo-amenorrhea
6. menorrhagia
7. dysmenorrhea
8. weight gain
9. weight loss
10. nausea/vomiting
11. surgical complications of IUD insertion (e.g. perforation of the uterus)
12. depression
13. bone fracture
14. bone mineral density
15. stroke
16. any adverse event possibly related to contraceptive method
17. involuntary infertility after discontinuation
18. HIV disease progression
19. user satisfaction
20. provider satisfaction
21. cost

## Search methods for identification of studies

We located reports using the Cochrane Fertility Regulation Group trials search strategy.

We searched the CRG trials register, the Cochrane Central Register of Controlled Trials (CENTRAL) (*The Cochrane Library*, 2009 issue), MEDLINE/PUBMED, EMBASE, LILACS and two registers of ongoing controlled trials ([www.clinicaltrials.gov](http://www.clinicaltrials.gov) and the Current Controlled Trials metaRegister).

We also searched the reference lists of identified trials.

We applied the following search strategies:

MEDLINE/PUBMED and the Cochrane Central Register of Controlled Trials (CENTRAL):

(Intrauterine device\* OR IUD\* OR IUD\*)

The [www.clinicaltrials.gov](http://www.clinicaltrials.gov) database:

iud or iuds or IUD or intrauterine device or intrauterine devices [ALL-FIELDS]

The Current Controlled Trials Meta Register:

(iud or iuds or IUD or IUDs or intrauterine device)

There was no language preferences for selection of trials.

## Data collection and analysis

## Data extraction and quality assessment

We assessed identified titles and abstracts and retrieved two full text articles possibly eligible for inclusion. All three authors performed quality assessment and agreed that both studies met the inclusion criteria. We did not exclude any studies. Two authors (MS, TL) carried out data extraction independently using a specially designed data extraction form. Descriptive data included: authors, year of publication, country, time span of the trial, age group, parity, previous contraceptive use, previous infection, HIV status, time of enrolment (e.g. post abortion, postpartum), and specifics of the IUD and the progestogen interventions. We resolved disagreements between authors by consensus.

We assessed trials that met the eligibility criteria for quality using the following criteria.

1. Generation of random allocation sequence: A = adequate, B = inadequate, C = unclear.

2. Allocation concealment: A = adequate (such as central randomization; use of numbered, sealed opaque envelopes), B = unclear whether concealment of allocation is adequate, C = inadequate concealment of allocation (such as alternation), D = concealment of allocation not used.

3. Blinding of participants: A = yes, B = inadequate, C = no, D = no information.

4. Blinding of caregivers: A = yes, B = inadequate, C = no, D = no information.

5. Blinding of outcome assessment: A = yes, B = inadequate, C = no, D = no information.

6. Compliance with allocated intervention: A = less than 3% non-compliance, B = 3% to 9.9% non-compliance, C = 10% or more non-compliance, D = unclear.

7. Completeness of follow-up data (including any differential loss of participants from each group): A = less than 3% of participants excluded, B = 3% to 9.9% of participants excluded, C = 10% to 19.9% excluded, D = 20% or more excluded, E = unclear.

8. Analysis of participants by intention-to-treat: A = yes, B = inadequate, C = no, D = not clear.

## Data analysis

We compared categorical data using relative risks (RR) and their 95% confidence intervals (CI). We tested for statistical heterogeneity between trials using the  $I^2$  statistic, with values greater than 50% indicating significant heterogeneity. In the absence of significant heterogeneity, we pooled data using a fixed-effect model. If there was significant heterogeneity, we used a random-effects model or didn't pool the data, and made an attempt to identify potential sources of heterogeneity (Greenland 1994; Villar 1995) based on subgroup analyses by specific types of contraceptives, HIV status of participants, trial quality, and trial size. When follow-up rates differed substantially, we adjusted denominators proportionally to minimize bias (see [Risk of bias in included studies](#)).

## RESULTS

### Description of studies

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

We identified two randomized trials comparing IUD use with depot progestogen (DMPA) contraception. We have included both in this review; together they involved 967 women. One of these studies evaluated IUD use compared with mixed hormonal contraception (oral contraception or injectable depot-medroxyprogesterone acetate) ([Stringer 2007](#)); the other evaluated IUD compared with injectable DMPA ([Feldblum 2005](#)). See [Characteristics of included studies](#).

### Settings

Both studies were conducted in developing countries: one in Zambia ([Stringer 2007](#)) and the other in Brazil, Guatemala, Vietnam and Egypt ([Feldblum 2005](#)).

### Participants

Women requiring reversible, long-acting contraception. Only HIV positive women were recruited in [Stringer 2007](#). Subgroup analysis was undertaken by specific types of contraceptives used.

### Outcome assessments

Primary outcomes, discontinuation of allocated method and unintended pregnancy, were recorded as the number (%) of women in each group in [Feldblum 2005](#) and as women per 100 patient years in [Stringer 2007](#) (see [Risk of bias in included studies](#)). Regarding our secondary outcomes, only infection and HIV disease progression were evaluated in either of these studies. PID was assessed using CDC diagnostic criteria or Hagar's criteria. In [Feldblum 2005](#), endocervical specimens were taken for gonorrhoea culture and chlamydia antigen. In [Stringer 2007](#), HIV disease progression was evaluated by CD4 counts ( $CD4 < 200$  cells/ $\mu$ L) and death.

### Risk of bias in included studies

We considered allocation concealment adequate in both studies (sealed, sequentially numbered, opaque envelopes). Blinding was not possible in either due to the type of interventions (IUD insertion or injections). We considered random sequence generation adequate in both studies.

In [Stringer 2007](#), the duration of follow up differed between the experimental groups. The results were therefore reported as outcomes per 100 patient years. To minimize bias, we adjusted the denominators of the groups to compensate for the different durations of follow up. We did this using the following equation: *woman-years of follow up in the group / total woman-years follow up x total number enrolled*. Whilst we acknowledge that this is not perfectly accurate as it assumes a consistent risk of the outcome over time which is not necessarily the case, we consider it to be a reasonable approximation.

Also in [Stringer 2007](#), after randomization to the hormonal group, women were allowed to choose and to switch between oral and injectable depot progestogen contraception and so it was not possible to compare each hormonal method separately to the IUD group. Most women (63%) chose depot progestogen.

In [Feldblum 2005](#), the total number of women assessed for each outcome measure was not recorded and denominators were expressed as the total number enrolled. After contacting the authors, we decided, for this review, to exclude those women lost to follow up in each group.

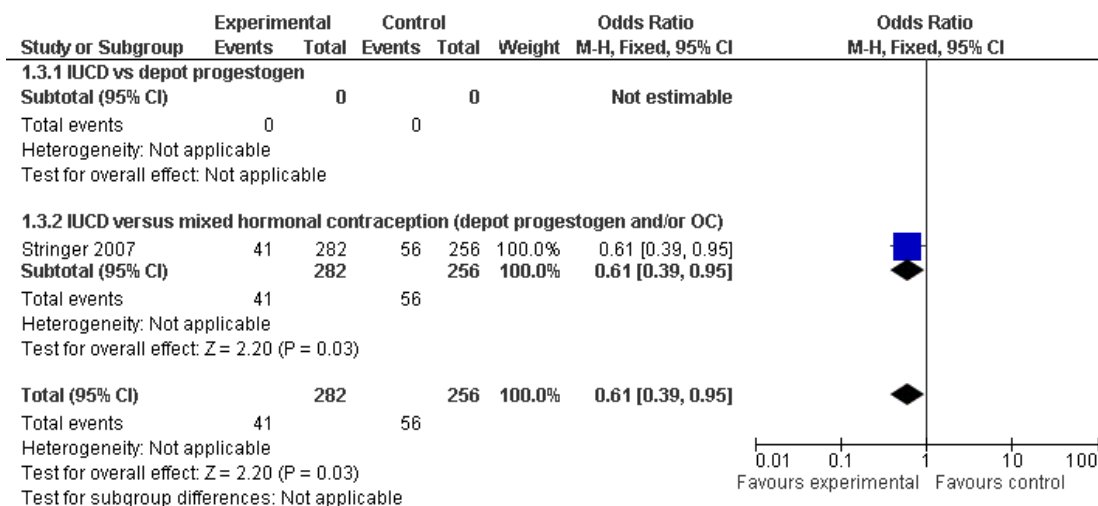
### Effects of interventions

Based on the limited data of these two studies, the IUD is more effective than depot progestogens at preventing pregnancy (risk ratio (RR) 0.45; 95% confidence interval (CI) 0.24 to 0.84).

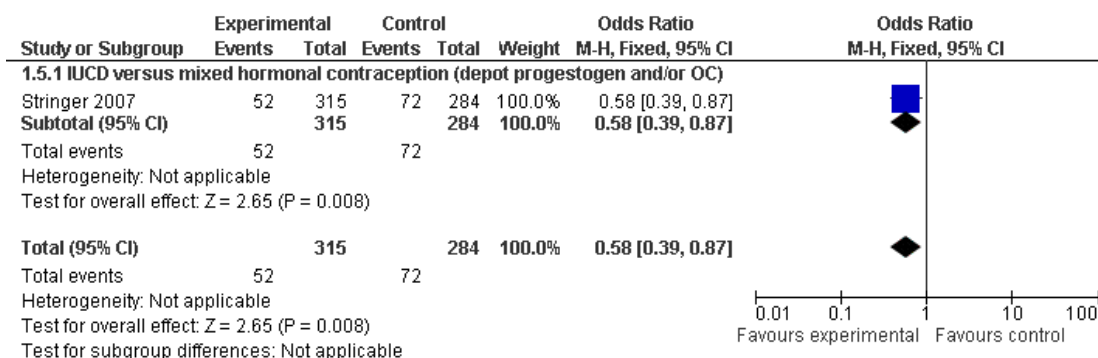
Regarding rates of discontinuation of contraception method, [Feldblum 2005](#) had a higher discontinuation rate in the depot group and [Stringer 2007](#) had a higher discontinuation rate in the IUD group.

HIV positive participants in [Stringer 2007](#) were less likely to experience HIV/AIDS disease progression (including death) in the IUD group than in the depot progestogen group (RR 0.58; 95% CI 0.39 to 0.87) ([Figure 1](#), [Figure 2](#)).

**Figure 1. Forest plot of comparison: I IUD versus DMPA, outcome: I.4 HIV disease progression: CD4<200.**



**Figure 2. Forest plot of comparison: I IUD versus DMPA, outcome: I.5 HIV disease progression (CD4<200 or death).**



The incidence of PID was low in both groups and not significantly different.

## DISCUSSION

The two studies included in the review were consistent with respect to the finding of fewer pregnancies in women allocated to IUD versus hormonal contraception.

This review found a disparity in discontinuation rates between studies that could be due to a difference in method acceptability in the different populations of women studied. However it is also

possible that women in the [Stringer 2007](#) study were less likely to discontinue the hormonal contraception as, if they were dissatisfied with one hormonal method, they were given the option of switching to an alternative hormonal method.

Since mixed hormonal contraception was used in [Stringer 2007](#), it is possible that the effect on HIV disease progression was due mainly to the depot progestogen or mainly to the oral contraceptive pill or due to both. A secondary analysis of their data in [Stringer 2009](#) suggests the latter. As the finding of reduced disease progression with the IUD was not based on a prior hypothesis, the finding needs to be confirmed in a new study.

## AUTHORS' CONCLUSIONS

### Implications for practice

This review has found a lower rate of pregnancy in women allocated to the IUD versus hormonal contraception. This information will be useful for counselling women regarding their choice of contraception. The importance of choice and the option to change methods is suggested (though indirectly) by the fact that discontinuation of hormonal contraception relative to the IUD was less in the study in which women were allowed to choose and change between different hormonal contraception methods. HIV positive women should be given the option of using an IUD while we await the results of larger trials comparing long term contraception methods.

### Implications for research

The studies reviewed had a limited range of outcomes and relatively small sample sizes. Further research should investigate other outcomes such as bone density (especially in the context of HIV), depression, weight gain, dysmenorrhoea, menorrhagia and user satisfaction. Highly important, in the light of the data in this review, is the need for large trials to investigate the impact of these contraception methods on HIV acquisition/seroconversion and HIV disease progression.

## ACKNOWLEDGEMENTS

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\* Indicates the major publication for the study

## CHARACTERISTICS OF STUDIES

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

#### Feldblum 2005

Methods	368 sexually active women randomized to receive a copper IUD or depot-medroxyprogesterone acetate.	
Participants	Women attending family planning clinics in Brazil, Guatemala, Egypt and Vietnam included if sexually active, requiring contraception and willing to use either IUD or DMPA for a period of at least a year. Excluded if medical contraindications to IUD or DMPA; pregnancy; suspected of having a current STI; currently using an IUD; DMPA injection within the past 6 months.	
Interventions	IUD (TCu 380A) inserted or 3-monthly injections of 150mg DMPA.	
Outcomes	PID using CDC diagnostic criteria; STIs namely gonorrhoea (endocervical specimen culture) and chlamydia (Antigen).	
Notes	Study was stopped after one year due to the fact that it was mainly a feasibility study. At this time, only 32% of women had completed 12 months. Loss to follow up at trial closure was 17.9%.	
<b><i>Risk of bias</i></b>		
<b>Item</b>	<b>Authors' judgement</b>	<b>Description</b>
Allocation concealment?	Yes	Sequentially numbered, sealed, opaque envelopes were used.

#### Stringer 2007

Methods	599 HIV-infected women randomized to IUD or mixed hormonal contraception and followed up for at least two years.	
Participants	HIV-infected postnatal women attending two primary clinics in Lusaka, Zambia. Included if at least sixteen years old, desired contraception for at least two years, and reported two or less sexual partners in the previous year. Excluded if advanced HIV disease (WHO stage III or IV), a history of a bleeding disorder, a history of PID within previous 5 years or < 16 years old.	
Interventions	IUD (TCu 380A) or hormonal contraception (either DMPA (150mg) or the OCP offered). If OCP, levonorgestrel 0.03mg/d only for six months, then switched to the COCP with levonorgestrel 0.15mg and estradiol 0.03mg/d).	
Outcomes	Pregnancy (hCG), PID (Hagar's criteria), method discontinuation, clinical disease progression (death, CD4 and FBC).	

Notes	The trial suffered quite a high loss to follow up (68% in the OC group and 77% in the IUD group), recorded as 'patient years' that differed significantly between the two groups. To avoid bias (as would be the case if we used the raw number originally allocated as the denominator), we adjusted the denominators to compensate for the different durations of follow up. We did this using the following equation: <i>woman-years of follow up in the group / total woman-years follow up x total number enrolled</i> . Whilst we acknowledge that this is not perfectly accurate, as it assumes a consistent risk of the outcome over time which is not necessarily the case, we consider this to be a reasonable approximation.	
<b><i>Risk of bias</i></b>		
<b>Item</b>	<b>Authors' judgement</b>	<b>Description</b>
Allocation concealment?	Yes	Sequentially numbered opaque envelopes were used.

CD4: cluster of differentiation 4

COCP: combined oral contraceptive pill DMPA: depot medroxyprogesterone acetate

FBC: full blood count

IUD: intrauterine device

OC: oral contraceptive

OCP: oral contraceptive pill

PID: pelvic inflammatory disorder

STI: sexually transmitted infection

## DATA AND ANALYSES

### Comparison 1. IUCD versus depot progestogen

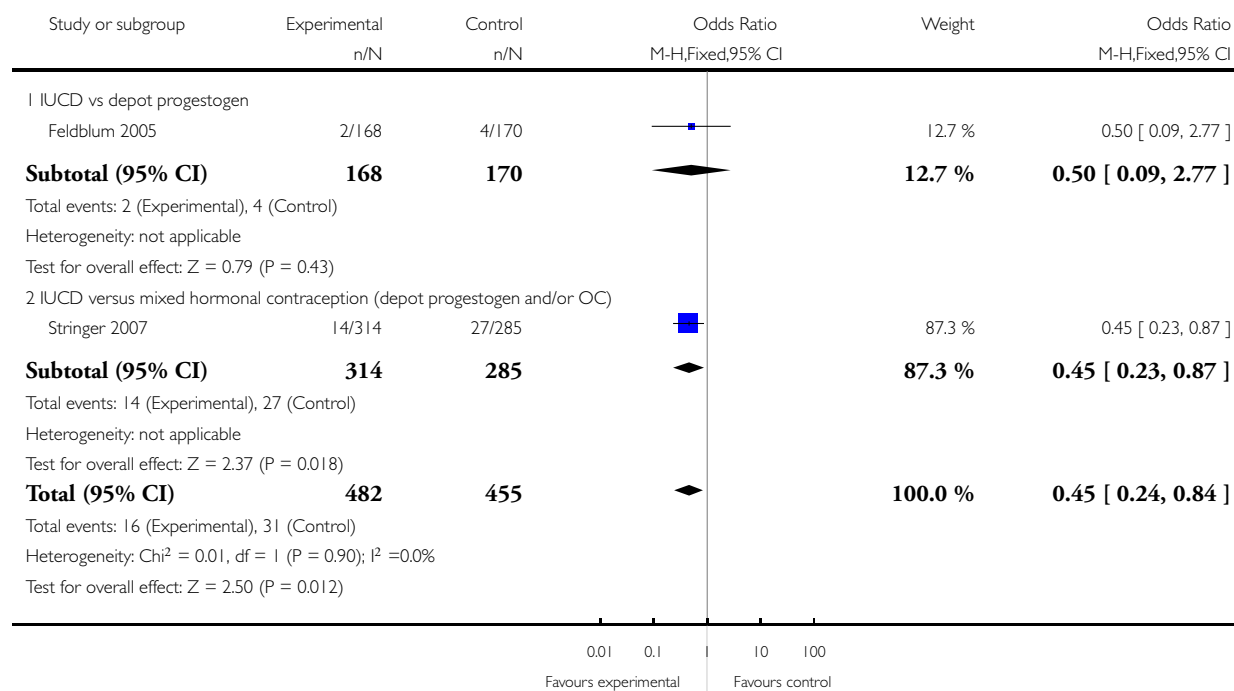
Outcome or subgroup title	No. of studies	No. of participants	Statistical method	Effect size
1 Pregnancy	2	937	Odds Ratio (M-H, Fixed, 95% CI)	0.45 [0.24, 0.84]
1.1 IUCD vs depot progestogen	1	338	Odds Ratio (M-H, Fixed, 95% CI)	0.5 [0.09, 2.77]
1.2 IUCD versus mixed hormonal contraception (depot progestogen and/or OC)	1	599	Odds Ratio (M-H, Fixed, 95% CI)	0.45 [0.23, 0.87]
2 Discontinuation of allocated method	2		Odds Ratio (M-H, Fixed, 95% CI)	Subtotals only
2.1 IUCD vs depot progestogen	1	338	Odds Ratio (M-H, Fixed, 95% CI)	0.14 [0.06, 0.34]
2.2 IUCD versus mixed hormonal contraception (depot progestogen and/or OC)	1	599	Odds Ratio (M-H, Fixed, 95% CI)	7.55 [5.00, 11.38]
3 HIV disease progression: CD4 < 200	1	538	Odds Ratio (M-H, Fixed, 95% CI)	0.61 [0.39, 0.95]
3.1 IUCD vs depot progestogen	0	0	Odds Ratio (M-H, Fixed, 95% CI)	Not estimable
3.2 IUCD versus mixed hormonal contraception (depot progestogen and/or OC)	1	538	Odds Ratio (M-H, Fixed, 95% CI)	0.61 [0.39, 0.95]
4 HIV disease progression: death	1	599	Odds Ratio (M-H, Fixed, 95% CI)	0.69 [0.33, 1.44]
4.1 IUCD versus mixed hormonal contraception (depot progestogen and/or OC)	1	599	Odds Ratio (M-H, Fixed, 95% CI)	0.69 [0.33, 1.44]
5 HIV disease progression (CD4 < 200 or death)	1	599	Odds Ratio (M-H, Fixed, 95% CI)	0.58 [0.39, 0.87]
5.1 IUCD versus mixed hormonal contraception (depot progestogen and/or OC)	1	599	Odds Ratio (M-H, Fixed, 95% CI)	0.58 [0.39, 0.87]
6 Pelvic inflammatory disease	2	937	Odds Ratio (M-H, Fixed, 95% CI)	3.90 [0.44, 34.91]
6.1 IUCD vs depot progestogen	1	338	Odds Ratio (M-H, Fixed, 95% CI)	5.12 [0.24, 107.45]
6.2 IUCD versus mixed hormonal contraception (depot progestogen and/or OC)	1	599	Odds Ratio (M-H, Fixed, 95% CI)	2.75 [0.11, 67.79]

### Analysis 1.1. Comparison 1 IUCD versus depot progestogen, Outcome 1 Pregnancy.

Review: Copper containing intra-uterine devices versus depot progestogens for contraception

Comparison: 1 IUCD versus depot progestogen

Outcome: 1 Pregnancy

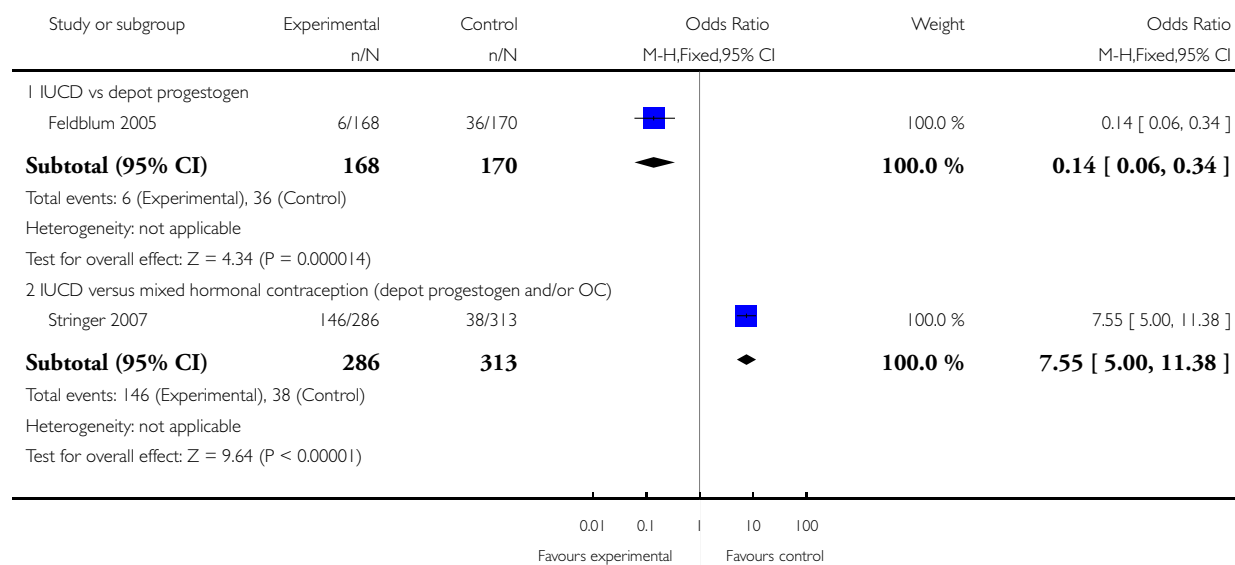


## Analysis 1.2. Comparison 1 IUCD versus depot progestogen, Outcome 2 Discontinuation of allocated method.

Review: Copper containing intra-uterine devices versus depot progestogens for contraception

Comparison: 1 IUCD versus depot progestogen

Outcome: 2 Discontinuation of allocated method

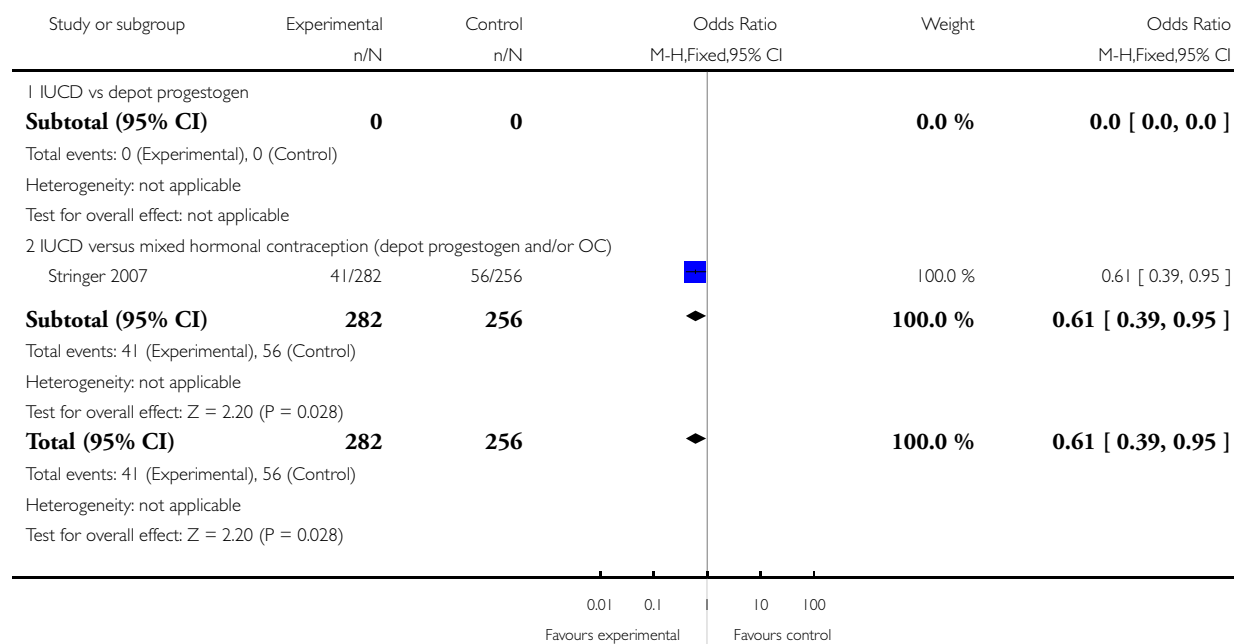


### Analysis 1.3. Comparison 1 IUCD versus depot progestogen, Outcome 3 HIV disease progression: CD4 < 200.

Review: Copper containing intra-uterine devices versus depot progestogens for contraception

Comparison: 1 IUCD versus depot progestogen

Outcome: 3 HIV disease progression: CD4 < 200

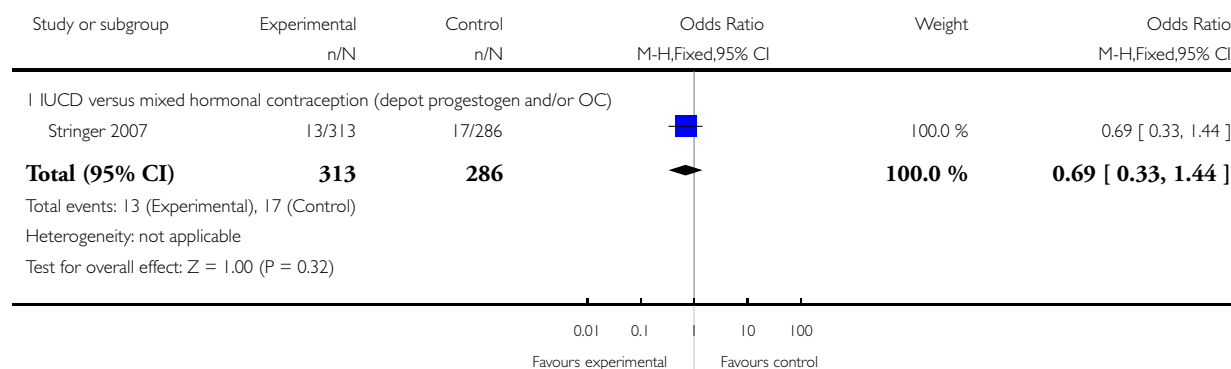


### Analysis 1.4. Comparison 1 IUCD versus depot progestogen, Outcome 4 HIV disease progression: death.

Review: Copper containing intra-uterine devices versus depot progestogens for contraception

Comparison: 1 IUCD versus depot progestogen

Outcome: 4 HIV disease progression: death

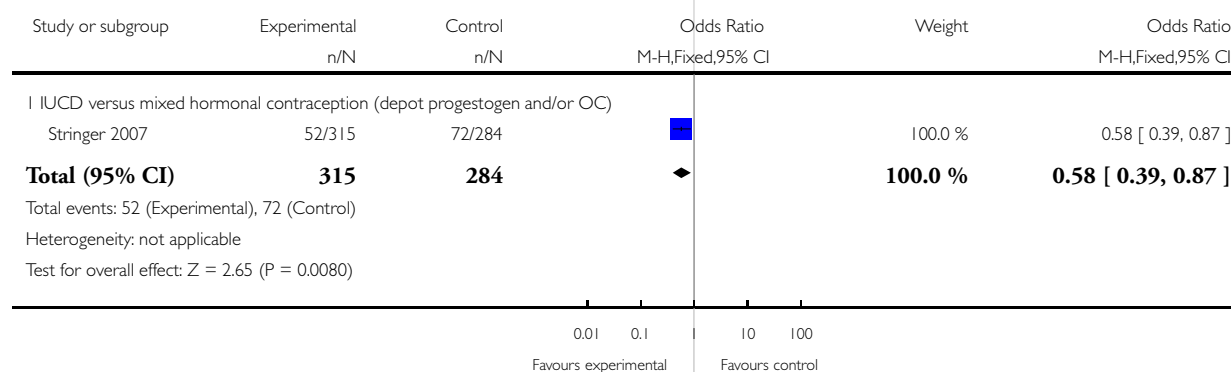


### Analysis 1.5. Comparison 1 IUCD versus depot progestogen, Outcome 5 HIV disease progression (CD4 < 200 or death).

Review: Copper containing intra-uterine devices versus depot progestogens for contraception

Comparison: 1 IUCD versus depot progestogen

Outcome: 5 HIV disease progression (CD4 < 200 or death)

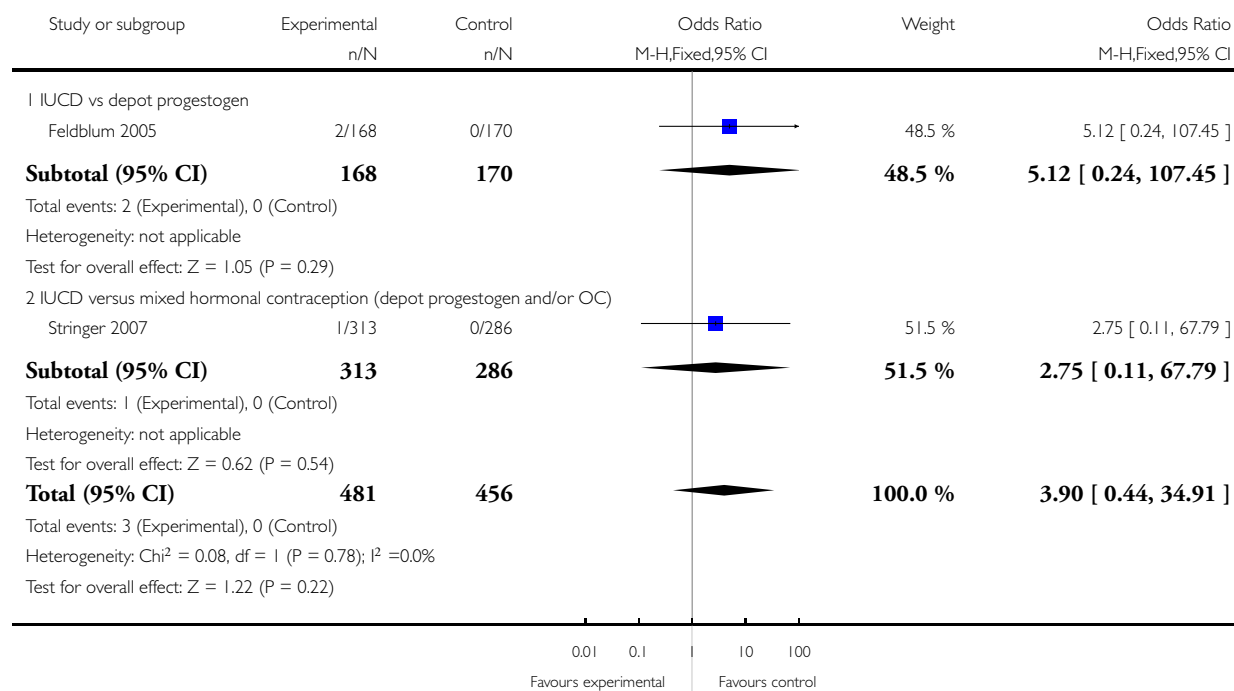


## Analysis 1.6. Comparison 1 IUCD versus depot progestogen, Outcome 6 Pelvic inflammatory disease.

Review: Copper containing intra-uterine devices versus depot progestogens for contraception

Comparison: 1 IUCD versus depot progestogen

Outcome: 6 Pelvic inflammatory disease



## HISTORY

Protocol first published: Issue 2, 2008

Review first published: Issue 6, 2010

9 November 2009	Amended	new author added
13 October 2009	Amended	Submission draft completed
27 August 2009	Amended	First draft of review completed
19 April 2008	Amended	Converted to new review format.
3 December 2007	New citation required and major changes	Substantive amendment

## CONTRIBUTIONS OF AUTHORS

GJH prepared the first draft of the protocol. MS reviewed the draft. GJH, MS and TL extracted data. TL prepared the first draft of the review, which was contributed to by GJH and MS.

## DECLARATIONS OF INTEREST

Two authors (MS and GJH) are proposing to undertake a randomized trial of IUD versus depot progestogen contraception. Any decision related to the inclusion of this trial in the review will be taken by TL and an independent expert, such as a Review Group editor.

## SOURCES OF SUPPORT

### Internal sources

- (GJH) Effective Care Research Unit, University of the Witwatersrand, University of Fort Hare, Eastern Cape Department of Health, South Africa.
- (MS) Effective Care Research Unit, University of the Witwatersrand, University of Fort Hare, Eastern Cape Department of Health, South Africa.

### External sources

- UNDP/UNFPA/WHO/World Bank (HRP, Switzerland).

## DIFFERENCES BETWEEN PROTOCOL AND REVIEW

Reference to articles by [Morrison 2009](#) and [Myer 2007](#) have been included in the background of the review. Under 'Methods', we have added women using 'mixed hormonal contraception' to the subgroup analyses.