Systematic review

What is the impact of contraceptive methods and mixes of contraceptive methods on contraceptive prevalence, unmet need for family planning, and unwanted and unintended pregnancies?

by Heather MacKenzie, Amy Drahota, Sasseendran Pallikadavath, Willian Stones Taraneh Dean, Carole Fogg, Rebecca Stores, Sally Kilburn, Ann Dewey and Reuben Ogollah

November 2013

UKaid from the British people

University of Portsmouth School of Health Sciences and Social Work

EPPI CENTRE

IOE LONDON Leading education and social research Institute of Education University of London

This material has been funded by the Department for International Development. The views expressed do not necessarily reflect the views of the Department for International Development. The authors are part of the University of Portsmouth, UK, and Aga Khan University, Kenya; and were supported by the Evidence for Policy and Practice Information and Co-ordinating Centre (EPPI-Centre).

The EPPI-Centre reference number for this report is 2108.

MacKenzie H, Drahota A, Pallikadavath S, Stones W, Dean T, Fogg C, Stores R, Kilburn S, Dewey A, Ogollah R (2013) What is the impact of contraceptive methods and mixes of contraceptive methods on contraceptive prevalence, unmet need for family planning, and unwanted and unintended pregnancies? An overview of systematic reviews. EPPI-Centre, Social Science Research Unit, Institute of Education, University of London.

ISBN: 978-1-907345-61-6

Contents

List of abbreviations

CBA	Controlled before and after study
CCT	Controlled clinical trial
COC	Combined oral contraception
CPR	Contraceptive prevalence rate
DHS	Demographic and health surveys
EC	Emergency contraception
FPE	Family planning programme effort Index
ICPD	International conference on population and development
ITS	Interrupted time series
IUD	Intrauterine device
LAM	Lactational amenorrhea method
MCH	Maternal and child health
MDG	Millennium development goal
OC	Oral contraception
OoR	Overview of systematic reviews
RCT	Randomised controlled trial
RR	Risk ratio

Abstract

Background

In many low-and middle-income countries, there is high maternal, infant and child mortality due in part to low contraceptive use and high unmet need for family planning. The aim of this overview of systematic reviews is to synthesise the findings of systematic reviews conducted in this area to assess the impact of various contraceptive methods and mixes of contraceptive methods on contraceptive prevalence, unwanted and unintended pregnancies, and unmet need (a desire to limit the number of children but not currently using any contraception) for family planning in developing countries/regions.

Methods

Eight databases (Bioline international, The Cochrane Library, Latin American and Caribbean Health Sciences Literature - LILACS, Popline, PubMed, Turning Research Into Practice, World Health Organisation Reproductive Health Library and Zetoc) were searched from 28 October 2010 to 08 December 2010. Cochrane and non-Cochrane systematic reviews were included. Eligible reviews included studies whose participants were sexually active women or men from countries classified as 'developing', 'low-income' or 'middle-income'. Systematic reviews of any intervention (or combination of interventions) designed to increase contraceptive prevalence, reduce fertility or both were eligible. Data were extracted and synthesised narratively. A Measurement Tool to Assess Systematic Reviews, AMSTAR, was used to evaluate the quality of the included systematic reviews, and Grading of Recommendations, Assessment, Development and Evaluation (GRADE) was used to evaluate the quality of the body of evidence for each comparison. To aid the interpretation of the findings for a variety of settings, relevant contextual information was presented where possible.

Results

There were 22 systematic reviews included in this overview of reviews. The overview examined a range of contraceptive methods, including modern (terminal and spacing) and traditional methods (such as withdrawal and periodic abstinence which do not require contraceptive substances or devices and also do not require clinical procedures). However, the systematic reviews included did not address all the objectives of the overview.

The results of the review are summarised below according to the objectives.

***Objective 1**: To assess the impact of various contraceptive methods and mixes of contraceptive methods on contraceptive prevalence in developing countries/regions.*

There was no systematic review that met this objective.

***Objective 2**: To assess the impact of various contraceptive methods and mixes of contraceptive methods on unwanted and unintended pregnancies in developing countries/regions.*

The body of evidence for the relative efficacy or effectiveness of a variety of contraceptive methods to prevent pregnancy in developing countries was generally rated as of low or moderate quality. There was, however, a number of comparisons (between different derivatives of the same contraceptive methods) for which the evidence was rated as of high or moderate quality. Evidence from systematic

reviews is lacking on the acceptability of contraceptive methods and their impact on prevalence and on unmet needs for family planning. The evidence for the relative effectiveness of a variety of contraceptive methods to prevent pregnancy in developing countries is generally of low quality. There is some high-quality evidence comparing different derivatives of the same contraceptive methods, although this is more often evidence of efficacy than evidence of effectiveness.

***Objective 3**: To assess the impact of various contraceptive methods and mixes of contraceptive methods on unmet need for family planning in developing countries/regions.*

There was no systematic review that met this objective.

Limitations and conclusions

This overview of reviews could not identify any systematic reviews that could answer all the questions set out in the protocol, particularly those related to outcomes such as contraceptive prevalence and unmet need for contraception. This indicates lack of evidence either in the form of systematic reviews or in primary research. Thus, this overview of reviews points out the need to either undertake systematic reviews or RCTs (where these are possible) or non-RCT/observational studies (where RCTs are not possible). The overview of reviews, however, did provide an opportunity to compare the effectiveness of various contraceptive methods on outcome measures such as pregnancy and continuation. However much of the available evidence in this area is based on a limited number of poorly conducted studies comparing different formulations of the same type of contraceptive; there is a lack of evidence from well-designed studies comparing different types of contraceptives in developing country settings across a wider range of outcomes (e.g. to include birth spacing and unmet need for family planning). It was not possible to present evidence on the included outcomes for a number of types of contraception: male condoms, female condoms, diaphragms, vasectomy, skin patches and vaginal rings. The evidence examining traditional methods was particularly weak.

Executive summary

Background

Unintended pregnancies contribute towards accelerated population growth, and lead to closely spaced pregnancies and births, early childbearing and abortions. These in turn contribute to high maternal and infant mortality (Sedgh et al., 2006). Despite the existence of official family planning programmes, in many developing countries, contraceptive prevalence is low (United Nations, 2011) and women continue to have an unmet need for family planning (USAID, 2005). In general, access to a wide range of contraceptive methods is linked to higher levels of overall contraceptive prevalence (Ross et al., 2002; Magadi and Curtis, 2003). Factors such as policy, provider bias, history of a method within a country, properties of methods (e.g. effectiveness), acceptability and client characteristics also play a role in the methods utilised by the population (Sullivan et al., 2006). Hence, context is an important consideration and there is a need to examine the impact of different contraceptives (and combinations of contraceptives) on unmet need for family planning in the context of each developing country. Systematic reviews have been conducted in this area, but this evidence has not been brought together, and has not always been examined taking into account contextual factors. We therefore conducted an overview of systematic reviews to enable policy makers to identify those contraceptive methods (or range of contraceptive methods) likely to be most successful in the context of a particular country or region.

Objectives

Given the above background and conceptual framework, the specific objectives of the proposed overview of systematic reviews (OoR) are:

- To assess the impact of various contraceptive methods and mixes of contraceptive methods on contraceptive prevalence in developing countries/regions.
- To assess the impact of various contraceptive methods and mixes of contraceptive methods on unwanted and unintended pregnancies in developing countries/regions.
- To assess the impact of various contraceptive methods and mixes of contraceptive methods on unmet need for family planning in developing countries/regions.

Wherever possible, the review will try to provide findings for various regions: Sub-Saharan Africa, North Africa, South Asia, Southeast Asia, West Asia, Latin America and the Caribbean.

Methods

This was an overview of Cochrane and non-Cochrane systematic reviews of randomised and non-randomised trials, observational studies and economic evaluations. Eligible reviews included studies whose participants were sexually active women or men from countries classified as ‘developing’, ‘low-income’ or ‘middle-income’. Systematic reviews of any intervention (or combination of interventions) designed to increase contraceptive prevalence, reduce fertility or both (in order to prevent unwanted pregnancies; delay pregnancies; space pregnancies; limit fertility) were eligible. Primary outcomes of interest were

contraceptive prevalence, unwanted pregnancies, unintended pregnancies and unmet need for family planning. Secondary outcomes were initiation of contraceptive use, continuation of contraceptive use, adherence to contraception, time between pregnancies and time between births. Searches were carried out in the following databases: Bioline international, The Cochrane Library, LILACS, Popline, PubMed, TRIP, WHO Reproductive Health Library and Zetoc, from 28 October 2010 to 08 December 2010, with no restriction on date. The search strategy included key words that could capture all studies on family planning and associated interventions, without limits on the primary and secondary outcomes. Titles and full texts were independently screened by two review authors. Data were extracted from included studies by two independent review authors using a data collection form designed for this review. Disagreements were resolved via a third author and discussion amongst the team. The AMSTAR tool was used to assess how well the included reviews were conducted. The GRADE approach (Grading of Recommendations, Assessment, Development and Evaluation) was used to assess the overall quality of the evidence in the included studies. The overall approach to synthesis was descriptive, and we did not seek to run a meta-analysis based on the pooled results from systematic reviews, as there was heterogeneity across the reviews. Data were interpreted with respect to the quality of the evidence.

Details of the included reviews

Twenty-two systematic reviews were included in this overview, twenty of which were Cochrane systematic reviews and two of which were articles in peer-reviewed journals. The systematic reviews can be grouped into ten types of contraception (examined at different levels): natural family planning, injectables, intrauterine devices, oral contraceptives, emergency contraception, sterilisation, spermicides, reversible contraception, and hormonal and non-hormonal contraception. The reviews assessed a wide variety of outcomes; however, of these only certain outcomes met the inclusion criteria for the overviews; continuation/ discontinuation of contraceptives and pregnancy. Within the included systematic reviews, data could be extracted from studies conducted in a number of developing countries (some of which were multi-centre: Argentina, Bangladesh, Brazil, Colombia, Chile, China, Ecuador, Egypt, Ghana, Guatemala, India, Indonesia, Kenya, Malaysia, Mexico, Nepal, Nigeria, Pakistan, Peru, the Philippines, Poland, Taiwan, Thailand, Turkey, Vietnam, Zambia) and over a wide range of dates (1973-2007).

Synthesis results and conclusions

Results

The results are presented according to the objectives of the study. The majority of the individual studies included in the systematic reviews were randomised or non-randomised trials. In many systematic reviews very little information is available about how individual studies (within systematic reviews) have recruited participants for various trials, how many have participated in the trials and how many have discontinued trials. This would have helped to examine the acceptability or effectiveness/efficacy of various contraceptive methods.

Evidence from systematic reviews is lacking about the acceptability of contraceptive methods, and their impact on prevalence and on unmet needs for family planning. The relative effectiveness of a variety of contraceptive methods to prevent pregnancy in developing countries is generally of low quality. There is some high-quality evidence comparing different derivatives of the same contraceptive method, although this is more often evidence of efficacy than evidence of effectiveness.

Objective 1: To assess the impact of various contraceptive methods and mixes of contraceptive methods on contraceptive prevalence in developing countries/regions

There was no systematic review that met this objective.

***Objective 2**: To assess the impact of various contraceptive methods and mixes of contraceptive methods on unwanted and unintended pregnancies (and continuation and discontinuation of family planning methods) in developing countries/regions.*

The body of evidence for the relative effectiveness of a variety of contraceptive methods to prevent pregnancy in developing countries was generally rated as of low or moderate quality. There was, however, a number of comparisons (between different derivatives of the same contraceptive methods) for which the evidence was rated as of high or moderate quality.

In the following paragraphs we present the efficacy or effectiveness of each modern and traditional family planning methods on pregnancy, and on continuation and discontinuation.

Pregnancy

MODERN CONTRACEPTIVE METHODS

- **Female sterilisation:** There was only one systematic review dealing with female sterilisation; there was moderate-quality evidence from two RCT studies (number of participants: 724) demonstrating that rings and clips are equally efficacious to prevent pregnancy (Peto OR=1.09, 95%CI 0.22, 5.36), although evidence on other methods of tubal occlusion is of low quality.
- **The pill (oral contraception):** Seven systematic reviews examining oral contraceptives contained data from developing countries and were included in this overview of reviews. For the majority of comparisons, the evidence suggests that there was no difference in effectiveness between a variety of oral contraceptive formulations and modes of administration, and for all comparisons, pregnancy rates were low in each group. However, the quality of evidence ranged widely, from very low to moderate, and follow-up was generally short. There is, however, moderate-quality evidence from two RCT studies (number of participants: 2,074) in the case of one oral contraceptive to favour a second-generation pill (monophasic norgestrel 0.3mg/EE 30mcg) over the first (monophasic norethindrone acetate 1.5mg/EE 30mcg) (RR=0.12, 95% CI 0.02, 0.99) in preventing pregnancy.
- **Intrauterine devices**: There is high-quality evidence from one systematic review to support the programmatic use of the TCU380A intrauterine device over the Multiload Cu375 device: (rate difference = 0.75, (95% CI 0.13, 0.37) at one year (2 RCT studies, 3,371 participants), and 1.50 (95% CI 0.09, 2.91), at two years follow-up (1 RCT study, 1,894 participants).
- **Injectables**: Although moderate-quality evidence from one systematic review of two RCT studies (number of participants:4272) suggests that there is little to favour the use of two-monthly injections of NET-EN/E2V 50mg over three-monthly injections of DMPA/E2c 5mg (Peto OR=0.75 (95%CI 0.67,0.84), there was no difference in the effectiveness of pregnancy prevention (one RCT study with 3,915 participants: Peto OR = 1.95, 95% CI 0.53, 7.20). Where newer products are concerned, the evidence favours NET-EN/E2V over DMPA/E2C, since it is equally effective at reducing the risk of pregnancy. There are as yet insufficient data from developing countries to evaluate the comparison of the newer NET-EN/E2V formulation against the 'traditional' DMPA 150 mg regimen. There is moderate-quality evidence from one systematic review of one RCT study that copper intrauterine devices (IUDs) are no more effective than depot

progestogens to prevent pregnancy.

- **Implants**: Low-quality evidence from one systematic review (number of participants: 1,219) suggests that the two implants Implanon and Norplant reduce the risk of pregnancy.
- **Emergency contraception (EC)**: There is moderate-quality evidence from one systematic review of 19 RCT studies that mid-dose mifepristone (25-50mg) is more effective than low-dose mifepristone (<25mg) for emergency contraception (RR= 0.66, 95% CI 0.47, 0.91; number of participants: 11432). There is no added benefit in combination formulations of mifepristone with other agents.
- **Foam/jelly (spermicides)**: The is moderate-quality evidence from one systematic review that there is no difference between a variety of spermicides: between Neo sampoon tablet (menfegol 60mg) and Ortho/Emko vaginal tablet (100mg of nonoxynol-9) (3 RCT studies; number of participants: 672); moderate quality evidence between Ortho vaginal tablet (100mg of nonoxynol-9) and Emko vaginal tablet (nonoxynol-9 (2 RCT studies; number of participants: 440); and moderate quality evidence between Neo sampoon tablet (menfegol 60mg) and Emko foam (nonoynol-9 8%) (2 RCT studies; number of participants: 620). There is low-quality evidence that collatex sponge (nonoxynol-9 1.15mg) was no different from neo sampoon tablet (menfegol 60 mg) (one RCT study; number of participants: 1,299).

TRADITIONAL METHODS

- Periodic abstinence: The low-quality evidence reported by the systematic review on the comparison between the ovulation method and the symptothermal method (one systematic review, no information on number of participants) did not report any pregnancies occurring in either group and found relatively high discontinuation for both methods.
- Lactational amenorrhea method (LAM): The evidence in this area was poor (two systematic reviews and two non-RTC studies; number of participants in these studies was 676 and 735 respectively), which made it difficult to draw any firm conclusions.

Continuation and discontinuation

MODERN METHODS

- **Oral contraception**: Seven systematic reviews examining oral contraceptives contained data from developing countries and were included in this overview of reviews. For the majority of comparisons, the evidence suggested that there was no difference in discontinuation between a variety of oral contraceptive formulations and modes of administration.
- **Intrauterine devices**: Four of the five comparisons provide moderate evidence of no difference in discontinuation. These are as follows: LNG-20 versus a non-hormonal IUD ≤250mm^2 (rate ratio at 2 years follow-up: 0.93, 95% CI: 0.80-1.07, 1 study and 2118 participants), MLCu250 versus TCu380A (rate difference at 1 year follow-up: −1.50 [−1.26, 4.26], 1 study and 2,043 participants) and also the TCu220 when compared with the TCu380A (rate difference at 1 year follow-up: −3.00, 95% CI: −7.21, 1.21, 1 study and 857 participants). Similarly, there is moderate evidence of no difference in discontinuation for the TCu200 versus the TCu380A (rate difference at 1 year follow-up: 1.00, 95% CI: −2.96, 4.96, 1 study and 1,678 participants). For the remaining comparison, there is low-quality evidence of no difference between LNG-20 versus subdermal implants (rate ratio at 1 year: 0.97, 95% CI: 0.72-1.31, 1 study and 200 participants).

- **Injectables**: There is moderate-quality evidence that DMPA 25mg/E2C 5mg has lower discontinuation than NET-EN 50mg/E2V 5mg (Peto OR = 0.75, 95%CI: 0.67, 0.84, 2 RCT studies and 4,272 participants). There is also moderate-quality evidence to suggest that there is no difference in discontinuation between administering DMPA 150mg IM every 3 months versus NET-EN 200mg IM every 2 months (10 RCT studies and 2,467 participants). Additionally, there is low-quality evidence suggesting that discontinuation is higher with DMPA 25mg/E2C 5mg than with DMPA 150mg (1 RCT study and 360 participants), and with NET-EN 50mg/E2V 5mg than with NET-EN 200mg (1 RCT study and 849 participants).
- **Implants**: Low-quality evidence from one systematic review (number of participants: 1,219) suggests that the two implants Implanon and Norplant have no difference in discontinuation rates over a long period.
- **Spermicides**: This review presents low-quality evidence to suggest that there is no difference in rates of discontinuation between collatex sponge (nonoxynol-9 1.15mg) and Neo sampoon tablet (menfegol 60mg) (1 RCT study and 1,299 participants), between Neo sampoon tablet (menfegol 60mg) and Emko foam (nonoxynol-9 8%) (2 RCT studies and 620 participants), nor between vaginal foaming tablets containing nonoxynol-9 (1.15mg) (2 RCT studies and 440 participants) and those containing menfegol 60mg (3 RCT studies and 672 participants).

Gaps in the evidence: It was not possible to present evidence on the included outcomes for a number of types of contraception: male condoms, female condoms, diaphragms, vasectomy, skin patches or vaginal rings.

TRADITIONAL METHODS

- **Periodic abstinence**: The low-quality evidence reported by the systematic review for the comparison between the ovulation method and the symptothermal method (one systematic review, no information on number of participants) found relatively high discontinuation for both methods.
- **Lactational amenorrhea method (LAM)**: The evidence in this area was poor (two systematic reviews and two non-RTC studies; number of participants in these studies was 676 and 735 respectively), which made it difficult to draw any firm conclusions.

Gaps in the evidence: It was not possible to present evidence on the included outcomes for the withdrawal method, and the quality of the evidence for other types of contraception was poor.

***Objective 3**: To assess the impact of various contraceptive methods and mixes of contraceptive methods on unmet need for family planning in developing countries/regions.*

There was no systematic review that met this objective.

Limitations and conclusions

The overview of reviews (OoR) could not identify any systematic reviews that could address all the objectives, in particular, the impact of contraceptive methods and mixes of methods on contraceptive prevalence and unmet need for contraception. This indicates a lack of evidence either in the form of systematic reviews or in primary research. Thus, this OoR points out the need to either undertake systematic reviews or RCTs (where these are possible) or non-RCT/observational studies (where RCTs are not possible).

This OoR, however, did provide an opportunity to compare the effectiveness of various contraceptive methods to prevent pregnancy and other outcome measures.

Much of the available evidence in this area is based on a limited number of poorly conducted studies comparing different formulations of the same type of contraceptive. There is a lack of evidence from well-designed studies comparing different types of contraceptives in developing country settings across a wider range of outcomes (e.g. to include birth spacing and unmet need for family planning). Where the lack of evidence comparing different types of contraceptives is concerned, it is unclear if this is because primary studies do not exist or if it is due to the scope of existing systematic reviews.

Existing systematic reviews provide little in the way of contextual information, for example on ease of access to family planning facilities (in the case of repeat-administration contraceptives), which would help to inform users of the transferability of the findings across settings. Future reviews should consider providing as much contextual information as possible to aid interpretation for developing country settings.

1. Background

1.1 Aims and rationale for review

Unintended pregnancies contribute towards accelerated population growth, and lead to closely spaced pregnancies and births, early child bearing, and abortions. These in turn contribute to high maternal and infant mortality (Sedgh et al., 2006). Despite the existence of official family planning programmes, in many developing countries, contraceptive prevalence is low (United Nations, 2009) and women continue to have an unmet need for family planning (USAID, 2005). In general, access to a wide range of contraceptive methods is linked to higher levels of overall contraceptive prevalence (Ross et al., 2002; Magadi and Curtis, 2003). Factors such as policy, provider bias, history of a method within a country, properties of methods (e.g. effectiveness), acceptability and client characteristics also play a role in the methods utilised by a population (Sullivan et al., 2006). Hence, context is an important consideration and there is a need to examine the impact of different contraceptives (and combinations of contraceptives) on unmet need for family planning in the context of developing countries (and regions). Systematic reviews have been conducted into family planning, but this evidence has not been brought together, and has not always been examined taking into account contextual factors. This overview of systematic reviews was conducted to enable policy makers to identify those contraceptive methods (or range of contraceptive methods) likely to be most successful in the context of a particular country or region.

1.2 Definition and conceptual issues

There is a large amount of terminology currently used in the field of family planning in developing countries. Some key definitions are provided below:

Fertility: the reproductive performance of a woman. It also indicates the incidence of births in a population.

Replacement level of fertility: in the absence of migration, the level of fertility and mortality in a population of interest to maintain existing population levels (approximately two children per women: Ross 2010).

Desired fertility: total number of children desired by a woman or a couple.

Actual fertility: the fertility level achieved by a woman or a couple.

Contraceptive prevalence rate (CPR): the proportion of women of reproductive age (or their partners) who are using a contraceptive method at a given point in time (World Health Organization 2013).

Family planning effort: quantification of the nature and strength of family planning efforts in a particular country (i.e. input into family planning).

Method mix: the distribution of contraceptive methods used by a population (i.e. the percentage that uses each method).

Skewed method mix: when a single method of contraception accounts for more than half of contraceptive use.

Unintended pregnancies: pregnancies that are reported to have been either unwanted (i.e. they occurred when no children, or no more children, were desired) or mistimed/unplanned (i.e. they occurred earlier than desired).

Unmet need for family planning: women of reproductive age who would prefer to avoid or postpone child bearing, but are not using any method of contraception.

1.3 Policy and practice background

In many developing countries (also termed low- and middle-income countries), official family planning programmes began during the 1960s with the aim of reducing high fertility i.e. high numbers of births per woman (Seltzer, 2002). However, in recent years, various demographic and health surveys (DHS) report that women in developing countries have lower desired fertility than actual fertility, i.e. women are having more children than they want. This indicates that there is still an unmet need for family planning i.e. there is a proportion of women of reproductive age who would prefer to avoid or postpone childbearing but who are not using any method of contraception. In 2000, an estimated 17 percent of married women (105 million) had an unmet need for family planning in the developing world (USAID, 2005), and there is considerable variation across countries, for example, 5 percent in Vietnam and 40 percent in Haiti (Khan et al., 2007).

Indeed, despite official family planning programmes being in existence for more than 40 years, the contraceptive prevalence rate (CPR) is still low in many countries. The optimum level for contraceptive prevalence is regarded as 80-85 percent, as this level is quite consistent with replacement level fertility. Although increased from the level seen in the 1960s (9 percent), according to the United Nations Population Division 2011), the contraceptive prevalence for the developing world in 2009 was 61.2 percent, and there were huge variations: it was only 2.8 percent in Chad but 80 percent in Costa Rica, for example. There were also significant variations between regions: about 28 percent in Africa and 74 percent in South America (United Nations, 2011).

An unmet need for family planning can have many undesired consequences in the areas of health, population growth and development. In developing countries, unintended pregnancies (either mistimed or unwanted at the time of conception) are one of the major consequences of an unmet need for contraception (Pallikadavath and Stones, 2006). This contributes towards accelerated population growth by unwanted fertility and closely spaced births. Further, unintended pregnancies often lead to closely spaced pregnancies and child births, early childbearing and abortions, which in turn lead to high maternal and infant mortality (Sedgh et al., 2006). Moreover, the need for family planning is generally high in societies where poverty, illiteracy and gender inequality are high (Nazar-Beutelspacher et al., 1999). In such societies, unintended and repeat pregnancies make it difficult for women to participate in economic development and self-development. This causes a cycle of ill health and poverty which, if uninterrupted, could transfer to future generations. Thus, there is a strong health rationale for addressing the unmet need for family planning services in developing countries and thereby contributing to the achievement of the United Nation's Millennium Development Goals (MDGs), in particular goals 4 and 5:

MDG 4. To reduce child mortality:

Target 1. Reduce by two-thirds, between 1990 and 2015, the under-five mortality rate.

MDG 5. To improve maternal health:

Target 1. Reduce by three quarters the maternal mortality ratio.

Target 2. Achieve universal access to reproductive health.

1.4 Research background

Studies have shown that countries in which all couples have easy access to a wide range of contraceptive methods have a more balanced methods mix and higher

levels of overall contraceptive prevalence than countries with limited access to various contraceptives (Ross et al., 2002; Magadi and Curtis, 2003). Further, Jain (1989) has estimated that the widespread addition of one method to options available in a country would be associated with an increase of 12 percent in contraceptive prevalence. A balanced method mix is also an indicator that there is no 'systematic limitation of contraceptive choice' (Sullivan et al. 2006). At the global level the most widely used contraceptive methods are female sterilisation (23 percent), the IUD (15.1 percent) and the pill (7.2 percent) (United Nations, 2009). However, there are wide variations in the use of these methods within developing countries. For example, while sterilisation is the most popular contraceptive method in Brazil (40.1 percent) and India (37.3 percent), it is not widely used in Indonesia (3 percent) or Morocco (2.7 percent) (United Nations, 2009).

A directive issued by the International Conference on Population and Development (ICPD) in 1996 recommended that countries should 'Recognise that appropriate methods for couples and individuals vary according to their age, parity, family size preference and other factors, and ensure that women and men have information and access to the widest possible range of safe and effective family planning methods in order to enable them to exercise free and informed choice' (United Nations Population Fund 1996: 53). It is since ICPD commitment that many countries have tried to provide a broad range of methods to their population. However, a study carried out using data from 1999 showed that this has not been achieved everywhere; about one-third of developing countries still had a skewed method mix, in which a single method accounted for more than half of contraceptive use (Sullivan et al., 2006).

Contraceptive prevalence and method mix are influenced by a range of factors. According to Sullivan et al. (2006), these factors are: (1) policies and programmes: government promotion of certain methods at the expense of others, regulatory barriers, capacity and motivation to provide a range of methods; (2) provider bias: provider preference for specific methods; (3) history: length of time since the introduction of each method in a country; (4) the properties of the methods themselves: ease of distribution, high programme cost, side-effects, effectiveness; (5) client characteristics: knowledge of alternative methods, desire for limiting vs spacing, religious beliefs, personal preferences, age and life stage. For example, a strong relationship between the Family planning Programme Effort index (FPE)[1] and contraceptive prevalence was noted in a study using 1999 FPE cycle data from 89 countries. This study also showed that countries with high social and economic development had high contraceptive prevalence (Ross and Stover, 2001). In addition, the FPE and/or the particular social contexts of countries may lead to provision focusing on a particular contraceptive method. Historically in some countries, some contraceptive methods were given more importance than others either because of their effectiveness or ease of administration. Similarly, for religious reasons, some methods were less popular in some countries.

This highlights the importance of context in assessing the suitability of different contraceptive methods (and combinations of methods) for developing countries. This is further supported by research which has been carried out to measure the 'ideal' method mix in order to help focus family planning programmes. According to Choe and Bulatao (1992), contraceptive choices will be different at the different stages of the reproductive life cycle defined as: (1) before first marriage; (2) after first marriage but before first birth; (3) after first birth but before last birth; (4)

[1] A summary of family planning effort measured using policy, services, evaluation and method availability.

after last. Using the above framework Choe and Bulatao (1992) suggested an 'ideal' contraceptive mix for Indonesia and showed its potential benefit for improving family planning programmes through targeted interventions. However, there has been no consensus about the 'optimal' or 'ideal' method mix among the international reproductive health community, as reproductive needs are different for different countries (Sullivan et al., 2006).

1.5 Conceptual framework

A conceptual framework linking contraceptive prevalence and method mix with unmet need for family planning, unintended pregnancy and fertility is presented in Figure 1.1. According to the framework, family planning programmes and policies determine the number of contraceptive methods available for public use: the contraceptive choice mix. The range of contraceptives available to individuals may be more limited than those made available for public use, either affected by provider bias and/or an individual's access to and acceptability of the family planning services provided.

The acceptability of the contraceptives to which individuals have access will affect both whether they will choose to use any of the available methods (initiation of contraceptive use) and whether they continue with their chosen method (continuation of contraceptive use). It may also affect whether or not individuals adhere to their chosen contraceptive method (adherence). The context (e.g. client characteristics, length of time since introduction of each method and the properties of the methods) may affect the expectations and requirements that an individual has of particular contraceptive methods and hence the acceptability of each method.

The acceptability of the contraceptives to which individuals have access will be reflected in the contraceptive prevalence and the method mix, i.e., fewer people may use contraceptives if there is a lack of acceptable accessible methods and there may be a greater skew towards contraceptives that are more acceptable (or more accessible). It will also be, more directly, reflected in the levels of unmet need for family planning, i.e., where individuals lack access to acceptable contraceptives, they will choose not to use the available method, even if they desire to space or limit their fertility. Further, the acceptability of the available contraceptives (individually and in combination) will combine with the known efficacy[2] of the method to produce the effectiveness of both individual contraceptives and of the range of available contraceptives.

The effect of an unmet need for family planning and of the effectiveness of the available contraceptive methods (individually and in combination) is reflected in rates of unintended and unwanted pregnancies, and the consequent rates of unintended/unwanted births (fertility). As discussed previously, unintended and unwanted pregnancies could have adverse health effects on mother and child; they could also accelerate population growth and slow down development by reinforcing poverty, illiteracy and gender inequality. An examination of rates of unintended and unwanted pregnancies may indicate where there is a greater need for acceptable spacing or terminal methods of contraception, i.e., unintended pregnancies may indicate that more acceptable spacing methods are required and unwanted pregnancies may indicate that more acceptable terminal methods are required.

[2] Efficacy is the extent to which an intervention has the ability to bring about its intended effect under ideal circumstances, such as in a randomised clinical trial; effectiveness is the extent to which an intervention achieves its intended effect in the usual clinical setting.

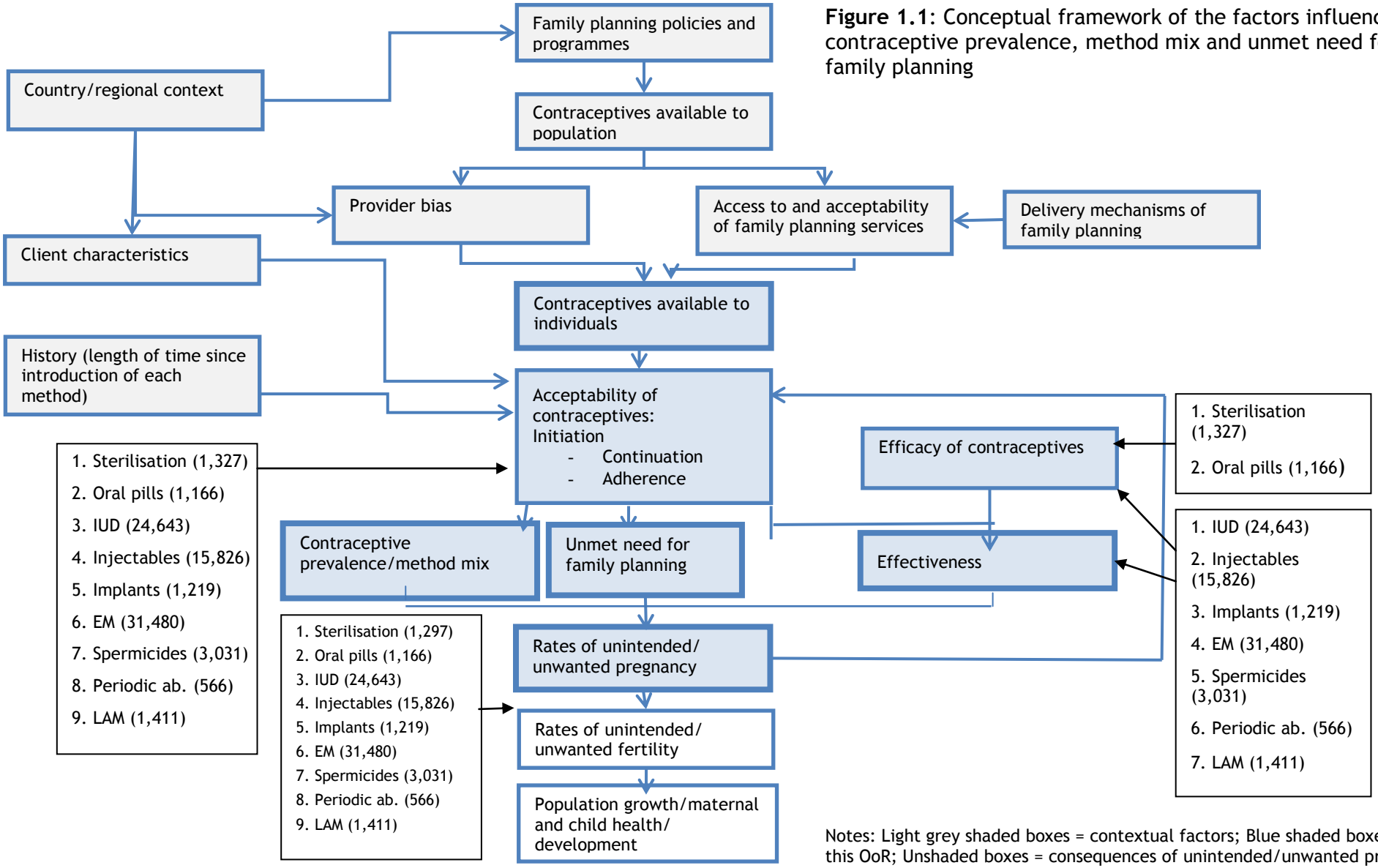


Figure 1.1: Conceptual framework of the factors influencing contraceptive prevalence, method mix and unmet need for family planning

Notes: Light grey shaded boxes = contextual factors; Blue shaded boxes = focus of this OoR; Unshaded boxes = consequences of unintended/unwanted pregnancies). EM= emergency contraception; LAM = lactational amenorrhea with support; ab= abstinence. The boxes with black borders indicate the interventions discussed, with numbers of participants.

1.6 Focus of this review

The conceptual framework outlined above encompasses a wide range of factors which influence contraceptive prevalence, unmet need for family planning and unintended pregnancies and births. One key aspect of this framework for family planning policy development in developing countries is the impact of the type (and range) of contraceptives available to individuals on these outcomes. Although studies suggest that increasing the number of methods of contraception available to women (and their partners) increases contraceptive prevalence, it is important to examine the impact that the contraceptives individuals have access to (either individually or in combination) have on contraceptive prevalence or unmet need for family planning, and ultimately on rates of unintended and unwanted pregnancies.

As previously discussed, research suggests that the acceptability of different methods may vary according to context, and therefore that different contraceptives (and ranges of contraceptives) may be more or less successful in different countries or regions. Hence, where possible, there is a need to examine the impact of different contraceptives (and combinations of contraceptives) on outcomes such as unmet need for family planning in this context. Systematic reviews have been conducted in this area, but this evidence has not been brought together, and has not always been examined taking into account contextual factors. We will therefore conduct an overview of systematic reviews to enable policy makers to identify those contraceptive methods (or range of contraceptive methods) likely to be most successful in the context of a particular country or region. Overviews of systematic reviews are intended primarily to summarise multiple systematic reviews of interventions, and have a similar structure to systematic reviews, except that they include reviews rather than primary studies as their unit of interest (Becker and Oxman 2008).

1.7 Objectives

The specific objectives of the proposed overview of systematic reviews (OoR) are:

1. To assess the impact of various contraceptive methods and mixes of contraceptive methods on contraceptive prevalence in developing countries/regions.
2. To assess the impact of various contraceptive methods and mixes of contraceptive methods on unwanted and unintended pregnancies in developing countries/regions.
3. To assess the impact of various contraceptive methods and mixes of contraceptive methods on unmet need for family planning in developing countries/regions.

2. Methods used in the review

2.1 User involvement

2.1.1 Approach and rationale

Consumer involvement in OoRs and systematic reviews can help to ensure that reviews address topics and outcomes salient to a particular population. Due to time constraints, it was not possible to engage in a wide consultation with relevant stakeholders to inform the scope of the OoR. In order to ensure the salience and scope of the OoR, we have established a multidisciplinary review team including Dr Saseendran Pallikadavath, who has experience of conducting global health research in India and Brazil, and Professor William Stones, who is the Puribai Kanji Professor and Chair, Department of Obstetrics and Gynaecology, Aga Khan University, Nairobi, Kenya. Further, we have sought peer review from the South African Cochrane Centre and the UK Cochrane Centre.

2.2 Identifying and describing reviews

2.2.1 Defining relevant reviews: inclusion and exclusion criteria

For this OoR, we included Cochrane and non-Cochrane systematic reviews of randomised and non-randomised trials, observational studies and economic evaluations on the effects of methods (and mixes of methods) of contraception on (1) contraceptive prevalence, (2) unwanted pregnancies, (3) unintended pregnancies and (4) unmet need for family planning. The included systematic reviews may have incorporated a full range of study designs.

Systematic reviews were eligible where participants were sexually active women or men from countries classified as 'developing', 'low-income' or 'middle-income' countries by the author(s) of the review; or those classified as low-and middle-income countries according to the World Bank classification of countries based on gross national income (GNI)[3] at the time the study was conducted. Reviews that included studies with participants from 'high-income' or 'developed' countries were eligible, but only when it was possible to use the data from the studies conducted in 'developing', 'low-income' or 'middle-income' countries separately.

These inclusion criteria were broad in order to ensure that the OoR included all relevant systematic reviews. For example, although we acknowledge that family planning services in developing countries are typically targeted at 'currently married' women aged 15-49 years, it was feasible that systematic reviews in the area may have taken a broader eligibility criterion, and we sought to include these in the OoR.

This overview included systematic reviews of any intervention (or combination of interventions) designed to increase contraceptive prevalence, reduce fertility or both (in order to prevent unwanted pregnancies, delay pregnancies, space pregnancies or limit fertility). Systematic reviews which have examined the use of contraception for other purposes (e.g. condoms to reduce the transmission of infectious disease) or included studies which have done so were included in the OoR provided that one of the relevant outcomes had been assessed.

Our primary outcome measures were: contraceptive prevalence; unwanted

[3] http://data.worldbank.org/about/country-classifications

pregnancies; unintended pregnancies; and unmet need for family planning. Secondary outcome measures were: initiation of contraceptive use; continuation of contraceptive use; adherence to contraception; time between pregnancies; and time between births.

Full details of the inclusion and exclusion criteria can be found in Appendix 2.1.

2.2.2 Identification of potential reviews: search strategy

Since this overview includes both Cochrane and non-Cochrane systematic reviews, searches were conducted of a variety of electronic databases in the field of healthcare, reproductive health, demography, population studies, population geography and family planning. Searches were made of the following databases during the period 28 October 2010 to 8 December 2010: Cochrane Library, PubMed, Bioline International, Popline, WHO Reproductive Health Library, LILACS, Turning Research Into Practice (TRIP) database and Zetoc (The British Library's Electronic Table of Contents).

Further details and the search strategies can be found in Appendix 2.2. No language or date restrictions were employed. Advice was sought from an information specialist to ensure that rigorous search strategies were employed. Search results were imported into reference management software and duplicates were removed prior to screening for relevance. We did not attempt to update any existing systematic reviews which were out of date to see if any new RCTs or non-RCTs had been published. Protocols and ongoing systematic reviews were not included in this overview of reviews.

2.2.3 Screening reviews: applying inclusion and exclusion criteria

Titles were independently screened by two review authors. For those titles deemed potentially eligible (and where there was disagreement between review authors), both the titles and abstracts were reviewed. These were independently screened by two review authors and rated as either ‘exclude’ or ‘potentially eligible’. Disagreements were resolved by discussion between the two review authors. Full reports of abstracts were obtained for citations classified as potentially eligible, and where there was doubt about eligibility or disagreement between review authors that could not be resolved by discussion. The full reports were assessed independently by two review authors to establish their eligibility for inclusion in the OoR using the study eligibility form in Appendix 2.3. They were then classified as either ‘excluded’, ‘included’ or ‘subject to clarification’. Disagreements were resolved by discussion between the two review authors. Other authors were brought in where disagreements could not be resolved, and a resolution was achieved by discussion amongst the review team. At each stage of screening, all titles, abstracts, and full reports were screened by one review author (HM), with the second independent screening shared amongst the rest of the team (SP, TD, AD, WS); this provided a level of consistency and helped identify duplicate publications of the same report.

2.2.4 Characterising included reviews

Data were extracted from included reviews using a data collection tool designed for this review (Appendix 2.4). In general, the data collection form sought information on the following: general information (e.g. review identification, authors, contact details and date of last update), objectives, inclusion and exclusion criteria, participants, interventions, comparison interventions, length of interventions, length of follow-up, included studies, countries in which the included studies were conducted, included study designs, outcomes for which data were reported, comparisons performed, methods and results of study-level quality assessment,

summary of results for each relevant outcome, and review quality assessment. Source page numbers were included for ease of reference and, where information was missing or unclear, this was marked as such on the form.

Due to time constraints, data were extracted individually by review authors and verified upon data inputting. The authors of the original systematic reviews were contacted for any missing data or for clarification where necessary.

2.2.5 Identifying and describing reviews: quality assurance process

There were a number of ways in which the quality of the identification and description of studies was ensured. Firstly, the team consisted of a number of review authors with a range of expertise and backgrounds. Secondly, the protocol for the OoR was subject to peer review by both the UK and the South African Cochrane Centres, and advice was sought from an information specialist to ensure that robust search strategies were employed. Thirdly, all stages of screening (title, title and abstract, full text) were completed independently by two review authors, who then compared their decisions and came to a consensus. Finally, both the study eligibility and data collection forms were piloted for ease of use and clarity. Notes sheets were provided for additional information (e.g. the World Bank's classifications of countries by income) to ensure that decisions were informed by clear and transparent information.

2.3 Methods for synthesis

2.3.1 Assessing the quality of the reviews

Included reviews

The quality of included reviews was independently assessed by two review authors using the AMSTAR tool (Shea et al., 2007). Full details can be found in Section E of Appendix 2.4. Any disagreements were resolved by discussion between the assessors and by bringing in a third review author. Where disagreements could not be resolved through discussion amongst the review team, a two-thirds majority informed the final decision. Where items were graded as 'Can't answer', the authors of the original systematic review were contacted for clarification.

Quality of evidence in the studies included in the reviews

The GRADE approach was used to assess the overall quality of the evidence in the included reviews (GRADE working group, 2004). This approach defines quality of evidence as 'the extent to which one can be confident that an estimate of effect is correct'. The quality of evidence was graded in the following stages according to the listed criteria:

- High = Randomised trials or double-upgraded observational studies
- Moderate = Downgraded randomised trials or upgraded observational studies
- Low = Double-downgraded randomised trials or observational studies
- Very low = Triple-downgraded randomised trials or downgraded observational studies or case studies/case reports

A study is downgraded if there is:

- A serious (-1) or very serious (-2) limitation to study quality
- an important inconsistency (-1)
- some (-1) or major (-2) uncertainty about directness
- imprecise or sparse data (-1)
- high probability of reporting bias (-1).

A study is upgraded if:

- there is strong evidence of association – a significant risk ratio of >2 (<0.5) based on consistent evidence from two or more observational studies, with no plausible confounders (+1)
- there is very strong evidence of association – a significant risk ratio of >5 (<0.2) based on direct evidence with no major threats to validity (+2)
- there is evidence of a dose-response gradient (+1)

  all plausible confounders would have reduced the effect (+1).

2.3.2 Overall approach to and process of synthesis

The overall approach to synthesis was descriptive, and we did not seek to run a meta-analysis based on the pooled results obtained from the systematic reviews because of heterogeneity between reviews. However, where appropriate, pooled results of individual systematic reviews were presented. Our approach was to map the current evidence against the taxonomy of interventions detailed in section 2.2. This mapping additionally enabled an assessment of areas in which there was a lack of systematic review evidence. Further, in synthesising the evidence, information was sought on contextual factors and on intervention characteristics that might explain the extent to which the intervention or outcomes are sustained. For each country included in the final OoR the following was recorded:

- GDP (Gross Domestic Product), at the time of the study(s).
- A description of the current family planning programme as follows:
  - Family planning effort
  - Contraceptive methods available
  - Methods of delivery of family planning services (e.g. community based, home visits, incentives, social marketing)
  - Method mix (the distribution of contraceptive methods used by a population)
- Contraceptive prevalence rate
- Total fertility rate (TFR)
- Average ideal number of children (AINC).

At the study level, for each outcome, and where possible (i.e. where description was provided in the systematic review), the following contextual factors were also mapped: access to family planning services, including distance factors (e.g. distance to family planning services, lack of transportation), health-system factors (e.g. provider bias, staffing shortages and lack of availability of preferred methods) and client/community factors (e.g. prohibitive cost of products/services, lack of client awareness, cultural factors).

2.3.3 Selection of studies for synthesis (if not all studies that were described are included in the synthesis)

All studies meeting the inclusion criteria were included in the synthesis.

2.3.4 Selection of outcome data for synthesis

Outcome data were only extracted where the outcome met our inclusion criteria and it was possible to extract the data from developing countries separately. Data were extracted using a data collection form to ensure that the relevant information

was extracted uniformly across reports (see the data collection tool in Appendix 2.4). Where available, we extracted the pooled effect estimates of meta-analyses (with confidence intervals where provided) conducted within included systematic reviews. If this information was not available, we presented the findings according to the statistical information available in each review. The systematic review authors were contacted to provide additional information or clarification as appropriate.

2.3.5 Process used to combine/synthesise data

Data were interpreted with respect to the quality of the evidence and critique of the included systematic reviews. We aimed to present the best available evidence, to help inform policy. Where systematic reviews of RCTs and those of RCT and non-RCTs had examined the same intervention and outcome, a judgement was made about whether to include the non-RCT data. This decision was primarily informed by the quality of the non-RCT evidence and whether this evidence conflicted with that provided by RCT evidence. For example, where there was good-quality non-RCT evidence (i.e. upgraded or double-upgraded observational studies) this was included. However, where observational studies that had not been upgraded conflicted with evidence from good-quality RCT evidence, this evidence was not included. Such decisions are documented in Chapter 4. Where we found only low-quality non-RCT evidence, this is presented as the best available evidence, but the limitations with regard to the interpretation of such evidence are discussed.

Where possible, to further enable comparisons, statistical reports of outcomes have been standardised across included reviews. Attention was also paid to whether reviews had treated pregnancy as an event or a non-event[4], in order to ensure that the findings were correctly interpreted and presented consistently alongside those from different reviews. Attention was also paid to studies that had been included in more than one review, to avoid unit of analysis errors. If a comparison was examined by more than one systematic review and there was an overlap between included studies, data were extracted from both reviews and duplicate study data removed. If there was any discrepancy in the data presented from a study contained in more than one systematic review, the original paper was inspected.

Given the time available and the additional statistical support that would be required, where systematic reviews did include all potential information on direct comparisons, we did not seek to undertake additional statistical analyses of indirect comparisons. In this case, we have noted the lack of available evidence for each potential direct comparison.

2.4 Deriving conclusions and implications

Where possible, data from the included systematic reviews have been presented in an overview of Reviews table (the equivalent of the Summary of Findings tables in systematic reviews – Becker and Oxman 2008) under the following headings: outcomes, assumed risk (with comparator), corresponding risk (with intervention), relative effect, number of participants and studies, quality and comments. Data were managed using RevMan 5.

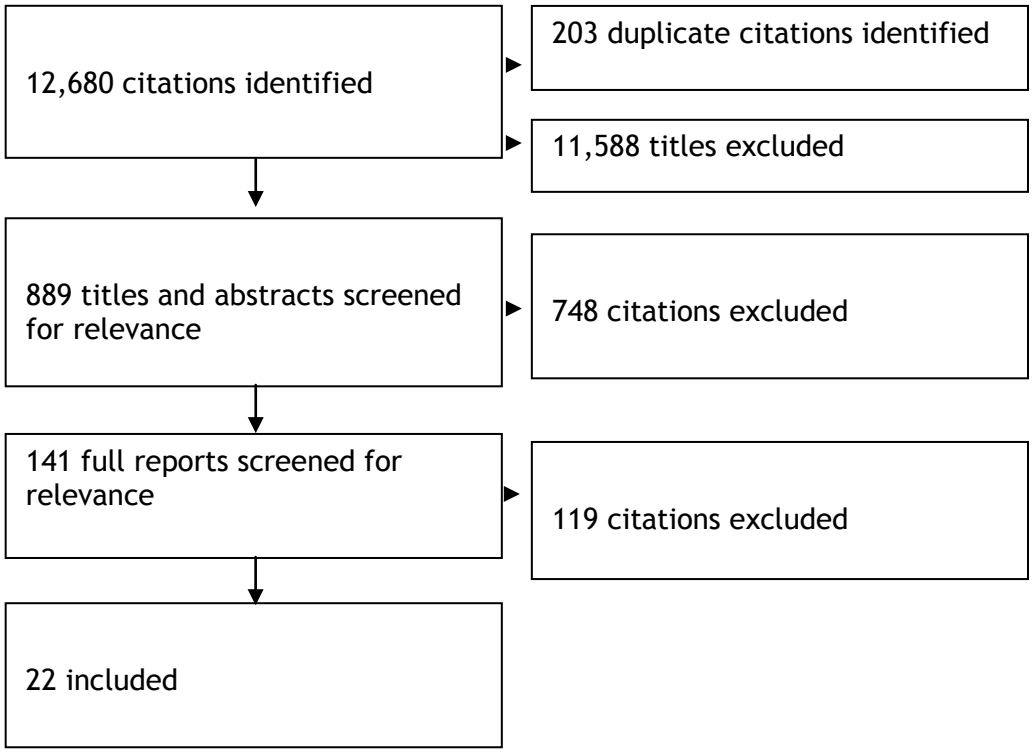
[4] If pregnancy is treated an event in one study and a non-event in another study the results when they are combined will be different. To avoid this all pregnancy were treated as an event.

3. Search results

3.1 Studies included from searching and screening

The screening process is described in Figure 3.1. Of the 12,680 citations identified by the searches, 203 were identified as duplicates and removed. Due to the large number of citations and high volume of irrelevant records (the TRIP database required free-text searching and proved to yield results with low specificity), an initial screen of titles was performed independently by two review authors. As a result 889 titles and abstracts (where review authors agreed the reference was potentially eligible or disagreed about eligibility) were screened for potential relevance to the overview. Of these, 141 were identified as potentially eligible and the full-text retrieved for screening. Of these 22 were included in the review.

Figure 3.1: Filtering of papers from searching to map to synthesis



3.2 Details of the included reviews

Twenty-two systematic reviews were included in this overview, twenty of which were Cochrane systematic reviews and two of which were articles in peer-reviewed journals. The systematic reviews can be grouped into ten types of contraception (examined at different levels): natural family planning, injectables, intrauterine devices, oral contraceptives, emergency contraception, sterilisation, spermicide, reversible contraception, and hormonal and non-hormonal contraception. The included reviews assessed a wide variety of outcomes; however, of these, only the following met the inclusion criteria for the overview: continuation/discontinuation of contraceptives and pregnancy. Details of the included reviews are provided in Appendix 3.1.

4. Synthesis results

4.1 Further details of the reviews included in the synthesis

The majority of the systematic reviews included in this overview of reviews compared different formulations within one category of contraceptives (e.g. different formulations of the contraceptive pill: Cheng[5] 2008; Draper 2006; Edelman 2005; French 2004; Gallo 2008; Gallo 2011; Grimes 2004; Grimes 2005; Grimes 2010a; Grimes 2010b; Halpern 2010; Kejuan 2007; Kulier 2007; Lawrie 2011; Maitra 2004; Power 2007; Van der Wijden 2003; Van Vliet 2006a, b; Wen 2009). Only one of the included systematic reviews compared one type of contraceptive with another (Hofmeyr 2010). The studies included in the systematic reviews were predominately RCTs. Within the included systematic reviews, data could be extracted from studies conducted in a number of developing countries (some of which were multi-centre: Argentina, Bangladesh, Brazil, Chile, China, Colombia, Egypt, Ecuador, Ghana, Guatemala, India, Indonesia, Kenya, Malaysia, Mexico, Nepal, Nigeria, Pakistan, Peru, the Philippines, Poland, Taiwan, Thailand, Turkey, Vietnam, Zambia) and over a wide range of dates (1973-2007).

We had originally planned to map the findings in relation to a number of contextual factors, primarily access to family planning services, including: distance factors (e.g. distance to family planning services, lack of transportation); health-system factors (e.g. provider bias, staffing shortages and lack of availability of preferred methods); and client/community factors (e.g. prohibitive cost of products/services, lack of client awareness, cultural factors). However, only a handful of reviews reported any contextual information for (at least some of) the included comparisons and this predominantly focused on the location of delivery of services and the profession of those delivering them (Cheng 2008, French 2004, Gallo 2008, Grimes 2004, Grimes 2010a, Halpern 2010, Hofmeyr 2010, Kulier 2007). Additionally, no reviews focused on the effectiveness and/or acceptability of contraceptives within different settings (e.g. developing countries). Appendices 4.1, 4.2 and 4.3 provide further information about the reviews included in the synthesis.

4.2 Quality of included reviews

All the included reviews had 'a priori' research questions and inclusion criteria. Eleven of the 22 conducted duplicate study selection and data extraction (Cheng, 2008; Draper 2006; Grimes 2010a, b; Halpern 2010; Kejuan 2007; Lawrie 2011; Maitra 2004; Power 2007; Van der Wijden 2003; Van Vliet 2006a; Wen 2009). However, in one of these reviews, the second author confirmed the eligibility of the reports selected rather than screening independently (Grimes 2010b); in two others, this was the case for data extraction (Van der Wijden 2003; Van Vliet 2006b); and a further review carried out data extraction by one autheor for articles not published in Chinese (Cheng 2008). Six included reviews reported conducting single-author study eligibility screening and duplicate data extraction (Edelman, 2005; French 2004; Gallo 2008; Grimes 2005; Kulier 2007; O'Brien 2005). An additional review reported duplicate data extraction but did not report on screening study eligibility (Hofmeyr 2010) and a further review reported single-author eligibility screening for titles and abstracts but failed to mention the procedure for full-text screening (Gallo 2011). One review made no mention of the procedure for screening or data

[5] Since all the reviews were multi-authored, et al. has been omitted in references to the included systematic reviews.

extraction (Grimes 2004).

Nineteen reviews conducted comprehensive literature searches (Cheng 2008; Draper 2006; Edelman 2005; French 2004; Gallo 2008, 2011; Grimes 2004, 2010a; Halpern 2010; Hofmeyr 2010; Kejuan 2007; Lawrie 2011; Maitra 2004; O'Brien 2005; Power 2007; Van der Wijden 2003; Van Vliet 2006a, b; Wen 2009). The literature searches of three reviews were not comprehensive: in two, no dates were provided (Grimes 2010b; Grimes 2005); in another, the search was not supplemented by further information (Kulier 2007). The status of publication was used as an inclusion criterion in seven reviews (Draper 2006; Gallo 2011; Grimes 2004; Hofmeyr 2010; Kejuan 2007; Kulier 2007; O'Brien 2005). All except two reviews provided a list of included and excluded studies: Kejuan (2007) and Power (2007) failed to report excluded studies. The characteristics of the included studies were provided in all but one review (Kejuan 2007), which provided incomplete information. The scientific quality of the included studies was assessed and documented in all reviews. This assessment was used appropriately in formulating conclusions in all but two reviews (French 2004; Kejuan 2007).

The methods used to combine the findings of the studies were appropriate in fifteen of the included reviews (Cheng 2008; Draper, 2006; Gallo 2011; Grimes 2004, 2005, 2010a, b,; Kejuan 2007; Halpern 2010; Hofmeyr 2010; Lawrie 2011; O'Brien 2005; Power 2007; Van der Wijden 2003; Van Vliet 2006a, b; Wen 2009). In five reviews, the methods used to combine reviews were not appropriate: three did not test for homogeneity of pooled results (Edelman 2005; Gallo 2008; Maitra 2004) and one occasionally used fixed-effects models regardless of the high size of I^2 (Kulier 2007). It was not possible to judge this for one review (French 2004) because the methods did not clearly reflect the presentation of the results; fixed-effects models were used to pool data with heterogeneity (which is not consistently reported) and it was not clear how the authors decided whether to use fixed- or random-effects models. Most reviews (n=17) did not assess the likelihood of publication bias (Edelman 2005; French 2004; Gallo 2008, 2011; Grimes 2004, 2010b, 2011; Halpern 2010; Kejuan 2007; Kulier 2007; Lawrie 2011; Maitra 2004; O'Brien 2005; Power 2007; Van der Wijden 2003; Van Vliet 2006a, b). However, many reviews conducted narrative syntheses where data pooling was not possible. All except two reviews (Draper 2006; Kejuan 2007) made statements regarding conflict of interest.

4.3 Synthesis: quality assurance results

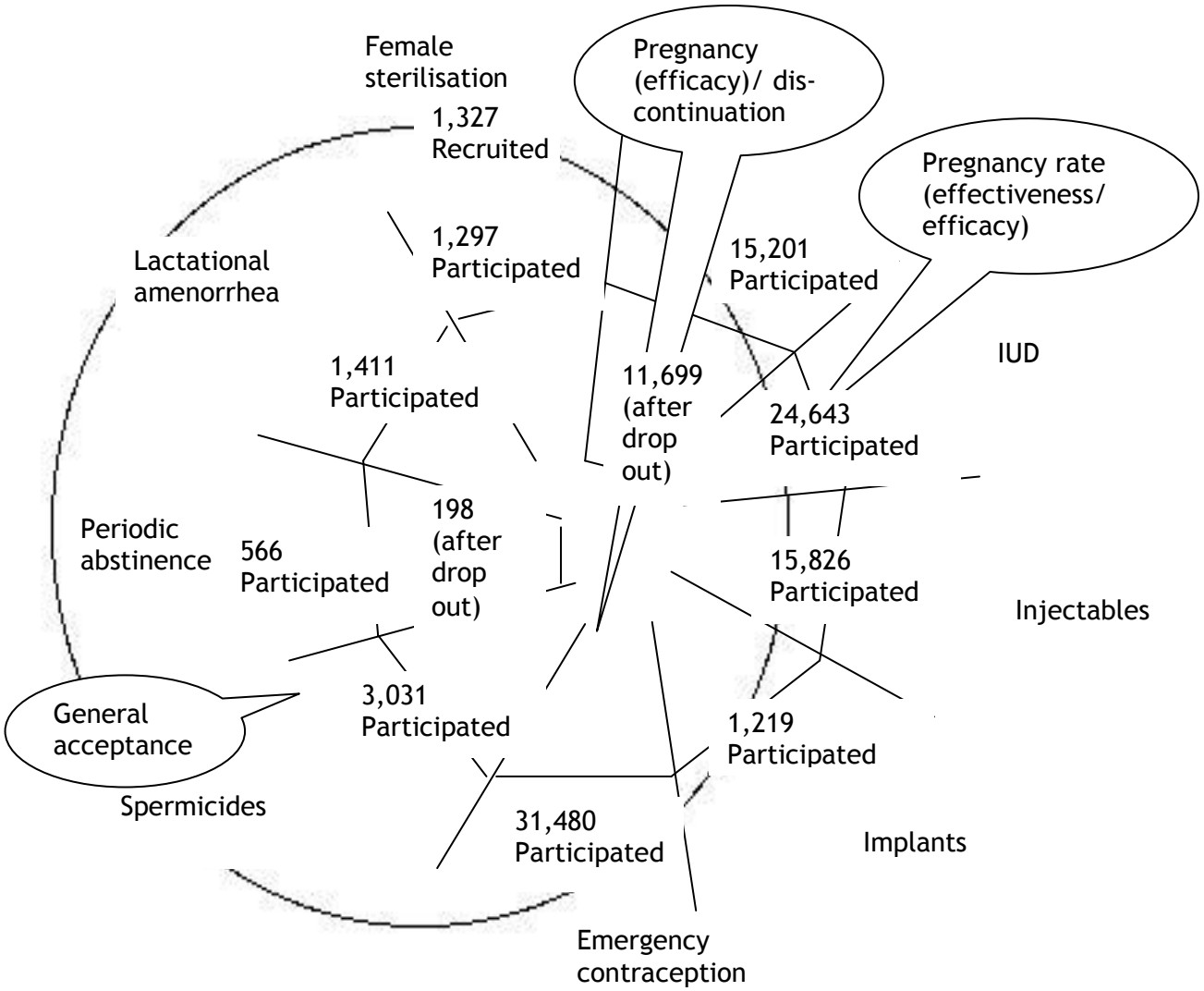
At each stage of screening, all titles, abstracts and full reports were screened by one review author (HM), with the second independent screening shared amongst the rest of the team (SP, TD, AD, WS); this provided a level of consistency and helped identify duplicate publications of the same report. In the case of titles, disagreement was resolved by reviewing the abstracts. At all other stages, disagreements were resolved by discussion between the two relevant review authors. Other authors were brought in where disagreements could not be resolved, and a resolution was achieved by discussion amongst the review team. The full reports were assessed independently by two review authors to establish their eligibility for inclusion in the OoR using the study eligibility form in Appendix 2.3. Data extraction was also conducted using a pre-specified format (see the data collection tool in Appendix 2.4).

4.4 Syntheses of evidence

Syntheses of evidence are presented according to the objectives of the overview. No systematic reviews covered unmet needs, contraceptive prevalence or economic evaluations; other outcomes met our inclusion criteria. Figure 4.1, 'funnel of

attrition' for various contraceptives, is provided to help readers understand various data points used in the analysis. The outer layer in the circle shows how many women were recruited (i.e. initially agreed to participate) in various studies included in the overview. If we had had information about the size of the target population, it would have been possible to estimate the general acceptability of each contraceptive method. However, this information was not available and therefore the evidence presented in this OoR is mainly evidence of efficacy rather than evidence of effectiveness. The second layer in the attrition funnel is the number of women who actually participated in the various trials. If we know how many women were recruited then we can find out the participation rate (another measure of acceptance). For many methods, we do not know further details, such as how many were discontinued and whether or not these women were included in the calculation of pregnancy rates. Therefore, these rates could reflect either the efficacy or the effectiveness of the methods investigated.

Figure 4.1: Funnel of attrition for various contraceptive methods



No systematic reviews were found which addressed Objectives 1 and 3. Therefore, the remainder of this chapter describes the results for Objective 2: To assess the impact of various contraceptive methods and mixes of contraceptive methods on unwanted and unintended pregnancies in developing countries/regions.

The body of evidence for the relative effectiveness of a variety of contraceptive methods to prevent pregnancy in developing countries was generally rated as low or moderate. There was, however, a number of comparisons (between different derivatives of the same contraceptive methods) for which the evidence was rated as being of high or moderate quality.

4.4.1 Pregnancy

4.4.1.1 Terminal methods

1. FEMALE STERILISATION

The analysis presented in this section is based on 1,297 women who participated in the trials from a total number of 1,327 women who initially agreed to participate. As these results are based on the number of women who remained in the trials until they had been sterilised, outcomes can be interpreted as the efficacy of female

sterilisation to prevent pregnancies. Since only very few women dropped out after recruitment into the study, the acceptability of female sterilisation was very high (98 percent). One included systematic review examined female sterilisation (Lawrie 2011); four of the comparisons contained data from developing countries and could be included in the overview (Appendix 4.2, Table 4.2a). One comparison (including data from two RCT studies and 724 participants) examined the number of pregnancies in a group sterilised using tubal rings versus those sterilised using tubal clips.

No difference was found in the number of pregnancies between groups (Peto OR = 1.09, 95% CI 0.22, 5.36). The quality of the body of evidence for this comparison was given a GRADE rating of moderate. No differences in numbers of pregnancies were found in the remaining three comparisons (each containing one study): modified Pomeroy versus electrocoagulation (Peto OR = 4.47, 95% CI 0.07, 286.78; 295 participants), tubal ring versus electrocoagulation (Peto OR = 0.0, 95%CI 0.0, 0.0; 160 participants) and modified Pomeroy versus clip (Peto OR = 8.28, 95% CI 0.16, 419.87; 148 participants).

It should, however, be noted that the body of evidence for all comparisons was graded as very low; for two of these comparisons the confidence intervals were extremely wide and for the other there were no pregnancies in either group. The results outlined above obtained from developing countries are comparable with the results obtained from developing and developed countries combined, indicating no difference in the effectiveness of different female sterilisation procedures on preventing pregnancy. The implication for policy and practice is that failure rates are very low for all methods of female sterilisation.

2. MALE STERILISATION

No systematic reviews examining male sterilisation met the eligibility criteria for this overview of reviews.

4.4.1.2 Spacing/temporary methods

1. THE PILL

Overall 15,201 women agreed to participate in various trials included in the systematic reviews that were included in the overview. Of this, 3,502 discontinued and the analysis is based on the remaining 11,699 women who completed the trial. Therefore, the results refer to the efficacy of various types of pills rather than their effectiveness to prevent pregnancy. Of the included systematic reviews, seven examined the impact of oral contraception on pregnancy and discontinuation of the method (Edelman 2005; Gallo 2011; Grimes 2010b; Kejuan 2007; Maitra 2004; Van Vliet 2006a, b: see Appendix 4.2, Tables 4.2b and 4.2c). Within these reviews, 17 comparisons contained (extractable) data from developing countries examining pregnancy as an outcome. Fifteen comparisons contained extractable, relevant, data examining discontinuation as an outcome. Data on continuation was reported for a further comparison.

For the pregnancy outcome, two comparisons found significant differences between the intervention and comparison oral contraceptive regimen, although the quality of the evidence for these varied. One review (Maitra 2004), interested in progestogens in combined oral contraceptives (COCs), identified moderate-quality evidence (using pooled data from two studies, comprising 2,074 participants) that monophasic norgestrel 0.3mg/EE 30mcg (Lo-femenal; second-generation OC) was more effective at preventing pregnancy than was monophasic norethindrone acetate 1.5mg/EE 30mcg (Lo-estrin: first-generation OC: RR = 0.12, 95%CI: 0.02, 0.99).

A further review (Edelman 2005) examined continuous or extended cycles versus cyclic use of combined hormonal contraception. This review identified low-quality evidence, from a single study (900 participants), which indicated that 28-day cycle (cyclic) vaginal administration of 50µg ethinyl estradiol and 250µg levonorgestrel resulted in fewer pregnancies than did continuous administration (1 year: Peto OR = 0.14, 95% CI 0.02, 0.97). In addition, a review predominantly of RCTs (Grimes 2010b; one study, 518 participants), which was interested in progestin-only pills for contraception, reported fewest pregnancies in the group taking levonorgestrel 150/ethinyl estradiol 30mg, followed (in order of effectiveness) by norethisterone 1mg/mestraw 150mg then levonorgestrel 30mg and finally, norethisterone 350mg.

For seven comparisons, no significant differences were identified between different types of oral contraception, although it should be noted that the quality of the evidence was rated as either low or very low in all cases. From the review comparing various triphasic OCs versus monophasic OCs (Van Vliet 2006b) these were as follows: triphasic LNG 50-70-125µg/EE 30-40-30µg versus monophasic LNG 150µg/EE 30µg (followed up at both 6 and 12 cycles: data from one and three studies respectively: respective risk ratios were 0.65 [95%CI 0.11, 3.78; one study, 189 participants] and 1.00 [95%CI 0.06, 16.01; three studies, 3010 participants]); triphasic LNG 50-70-125µg/EE 30-40-30µg versus monophasic NET 600µg/EE 35µg (data from one study, 186 participants, RR = 0.94, 95%CI: 0.13, 6.52); and triphasic GTD 50-70-100µg/EE 30-40-30µg versus monophasic DSG 150µg/EE 30µg (data from one study, 168 participants, RR = 1.00, 95%CI: 0.06, 15.73).

With regard to COCs containing 20µg estrogen versus those containing >20µg (from Gallo 2011, RCT) no significant differences were reported for the following comparisons: EE 20µg + desogestrel 150µg versus EE 30µg + gestodene 75µg (data from one study, 416 participants, RR = 2.97 (95%CI: 0.12, 72.52)) and monophasic desogestrel 150µg + EE 30µg versus monophasic gestodene 75µg + EE 30µg (data pooled from three studies, 1,730 participants, RR = 1.13 (95%CI: 0.07, 18.02)). One review (Grimes 2010b, RCT), which was interested in progestin-only pills for contraception, reported findings from a very small study (97 participants) in which there was no difference in pregnancy rate between low-dose mifepristone and levonorgestrel (OR = 0.71 (95%CI: 0.07-6.95)). Finally the evidence from a review of once-a-month contraceptive pills (Kejuan 2007, one study, 712 participants) found that the pearl indices for Quin-Lg and Quin-Lng were 2.9 and 1.8 respectively.

For the additional six comparisons (number of participants: 313-1,200; no information for one comparison), no pregnancies occurred in the either the intervention or the comparison groups. All comparisons contained data from single studies only. In the review comparing triphasic versus monophasic oral contraceptives (Van Vliet 2006b, RCT, one study, 1,200 participants) this was the case for the comparison between triphasic LNG 50-70-125 µg/EE 30-40-30 µg and monophasic NET 400 µg/EE 35 µg. In the review comparing COCs containing 20µg estrogen versus those containing >20µg (Gallo 2011, RCT one study, 416 participants), this refers to the comparison between EE 20µg + gestodene 75µg and EE 30µg + gestodene 75µg. For the comparison between monophasic NE (norethindrone) 0.4mg + EE 35mcg and monophasic LNG (levonorgestrel) 150mcg + EE 30mcg (monophasics) reported by a review interested in progestogens in COCs (Maitra 2004, RCT, one study, 150 participants) this was also the case.

Furthermore, in a review which compared biphasic and triphasic oral contraceptives (Van Vliet 2006a, RCT, one study, 1,199 participants), this occurred in both the comparison between biphasic levonorgestrel/EE (preparation Alpha) and triphasic levonorgestrel/EE (preparation Gamma), and the comparison between biphasic levonorgestrel/EE (preparation Beta) and triphasic levonorgestrel/EE (preparation

Gamma). Finally, one review (Grimes 2010b: progestin-only pills for contraception; RCT; one study) reported on a study comparing progestin-only pills started six weeks post-partum versus a six-month post-partum commencement, in which there were similarly no pregnancies in either group.

Annex 2, Table 4.2k provides pre- and/or post-coital hormonal contraception to prevent pregnancy. One pill of Chinese –versus Hungarian- made tablet of LNG 0.75 mg taken as oons as possible after the first coitus and no longer than 8 hours after. A second tablet was taken 24 hours regardless of whether another coital exposure had occurred during that time. There was no significant difference between the two types and the average Pearl Index was 16.1 (1 study and 361 participants). One dose quinestanol acetate within 24 hours of intercourse in 0.5 mg, 0.6 mg, 0.75 mg, 0.8 mg, 1.5 mg and 2.0 mg showed increading Pearl Index with decrease in doses (1 study and 2,792 participants). Quinestanol acetate within 24 hours of intercourse in 0.2 mg, 0.3 mg, 0.4 mg, 0.5mg, 0.75 mg and 0.8mg also showed higher Perl Index for lower doses (1 study and 317 participants). Progestogens before/after coitus was examined in one review (1 study and 1,805 participants). Pearl Index for Retroprogestogen 30-40mg was 4.5; Ethynodiol 0.5 was 36.9, Norgestrienone 0.5mg was 2.6, Clogestone 1.0 mg was 2.5. One review examined Clogestone 1.0 mg 5/6 hours prior to intercourse (Pearl Index 17); two clogestone 0.6 one before and one after coitus (Pearl Index 15) and two clogestone 1.0 mg one before and one after coitus (Pearl Index 15).

2. THE INTRAUTERINE DEVICE (IUD), INCLUDING IMMEDIATE POST-PARTUM AND POST-ABORTION INSERTION

This analysis is based on 24,643 women. It was not possible to separate out how many were contacted, how many agreed, and how many dropped out from the study. It is, therefore, difficult to ascertain whether the results pertain to the effectiveness or the efficacy of the method to prevent pregnancy. Of the included systematic reviews, five examined the impact of intrauterine devices on pregnancy and discontinuation of the method (French 2004; Grimes 2010a; Kulier 2007; O'Brien 2005; Wen 2009: see Appendix 4.2, Tables 4.2d and 4.2e). Within these reviews, 16 comparisons contained extractable data from developing countries and examined pregnancy and/or discontinuation/continuation as outcomes.

Within the included systematic reviews, there was high-quality evidence that, at both one and two years follow-up, TCu380A was more effective at pregnancy prevention than MLCu375 (rate difference: 0.75 [0.13, 0.37; 2 RCT studies and 3371 participants] and 1.50 [95%CI: 0.09, 2.91, 1 RCT study and 1,894 participants] respectively). This was supported by moderate-quality evidence from a different systematic review (RR: 0.25 [95%CI: 0.08, 0.75, 4 studies and 3,617 participants]). Furthermore, there was moderate quality of evidence to suggest that TCu380A was more effective than MLCu250 (rate difference: 1.00 [95%CI: 0.24, 1.76, 1 study and 2,043 participants]). Within TCu IUDs, moderate-quality evidence suggested that TCu220 was more effective than TCu380A at two years follow-up (rate difference: −1.00 [95%CI: −1.98, −0.02, 1 study and 954 participants]). However, it should be noted that, as presented below, this was not the case at one and three years follow-up.

For five comparisons, there was moderate-quality evidence to suggest that there were no differences in effect between the following types of IUD: LNG-20 intrauterine system versus non-hormonal IUD >250mm^2 (rate ratio at 3 years: 0.11, 95%CI: 0.01, 2.12, 1 study and 2,118 participants) and versus a non-hormonal IUD ≤250mm^2 (rate ratios: −0.90 [95%CI: −2.01, −0.21, 1 study and 2,118 participants] (year 1 and 2), −0.56 [95%CI: −1.30, 0.18, 1 study and 2,118 participants] year 3);

TCu380S versus TCu380A (rate differences: 0.10 [95%CI: −0.33, 0.53, 1 study and 1,568 participants], −0.18 [95%CI: −0.73, 0.37, 1 study and 1568 participants], −0.90 [−95%CI: 2.21, 0.41, 1 study and 1,568 participants] at one, two and three years respectively); TCu220 versus TCu380A (rate differences: −0.20 [95%CI: −1.47, 1.07, 2 studies and 1,811 participants] and −0.70 [95%CI: −1.84, 0.44, 1 study and 954 participants] at one and three years respectively); and also for TCu200 versus TCu380A (rate differences: 1.06 [95%CI: −0.90, 3.02, 3 studies and 2,842 participants], 0.72 [95%CI: −1.65, 3.09, 3 studies and 2,842 participants] and 0.60 [95%CI: −0.93, 2.13, 1 study and 964 participants] at one, two and three years respectively).

Finally, three comparisons provided low-quality evidence of no difference between the following types of IUD: LNG-20 intrauterine system versus subdermal implants (rate ratios: 3.01 [95%CI: 0.13, 75.56, 1 study and 200 participants], 3.06 [95%CI: 0.12, 75.56, 1 study and 200 participants] and 3.00 [95%CI: 0.12, 73.53, 1 study and 200 participants] at one, two and three years respectively); TCu220 versus the MLCu375 (rate difference: 0.44, 95%CI: -1.17, 2.05, 1 study and 768 participants); and also TCu380A versus the GyneFix frameless IUD (rate difference: -0.34, 95%CI: -1.01, -0.33, 1 study and 606 participants). One review (Grimes 2010a, predominantly RCTs) also examined the immediate post-partum insertion of intrauterine devices. This review reported low-quality evidence of no difference between the immediate post-partum insertion of Delta T versus Delta loop (12-month pregnancy rates per 100 women of 0 and 2.1 respectively, 1 study and 400 participants).

3. INJECTABLES

Data for this method comes from 15,826 women who had accepted injectables as a contraceptive method. No data is available on dropout from the studies. Therefore, the results may be interpreted as efficacy or effectiveness of injectables to prevent pregnancy. Two of the included systematic reviews examined injectables (Draper 2006; Gallo 2008: see Appendix 4.2, Table 4.2f); five of the comparisons contained relevant data from developing countries and could be included in the overview. For two comparisons, extractable data were available for pregnancy and discontinuation; an additional comparison had extractable data for pregnancy only and the remaining two for discontinuation only.

There was moderate-quality evidence to suggest that there was no difference between the number of pregnancies that occur with NET-EN 50mg/E2V 5mg and DMPA 25mg/E2C 5mg. Additionally, there was low-quality evidence suggesting that NET-EN 50mg/E2V 5mg was equally as effective as NET-EN 200mg and non-hormonal IUDs (from Gallo 2008).

4. INTRAUTERINE DEVICES VERSUS INJECTABLES

One included systematic review examined intrauterine devices compared with injectables for contraception (Hofmeyr 2010: see Appendix 4.2, Table 4.2g). The number of women who completed the trial and were included in the analysis was 482. Although there were discontinuation and dropouts from the trial, it was not possible to extract that information from the systematic reviews. Therefore, the results may be interpreted as efficacy or effectiveness to prevent pregnancy. One of the comparisons contained relevant data from developing countries and could be included in the overview. This review pooled results from two studies to examine pregnancy in copper-containing intrauterine devices versus depot progestogen. For discontinuation, the two studies were reported separately (due to heterogeneity).

There is moderate-quality evidence to suggest that there were fewer pregnancies with copper-containing intrauterine devices than with depot progestogens (RR: 0.47, 95%CI: 0.25, 0.85, 1 study and 937 participants).

5. IMPLANTS

One included systematic review examined implants for contraception (Power 2007: see Appendix 4.2, Table 4.2h). The number of women included in this analysis was 1,219. It was not possible to extract data on the number of women who dropped out; the results may thus be interpreted as efficacy or effectiveness. One of the comparisons contained relevant data from developing countries and could be included in the overview. Narrative synthesis was provided for this comparison; no meta-analyses were conducted.

This review reported low-quality evidence from three systematic reviews (3 studies and 1,219 participants) which indicated no differences in effectiveness for pregnancy prevention between Implanon versus Norplant; there were no pregnancies in either group.

6. THE FEMALE CONDOM

No systematic reviews examining female condoms met the eligibility criteria for this overview of reviews.

7. THE MALE CONDOM

No systematic reviews examining male condoms met the eligibility criteria for this overview of reviews.

8. EMERGENCY CONTRACEPTION (EC)

One included systematic review examined emergency contraception (Cheng 2008: Appendix 4.2, Table 4.2i). The results are based on 31,480 women. There was no dropout reported in this study, so the results can be interpreted as efficacy of emergency contraception to prevent contraception. No information is available to calculate the effectiveness or acceptability of this method. Eighteen of the comparisons contained relevant data from developing countries and could be included in the overview.

For six comparisons, there were significant differences between the intervention and comparison emergency contraceptive regimens, although the quality of the evidence for these varied. There is moderate-quality evidence that mid-dose mifepristone (25-50mg) is more effective than low-dose mifepristone (<25mg) (RR: 0.66, 95%CI: 0.47, 0.91, 19 RCT studies and 11,432 participants). Five further comparisons offered low- to very low-quality evidence to favour one emergency contraceptive regime over another. These comparisons suggested the following differences: IUD as more effective than expectant management (RR: 0.09, 95%CI: 0.03, 0.26, 1 study and 300 participants), mid-dose (25-50mg) and low-dose (<25mg) mifepristone as more effective than levonorgestrel (RR: 2.01 [95%CI: 1.27, 3.17, 15 studies and 3,743 participants] and RR: 2.05 [95%CI: 1.11, 3.81, 7 studies and 1,647 participants] respectively), and high dose (>50mg) as more effective than low-dose (<25mg) mifepristone (RR: 0.19, 95%CI: 0.04, 0.90, 4 studies and 1,726 participants). There were also lower numbers of pregnancies in groups taking mifepristone than in those taking anordrin (RR: 0.26, 95%CI: 0.11, 0.63, 7 studies and 1,035 participants).

For twelve comparisons there were no significant differences between the intervention and comparison emergency contraceptive regimens. Again, the quality of the evidence for these varied. There is moderate-quality evidence to suggest that there is no difference in effectiveness at pregnancy prevention between a split dose of levonorgestrel given 24 hours apart and one given 12 hours apart (RR: 0.98, 95%CI: 0.53, 1.82, 1 study and 2,060 participants) nor between a split dose (given 12 hours apart) and a single dose (RR: 0.54, 95%CI: 0.16, 1.85, 1 study and 1,118 participants). For the remaining comparisons, there was low- to very low-quality evidence of no difference in effectiveness. This includes levonorgestrel versus

anordrin (RR: 0.67, 95%CI: 0.11, 3.89, 1 study and 172 participants) and a variety of comparisons between doses of mifepristone: a low dose of <25mg versus a low dose of ≤10mg (RR: 1.04, 95%CI: 0.07, 16.37, 1 study and 220 participants), a mid-dose of >50mg versus a mid-dose of 25mg (RR: 0.72, 95%CI: 0.41, 1.27, 13 studies and 3,123 participants) and a high dose (>50mg) versus a mid-dose (25-50mg) (RR: 0.83, 95%CI: 0.39, 1.77, 8 studies and 1,890 participants).

Further, there was very low-quality evidence of no difference in effectiveness between mifepristone and danazol (RR: 0.20, 95%CI: 0.02, 1.67, 1 study and 241 participants). Similarly, when comparing mifepristone alone with mifepristone combined with other agents there was low- to very low-quality evidence of no effect. The additive agents were as follows: anordrin (RR: 1.32, 95%CI: 0.72, 2.41, 5 studies and 3,038 participants]), MTX (RR: 3.00 [95%CI: 0.13, 71.92, 1 study and 100 participants), tamoxifen (RR: 3.00, 95%CI: 0.31, 28.60, 1 study and 400 participants) and misoprostol (RR: 3.49, 95%CI: 0.73, 16.65, 1 study and 599 participants). Similarly, there was very low-quality evidence of no difference in effectiveness between mifepristone and Cu-IUD (RR: 1.51, 95%CI: 0.06, 36.67, 1 study and 185 participants).

9. THE DIAPHRAGM

No systematic reviews examining the diaphragm met the eligibility criteria for this overview of reviews.

10. FOAM/JELLY (SPERMICIDES)

One included systematic review examined spermicides (Grimes 2005). The results are based on 3,031 women who completed the trial in various studies included in the systematic review. No information is available on dropouts. Five of the comparisons contained relevant data from developing countries and could be included in the overview (Appendix 4.2, Table 4.2j). All comparisons were reported narratively; no meta-analyses were conducted.

There was moderate evidence of no effect for three comparisons: between Neo sampoon tablet (menfegol 60mg) and Ortho/Emko vaginal tablet (100mg of nonoxynol-9), Ortho vaginal tablet (100mg of nonoxynol-9) and Emko vaginal tablet (nonoxynol-9) The 12 moth rates were 15.2 for menfegol and 22.5 for Ortho (3 RCT studies and 672 participants), and also between Neo sampoon tablet (menfegol 60mg) and Emko foam, life table rates were same(nonoynol-9 8 percent, 2 RCT studies and 620 participants). There was low-quality evidence to suggest that there was no difference in the efficacy for pregnancy prevention of collate sponge life table pregnancy rates (nonoxynol-9 1.15mg and Neo sampoon tablet (menfegol 60mg, 1 RCT study and 1,299 participants).

4.4.1.3 Traditional methods

1. PERIODIC ABSTINENCE

One included systematic review examined fertility awareness-based methods for contraception (Grimes 2004). The results are based on 566 women who completed the trial in various studies included in the systematic review. No information is available on dropouts. One of the comparisons contained relevant data from developing countries and could be included in the overview (see Appendix 4.2, Table 4.2l). This comparison was reported narratively; no meta-analyses were conducted.

The systematic review reported a comparison between the ovulation method and the symptothermal method. However, the evidence for this comparison was of very low quality and there were no pregnancies in either group.

2. WITHDRAWAL
No systematic reviews examining withdrawal met the eligibility criteria for this overview of reviews.

3. LACTATIONAL AMENORRHEA METHOD (LAM)
One included systematic review examined the lactational amenorrhea method (Van der Wijden 2003). The results are based on 1,411 women; no information is available on dropouts. Two of the comparisons contained relevant data from developing countries and could be included in the overview (see Appendix 4.2, Table 4.2l). All comparisons were reported narratively; no meta-analyses were conducted, and the quality of the evidence for all comparisons was very low.

One study compared LAM with support versus LAM without support. The life-table pregnancy rate was 0.45 in the LAM with support group (one pregnancy in 1,671 woman-months accumulated, 1 study and 676 participants) and there were no pregnancies in the LAM without support group. Another study compared LAM with support with controls who used non-hormonal IUDs two months post-partum and on-demand feeding. No women became pregnant in the IUD group and the life-table pregnancy rate for those using LAM with support was 2.45 after 6 months (1 study and 735 participants, using the standard definition of amenorrhea).

4.4.2 Discontinuation

4.4.2.1 Terminal methods

1. FEMALE STERILISATION
As female sterilisations are terminal methods, once a woman accepts sterilisation, it is very rarely reversed. The systematic reviewed included in this overview did not examine reversal of female sterilisation.

2. MALE STERILISATION
No systematic reviews examining male sterilisation met the eligibility criteria for this overview of reviews.

4.4.2.2 Spacing/temporary methods

1. THE PILL
Overall 15,201 women agreed to participate in various trials included in the systematic reviews included in the overview; 3,502 dropped out from the studies. Of the included systematic reviews, seven examined the impact of oral contraception on pregnancy and discontinuation of the method (Edelman 2005; Gallo 2011; Grimes 2010b; Kejuan 2007; Maitra 2004; Van Vliet 2006a, b: see Appendix 4.2, Tables 4.2b and 4.2c). Within these reviews, 17 comparisons contained extractable data from developing countries examining pregnancy as an outcome. Fifteen comparisons contained extractable and relevant data examining discontinuation as an outcome. Data on continuation was reported for a further comparison.

For discontinuation, there were significant differences identified between the intervention and comparison oral contraceptive regimens. One review (Maitra 2004, predominantly RCTs), interested in progestogens in COCs, identified moderate-quality evidence that (using pooled data from two studies) there was lower discontinuation for monophasic norgestrel 0.3mg/EE 30mcg (second-generation OC) than for monophasic norethindrone acetate 1.5mg/EE 30mcg (Lo-estrin: first-generation OC: RR = 0.79, 95%CI 0.69, 0.91; 2,074 participants). This review also identified low-quality evidence from one study that monophasic NE (norethindrone) 0.4mg + EE 35mcg had lower discontinuation than monophasic LNG (levonorgestrel) 150mcg + EE 30mcg (RR = 0.79, 95%CI 0.66, 0.94; 1,199 participants).

For two comparisons, there was moderate evidence of no difference between the intervention OC and the comparison OC. The first was reported by a review comparing various triphasic OCs versus monophasic OCs (Van Vliet 2006b, RCT; 1 study and 189 participants), which found no difference in discontinuation between triphasic LNG 50-70-125mcg/EE 30-40-30mcg and monophasic NET 400mcg/EE 35mcg. The second was reported by the review concerned with progestogens in COCs (Maitra 2004, predominantly RCTs, 3 studies and 1,730 participants), which found no difference in discontinuation between monophasic desogestrel 150mcg + EE30mcg and monophasic gestodene 75mcg + EE30mcg.

Furthermore, there was low-quality evidence of no difference for eleven comparisons. The included review (Van Vliet 2006b, predominantly RCTs) that compared various triphasic OCs versus monophasic OCs reported five such comparisons: triphasic LNG 50-70-125 µg/EE 30-40-30 µg versus monophasic LNG 150 µg/EE 30 µg (follow-up = 6 cycles; one study and 189 participants); triphasic LNG 50-70-125 µg/EE 30-40-30 µg versus monophasic LNG 150 µg/EE 30 µg (follow-up = 12 cycles; 3 studies and 3010 participants); triphasic LNG 50-70-125 µg/EE 30-40-30 µg versus monophasic NET 600 µg/EE 35 µg (1 study and 186 participants); triphasic GTD 50-70-100 µg/EE 30-40-30 µg versus monophasic DSG 150 µg/EE 30 µg (follow-up = 6 cycles; 1 study and 168 participants); and triphasic GTD 50-70-100 µg/EE 30-40-30 µg versus monophasic DSG 150 µg/EE 30 µg (follow-up = 12 cycles; 1 study and 168 participants).

A further review (Edelman 2005, RCT; 1 study and 900 participants), which examined continuous or extended cycles versus cyclic use of combined hormonal contraception, reported one such comparison: 28-day cycle (cyclic) vaginal administration of 50µg ethinyl estradiol and 250µg levonorgestrel versus 1 year (continuous) administration. Another (Gallo 2008: COCs containing 20µg estrogen versus those containing >20µg), reported two comparisons with low-quality evidence for no difference: EE 20µg + desogestrel 150µg vs EE30µg + gestodene 75µg (1 study and 416 participants) and EE 20µg + gestodene 75µg vs EE 30µg + gestodene 75µg (1 study and 150 participants). Two comparisons examining biphasic versus triphasic OCs (Van Vliet 2006a, predominantly RCTs) gave low-quality evidence of no difference: biphasic levonorgestrel/EE (preparation Alpha) versus triphasic levonorgestrel/EE (preparation Gamma) (1 study and 313 participants) and biphasic levonorgestrel/EE (preparation Beta) versus triphasic levonorgestrel/EE (preparation Gamma) (1 study and 298 participants). Finally, a comparison between norethisterone and levonorgestrel 150 + ethinyl estradiol combination pill also provided low-quality evidence of no effect (Grimes 2010b, RCT, 1 study and 1,199 participants).

Annex 2, Table 4.2k provides pre- and/or post-coital hormonal contraception to prevent pregnancy. One dose quinestanol acetate within 24 hours of intercourse in 0.5 mg, 0.6 mg, 0.75 mg, 0.8 mg, 1.5 mg and 2.0 mg. The mean duration of use was 4.8 month/cycles (1 study and 2,792 participants). Quinestanol acetate within 24 hours of intercourse in 0.2 mg, 0.3 mg, 0.4 mg, 0.5mg, 0.75 mg and 0.8mg. Mean duration was 4.2 monthsn (1 study and 317 participants). Progestogens before/after coitus was examined in one review. Retroprogestogen 30-40mg was 4.5; Ethynodiol 0.5 was 36.9, Norgestrienone 0.5mg was 2.6, Clogestone 1.0 mg was 2.5. The mean duration of use was 5.5 months (1 study and 1,805 participants). One review examined Clogestone 1.0 mg 5/6 hours prior to intercourse; two clogestone 0.6 one before and one after coitus and two clogestone 1.0 mg one before and one after coitus. Mean duration of use for this was 5.4 months (1 study and 756 participants).

2. THE INTRAUTERINE DEVICE (IUD), INCLUDING IMMEDIATE POST-PARTUM AND POST-ABORTION INSERTION

This analysis on the discontinuation of use of an intrauterine device is based on 24,643 women who participated in various trials. Of the included systematic reviews, five examined the impact of intrauterine devices on pregnancy and discontinuation of the method (French 2004; Grimes 2010a; Kulier 2007; O'Brien 2005; Wen 2009: see Appendix 4.2, Tables 4.2d and 4.2e). Within these reviews, 16 comparisons contained extractable data from developing countries and examined pregnancy and/or discontinuation/continuation as outcomes.

Four of the five comparisons that could be extracted for this overview provide moderate evidence of no difference in discontinuation. These are as follows: LNG-20 versus a non-hormonal IUD ≤250mm^2 (rate ratio at 2 years follow-up: 0.93 [95%CI: 0.80-1.07, 1 study and 2,118 participants]); MLCu250 versus TCu380A (rate difference at 1 year follow-up: −1.50, 95%CI: −1.26, 4.26, 1 study and 2,043 participants) and also the TCu220 when compared with the TCu380A (rate difference at 1 year follow-up: −3.00, 95%CI: −7.21, 1.21, 1 study and 857 participants). Similarly, there was moderate evidence of no difference in discontinuation for the TCu200 versus the TCu380A (rate difference at 1 year follow-up: 1.00, 95%CI: −2.96, 4.96, 1 study and 1,678 participants). For the remaining comparison, there was low-quality evidence of no difference between LNG-20 versus subdermal implants (rate ratio at 1 year: 0.97, 95%CI: 0.72-1.31, 1 study and 200 participants).

3. INJECTABLES

Data for the analysis of discontinuation of injectables were taken from 15,826 women who participated in various studies included in the systematic reviews. Two of the included systematic reviews examined injectables (Draper 2006; Gallo 2008: see Appendix 4.2, Table 4.2f); five of the comparisons contained relevant data from developing countries and could be included in the overview. For two comparisons, extractable data were available for pregnancy and discontinuation; an additional comparison had extractable data for pregnancy only and the remaining two for discontinuation only.

There was moderate-quality evidence that DMPA 25mg/E2C 5mg had lower discontinuation than NET-EN 50mg/E2V 5mg (from Gallo 2008: Peto OR = 0.75, 95%CI: 0.67, 0.84, 2 RCT studies and 4272 participants). There was also moderate-quality evidence to suggest that there was no difference in discontinuation between administering DMPA 150mg IM every 3 months versus NET-EN 200mg IM every 2 months (from Draper 2006, 10 RCT studies and 2,467 participants). Additionally, there was low-quality evidence suggesting that discontinuation was higher with DMPA 25mg/E2C 5mg than with DMPA 150mg (1 RCT study and 360 participants), and with NET-EN 50mg/E2V 5mg than NET-EN 200mg (1 RCT study and 849 participants) (from Gallo 2008).

4. INTRAUTERINE DEVICES VERSUS INJECTABLES

One included systematic review examined intrauterine devices compared with injectables for contraception (Hofmeyr 2010: Appendix 4.2, Table 4.2g). The number of women included in this analysis was 482. Due to heterogeneity, the two studies reporting discontinuation were reported separately. Both provided moderate-quality evidence; however, the studies provided conflicting results. One compared copper-containing intrauterine devices with depot progestogen only and found lower discontinuation with the IUD (RR: 0.17, 95%CI: 0.07, 0.39, 1 RCT study and 338 participants). However, an alternative study, comparing copper-containing intrauterine devices with mixed hormonal contraception (depot progestogen and/or OC), found lower discontinuation with the mixed hormonal contraception (RR: 4.20,

95%CI: 3.06, 5.78, 1 study and 599 participants).

5. IMPLANTS
See Section 4.4.4.3 on continuation.

6. THE FEMALE CONDOM
No systematic reviews examining female condoms met the eligibility criteria for this overview of reviews.

7. THE MALE CONDOM
No systematic reviews examining male condoms met the eligibility criteria for this overview of reviews.

8. EMERGENCY CONTRACEPTION (EC)
One included systematic review examined emergency contraception (Cheng 2008: Appendix 4.2, Table 4.2i). The results presented in this section are based on 31,480 women, and 18 of the comparisons contained relevant data from developing countries and could be included in the overview.

9. THE DIAPHRAGM
No systematic reviews examining the diaphragm met the eligibility criteria for this overview of reviews.

10. FOAM/JELLY (SPERMICIDES)
One included systematic review examined spermicides (Grimes 2005). The results presented for the discontinuation of spermicides is based on the 3,303 women were recruited for trials. Five of the comparisons contained relevant data from developing countries and could be included in the overview (Appendix 4.2, Table 4.2j). All comparisons were reported narratively; no meta-analyses were conducted.

This review presented low-quality evidence to suggest that there is no difference in rates of discontinuation between: collatex sponge (nonoxynol-9 1.15mg) and Neo sampoon tablet (menfegol 60mg) (1 RCT study and 1,299 participants); Neo sampoon tablet (menfegol 60mg) and Emko foam (nonoxynol-9 8 percent) (2 RCT studies and 620 participants); Neo sampoon tablet (menfegol 60mg) and vaginal foaming tablets containing nonoxynol-9 (1.15mg) (2 RCT studies and 440 participants); and those containing menfegol 60mg versus Ortho or Emko vaginal tablet (100mg of monoxynol-9) (3 RCT studies and 672 participants). As the results of these comparisons were presented narratively, there are conflicting findings for some comparisons.

For example, the review presented low-quality evidence that suggested similar discontinuation rates between Neo sampoon tablet (menfegol 60mg) and Ortho/Emko vaginal tablet (nonoxynol-9 100mg) (2 RCT studies and 440 participants); however, it also presented low-quality evidence to suggest that there was significantly lower discontinuation due to discomfort for Neo sampoon tablet (menfegol 60mg) than for Ortho vaginal tablet (100mg of nonoxynol-9) (3 RCT studies and 672 participants), which was significantly lower than for Emko vaginal tablet (100mg of nonoxynol-9) (2 RCT studies and 440 participants). Similarly, the review also presented conflicting low-quality evidence for the relative discontinuation rates for Ortho vaginal tablet (nonoxynol-9 100mg) compared with the Emko vaginal tablet (nonoxynol-9 100mg) (2 RCT studies and 440 participants). One RCT study suggested no difference in discontinuation, while another suggested lower discontinuation for Ortho vaginal tablet (nonoxynol-9 100mg).

4.4.2.3 Discontinuation: traditional methods

1. PERIODIC ABSTINENCE

One included systematic review examined fertility awareness-based methods for contraception (Grimes 2004); one of the comparisons contained relevant data from developing countries and could be included in the overview (see Appendix 4.2, Table 4.2l). This comparison was reported narratively; no meta-analyses were conducted.

The low-quality evidence reported by the systematic review for the comparison between the ovulation method and the symptothermal method suggests that there is relatively high discontinuation for both methods. There was high drop-out before the beginning of the observation period (but after randomisation); 53 percent of couples in the ovulation method group dropped out, as did 61 percent of those in the symptothermal method group. During follow-up, 31 percent of couples in the ovulation method group discontinued compared with 30 percent of those in the symptothermal method group.

2. WITHDRAWAL

No systematic reviews examining withdrawal met the eligibility criteria for this overview of reviews.

3. LACTATIONAL AMENORRHEA METHOD (LAM)

Discontinuation was not reported for any comparisons included in this overview of reviews.

4.4.3 Continuation

4.4.3.1 Terminal methods

1. FEMALE STERILISATION

The systematic reviews included in this overview did not examine continuation of female sterilisation as this is a terminal family planning method.

2. MALE STERILISATION

No systematic reviews examining male sterilisation met the eligibility criteria for this overview of reviews.

4.4.3.2 Spacing/temporary methods

1. THE PILL

Overall 15,201 women agreed to participate in various trials included in the systematic reviews that were included in the overview. Of these, 3,502 discontinued. Of the included systematic reviews, seven examined the impact of oral contraception on pregnancy and discontinuation of the method (Edelman 2005; Gallo 2011; Grimes 2010b; Maitra 2004; Kejuan 2007; Van Vliet 2006a, b: see Appendix 4.2, Tables 4.2b and 4.2c). Within these reviews, 17 comparisons contained extractable data from developing countries examining pregnancy as an outcome. Fifteen comparisons contained extractable and relevant data examining discontinuation as an outcome. Data on continuation was reported for a further comparison.

Two comparisons reported continuation rather than discontinuation. Both provided low-quality evidence. One (Grimes 2010b, 1 study and 200 participants) involved progestin-only pills started six weeks post-partum versus a six-month post-partum commencement, in which there was similar continuation in each group. The second (from Kejuan 2007, 1 study and 712 participants) involved Quin-Ng versus Quin-Lng where the one- and two-year net cumulative continuation rates for Quin-Lng pills were 87 and 78 per 100 respectively, and for Quin-Lng pills, 74 and 64 per 100

respectively. The difference between the two pills appeared to be due to discontinuation for side effects other than bleeding problems.

2. THE INTRAUTERINE DEVICE (IUD), INCLUDING IMMEDIATE POST-PARTUM AND POST-ABORTION INSERTION

Of the included systematic reviews, five examined the impact of intrauterine devices on pregnancy and discontinuation of the method (French 2004; Grimes 2010a; Kulier 2007; O'Brien 2005; Wen 2009: see Appendix 4.2, Tables 4.2d and 4.2e). Within these reviews 16 comparisons contained extractable data from developing countries and examined pregnancy and/or discontinuation/continuation as outcomes.

For one comparison there was moderate-quality evidence to suggest that continuation was higher with TCu380S than with TCu380A (rate difference at 1 year: −5.50, 95%CI: − 9.11, − 1.89, 1 study and 1,568 participants). When comparing the immediate post-partum insertion of TCu200 versus progestasert, there was low-quality evidence to suggest that there was higher continuation with the TCu200 regardless of method of insertion: 12-month continuation rates (per 100 women) for hand insertion were 86.3 for the Tcu 200 and 59.9 for the progestasert and for instrument insertion were 86.1 and 57.2 respectively (1 study and 400 participants). Low-quality evidence from a different review indicates higher continuation in Gynefix frameless IUD than in TCu380A at two and three years follow-up: continuation rates (SE) at 3 years were 90.7(1.7) in the GyneFix group and 85.3(2.0) in the TCu380A group (1 study and 606 participants).

There was moderate-quality evidence of no difference in continuation between MLCu375 and TCu380A (rate difference: −2.20, 95%CI: −5.39, 0.99, 1 study and 1477 participants) and also between TCu200 and TCu380A (rate difference: −3.00, 95%CI: −12.84, 6.84, 1 study and 200 participants). With regard to the immediate post-partum insertion of IUDs, there was low-quality evidence of no difference in continuation between Delta T and Delta loop: 12-month continuation rates per 100 women were 93.3 for the Delta Loop and 90.7 for Delta T (1 study and 246 participants); and between TCu200 and IPCS-52mg: 12-month continuation rates per 100 women were 73.8 for the Tcu 200 and 57.3 for the IPCS-52 (1 study and 400 participants).

3. INJECTABLES

Two of the included systematic reviews examined injectables (Draper 2006; Gallo 2008: see Appendix 4.2, Table 4.2f), but data were reported only on discontinuation, not on continuation.

4. INTRAUTERINE DEVICES VERSUS INJECTABLES

One included systematic review examined intrauterine devices compared with injectables for contraception (Hofmeyr 2010: Appendix 4.2, Table 4.2g), but data were reported only on discontinuation, not on continuation.

5. IMPLANTS

One included systematic review examined implants for contraception (Power 2007: see Appendix 4.2, Table 4.2h). The number of women included in this analysis was 1,219. One of the comparisons contained relevant data from developing countries and could be included in the overview. Narrative synthesis was provided for this comparison; no meta-analyses were conducted.

With regard to continuation, low-quality evidence indicated no significant differences between Implanon and Norplant at one, two, three and four years follow-up (3 studies and 1,219 participants). At 1 year, 91.6 percent continued to use Implanon and 92.4 percent continued to use Norplant; at 2 years, the continuation figures were 82.5 percent and 81.4 percent respectively; at 3 years,

67.4 percent and 72.5 percent; and at 4 years, 17.1 percent and 16.9 percent.

6. THE FEMALE CONDOM
No systematic reviews examining female condoms met the eligibility criteria for this overview of reviews.

7. THE MALE CONDOM
No systematic reviews examining male condoms met the eligibility criteria for this overview of reviews.

8. EMERGENCY CONTRACEPTION (EC)
One included systematic review examined emergency contraception (Cheng 2008: see Appendix 4.2, Table 4.2i), but no data were reported on continuation.

9. THE DIAPHRAGM
No systematic reviews examining the diaphragm met the eligibility criteria for this overview of reviews.

10. FOAM/JELLY (SPERMICIDES)
One included systematic review examined spermicides (Grimes 2005), but data were reported only on discontinuation, not on continuation.

4.4.3.3 Traditional methods

1. PERIODIC ABSTINENCE
The analysis is based on 1,411 women who participated in trials. One included systematic review examined fertility awareness-based methods for contraception (Grimes 2004), but data were reported only on discontinuation, not on continuation.

2. WITHDRAWAL
No systematic reviews examining withdrawal met the eligibility criteria for this overview of reviews.

3. LACTATIONAL AMENORRHEA METHOD (LAM)
The analysis is based on 1,411 women participated in the trials. One included systematic review examined the lactational amenorrhea method (LAM: Van der Wijden 2003), but no data were reported on continuation.

5. Conclusions and recommendations

Overall, this OoR could not answer questions on the impact of various contraceptive methods and mixes of contraceptive methods on contraceptive prevalence and unmet need for family planning (objectives 1 and 3). This is because there were no systematic reviews available to include in the OoR, a restriction imposed by the OoR methodology. Therefore, the OoR predominantly focuses on various contraceptive methods on preventing pregnancy. In general, the quality of the evidence for the comparisons examined with this overview of reviews was low. In part, this was due to inconsistent reporting of risk of bias within systematic reviews, which limited the ability to make confident assessments of the quality of the evidence. However, there were several comparisons for which there was moderate evidence and this section will focus predominantly on these. Where there are important gaps in the evidence, or where there are important implications when evidence is of low quality, these will also be discussed. This section is arranged with commentary in relation to each contraceptive method in turn, highlighting findings of potential importance for policy and programming, and identifying topics that should be a focus for further research in each case.

5.1 Sterilisation in developing countries

Where female sterilisation is concerned, included studies examined sterilisation conducted in a number of circumstances; immediately post-partum (including after a Caesarean section), delayed post-partum, post-abortion and interval.[6] There is good evidence to suggest that rings and clips are equally effective for tubal occlusion; both have a very low failure rate. Thus, consideration of costs, infrastructure issues and the risk and severity of side effects might usefully inform programme decisions. Studies comparing these methods with others (Modified Pomeroy and electrocoagulation) suggested that failure rates were very low for all methods; however, the quality of the evidence was poor and event rates (i.e., incidences of subsequent pregnancy) were zero in all groups. For all comparisons, the follow-up periods were short. Hence, longitudinal research making direct comparisons between the full range of methods (on a number of outcomes) would be informative.

Such research would also allow a fuller investigation of the relative effectiveness (and risk of side effects) of conducting sterilisation in a variety of circumstances in developing countries, as only one study has currently done so (Yan et al. 1990; conducted in Taiwan). As Caesarean delivery rates increase in the developing world, there is an increasing number of women who are likely to undergo repeat Caesarean for subsequent births and request the convenience of tubal ligation at the same time (Ghoshal et al. 2003). Post-partum tubal ligation is not favoured in developed countries because of concern about the small risk of venous thromboembolism following surgery in the puerperium,[7] but it remains popular in many developing countries because of a desire to reduce costs and avoid further hospital admission for an interval procedure.

In the case of South India, there is a concern that very widespread recourse to

[6] i.e. more than six weeks after birth.

[7] The period of about six weeks after childbirth during which the reproductive organs return to their original non-pregnant state.

female sterilisation at a low mean age may have adverse consequences such as regret and request for reversal or recourse to assisted conception (Singh et al. 2012). These concerns are set against the advantages of limiting family size such as opportunities for education and employment. An examination of these issues within longitudinal research (in any developing country) might help to build a fuller picture of the advantages and disadvantages of sterilisation for individuals, communities and populations.

A systematic review has been conducted comparing minilaparotomy versus laparoscopic approaches to sterilisation, which may be informative for policy makers, as some of the included studies were conducted within developing countries. However, this review focused on morbidity and mortality as outcomes, and consequently did not fall within the scope of this overview of reviews (Kulier et al. 2004). It is also important to highlight that although there are systematic reviews on male sterilisation (e.g. Cook 2007a, b), these were not included in this overview. For one review, this was because the data for developing countries could not be extracted separately, and for the other, it was because the outcomes examined (azoospermia) did not meet the inclusion criteria. A systematic review of the literature on this topic within developing countries would probably provide greater understanding of the effectiveness and acceptability of male sterilisation in this context.

5.2 Oral contraception in developing countries

A number of systematic reviews were included which compared a wide variety of different oral contraceptive preparations (biphasic versus triphasic, triphasic versus monophasic, 20µg versus >20µg oestrogen, progestogens in combined oral contraceptives, progestin-only pills) and modes of administration (continuous or extended cycle versus cyclic use, once-a-month pills). For the majority of comparisons, the evidence suggested that there was no difference in effectiveness or discontinuation between a variety of oral contraceptive formulations and modes of administration, and for all comparisons, pregnancy rates were low in each group. However, the quality of evidence ranged widely, from very low to moderate, and follow-up was generally short. Thus, at present there is little to recommend one preparation over another and the choice of preparations to be included in programming might be more usefully informed by availability in countries and cost.

There was, however, good evidence (from studies conducted in Malaysia, Egypt, Thailand, Mexico and the Philippines) to suggest that in the case of one oral contraceptive preparation, the second-generation pill (monophasic norgestrel 0.3mg/EE 30mcg) decreased the risk of pregnancy by 88 percent and the risk of discontinuation by 21 percent when compared with the first generation (monophasic norethindrone acetate 1.5mg/EE 30mcg). It is difficult to make a statement about the extent to which this is true of all second- versus first-generation oral contraceptives, since the quality of the evidence for the other comparisons was low. Further research would help to elucidate this. However, at least for the above preparation, these findings suggest that policy and programming should be focused on procurement and supply chain logistics to allow access to the second-generation preparation. Moreover, the cost-effectiveness analyses underpinning procurement decisions should incorporate discontinuation evidence. This evidence may lead to procurement of more expensive but better tolerated preparations as part of a 'pill mix', for example to offer a 'second line' preparation for those experiencing problems with the basic pill preparation. In general, public family planning programmes in developing countries have yet to offer more than one combined pill preparation.

Although this overview did not seek to make indirect comparisons, and the quality of evidence is generally low, looking across studies, discontinuation rates vary widely. This might be reflective of differences in study design and execution, but might also reflect population/cultural differences in acceptance of different oral contraceptives. Studies were conducted over a wide range of countries and regions. The overview of reviews methodology is not best suited to exploration of the different rationales for 'discontinuation' in detail. In a mature family planning programme, method switching is expected and can be seen as a marker of a balanced programme offering informed choice from a range of methods. On the other hand, it may simply represent dissatisfaction with the method or with the programme. Reference to contextual studies of 'reasons for discontinuation' is required to obtain a nuanced understanding of these issues. It may be that certain programmes experience more discontinuation and would be better able to make use of 'low discontinuation' pill preparations than other programme settings where discontinuation is less prevalent. This is an appropriate topic for operations research.

This overview was not able to examine reviews of alternative routes of administration of oral contraceptive hormones, such as transdermal and vaginal ring preparations, in developing country settings. Although a systematic review has been conducted comparing skin patches and vaginal rings with oral contraceptives (Lopez et al. 2010) it was not included in the overview because only one included study was conducted in a developing country (Thailand), and this did not meet our inclusion criteria for outcomes. Data from developed countries suggests that these two alternative delivery routes are no more effective than oral contraceptives, although the patch had higher discontinuation rates when compared with oral contraceptives (Lopez et al. 2010). Further studies investigating the effectiveness, acceptability and economics of providing access to newer technology delivery systems for combined hormonal contraception in developing countries is recommended.

5.3 Intrauterine devices in developing countries

The overview identified evidence from one systematic review which indicated a 75 percent reduction (lower bound of confidence interval 25 percent reduction) in the risk of pregnancy with use of the TCu380A device compared with the Multiload Cu375 device, consistent with the widespread incorporation of the former device into programming. There are no appreciable differences between the two 'T' devices with 380 mm^2 copper content. There is heterogeneity in findings of outcomes with devices with a lower copper content (TCu220), and overall there is a limited place for these devices.

There is a dearth of comparative data regarding both pregnancy risk and discontinuation data for the levonorgestrel-releasing intrauterine system (LNG-IUS), although the single developing country study (conducted in India) included in this overview is a large one. It appears unlikely that further primary research or reviews will uncover major differences of programmatic significance in pregnancy rates, and the basis for considering inclusion of the LNG-IUS in programmes is to increase the scope for intrauterine contraception for women with heavy menstrual bleeding, for whom a copper device would be unsuitable. As such, it has an important place, given the high prevalence of menstrual disorders.

Post-partum intrauterine device insertion was addressed in the overview (including insertion immediately after Caesarean section), but the overall quality of the evidence was low. Furthermore, those studies conducted in developing countries compared the effectiveness and (dis)continuation of different types of IUD administered immediately post-partum. Only one included study (conducted in

Turkey) compared immediate with delayed post-partum insertion. This is a vital topic from a programmatic perspective, since the opportunity to provide intrauterine contraception immediately post-partum avoids many of the practical constraints of interval insertion. Delayed post-partum insertion requires a repeat visit and internal examination, which may deter women from having an IUD. The primary literature is mainly from the 1970s and indicates a higher rate of expulsion compared with interval insertion (data not reviewed in this overview); for many women, a higher but not excessive expulsion rate may not be a barrier to this approach, with appropriate counselling. Good-quality studies comparing an immediate versus delayed post-partum insertion of IUDs in a developing country setting are required in order to provide a firm evidence base upon which to base policy.

5.4 Injectables in developing countries

This overview shows that pregnancy rate data for injectables are broadly uninformative for policy and programming, as event rates are extremely low with all the relevant products. There is no recommendation for further work on pregnancy rates, as the key policy and programming issues are continuation rates and, most importantly, the population level impact of substantial use of injectables on variables such as birth spacing. This overview was not able to address birth spacing, but other literature based on analysis of DHS data is available (Rutstein, 2011).

A key finding of this overview is that there is moderate-quality evidence (from a multi-centre trial) to indicate that discontinuation rates do not differ between two commonly used injectables; three-monthly DMPA and two-monthly NET-EN. However, no data studies were conducted in developing countries from which to gain information about the relative effectiveness of these two methods. This means that, at present, programmatic decisions might be more usefully based on cost and availability; there is likely to be little benefit in offering both products together.

Newer products featured in this overview include two combinations of progestogen with estradiol, which may have a more favourable adverse effect profile. There is a substantial effect favouring the NET-EN/E2V formulation, with a 25 percent lower risk of discontinuation compared to DMPA/E2C, and no difference in effectiveness of pregnancy prevention. There are as yet insufficient data from developing countries to evaluate the comparison of the newer NET-EN/E2V formulation against the ‘traditional’ DMPA 150 mg regimen; this should be a high priority for further research, given the massive part played by DMPA in current family planning programming, especially in Africa, and its prominence in community-based distribution programming. It would also be of great interest to establish the impact of NET-EN/E2V on birth spacing and other population-level outcomes.

There was also systematic review data comparing intrauterine contraception with injectables. In this comparison, the IUD was associated with a substantially lower risk of pregnancy, although the findings on discontinuation are contradictory. The former finding is perhaps unexpected and should be a topic for further research, given the moderate pooled sample size. The authors of the systematic review attribute the conflicting discontinuation rates to differences in acceptability across the two included studies. This highlights that acceptability of the IUD versus depot progestogens may differ across populations.

5.5 Implants in developing countries

The overview findings with regard to contraceptive implants are that pregnancy rates are similarly low with both Implanon and Norplant. Discontinuation rates are also similar between formulations and are consistent with typical reproductive behaviour and the product characteristics, with a fall off after three years. The

policy and programming implication is that the choice of formulation to be included in programmes should be based on cost and availability; there would seem to be little advantage in offering more than one formulation. No research priorities were identified in this area.

5.6 Emergency contraception

A number of comparisons in this overview relate to the potential introduction of mifepristone as an agent for use in emergency contraception. The overview indicates that mifepristone at various doses is superior to levonorgestrel, which is the current standard of care. Further comparisons are reported between different doses of mifepristone, and overall the dose of 25-50 mg is favoured. There is no added benefit in combination formulations of mifepristone with other agents. The future place of mifepristone for this purpose will depend on regulatory considerations in countries, given the drug's use at higher doses for medical abortion and the potential for adverse effects on a continuing pregnancy (unlike levonorgestrel).

5.7 Spermicides in developing countries

A limited number of review findings were available for nonoxynol-9 and menfegol-based products, and no substantial differences in efficacy or continuation data were identified. In the light of the adverse effects of surfactant products on the vaginal mucosa, with consequent risk of increasing the risk of HIV transmission it is unlikely that further research or programmatic emphasis will be appropriate. There is scope for basic research to identify novel potential spermicides that can be demonstrated not to cause vaginal or penile irritation or epithelial disruption.

5.8 Pre- and post-coital hormonal contraception in developing countries

The range of studies included in this section of the overview were of low methodological quality and/or included small numbers, making clear conclusions difficult to identify.

5.9 Natural family planning in developing countries

Much of the literature on natural methods was uninformative, in the case of the symptothermal method because of very high dropout rates. Lactational amenorrhoea studies were also uninformative. Given the very widespread use of 'natural' methods and the programmatic emphasis being given to variations such as the Standard Days Method in settings where there may be religious or cultural objections to modern methods, there is a substantial gap in knowledge from comparative studies to inform policy and programming. A possible approach would be to undertake reviews with a wider range of outcome measures, especially operational variables such as counselling time and relative acceptability.

5.10 Gaps in the evidence

There are a number of important gaps in the evidence presented in this overview of reviews. Firstly, it is important to highlight a number of contraceptive methods for which systematic review data could not be included. As already highlighted, there are systematic reviews (comparing minilaparotomy versus laparoscopic approaches to sterilisation, on male sterilisation, and comparing skin patches and vaginal rings with oral contraceptives), which did not meet the inclusion criteria of the overview of reviews. In addition, no systematic reviews met the inclusion criteria examining the male or female condom, the diaphragm or the withdrawal method for contraception, and consequently no evidence can be discussed for these methods.

Secondly, it is important to note that many of the studies included in the systematic reviews compared variations within a contraceptive type, for example, copper-containing versus non-copper-containing intrauterine devices. There is little information comparing one type of contraception (e.g. oral contraceptives) with another (e.g. injectables), or one mix of contraceptive types with another (for example, in a trial conducted across communities). It is difficult to be sure whether this reflects the focus of existing systematic reviews in this area, or whether it reflects a dearth of studies that make direct comparisons between types of contraceptives. Similarly, although it was within the scope of this overview to present data on a variety of outcomes, including birth spacing, in reality, systematic review outcomes tended to focus on pregnancy, (dis)continuation and side effects. Again, it is difficult to establish whether this reflects the scope of existing systematic reviews or of primary studies in the area. Moreover, the examination of side effects was not within the scope of this review. This should be considered when interpreting the findings.

Finally, there were no systematic reviews that examined contraceptive method mixes, and contraceptive prevalence and unmet need. This gap in evidence did not allow this OoR to answer research objectives 1 and 3 set out in this study. This OoR, therefore, recommends that more systematic reviews or primary research are required to answer the association between contraceptive method mix and contraceptive prevalence.

6. References

6.1 Reviews included in overview

Cheng L, Gülmezoglu AM, Piaggio GGP, Ezcurra EE, Van Look PPFA (2008) Interventions for emergency contraception. *Cochrane Database of Systematic Reviews* 2008, Issue 2. Art. No.: CD001324. DOI: 10.1002/14651858.CD001324.pub3.

Draper BH, Morroni C, Hoffman MN, Smit JA, Beksinska ME, Hapgood JP, van der Merwe L (2006) Depot medroxyprogesterone versus norethisterone oenanthate for long-acting progestogenic contraception. *Cochrane Database of Systematic Reviews* 2006, Issue 3. Art. No.: CD005214. DOI: 10.1002/14651858.CD005214.pub2.

Edelman A, Gallo MF, Jensen JT, Nichols MD, Grimes DA (2005) Continuous or extended cycle vs. cyclic use of combined hormonal contraceptives for contraception. *Cochrane Database of Systematic Reviews* 2005, Issue 3. Art. No.: CD004695. DOI: 10.1002/14651858.CD004695.pub2.

French R, Sorhaindo AM, Van Vliet HAAM, Mansour DD, Robinson AA, Logan S, Helmerhorst FM, Guillebaud J, Cowan FM (2004) Progestogen-releasing intrauterine systems versus other forms of reversible contraceptives for contraception. *Cochrane Database of Systematic Reviews* 2004, Issue 3. Art. No.: CD001776. DOI: 10.1002/14651858.CD001776.pub2.

Gallo MF, Grimes DA, Lopez LM, Schulz KF, d'Arcangues C (2008) Combination injectable contraceptives for contraception. *Cochrane Database of Systematic Reviews* 2008, Issue 4. Art. No.: CD004568. DOI: 10.1002/14651858.CD004568.pub3.

Gallo MF, Nanda K, Grimes DA, Lopez LM, Schulz KF (2011) 20 µg versus >20 µg estrogen combined oral contraceptives for contraception. *Cochrane Database of Systematic Reviews* 2011, Issue 1. Art. No.: CD003989. DOI: 10.1002/14651858.CD003989.pub4.

Grimes DA, Gallo MF, Halpern V, Nanda K, Schulz KF, Lopez LM (2004) Fertility awareness-based methods for contraception. *Cochrane Database of Systematic Reviews* 2004, Issue 4. Art. No.: CD004860. DOI: 10.1002/14651858.CD004860.pub2.

Grimes DA, Lopez LM, Raymond EG, Halpern V, Nanda K, Schulz KF (2005) Spermicide used alone for contraception. *Cochrane Database of Systematic Reviews* 2005, Issue 4. Art. No.: CD005218. DOI: 10.1002/14651858.CD005218.pub2.

Grimes DA, Lopez LM, Schulz KF, Van Vliet HAAM, Stanwood NL (2010a) Immediate post-partum insertion of intrauterine devices. *Cochrane Database of Systematic Reviews* 2010, Issue 5. Art. No.: CD003036. DOI: 10.1002/14651858.CD003036.pub2.

Grimes DA, Lopez LM, O'Brien PA, Raymond EG (2010b) Progestin-only pills for contraception. *Cochrane Database of Systematic Reviews* 2010, Issue 1. Art. No.: CD007541. DOI: 10.1002/14651858.CD007541.pub2.

Halpern V, Raymond EG, Lopez LM (2010) Repeated use of pre- and postcoital hormonal contraception for prevention of pregnancy. *Cochrane Database of Systematic Reviews* 2010, Issue 1. Art. No.: CD007595. DOI: 10.1002/14651858.CD007595.pub2.

Hofmeyer GJ, Singata M, Lawrie TA (2010) Copper containing intra-uterine devices versus depot progestogens for contraception. *Cochrane Database of Systematic Reviews* 2010, Issue 6. Art. No.: CD007043. DOI: 10.1002/14651858.CD007043.pub2.

Kejuan F, Meirik O, Yongang D, Yan C, Weijin Z, Fajans P (2007) Once-a-month contraceptive pills in China: a review of available evidence. *Contraception* 75: 337-343.

Kulier R, O'Brien P, Helmerhorst FM, Usher-Patel M, d'Arcangues C (2007) Copper containing, framed intra-uterine devices for contraception. *Cochrane Database of Systematic Reviews* 2007, Issue 4. Art. No.: CD005347. DOI: 10.1002/14651858.CD005347.pub3.

Lawrie TA, Nardin JM, Kulier R, Boulvain M (2011) Techniques for the interruption of tubal patency for female sterilisation. *Cochrane Database of Systematic Reviews* 2011, Issue 2. Art. No.: CD003034. DOI: 10.1002/14651858.CD003034.pub2.

Maitra NN, Kulier R, Bloemenkamp K, Helmerhorst FM, Gülmezoglu AM (2004) Progestogens in combined oral contraceptives for contraception. *Cochrane Database of Systematic Reviews* 2004, Issue 3. Art. No.: CD004861. DOI: 10.1002/14651858.CD004861.

O'Brien P, Marfleet CC (2005) Frameless versus classical intrauterine device for contraception. *Cochrane Database of Systematic Reviews* 2005, Issue 1. Art. No.: CD003282. DOI: 10.1002/14651858.CD003282.pub2.

Power J, French R, Cowan F (2007) Subdermal implantable contraceptives versus other forms of reversible contraceptives or other implants as effective methods for preventing pregnancy. *Cochrane Database of Systematic Reviews* 2007, Issue 3. Art. No.: CD001326. DOI: 10.1002/14651858.CD001326.pub2.

Van der Wijden C, Brown J, Kleijnen J (2003) Lactational amenorrhea for family planning. *Cochrane Database of Systematic Reviews* 2003, Issue 4. Art. No.: CD001329. DOI: 10.1002/14651858.CD001329.

Van Vliet HAAM, Grimes DA, Helmerhorst FM, Schulz KF, Lopez LM (2006a) Biphasic versus triphasic oral contraceptives for contraception. *Cochrane Database of Systematic Reviews* 2006, Issue 3. Art. No.: CD003283. DOI: 10.1002/14651858.CD003283.pub2.

Van Vliet HAAM, Grimes DA, Lopez LM, Schulz KF, Helmerhorst FM (2006b) Triphasic versus monophasic oral contraceptives for contraception. *Cochrane Database of Systematic Reviews* 2006, Issue 3. Art. No.: CD003553. DOI: 10.1002/14651858.CD003553.pub2.

Wen J, Li Y, Li YP, Wang L (2009) Comparative safety and effectiveness of TCu380A versus MLCu375: a systematic review of randomized trials. *Journal of Evidence-Based Medicine* 2(4): 226-241.

6.2 Other references used in the text of the technical report

Becker LA, Oxman AD (2008) Overviews of reviews. In: Higgins JPT, Green S (eds) *Cochrane handbook for systematic reviews of interventions*. Version 5.0.1. The Cochrane Collaboration, chapter 22. www.cochrane-handbook.org, accessed 2 August 2013.

Choe MK, Bulatao RA (1992) Defining an appropriate contraceptive method mix to meet fertility preferences. Paper presented at: the *1992 Population Association of America annual meeting*, April 30-May 2, Denver, Colorado.

Cook LA, Pun A, Gallo MF, Lopez LM, Van Vliet HAAM (2007a) Scalpel versus no-scalpel incision for vasectomy. *Cochrane Database of Systematic Reviews* 2007, Issue 2. Art. No.: CD004112. DOI: 10.1002/14651858.CD004112.pub3.

Cook LA, Van Vliet HAAM, Lopez LM, Pun A, Gallo MF (2007b) Vasectomy occlusion techniques for male sterilization. *Cochrane Database of Systematic Reviews* 2007, Issue 2. Art. No.: CD003991. DOI: 10.1002/14651858.CD003991.pub3.

Ghoshal AA, Agrawal SD, Sheth SS (2003) Laparoscopic tubal sterilization after two or more cesarean sections. *The Journal of the American Association of Gynecologic Laparoscopists* 10(2): 169-171.

GRADE Working Group (2004) Grading quality of evidence and strength of recommendations. *British Medical Journal* 328: 1490.

Green S, Higgins JPT, Alderson P, Clarke M, Mulrow CD, Oxman AD (2008) Introduction. In: Higgins JPT, Green S (eds) *Cochrane handbook for systematic reviews of interventions*. Version 5.0.1. The Cochrane Collaboration. www.cochrane-handbook.org, accessed 2 August 2013.

Jain AK (1989) Fertility reduction and the quality of family planning services. *Studies in Family Planning* 20(1): 1–16.

Khan S, Mishra V, Arnold F, Abderrahim N (2007) *Contraceptive trends in developing countries*. DHS Comparative Reports No. 16. Calverton, MD: Macro International Inc.

Kulier R, Boulvain M, Walker DM, De Candolle G, Campana A (2004) Minilaparotomy and endoscopic techniques for tubal sterilisation. *Cochrane Database of Systematic Reviews* 2004, Issue 3. Art. No.: CD001328. DOI: 10.1002/14651858.CD001328.pub2.

Lopez LM, Grimes DA, Gallo MF, Stockton LL, Schulz KF (2010) Skin patch and vaginal ring versus combined oral contraceptives for contraception. *Cochrane Database of Systematic Reviews* 2013, Issue 4. Art. No.: CD003552. DOI: 10.1002/14651858.CD003552.pub4.

Magadi MA, Curtis SL (2003) Trends and determinants of contraceptive method choice in Kenya. *Studies in Family Planning* 34(3): 149-159.

Nazar-Beutelspacher A, Molina-Rosales D, Salvatierra-Izaba B, Zapata-Martelo E, Halperin D (1999) *International Family Planning Perspectives* 25(3). http://www.guttmacher.org/pubs/journals/2513299.html, accessed 22 May 2010.

Pallikadavath, S, Stones RW (2006) Maternal and social factors associated with abortion in India: a population-based study. *International Family Planning Perspectives* 32(3): 120-125. http://www.guttmacher.org/pubs/journals/3212006.html, accessed 22 May 2010.

Ross JA (2010) E*ffort measure for family planning action programs: past trends and future prospects*. http://www.un.org/esa/population/publications/completingfertility/RevisedRosspaper.PDF, accessed 10 September 2010.

Ross J, Hardee K, Mumford E, Eid S (2002) Contraceptive method choice in developing countries. *International Family Planning Perspectives* 28(1) http://www.guttmacher.org/pubs/journals/2803202.html, accessed 22 May 2010.

Ross J, Stover J (2001) The family planning program effort index: 1999 cycle. *International Family Planning Perspectives* 27(3): 119-129.

Rutstein S (2011) *Trends in birth spacing*. DHS Comparative Reports 28. Calverton, MD: ICF Macro.

Sedgh, G, Bankole, A, Oye-Adeniran, B, Adewole IF, Singh, S, Hussain R (2006) Unwanted pregnancy and associated factors among Nigerian women. *International Family Planning Perspectives* 32(4): 175-184. http://www.guttmacher.org/pubs/journals/3217506.html, accessed 22 May 2010.

Seltzer JR (2002) The origins and evolution of family planning programs. In JR Seltzer (ed.) *The origins and evolution of family planning programs in developing countries*. Santa Monica, SA: Rand, pages 9-43.

Shea BJ, Grimshaw JM, Wells GA, Boers M, Andersson N, Hamel C, Porter AC, Tugwell P, Moher D, Lex M, Bouter LM (2007) Development of AMSTAR: a measurement tool to assess the methodological quality of systematic reviews. *BMC Medical Research* 7: 10.

Singh, A, Ogollah, R, Ram, F, Pallikadavath S (2012) Sterilization regret among married women in India: implications for the Indian national family planning program. *International Perspectives on Sexual and Reproductive Health* 38(4): 187-195.

Sullivan TM, Bertrand JT, Rice J, Shelton JD (2006) Skewed contraceptive method mix: why it happens, why it matters. *Journal of Biosocial Science* 38(4): 501-521.

United Nations Population Fund (UNFPA) (1996) *Programme of action adopted at the International Conference on Population and Development, Cairo*. New York: UNFPA.

USAID (2005) *Strengthening family planning policies and programmes in developing countries: an advocacy tool kit*. http://www.policyproject.com/pubs/manuals/Family%20Planning%20Toolkit%20final.pdf, accessed 21 May 2010.

UnitedNations. *World Contraceptive Use 2011*. Available from: http://www.un.org/esa/population/publications/contraceptive2011/wallchart_front.pdf. accessed 23 September 2013

World Health Organisation (2013) Contraceptive prevalence rate. http://www.who.int/whosis/whostat2006ContraceptivePrevalenceRate.pdf, accessed 23 September, 2013

Yan J-S, Hsu J, Yin CS (1990) Comparative study of Filshie clip and Pomeroy method for postpartum sterilization. International Journal of Gynecology and Obstetrics 33: 263-267.

Appendices

Appendix 1.1: Authorship of this report

This research was funded by the Department for International Development. This report was written by Dr Heather Mackenzie (HM), Dr Amy Drahota (AD), Dr Saseendran Pallikadavath (SP) and Professor Taraneh Dean (TD) of the University of Portsmouth, UK, and Professor William Stones (WS), Aga Khan University, Kenya. We wish to acknowledge the assistance of Mr Christopher Hayes (CH) with conducting searches of bibliographic databases and screening titles for eligibility, and Anne Eisinga (information specialist (AE)) who provided peer review and feedback on the search strategy.

Contribution of authors

Protocol development and editing – HM, AD, SP, TD, WS

Develop the search strategy – HM, AD, SP, TD, WS (with assistance from AE)

Run the search strategy – HM (with assistance from CH)

Data synthesis – HM, AD, SP

Preparation of final report - HM, AD, SP, TD, WS

Peer review was by arrangement with the UK Cochrane Centre and the South African Cochrane Centre.

Review group

By arrangement with the UK Cochrane Centre and South African Cochrane Centre:

Professor Mike Clarke, Queens University

Dr Sally Hopewell, University of Oxford

Professor John Cleland, London School of Hygene and Medicine

Professor Sandy Oliver, EPPI-Centre, Social Science Research Unit, Institute of Education, University of London

This report should be cited as:

MacKenzie H, Drahota A, Pallikadavath S, Stones W, Dean T (2013) What is the impact of contraceptive methods and mixes of contraceptive methods on contraceptive prevalence, unmet need for family planning, and unwanted and unintended pregnancies? An overview of systematic reviews. EPPI-Centre, Social Science Research Unit, Institute of Education, University of London.

ISBN: 978-1-907345-61-6

Contact details

Dr Saseendran Pallikadavath

School of Health Sciences and Social Work

University of Portsmouth

James Watson West

2 King Richard 1st Road

Portsmouth

Hampshire

PO1 2FR

United Kingdom

Email: sasee.pallikadavath@port.ac.uk

Acknowledgements

We wish to acknowledge the assistance of Mr Christopher Hayes in conducting searches of bibliographic databases and screening titles for eligibility.

Appendix 2.1: Inclusion and exclusion criteria

Types of reviews

For this OoR, we included Cochrane and non-Cochrane systematic reviews of randomised and non-randomised trials, observational studies, and economic evaluations on the effects of methods (and mixes of methods) of contraception (see *Types of interventions* below) on (1) contraceptive prevalence (2) unwanted pregnancies (3) unintended pregnancies and (4) unmet need for family planning. Our definition for a systematic review required that the review meets the following criteria (Green et al. 2008):

- a clearly stated set of objectives with predefined eligibility criteria for studies;
- an explicit, reproducible methodology;
- a systematic search that attempts to identify all studies that would meet the eligibility criteria;
- an assessment of the validity of the findings of the included studies, for example through the assessment of risk of bias; and
- a systematic presentation, and synthesis, of the characteristics and findings of the included studies.

Reviews that did not contain these elements were excluded from the OoR.

A wide range of study designs were considered eligible for inclusion:

Randomised controlled trials:

- All types.

Non-randomised trials:

- Quasi-randomised controlled trials, for example, those in which allocation to groups was via a non-random method such as alternation.
- Controlled before and after studies (CBA), for example, those in which one locality is matched to a second, and in one locality a new contraceptive method or combination of methods is implemented whilst the other locality stays the same, and both locations are measured concurrently before and after the intervention.
- Interrupted time series (ITS), for example, those in which one locality is measured at a series of points in time prior to, and again after a new contraceptive method or combination of methods is implemented. A minimum of three time points before and three time points after the intervention is required in order to see a change in trend. This study type may or may not include a concurrent control arm.
- Simple 'before and after' studies, for example, where only one locality is measured, once before and once after an intervention, and there is no concurrent control arm. These studies will be included in this review, but it is acknowledged they are subject to a lot of potential confounding.

Observational studies:

- Cohort studies, for example, where a group of people who have been exposed to one type of contraceptive method or combination of methods are followed-up prospectively, and compared to a concurrent group of people who have been exposed to a different type of contraceptive method mix.
- Case-control studies, for example, where a group of people with desirable

outcomes are matched to a group of people with undesirable outcomes and a retrospective investigation takes place to examine the combination of contraceptive methods they were exposed to.

- Longitudinal studies, for example, where a study of a single service area is followed up over a period of time before and after the implementation of a new contraceptive method or combination of contraceptive methods (akin to ITS).

Economic evaluations:

- Full economic evaluations:
    - Cost-effectiveness analyses
    - Cost-utility analyses
    - Cost-benefit analyses
- Partial economic evaluations:
    - Cost-analyses
    - Cost description analyses
    - Cost-outcome analyses.

Types of participants

For this OoR, we included Cochrane and non-Cochrane systematic reviews of studies whose participants were sexually active women or men from countries classified as 'developing', 'low-income' or 'middle-income' countries by the author(s) of the review, or those classified as low-and middle-income countries according to the World Bank classification of countries based on gross national income (GNI)[8] at the time the study was conducted. Reviews that included studies with participants from 'high-income' or 'developed' countries were eligible, but only when it was possible to use the data from the studies conducted in 'developing', 'low-income' or 'middle-income' countries separately. Where the review had combined data from developing/low-income/middle-income and developed/high-income countries, and it was not possible to separate them, the systematic review was excluded.

These inclusion criteria were broad in order to ensure that the OoR included all relevant systematic reviews. For example, although we acknowledge that family planning services in developing countries are typically targeted at 'currently married' women aged 15-49 years, it was feasible that systematic reviews in the area might have taken a broader eligibility criterion, and we sought to include these in the OoR.

Types of interventions

This overview included systematic reviews of any intervention (or combination of interventions) designed to increase contraceptive prevalence, reduce fertility or both (in order to prevent unwanted pregnancies, delay pregnancies, space pregnancies or limit fertility). Systematic reviews which have examined the use of contraception for other purposes (e.g. condoms to reduce the transmission of infectious disease) or included studies which have done so were included in the OoR provided that one of the relevant outcomes had been assessed.

Any of the following interventions, either individually or in any combination (when offered as part of a service, to target individual preferences, needs, or both), were included:

[8] http://data.worldbank.org/about/country-classifications

Modern contraceptive methods

Terminal methods:

- Female sterilisation (laparoscopic, minilaparotomy, combination with Caesarean section, Quinacrine).
- Male sterilisation (vasectomy and non-scalpel vasectomy)

Spacing or temporary methods:

- The pill
- The intrauterine device (IUD), including immediate post-partum and post-abortion insertion
- Injectables
- Implants
- The female condom
- The male condom
- Emergency contraception (EC)
- The diaphragm
- Foam/jelly

Traditional methods

- Periodic abstinence
- Withdrawal
- Lactational amenorrhea method (LAM).

Where systematic reviews of randomised, non-randomised trials or observational studies (as defined in *Types of Studies* above) are concerned, the OoR included those that compared any of the above interventions (in any combination) with any comparison intervention (such as alternative methods or combinations of contraceptive methods, single methods of contraception, placebo, lack of family planning, etc.).

Types of outcome measure

Our primary outcome measures were:

- Contraceptive prevalence (measured as the proportion of women of reproductive age (or their partners) who were using a contraceptive method at a given point in time[9]).
- Unwanted pregnancies (unplanned pregnancies which were not desired by the woman: this could be measured either as number of unwanted pregnancies[10] or as proportion of women who had an unwanted pregnancy).[9]
- Unintended pregnancies (unplanned pregnancies which were more closely spaced than desired by the woman: measured either as number of unintended pregnancies[10]or as proportion of women who had an unintended pregnancy[9]).

---

9 These outcome measures could be presented by systematic reviews as risk ratios, odds ratios, risk difference/absolute risk reductions or number needed to treat. If necessary, we sought to standardise these statistics to risk ratios.

10 These outcome measures would be presented by systematic reviews as a rate ratio and, where necessary, we sought to standardise to a risk ratio.

- Unmet need for family planning (measured as the proportion of women of reproductive age who preferred to avoid or postpone child bearing, but were not using any method of contraception[9]).

The following secondary outcome measures were included:

- Initiation of contraceptive use (measured as the proportion of women (or their partners) initiating the use of contraceptives[9]).
- Continuation of contraceptive use (measured as either the proportion of women (or their partners) who had continued contraceptive use throughout the period of the study[9] or as time-to-event[11]).
- Adherence to contraception (measured in a number of ways including number of missed pills, number of times they had intercourse without contraception[9]).
- Time between pregnancies (measured as time-to-event data[11]).

Time between births (measured as time-to-event data[11])

11 These outcome measures would be presented by systematic reviews as a hazard ratio and, where necessary, we sought to standardise to a risk ratio.

Appendix 2.2: Search strategy for electronic databases

Bioline International

Date of searches = 1 November 2010 - 18 November 2010

Free-text search using the following terms:

Family planning

Contraception

Contraceptive

Population control

Planned parenthood

Birth control

Birth regulation

Population regulation

Population regulating

Fertility regulation

Fertility regulating

Birth space

Birth spacer

Birth spacing

Birth spacings

Fertility control

Sterilisation

Vasectomy

Minilaparotomy

Quinacrine

Chemical occlusion

Vas plugs

Vas excision

Fascial interposition

Spacing method

Spacing methods

The pill

Intrauterine device

Intra-uterine device

Intrauterine devices

Intra-uterine devices

IUD

Injectable

Injectables
Condom
Condoms
Emergency contraception
Morning after pill
Morning-after pill
Abortion
Withdrawal method
Lactational amenorrhea
Natural family planning
Rhythm method
Calendar method
Symptothermal method
Symptothermal methods
Sympto-thermal method
Sympto-thermal methods
Symptothermic method
Symptothermic methods
Sympto-thermic method
Sympto-thermic methods
Cervical mucus method
Fertility awareness
Billings method
Basal body temperature method
Personal hormone monitoring
Coitus interruptus
Vaginal sponge
Cervical cap
Vaginal ring
Intrauterine system
Intrauterine systems
Intra-uterine system
Intra-uterine systems
Vaginal diaphragm
Latex diaphragm
Spermicide
Spermicides

Barrier method

Pregnancy prevention

Abstain sex intercourse

Abstinence sex intercourse

Abstain sexual intercourse

Abstinence sexual intercourse

The Cochrane Library

Date of search = 18 November 2010

1. Contraception [MeSH]
2. Contraception:ti,ab
3. Contraceptive devices [MeSH]
4. Contraceptive agents [MeSH]
5. Contraceptive:ti,ab
6. "Family planning":ti,ab
7. Family planning policy [MeSH]
8. Family planning services [MeSH]
9. "Population control"[MeSH Terms]
10. "Planned parenthood":ti,ab
11. "Birth control":ti,ab
12. "Birth regulation":ti,ab
13. Population NEXT regulati*:ti,ab
14. Fertility NEXT regulati*:ti,ab
15. Birth NEXT spac*:ti,ab
16. "Fertility control" :ti,ab
17. Sterilisation:ti,ab
18. Vasectomy:ti,ab
19. Minilaparotomy:ti,ab
20. "Quinacrine/therapeutic use"[MeSH]
21. "chemical occlusion":ti,ab
22. "Vas plugs":ti,ab
23. "Vas excision":ti,ab
24. "Fascial interposition":ti,ab
25. Spacing NEXT method*:ti,ab
26. "The pill" :ti,ab
27. Intrauterine device:ti,ab
28. Intra-uterine device:ti,ab
29. IUD:ti,ab

30. Injectable*:ti,ab
31. Condom:ti,ab
32. “Emergency contraception”:ti,ab
33. Morning after pill:ti,ab
34. Morning-after pill:ti,ab
35. Abortion:ti,ab
36. “Withdrawal method” :ti,ab
37. "Natural family planning":ti,ab
38. “Rhythm method”:ti,ab
39. “Calendar method”:ti,ab
40. Symptothermal NEXT method*:ti,ab
41. Sympto-thermal NEXT method*:ti,ab
42. Symptothermic NEXT method*:ti,ab
43. Sympto-thermic NEXT method*:ti,ab
44. “Cervical mucus method”:ti,ab
45. “Fertility awareness” NEXT method*:ti,ab
46. “Billings method”:ti,ab
47. “Basal body temperature method”:ti,ab
48. “Personal hormone monitoring”:ti,ab
49. “Coitus interruptus”:ti,ab
50. “Vaginal sponge”:ti,ab
51. “Cervical cap”:ti,ab
52. “Vaginal ring”:ti,ab
53. Intrauterine NEXT system*:ti,ab
54. Intra-uterine NEXT system*:ti,ab
55. Vaginal diaphragm*:ti,ab
56. Latex diaphragm*:ti,ab
57. Spermicide*:ti,ab
58. “Barrier method”:ti,ab
59. Pregnan* NEXT prevent*:ti,ab
60. Abstinence OR Abstain:ti,ab
61. Sex OR Sexual:ti,ab
62. #60 AND #61
63. Intercourse :ti,ab
64. #62 AND #63
65. Amenorrhea [MeSH]
66. Amenorrhoea:ti,ab

67. Amenorrhea:ti,ab
68. Lactational :ti,ab
69. Method :ti,ab
70. #65 OR #66 OR #67
71. #68 AND #69 AND #70
72. #1 OR #2 OR #3 OR #4 OR #5 OR #6 OR #7 OR #8 OR #9 OR #10 OR #11 OR #12 OR #13 OR #14 OR #15 OR #16 OR #17 OR #18 OR #19 OR #20 OR #21 OR #22 OR #23 OR #24 OR #25 OR #26 OR #27 OR #28 OR #29 OR #30 OR #31 OR #32 OR #33 OR #34 OR #35 OR #36 OR #37 OR #38 OR #39 OR #40 OR #41 OR #42 OR #43 OR #44 OR #45 OR #46 OR #47 OR #48 OR #49 OR #50 OR #51 OR #52 OR #53 OR #54 OR #55 OR #56 OR #57 OR #58 OR #59 OR #64 OR #71
73. Animals[MeSH Terms]
74. Humans[MeSH Terms]
75. #73 AND #74
76. #73 NOT #75
77. #72 NOT #76

LILACS

Date of search = 18 November 2010

Language restrictions = English only

1. Subject descriptor="contraception" or "contraceptive devices" or "contraceptive agents" or "family planning" or "family planning policy" or "family planning services" or "population control" or "quinacrine"
2. contracepti$ or "family planning" or "population control" or "planned parenthood" or "birth control" or "birth regulation" or "fertility control" or sterilisation or vasectomy or minilaparotomy or "chemical occlusion" or "vas plugs" or "vas excision" or "fascial interposition" or "the pill" or iud or injectabl$ or condom$ or "emergency contraception" or "morning after pill" or “morning-after pill” or abortion or "withdrawal method" or "lactational amenorrhea" or "natural family planning" or "rhythm method" or "calendar method" or "cervical mucus method" or "fertility awareness" or "billings method" or "basal body temperature method" or "personal hormone monitoring" or "coitus interruptus" or "vaginal sponge" or "cervical cap" or "vaginal ring" or spermicide$ or “barrier method”
3. (population and regulati$) or (fertility and regulati$) or (birth and spac$) or (spacing and method$) or (intrauterine and devic$) or (intra-uterine and devic$) or (symptothermal and method$) or (sympto-thermal and method$) or (symptothermic and method$) or (sympto-thermic method$) or (intrauterine and system$) or (intra-uterine and system$) or (vaginal and diaphragm$) or (latex and diaphragm$) or (pregnan$ and prevent$) or (abstain and sex$ and intercourse) or (abstinence and sex$ and intercourse)
4. #1 OR #2 OR #3
5. #4 AND Publication type = Meta-analysis
6. #4 AND Publication type = Review
7. Title = meta-analysis or search$

8. Abstract = meta-analysis or search$
9. #7 OR #8
10. #4 AND #9#5 OR #6 OR #10
11. #11 (Language restriction English)

Popline

Date of search = 19 November 10

((Family planning/Population control/Planned parenthood/Birth control/Birth regulation/Population regulati*/Fertility regulati*/Birth spac*/Fertility control/Sterilisation/Vasectomy/Minilaparotomy/

Quinacrine/Chemical occlusion/Vas plugs/Vas excision/Fascial interposition/Spacing method*/The pill/ Intrauterine device*/Intra-uterine device*/IUD/Injectable*/Condom/Emergency contraception/Morning after pill/Morning-after pill/Abortion/Withdrawal method/Lactational amenorrhea method/Natural family planning/Rhythm method/Calendar method/ Symptothermal method*/Sympto-thermal method*/

Symptothermic method*/Sympto-thermic method*/Cervical mucus method/Fertility awareness method*/

Billings method/Basal body temperature method/Personal hormone monitoring/Coitus interruptus/Vaginal sponge/Cervical cap/Vaginal ring/ Intrauterine system*/Intra-uterine system*/Vaginal diaphragm*/Latex diaphragm*/Spermicide*/Barrier method/Pregnan* prevent*)/((Abstinence/Abstain)&(Sex/Sexual)))&(Meta-analysis/Review/Search*)

PubMed

Date of search = 22 November 2010

1. Contraception [Tiab]
2. Contraception [MeSH Terms]
3. Contraceptive devices [MeSH Terms]
4. Contraceptive agents [MeSH Terms]
5. “Contraceptives” [Tiab]
6. “Contraceptive” [Tiab]
7. “Family planning” [Tiab]
8. Family planning policy [MeSH Terms]
9. Family planning services [MeSH Terms]
10. “Population control”[MeSH Terms]
11. “Population control” [Tiab]
12. Planned parenthood [Tiab]
13. “Birth control” [Tiab]
14. Birth regulation [Tiab]
15. Population regulati* [Tiab]
16. Fertility regulati* [Tiab]
17. Birth spac* [Tiab]

18. “Fertility control” [Tiab]
19. Sterilisation [Tiab]
20. Vasectomy [Tiab]
21. “Minilaparotomy” [Tiab]
22. “Quinacrine/therapeutic use”[MeSH]
23. “chemical occlusion” [Tiab]
24. Vas plugs [Tiab]
25. Vas excision [Tiab]
26. “Fascial interposition” [Tiab]
27. Spacing method* [Tiab]
28. “The pill” [Tiab]
29. Intrauterine device* [Tiab]
30. Intra-uterine device* [Tiab]
31. IUD [Tiab]
32. Injectable* [Tiab]
33. Condom [Tiab]
34. Emergency contraception [Tiab]
35. Morning after pill [Tiab]
36. Morning-after pill [Tiab]
37. Abortion [Tiab]
38. “Withdrawal method” [Tiab]
39. Lactational amenorrhea method [Tiab]
40. Natural family planning [Tiab]
41. “Rhythm method” [Tiab]
42. “Calendar method” [Tiab]
43. Symptothermal method* [Tiab]
44. Sympto-thermal method* [Tiab]
45. Symptothermic method* [Tiab]
46. Sympto-thermic method* [Tiab]
47. “Cervical mucus method” [Tiab]
48. “Fertility awareness method” [Tiab]
49. “Fertility awareness methods” [Tiab]
50. “Billings method” [Tiab]
51. “Basal body temperature method” [Tiab]
52. “Personal hormone monitoring” [Tiab]
53. “Coitus interruptus” [Tiab]
54. “Vaginal sponge” [Tiab]

55. “Cervical cap” [Tiab]
56. “Vaginal ring” [Tiab]
57. Intrauterine system* [Tiab]
58. Intra-uterine system* [Tiab]
59. Vaginal diaphragm* [Tiab]
60. Latex diaphragm* [Tiab]
61. Spermicide* [Tiab]
62. “barrier method” [Tiab]
63. Pregnan* prevent* [Tiab]
64. Abstinence [Tiab]
65. Abstain [Tiab]
66. #64 OR #65
67. Sex [Tiab]
68. Sexual [Tiab]
69. #67 OR #68
70. #66 AND #69
71. Intercourse [Tiab]
72. #70 AND #71
73. #1 OR #2 OR #3 OR #4 OR #5 OR #6 OR #7 OR #8 OR #9 OR #10 OR #11 OR #12 OR #13 OR #14 OR #15 OR #16 OR #17 OR #18 OR #19 OR #20 OR #21 OR #22 OR #23 OR #24 OR #25 OR #26 OR #27 OR #28 OR #29 OR #30 OR #31 OR #32 OR #33 OR #34 OR #35 OR #36 OR #37 OR #38 OR #39 OR #40 OR #41 OR #42 OR #43 OR #44 OR #45 OR #46 OR #47 OR #48 OR #49 OR #50 OR #51 OR #52 OR #53 OR #54 OR #55 OR #56 OR #57 OR #58 OR #59 OR #60 OR #61 OR #62 OR #63 OR #72
74. Animals[MeSH Terms] NOT (Humans[MeSH Terms] AND Animals[MeSH Terms])
75. #73 NOT #74
76. Meta-analysis[publication type]
77. Meta-analysis [Title/abstract]
78. Meta-analysis [MeSH Terms]
79. Review[Publication Type]
80. Search*[Title/Abstract]
81. #76 OR #77 OR #78 OR #79 OR #80
82. #75 AND #81

TRIP Database

Date of search = 3-8 December 2010

Publication type = systematic reviews

Searched the following free-text terms:

- Contracepti*

What is the impact of contraceptive methods and mixes of contraceptive methods on contraceptive prevalence, unmet need for family planning, and unwanted and unintended pregnancies?

- “Family planning”
- “Population Control”
- “Planned parenthood”
- “Birth control”
- “Birth regulation”
- “Population regulation”
- “population regulating”
- “ Fertility regulati*”
- “Birth spac*”
- “Fertility control”
- Sterilisation
- Vasectomy
- Minilaparotomy
- Quinacrine
- “Chemical occlusion”
- “Vas plugs”
- “Vas excision”
- “Fascial interposition”
- “Spacing method*”
- “The pill”
- “Intrauterine device*”
- “Intra-uterine device*”
- IUD
- Injectable*
- Condom
- “Emergency contraception”
- “Morning after pill”
- “Morning-after pill”
- Abortion
- “Withdrawal method”
- “Lactational amenorrhea method”
- “Natural family planning”
- “Rhythm method”
- “Calendar method”
- “Symptothermal method*”
- “Sympto-thermal method*”

- "Symptothermic method*"
- "Sympto-thermic method*"
- "Cervical mucus method"
- "Fertility awareness method*"
- "Billings method"
- "Basal body temperature method"
- "Personal hormone monitoring"
- "Coitus interruptus"
- "Vaginal sponge"
- "Cervical cap"
- "Vaginal ring"
- "Intrauterine system*"
- "Intra-uterine system*"
- "Vaginal diaphragm*"
- "Latex diaphragm*"
- Spermicide*
- "Barrier method"
- Pregnan* prevent*
- Sex* AND abstain AND intercourse
- Sex* AND abstinence AND intercourse

WHO Reproductive Health Library

Date of search = 28-29 October 2010

As the WHO Reproductive Health Library contains only a small number of reviews, those indexed under the following headings were added (by hand) into the main reference management database:

Fertility regulation:

- Contraception (and associated Cochrane Reviews)
- Induced abortion (and associated Cochrane Reviews)
- Adolescent sexual and reproductive health (and associated Cochrane Reviews)
- HIV (and associated Cochrane Reviews)

Zetoc (British Library's table of contents)

Date of search = 18 November 10

- Contracepti* and Meta-analysis (title)
- Contracepti* and Review (title)
- Contracepti* and Search (title)
- "Family planning" and Review (title)
- Population regulati* and Review (title)

- "Birth control" and Review (title)
- Population regulati* and Review (title)
- Fertility regulati* and Review (title)
- Fertility regulati* and Search (title)
- Birth spac* and Meta-analysis (title)
- Birth spac* and Review (title)
- "Fertility control" and Review (title)
- "Fertility control" and Search (title)
- Sterilisation and Review (title)
- Vasectomy and Meta-analysis (title)
- Vasectomy and Review (title)
- Spacing method* and Review (title)
- Minilaparotomy and Review (title)
- Quinacrine and Review (title)
- "the pill" and Meta-analysis (title)
- "the pill" and Review (title)
- "the pill" and Search (title)
- Intrauterine device* and Meta-analysis (title)
- Intrauterine device* and Review (title)
- Intra-uterine device* and Review (title)
- IUD and Meta-analysis (title)
- IUD and Review (title)
- Injectable* and Meta-analysis (title)
- Injectable* and Review (title)
- Injectable* and Search (title)
- Condom* and Meta-analysis (title)
- Condom* and Review (title)
- "Emergency contraception" and Meta-analysis (title)
- "Emergency contraception" and Review (title)
- Abortion and Meta-analysis (title)
- Abortion and Review (title)
- Abortion and Search (title)
- "Lactational amenorrhea method" and Search (title)
- "Calendar method" and Review (title)
- "Vaginal ring" and Review (title)
- Intrauterine system* and Meta-analysis (title)

- Intrauterine system* and Review (title)
- Intrauterine system* and Search (title)
- Intra-uterine system* and Meta-analysis (title)
- Intra-uterine system* and Review (title)
- Spermicide* and Meta-analysis (title)
- Spermicide* and Review (title)
- Spermicide* and Search (title)
- Pregnan* prevent* and Meta-analysis (title)
- Pregnan* prevent* and Review (title)

Appendix 2.3: Study eligibility form and notes

OVERVIEW OF REVIEWS: SYSTEMATIC REVIEW ELIGIBILITY FORM

If the answer to any of the below questions is no then the report will be excluded and no further questions need be answered.

	Yes Next question	Unclear	No Exclude
Methods used in review			
Is there a clearly stated set of objectives with pre-defined eligibility criteria for studies?	☐	☐	☐
Is there an explicit, reproducible methodology?	☐	☐	☐
Is there a systematic search that attempts to identify all studies that would meet the eligibility criteria?	☐	☐	☐
Is there an assessment of the validity of the findings of the included studies, for example through the assessment of risk of bias?	☐	☐	☐
Is there a systematic presentation, and synthesis, of the characteristics and findings of the included studies?	☐	☐	☐
Participants[12]			
Does the systematic review include studies whose participants are sexually active women or men?	☐	☐	☐
Setting[16]			
Does the systematic review include studies conducted in countries either defined by the review as developing, low-income, middle-income or low-middle-income or defined by the World Bank Classification [Note 1] as lower income, lower-middle-income or upper-middle-income economies?	☐	☐	☐
Is it possible to extract the data from studies conducted in developing countries separately from those conducted in developed countries?	☐	☐	☐
Intervention[16]			
Does the systematic review include studies which include one or a combination of interventions designed to increase contraceptive prevalence, reduce fertility or both (in order to prevent unwanted pregnancies; delay pregnancies; space pregnancies; limit fertility)? [Note 2]	☐	☐	☐
Outcomes[16]			
Does the systematic review include studies which measure an outcome related to contraceptive use, unwanted pregnancy or births, or unmet need for family planning? [Note 3]	☐	☐	☐

[12] According to the inclusion and exclusion criteria detailed in the systematic review

STUDY DESIGNS

To be included in the Overview of Reviews the systematic review must include one or more of the following study designs.

	Yes	Unclear	No
Randomised Controlled Trial (RCT)			
A trial in which the participants were definitely assigned prospectively to one or two (or more) alternative forms of health care using a process of random allocation.	☐	☐	☐
Controlled Clinical Trial (CCT)			
A trial in which participants were either definitely or possibly assigned prospectively to one or two (or more) alternative forms of healthcare using a quasi-random method of allocation (e.g. alternation, date of birth).	☐	☐	☐
Controlled Before and After Study (CBA)			
A study in which one locality is matched to a second, and in one locality a new contraceptive method or combination of methods is implemented whilst the other stays the same, and both locations are measured concurrently before and after the intervention.	☐	☐	☐
Interrupted Time Series (ITS)			
A study in which one locality is measured at series of points in time prior to, and again after, a new contraceptive method or combination of methods is implemented. A minimum of three time points before and three time points after the intervention is required in order to see a change in trend. This study type may or may not include a concurrent control arm.	☐	☐	☐
Before and After Study			
A study in which only one locality is measured, once before and once after an intervention, and there is no concurrent control arm.	☐	☐	☐
Cohort Study			
A study in which a group of people who have been exposed to one type of contraceptive method or combination of methods are followed-up prospectively, and compared to a concurrent group of people who have been exposed to a different type of contraceptive method mix.	☐	☐	☐
Case Control Study			

What is the impact of contraceptive methods and mixes of contraceptive methods on contraceptive prevalence, unmet need for family planning, and unwanted and unintended pregnancies?

A study in which a group of people with desirable outcomes are matched to a group of people with undesirable outcomes and a retrospective investigation takes place to examine the combination of contraceptive methods they were exposed to.	☐	☐	☐
Longitudinal Study			
A study of a single service area which is followed up over a period in time before and after the implementation of a new contraceptive method or combination of contraceptive methods (akin to ITS).	☐	☐	☐
Economic Evaluation			
Any of the following: Full economic evaluations: cost-effectiveness analyses, cost-utility analyses, cost-benefit analyses. Partial economic evaluations: cost-analyses, cost description analyses, cost-outcome analyses.	☐	☐	☐

FINAL DECISION:	Include	☐	Subject to clarification	☐	Exclude ☐

NOTES

[1] 2008 World Bank list of economies:

Lower income economies [INCLUDED]

Afghanistan, Bangladesh, Benin, Burkina Faso, Burundi, Cambodia, Central African Republic, Chad, Comoros, Congo, Dem. Rep, Eritrea, Ethiopia, Gambia, The, Ghana, Guinea, Guinea-Bissau, Haiti, Kenya, Korea, Dem Rep., Kyrgyz Republic, Lao PDR, Liberia, Madagascar, Malawi, Mali, Mauritania, Mozambique, Myanmar, Nepal, Niger, Rwanda, Senegal, Sierra Leone, Somalia, Tajikistan, Tanzania, Togo, Uganda, Uzbekistan, Vietnam, Yemen, Rep., Zambia, Zimbabwe

Lower-middle-income economies [INCLUDED]

Albania, Angola, Armenia, Azerbaijan, Belize, Bhutan, Bolivia, Cameroon, Cape Verde, China, Congo, Rep., Côte d'Ivoire, Djibouti, Ecuador, Egypt, Arab Rep., El Salvador, Georgia, Guatemala, Guyana, Honduras, India, Indonesia, Iran, Islamic Rep., Iraq, Jordan, Kiribati, Kosovo, Lesotho, Maldives, Marshall Islands, Micronesia, Fed. States, Moldova, Mongolia, Morocco, Nicaragua, Nigeria, Pakistan, Papua New Guinea, Paraguay, Philippines, Samoa, São Tomé and Principe, Solomon Islands, Sri Lanka, Sudan, Swaziland, Syrian Arab Republic, Thailand, Timor-Leste, Tonga, Tunisia, Turkmenistan, Ukraine, Vanuatu, West Bank and Gaza.

Upper-middle-income economies [INCLUDED]

Algeria, American Samoa, Argentina, Belarus, Bosnia and Herzegovina, Botswana, Brazil, Bulgaria, Chile, Colombia, Costa Rica, Cuba, Dominica, Dominican Republic, Fiji, Gabon, Grenada, Jamaica, Kazakhstan, Latvia, Lebanon, Libya, Lithuania, Macedonia, FYR, Malaysia, Mauritius, Mayotte[1], Mexico, Montenegro, Namibia, Palau, Panama, Peru, Poland, Romania, Russian Federation, Serbia, Seychelles, South Africa, St. Kitts and Nevis, St. Lucia, St. Vincent and the Grenadines, Suriname, Turkey, Uruguay, Venezuela, RB

High-income economies [EXCLUDED]

Andorra, Antigua and Barbuda[2], Aruba, Australia, Austria, Bahamas, The, Bahrain, Barbados[3], Belgium, Bermuda, Brunei Darussalam, Canada, Cayman Islands, Channel Islands, Croatia[4], Cyprus[5], Czech Republic[6], Denmark, Equatorial Guinea[7], Estonia[8], Faeroe Islands, Finland, France, French Polynesia, Germany, Greece[9], Greenland, Guam[10], Hong Kong SAR, China, Hungary[11], Iceland, Ireland, Isle of Man[12], Israel, Italy, Japan, Korea, Rep.[13], Kuwait, Liechtenstein, Luxembourg, Macao SAR[14], China, Malta[15], Monaco, Netherlands, Netherlands Antilles[16], New Caledonia[17], New Zealand, Northern Mariana Islands[18], Norway, Oman[19], Portugal, Puerto Rico[20], Qatar, San Marino, Saudi Arabia[21], Singapore, Slovak Republic[22], Slovenia[23], Spain, Sweden, Switzerland, Trinidad and Tobago[24], United Arab Emirates, United Kingdom, United States, Virgin Islands (U.S.)

PLEASE NOTE CHANGES IN STATUS (Records from 1987 to 2008):

1. This was classified as a high-income economy in 1990 only
2. This was **not** classified as a high-income economy from 1987-2001, 2003-2004
3. This was classified as a high-income economy in 1989, 2000, 2002, 2006-2008 only
4. This was **not** classified as a high-income economy until 2008
5. This was **not** classified as a high-income economy in 1987
6. This was **not** classified as a high-income economy until 2006
7. This was **not** classified as a high-income economy until 2007

8. This was **not** classified as a high-income economy until 2007

9. This was **not** classified as a high-income economy until 1996

10. This was classified as a high-income economy in 1987-89 and 1995-2008 only

11. This was **not** classified as a high-income economy until 2007

12. This was classified as a high-income economy in 1987-89 and 2002-2008 only

13. This was classified as a high-income economy in 1995-97 and 2001-2008 only

14. This was **not** classified as a high-income economy until 1994

15. This was classified as a high-income economy in 1989, 1998, 2000 and 2002-2008 only

16. This was **not** classified as a high-income economy until 1994

17. This was **not** classified as a high-income economy until 1995

18. This was classified as a high-income economy in 1995-2001 and 2007-2008 only

19. This was **not** classified as a high-income economy until 2007

20. This was classified as a high-income economy in 1989 and 2002-2008 only

21. This was classified as a high-income economy in 1987-89 and 2004-2008 only

22. This was **not** classified as a high-income economy until 2007

23. This was **not** classified as a high-income economy until 1997

24. This was **not** classified as a high-income economy until 2006

COUNTRIES NO LONGER IN EXISTENCE:

Czechoslovakia, Serbia and Montenegro, the USSR and Yugoslavia were not classified as high-income economies at any date.

[2] List of contraceptive methods:

- Female sterilisation (laparoscopic, minilaparotomy, combination with Caesarean section, Quinacrine)
- Male sterilisation (Vasectomy and non-scalpel vasectomy)
- The pill
- The intrauterine device (IUD), including immediate post-partum and post-abortion insertion
- Injectables
- Implants
- The female condom
- The male condom
- Emergency contraception (EC)
- The diaphragm
- Foam/jelly
- Periodic abstinence
- Withdrawal
- Lactational amenorrhea method (LAM)

[3] List of outcomes:

Primary:

- Contraceptive prevalence (the proportion of women of reproductive age (or their partners) who are using a contraceptive method at a given point in time)
- Unwanted pregnancies (unplanned pregnancies which are not desired by the woman)
- Unintended pregnancies (unplanned pregnancies which are more closely spaced than desired by the woman)
- Unmet need for family planning (the proportion of women of reproductive age who prefer to avoid or postpone child bearing, but are not using any method of contraception)

Secondary:

- Initiation of contraceptive use (likely to be measured as the proportion of women (or their partners) initiating the use of contraceptives)
- Continuation of contraceptive use (likely to be measured as either the proportion of women (or their partners) who have continued contraceptive use throughout the period of the study or as time-to-event)
- Adherence to contraception (could be measured in a number of ways including number of missed pills, number of times had intercourse without contraception)
- Time between pregnancies (likely to be measured as time to event data)
- Time between births (likely to be measured as time to event data)

Appendix 2.4: Data collection tool

OVERVIEW OF REVIEWS: SYSTEMATIC REVIEW DATA COLLECTION FORM

Impact of Contraceptive Methods and Mixes of Contraceptive Methods on Contraceptive Prevalence, Unmet Need for Family Planning, and Unwanted and Unintended Pregnancies.

Throughout data collection please include the page number(s) from which information has been obtained.

A. Notes

B. Questions for authors? E.g. to ask for missing information or clarification.

C. General Information	
Type of report (e.g. journal article)	
Author contact details	
Date searches conducted	
Date review published	☐ Exclude (review withdrawn)
Date of last update	
Date this form completed	

D. VERIFICATION OF SYSTEMATIC REVIEW ELIGIBILITY	Done	Not done	Not clear
Did this review use an explicit, reproducible methodology (including a systematic search strategy and assessment of the validity of findings of included studies) to produce a systematic presentation, and synthesis, of the findings of included studies?	☐	☐	☐
Were participants sexually active women or men?	☐	☐	☐
Does it include at least one study conducted in a developing country?	☐	☐	☐

Is it possible to extract the data from studies conducted in developing countries separately from those conducted in developed countries?	☐	☐	☐
Do the included studies examine methods of contraception (individually or in combination) as an intervention?	☐	☐	☐
Do the included studies measure an outcome related to contraceptive use, unwanted pregnancy or births, or unmet need for family planning?	☐	☐	☐
Does the review include studies using at least one of the following study designs[13]:			
RCT	☐	☐	☐
CCT	☐	☐	☐
CBA	☐	☐	☐
ITS	☐	☐	☐
Before and After Study	☐	☐	☐
Cohort Study	☐	☐	☐
Case Control Study	☐	☐	☐
Longitudinal Study	☐	☐	☐
Economic Evaluation	☐	☐	☐
Are relevant and interpretable data presented and obtainable?	☐	☐	☐

E. QUALITY ASSESSMENT OF SYSTEMATIC REVIEW *See additional notes for further guidance*

	Yes	No	Can't answer*	N/A	Notes
Was an 'a priori' design provided?	☐	☐	☐	☐	
Was there duplicate study selection and data extraction?	☐	☐	☐	☐	
Was a comprehensive literature search performed?	☐	☐	☐	☐	
Was the status of publication (i.e. grey literature) used as an inclusion criterion?	☐	☐	☐	☐	
Was a list of studies (included and excluded) provided?	☐	☐	☐	☐	
Were the characteristics of the included studies provided?	☐	☐	☐	☐	

[13] See additional notes for definitions (available from the review authors on request)

What is the impact of contraceptive methods and mixes of contraceptive methods on contraceptive prevalence, unmet need for family planning, and unwanted and unintended pregnancies?

Was the scientific quality of the included studies assessed and documented?	☐	☐	☐	☐
Was the scientific quality of the included studies used appropriately in formulating conclusions?	☐	☐	☐	☐
Were the methods used to combine the findings of studies appropriate?	☐	☐	☐	☐
Was the likelihood of publication bias assessed?	☐	☐	☐	☐
Was the conflict of interest stated?	☐	☐	☐	☐

*If can't answer ticked please note in 'Questions for Authors'

F. DATA EXTRACTION: Methods of the systematic review

In this section please record the inclusion and exclusion criteria of the review. This can be found in the methods section and should not include information about the included studies (e.g. that found in 'Description of studies' sections or similar).

	Inclusion criteria	Exclusion criteria
Participants		
Settings (e.g. limited to any particular countries)		
Intervention		
Comparison/Control		
Outcomes - primary		
Outcomes - secondary		

G. DATA EXTRACTION: Relevant comparisons conducted and outcomes for which possible to extract developing countries data

Please tick the boxes for all outcomes **for which we can extract the developing countries data separately** (i.e. in a review that includes meta-analysis those outcomes for which all contributing studies were conducted in a developing country, in a narrative review those for which the contribution of studies conducted in developing countries is clear).

Comparisons (please complete for each comparison)		**Outcomes** (please tick)								
		Contraceptive prevalence	Unwanted pregnancies	Unmet need for family planning	Initiation of contraceptive use	Continuation of contraceptive use	Adherence to contraception	Time between pregnancies	Time between births	Not able to extract
C1	V	☐	☐	☐	☐	☐	☐	☐	☐	☐
C2	V	☐	☐	☐	☐	☐	☐	☐	☐	☐
C3	V	☐	☐	☐	☐	☐	☐	☐	☐	☐
C4	V	☐	☐	☐	☐	☐	☐	☐	☐	☐
C5	V	☐	☐	☐	☐	☐	☐	☐	☐	☐
C6	V	☐	☐	☐	☐	☐	☐	☐	☐	☐
C7	V	☐	☐	☐	☐	☐	☐	☐	☐	☐
C8	V	☐	☐	☐	☐	☐	☐	☐	☐	☐

H. DATA EXTRACTION: Measurement of outcomes

For those outcomes where it is possible to extract the developing countries data separately please complete the following information about how the outcomes were measured. Please tick N/A for outcomes where it is not possible to extract this data.

Outcome	N/A	Measured as:	Summary statistic presented:[14]						
			RiR	OR	RD/ARR	NNT	RaR[15]	HR[19]	Other
Contraceptive prevalence	☐	☐ Proportion of women of reproductive age (or their partner) who are using a contraceptive method at a given point in time ☐ Other_____	☐	☐	☐	☐	☐	☐	☐ _____
Unwanted pregnancies[16]	☐	☐ Proportion of women who had an unwanted pregnancy. ☐ Number of unintended pregnancies. ☐ Other_____	☐	☐	☐	☐	☐	☐	☐ _____
		Was pregnancy treated as an event ☐ or non-event? ☐							
Unmet need for family planning	☐	☐ Proportion of women of reproductive age who prefer to avoid or postpone child bearing, but are not using any method of contraception. ☐ Other_____	☐	☐	☐	☐	☐	☐	☐ _____
Initiation of contraceptive use	☐	☐ Proportion of women (or their partners) initiating the use of contraceptives ☐ Other_____	☐	☐	☐	☐	☐	☐	☐
Continuation of contraceptive use	☐	☐ Proportion of women (or their partners) who have continued contraceptive use throughout the period of the study	☐	☐	☐	☐	☐	☐	☐ _____

[14] For abbreviations see additional notes (available from the review authors on request)

[15] Will need standardising to risk ratio

[16] Unplanned pregnancies not desired by the woman

		☐ Time-to-event ☐ Other_____	
Adherence to contraception	☐	☐ Number of missed pills ☐ Number of times had intercourse without contraception ☐ Other_____	☐ ☐ ☐ ☐ ☐ ☐ ☐ _____
Time between pregnancies	☐	☐ Time-to-event ☐ Other_____	☐ ☐ ☐ ☐ ☐ ☐ ☐ _____
Time between births	☐	☐ Time-to-event ☐ Other_____	☐ ☐ ☐ ☐ ☐ ☐ ☐ _____

I. DATA EXTRACTION: Results for outcomes relevant to OoR (where meta-analyses have been undertaken). *Please complete one table per outcome*

Outcome (please tick only one):

☐ Contraceptive prevalence ☐ Unwanted pregnancies ☐ Unmet need for family planning ☐ Initiation of contraceptive use

☐ Continuation of contraceptive use ☐ Adherence to contraception ☐ Time between pregnancies ☐ Time between births

What is the impact of contraceptive methods and mixes of contraceptive methods on contraceptive prevalence, unmet need for family planning, and unwanted and unintended pregnancies?

C[17]	Risk in comparison group[18]	Risk in intervention group[22]	Relative risk (95% CI) E.g. Pooled odds ratio	Number of participants (studies)	Studies included (Author et al., year)	Countries in which included studies conducted	Length of follow up (Please tally number of studies for each time period)		Additional comments
							< 6 mths		
							6 mths – 1 year		
							> 1year		
							< 6 mths		
							6 mths – 1 year		
							> 1year		
							< 6 mths		
							6 mths – 1 year		
							> 1year		
							< 6 mths		
							6 mths – 1 year		
							> 1year		

[17] Please complete the comparison number here using the number assigned to them in Section G. Please do not complete for comparison where it is not possible to extract data related to this outcome.

[18] e.g. n/N had unwanted pregnancies

J. DATA EXTRACTION: Results for outcomes relevant to OoR (where meta-analyses have not been undertaken) *Complete one table per outcome*

Outcome (please tick only one):

☐ Contraceptive prevalence ☐ Unwanted pregnancies ☐ Unmet need for family planning ☐ Initiation of contraceptive use

☐ Continuation of contraceptive use ☐ Adherence to contraception ☐ Time between pregnancies ☐ Time between births

C[19]	Summary of findings	Studies included (Study ID e.g. author, year)	Countries in which included studies conducted

[19] Please complete the comparison number here using the number assigned to them in Section G. Please do not complete for comparison where it is not possible to extract data related to this outcome.

What is the impact of contraceptive methods and mixes of contraceptive methods on contraceptive prevalence, unmet need for family planning, and unwanted and unintended pregnancies?

K. DATA EXTRACTION: For all types of analyses – further contextual information. *Complete one table per outcome*

Outcome (please tick only one):

☐ Contraceptive prevalence ☐ Unwanted pregnancies ☐ Unmet need for family planning ☐ Initiation of contraceptive use

☐ Continuation of contraceptive use ☐ Adherence to contraception ☐ Time between pregnancies ☐ Time between births

C[20]	How were family planning services provided? E.g. community-based, clinic-based.	How accessible were the family planning services? E.g. distance to travel to access, transportation available to services.	How were the family planning services staffed? E.g. nurse-led clinics	Were there any issues regarding availability of contraceptive methods?	How much did the service cost users?	Were there any cultural factors which may have affected choice or availability of contraceptive methods?	Who funded the family planning services (e.g. NGO, private sector)?
	☐ Not clear	☐ Not clear	☐ Not clear	☐ Not clear	☐ Not clear	☐ Not clear	☐ Not clear
	☐ Not clear	☐ Not clear	☐ Not clear	☐ Not clear	☐ Not clear	☐ Not clear	☐ Not clear
	☐ Not clear	☐ Not clear	☐ Not clear	☐ Not clear	☐ Not clear	☐ Not clear	☐ Not clear

[20] Please complete the comparison number here using the number assigned to them in Section G. Please do not complete for comparison where it is not possible to extract data related to this outcome.

	☐ Not clear	☐ Not clear	☐ Not clear	☐ Not clear	☐ Not clear	☐ Not clear	☐ Not clear

L. QUALITY OF EVIDENCE: for each comparison – as reported in the systematic review.[21]

C[22]	Study design(s) – what study designs contributed to the evidence for this comparison RCTs, observational studies?	Study quality – was there adequate allocation concealment, blinding and follow-up; were there any serious limitations?	Consistency – was there similarity of estimates of effect across studies?	Directness – how similar were the people, interventions and outcomes to those of interest?	If reported – what was the grade assigned to the overall body of evidence?
					☐ Not reported
					☐ Not reported
					☐ Not reported
					☐ Not reported

[21] For further guidance see GRADE Working Group. (2004). Grading quality of evidence and strength of recommendations. *BMJ, 328*, 1490 – provided in additional notes.

[22] Please complete the comparison number here using the number assigned to them in Section G. Please do not complete for comparison where it is not possible to extract data related to this outcome.

Appendix 3.1: Table of included reviews

Cheng (2008)

Review type	Cochrane review
Study design	Predominantly RCTs
Date assessed as up-to-date	17 February 2008
Population	**Inclusion criteria:** Women with regular menses requesting emergency contraception following unprotected intercourse. **Exclusion criteria:** Women attending clinics for 'once a month' contraception in the form of luteal phase contraceptives and menstrual regulation using mifepristone (RU 486) and prostaglandin analogues.
Setting	Not limited by setting.
Interventions	**Inclusion criteria:** Both intervention and comparisons as listed: 1. Any regimen vs nothing/placebo 2. Hormonal ECPs: comparisons of different regimens: • Levonorgestrel vs Yuzpe • Levonorgestrel vs mifepristone • Mifepristone vs Yuzpe • Mifepristone vs anordin • Mifepristone vs mifepristone +anordin • Mifepristone vs mifepristone + misoprostol • Mifepristone vs mifepristone + tamoxifen • Mifepristone vs danazol • Yuzpe vs high-dose oestrogen • Yuzpe vs danazol • CDB-2914 vs levonorgestrel • Drug/dose comparisons • Others 3. IUD comparisons to ECPs

	4. Combination treatments and comparisons of these with other treatments alone or in combination were considered for inclusion when such data were available, including different doses. **Exclusion criteria:** Similar interventions used by women as regular post-coital contraception. Comparisons of different delivery systems such as advance provision or over-the-counter delivery, and any kind of educational interventions.
Comparison interventions	N/A
Outcomes for which data were reported	**Primary:** Pregnancy rate in women receiving different regimens (or control). **Secondary:** 1. Observed number of pregnancies (all women) 2. Ectopic pregnancy 3. Side effects: • Any side effect • Nausea • Vomiting • Headache • Dizziness • Fatigue • Breast tenderness • Diarrhoea • Spotting or bleeding • Others 4. Menses (early or late).
Review limitations	

Draper (2006)

Review type	Cochrane review
Study design	Predominantly RCTs
Date assessed as up-to-date	23 May 2006
Population	**Inclusion criteria:** Healthy women of reproductive age, of all ethnic groups who are using either of the injectable progestogen-only contraceptives IPCs i.e. DMPA or NET-EN.
Setting	Not limited by setting.
Interventions	**Inclusion criteria:** DMPA given at doses of 150mg IM every 3 months versus…
Comparison interventions	NET-EN given at doses of 200mg IM every 2 months.
Outcomes for which data were reported	**Primary:** • Cumulative discontinuation risks: overall risks and risks due to specific menstrual and non-menstrual effects. • Contraceptive efficacy: accidental pregnancy as a reason for discontinuation. • Minor effects: Amenorrhea, menorrhagia, spotting, irregular bleeding, dysmenorrhoea. Non-menstrual = headache, clinically significant weight change of 24kg, decreased libido, mood swings/depression, nausea, dizziness, vaginal discharge. Major effects: Increased HIV vaginal shedding, susceptibility to HIV and other sexually transmitted infections.
Review limitations	Review has not been recently updated.

Edelman (2005)

Review type	Cochrane review
Study design	Predominantly RCTs
Date assessed as up-to-date	3 September 2009
Population	**Inclusion criteria:** Reproductive-age women using combined hormonal contraceptives for contraceptive purposes.

	Exclusion criteria: Use of combined hormonal contraceptives for conditions such as endometriosis.
Setting	Not limited by setting.
Interventions	**Inclusion criteria:** Any type of combined hormonal contraceptive (pill, patch, ring) given in a continuous manner (>28 days active hormones).
Comparison interventions	Traditional cyclic use of combined hormonal contraceptive (21 days active hormone, placebo).
Outcomes for which data were reported	**Primary:** Study discontinuation, pregnancy, bleeding, endometrial thickness, adherence, satisfaction, adverse events.
Review limitations	

French (2004)

Review type	Cochrane review
Study design	Predominantly RCTs and CCTs
Date assessed as up-to-date	14 July 2009
Population	**Inclusion criteria:** Women of reproductive years.
Setting	Not limited by setting.
Interventions	**Inclusion criteria:** Hormonally impregnated IUDs.
Comparison interventions	Hormonal IUDs; Barrier contraception; oral contraceptives; injectable contraceptives; subdermal implants; other implants.
Outcomes for which data were reported	**Primary:** Pregnancy due to method failure at 1, 2, 3, 4 and 5+ years. Continuation of method at 1 ,2, 3, 4 and 5+ years. **Secondary:** Planned pregnancy after discontinuation at 1+2 years; failed removal; side effects; menstrual bleeding changes; adverse clinical events; reason for discontinuation.
Review limitations	

Gallo (2008)

Review type	Cochrane review
Study design	Predominantly RCTs
Date assessed as up-to-date	31st October 2010
Population	**Inclusion criteria:** Reproductive-age women. **Exclusion criteria:** Contraindications to combination injectable contraceptive use.
Setting	Not limited by setting.
Interventions	**Inclusion criteria:** Combination injectable contraceptives (limited to formulations marketed at the time of the review).
Comparison interventions	Any other contraceptive method or placebo.
Outcomes for which data were reported	**Primary:** Measures of contraceptive efficacy, bleeding patterns, continuation, user preferences, side effects. Biochemical measures were excluded.
Review limitations	

Gallo (2011)

Review type	Cochrane review
Study design	Predominantly RCTs
Date assessed as up-to-date	2 November 2010
Population	**Inclusion criteria:** Women of reproductive age, irrespective of previous COC history. **Exclusion criteria:** Medical contraindications to COCs.
Setting	Not limited by setting although only English language reports included.
Interventions	**Inclusion criteria:** Any combined oral contraceptive (COC) containing ≥20µg of EE (ethinyl estradiol). Trial interventions had to be designed to be administered for a minimum of 3 consecutive cycles.

	Exclusion criteria: If COC used primarily as treatment for non-contraceptive conditions e.g. acne, anovulation, dysmenorrhea, menorrhagia, pelvic pain or endometriosis.
Comparison interventions	COC containing >20µg EE.
Outcomes for which data were reported	Primary: Contraceptive effectiveness, bleeding patterns, side effects, trial discontinuation for bleeding-related reasons or other side-effects. Trials measuring only biochemical changes were excluded.
Review limitations	

Grimes (2004)

Review type	Cochrane review
Study design	Predominantly RCTs
Date assessed as up-to-date	1 November 2009
Population	**Inclusion criteria:** All couples included in the eligible trials.
Setting	Not limited by setting.
Interventions	**Inclusion criteria:** Any fertility awareness-based methods used to prevent pregnancy. These included but were not limited to the calendar method, the basal-body temperature method, the ovulation or Billings method, the symptothermal method and ovulation prediction devices that rely on assays. Interventions could include fertility awareness-based methods used with or without a barrier contraceptive or withdrawal.
Comparison interventions	Compared with placebo or another method, including an alternative fertility awareness-based method or fertility awareness-based methods used in conjunction with another contraceptive.
Outcomes for which data were reported	**Primary:** Pregnancy rates. **Secondary:** Continuation rates, acceptability.
Review limitations	In this review, there was poor reporting of data collection and analysis methods. The review has mixed the reporting of inclusion/exclusion criteria with the description of included studies.

What is the impact of contraceptive methods and mixes of contraceptive methods on contraceptive prevalence, unmet need for family planning, and unwanted and unintended pregnancies?

Grimes (2005)

Review type	Cochrane review
Study design	Predominantly RCTs
Date assessed as up-to-date	19 September 2010
Population	**Inclusion criteria:** All women included in eligible trials.
Setting	Not limited by setting.
Interventions	**Inclusion criteria:** Any commercially available spermicide used for prevention of pregnancy; spermicide alone. **Exclusion criteria:** Trials using spermicide for preventing STIs.
Comparison interventions	Different spermicide; same spermicide and barrier method; different dose of same spermicide; different formulation of same spermicide; another contraceptive.
Outcomes for which data were reported	**Primary:** Pregnancy. **Secondary:** Continuation rates, side effects, acceptability, changes to vaginal epithelium. Trials which only reported surrogate end-points, such as in-vitro effects on sperm motility, were excluded.
Review limitations	

Grimes (2010a)

Review type	Cochrane review
Study design	Predominantly RCT
Date assessed as up-to-date	31 March 2010
Population	**Inclusion criteria:** Post-partum women of any age
Setting	Not limited by setting
Interventions	**Inclusion criteria:** Insertion of any type of IUD within 10 minutes of passing the placenta.

Comparison interventions	Different devices, different insertion techniques, immediate post-partum versus delayed insertion and versus interval insertion (>6 weeks after delivery).
Outcomes for which data were reported	**Primary:** Pregnancy; spontaneous expulsion; continuation with the method.
Review limitations	

Grimes (2010b)

Review type	Cochrane review
Study design	Predominantly RCTs
Date assessed as up-to-date	23 May 2011
Population	**Inclusion criteria:** Women requiring contraception with data in the eligible trials.
Setting	Not limited by setting.
Interventions	**Inclusion criteria:** Progestin-only pill. Any dose.
Comparison interventions	Other progestin-only pill; different dose of progestin-only pill; combined oral contraceptive; other contraceptives.
Outcomes for which data were reported	**Primary:** Pregnancy. **Secondary:** Side effects, including bleeding patterns; continuation rates. Trials measuring invalid surrogate end points, especially ovulation, were excluded.
Review limitations	

Halpern (2010)

Review type	Cochrane review
Study design	Predominantly RCTs and CCTs
Date assessed as up-to-date	19 October 2011

What is the impact of contraceptive methods and mixes of contraceptive methods on contraceptive prevalence, unmet need for family planning, and unwanted and unintended pregnancies?

Population	**Inclusion criteria:** Women who repeatedly used hormonal methods immediately before or after coitus to prevent pregnancy and who provided data in the eligible trials.
Setting	Not limited by setting.
Interventions	**Inclusion criteria:** Hormonal drug by mouth after or immediately before each act of intercourse and taken repeatedly during one or more menstrual cycles for contraception.
Comparison interventions	Not given.
Outcomes for which data were reported	**Primary:** Pregnancy. **Secondary:** All related side effects, including bleeding patterns, and discontinuation rates (if available).
Review limitations	

Hofmeyr (2010)

Review type	Cochrane review
Study design	Predominantly RCTs
Date assessed as up-to-date	7 February 2010
Population	**Inclusion criteria:** 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).
Setting	Not limited by setting.
Interventions	**Inclusion criteria:** Copper-containing IUD.
Comparison interventions	Compared with depot progestogen contraception alone or compared to mixed hormonal contraception (including a depot progestogen).
Outcomes for which data were reported	**Primary:** Unintended pregnancy; discontinuation of the allocated method. **Secondary:** (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.
Review limitations	This review pooled data on two different comparison groups versus IUD. For this overview, the data have been extracted for the two comparison groups separately. Also in the text of the review it says that the data they are reporting are risk ratios but this is not the case: the results are actually presented as odds ratios (according to the forest plots). The results have been converted for this overview and are presented as risk ratios. Furthermore, for discontinuation, the groups have been presented incorrectly in the forest plot (data for the intervention group as control group data and vice versa). This has been corrected for presentation in this overview.

Kejuan (2007)

Review type	Journal article
Study design	Predominantly RCTs and CCTs
Date assessed as up-to-date	2007
Population	**Inclusion criteria:** Healthy Chinese women of child-bearing age.
Setting	China.
Interventions	**Inclusion criteria:** Pills containing quinestrol 3.0mg and norgestrel 12mg (Quin-Ng).
Comparison interventions	Quinestrol 3.0mg and levonorgestrel 6mg (Quin-Lng) with at least 3 months of subject use.
Outcomes for which data were reported	**Primary:** Side effects (nausea, vomiting, headache, leukorrhea, dizziness, changes in monthly bleeding patterns and dysmenorrhea, liver function, serum lipids and blood pressure), contraceptive effectiveness and continuation rates as proxies for acceptability. **Secondary:** Papers with data on associations between use of once-a-month pills and female cancers, cardiovascular disease and birth defects were specifically searched for.
Review limitations	Review has not been recently updated.

Kulier (2007)

Review type	Cochrane review
Study design	Predominantly RCTs
Date assessed as up-to-date	19 August 2007
Population	**Inclusion criteria:** Women using copper IUDs for contraception, regardless of timing of insertion: immediate post-abortion/post-partum and unrelated to pregnancy.
Setting	Not limited by setting.
Interventions	**Inclusion criteria:** Any framed copper IUD.
Comparison interventions	Any other framed copper IUD.
Outcomes for which data were reported	**Primary:** Effectiveness: pregnancy rates (failures), ectopic pregnancy rates. Side-effects (side/adverse effects as reason for discontinuation): prolonged/heavy menstrual bleeding, intermenstrual bleeding, pain, bleeding and pain combined, infection, total medical removal rates. Expulsion rates. Non-medical (personal) removal rates. Overall discontinuation rates. Events at insertion: failed or difficult insertions, cervical injuries. Perforation rates.
Review limitations	Review has not been recently updated.

Lawrie (2011)

Review type	Cochrane review
Study design	Predominantly RCTs
Date assessed as up-to-date	19 July 2010
Population	**Inclusion criteria:** Women requesting tubal sterilisation as an interval, post-abortion or post-partum procedure.
Setting	Not limited by setting
Interventions	**Inclusion criteria:** Techniques to interrupt tubal patency: partial salpingectomy, tubal clips, tubal silicone rings, electrocoagulation, other interventions, e.g. instillation of chemical agents, or insertion of micro-inserts or removal plugs into fallopian tubes.
Comparison interventions	Not given.
Outcomes for which data were reported	**Primary:** Failure rate (yearly incidence of unintended pregnancy) including extrauterine pregnancy, operative mortality, major and minor morbidity (procedure-related intestinal, vascular or bladder injuries, injury to other pelvic organs, blood transfusion, readmission), failure of technical approach (e.g. clip converted to partial salpingectomy). **Secondary:** Operative time, changes in menstrual bleeding pattern, post-operative pain (pain scores or use of analgesics), post-operative complications (wound infection, reoperation, urinary tract infection, pelvic inflammatory disease), length of hospital stay, difficulty of procedure, persistent pain, women's satisfaction, surgeons' satisfaction.
Review limitations	It is not clear how the review authors managed different lengths of follow-up. There is inconsistent reporting of risk of bias. There are differences between the Peto odds ratios reported in the text and those in the forest plots. Those from the forest plots are reported here.

Maitra (2004)

Review type	Cochrane review
Study design	Predominantly RCTs
Date assessed as up-to-date	15 April 2008 - converted to new format (new search not conducted)
Population	**Inclusion criteria:** Women of reproductive age. **Exclusion criteria:** Biochemical change assessment trials; women prescribed OCs for non-contraceptive purposes; crossover studies.
Setting	Not limited by setting.
Interventions	**Inclusion criteria:** Same phasic doses, grouped into 4 interventions: (1) monophasic low-dose estrogen (<50µg) COC containing a 3rd generation progestogen versus any monophasic low-dose oestrogen COC containing a second-generation progestogen (same for multiphasic preparations); (2) Any monophasic low-dose estrogen COC containing a third-generation progestogen versus any monophasic low-dose oestrogen COC containing a first-generation progestogen (same for multi-phasic preparations); (3) Any monophasic low-dose oestrogen COC containing a second-generation progestogen versus any monophasic low-dose oestrogen COC containing a first-generation progestogen (same for multiphasic preparations); (4) Comparisons between low-dose oestrogen OCs containing a certain type of progestogen. **Exclusion criteria:** Trials comparing monophasic with multiphasic OCs were not eligible even if the progestogens fell within the scope of this review. Interventions have to be applied for a minimum of 6 months before a trial is considered for inclusion.
Comparison interventions	See inclusion criteria.
Outcomes for which data were reported	**Primary:** Contraceptive effectiveness, discontinuation rates, cycle control, side effects, satisfaction.
Review limitations	Information about what countries studies were conducted in was not clearly available. Several studies were large multicentre 'European' studies and could therefore have included countries such as Poland, Romania, Serbia, Bulgaria, Bosnia and Herzegovina or Belarus. As this information was not provided, outcome data from such studies were not included in the overview.

O'Brien (2005)

Review type	Cochrane review
Study design	Predominantly RCTs
Date assessed as up-to-date	12 November 2004
Population	**Inclusion criteria:** Women requesting an IUD for contraceptive purposes.
Setting	Not limited by setting.
Interventions	**Inclusion criteria:** Frameless IUD or any classical IUD with a copper-bearing frame.
Comparison interventions	N/A
Outcomes for which data were reported	**Primary:** Pregnancy rates, ectopic pregnancy rate, expulsion rate, removal rate (for pain, bleeding, or pain and bleeding), pelvic inflammatory disease rate, continuation rate.
Review limitations	Review has not been recently updated.

Power (2007)

Review type	Cochrane review
Study design	Predominantly RCTs and CCTs
Date assessed as up-to-date	21 April 2007
Population	**Inclusion criteria:** Women of reproductive years seeking effective contraception. **Exclusion criteria:** Pregnant women.
Setting	Not limited by setting
Interventions	**Inclusion criteria:** Subdermal implants
Comparison interventions	(1) Non-hormonal IUDs; (2) Barrier contraceptives; (3) Oral contraceptives; (4) Injectable contraceptives; (5) Progestogen-releasing intrauterine systems (IUSs); (6) different subdermal implants (e.g. Norplant vs Implanon).
Outcomes for which data were	**Primary:** Pregnancy due to method failure at 1, 2, 3, 4, 5 years after starting contraceptive method.

reported	Continuation of contraceptive method after 1, 2, 3, 4, 5 years of follow-up. **Secondary:** (1) Menstrual changes; (2) Hormonal side effects; (3) Adverse clinical effects; (4) Study withdrawals/reason for discontinuation
Review limitations	Review has not been recently updated.

Van der Wijden (2003)

Review type	Cochrane review
Study design	Predominantly RCTs
Date assessed as up-to-date	6 February 2008
Population	**Inclusion criteria:** Sexually active, healthy fertile women having recently given birth and practising the LAM contraception method only. LAM = lactational amenorrhea method (breastfeeding as contraception and supported to do so). **Exclusion criteria:** Not sexually active.
Setting	Not limited by setting
Interventions	**Inclusion criteria:** LAM as the only method of contraception.
Comparison interventions	Women who gave birth recently and used breastfeeding, but without support.
Outcomes for which data were reported	**Primary:** Number of women in a specific month who experienced menstruation or who became pregnant confirmed by: (1) physical examination; (2) pregnancy test. Amenorrhea was defined (p3); data were collected in life-table menstruation and pregnancy rates.
Review limitations	(1) Inconsistency between description of method and results; (2) Salami slicing noted in review: (a) Diaz presents data in 4 separate publications: 3 present intervention data only; 1 with similar data plus controls (p5); (b) Perez uses same cases in 2 publications, one paper with controls, one without.

Van Vliet (2006a)

Review type	Cochrane review
Study design	Predominantly RCTs
Date assessed as up-to-date	24 November 2008
Population	**Inclusion criteria:** Healthy women of reproductive age who desired to use oral contraceptives for preventing pregnancy. **Exclusion criteria:** Contra-indications for oral contraceptive use.
Setting	Not limited by setting
Interventions	**Inclusion criteria:** Any biphasic oral contraceptive pill (both 21 and 28 pill package) when used to prevent pregnancy **Exclusion criteria:** 1. Studies examining sequential pills (those containing estrogen alone early in the cycle, followed by estrogen plus progestin later in the cycle). 2. Used as a treatment and not as a contraceptive.
Comparison interventions	Any triphasic oral contraceptive pill (both 21 and 28 pill packages) when used to prevent pregnancy.
Outcomes for which data were reported	**Primary:** Incidence of accidental pregnancy; spotting, breakthrough bleeding, amenorrhea, intermenstrual bleeding, discontinuation due to side effects. **Secondary:** Studies which focused primarily on metabolic outcome measures and follicular growth.
Review limitations	

Van Vliet (2006b)

Review type	Cochrane review
Study design	Predominantly RCTs
Date assessed as up-to-date	24 November 2008
Population	**Inclusion criteria:** Healthy women of reproductive age starting or switching oral contraceptives for preventing pregnancy. **Exclusion criteria:** Contraindications for contraceptive use.
Setting	Not limited by setting.
Interventions	**Inclusion criteria:** Triphasic oral contraceptive pill used to prevent pregnancy (21 or 28-day packages), applied for a minimum of 3 consecutive cycles. **Exclusion criteria:** Triphasic OCs used as a treatment (e.g. for acne, dysmenorrhea or menorrhalgia).
Comparison interventions	Monophasic oral contraceptive pill used to prevent pregnancy (21 or 28- day package), applied for a minimum of 3 consecutive cycles, excluding monophasic OCs used as a treatment.

Outcomes for which data were reported	**Primary:**
	• Contraceptive efficacy (proportion of women pregnant)
	• Bleeding patterns
	• Trial discontinuation:
	  ○ Proportion of women who discontinued within 3, 6 and 12 cycles of pill use
	  ○ Proportion of women who discontinued due to bleeding disturbances or adverse events within 3, 6 and 12 cycles of pill use.

Review limitations	The authors noted generally poor quality of trials conducted to date and consequent limitations on conclusions.

Wen (2009)

Review type	Journal article
Study design	Predominantly RCTs
Date assessed as up-to-date	Not reported.
Population	**Inclusion criteria:** Participants were women using copper IUDs for contraception and without any contraindications, regardless of timing of insertion, whether immediate post-abortion/post-partum or unrelated to pregnancy. **Exclusion criteria:** Duplicates and articles with greater than 20% loss to follow-up in the first year.
Setting	Not limited by setting
Interventions	Inclusion criteria: Copper IUD TCu380A
Comparison interventions	Copper IUD MLCu375
Outcomes for which data were reported	**Primary:** Effectiveness: pregnancy rate, continuation rate, removal rate and expulsion rate. Safety: infection, pain, abnormal menstruation, uterine perforation and other adverse events.
Review limitations	

Appendix 4.1: Tables of further information

Table 4.1a: Further information on sterilisation in developing countries

Outcome	Intervention and comparison intervention	Review ID	Included studies (using study ID from review) and study design	Countries in which studies conducted	Contextual information	Length of follow-up
Pregnancy						
	Tubal ring vs Clip	Lawrie 2011	Aranda 1985 (RCT), Argueta 1980 (RCT)	Costa Rica; Costa Rica	None reported	>1 year (Not reported for Aranda 1985)
	Modified Pomeroy vs Electrocoagulation	Lawrie 2011	Sitompul 1984 (RCT)	Indonesia	The intervention and comparison intervention were delivered at a university hospital.	Not reported.
	Tubal ring vs Electrocoagulation	Lawrie 2011	Koetsawang 1978 (RCT)	Thailand	The intervention and comparison intervention were delivered at a hospital	6-12 months
	Modified Pomeroy vs Clip	Lawrie 2011	Yan 1990 (RCT)	Taiwan, China	The intervention and comparison intervention were delivered at a general hospital.	> 1 year
Discontinuation	N/A	N/A	N/A	N/A	N/A	N/A

Table 4.1b: Further information on oral contraceptives in developing countries

Outcome	Intervention and comparison intervention	Review ID	Included studies (using study ID from review)	Countries in which studies conducted	Contextual information	Length of follow-up
Pregnancy						
	Triphasic LNG 50-70-125 µg/EE 30-40-30 µg vs monophasic LNG 150 µg/EE 30 µg (follow-up = 6 cycles)	Van Vliet 2006b	Chen 1987 (RCT)	China	None reported	6 cycles
	Triphasic LNG 50-70-125 µg/EE 30-40-30 µg vs monophasic LNG 150 µg/EE 30 µg (follow-up = 12 cycles)	Van Vliet 2006b	Dunson 1993 (RCT), Ramos 1989 (RCT), Saxena 1992 (RCT)	Sudan, Sri Lanka, Chile, Ecuador, Dominican Republic; Philippines; India	None reported	12 cycles
	Triphasic LNG 50-70-125 µg/EE 30-40-30 µg vs monophasic NET 600 µg/EE 35 µg	Van Vliet 2006b	Chen 1987 (RCT)	China	None reported	6 cycles
	Triphasic LNG 50-70-125 µg/EE 30-40-30 µg vs monophasic NET 400 µg/EE 35 µg	Van Vliet 2006b	Ramos 1989 (RCT)	Philippines	None reported	12 cycles
	Triphasic GTD 50-70-100 µg/EE 30-40-30 µg vs monophasic DSG 150 µg/EE 30 µg	Van Vliet 2006b	Agoestina 1987 (RCT)	Indonesia	None reported	12 cycles

What is the impact of contraceptive methods and mixes of contraceptive methods on contraceptive prevalence, unmet need for family planning, and unwanted and unintended pregnancies?

Outcome	Intervention and comparison intervention	Review ID	Included studies (using study ID from review)	Countries in which studies conducted	Contextual information	Length of follow-up
	28-day cycle vs 1 year cycle	Edelman 2005	Coutinho 1995 (RCT)	Brazil, China, Egypt	None reported	6-12 months
	EE 20µg + desogestrel 150µg vs EE30µg + gestodene 75µg	Gallo 2011	Teichmann 1995 (RCT)	Poland	None reported	12 cycles
	EE 20µg + gestodene 75µg vs EE 30µg + gestodene 75µg	Gallo 2011	Taneepanichskul 2002 (RCT)	Thailand	None reported	12 cycles
	Monophasic norgestrel 0.3mg/EE 30mg (Lo-femenal) vs Monophasic norethindrone acetate 1.5mg/EE 30 mcg (Lo-estrin) (Second versus first-generation OCs)	Maitra 2004	Dunson (NG-NE) (RCT), Ramos (LNG-NE) (RCT)	Malaysia, Egypt, Thailand, Mexico; Philippines.	None reported	6-12 months
	Monophasic desogestrel 150 mcg + EE 30mcg vs Monophasic gestodene 75mcg + EE 30mcg (monophasics)	Maitra 2004	Koetsawang 1977 (RCT), L. America 1994 (RCT), Halbe 1998 (RCT)	Thailand; Brazil, Argentina, Chile, Colombia, Venezuela; Brazil.	None reported	6-12 months
	Monophasic NE (norethindrone) 0.4mg + EE 35mcg vs Monophasic LNG	Maitra 2004	Ramos (LNG-NE) (RCT)	Philippines	None reported	6-12 months

Outcome	Intervention and comparison intervention	Review ID	Included studies (using study ID from review)	Countries in which studies conducted	Contextual information	Length of follow-up
	(levonorgestrel) 150mcg + EE 30mcg (monophasics)					
	Biphasic levonorgestrel/EE (preparation Alpha) vs triphasic levonorgestrel/EE (preparation Gamma)	Van Vliet 2006a	Larranaga 1978 (RCT)	Peru	None reported	Not reported.
	Biphasic levonorgestrel/EE (preparation Beta) vs triphasic levonorgestrel/EE (preparation Gamma)	Van Vliet 2006a	Larranaga 1979 (RCT)	Peru	None reported	Not reported.
	Low dose mifepristone v levonorgestrel	Grimes 2010b	Lakha 2007 (RCT)	Nigeria, South Africa, Hong KongUinted Kingdom	None reported	Not reported.
	Norethisterone v levonorgestrel 150+ ethinyl estradiol combination pill	Grimes 2010b	Sheth 1982 (RCT)	India, Yugoslavia	None reported	Not reported.
	Progestron only pill v 6 months post-partum	Grimes 2010b	Were 1997 (RCT)	Kenya	None reported	Not reported.
	Quin-Ng vs Quin-Lng	Kejuan 2007	Weng et al. 1992 (RCT)	China	None reported	Not reported.

What is the impact of contraceptive methods and mixes of contraceptive methods on contraceptive prevalence, unmet need for family planning, and unwanted and unintended pregnancies?

Outcome	Intervention and comparison intervention	Review ID	Included studies (using study ID from review)	Countries in which studies conducted	Contextual information	Length of follow-up
Discontinuation						
	Triphasic LNG 50-70-125 µg/EE 30-40-30 µg vs monophasic LNG 150 µg/EE 30 µg (follow-up = 6 cycles)	Van Vliet 2006b	Chen 1987 (RCT)	China	None reported	6 cycles
	Triphasic LNG 50-70-125 µg/EE 30-40-30 µg vs monophasic LNG 150 µg/EE 30 µg (follow-up = 12 cycles)	Van Vliet 2006b	Dunson 1993 (RCT), Ramos 1989 (RCT), Saxena 1992 (RCT)	Sudan, Sri Lanka, Chile; Philippines; India	None reported	12 cycles
	Triphasic LNG 50-70-125 µg/EE 30-40-30 µg vs monophasic NET 600 µg/EE 35 µg	Van Vliet 2006b	Chen 1987 (RCT)	China	None reported	6 cycles
	Triphasic LNG 50-70-125 µg/EE 30-40-30 µg vs monophasic NET 400 µg/EE 35 µg	Van Vliet 2006b	Ramos 1989 (RCT)	Philippines	None reported	12 cycles
	Triphasic GTD 50-70-100 µg/EE 30-40-30 µg vs monophasic DSG 150 µg/EE 30 µg (follow-up = 6 cycles)	Van Vliet 2006b	Agoestina 1987 (RCT)	Indonesia	None reported	6 cycles
	Triphasic GTD 50-70-100 µg/EE 30-40-30 µg vs monophasic	Van Vliet 2006b	Agoestina 1987 (RCT)	Indonesia	None reported	12 cycles

Outcome	Intervention and comparison intervention	Review ID	Included studies (using study ID from review)	Countries in which studies conducted	Contextual information	Length of follow-up
	DSG 150 µg/EE 30 µg (follow-up = 12 cycles)					
	28-day cycle vs 1 year cycle	Edelman 2005	Coutinho 1995 (RCT)	Brazil, China, Egypt	None reported	6-12 months
	EE 20µg + desogestrel 150µg vs EE30µg + gestodene 75µg	Gallo 2011	Teichmann 1995 (RCT)	Poland	None reported	12 cycles
	EE 20µg + gestodene 75µg vs EE 30µg + gestodene 75µg	Gallo 2011	Taneepanichskul 2002 (RCT)	Thailand	None reported	12 cycles
	Monophasic norgestrel 0.3mg/EE 30mg (Lo-femenal) vs Monophasic norethindrone acetate 1.5mg/EE 30 mcg (Lo-estrin) (Second versus first-generation OCs)	Maitra 2004	Dunson (NG-NE) (RCT), Ramos (LNG-NE) (RCT)	Malaysia, Egypt, Thailand, Mexico; Philippines	None reported	6-12 months
	Monophasic desogestrel 150 mcg + EE 30mcg vs Monophasic gestodene 75mcg + EE 30mcg (monophasics)	Maitra 2004	Koetsawang 1977 (RCT), L. America 1994 (RCT), Halbe 1999 (RCT)	Thailand; Brazil, Argentina, Chile, Colombia, Venezuela; Brazil	None reported	6-12 months

What is the impact of contraceptive methods and mixes of contraceptive methods on contraceptive prevalence, unmet need for family planning, and unwanted and unintended pregnancies?

Outcome	Intervention and comparison intervention	Review ID	Included studies (using study ID from review)	Countries in which studies conducted	Contextual information	Length of follow-up
	Monophasic NE (norethindrone) 0.4mg + EE 35mcg vs Monophasic LNG (levonorgestrel) 150mcg + EE 30mcg (monophasics)	Maitra 2004	Ramos (LNG-NE) (RCT)	Philippines	None reported	6-12 months
	Biphasic levonorgestrel/EE (preparation Alpha) vs triphasic levonorgestrel/EE (preparation Gamma)	Van Vliet 2006a	Larranaga 1978 (RCT)	Peru	None reported	Not reported.
	Biphasic levonorgestrel/EE (preparation Beta) vs triphasic levonorgestrel/EE (preparation Gamma)	Van Vliet 2006a	Larranaga 1978 (RCT)	Peru	None reported	Not reported.
	Norethisterone v levonorgestrel 150+ ethinyl estradiol combination pill	Grimes 2010b	Sheth 1982 (RCT)	India, Yugoslavia	None reported	Not reported.
Continuation						
	Progestron only pill v 6 months post-partum	Grimes 2010b	Were 1997 (RCT)	Kenya	None reported	Not reported.

Outcome	Intervention and comparison intervention	Review ID	Included studies (using study ID from review)	Countries in which studies conducted	Contextual information	Length of follow-up
	Quin-Ng vs Quin-Lng	Kejuan 2007	Weng et al. 1992 (RCT)	China	None reported	Not reported.

Table 4.1c: Further information on intrauterine devices in developing countries

Outcome	Intervention and comparison intervention	Review ID	Included studies (using study ID from review)	Countries in which studies conducted	Contextual information	Length of follow-up
Pregnancy						
	TCu380A vs MLCu375	Wen 2009	Kong C 1993 (RCT), Fang KJ 2006 (RCT), Yang MM 1999 (RCT), Wu DD 2005 (RCT)	China	None reported	1 year
	c-1 LNG-20 vs non hormonal IUD >250 MM2	French 2004	Baveja 1989 (RCT)	India	The intervention and comparison intervention were delivered at a family planning clinic.	3 years
	c-2 LNG-20 vs non-hormonal ≤ 250 mm2 IUD	French 2004	Baveja, 1989 (RCT)	India	The intervention and comparison intervention were delivered at a family planning clinic.	3 years
	c-4: LNG-20 vs subdermal implants	French 2004	Wang 1992 (RCT)	China	The intervention and comparison intervention were delivered at a family planning clinic.	3 years
	Immediate post-partum insertion:	Grimes 2010a	Kisnisci 1985 (RCT)	Turkey	The intervention and comparison intervention were delivered at a family	Not reported.

Outcome	Intervention and comparison intervention	Review ID	Included studies (using study ID from review)	Countries in which studies conducted	Contextual information	Length of follow-up
	Delta T vs Delta loop				planning clinic.	
	Immediate post-partum insertion TCu 380 A (hand insertion) vs Tcu 380 A (instrument insertion)	Grimes 2010a	Apelo 1985 (RCT)	Philippines	The intervention and comparison intervention were delivered at a family planning clinic.	Not reported.
	MLCu 375 vs Tcu380A (Follow-up = 1 year)	Kulier 2007	Cole 1985C (RCT), Sastrawinata 1991 (RCT)	Yugoslavia, Panama, Costa Rica, Egypt; Indonesia	None reported	1 year
	MLCu 375 vs Tcu380A (Follow-up = 2 years)	Kulier 2007	Sastrawinata 1991(RCT)	Indonesia	None reported	2 year
	MLCu250 vs Tcu 380A	Kulier 2007	Farr 1994C (RCT)	Sri Lanka, Thailand, Malaysia	Family planning clinics. IUD insertion by physicians.	Not reported.
	TCu380S vs TCu380A (Follow-up = 1 year)	Kulier 2007	Bahamondes 1999 (RCT)	Brazil	School of Medicine. Insertion by nurse, gynaecologist, resident or medical student in training.	1 year
	TCu380S vs TCu380A (Follow-up = 2 years)	Kulier 2007	Bahamondes 1999 (RCT)	Brazil	School of Medicine. Insertion by nurse, gynaecologist, resident or medical student in training.	2 years
	TCu380S vs TCu380A	Kulier 2007	Bahamondes 1999 (RCT)	Brazil	School of Medicine. Insertion by nurse,	3 years

Outcome	Intervention and comparison intervention	Review ID	Included studies (using study ID from review)	Countries in which studies conducted	Contextual information	Length of follow-up
	(Follow-up = 3 years)				gynaecologist, resident or medical student in training.	
	Tcu220 vs Tcu 380A (Follow-up = 1 year)	Kulier 2007	Baveja 1989 (RCT), Farr 1994B (RCT)	India; Mexico, Philippines	Human reproductive research centres and family planning clinics.	1 year
	Tcu220 vs Tcu 380A (Follow-up = 2 years)	Kulier 2007	Baveja 1989 (RCT)	India	Human reproductive research centres and family planning clinics.	2 years
	Tcu220 vs Tcu 380A (Follow-up = 3 years)	Kulier 2007	Baveja 1989 (RCT)	India	Human reproductive research centres and family planning clinics.	3 years
	Tcu200 vs TCu380A (Follow-up = 1 year)	Kulier 2007	Baveja 1989 (RCT), Farr 1994A (RCT), Shrestha 1995 (RCT)	India; Cameroon, Chile, Egypt, El Salvador, Mexico, Pakistan; Nepal	Human reproduction research centres. No information for Farr 1994A.	1 year
	Tcu200 vs TCu380A (Follow-up = 2 years)	Kulier 2007	Baveja 1989 (RCT), Farr 1994A (RCT), Shrestha 1995 (RCT)	India; Cameroon, Chile, Egypt, El Salvador, Mexico, Pakistan; Nepal	Human reproduction research centres. No information for Farr 1994A.	2 years
	Tcu200 vs TCu380A (Follow-up = 3 years)	Kulier 2007	Baveja 1989 (RCT)	India	Human reproduction research centres. No information for Farr 1994A.	3 years

Outcome	Intervention and comparison intervention	Review ID	Included studies (using study ID from review)	Countries in which studies conducted	Contextual information	Length of follow-up
	TCu220 vs MLCu375 (Follow-up = 1 year)	Kulier 2007	Ho 1992 (RCT)	China	MCH hospitals and family planning centres. IUD insertion by experienced physicians.	1 year
	TCu380A vs GyneFix frameless IUD	O'Brien 2005	Wu 2000 (RCT)	China	None reported	Not reported.
Discontinuation						
	c-1 LNG-20 vs non hormonal IUD >250 MM2	French 2004	Baveja 1989 (RCT)	India	The intervention and comparison intervention were delivered at a family planning clinic.	3 years
	c-2 LNG-20 v non-hormonal ≤250 mm2 IUD	French 2004	Baveja, 1989 (RCT)	India	The intervention and comparison intervention were delivered at a family planning clinic.	3 years
	c-4: LNG-20 vs subdermal implants	French 2004	Wang 1992 (RCT)	China	The intervention and comparison intervention were delivered at a family planning clinic.	3 years
	MLCu250 vs Tcu 380A (Follow-up = 1 year)	Kulier 2007	Farr 1994C (RCT)	Sri Lanka, Thailand, Malaysia	Family planning clinics. IUD insertion by physicians.	1 year
	Tcu220 vs Tcu 380A (Follow-up = 1 year)	Kulier 2007	Farr 1994B (RCT)	Mexico, Philippines	Family planning clinics.	1 year
	Tcu200 vs TCu380A (Follow-up = 1 year)	Kulier 2007	Farr 1994A (RCT)	Cameroon, Chile, Egypt, El Salvador,	No information.	1 year

Outcome	Intervention and comparison intervention	Review ID	Included studies (using study ID from review)	Countries in which studies conducted	Contextual information	Length of follow-up
				Mexico, Pakistan		
Continuation						
	TCu380A vs MLCu375	Wen 2009	Kong C 1993 (RCT), Fang KJ 2006 (RCT), Yang MM 1999 (RCT), Wu DD 2005 (RCT)	China	None reported	1 year
	Immediate post-partum insertion: Delta T vs Delta loop	Grimes 2010a	Kisnisci 1985 (RCT)	Turkey	The intervention and comparison intervention were delivered at a family planning clinic.	Not reported.
	Immediate post-partum insertion by hand TCu 200 Vs progestasert	Grimes 2010a	Lavin 1983 (RCT)	Chile	The intervention and comparison intervention were delivered at a family planning clinic.	Not reported.
	Immediate post-partum insertion by instrument Tcu 200 vs progestart	Grimes 2010a	Lavin 1983 (RCT)	Chile	The intervention and comparison intervention were delivered at a family planning clinic.	Not reported.
	Immediate post-partum insertion Tcu 200 VS IPCS-52 mg	Grimes 2010a	Apelo 1985 (RCT)	Philippines	The intervention and comparison intervention were delivered at a family planning clinic.	Not reported.
	MLCu 375 vs Tcu380A	Kulier 2007	Cole 1985C (RCT)	Yugoslavia, Panama, Costa Rica, Egypt	None reported	Not reported.
	TCu380S vs TCu380A	Kulier 2007	Bahamondes 1999 (RCT)	Brazil	School of Medicine.	1 year

Outcome	Intervention and comparison intervention	Review ID	Included studies (using study ID from review)	Countries in which studies conducted	Contextual information	Length of follow-up
	(Follow-up = 1 year)				Insertion by nurse, gynaecologist, resident, or medical student in training.	
	Tcu200 vs TCu380A	Kulier 2007	Shrestha 1995 (RCT)	Nepal	None reported	Not reported.
	TCu380A vs GyneFix frameless IUD	O'Brien 2005	Wu 2000 (RCT)	China	None reported	Not reported.

Table 4.1d: Further information on injectables in developing countries

Outcome	Intervention and comparison intervention	Review ID	Included studies (using study ID from review)	Countries in which studies conducted	Contextual information	Length of follow-up
Pregnancy						
	NET-EN 50mg/E2V 5mg vs DMPA 25mg/E2C 5mg	Gallo 2008	Sang 1995 (RCT)	China	Not reported.	Not reported.
	NET-EN 50mg/E2V 5mg vs NET-EN 200mg	Gallo 2008	Indian Council 1990 (RCT)	India	Not reported.	Not reported.
	NET-EN 50mg/E2V 5mg vs Non-hormonal IUD	Gallo 2008	Von Kesseru 2000 (RCT)	Argentina	Not reported.	Not reported.
Discontinuation						
	DMPA 150mg IM every 3 months vs NET-EN	Draper 2006	Salem (RCT),1988 WHO Multinational trial,	Egypt; Thailand;	Not reported.	Not reported.

Outcome	Intervention and comparison intervention	Review ID	Included studies (using study ID from review)	Countries in which studies conducted	Contextual information	Length of follow-up
	200mg IM every 2 months		1983	Nigeria; Pakistan; Zambia; Philippines; Mexico; Brazil; Chile		
	NET-EN 50mg/E2V 5mg vs DMPA 25mg/E2C 5mg	Gallo 2008	Sang 1995 (RCT), WHO 1997 (RCT)	China; China, Cuba, Indonesia	Not reported.	
	DMPA 25mg/E2C 5mg vs DMPA 150mg	Gallo 2008	Ruminjo 2005 (RCT)	Kenya	The intervention and comparison intervention were delivered at a family planning clinic.	
	NET-EN 50mg/E2V 5mg vs NET-EN 200mg	Gallo 2008	Indian Council 1990 (RCT)	India	Not reported.	

Table 4.1e: Further information on intrauterine devices versus injectables in developing countries

Outcome	Intervention and comparison intervention	Review ID	Included studies (using study ID from review)	Countries in which studies conducted	Contextual information	Length of follow-up
Pregnancy						
	IUD vs depot progestogen	Hofmeyr 2010	Feldblum 2005 (RCT), Stringer 2007 (RCT)	Brazil, Guatemala, Egypt, Vietnam;	Family planning clinics; primary clinics	12 months; not reported

Outcome	Intervention and comparison intervention	Review ID	Included studies (using study ID from review)	Countries in which studies conducted	Contextual information	Length of follow-up
				Zambia		
Discontinuation						
	IUD vs depot progestogen	Hofmeyr 2010	Feldblum 2005 (RCT)	Brazil, Guatemala, Egypt, Vietnam	Family planning clinics	12 months
	IUD vs Mixed hormonal contraception	Hofmeyr 2010	Stringer 2007 (RCT)	Zambia	Primary clinics	Not reported

Table 4.1f: Further information on implants in developing countries

Outcome	Intervention and comparison intervention	Review ID	Included studies (using study ID from review)	Countries in which studies conducted	Contextual information	Length of follow-up
Pregnancy						
	Implanon vs Norplant (Follow-up = 1 year)	Power 2007	Organon 34510 (RCT), Organon 34520 (RCT), Zheng 1991 (RCT)	Indonesia, Thailand; Indonesia; China	None reported.	1 year
	Implanon vs Norplant (Follow-up = 2 years)	Power 2007	Organon 34510 (RCT), Organon 34520 (RCT), Zheng 1991 (RCT)	Indonesia, Thailand; Indonesia; China	None reported.	2 years
	Implanon vs Norplant (Follow-up = 3 years)	Power 2007	Organon 34510 (RCT), Organon 34520 (RCT),	Indonesia, Thailand; Indonesia;	None reported.	3 years

Outcome	Intervention and comparison intervention	Review ID	Included studies (using study ID from review)	Countries in which studies conducted	Contextual information	Length of follow-up
			Zheng 1991 (RCT)	China		
	Implanon vs Norplant (Follow-up = 4 years)	Power 2007	Organon 34510 (RCT), Organon 34520 (RCT), Zheng 1991 (RCT)	Indonesia, Thailand; Indonesia; China	None reported.	4 years
Continuation						
	Implanon vs Norplant (Follow-up = 1 year)	Power 2007	Organon 34510 (RCT), Organon 34520 (RCT), Zheng 1991 (RCT)	Indonesia, Thailand; Indonesia; China	None reported.	1 year
	Implanon vs Norplant (Follow-up = 2 years)	Power 2007	Organon 34510 (RCT), Organon 34520 (RCT), Zheng 1991 (RCT)	Indonesia, Thailand; Indonesia; China	None reported.	2 years
	Implanon vs Norplant (Follow-up = 3 years)	Power 2007	Organon 34510 (RCT), Organon 34520 (RCT), Zheng 1991(RCT)	Indonesia, Thailand; Indonesia; China	None reported.	3 years
	Implanon vs Norplant (Follow-up = 4 years)	Power 2007	Organon 34510 (RCT), Organon 34520 (RCT), Zheng 1991(RCT)	Indonesia, Thailand; Indonesia; China	None reported.	4 years

Table 4.1g: Further information on emergency contraception in developing countries

Outcome	Intervention and comparison intervention	Review ID	Included studies (using study ID from review)	Countries in which respective studies conducted	Contextual information	Length of follow-up
Pregnancy						
	IUD vs Expectant management	Cheng 2008	Askalani 1987 (RCT)	Egypt	Both the intervention and comparison intervention were delivered at family planning clinics.	Not reported.
	Levonorgestrel split dose 24 hr vs 12 hour	Cheng 2008	Ngai 2005 (RCT)	China	None provided.	Not reported.
	Levonorgestrel single dose vs Levonorgestrel split dose	Cheng 2008	Arowojolu 2002 (RCT)	Nigeria	Both the intervention and comparison intervention were delivered at family-planning clinics at University College Hospital and Planned Parenthood Federation of Nigeria.	Not reported.
	Levonorgestrel vs Mid-dose mifepristone (25-50mg)	Cheng 2008	Han 1999a (RCT), Hu X 2003 (RCT), Li A 2000 (RCT), Li J 2005 (RCT), Liang 2001 (RCT), Liao, 2003 (RCT), Qi M 2003 (RCT), Su 2001 (RCT), Sun 2000 (RCT), Sun P 2003 (RCT), Wang Q 2000 (RCT), Wang Y 2003 (RCT), Xu 2000 (RCT), Xu Z 2000 (RCT),	China	In eleven of the studies the intervention and comparison intervention were delivered at hospital clinics, in three at family planning clinics and in one at a reproductive medicine clinic.	Not reported.

Outcome	Intervention and comparison intervention	Review ID	Included studies (using study ID from review)	Countries in which respective studies conducted	Contextual information	Length of follow-up
			Zhang JQ 2000 (RCT)			
	Levonorgestrel vs Low-dose mifepristone (<25mg)	Cheng 2008	Li W 2002 (RCT), Lin 2000 (RCT), Liu 2000 (RCT), Pei 2001 (RCT), Sheng A 2002 (RCT), Wang C 2000 (RCT), Wu 1999a (RCT)	China	In five of the studies the intervention and comparison intervention were delivered at family planning clinics (one study specified as urban), one at a family planning hospital, and one at a research institute for family planning.	Not reported.
	Levonorgestrel vs Anordrin	Cheng 2008	Xu Z 2000 (RCT)	China	Both the intervention and comparison intervention were delivered at a family-planning clinic.	Not reported.
	Low-dose mifepristone (<25mg) vs Low-dose mifepristone (≤10mg)	Cheng 2008	Zhang L 2005 (RCT)	China	Both the intervention and comparison intervention were delivered at a hospital clinic.	Not reported.
	Mid-dose mifepristone (25-50mg) vs Low-dose mifepristone (<25mg)	Cheng 2008	Cao 1999 (RCT), Cheng 1999a (RCT), Ding G 2005 (RCT), Du J 2002 (RCT), Fan HL 2001 (RCT), Han L 2001 (RCT), Lai Z 2004 (RCT), Qi 2000b (RCT), Sang	China	In four of the studies the intervention and comparison intervention were delivered at a family planning clinic (one study specified as urban), six at a gynaecology clinic, one	Not reported.

Outcome	Intervention and comparison intervention	Review ID	Included studies (using study ID from review)	Countries in which respective studies conducted	Contextual information	Length of follow-up
			1999 (RCT), Tan L 2003 (RCT), Wang J 2006 (RCT), Wang L 2004 (RCT), Wang SZ 2001 (RCT), Wei RH 2002 (RCT), Xiao 2002 (RCT), Zhang Y 1998 (RCT), Zhao J 2003 (RCT), Zuo 1999 (RCT)		at an outpatient clinic, three at a MCH hospital, and four at a hospital clinic. One study did not report the location of the treatment.	
	Mid-dose mifepristone (50mg) vs Mid-dose mifepristone (25mg)	Cheng 2008	Cao 1999 (RCT), Chen R 2002 (RCT), Cheng 1999a (RCT), Fang 2000 (RCT), Han 1996 (RCT), Li 2000 (RCT), Li H 2000 (RCT), Lou C 2002 (RCT), Tan 1999 (RCT), Xie 1998 (RCT), Yang F 2003 (RCT), Zhang JQ 2000 (RCT), Zhao J 2003 (RCT)	China	In three of the studies the intervention and comparison intervention were delivered at a family planning clinic, five at a hospital, and three at a MCH hospital. Two studies did not report the location of the treatment.	Not reported.
	High-dose mifepristone (>50mg) vs Low-dose mifepristone (<25mg)	Cheng 2008	Cao 1999 (RCT), Ding G 2005 (RCT), Tan L 2003 (RCT), Zhang Y 2002 (RCT)	China	In one of the studies the intervention and comparison intervention were delivered at a family planning clinic, two at a hospital clinic and one at a MCH hospital.	Not reported.

Outcome	Intervention and comparison intervention	Review ID	Included studies (using study ID from review)	Countries in which respective studies conducted	Contextual information	Length of follow-up
	High-dose mifepristone (>50mg) vs Mid-dose mifepristone (25-50mg)	Cheng 2008	Cao 1999 (RCT), Ding G 2005 (RCT), Li H 2000 (RCT), Qian 1999 (RCT), Tan L 2003 (RCT), Xie 1998 (RCT), Zhang Y 2002 (RCT), Zheng A 2005 (RCT).	China	In two of the studies the intervention and comparison intervention were delivered at a family planning clinic, three at a hospital clinic and two at a MCH hospital. One study did not report the location of the treatment.	Not reported.
	Mifepristone vs Danazol	Cheng 2008	Yang 2001(RCT)	China	The intervention and comparison intervention were delivered at a MCH hospital.	Not reported.
	Mifepristone vs Anordrin	Cheng 2008	Chen G 2001 (RCT), Fu X 2000 (RCT), Han 1995 (RCT), Liu L 2001 (RCT), Wang 1999 (RCT), Xu Z 2000 (RCT), Yang 2001(RCT)	China	In one of the studies, the intervention and comparison intervention were delivered at a family planning clinic. The remainder were delivered at a hospital clinic.	Not reported.
	Mifepristone alone (all doses) vs Mifepristone + anordrin (all doses)	Cheng 2008	Han 1995 (RCT), Han 1996 (RCT), Lou X 2005 (RCT), Sang 1999 (RCT), Zhang YM 2002 (RCT)	China	In one of the studies, the intervention and comparison intervention were delivered at a family planning clinic and a hospital; the other four were at a hospital clinic.	Not reported.

What is the impact of contraceptive methods and mixes of contraceptive methods on contraceptive prevalence, unmet need for family planning, and unwanted and unintended pregnancies?

Outcome	Intervention and comparison intervention	Review ID	Included studies (using study ID from review)	Countries in which respective studies conducted	Contextual information	Length of follow-up
	Mifepristone alone (all doses) vs Mifepristone + MTX (all doses)	Cheng 2008	Chen H 2002 (RCT)	China	The intervention and comparison intervention were delivered at a hospital clinic.	Not reported.
	Mifepristone alone (all doses) vs Mifepristone + tamoxifen (all doses)	Cheng 2008	He CH 2002 (RCT)	China	The intervention and comparison intervention were delivered at a family planning clinic.	Not reported.
	Mifepristone vs Mifepristone + misoprostol (all doses)	Cheng 2008	Wu XZ 2002 (RCT)	China	None provided.	Not reported.
	Mifepristone (all doses) vs Cu-IUD	Cheng 2008	Liu L 2002 (RCT)	China	The intervention and comparison intervention were delivered at a hospital clinic.	Not reported.
Discontinuation	No comparisons	Cheng 2008	N/A	N/A	N/A	N/A

Table 4.1h: Further information on spermicides in developing countries

Outcome	Intervention and comparison intervention	Review ID	Included studies (using study ID from review)	Countries in which studies conducted	Contextual information	Length of follow-up
Pregnancy						
	Collatex sponge (nonoxynol-9 1.15mg)	Grimes	Chi 1987 (RCT)	Belgrade, Maribor (former	None reported.	6 months

Outcome	Intervention and comparison intervention	Review ID	Included studies (using study ID from review)	Countries in which studies conducted	Contextual information	Length of follow-up
	vs Neo sampoon tablet (menfegol 60mg)	2005		Yugoslavia), Taiwan and Bangladesh		
	Neo sampoon tablet (menfegol 60mg) vs Ortho or Emko vaginal tablet (100mg of nonoxynol-9)	Grimes 2005	Kazi 1992 (RCT), Lamptey 1985 (RCT), Abdelsalaam 1984 (RCT)	Pakistan; Ghana; Egypt.	None reported.	12 months
	Ortho vaginal tablet nonoxynol-9 100mg vs Emko vaginal tablet nonoxynol-9 100mg	Grimes 2005	Lamptey 1985 (RCT), Younis 1985 (RCT)	Ghana; Egypt	None reported.	12 months
	Neo sampoon tablet menfelgol 60mg vs Emko foam nonoxynol-9 8%	Grimes 2005	Youssef 1987 (RCT), Andolsek 1988 (RCT)	Egypt; Yugoslavia	None reported.	12 months
Discontinuation						
	Collatex sponge (nonoxynol-9 1.15mg) vs Neo sampoon tablet (menfegol 60mg)	Grimes 2005	Chi 1987 (RCT)	Belgrade, Maribor (former Yugoslavia), Taiwan and Bangladesh	None reported.	6 months
	Vaginal foaming tablets nonxynol-9 100mg vs menfegol 60mg	Grimes 2005	Chompootaweep 1990 (RCT), Klufio 1988 (RCT)	Thailand; Ghana	None reported.	12 months

Outcome	Intervention and comparison intervention	Review ID	Included studies (using study ID from review)	Countries in which studies conducted	Contextual information	Length of follow-up
	Neo sampoon tablet (menfegol 60mg) vs Ortho or Emko vaginal tablet (100mg of nonoxynol-9)	Grimes 2005	Kazi 1992 (RCT), Lamptey 1985 (RCT), Abdelsalaam 1984 (RCT)	Pakistan; Ghana; Egypt	None reported.	12 months
	Ortho vaginal tablet nonoxynol-9 100mg vs Emko vaginal tablet nonoxynol-9 100mg	Grimes 2005	Lamptey 1985 (RCT), Younis 1985 (RCT)	Ghana; Egypt	None reported.	12 months
	Neo sampoon tablet menfelgol 60mg vs Emko foam nonoxynol-9 8%	Grimes 2005	Youssef 1987 (RCT), Andolsek 1988 (RCT)	Egypt; Yugoslavia	None reported.	12 months

Table 4.1i: Further information on repeated use of pre- and post-coital hormonal contraception in developing countries

Outcome	Intervention and comparison intervention	Review ID	Included studies (using study ID from review)	Countries in which studies conducted	Contextual information	Length of follow-up
Pregnancy						
	Chinese LNG vs Hungarian LNG	Halpern 2010	He 1991(RCT)	China	None reported.	Not reported.
	One LNG tablet	Halpern	Kesseru 1973 (non-RCT)	Peru	The intervention and	Not reported.

Outcome	Intervention and comparison intervention	Review ID	Included studies (using study ID from review)	Countries in which studies conducted	Contextual information	Length of follow-up
	immediately (but no later than 3 hours) after each sexual intercourse. Five groups: 0.15mg, 0.25mg, 0.30mg, 0.35mg, 0.40mg.	2010			comparison intervention were delivered at a fertility outpatients in a research clinic.	
	One dose quinestanol acetate within 24 hrs of intercourse in following dose size: 0.5mg, 0.6mg, 0.75mg, 0.8mg, 1.5mg, 2.0mg.	Halpern 2010	Mischler 1974 (non-RCT)	Mexico, Peru, Argentina, Chile	None reported.	Not reported.
	Quinagestanol acetate 1.5mg vs LNG within 1 hour post-coitus.	Halpern 2010	Moggia 1974 (non-RCT)	Argentina	The intervention and comparison intervention were delivered at a maternity and children's city hospital, Buenos Aires	Not reported.
	Quinagestanol acetate within 24 hrs of intercourse. Max of 1 dose/24hrs. Dose sizes as follows: 0.2mg, 0.3mg, 0.4mg, 0.5mg, 0.75mg, 0.8mg.	Halpern 2010	Rubio 1970 (non-RCT)	Mexico, Peru, Chile	None reported.	Not reported.
	Progestogens before/after coitus.	Halpern 2010	Zanartu 1974 (non-RCT)	Chile	None reported.	Not reported.

Outcome	Intervention and comparison intervention	Review ID	Included studies (using study ID from review)	Countries in which studies conducted	Contextual information	Length of follow-up
	Four different types of progestogens: retroprogestogen 30-40mg, clogestone 1.0mg, norgestrienone 0.5mg, ethynodiol 0.5mg.					
	Groups: clogestone 1.0mg 5/6 hours prior to intercourse, two clogestone 0.6mg tablets (=1.2mg total) one before and one after coitus, two clogestone 1.0mg (total 2.0mg) one before, one after coitus.	Halpern 2010	Zanartu 1976 (non-RCT)	Chile	None reported.	Not reported.
Continuation						
	Chinese LNG vs Hungarian LNG	Halpern 2010	He 1991 (RCT)	China	None reported.	Not reported.
	One dose quinestanol acetate within 24 hrs of intercourse in following dose size: 0.5mg, 0.6mg, 0.75mg, 0.8mg,	Halpern 2010	Mischler 1974 (non-RCT)	Mexico, Peru, Argentina, Chile	None reported.	Not reported.

Outcome	Intervention and comparison intervention	Review ID	Included studies (using study ID from review)	Countries in which studies conducted	Contextual information	Length of follow-up
	1.5mg, 2.0mg.					
	Quinagestanol acetate 1.5mg vs LNG within 1 hour post-coitus.	Halpern 2010	Moggia 1974 (non-RCT)	Argentina	The intervention and comparison intervention were delivered at a maternity and children's city hospital, Buenos Aires	Not reported.
	Quinagestanol acetate within 24 hrs of intercourse. Max of 1 dose/24hrs. Dose sizes as follows: 0.2mg, 0.3mg, 0.4mg, 0.5mg, 0.75mg, 0.8mg.	Halpern 2010	Rubio 1970 (non-RCT)	Mexico, Peru, Chile	None reported.	Not reported.
Continuation	Progestogens before/after coitus. Four different types of progestogens: retroprogestogen 30-40mg, clogestone 1.0mg, norgestrienone 0.5mg, ethynodiol 0.5mg.	Halpern 2010	Zanartu 1974 (non-RCT)	Chile	None reported.	Not reported.
Continuation	Groups: clogestone 1.0mg 5/6 hours prior to intercourse, two clogestone 0.6mg tablets	Halpern 2010	Zanartu 1976 (non-RCT)	Chile		Not reported.

Outcome	Intervention and comparison intervention	Review ID	Included studies (using study ID from review)	Countries in which studies conducted	Contextual information	Length of follow-up
	(=1.2mg total) one before and one after coitus, two clogestone 1.0mg (total 2.0mg) one before, one after coitus.					

Table 4.1j: Further information on natural family planning in developing countries

Outcome	Intervention and comparison intervention	Review ID	Included studies (using study ID from review)	Countries in which studies conducted	Contextual information	Length of follow-up
Pregnancy						
	Ovulation method vs symptothermal method	Grimes 2004	Medina 1980 (RCT)	Colombia	All participants entered a training programme lasting 3 to 5 months. Thereafter, all participants were visited monthly by study personnel for follow-up and counselling.	Not reported.
	LAM with support vs LAM without support	Van der Wijden 2003	Diaz 1988 (non-RCT)	Chile	None reported.	Not reported.
	LAM with support vs (Controls) used non-hormonal IUD 2 months post-partum and on-demand	Van der Wijden 2003	Perez 1991 (non-RCT)	Chile	None reported.	Not reported.

Outcome	Intervention and comparison intervention	Review ID	Included studies (using study ID from review)	Countries in which studies conducted	Contextual information	Length of follow-up
	feeding					
Discontinuation						
	Ovulation method vs symptothermal method	Grimes 2004	Medina 1980 (RCT)	Colombia	All participants entered a training programme lasting 3 to 5 months. Thereafter, all participants were visited monthly by study personnel for follow-up and counselling.	Not reported.

Appendix 4.2: Overview of reviews tables

Modern contraceptive methods

Terminal methods

Table 4.2a: Overview of reviews table for sterilisation in developing countries (data synthesised using meta-analysis)

Outcome	Intervention and comparison intervention	Illustrative comparative risks (95% CI)		Relative effect (95% CI)	Number of participants (studies)	Quality of the evidence
		Assumed risk	Corresponding risk			
		With comparator	With intervention			
Pregnancy						
	Tubal ring vs Clip	8 per 1,000	9 per 1,000 (2 to 43)	Peto OR: 1.09 [0.22, 5.36]	724 (2)	⊕⊕⊕O MODERATE
	Modified Pomeroy vs Electrocoagulation	Cannot calculate	Cannot calculate	Peto OR: 4.47 [0.07, 286.78]	295(1)	⊕OOO VERY LOW
	Tubal ring vs Electrocoagulation	Cannot calculate	Cannot calculate	Peto OR: 0.0 [0.0, 0.0]	160 (1)	⊕OOO VERY LOW
	Modified Pomeroy vs Clip	Cannot calculate	Cannot calculate	Peto OR: 8.28 [0.16, 419.87]	148 (1)	⊕OOO VERY LOW
Discontinuation						
	N/A	N/A	N/A	N/A	N/A	N/A

Spacing/temporary methods

Table 4.2b: Overview of reviews table for oral contraceptives in developing countries (data synthesised using meta-analysis)

Outcome	Intervention and comparison intervention	Illustrative comparative risks (95% CI)		Relative effect (95% CI)	Number of participants (studies)	Quality of the evidence
		Assumed risk	Corresponding risk			
		With comparator	With intervention			
Pregnancy						
	Triphasic LNG 50-70-125 µg/EE 30-40-30 µg vs monophasic LNG 150 µg/EE 30 µg (follow-up = 6 cycles)	32 per 1,000	21 per 1,000 (4 to 121)	RR: 0.65 [0.11, 3.78]	189 (1)	⊕OOO VERY LOW
	Triphasic LNG 50-70-125 µg/EE 30-40-30 µg vs monophasic LNG 150 µg/EE 30 µg (follow-up = 12 cycles)	1 per 1,000	1 per 1,000 (0 to 11)	RR: 1.00 [0.06, 16.01]	3,010 (3)	⊕⊕OO LOW
	Triphasic LNG 50-70-125 µg/EE 30-40-30 µg vs monophasic NET 600 µg/EE 35 µg	22 per 1,000	21 per 1,000 (3 to 149)	RR: 0.94 [0.13, 6.52]	186 (1)	⊕OOO VERY LOW
	Triphasic LNG 50-70-125 µg/EE 30-40-30 µg vs monophasic NET 400 µg/EE 35 µg	Cannot calculate	Cannot calculate	RR: 0.0 [0.0, 0.0]	1,200 (1)	⊕⊕⊕O MODERATE
	Triphasic GTD 50-70-100 µg/EE 30-40-30 µg vs monophasic DSG 150 µg/EE 30 µg	12 per 1,000	12 per 1,000 (1 to 189)	RR: 1.00 [0.06, 15.73]	168 (1)	⊕OOO VERY LOW
	28-day cycle vs 1 year cycle (continuous) of 50 µg ethinyl estradiol and 250 µg levonorgestrel (dosed vaginally)	9 per 1,000	1 per 1,000 (0 to 9)	Peto OR 0.14 [0.02, 0.97]	900 (1)	⊕⊕OO LOW

What is the impact of contraceptive methods and mixes of contraceptive methods on contraceptive prevalence, unmet need for family planning, and unwanted and unintended pregnancies?

Outcome	Intervention and comparison intervention	Illustrative comparative risks (95% CI)		Relative effect (95% CI)	Number of participants (studies)	Quality of the evidence
		Assumed risk	Corresponding risk			
		With comparator	With intervention			
	EE 20µg + desogestrel 150µg vs EE30µg + gestodene 75µg	Cannot calculate	Cannot calculate	RR: 2.97 [0.12, 72.52]	416 (1)	⊕OOO VERY LOW
	EE 20µg + gestodene 75µg vs EE 30µg + gestodene 75µg	Cannot calculate	Cannot calculate	RR: 0.0 [0.0, 0.0]	150 (1)	⊕OOO VERY LOW
	Monophasic norgestrel 0.3mg/EE 30mg (Lo-femenal) vs Monophasic norethindrone acetate 1.5mg/EE 30 mcg (Lo-estrin) (second versus first-generation OCs)	8 per 1,000	1 per 1,000 (0 to 8)	RR: 0.12 [0.02, 0.99]	2,074 (2)	⊕⊕⊕O MODERATE
	Monophasic desogestrel 150 mcg + EE 30mcg vs Monophasic gestodene 75mcg + EE 30mcg (monophasics)	1 per 1,000	1 per 1,000 (0 to 20)	RR: 1.13 [0.07, 18.02]	1,730 (3)	⊕⊕OO LOW
	Monophasic NE (norethindrone) 0.4mg + EE 35mcg vs Monophasic LNG (levonorgestrel) 150mcg + EE 30mcg (monophasics)	Cannot calculate	Cannot calculate	RR: 0.0 [0.0, 0.0]	1,199 (1)	⊕⊕OO LOW
	Biphasic levonorgestrel/EE (preparation Alpha) vs triphasic levonorgestrel/EE (preparation Gamma)	Cannot calculate	Cannot calculate	RR: 0.0 [0.0, 0.0]	313 (1)	⊕⊕OO LOW
	Biphasic levonorgestrel/EE (preparation Beta) vs triphasic levonorgestrel/EE (preparation Gamma)	Cannot calculate	Cannot calculate	RR: 0.0 [0.0, 0.0]	N/A	⊕⊕OO LOW

Outcome	Intervention and comparison intervention	Illustrative comparative risks (95% CI)		Relative effect (95% CI)	Number of participants (studies)	Quality of the evidence
		Assumed risk	Corresponding risk			
		With comparator	With intervention			
Discontinuation						
	Triphasic LNG 50-70-125 µg/EE 30-40-30 µg vs monophasic LNG 150 µg/EE 30 µg (follow-up = 6 cycles)	183 per 1,000	176 per 1,000 (95 to 322)	RR: 0.96 [0.52, 1.76]	189 (1)	⊕OOO VERY LOW
	Triphasic LNG 50-70-125 µg/EE 30-40-30 µg vs monophasic LNG 150 µg/EE 30 µg (follow-up = 12 cycles)	522 per 1,000	548 per 1,000 (506 to 595)	RR: 1.05 [0.97, 1.14]	3,010 (3)	⊕⊕OO LOW
	Triphasic LNG 50-70-125 µg/EE 30-40-30 µg vs monophasic NET 600 µg/EE 35 µg	189 per 1,000	174 per 1,000 (83 to 367)	RR: 0.94 [0.51, 1.72]	186 (1)	⊕OOO VERY LOW
	Triphasic LNG 50-70-125 µg/EE 30-40-30 µg vs monophasic NET 400 µg/EE 35 µg	321 per 1,000	276 per 1,000 (231 to 327)	RR: 0.86 [0.72, 1.02]	1,200 (1)	⊕⊕⊕O MODERATE
	Triphasic GTD 50-70-100 µg/EE 30-40-30 µg vs monophasic DSG 150 µg/EE 30 µg (follow-up = 6 cycles)	60 per 1,000	60 per 1,000 (20 to 200)	RR: 1.00 [0.33, 3.33]	168 (1)	⊕⊕OO LOW
	Triphasic GTD 50-70-100 µg/EE 30-40-30 µg vs monophasic DSG 150 µg/EE 30 µg (follow-up = 12 cycles)	155 per 1,000	132 per 1,000 (62 to 726)	RR: 0.85 [0.40, 1.78]	168 (1)	⊕⊕OO LOW
	28-day cycle vs 1 year cycle	137 per 1,000	140 per 1,000 (96 to 204)	Peto OR 1.02 [0.70, 1.49]	900 (1)	▫▫▫▫ LOW

What is the impact of contraceptive methods and mixes of contraceptive methods on contraceptive prevalence, unmet need for family planning, and unwanted and unintended pregnancies?

Outcome	Intervention and comparison intervention	Illustrative comparative risks (95% CI)		Relative effect (95% CI)	Number of participants (studies)	Quality of the evidence
		Assumed risk	Corresponding risk			
		With comparator	With intervention			
	EE 20µg + desogestrel 150µg vs EE30µg + gestodene 75µg	232 per 1,000	267 per 1,000 (172 to 418)	RR: 1.11 [0.79, 1.56]	416 (1)	⊕⊕OO LOW
	EE 20µg + gestodene 75µg vs EE 30µg + gestodene 75µg	257 per 1,000	216 per 1,000 (103 to 452)	RR: 0.87 [0.49, 1.54]	150 (1)	⊕⊕OO LOW
	Monophasic norgestrel 0.3mg/EE 30mg (Lo-femenal) vs Monophasic norethindrone acetate 1.5mg/EE 30 mcg (Lo-estrin) (second versus first-generation OCs)	305 per 1,000	241 per 1,000 (210 to 278)	RR: 0.79 [0.69, 0.91]	2,074 (2)	⊕⊕⊕O MODERATE
	Monophasic desogestrel 150 mcg + EE 30mcg vs Monophasic gestodene 75mcg + EE 30mcg (monophasics)	121 per 1,000	144 per 1,000 (113 to 183)	RR: 1.19 [0.93, 1.51]	1,730 (3)	⊕⊕⊕O MODERATE
	Monophasic NE (norethindrone) 0.4mg + EE 35mcg vs Monophasic LNG (levonorgestrel) 150mcg + EE 30mcg (monophasics)	321 per 1,000	254 per 1,000 (212 to 302)	RR: 0.79 [0.66, 0.94]	1,199 (1)	⊕⊕OO LOW
	Biphasic levonorgestrel/EE (preparation Alpha) vs triphasic levonorgestrel/EE (preparation Gamma)	321 per 1,000	353 per 1,000 (125 to 992)	Peto OR: 1.10 [0.39, 3.09]	313 (1)	⊕⊕OO LOW
	Biphasic levonorgestrel/EE (preparation Beta) vs triphasic levonorgestrel/EE (preparation Gamma)	46 per 1,000	71 per 1,000 (27 to 188)	Peto OR: 1.54 [0.58, 4.09]	298 (1)	⊕⊕OO LOW

Table 4.2c: Overview of reviews table for oral contraceptives in developing countries (data synthesised using narrative synthesis)

Outcome	Intervention and comparison intervention	Narrative synthesis	Number of participants (studies)	Quality of the evidence
Pregnancy				
	Low dose mifepristone vs levonorgestrel	Pregnancy rate was lower with mifepristone when compared to levonorgestrel (OR0.71; 95% ci 0.07-6.95) p=0.77. No strong evidence of effect (p21)	97 (1)	⊕⊕OO LOW
	Norethisterone vs levonorgestrel 150+ ethinyl estradiol combination pill	Descriptive provided. p=0.007 (test unknown); Norethisterone 350mg, N=130; pregnancy=13.2%; Levonorgestrel 30 mg, N=128, pregnancy=9.5%; Norethisterone 1mg/mestraw 150 mg, N=123, pregnancy=8.3%; Levonorgestrol 150/ethinyl estradiol 30mg, N=137, pregnancy=2.7%	518 (1)	⊕OOO VERY LOW
	Progestin-only pill (6 weeks post-partum start) vs progestin-only pill (6 months post-partum start)	Total N=200; (51% loss to follow up); no pregnancies in either group	200 (1)	⊕OOO VERY LOW
	Quin-Ng vs Quin-Lng	2-year cumulative pregnancy rate of Quin-Ng pill was 3.9 per 100 and 3.3 per 100 for Quin-Lng. Pearl indices were 2.9 and 1.8 per 100 women-years for Quin-Ng and Quin-Lng pills respectively. Of the 14 pregnancies in Quin-Ng users and of the 10 in Quin-Lng users, 11 and 6 pregnancies were method failures respectively, which gave Pearl indices for perfect use of 2.3 per 100 women years for Quin-Ng and 1.1 per 100 women years for Quin-Lng pills (p<0.01)	712 (1)	Cannot calculate
Discontinuation				
	Norethisterone v levonorgestrel 150+ ethinyl estradiol combination pill	Discontinuation at 360 days. All causes, p=0.805.	518 (1)	⊕OOO VERY LOW

What is the impact of contraceptive methods and mixes of contraceptive methods on contraceptive prevalence, unmet need for family planning, and unwanted and unintended pregnancies?

Outcome	Intervention and comparison intervention	Narrative synthesis	Number of participants (studies)	Quality of the evidence
Continuation				
	Progestron only pill v 6 months post-partum	Continuation rates similar between groups. Note: 51% losses to follow-up. Unclear how missing data was dealt with.	200 (1)	⊕OOO VERY LOW
	Quin-Ng vs Quin-Lng	1 and 2 year net cumulative continuation rates for Quin-Lng pills of 87 and 78 per 100 respectively, and for Quin-Lng pills 74 and 64 per 100 respectively. The difference between the two pills appeared to be due to discontinuation for side effects other than bleeding problems.	712 (1)	Cannot calculate

Table 4.2d: Overview of reviews table for intrauterine devices in developing countries (data synthesised using meta-analysis)

Outcome	Intervention and comparison intervention	Illustrative comparative risks (95% CI)		Relative effect (95% CI)	Number of participants (studies)	Quality of the evidence
		Assumed risk	Corresponding risk			
		With comparator	With intervention			
Pregnancy						
	TCu380A vs MLCu375	8 per 1,000	2 per 1,000 (1 to 6)	RR: 0.25 [0.08, 0.75]	3,617 (4)	⊕⊕⊕O MODERATE
Continuation						
	TCu380A vs MLCu375	943 per	952 per 1,000 (943	RR: 1.01 [1.00,	3,617 (4)	⊕⊕⊕O MODERAT

Outcome	Intervention and comparison intervention	Illustrative comparative risks (95% CI)		Relative effect (95% CI)	Number of participants (studies)	Quality of the evidence
		Assumed risk	Corresponding risk			
		With comparator	With intervention			
		1,000	to 971)	1.03]		E

Table 4.2e: Overview of reviews table for intrauterine devices in developing countries (data synthesised using narrative synthesis)

Outcome	Intervention and comparison intervention	Narrative synthesis	Number of participants (studies)	Quality of the evidence
Pregnancy				
	LNG-20 ius vs non-hormonal IUD >250 MM2	3 yr: Rar=0.11 (0.01, 2.12) Baveja 1989	2,118 (1)	⊕⊕⊕O MODERATE
	LNG-20 ius v non-hormonal ≤250 mm2 IUD	To present data for Baveja 1989 only, used life-table differences rather than rate ratios. For 1 year = -0.90 (-2.01 to 0.21), 2 year = −0.90 (−2.01 to −0.21), 3 year = −0.56 (−1.30, 0.18).	2,118 (1)	⊕⊕⊕O MODERATE
	LNG-20 ius vs subdermal implants	1 yr: 3.01 (0.13,75.56) 2 yr:3.06 (0.12,75.56); 3 yrs:3.00 (0.12,73.53)- no strong evidence of effect	200 (1)	⊕⊕OO LOW
	Immediate post-partum insertion: Delta T vs Delta loop	12-month pregnancy rates (per 100 women) were 2.1 for the Delta-loop and 0 for the Delta T. No statistical significance was reported on unwanted pregnancies.	246 (1)	⊕⊕OO LOW
	Immediate post-partum insertion TCu 380 A (hand insertion) VS Tcu 380 A(instrument	12-month continuation rates (per 100 women) were 84.9 for TCu200 and 77.1 for IPCS-52. Unable to extract 36-month continuation rates due to lack of	400 (1)	⊕⊕OO LOW

Outcome	Intervention and comparison intervention	Narrative synthesis	Number of participants (studies)	Quality of the evidence
	insertion)	table column headers. Statistical significance only tested at 36 months.		
	MLCu 375 vs Tcu380A (Follow-up = 1 year)	Rate difference = 0.75 [0.13, 1.37]	3,371 (2)	⨁⨁⨁⨁ HIGH
	MLCu 375 vs Tcu380A (Follow-up = 2 years)	Rate difference = 1.50 [0.09, 2.91] (exp = MLCu375, Tcu 380A)	1,894 (1)	⨁⨁⨁⨁ HIGH
	MLCu250 vs Tcu 380A	Rate difference = 1.00 [0.24, 1.76] (Exp - MLCu250, Con - TCu380A)	2,043 (1)	⨁⨁⨁◯ MODERATE
	TCu380S vs TCu380A (Follow-up = 1 year)	Rate difference = 0.10 [−0.33, 0.53] (Exp - TCu380S, Con - TCu380A)	1,568 (1)	⨁⨁⨁◯ MODERATE
	TCu380S vs TCu380A (Follow-up = 2 years)	Rate difference = −0.18 [−0.73, 0.37] (Exp - TCu380S, Tcu 380A)	1,568 (1)	⨁⨁⨁◯ MODERATE
	TCu380S vs TCu380A (Follow-up = 3 years)	Rate difference = −0.90 [−2.21, 0.41] (Exp - TCu380S, Con - TCu380A)	1,568 (1)	⨁⨁⨁◯ MODERATE
	Tcu220 vs Tcu 380A (Follow-up = 1 year)	Rate difference = −0.20 [−1.47, 1.07] (Exp - TCu220, Con - TCu380A)	1,811 (2)	⨁⨁⨁◯ MODERATE
	Tcu220 vs Tcu 380A (Follow-up = 2 years)	Rate difference = −1.00 [−1.98, −0.02] (Exp - TCu220, Con - TCu380A)	954 (1)	⨁⨁⨁◯ MODERATE
	Tcu220 vs Tcu 380A (Follow-up = 3 years)	Rate difference = −0.70 [−1.84, +0.44] (Exp - TCu220, Con - TCu380A)	954 (1)	⨁⨁⨁◯ MODERAT

Outcome	Intervention and comparison intervention	Narrative synthesis	Number of participants (studies)	Quality of the evidence
				E
	Tcu200 vs TCu380A (Follow-up = 1 year)	Rate difference = 1.06 [−0.90, 3.02]	2,842 (3)	⊕⊕⊕O MODERATE
	Tcu200 vs TCu380A (Follow-up = 2 years)	Rate difference = 0.72 [−1.65, 3.09]	2,842 (3)	⊕⊕⊕O MODERATE
	Tcu200 vs TCu380A (Follow-up = 3 years)	Rate difference = 0.60 [−0.93, 2.13]	964 (1)	⊕⊕⊕O MODERATE
	TCu220 vs MLCu375 (Follow-up = 1 year)	Rate difference = 0.44 [−1.17, 2.05]. Exp = TCu220, Con - MLCu375)	768 (1)	⊕⊕OO LOW
	TCu380A vs GyneFix frameless IUD	The pregnancy rate (SE) at 3 years was 0.0(0.0) for the frameless group and 0.3(0.3) for the TCu380A group. The rate ratio was 0.32(0.01-7.91) and the rate difference −0.34 (−1.01-0.33).	606 (1)	⊕⊕OO LOW
Discontinuation				
	c-2 LNG-20 v non-hormonal ≤250 mm2 IUD	2 yr rate ratio: 0.93 (0.80-1.07) Baveja 1989	2,118 (1)	⊕⊕⊕O MODERATE
	c-4: LNG-20 vs subdermal implants	1 yr rate ratio: 0.97 (0.72-1.31)	200 (1)	⊕⊕OO LOW
	MLCu250 vs Tcu 380A (Follow-up = 1 year)	Rate difference = −1.50 [−1.26, 4.26]. Exp = MLCu250, Con - TCu380A)	2,043 (1)	⊕⊕⊕O MODERATE

What is the impact of contraceptive methods and mixes of contraceptive methods on contraceptive prevalence, unmet need for family planning, and unwanted and unintended pregnancies?

Outcome	Intervention and comparison intervention	Narrative synthesis	Number of participants (studies)	Quality of the evidence
	Tcu220 vs Tcu 380A (Follow-up = 1 year)	Rate difference = −3.00 [−7.21, 1.21]. Exp = TCu220, Con - TCu380A)	857 (1)	⊕⊕⊕O MODERATE
	Tcu200 vs TCu380A (Follow-up = 1 year)	Rate difference = 1.00 [−2.96, 4.96]. Exp = TCu200, Con - TCu380A)	1,678 (1)	⊕⊕⊕O MODERATE
Continuation				
	Immediate post-partum insertion: Delta T vs Delta loop	12-month continuation rates (per 10 women) were 93.3 for the Delta Loop and 90.7 for Delta T. No test of statistical significance was reported	246 (1)	⊕⊕OO LOW
	Immediate post-partum insertion by hand TCu 200 Vs progestasert	12-month continuation rates (per 100 women) were 86.3 for the Tcu 200 and 59.9 for the progestasert (significantly different)	400 (1)	⊕⊕OO LOW
	Immediate post-partum insertion by instrument Tcu 200 vs progestastert	12-month continuation rates (per 100 women) were 86.1 for the Tcu 200 and 57.2 for the progestasert (significantly different)	400 (1)	⊕⊕OO LOW
	Immediate post-partum insertion Tcu 200 vs IPCS-52 mg	12-month continuation rates (per 100 women) were 73.8 for the Tcu 200 and 57.3 for the IPCS-52 . Unable to extract 36-month continuation rates (per 100 women) from table due to lack of headers. Statistical significance only tested at 36 months	400 (1)	⊕⊕OO LOW
	MLCu 375 vs Tcu380A	Rate difference −2.20 [−5.39, 0.99]. Exp = MLCu375, Con - TCu380A)	1,477 (1)	⊕⊕⊕O MODERATE

Outcome	Intervention and comparison intervention	Narrative synthesis	Number of participants (studies)	Quality of the evidence
Continuation	TCu380S vs TCu380A (Follow-up = 1 year)	Rate difference = −5.50 [−9.11, −1.89]. Exp = TCu380S, Con - TCu380A)	1568(1)	⊕⊕⊕O MODERATE
Continuation	Tcu200 vs TCu380A	Rate difference = −3.00 [−12.84, 6.84]]. Exp = TCu380A, Con - TCu200)	200(1)	⊕⊕⊕O MODERATE
Continuation	TCu380A vs GyneFix frameless IUD	Continuation rates (SE) at 3 years were 90.7(1.7) in the frameless group and 85.3(2.0) in the TCu380A group. The rate ratio was 1.06 (1.00-1.13) and the rate difference 5.48 (0.33-10.63). The continuation rates tended to be higher with Gynefix, significantly in the second and third years. The differences in continuation rates is explained mainly by the differences in the expulsions, which were lower with the frameless device. At the end of 1st year, the figures given are 95% with Gynefix and 92% with TCu380A (RR 1.04 (1-1.08); RD 5.48 (0.33-10.63). *It is not clear in the review if this data refers to continuation or expulsion.*	606(1)	⊕⊕OO LOW

Table 4.2f: Overview of reviews table for injectables in developing countries (data synthesised using meta-analysis)

Outcome	Intervention and comparison intervention	Illustrative comparative risks (95% CI)		Relative effect (95% CI)	Number of participants (studies)	Quality of the evidence
		Assumed risk	Corresponding risk			
		With comparator	With intervention			
Pregnancy						
	NET-EN 50mg/E2V 5mg vs DMPA 25mg/E2C 5mg	2 per 1,000	3 per 1,000 (1 to 11)	Peto OR: 1.95 [0.53, 7.20]	3,915 (1)	⊕⊕⊕O MODERATE
	NET-EN 50mg/E2V 5mg vs NET-EN 200mg	9 per 1,000	3 per 1,000 (0 to 16)	Peto OR: 0.30 [0.05, 1.75]	849 (1)	⊕⊕OO LOW
	NET-EN 50mg/E2V 5mg vs Non-hormonal IUD	30 per 1,000	7 per 1,000 (1 to 74)	Peto OR: 0.22 [0.02, 2.47]	148 (1)	⊕OOO VERY LOW
Discontinuation						
	DMPA 150mg IM every 3 months vs NET-EN 200mg IM every 2 months	461 per 1,000	461 per 1,000 (406 to 521)	RR: 1.00 [0.88, 1.13]	2,467 (10)	⊕⊕⊕O MODERATE
	NET-EN 50mg/E2V 5mg vs DMPA 25mg/E2C 5mg	257 per 1,000	193 per 1,000 (172 to 216)	Peto OR: 0.75 [0.67, 0.84]	4,272 (2)	⊕⊕⊕O MODERATE
	DMPA 25mg/E2C 5mg vs DMPA 150mg	222 per 1,000	497 per 1,000 (317 to 777)	Peto OR 2.24 [1.43, 3.50]	360 (1)	⊕⊕OO LOW
	NET-EN 50mg/E2V 5mg vs NET-EN 200mg	357 per 1,000	503 per 1,000 (382 to 664)	Peto OR: 1.41 [1.07, 1.86]	849 (1)	⊕⊕OO LOW

Table 4.2g: Overview of reviews table for intrauterine devices versus injectables in developing countries (data synthesised using meta-analysis)

Outcome	Intervention and comparison intervention	Illustrative comparative risks		Relative effect (95% CI)	Number of participants (studies)	Quality of the evidence
		Assumed risk	Corresponding risk			
		With comparator	With intervention			
Pregnancy						
	IUD vs depot progestogen	68 per 1,000	32 per 1,000	RR: 0.47 [0.25, 0.85]	937 (1)	⊕⊕⊕O MODERATE
Discontinuation						
	IUD vs depot progestogen	36 per 170	6 per 168	RR: 0.17 [0.07, 0.39]	338 (1)	⊕⊕⊕O MODERATE
	IUD vs Mixed hormonal contraception	83 per 313	146 per 286	RR: 4.20 [3.06, 5.78]	599 (1)	⊕⊕⊕O MODERATE

Table 4.2h: Overview of reviews table for implants in developing countries (data synthesised using narrative synthesis)

Outcome	Intervention and comparison intervention	Narrative synthesis	Number of participants (studies)	Quality of the evidence
Pregnancy				
	Implanon vs Norplant (Follow-up = 1 year)	The authors state that they did meta-analysis on all data, but tables not provided for effectiveness. It just says 'no difference in effectiveness between the two implants' - no pregnancies (and hence no table!) in either the Implanon or Norplant groups after 26,	1,219 (3)	⊕⊕OO LOW

Outcome	Intervention and comparison intervention	Narrative synthesis	Number of participants (studies)	Quality of the evidence
		972 and 28, 108 women months of follow-up respectively. This includes all studies regardless of location. Using data on number of participants from only developing country trials = 0 pregnancies in either group (Norplant = 610, Implanon = 609).		
	Implanon vs Norplant (Follow-up = 2 years)	See 1-year follow-up.	1,219 (3)	⊕⊕OO LOW
	Implanon vs Norplant (Follow-up = 3 years)	See 1-year follow-up.	1,219 (3)	⊕⊕OO LOW
	Implanon vs Norplant (Follow-up = 4 years)	See 1-year follow-up.	1,219 (3)	⊕⊕OO LOW
Continuation				
	Implanon vs Norplant (Follow-up = 1 year)	91.6% continued to use Implanon and 92.4% continued to use Norplant.	1,219 (3)	⊕⊕OO LOW
	Implanon vs Norplant (Follow-up = 2 years)	82.5% continued to use Implanon and 81.4% continued to use Norplant.	1,219 (3)	⊕⊕OO LOW
	Implanon vs Norplant (Follow-up = 3 years)	67.4% continued to use Implanon and 72.5% continued to use Norplant.	1,219 (3)	⊕⊕OO LOW
	Implanon vs Norplant (Follow-up = 4 years)	17.1% continued to use Implanon and 16.9% continued to use Norplant.	1,219 (3)	⊕⊕OO LOW

Table 4.2i: Overview of reviews table for emergency contraception in developing countries (data synthesised using meta-analysis)

Outcome	Intervention and comparison intervention	Illustrative comparative risks (95% CI)		Relative effect (95% CI)	Number of participants (studies)	Quality of the evidence
		Assumed risk	Corresponding risk			
		With comparator	With intervention			
Pregnancy						
	IUD vs Expectant management	220 per 1,000	20 per 1,000 (7 to 57)	RR: 0.09 [0.03, 0.26]	300(1)	⊕⊕OO LOW
	Levonorgestrel split dose 24 hr vs 12 hour	20 per 1,000	20 per 1,000 (11 to 36)	RR: 0.98 [0.53, 1.82]	2,060 (1)	⊕⊕⊕O MODERATE
	Levonorgestrel single dose vs Levonorgestrel split dose	13 per 1,000	7 per 1,000 (2 to 24)	RR: 0.54 [0.16, 1.85]	1,118 (1)	⊕⊕⊕O MODERATE
	Levonorgestrel vs Mid-dose mifepristone (25-50mg)	14 per 1,000	28 per 1,000 (18 to 44)	RR: 2.01 [1.27, 3.17]	3,743 (15)	⊕⊕OO LOW
	Levonorgestrel vs Low-dose mifepristone (<25mg)	13 per 1,000	27 per 1,000 (14 to 50)	RR: 2.05 [1.11, 3.81]	1,647 (7)	⊕⊕OO LOW
	Levonorgestrel vs Anordrin	35 per 1,000	23 per 1,000 (4 to 136)	RR: 0.67 [0.11, 3.89]	172 (1)	⊕OOO VERY LOW
	Low-dose mifepristone (<25mg) vs Low-dose mifepristone (≤10mg)	9 per 1,000	9 per 1,000 (1 to 146)	RR: 1.04 [0.07, 16.37]	220 (1)	⊕OOO VERY LOW

What is the impact of contraceptive methods and mixes of contraceptive methods on contraceptive prevalence, unmet need for family planning, and unwanted and unintended pregnancies?

Outcome	Intervention and comparison intervention	Illustrative comparative risks (95% CI)		Relative effect (95% CI)	Number of participants (studies)	Quality of the evidence
		Assumed risk	Corresponding risk			
		With comparator	With intervention			
	Mid-dose mifepristone (25-50mg) vs Low-dose mifepristone (<25mg)	16 per 1,000	11 per 1,000 (8 to 15)	RR: 0.66 [0.47, 0.91]	11,432 (19)	⊕⊕⊕O MODERATE
	Mid-dose mifepristone (50mg) vs Mid-dose mifepristone (25mg)	16 per 1,000	12 per 1,000 (7 to 20)	RR: 0.72 [0.41, 1.27]	3,123 (13)	⊕⊕OO LOW
	High-dose mifepristone (>50mg) vs Low-dose mifepristone (<25mg)	32 per 1,000	6 per 1,000 (1 to 29)	RR: 0.19 [0.04, 0.90]	1,726 (4)	⊕⊕OO LOW
	High-dose mifepristone (>50mg) vs Mid-dose mifepristone (25-50mg)	17 per 1,000	14 per 1,000 (7 to 30)	RR: 0.83 [0.39, 1.77]	1,890 (8)	⊕⊕OO LOW
	Mifepristone vs Danazol	42 per 1,000	8 per 1,000 (1 to 70)	RR: 0.20 [0.02, 1.67]	241 (1)	⊕OOO VERY LOW
	Mifepristone vs Anordrin	40 per 1,000	10 per 1,000 (4 to 25)	RR: 0.26 [0.11, 0.63]	1,035 (7)	⊕⊕OO LOW
	Mifepristone alone (all doses) vs Mifepristone + anordrin (all doses)	12 per 1,000	16 per 1,000 (9 to 29)	**RR:** 1.32 [0.72, 2.41]	3,038 (5)	⊕⊕OO LOW
	Mifepristone alone (all doses) vs Mifepristone + MTX (all doses)	20 per 1,000	60 per 1,000 (3 to 1,000)	**RR:** 3.00 [0.13, 71.92]	100 (1)	⊕OOO VERY LOW
	Mifepristone alone (all doses) vs Mifepristone + tamoxifen (all doses)	5 per 1,000	15 per 1,000 (2 to 143)	**RR:** 3.00 [0.31, 28.60]	400 (1)	⊕⊕OO LOW

Outcome	Intervention and comparison intervention	Illustrative comparative risks (95% CI)		Relative effect (95% CI)	Number of participants (studies)	Quality of the evidence
		Assumed risk	Corresponding risk			
		With comparator	With intervention			
	Mifepristone vs Mifepristone + misoprostol (all doses)	7 per 1,000	23 per 1,000 (5 to 112)	**RR:** 3.49 [0.73, 16.65]	599 (1)	⊕⊕OO LOW
	Mifepristone (all doses) vs Cu-IUD	Cannot calculate	Cannot calculate	**RR:** 1.51 [0.06, 36.67]	185 (1)	⊕OOO VERY LOW
Discontinuation	No comparisons	N/A	N/A	N/A	N/A	N/A

Table 4.2j: Overview of reviews table for spermicides in developing countries (data synthesised using narrative synthesis)

Outcome	Intervention and comparison intervention	Narrative synthesis	Number of participants (studies)	Quality of the evidence
Pregnancy				
	Collatex sponge (nonoxynol-9 1.15mg) vs Neo sampoon tablet (menfegol 60mg)	Pregnancy rates varied widely by site: rates were 5 x higher in Taiwan than Belgrade. Bangladesh was excluded due to losses. Life-table pregnancy rates at 12 months ranged from 3.8-18.2/100 women with sponge, and 6.2-29.9 with Neo Sampoon tablet. Non-significant.	1,299 (1)	⊕⊕OO LOW
	Neo sampoon tablet (menfegol 60mg) vs Ortho or Emko vaginal tablet (100mg of nonoxynol-9)	No significant differences. In Kazi 1992, the 12-month rates were 15.2 for menfegol and 22.5 for Ortho. Lamptey 1985 provided Pearl Index: 10.6 for menfegol, 13.8 for Ortho, 17.9 for Emko.	672 (3)	⊕⊕⊕O MODERATE

Outcome	Intervention and comparison intervention	Narrative synthesis	Number of participants (studies)	Quality of the evidence
	Ortho vaginal tablet nonoxynol-9 100mg vs Emko vaginal tablet nonoxynol-9 100mg	The 12-month life-table pregnancy rates were nearly identical in Lamptey and Younis.	440 (2)	⊕⊕⊕O MODERATE (
	Neo sampoon tablet menfelgol 60mg vs Emko foam nonoxynol-9 8%	Life-table pregnancy rates were similar for the two methods in both trials.	620 (2)	⊕⊕⊕O MODERATE (
Discontinuation				
	Collatex sponge (nonoxynol-9 1.15mg) vs Neo sampoon tablet (menfegol 60mg)	Discontinuation rates were non-significant.	1,299 (1)	⊕⊕OO LOW
	Vaginal foaming tablets nonxynol-9 100mg vs menfegol 60mg	Life-table discontinuation rates for discomfort were not significantly different. In Klufio the 12 month discontinuation rates for medical reasons were 9.0 for menfegol, 0 for nonoxynol-9 - a significant difference.	272 (2)	⊕⊕OO LOW
	Neo sampoon tablet (menfegol 60mg) vs Ortho or Emko vaginal tablet (100mg of nonoxynol-9)	Abdelsalaam: 6-month discontinuations for discomfort were similar to those for medical and product-related reasons. Kazi: 12-month discontinuation rates were similar for both groups. Lamptey: Significant difference in 12-month discontinuation rates for discomfort: 0 for menfegol, 2.7 for Ortho, 12.8 for Emko.	672 (3)	⊕⊕OO LOW
	Ortho vaginal tablet nonoxynol-9 100mg vs Emko vaginal tablet nonoxynol-9 100mg	Lamptey: Emko = 12.8, Ortho = 2.7 discontinuation rate for discomfort at 12 months (significant difference). Younis: Emko = 5.6, Ortho = 11.6 discontinuation rate for discomfort at 12 months (not a significant difference).	440 (2)	⊕⊕OO LOW

Outcome	Intervention and comparison intervention	Narrative synthesis	Number of participants (studies)	Quality of the evidence
	Neo sampoon tablet menfelgol 60mg vs Emko foam nonoxynol-9 8%	Discontinuation rates due to discomfort were similar. Overall rates were higher in Andolsek compared to Youssef.	620 (2)	⊕⊕OO LOW

Table 4.2k: Overview of reviews table for repeated use of pre- and post-coital hormonal contraception in developing countries (data synthesised using narrative synthesis)

Outcome	Intervention and comparison intervention	Narrative synthesis	Number of participants (studies)	Quality of the evidence
Pregnancy				
	Chinese LNG vs Hungarian LNG	5/361. Pearl index = 16.6 (number of pregnancies = 5). <6 months follow-up.	361(1)	⊕⊕⊕O MODERATE (see provision)
	One dose quinestanol acetate within 24 hrs of intercourse in following dose size: 0.5mg, 0.6mg, 0.75mg, 0.8mg, 1.5mg, 2.0mg.	Pearl index by dose (note where two indices are given for one dose, these came from different trial sites, which could not be combined due to lack of information about number of pregnancies): (i) 0.5 mg = 36 (ii) 0.6mg = 38 (iii) 0.75mg = 23.1 (iv) 0.75mg = 20.2 (v) 1.5mg = 5.4 (vi) 1.5m = 0.8 (vii) 2mg = 1.2. Length of follow-up not provided.	2,792 (1)	⊕OOO VERY LOW
	Quinagestanol acetate 1.5mg vs LNG within 1 hour post-coitus.	LNG: discontinued without pregnancy 25-31%, used > 6 months 42-78%, range for duration up to 30 months, mean duration 9 months/cycles.	899 (1)	⊕OOO VERY LOW

Outcome	Intervention and comparison intervention	Narrative synthesis	Number of participants (studies)	Quality of the evidence
	Quinagestanol acetate within 24 hrs of intercourse. Max of 1 dose/24hrs. Dose sizes as follows: 0.2mg, 0.3mg, 0.4mg, 0.5mg, 0.75mg, 0.8mg.	Pearl indices for doses as follows: (i) 0.2mg = 168 (ii) 0.3mg = 36 (iii) 0.4mg = 16.6 (iv) 0.5mg = 10.3 (v) 0.8mg = 0. No intended duration of follow-up. Same participants also in Mischler 1974.	317 (1)	⊕OOO VERY LOW
	Progestogens before/after coitus. Four different types of progestogens: retroprogestogen 30-40mg, clogestone 1.0mg, norgestrienone 0.5mg, ethynodiol 0.5mg.	Pearl indices as follows: Retroprogestogen = 4.5, Ethynodiol = 36.9, Norgestrienone = 2.6, Clogestone = 2.5. No intended duration of follow-up given.	1,805 (1)	⊕OOO VERY LOW
	Groups: clogestone 1.0mg 5/6 hours prior to intercourse, two clogestone 0.6mg tablets (=1.2mg total) one before and one after coitus, two clogestone 1.0mg (total 2.0mg) one before, one after coitus.	Pearl indices by Clogestone dose: 1.0mg = 17, 1.2mg = 15, 2.0mg = 15.	756 (1)	⊕OOO VERY LOW
Continuation				
	One dose quinestanol acetate within 24 hrs of intercourse in following dose size: 0.5mg, 0.6mg, 0.75mg, 0.8mg, 1.5mg, 2.0mg.	Non-LNG drugs. Mean duration use: 4.8 month/cycles. Follow-up less than 6 months.	2,792 (1)	⊕OOO VERY LOW
	Quinagestanol acetate 1.5mg vs LNG within 1 hour post-coitus.	LNG - discontinued without pregnancy 11%, used > 6 months 37%, range 1-26 months, mean use 9.2 months.	899 (1)	⊕OOO VERY LOW
	Quinagestanol acetate within 24 hrs of intercourse. Max of 1 dose/24hrs. Dose sizes as follows: 0.2mg, 0.3mg, 0.4mg, 0.5mg, 0.75mg, 0.8mg.	Non-LNG drugs. Range for use - up to 14 months, mean duration 4.2 months. Follow-up less than 6 months.	317 (1)	⊕OOO VERY LOW
	Progestogens before/after coitus. Four different types of progestogens:	Non-LNG drugs. Mean duration 5.5 months. Follow-	1,805 (1)	⊕OOO VERY

Outcome	Intervention and comparison intervention	Narrative synthesis	Number of participants (studies)	Quality of the evidence
	retroprogestogen 30-40mg, clogestone 1.0mg, norgestrienone 0.5mg, ethynodiol 0.5mg.	up less than 6 months.		LOW
	Groups: clogestone 1.0mg 5/6 hours prior to intercourse; two clogestone 0.6mg tablets (=1.2mg total) one before and one after coitus; two clogestone 1.0mg (total 2.0mg) one before, one after coitus.	Non-LNG drugs. Mean duration 5.4 months. Follow-up less than 6 months.	756 (1)	⊕OOO VERY LOW

Traditional methods

Table 4.2l: Overview of reviews table for natural family planning in developing countries (data synthesised using narrative synthesis)

Outcome	Intervention and comparison intervention	Narrative synthesis	Number of participants (studies)	Quality of the evidence
Pregnancy				
	Ovulation method vs symptothermal method	Pregnancy rates could not be determined because of high drop-out.	N/A	⊕OOO VERY LOW
	LAM with support vs LAM without support	The life-table pregnancy rate (using the standard definition of amenorrhea) was 0.45 (one pregnancy in 1,671 woman-months accumulated(WMAC) for the women using the LAM, compared with zero (none in 690 WMAC) for the controls, who were fully breastfeeding, amenorrhoeic women not using any other method of contraception).	676 (1)	⊕OOO VERY LOW

What is the impact of contraceptive methods and mixes of contraceptive methods on contraceptive prevalence, unmet need for family planning, and unwanted and unintended pregnancies?

Outcome	Intervention and comparison intervention	Narrative synthesis	Number of participants (studies)	Quality of the evidence
	LAM with support vs (Controls) used non-hormonal IUD 2 months post-partum and on-demand feeding	Life-table pregnancy rate after 6 months was 2.45 (using standard definition of the end of amenorrhea) and 0.45 (using 'any bleeding' to mark the end of amenorrhea).	735 (1)	⊕OOO VERY LOW
Discontinuation	Ovulation method vs symptothermal method	'Most randomised participants dropped out before beginning the observation period: 149 of 279 couples (53%) assigned to the ovulation method discontinued during training, in contrast to 176 of 287 assigned to the symptothermal method (61%). Eleven women assigned to the ovulation method and 32 assigned to the symptothermal method were excluded from analysis because of non-compliance during the training phase, and one more in each group was excluded during the active observation phase. Only a minority of participants entered the follow-up phase: 130 assigned to the ovulation method and 111 to the symptothermal method. Of these, 86 (31%) and 82 (30%) dropped out during the follow-up phase. With the training and follow-up phases combined, 72 women assigned to the ovulation method became pregnant compared with 71 assigned to the alternative method. The corresponding numbers of participants who discontinued because of lack of interest or dissatisfaction with the method were 63 and 69, respectively.	N/A	⊕OOO VERY LOW

Appendix 4.3: Contextual information for included studies from included reviews

The rankings in this table relate to 225 nations for which comparative data were compiled in 2009. Figures are in US dollars.

Argentina	Two studies carried out during 1974 and 2000 were included in the systematic reviews included in this OoR. The GDP per capita in 1980 and 2000 were $4,857 and $9,203. In 2009, Argentina ranked 82th in GDP per capita. The population policy has ever been promoting fertility control. Yet fertility has been low compared to many developing countries. During 1970-74 the total fertility rate was 3.1, which dropped to 2.28 in 2003. In 2009, Argentina ranked 106th in fertility.
Bangladesh	Only one study, published in 1987, was included in a systematic review included in the OoR, In 1987, GDP per capita was $440. In 2009 Bangladesh ranked 197th rank in GDP per capita. Contraceptive prevalence among married women increased from 8% in the mid-1970s to about 60% in 2004. Fertility decreased from an average of more than six children per woman in 1975 to slightly more than three children per woman in 2004. Recent studies have shown that virtually all women were aware of modern family planning methods. In 2000, the most popular method was pills (23%) followed by female sterilisation (7%) and injectables (7%). In 2009 Bangladesh ranked 81st in total fertility rate. In 2009, the family planning effort was 56%, which was lower than the Asia average of 54%. Thus, despite low economic status contraceptive use is increasing and fertility is falling.
Brazil	Only one study, published in 1995, was included in a systematic review included in this OoR. In 1995, GDP per capita was $6,466. In 2009 Brazil's economic ranking was 102nd. The most common family planning method was female sterilisation (53%), followed by the pill (27%). Use of other modern methods was low (below 5%). The total fertility rate during 1990-95 was 2.45. In 2009, Brazil ranked 116th (2.21) in total fertility. The family planning effort was 39%, which was lower than the average for Latin America of 50%.
Colombia	One study, carried out in 1980, was included in a systematic review included in this OoR. The GDP per capita in 1980 was $2,446. Contraceptive prevalence among currently married women in 1990 was 47% (for modern family planning methods). The most popular method in 1990 was oral pills (18%), followed by IUD (11%) and female sterilisation (8%). The total fertility rate in 1990 was 2.8, which dropped to 2.46 in 2009. In 2009, Colombia ranked 98th in total fertility rate. In 2009 the family planning effort was 50%, which is the same as the Latin America average.
Chile	Studies carried out during 1991 and 1998 were included in the systematic reviews included in the OoR. In 1991, GDP per capita was $5,287, which increased to $9,037 in 1998. In 2009, Chile ranked 76th in GDP per capita. Chile began family planning programmes in 1962. In 1991, the total fertility rate was 2.6 and in 1998 it was 2.2. And in 2009, Chile ranked 139th (1.92) in total fertility rate. Contraceptive prevalence in early 1990 was about 56%. In 2009, the family planning effort was 65%, higher than the average for Latin America (50%).

China	Studies conducted during 1987, 1991, 1993, 1995, 1996 and 1998-2006 were included in the systematic reviews included in this OoR. In 1987, GDP per capita was $1,026, which increased to $1,999 in 1998. In 2009 China ranked 136th in GDP per capita. In 1992, female sterilisation (42%) and IUD (40%) were the major family planning methods used by couples. In 1990-95, the total fertility rate was 1.8. In 2009 China ranked 157th (1.79) in total fertility. In 2009, the family planning effort was 72%, which is higher than the Asia average of 54%.
Egypt	Two studies included in the OoR relate to the years 1984 and 1995. The GDP per capita in those years was $1,871 and $2,995 respectively. In 2009, Egypt ranked 135th in GDP per capita. During 1984, contraceptive prevalence in Egypt was around 37% among currently married women. The pill and IUDs were the most popular family planning methods, and each accounted for about around 15%; use of other family planning methods was very low. By 1990, contraceptive prevalence had increased to 47%. Among currently married women, knowledge about contraception was near universal in 1990. The ideal number of children reported by women was 4 children in 1984 and 2.9 children during the early 1990s. There were corresponding declines in fertility: the total fertility rate declined from 4.0 in 1984 to around 2.9 children in the early 1990s. Unmet need for family planning during the 1990s was around 20% and was an important factor in the high fertility. The overall family planning effort in 1994 was about 61%, which was higher than the Middle East/North Africa average of 52%. Thus, the studies took place in a context of a relatively improving economic situation and declining fertility.
Ecuador	One study, carried out in 1999, was included in the systematic review selected in this OoR. In 1999, GDP per capita was $4,574. In 2009, the GDP per capita ranking was 117th. Family planning programmes were introduced in the mid-1960s. Contraceptive prevalence increased from 56% in 1994 to 66% in 1999. In 1994, female sterilisation was the most popular family planning method (35%), followed by IUDs (21%) and the pill (18%). Other modern family planning methods accounted for less than 5%. Among family planning users, about 22% used traditional methods. The total fertility rate during 1975-80 was 5.4, which declined to 3.10 in 2000. In 2009, the family planning effort was 53%, which was slightly higher than the Latin America average (50%).
Ghana	Studies included in the OoR relate to the years 1985, 1987, 1988, and 1999. GDP per capita of Ghana in these years was $524, $573, $673, $924 and $954 respectively. In 2009, Ghana ranked 196th in GDP per capita. Fertility remained high (around 6 children) up to the mid-1980s. In 1988, the total fertility rate was 6.4, which dropped to 4.4 in 1998. In 1998, knowledge about contraception was 93% among currently married women. Contraceptive prevalence increased from 10% in 1988 to 13% in 1999. The fertility decline was reflected in the ideal number of children, which declined from 5.5 in 1988 to 4.8 in 1998. The family planning effort scores also increased, from 10% in 1972 to 47% in 2009. Ghana's family planning effort in 2009 was same as the Sub-Saharan Africa average (47%).
Guatemala	Only one study, published in 1999, was included in the systematic review included in this OoR. In 1999, GDP per capita was $3,857. The first family planning clinic opened in Guatemala City in 1965. As in many Latin American countries, female sterilisation was the most common family planning method. In 1999, about 33% of contraceptive users were sterilisation adopters, followed by injectables (14%) and the pill (12%). The total fertility rate in 1999 was about 5 children; of these, about 4 were wanted, reflecting substantial demand for having children. In 2009, the family planning effort was 43%, which was lower than the Latin American average (50%).

India	Three studies, carried out during 1990, 1992, and 1994, were included in the systematic review included in this OoR. GDP per capita in these years was $869, $943 and $1054 respectively. The official family planning programmes began in 1951. In 1992-93, contraceptive prevalence was 36%, which had risen to 49% by 2005-06. The most popular family planning method was female sterilisation: in 1992-3, about 27% of currently married women were sterilised. In 2009, the total fertility rate was 2.78. The family planning effort was 54% in 2009, which was the same as the average for the Asia region.
Indonesia	Three studies, carried out during 1984, 1987 and 1992, were included in the systematic reviews included in this OoR. In 1987, the pill was the most popular method (15%), followed by IUDs (13%) and injectables. In 1997, the most popular method was injectables (about 22%), followed by the pill (15%) and IUDs (8%). Contraceptive prevalence rose from 19% in 1976 to 60% in 2003. The total fertility rate dropped from 5.6 in 1968 to 2.4 in 2003. In 2009, the family planning effort was 60%, which was higher than Asian average of 54%.
Kenya	One study, published in 2005, was included in the systematic review selected for this OoR. In 2005, GDP per capita was $1,433. In 2009, Kenya ranked 185th position in GDP per capita. The total fertility rate in 1989 was 6.7 children per woman, which dropped to 4.9 in 2003. During this period, contraceptive use increased from 27% to 41% among currently married women. Among the contraceptive methods, injectables was the most popular, followed by the pill, sterilisation, IUDs and condoms. Wanted fertility remained at around 4 children during 1993-2003. However, during this period, unwanted pregnancy declined from about 2 children to just over 1 child. Family planning services were first made available in the 1950s by private doctors and from 1962 by the Family Planning Association of Kenya. The family planning effort score increased from 20% in 1972 to 49% in 2009, which was slightly higher than the average for the Sub-Saharan Africa region (47%).
Malaysia	One study, published in 1993, was included in the OoR. In 1993, GDP per capita was $6,361. In 2009 Malaysia ranked 75th in GDP per capita. Malaysia's national family planning programme started in 1966 to promote the health of mothers and children. Between 1966 and 2008, the total fertility rate declined from 5.7 to 2.3. During this period, contraceptive prevalence increased from 8% to 50%. In 2009 the family planning effort score was 62%, which was higher than the Asia average of 54%.
Mexico	Two studies, published in 1993 and 1999, were included in systematic reviews included in this OoR. In 1993, GDP per capita was $6,238, which increased to $9,939 in 1999. During the 1960s, average fertility was about 7 children. Fertility started to decline from 1960. In 1993, total fertility was 3.04 and in 2000 it was 2.40. In 1995, female sterilisation was the most popular method (41%), followed by IUDs (22%) and the pill (13%). In 2009, the family planning effort was 52%, which was slightly higher than the Latin America average of 50%.
Nepal	One study, carried out in 1995, was included in a systematic review selected for this OoR. Family planning activities in Nepal started as early as the 1950s. The total fertility rated declined from 7.1 in 1971 to 4.1 in 2001. Contraceptive prevalence in 1976 was 2.6%, which rose to 35.4% in 2001. In 1996, unmet need for family planning was 28.5%, which increased to 39% in 2001. In 2001, the most popular family planning method was condoms (38%), followed by implants (21%), pills (16%) and female sterilisation (7%). In 2009, Nepal's family planning effort score was 57%, which was higher than the Asia average of 54%.

Nigeria	One study, carried out in 2002, was included in the systematic review included in this OoR. GDP per capita in 2002 was $1,456. In 2009, Nigeria ranked 175th in GDP per capita. In 2002, the total fertility rate was 5.4. The most popular family planning method was oral pills (34%), followed by IUDs (23%), injectables (20%), condoms (11%) and sterilisation (9%). In 2002, the contraceptive prevalence rate was 8% among currently married women. In 2009, the family planning effort in Nigeria was 34%, which was lower than the Sub-Saharan Africa average (47%).
Pakistan	One study, published in 1992, was included in a systematic review included in this OoR. GDP per capita in 1992 was $1,429. In 2009, Pakistan ranked 170th in GDP per capita data. Pakistan's official family planning programme started in 1960. Despite this early start, fertility declined slower than in many Asian countries. The total fertility rate in 1992 was 5.4, which declined to 4.1 in 2006. Knowledge about family planning methods is near universal. Contraceptive prevalence increased from 12% in 1990-91 to 28% in 2000-01. The most prominent family planning methods are female sterilisation, condoms, injectables and pills. Unmet need for family planning in Pakistan is 25%, and most of it is among the poorest and those with lower levels of education. Family planning is generally weak at all levels and the method mix is skewed towards few methods. The family planning effort score in 2009 was 46%, which was lower than the Asia average of 54%.
Peru	Two studies, carried out during 1973 and 1978, were included in the systematic reviews included in this OoR. The GDP per capita in 1980 was $2,963. In 1991-2, contraceptive prevalence was 33%. The most popular method was IUDs (13%), followed by female sterilisation (8%) and pills (6%). Total fertility in 1991-2 was 3.5, which dropped to 2.8 in 2000. In 2009, the family planning effort score was 41%, which was lower than the Latin America average of 50%.
Philippines	Three studies, published in 1985, 1989 and 1994, were included in the systematic reviews selected for this OoR. In 1989, GDP per capita was $1,674. In 2009, Philippines ranked 160th in GDP per capita. The total fertility rate declined from 6 children in 1975-80 to 3.34 in 2000-05. In 1995, about 45% of the births were unplanned. In 2009, the family planning effort score was 30%, which was substantially lower than the Asia average of 54%.
Poland	One study, carried out in 1995, was included in the systematic review included in this OoR. GDP per capita in 1995 was $7,256. The total fertility rate dropped from 2.07 in 1989 to 1.22 in 2003. In 1991, contraceptive prevalence in Poland was 49%.
Thailand	Two studies, conducted in 1998 and 1990, were included in the systematic reviews selected in this OoR. GDP per capita in 1998 and 1990 was $2,207 and $2,903 respectively. The total fertility rate in during 1995-2000 was 1.86. In 1996, the most popular method of family planning was the pill (32%), followed by female sterilisation (31%). Other modern family planning methods accounted for less than 5%.
Taiwan	One study, published in 1987, was included in the systematic review included in this OoR. GDP per capita in 1989 was $8,985. In 2009, Taiwan ranked 42nd in GDP per capita. The most popular family planning method in 1992 was female sterilisation (33%), followed by IUDs (27%), barrier methods (22%) and pills (6%). In 2003, the total fertility rate was 1.57.

Turkey	One study, carried out in 1985, was included in the systematic review included in this OoR. GDP per capita in 1985 was $3,838.Total fertility in 1984 was around 3.9, which dropped to 2.12 in 2009. Contraceptive prevalence in 1993 was around 63%. In 2009, the family planning effort was 53%, which was slightly higher than the Middle East/North Africa average of 52%.
Vietnam	One study, carried out in 1996, was included in the systematic review included in this OoR. GDP per capita in 1996 was $1,106. In 1997, the total fertility rate was 2.3. Contraceptive prevalence in 1994 was around 65%. Among currently married women, about 40% used IUDs, followed by sterilisation (7%), condoms (5%) and the pill (4%). In 2009, the family planning effort score was 71%, which was substantially higher than the Asia average of 54%.
Zambia	One study, carried out in 2007, was included in the systematic review included in this OoR. GDP per capita in 2007 was $1,380. The contraceptive prevalence rate in 2007 was 26%. Unmet need for family planning in the same period was 27%. In 2007, the most popular family planning method was the pill (27%), followed by injections (21%), condoms (12%) and female sterilisation (5%). The total fertility rate was 6.2 in 2007. Government clinics/pharmacies are the main source of contraception (about 70%). In 2009, the family planning effort was 45%, which was lower than the Sub-Saharan Africa average (47%).

The authors of this report were supported by the Evidence for Policy and Practice Information and Co-ordinating Centre (EPPI-Centre).

The Evidence for Policy and Practice Information and Co-ordinating Centre (EPPI-Centre) is part of the Social Science Research Unit (SSRU), Institute of Education, University of London.

Since 1993, we have been at the forefront of carrying out systematic reviews and developing review methods in social science and public policy. We are dedicated to making reliable research findings accessible to the people who need them, whether they are making policy, practice or personal decisions. We engage health and education policy makers, practitioners and service users in discussions about how researchers can make their work more relevant and how to use research findings.

Founded in 1990, the Social Science Research Unit (SSRU) is based at the Institute of Education, University of London. Our mission is to engage in and otherwise promote rigorous, ethical and participative social research as well as to support evidence-informed public policy and practice across a range of domains including education, health and welfare, guided by a concern for human rights, social justice and the development of human potential.

This material has been funded by the Department for International Development. However the views expressed do not necessarily reflect the department's official policies.

The report was first published in 2013 by:

Evidence for Policy and Practice Information and Co-ordinating Centre (EPPI-Centre)
Social Science Research Unit
Institute of Education, University of London
18 Woburn Square
London WC1H 0NR
Tel: +44 (0)20 7612 6397 http://eppi.ioe.ac.uk http://www.ioe.ac.uk/ssru
ISBN: 978-1-907345-61-6