Systematic review

The impact of post-abortion care family planning counselling and services in low-income countries: a systematic review of the evidence

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Contents

List of abbreviations

AVSC:	Association for Voluntary Surgical Contraception
CRESAR:	Reproductive Health Research Network
DANIDA:	Danish International Development Agency
DFID:	Department for International Development
FP:	family planning
FPIA:	Family Planning International Assistance
ICPD:	International Conference on Population and Development
IPPF:	International Planned Parenthood Federation
Intrah:	International Training in Health
Ipas:	International Projects Assistance Services (organisation no longer uses its original full name; now only known as Ipas)
IUD:	intrauterine device
Jhpiego:	Johns Hopkins Program for International Education in Gynecology and Obstetrics
JHU/CCP:	John Hopkins University/Center for Communication Programs
LMICs:	Low- and middle-income countries
MCH:	mother and child health
MCH-FP:	Maternity and child health clinic - family planning
MDG:	Millennium Development Goal
NGO:	non-governmental organisation
PAC:	post-abortion care
PATH:	Program for Appropriate Technology in Health
RCT:	randomised controlled trial
SIDA:	Swedish International Development Cooperation Agency
UK:	United Kingdom
UN:	United Nations
USAID:	United States Agency for International Development
UNFPA:	United Nations Population Fund
UZ:	University of Zimbabwe
WHO:	World Health Organisation

Executive Summary

Background

Unsafe abortions account for around 70,000 deaths each year, almost all of them in the developing world. Millions of women suffer permanent injury or chronic illness, adding a high cost to both individual families and health systems. Since the mid 1990s, post-abortion care has become a central part of the international strategy to address this problem. Although most attention has been paid to improving emergency treatment of abortion complications, the other elements of post-abortion care, including providing family planning counselling and services, have also been promoted and can be found in many health-care settings around the world. Although greater use of contraception will not produce direct, immediate effects on maternal mortality or morbidity, over time it should reduce women's recourse to unsafe abortion by preventing unplanned pregnancies, thereby putting women at less risk of lifelong injury or death. In 2010, the UK government strengthened its commitment to family planning as a strategy to reduce maternal mortality, marking a significant shift in the UK's approach to addressing the most off-track Millennium Development Goal: to improve material health. Addressing the unmet need for post-abortion family planning counselling and services to prevent repeat unplanned pregnancies remains a key part of the new developments in policy. It is therefore both vital and timely to increase understanding of the impacts of such programmes, in order to ensure that they are effective in delivering positive outcomes for women and provide value for money. This systematic review aimed to identify and synthesise the relevant research literature, thereby contributing to what is a relatively unexamined field. It addressed the question: What is the impact of post-abortion care family planning counselling and services in low-income countries on maternal mortality or morbidity, repeat induced abortions or unplanned pregnancies, or acceptance or use of contraception?

Methods

A systematic search for relevant published and unpublished literature was undertaken. The search was conducted in two phases and involved ten electronic bibliographic databases/specialist registers and the websites of nine organisations

specialising in post-abortion care and/or reproductive health. We also contacted the authors of included studies and other individuals to request relevant evidence, conducted citation searches and searched the reference lists of key papers. The initial search generated approximately 3,000 potentially relevant studies. Based on titles and abstracts, each citation was screened against a set of pre-established selection criteria. This process identified 119 studies that were most likely to be relevant to the review. A second set of criteria was applied to the 119 items, thereby reducing the total to 45. Full document screening was undertaken on these and fifteen eligible studies were identified. Once included in the review, each study was subject to a rigorous process of quality assessment and data extraction. The findings of the included studies were brought together using a textual narrative approach to synthesis.

Details of the included studies

Fifteen studies, involving around 15,000 women, were included in the review. The studies were published between 1996 and 2009, with ten published since 2000. They were conducted in Burkina Faso (one study), Cambodia (one study), Ethiopia (one study), Ghana (one study), Kenya (three studies), Malawi (one study), Nepal (two studies), Tanzania (three studies) and Zimbabwe (two studies). The studies were funded by a variety of stakeholders, including government departments/agencies, national and international non-governmental organisations, a private funder and an independent research and consultancy organisation. Nine of the fifteen studies involved at least one external stakeholder in the design, development and/or implementation of the intervention and/or study.

Studies evaluated existing services, improvements to existing services or the introduction of new programmes where none had existed before. The interventions were designed and delivered on different scales. Six studies assessed the impact of initiatives that were implemented at multiple sites over a large geographical area, such as one or more provinces or regions. Nine studies assessed the impact of interventions that were designed and/or implemented at a local level, typically within one or two hospitals or other health facility.

The fifteen studies examined fourteen different interventions. In nine studies, family planning counselling and services were delivered as part of a comprehensive post-abortion care package that emphasised the linking of family planning with the

emergency treatment of abortion-related complications and other reproductive health services. Gynaecological wards or units were the most common setting for the delivery of the family planning counselling and services. Other settings included the private clinics of physicians or midwives, a mother and child health (MCH) clinic, and a hospital outpatient post-abortion care unit. The interventions were delivered by different types of healthcare personnel, including nurses, midwives, physicians, MCH clinic family planning staff, or support staff trained as family planning counsellors. For eleven of the interventions, staff were provided with family planning-related training.

No studies investigated the impact on maternal mortality or morbidity and a single study measured repeat abortions and unplanned pregnancies. All 15 studies measured the impact of post-abortion family planning counselling and services on contraceptive behaviour. Ten studies reported the different types of contraceptive methods that women accepted or used. No studies followed up women for longer than one year.

The overall quality of the evidence was low. Of the 15 studies reviewed, only one study was judged to be sufficiently well-designed for answering a 'what works?' question.

Synthesis results

Studies reported the impact of post-abortion family planning counselling and services on:

Repeat induced abortion (n=1)

- One medium quality study found that the proportion of women who had repeat abortions was lower at the intervention site than at the control site.

Unplanned pregnancy (n=1)

- One medium quality study found that the proportion of women who had repeat unplanned pregnancies was lower at the intervention site than at the control site.

Acceptance or use of modern contraception (n=15)

- Seven studies (one medium quality, six low quality) found that acceptance or use of contraception was higher among the group receiving family

planning counselling and services than for the group not receiving the intervention.

- Eight non-comparative studies (all low quality) that measured the proportion of women who accepted or used a contraceptive method following receipt of family planning counselling and services reported a relatively broad range of figures.
- One low quality study found that the proportion of women who accepted or used a contraceptive method was higher in urban facilities, compared with rural facilities.
- Two low quality studies found that the proportion of women leaving health centres with a contraceptive method was higher than it was for women leaving hospitals.
- One low quality study found that a higher proportion of women accepted or used a contraceptive method when family planning counselling was delivered on the gynaecological ward by ward staff (compared to delivery by other trained staff or delivery in a separate clinic).
- One low quality study found that the proportion of women who accepted or used a contraceptive method was higher for Protestant hospitals, as compared with Catholic hospitals.

Conclusions and recommendations

The current evidence on the use of post-abortion family planning counselling and services in low-income countries as a strategy to address the problem of unsafe abortion and its harmful consequences is inconclusive. This is due to a lack of good quality evaluations measuring outcomes which are important for future programming and policy-making.

Currently, there is no evidence on the impact of post-abortion family planning counselling and services on maternal mortality or morbidity and there is insufficient evidence on their impact on repeat abortions and unplanned pregnancies. There is insufficient yet promising evidence on the impact of post-abortion family planning counselling and services on acceptance or use of contraception.

After receiving post-abortion family planning counselling and services, women accepted or used a broad range of types of modern contraceptive, including long-

acting methods. On the whole, the most popular types were oral pills and injectables. However, this data was often not reported, and may not have been collected. In general, the review found poor reporting practices in the existing evidence base.

An emerging body of research conducted in low-income countries appears to be supported by key partnerships between different stakeholders (including NGOs and government agencies), at both national and international level. This suggests considerable potential for further research collaboration.

Abortion-related maternal mortality and morbidity are widely recognised as being difficult and expensive to measure, suggesting a need to focus on other outcomes of importance, particularly repeat abortions and unplanned pregnancies but also use of long-acting, semi-permanent methods of contraception.

While the lack of rigour in the included studies does not enable us to provide recommendations for decision-makers currently involved in designing and delivering interventions, there is considerable scope to inform strategies for future research. The review makes the following recommendations:

For policy

- Build rigorous evaluation into post-abortion family planning and reproductive health interventions. Where possible, introduce requirements for rigorous evaluation of pilot programmes before roll-out.

For research

- Conduct rigorous evaluations with research designs that can provide conclusive evidence about the impact of post-abortion counselling and services in low-income countries and measure outcomes of importance, such as repeat abortions, unplanned pregnancies and use of contraceptives, including their type.
- Improve consistent and detailed reporting of methods, interventions and findings, and develop and employ greater standardisation of instruments and research procedures.
- Enable better access to rigorous outcome evaluations, by ensuring research reports are included in existing bibliographical databases and other research repositories.

- A systematic review of research conducted in middle-income countries could serve to increase understanding of the mechanisms that lead to effective post-abortion family planning programmes in low-income countries.

1. Background

1.1 Aims and rationale for current review

Unsafe abortions account for around 70,000 deaths each year, almost all of them in the developing world (WHO, 2007). Millions of women suffer permanent injury or chronic illness, adding a high cost to both individual families and health systems. Lowering abortion-related maternal death is a key route to reduce overall maternal mortality, as nearly all deaths from unsafe abortion are preventable.

Since the mid 1990s, post-abortion care has become part of an international strategy to address this problem. Although most attention has been paid to improving emergency treatment of abortion complications, the other elements of post-abortion care, including providing family planning services, have been promoted and can now be found in many health-care settings around the world.

The position of the UK Department for International Development (DFID) on abortion and family planning is consistent with the CAIRO Programme of Action, agreed at the 1994 United Nations International Conference on Population and Development (ICPD). The ICPD particularly emphasised the importance of post-abortion counselling and family planning services as part of a comprehensive package of post-abortion care. While the provision of safe abortion services is important in reducing women's recourse to unsafe abortion, improving women's access to and use of contraception following an abortion is equally important. Although greater use of contraception will not produce direct, immediate effects on maternal mortality or morbidity, over time it should reduce the need for unsafe abortion by preventing unplanned pregnancies, thereby putting women at less risk of lifelong injury or death (Marston and Clement, 2003).

In 2010, the UK government strengthened its commitment to family planning as a strategy to reduce maternal mortality (DFID, 2010a). As part of a planned doubling of its efforts for women's and children's health over the next five years, DFID will prioritise preventing unintended pregnancy and unsafe abortion. Addressing the unmet need for post-abortion family planning interventions to break the cycle of further unplanned pregnancies resulting in repeat unsafe abortion remains a key part of the new developments in policy. It is therefore both vital and timely to

increase understanding about the impacts of such programmes, in order to ensure that future UK and international efforts deliver the best outcomes for women and provide value for money. Contributing to what is a relatively unexamined field, the aim of this systematic review was to identify and synthesise the research literature examining the impacts of post-abortion family planning counselling and services on women in low-income countries.

1.2 Definitional and conceptual issues

Post abortion care is composed of five main elements: (i) treatment of incomplete and unsafe abortion, (ii) contraceptive and family planning counselling and services, (iii) reproductive and other health services, (iv) other (abortion-related) counselling, and (v) community and service provider partnerships. The contraceptive and family planning component is of central interest to this systematic review. (Note: the initial focus was slightly broader, see section 2.2.)

- Family planning counselling and services: refers to interventions that focus on the planning of when to have children, and the number of births; primarily concerned with providing information and advice about the use of contraception to implement such plans, and the supply and fitting of contraceptives; when provided to women who have experienced an abortion, such services may or may not be part of a comprehensive post-abortion care package.
- Safe abortion: abortions performed by qualified persons using correct techniques and under sanitary conditions.
- Unsafe abortion: a procedure for terminating an unintended pregnancy carried out either by persons lacking the necessary skills or in an environment that does not conform to minimal medical standards, or both (WHO, 2007).
- Induced abortion: intentional termination of a pregnancy.
- Miscarriage: unintentional termination of a pregnancy (also known as spontaneous abortion).
- Low-income countries: refers to countries categorised as such by the World Bank (i.e., with a Gross National Income (GNI) per capita in 2009 of $995 or less).[1]

[1] http://data.worldbank.org/about/country-classifications/country-and-lending-groups#Low_income

- Systematic review: refers to an approach to reviewing research evidence which aims to reduce the bias which can occur in more traditional approaches. Systematic reviews aim to find as much as possible of the research relevant to the particular research question, and use explicit and transparent methods to identify what can reliably be said on the basis of these studies.
- Intervention: refers to an activity, programme, strategy, etc., undertaken to modify an outcome (for example, to change participants' knowledge, attitudes, intentions, or behaviour, etc.).
- Modern contraception: oral hormonal pills, injectables, intrauterine devices (IUDs), implants, male condoms, female condoms, other barrier methods (such as diaphragms, the cervical cap and spermicides), emergency contraception, sterilisation (male and female).

On a conceptual level, the causal linkage between post-abortion family planning and reduced maternal mortality and morbidity is clear. It seems self-evident that increased access to and use of contraception among women who have experienced an abortion, would lower the incidence of unintended pregnancy and, in turn, women's recourse to unsafe abortion, thereby putting the lives of women at less risk of lifelong injury or death. However, demonstrating empirically the contribution of post-abortion family planning interventions to changes in maternal mortality and morbidity is extremely challenging. Doing so would require large sample sizes and long follow-up periods and studies with such features require significant levels of resource; an additional problem is that national registration systems routinely under-count abortion-related mortality data (Benson, 2005; Grimes et al., 2006). Recognising these challenges, for the purposes of this review we also included the following intermediary outcomes: repeat induced abortions, repeat unplanned pregnancies, and acceptance or use of a modern contraceptive method. This approach is in line with the conceptual framework for evaluating safe abortion programmes developed by Benson (2005).

1.3 Policy and practice background

Globally, 20 percent of all pregnancies end in induced abortion; nearly half of these abortions (around 20 million) are clandestine and generally unsafe (WHO, 2007). Unsafe abortion and its consequences impose heavy economic and health burdens on women and society. Every year, unsafe abortion accounts for around 70,000 deaths worldwide (13 percent of all pregnancy-related deaths) and an

estimated 5 million women are hospitalised for the treatment of serious complications related to abortion, such as sepsis or haemorrhage, with many suffering long-term ill-health as a consequence. The vast majority (95-97 percent) of these deaths occur in the world's poorest countries, and are at their highest in Africa. Almost half of all unsafe abortion deaths occur amongst adolescents, girls under the age of 19 (WHO, 2007). The United Nations' Millennium Development Goal calling for the reduction of maternal mortality by 75 percent between 1990 and 2015 will not be met without addressing unsafe abortion (UN, 2000).[2]

There are many reasons why women seek an induced abortion, including the inability to avoid unintended pregnancies. Millions of women lack access to modern contraception, or do not use it for a range of reasons, including health concerns, social disapproval and partner opposition (Williamson et al., 2009). Globally, contraceptive use is increasing; recent estimates suggest that just over half (55%) of married women aged 15-49 in developing countries are using some form of contraception (USAID, 2003). Contraceptive use has also increased among unmarried sexually active women in many developing countries; for example, about 37% of unmarried 15–24 year old women in sub-Saharan Africa use contraceptives (Cleland et al., 2006; Singh et al., 2009). Women not using any contraception account for approximately two-thirds of unintended pregnancies in developing countries (Guttmacher Institute, 2008). For unmarried women, the consequences of unplanned pregnancy are harsh – including social stigma and exclusion, expulsion from the family, abandonment and deepening poverty (Grimes et al., 2006). For married mothers, repeat pregnancies at short birth-to-pregnancy intervals pose considerable economic burden on poor families and increased risks to the health of the mothers and infants (WHO, 2005). Women who have experienced unsafe abortions are exposed to many health risks, yet they may be more likely to have repeat abortions in the future (Tietze and Bongaarts, 1978; Berger et al., 1984). In settings where access to safe services is limited, particularly countries where it remains illegal, women may have little choice other than to go to untrained providers. Data indicate an association between restrictive abortion laws and abortion-related deaths: 34 deaths per 100,000 childbirths in

[2] A set of eight international development goals for 2015, adopted by the international community in the UN Millennium Declaration in September 2000, and endorsed by IMF, World Bank and OECD.

countries with more restrictive abortion laws, compared to one or fewer per 100,000 childbirths in countries with less restrictive laws (WHO, 2007).

The WHO deems unsafe abortion to be one of the easiest preventable causes of maternal mortality and ill-health (WHO, 2007). Over the past fifteen years, there have been significant developments that have important implications for the prevalence of unsafe abortion and its harmful consequences. Since 1997, 19 countries or administrative areas have liberalised their abortion laws; a few countries, however, have moved to further restrict access to safe pregnancy termination (Singh et al., 2009). The worldwide trend in abortion law towards liberalisation has benefitted many women: after the abortion law was changed in South Africa in 1996, for example, infection resulting from abortion reduced by 52 percent (Guttmacher Institute, 2008). However, there are still millions of women (40 percent of all women of childbearing age) living in countries with highly restrictive laws, especially in sub-Saharan Africa. Furthermore, legalisation of abortion does not always guarantee women's safety, as economic, social, cultural and other barriers continue to impede women's access to safe abortion in many developing countries (Singh et al., 2009).

Aside from making abortion legal, efforts since the mid 1990s to reduce the prevalence of unsafe abortion and its harmful consequences have concentrated on improving the coverage and quality of post-abortion care. Post-abortion care has been a function of many public health systems around the world since the international community recognised the pressing need to address the problem of unsafe abortion at the 1994 United Nations International Conference on Population and Development (ICPD). That same year, the original post-abortion care model was developed and subsequently adopted by the Postabortion Care Consortium.[3] Three essential elements were listed: emergency treatment of unsafe abortion and related complications; contraceptive and family planning services; and reproductive and other health care services. To update and expand the original model, transforming it from a largely medical model to a public health model, a further two elements were added in 2002: counselling; and community and service provider partnerships.

[3]The PAC Consortium was established in 1993 by Ipas, the Association for Voluntary Surgical Contraception (AVSC) (now EngenderHealth), Jhpiego, Pathfinder and the International Planned Parenthood Federation (IPPF) to encourage international donors and agencies to address the issue of unsafe abortion in their policies and programmes. For further details see Postabortion Care Consortium Community Task Force (2002) and http://www.pac-consortium.org/

The UK government has recently announced that family planning programmes are to be situated at the heart of its approach to reduce maternal mortality in the developing world, marking a significant shift in the UK's approach to addressing the most off-track Millennium Development Goal: to improve material health. Following extensive consultations, DFID's new framework for improving reproductive, maternal and newborn health in the developing world was launched on 31 December 2010, as part of an ambitious new plan to save the lives of at least 50,000 women in the next five years (DFID, 2010a). Preventing unintended pregnancy and unsafe abortion are key priorities, to be achieved through improving woman's access to both contraception and safe abortion, and making the consequences of unsafe abortion more widely understood. DFID believe that the best way to reduce the demand for abortion, and with it women's recourse to unsafe abortion, is to improve access to comprehensive family planning information, services and supplies, so that women and couples can decide whether, when, and how many children to have (DFID, 2010c). With the goal of leading international action, family planning has been incorporated into DFID's business plan for 2011-2015 (DFID, 2010b). Similarly, the United States has renewed its interest and funding of reproductive healthcare, with family planning playing a central role (Clinton, 2010). These new developments in policy continue to emphasise the importance of addressing the unmet need for post-abortion family planning counselling and services to break the cycle of repeat unplanned pregnancy leading to repeat unsafe abortion.

1.4 Research background

A range of regional and country-specific evaluations of post-abortion family planning programmes have been conducted since the mid 1990s. A recently published guide to 'what works' in post-abortion care summarised evidence for the different components, including family planning programmes. The review includes an assessment of the strength of evidence, however neither exhaustive searching nor a synthesis of evidence appears to have been undertaken (USAID, 2007). A systematic review of post-abortion contraceptive counselling has also recently been published. This review of randomised controlled studies, which included literature conducted in high-income countries only, concluded that there was no intervention-related effect (Ferreira et al., 2009). However, this result may not be representative of what might happen in developing countries since, as the authors

themselves indicate, 'patterns of practice may be influenced by socio-cultural, economic and demographic factors' (p.8).

1.5 Review questions and approach taken

A two-stage review model was followed: stage 1 (scoping review), stage 2 (in-depth review). Both stages were systematic, using standardised procedures and processes developed by the EPPI-Centre. The benefits of using a two-stage approach are multiple. A scoping review provides a preliminary indication of the potential size and scope of the relevant literature. This knowledge allows researchers to familiarise themselves with a new topic area and key documents. More importantly, it can be used to inform a consultation with relevant stakeholders to identify a more narrowly focused policy-relevant question that, in the next phase of the review, will be answered through an in-depth review of the relevant literature.

Stage 1: The scoping review involved the following steps: (a) literature searching and identification; (b) selection of relevant literature (screening) in accordance with inclusion criteria; and (c) systematic coding on key variables and analysis to describe the relevant evidence. The broad question answered by the scoping review is:

> *What is the nature and extent of the research literature on the impact of different post-abortion care interventions[4] to reduce maternal mortality and relevant intermediary outcomes?*

Stage 2: At the in-depth stage of the review, a more detailed investigation of a focused subset of the literature was undertaken. The in-depth review involved the following steps: (a) supplementary searches and screening; (b) data extraction; (c) assessment of study quality and relevance; (d) synthesis of findings. The narrower question answered by the in-depth review is:

> *What is the impact of post-abortion care family planning counselling and services in low-income countries on maternal*

[4] See selection criteria (Chapter 2) for details.

mortality or morbidity, repeat abortions or unplanned pregnancies, or acceptance or use of contraception?

As available resources did not permit reviewing the literature on all five components of the post-abortion care model (see section 1.2), it was planned from the outset that this review would focus on particular aspects. This should not be taken to imply that those aspects of post-abortion care that will not be considered in the review are any less important. Our decisions simply reflect that pragmatic choices had to be made. Also influencing our choice of focus (at the in-depth review stage) was the recognition that, thus far, post-abortion family planning had not been subject to systematic review in the context of developing countries.

2. Methods used in the review

This chapter provides an overview of the methods used in this review. All reviewing processes were carried out in the EPPI-Centre's specialist web-based systematic review software programme, EPPI-Reviewer (Thomas et al., 2010). EPPI-Reviewer enables researchers to manage the entire lifecycle of a review in a single location.

2.1 User involvement

2.1.1 Approach and rationale

The two-stage approach to conducting the review was designed to incorporate consultations with representatives from DFID at key stages of the review process. The first consultation took place in mid June 2010, prior to finalising the review protocol. A teleconference was attended by members of the review team and DFID policy lead, Natasha Mesko. These discussions played a central role in establishing the conceptual scope of the review, including agreeing the inclusion/exclusion criteria for the scoping exercise. Advice was also sought on which outcomes to include as proxy measures of maternal mortality. The second consultation with the DFID team considered the findings of the scoping review in order to identify a more narrowly focused, policy-relevant question to be addressed by a subset of the scoped literature.

The protocol and the draft final report were reviewed by DFID representatives and two additional specialists in the field. Peer reviewers were asked to comment, in particular, on the contextual implications of the review findings.

In order to engage a wide range of stakeholders, the following methods were used at different stages of the review process:

- The protocol was published online (http://www.3ieimpact.org/).
- The final report will also be published online and further dissemination activities will include:
    - Sending a research brief to key experts, policy makers and non-government organisations.
    - Circulating the link to the published report on key e-lists and websites.

- Seeking further funding to organise a one-day workshop to report findings and bring together key stakeholders in the field.

2.2 Scoping review methods

2.2.1 Defining relevant studies: inclusion and exclusion criteria

Pre-specified selection criteria were derived from the broad review question (see section 1.5) and the conceptual framework. As there were insufficient resources to review the literature on all five elements of the post-abortion care model, the scoping exercise placed some restrictions on the type of intervention that was of interest.[5] We initially focused on identifying the literature on two specific aspects of post-abortion care: (1) family planning, (a) provision and/or (b) training of personnel; (2) and training in post-abortion care more generally (for example, in emergency treatment of complications). The boundaries of the scoping review were otherwise broad. No restrictions were placed on study design or the types of outcomes measured. Furthermore, the potential lessons that can be learnt from studies conducted in higher-income countries meant that the initial part of the review also had a broad geographical scope encompassing all countries. The tight timeframe for completing this review and limited financial resources prevented the inclusion of non-English language papers (since translation services could not be obtained). However, non-English items were marked as such, and can be returned to at a later date, should further funding allow.

Inclusion criteria:

To be included in the *scoping review*, studies had to meet the following criteria:

1) Title and abstract/executive summary available in the English language;
2) Conducted since 1994 (date post-abortion care initiative introduced);
3) Empirical primary research study or systematic review;
4) Assess the impact of post-abortion care interventions described as:[6]

    (i) family planning services (including, but not limited to, provision of counselling, provision of modern contraception methods, and training of staff delivering family planning services), or

[5] Although it was identified at an early stage that DFID were particularly interested in the family planning element of post-abortion care, the Advisory Group understood that, by searching more broadly at the scoping review stage, (a) we were able to get a fairly rapid indication of the potential size and scope of the literature, and (b) the potential now exists for undertaking additional in-depth reviews in the future.

[6] Process evaluations assessing the appropriateness and/or acceptability of an intervention, or studies reporting qualitative data which explore perceived effects, were included only if they also reported one or more relevant outcomes.

(ii) training of personnel in post-abortion care more generally (e.g., to improve the treatment of incomplete abortion and related complications).

2.2.2 Identifying potentially relevant studies: search strategy

A relatively broad search was undertaken for the scoping review. The search aimed to identify published and unpublished literature. Many of the bibliographic databases listed below index scientific articles, books, reports and conference proceedings. Handsearching websites was also used to identify further unpublished literature. It was not possible to undertake handsearching of individual journals or to search for conference proceedings or dissertations separately. Searches were limited so as to identify studies published from 1994 onwards (the year that the post-abortion care initiative was introduced at the International Conference on Population and Development).

A search strategy combining controlled language (index) and free-text terms was developed to capture the main concepts in the scoping exercise inclusion criteria (post-abortion care, family planning and training). Once finalised, the search strategy developed for Pubmed was translated to the other databases and specialist registers (see Appendix 2.2 for details).

Bibliographic databases and specialist registers

A range of bibliographic databases and specialist registers were searched, including those relevant to LMICs (some of which were sourced from http://epocoslo.cochrane.org/lmic-databases):

- Pubmed
- Popline
- CINAHL
- Cochrane Database
- Sociological Abstracts
- Social Services Abstracts
- International Bibliography of the Social Sciences
- Virtual Health Library[7]
- Trials Register of Promoting Health Interventions(TRoPHI): http://eppi.ioe.ac.uk/webdatabases/Intro.aspx?ID=5

[7] This portal provides a facility to search a number of different bibliographic sources including, for example, LILACS, IBECS

- Database of promoting health effectiveness reviews (DoPHER): http://eppi.ioe.ac.uk/webdatabases/Intro.aspx?ID=2
- Bibliomap: http://eppi.ioe.ac.uk/webdatabases/Intro.aspx?ID=7

Web searches

The following websites were handsearched. See Appendix 2.2 for further details.

- Ipas http://www.ipas.org/
- Jhpiego http://www.jhpiego.jhu.edu/
- Family Health International (FHI) http://www.fhi.org/en/index.htm
- Marie Stopes International (MSI) http://www.mariestopes.org.uk/
- Population Council http://www.popcouncil.org/

2.2.3 Screening studies: applying inclusion and exclusion criteria

The selection criteria were applied successively to the titles and abstracts of the papers identified using the search strategy. Full-text copies of studies were not obtained at this stage.

2.2.4 Characterising included studies

The studies remaining after application of the selection criteria were coded using a short tool developed specifically for this systematic review (see Appendix 2.3). The tool was designed to allow us to provide DFID with a descriptive analysis of the quantity and type of research available in this area. The coding tool had four sections: study design, country, intervention type and outcomes. Study reports were coded on the basis of title and abstract only.

2.3 In-depth review methods

2.3.1 Moving from scoping review to in-depth review

To identify a more narrowly focused, policy-relevant question to be addressed in the second stage of the review, discussions were held with DFID representatives after they had considered the findings of the scoping review alongside any immediate policy priorities. It was decided that the focus of the in-depth review would be restricted to evaluations conducted in low-income countries and a narrower range of outcomes than were used in the scoping exercise. DFID also indicated a preference for not restricting eligibility to a particular study design. In terms of the type of intervention, the in-depth review was focused solely on family planning interventions (provision of counselling/services and/or training of personnel). The consultation process resulted in the development of the following narrower question:

What is the impact of post-abortion care family planning counselling and services in low-income countries on maternal mortality or morbidity, repeat abortions or unplanned pregnancies, or acceptance or use of contraception?

2.3.2 Defining relevant studies: inclusion and exclusion criteria

Guided by the in-depth review question, a second set of selection criteria were developed. These criteria were initially applied to the title and abstract and then decisions were confirmed using the full text of the study report.

Inclusion criteria:

To be included in the *in-depth review*, studies had to meet the following criteria:

1) Conducted in a low-income country (based on World Bank classifications);
2) Assessed the impact of family planning counselling and services (provision and/or training of personnel);
3) Reported one or more of the following outcomes:
    - maternal mortality
    - maternal morbidity
    - repeat induced abortions
    - repeat unplanned/unintended pregnancies
    - acceptance of a modern contraceptive method
    - use of a modern contraceptive method
4) Sample included at least some women who had experienced an induced abortion.

2.3.3 Additional searches

The second phase of the search involved supplementary, targeted searches to identify additional relevant published and unpublished literature. This process involved searching the following:

- Postabortion Care Consortium: http://www.pac-onsortium.org
- Gynuity Health Projects: http://gynuity.org
- EngenderHealth: http://www.engenderhealth.org/index-main.php

- PRIME II: http://www.prime2.org/prime2/section/60.html
- Eldis: https://cms.eldis.org/
- Reference lists of included studies

and

- Citation checking exercises (using relevant primary studies and literature/systematic reviews)
- Contacting experts (including authors of included studies and other experts, some of whom were recommended by the authors)

2.3.4 Assessing quality of studies

The quality of studies that met the inclusion criteria was assessed using an appropriate assessment tool that took into account a range of factors: quality of the execution of the study, appropriateness of the research design/analysis, and relevance of the study topic (see Appendix 2.4 for details of the tool used). We drew on methods for quality appraisal that have been developed in previous EPPI-Centre reviews. The aim of this procedure was to provide an indication of which studies should be seen as contributing most significantly and robustly to understanding the impact of post-abortion family planning programmes.

The quality of each included study was assessed using the EPPI–Centre's weight of evidence (WoE) framework (Gough, 2007). This has four components:

• WoE A: assessment of the quality of the execution of the studies. Studies were rated into three categories (high, medium or low).

• WoE B: the appropriateness of the research design and type of analysis used for answering the review question. Studies were rated into three categories (high, medium or low).

• WoE C: the relevance of the study sample, measures, and actual analysis (or other indicator of focus of the study) to the review question. Studies were rated into two categories (high or medium).

• WoE D: an overall weight of evidence, using a pre-established formula for moving from A, B and C to D. In this review, D was an average of A, B and C, but could not be higher than either A or B.

2.3.5 Overall approach to, and process of, synthesis

The approach to synthesis was driven by the research question, the types of studies and data that are included in the review, their heterogeneity, and the detail and

quality of reporting. Due to the heterogeneity of study designs, populations involved and intervention details, pooling of results from the studies for statistical meta-analysis was not appropriate and therefore a textual narrative synthesis was conducted. Textual narrative synthesis is an approach which arranges studies into relatively homogenous groups. Typically, study characteristics, context, quality and findings are reported according to a standard format, and similarities and differences are then compared across studies (Barnett-Page and Thomas, 2009). In this review, despite differences in terms of their design and operation, the interventions were sufficiently similar to combine. However, we did not structure the synthesis around the intervention characteristics (i.e., did not subdivide by intervention type). The synthesis was structured according to the outcome measures reported, with consideration given to the study characteristics, context and quality.

2.3.5.1 Selection of studies for synthesis

All studies that met the inclusion criteria were included in the synthesis. Low quality studies were not excluded, as these studies still have the potential to provide useful insights for policy-makers.

2.3.5.2 Selection of outcome data for synthesis

All relevant post-test data and follow-up measures were extracted from the studies. Where relevant pre-test data were provided, these were also extracted. Outcome data reported in the papers was considered relevant if it related to the outcomes pre-specified in the review inclusion criteria (i.e., maternal mortality, maternal morbidity, repeat induced abortion, repeat unplanned pregnancy, or acceptance or use of a modern contraceptive method). Some studies included both groups of women (induced abortion and spontaneous abortion). For these studies, if data were presented separately for both types of client, then only the data for women with induced abortion were extracted.

2.3.5 Deriving conclusions and implications

Decisions about what the results meant for policy, practice and research were based on discussions within the review team and with the review advisory group (representatives of DFID).

2.4 Quality assurance process

The systematic review followed standard EPPI-Centre procedures for maintaining quality. At the scoping review stage, to ensure consistency in application of the selection criteria, two or more reviewers screened a sample of reports independently, and compared their results, to pilot the inclusion/exclusion criteria; the remainder of the screening was then carried out by individual reviewers. The scoping review coding tool was also piloted by two researchers working independently, with the remainder of the coding carried out by individual reviewers. At the in-depth review stage, all reports selected for inclusion/exclusion were checked by the second reviewer to confirm their relevance/irrelevance. Data extraction and quality assessment processes were undertaken by two researchers working independently and then comparing their decisions and coming to a consensus. Any discrepancies were resolved by discussion with a third reviewer.

3. Search results

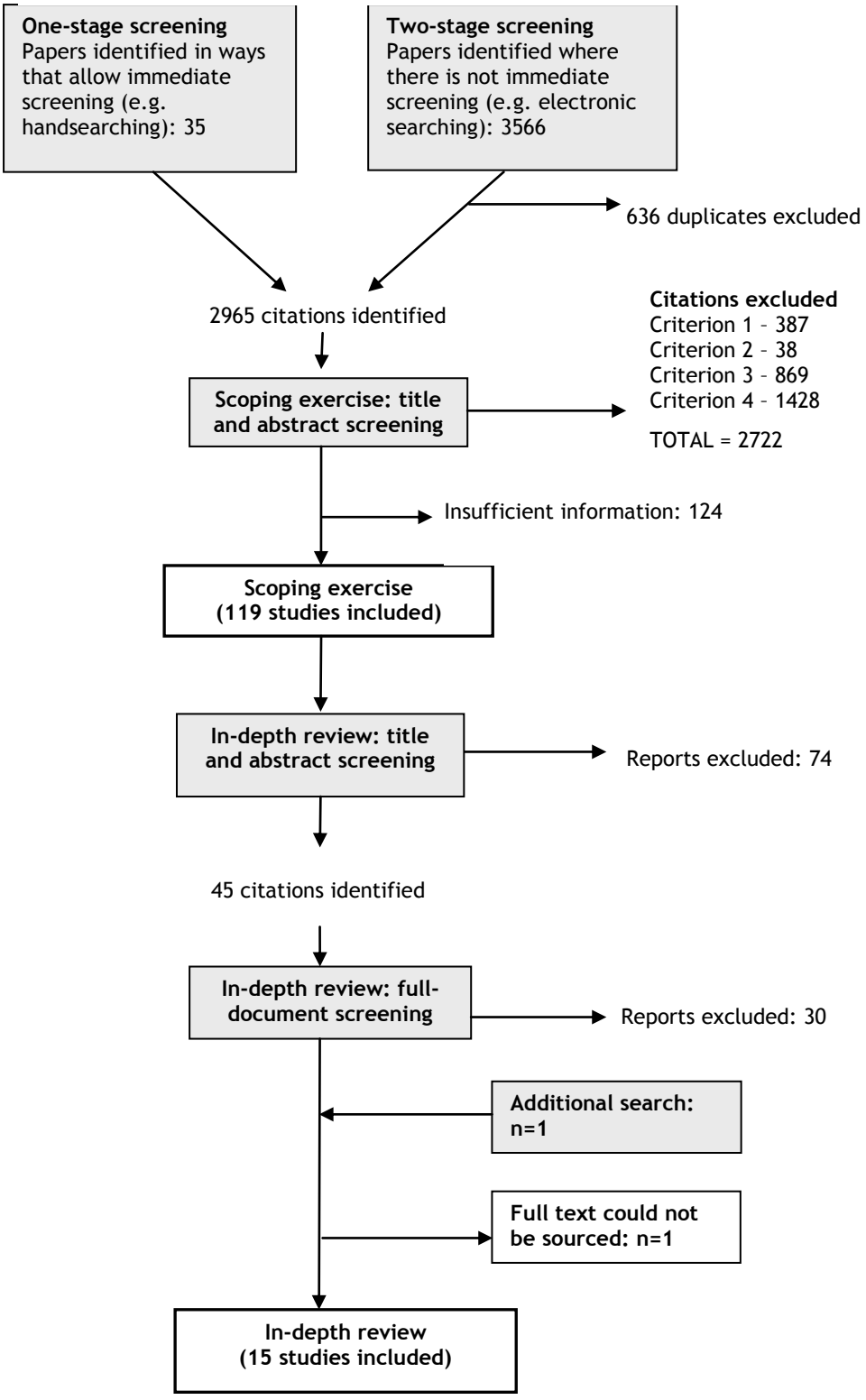
3.1 Studies included from searching and screening

Figure 3.1 illustrates the flow of literature through each stage of the review.

Stage 1 (scoping review): The initial searches identified a total of 3601 records. Of these, 3566 citations were identified through systematic searches of electronic bibliographic databases and 35 papers through website searches and other handsearching. Duplicates were identified (636 items) and removed from the review process. The titles and abstracts of the remaining 2965 records were screened against the scoping review selection criteria (see section 2.2). In total, 2722 items were excluded and 124 items were marked as having insufficient information to make a decision about eligibility (these were followed up at a later date, see below). This left 119 studies that met the scoping review inclusion criteria. The scoping review was not intended to be a stand-alone research output (as it provided an indication rather than a complete picture of the nature and extent of the available literature), therefore the findings are not presented in this report.

Stage 2 (in-depth review): First, the 119 studies included in the scoping review were screened (on title and abstract) against the in-depth review selection criteria (see section 2.3.2) and 74 items were excluded. Full reports were then obtained for the remaining 45 items and these were re-screened. This process led to the exclusion of a further thirty items. Second, the titles and abstracts from the scoping exercise marked as having insufficient information to make a decision about eligibility were followed up. After rejecting those that were not conducted in low-income countries, 36 items were retrieved for full text screening. No additional includes were identified. Third, further additional, targeted searches were undertaken. This resulted in the provisional inclusion of one additional item. As the full report could not be sourced within the timeframe of the review, and reviewers were therefore unable to establish whether the item did indeed meet the criteria, this study was not included (see section 7.3 for details). A total of 15 studies were included in the in-depth review.

Figure 3.1: Filtering of papers from searching to scoping exercise to synthesis



4. In-depth review and synthesis

This chapter provides an overview of the studies included in the in-depth review and details the synthesis of their findings. First, a descriptive overview of the included studies is reported, including information about their quality (section 4.1). In section 4.2, the interventions are described in detail. Then an overview of the outcomes measured by the studies is provided (section 4.3). Finally, the synthesis of evidence is presented in section 4.4 and a summary in section 4.5. Information about the included studies, and the interventions they examine, can also be found in Appendix Tables 4.1 and 4.2.

4.1 The included studies

A total of 15 studies, involving around 15,000 women, were included in the synthesis. The studies were published between 1996 and 2009, with ten published since 2000. They were conducted in Burkina Faso (one study), Cambodia (one study), Ethiopia (one study), Ghana (one study), Kenya (three studies), Malawi (one study), Nepal (two studies), Tanzania (three studies) and Zimbabwe (two studies). Women in these nine countries live with varying laws governing the practice of induced abortion, many of them highly restrictive. Table 4.1 details the reasons for which abortion is legally permitted for each country, as of 2008 (Singh et al., 2009). Since 1997, two countries have liberalised their abortion laws, Ethiopia in 2005 and Nepal in 2002.

Table 4.1: Reasons for which abortion is legally permitted (as of 2008)

Country	Reasons for which abortion is legally permitted	Studies
Burkina Faso	To save the life of a woman or preserve physical health, or in cases of rape, incest or foetal impairment	Frontiers in Reproductive Health (2000)
Cambodia	Without restriction as to reason, but with gestational and other limits	Delvaux et al. (2008)
Ethiopia	To save a woman's life or preserve physical health, or in cases of rape, incest, foetal impairment or other grounds	Alemayehu et al. (2009)
Ghana	To save a woman's life or preserve physical or mental health, or in cases of rape, incest or foetal impairment	Billings et al. (1999a)
Kenya	To save the life of a woman	Nelson et al. (2002); Rogo et al. (1998); Solo et al. (1999)
Malawi	To save the life of a woman (spousal authorisation required)	Lema et al. (2000)
Nepal	Without restriction as to reason, but with gestational and other limits (including prohibition of sex-selective abortions)	Malla et al (1997); Thapa et al. (2004)
Tanzania	To save the life of a woman	Rasch et al. (2004); Rasch et al. (2005); Rasch et al.

Country	Reasons for which abortion is legally permitted	Studies
		(2007)
Zimbabwe	To save the life of a woman or preserve physical health, or in cases of rape, incest or foetal impairment	Mahomed et al. (1997); Johnson et al. (2002)

Funding for the 15 studies came from a variety of sources, including government departments/agencies; non-government organisations; a private funder and an independent research and consultancy organisation. Funding was not reported for one study. Nine of the fifteen studies involved one or more external stakeholder in the design, development and/or implementation of the intervention and/or study, including Ministries of Health or other government agencies, national and international non-government organisations and academic/professional bodies. Further details are provided in Table 4.2.

Table 4.2: Funders and other stakeholders*

Study	Funded by	Other stakeholders
Alemayehu et al. (2009)	Ipas, Tigray Health Bureau	Ipas, Tigray Health Bureau (Ethiopian Federal Ministry of Health)
Billings et al. (1999a)	John Snow Inc, USAID	Ministry of Health, Ghana Registered Midwives Association, Ipas
Frontiers in Reproductive Health (2000)	USAID	Population Council, Jhpiego
Delvaux et al. (2008)	Belgian Development Cooperation, United Nations Population Fund (UNFPA) Cambodia	Reproductive Health Programme and the National Mother Child Centre in Phnom Penh
Johnson et al. (2002)	Rockefeller Foundation	Ipas, Zimbabwe National Family Planning Council, UNFPA, Zimbabwe Ministry of Health and Child Welfare, health-care provider–researchers from the UZ Department of Obstetrics and Gynaecology
Lema et al. (2000)	No information reported	No information reported
Mahomed et al. (1997)	Ipas	No information reported
Malla et al (1997)	Jhpiego	Jhpiego, key Ministry of Health officials, USAID, AVSC International, JHU/CCP, Family Health International, UNFPA
Nelson et al. (2002)	USAID	Ipas, Intrah, Engenderhealth, PATH
Rasch et al. (2004)	Danish International Development Agency (DANIDA), Swedish International Development Cooperation Agency (SIDA)	No information reported
Rasch et al. (2005)	DANIDA	No information reported
Rasch et al. (2007)	DANIDA	No information reported

Study	Funded by	Other stakeholders
Rogo et al. (1998)	Family Planning International Assistance (FPIA)	FPIA, Kisumu Medical Education Trust
Solo et al. (1999)	USAID	Population Council, Ipas, Kenyan Ministry of Health
Thapa et al. (2004)	USAID	USAID, Jhpiego

***** Some study authors were employed by/affiliated to these organisations. See page 4 for list of abbreviations.

The overall quality of the evidence was low (see Table 4.3). For example, of the 15 studies reviewed, only one study (Johnson et al., 2002) involved the use of a control group to determine the effects of the intervention, and, although the groups were not randomly assigned, statistical techniques controlled for differences between the groups. A further six studies (Alemayehu et al., 2009; Billings et al., 1999a; Frontiers in Reproductive Health, 2000; Mahomed et al., 1997; Solo et al., 1999; Thapa et al., 2004) involved the use of a comparison group, but the design and analysis did not account for differences between the groups (typically a different group of women who attended the health facility before the intervention had been introduced or improved was used as the comparison). The remaining eight studies did not involve the use of a comparison group (some of these studies, however, did present outcomes separately for women attending different health facilities, such as those in rural and urban areas).

Table 4.3: Weight of evidence (WoE) of included studies

Study	WoE A Quality of execution of the study	WoE B Appropriateness of the research design/analysis	WoE C Relevance of the study topic/foci	WoE D Overall quality of evidence
Alemayehu et al. (2009)	low	low	high	low
Billings et al. (1999a)	low	low	medium	low
Frontiers in Reproductive Health (2000)	low	low	medium	low
Delvaux et al. (2008)	medium	low	high	low
Johnson et al. (2002)	high	medium	medium	medium
Lema et al. (2000)	low	low	high	mow
Mahomed et al. (1997)	medium	low	medium	low
Malla et al (1997)	low	low	medium	low
Nelson et al. (2002)	low	low	medium	low
Rasch et al. (2004)	high	low	high	low
Rasch et al. (2005)	low	low	high	low
Rasch et al. (2007)	low	low	medium	low

Rogo et al. (1998)	low	low	medium	low
Solo et al. (1999)	low	low	high	low
Thapa et al. (2004)	medium	low	medium	low

The studies evaluated existing services, improvements to existing services, or the introduction of new programmes where none had existed before.[8] These interventions were designed and implemented on different scales.

Six studies examined initiatives that were implemented at multiple sites over a large geographical area, such as one or more provinces or regions. With the exception of the study by Rasch et al. (2005), these programmes were inspired by changes in national policy; four addressed expansion of services, one addressed efforts to improve services, and one addressed decentralisation. In three studies, the interventions were implemented in response to the Kenyan government's expansion of post-abortion care activities in the late 1990s (Rogo et al., 1998; Solo et al., 1999; Nelson et al., 2002). Nelson et al. (2002) reported an evaluation of PRIME II, a scaled-up primary-level post-abortion care programme in three of Kenya's seven provinces. The study by Alemaheyu et al. (2009) assessed the progress of an effort to improve abortion-care services in line with Ministry of Health published technical guidelines which followed the liberalisation of abortion law in 2005. The study by Billings et al. (1999a) examined the experience of decentralising post-abortion care services in Ghana, such that they would be provided by midwives working in primary-level facilities.

The remaining nine studies assessed the impact of interventions that were designed and/or implemented at a local level, typically within one or two hospitals or other health facility (Delvaux et al., 2008; Frontiers in Reproductive Health, 2000; Johnson et al., 2002; Lema et al., 2000; Mahomed et al., 1997; Malla et al., 1997, Rasch et al., 2004; Rasch et al., 2007; Thapa et al., 2004). Two of these nine studies were pilots. Delvaux et al. (2008) undertook a pilot study in Cambodia approved by the Ministry of Health which involved the integration of safe abortion/post-abortion services in a health facility at peripheral level. In Burkina Faso, a pilot study was conducted at two large hospitals in to introduce and then assess improved abortion services (Frontiers in Reproductive Health, 2000). It was

[8] From hereon, all will be referred to as interventions.

subsequently scaled up, the Ministry of Health adopting policies and standards drafted during the pilot and extending services into regional areas.

Although training of personnel was sometimes described by the study authors as being an integral component of the intervention, it was typically implemented alongside other improvements to the services and none of the included studies separately evaluated the impact of training staff.[9]

4.2 The interventions

The fifteen studies examined fourteen different interventions.[10] In nine studies, post-abortion family planning counselling and services were delivered to women as part of a comprehensive post-abortion care package that typically emphasised the linking of family planning with the emergency treatment of complications of abortion and other reproductive health services. In these studies, the family planning intervention can be seen as one component in a multi-component intervention.[11] In the remaining six studies, the family planning counselling and services offered to women following an abortion were not explicitly linked to other aspects of their (abortion-related) care. The interventions are described in the remainder of this section: the setting of the intervention within each health facility (4.2.1); content of the intervention (4.2.2); details about the delivery (4.2.3); charges for using the services (4.2.4) and information about provider training (4.2.5).

4.2.1 Setting of the family planning interventions within each health facility

There was variation across the studies in terms of the location of the family planning intervention within each health facility. Gynaecological wards or units were the most common setting for the delivery of the family planning counselling and services (Johnson et al., 2002; Lema et al., 2000; Mahomed et al., 1997; Rasch et al., 2004; Rasch et al., 2007; Thapa et al., 2004). For two studies, women were offered the intervention in the private clinics of physicians (Rogo et al., 1998) or midwives (Nelson et al., 2002). A Mother and Child Health (MCH) clinic was the

[9] Nor did we identify any other studies that evaluated the impact that the training of staff (in family planning) had on acceptance or use of contraception.

[10] Two studies investigated the PAC unit established at Nepal's largest hospital in Kathmandu (Malla et al. (1997) when it was first opened; Thapa et al. (2004) began their study 30 months after it had opened).

[11] Although, in some cases, the family planning element itself may have a number of different components that could in theory be evaluated separately.

setting of the intervention examined by Delvaux et al. (2008). For the study by Malla et al. (1997) a new outpatient post-abortion care unit was located next to the admitting area in hospital. Solo et al. (1999) tested three different models of provision (two of which offered services on the gynaecological ward, while the third model was set in mother and child health clinics). For the remaining studies, it was either unclear or not stated where women received the family planning counselling and services (Alemayehu et al., 2009; Billings et al., 1999a; Frontiers in Reproductive Health, 2000; Rasch et al., 2005).

4.2.2 Content of the family planning counselling and services

Seven of the 15 studies described the content of the family planning intervention. For several interventions, counselling involved discussions about reproductive goals, the need for contraception, and different options for controlling fertility. For only one intervention were women counselled about the consequences of unsafe abortion. The issue of how contraceptives work and how to use them was discussed as part of one of the interventions. Two interventions shared a concern with the risk of STIs and/or HIV and placed an emphasis on double protection (i.e., condoms and another form of contraception). A single intervention involved the husband and the wife. Overall, very limited details were reported (see Appendix 4.1 for information on individual interventions).

4.2.3 Delivery of the family planning counselling and services

The interventions were delivered by different types of healthcare personnel, including nurses (Johnson et al., 2002; Lema et al., 2000; Rasch et al., 2005; Solo et al., 1999), physicians (Rogo et al., 1998), midwives (Billings et al., 1999a; Nelson et al., 2002); mother and child health clinic family planning staff (Solo et al., 1999) and support staff (Mahomed et al., 1997). Four studies reported the timing of delivery: the service was offered following treatment (Johnson et al., 2002), before and after treatment (Mahomed et al., 1997) before or after treatment, depending on woman's medical condition (Malla et al., 1997) or before, during and after treatment (Lema et al., 2000). No studies reported the length of time allocated to each family planning session.

4.2.4 Charges of the family planning counselling and services

Several authors gave information about how much women were charged for using the services. Rogo et al. (1998) reported family planning clients being charged a minimal consultation fee based on a sliding scale of charges; each physician had to give an undertaking not to turn away any post-abortion client because of lack of money. Patients did not pay for contraceptives. In a further three studies, contraceptives were provided free of charge (Johnson et al., 2002; Rasch et al., 2004; Rasch et al., 2007). For the study by Nelson et al. (2002) there was reference to women returning to purchase a contraceptive method. Two studies reported the amount that women were charged, however this appears to have covered all the services they received and a separate figure for the family planning component was not provided (Delvaux et al., 2008; Thapa et al., 2004).

4.2.5 Training received by staff delivering family planning counselling and services

In 11 of the 15 studies, staff members involved in the delivery of the intervention were provided with specific training relating to family planning counselling and services.[12] There was variation across these 11 studies in terms of the content of the training received, the duration of training, and the type of staff involved.[13] In some cases, training of personnel was described as being an integral component of the intervention. It was often implemented alongside other improvements to the services.

Content of training

Five of the 11 studies described the content of the training received by personnel involved in the delivery of family planning counselling and services. A post-abortion care training curriculum was developed as part of the project evaluated by Rogo et al. (1998). It included both practical and theoretical components on all aspects of reproductive health (presumably including family planning). The training delivered to nurse-midwives in the study by Nelson et al. (2002) encouraged a comprehensive approach to post-abortion care and incorporated the idea that reaching adolescents and young unmarried women with the right messages about family planning is imperative for preventing future unplanned pregnancies and unsafe abortions. In the study conducted by Rasch et al. (2005) it emerged during the training course that some staff members from the Catholic

[12] For four studies, it was not reported whether staff training was an explicit component of the interventions: Delvaux et al., 2008; Rasch et al., 2004; Rasch et al., 20007; Thapa et al., 2004.
[13] For several of the 11 studies, some or all of this information was not reported.

mission hospitals were reluctant to offer modern contraceptives. To overcome this problem, it was agreed that these staff members could offer the women natural family planning counselling and then refer the women to a nearby health facility for further counselling on modern contraceptives. Frontiers in Reproductive Health (2000) reported that training covered manual vacuum aspiration (MVA), family planning methods, infection prevention, and communication with patients. In the study by Malla et al. (1997) the post-abortion care training was the first to use the new training materials developed by the Postabortion Care Consortium (most of the training focused on MVA, but did include material relating to family planning). A team training approach was utilised to provide the initial on-the-job training.

Who received training?

Ten of the 11 studies described the personnel who received family planning-related training. Two studies involved midwives. Nelson et al. (2002) focused on nurse-midwives from the private sector (150 providers from 120 facilities were trained). Billings et al. (1999a) studied midwives working in primary-level facilities (40 were trained). In the project assessed by Rogo et al. (1998) training was delivered to 35 qualified physicians in private practice. Nurses/nurse-aides were also trained to assist the physicians. In three studies, nurses were trained – typically one or two for each study (Johnson et al., 2002; Lema et al., 2000; Rasch et al., 2005). For the study conducted by Solo et al. (1999) approximately five providers (gynaecological ward staff and/or mother and child health family planning staff) from each hospital site were trained. In one study (Mahomed et al. (1997) support staff (numbers not stated) who had previously worked with women in the gynaecology department were trained to offer counselling. For the studies by Frontiers in Reproductive Health (2000) and Malla et al. (1997) different types of staff (e.g., physicians, nurses and midwives) received training in several elements of post-abortion care, including family planning.

How long did the training last?

Eight of the 11 studies provided information about the duration of the training attended by health personnel. The length of time reported by authors included one day (Rasch et al., 2005), two weeks (Mahomed et al., 1997; Johnson et al., 2002), and eight weeks (Lema et al., 2000). No further details were provided about the extent of the training, such as whether personnel attended training on full-time basis. Four studies reported the total length of time that heath personnel

received training, but the authors did not distinguish information relating to family planning from other post-abortion care programme elements, such as training in MVA techniques (Billings et al., 1999a; Malla et al., 1997; Rogo et al., 1998; Solo et al., 1999).

4.3 Outcomes

No studies assessed the impact of family planning counselling and services on maternal mortality or morbidity and a single study measured the proportion of women with repeat abortions and unplanned pregnancies (Johnson et al., 2002). All 15 studies measured contraceptive-related outcomes.

Relevant contraceptive-related outcomes were of two main types: acceptance of a modern contraceptive method and reported use of a method. No studies focused exclusively on actual use of long-acting contraceptive methods (such as IUDs). Study authors used a range of different terminology to denote "acceptance", including "left with", "went home with", "adopted", "requested" and "received" a method (see Appendix 4.1 for details about individual studies). Most authors applied the term 'acceptance' (or similar) to both self-administering contraceptives, such as condoms, and long-acting methods, such as implants (which are clearly indicating 'use' of contraception). Owing to various inconsistencies within the primary studies themselves, we therefore combined the different contraceptive-related outcomes under a single label 'acceptance or use' (or variations thereof) of a modern contraceptive method.

Ten studies reported the types of modern contraceptive methods that women accepted or used (see Table 4.4). A broad range of modern methods were chosen, including long-acting methods. Most studies found that oral pills and injectables were the most commonly chosen methods.[14]

[14] The types of contraceptive methods that were actually made available to women as part of the family planning service would of course have some bearing on this. This information was typically not reported by the authors.

Table 4.4: Types of modern contraceptives accepted or used (10 studies)

Studies	Outcome	Types of methods (%)						
		Oral pills	Injectables	IUDs	Condoms	Sterilisation	Other	Unclear
Delvaux et al. (2008)	"adopted" a method	33.9	27	32.5	6.6			
Johnson et al. (2002)	"reported use" of a method	At 3 mths int: 74.3 con: 59.2 At 12 mths int: 66.5 con: 52.7	At 3 mths int: 20.3 con: 26.2 At 12 mths int: 29.5 con:23.6		At 3 mths int: 3.6 con: 12.6 At 12 mths int: 1.8 con: 18.8		At 3 mths int: 1.8* con: 1.9* At 12 mths int: 2.2* con: 4.9*	
Lema et al. (2000)	"accepted" a method	45.3	21.8	1.7	20.7	6.4	4**	
Malla et al. (1997)	"requested" a method	27	37	5	28		3***	
Rasch et al. (2004)	"stated that they were using" a method	At inclusion 25 At 1-6 mths 42	At inclusion 19 At 1-6 mths 38		At inclusion 15 At 1-6 mths 8		At inclusion 40‡ At 1-6 mths 12‡	
Rasch et al. (2005)	"left with" a method	urban: 55.8 rural: 43.9	urban: 30.6 rural: 25.0		urban: 4.4 rural: 7.4		urban: 9.2‡‡ rural: 23.6‡‡	
Rasch et al. (2007)†	"left with" a method				>50‡‡‡		75^	
Rogo et al. (1998)	"left with" a method	32.2	43.8	10.6	3.4		1.4^^	8.6
Solo et al. (1999)	"received" a method	64	20		11		5^^^	
Thapa et al. (2004)††	"left with" a method	46	21		33			

† at enrolment or one-month follow-up (types of method used at three-month follow-up not clearly reported)
†† accepted by women at discharge; reported that less than 2% of patients switched to another method during the six-week follow-up period (no further details)
* other modern contraceptives including implants, diaphragms and sterilisation (male and female)
** implants and spermicides
*** implants and sterilisation (referrals)
‡ double protection (no further details)
‡‡ primarily sterilisation
‡‡‡ either alone or as part of double protection (39% chose female condoms)
^ hormonal contraceptives (oral pills or injectables), either alone or as part of double protection
^^ double protection (oral pills plus condoms)
^^^implants, IUDs or female sterilisation (the method mix varied according to the model of provision; fewer women at model 1 sites received the pill, 55% compared with 68% and 73% at model 2 and 3

sites, respectively; more women at model 1 sites received condoms, 14% as opposed to 9% and 8% at model 2 and 3 sites, respectively; a similar proportion at all sites received injectables)

Four studies measured short- and medium-term outcomes. Acceptance or use of contraception was assessed at six weeks (Thapa et al., 2004), at three months (Rasch et al., 2007), at one to six months (Rasch et al., 2004) and at three, six and twelve months (Johnson et al., 2002). The remaining 11 studies did not provide this information.

Studies presented findings for women who had experienced different types of abortion (the inclusion criteria specified that at least some women in the sample attended the health facility due to an induced abortion). For four studies, findings were reported for women who had experienced an induced abortion[15] (Alemayehu et al., 2009; Delvaux et al., 2008; Lema et al., 2000; Rasch et al., 2004). None of these four studies, however, focused exclusively on women receiving post-abortion care (including family planning) following an unsafe abortion. Eight studies sampled women whose pregnancies had ended as a result of either an induced abortion or a miscarriage (spontaneous abortion), and did not differentiate between the two groups of women when reporting outcomes (Billings et al., 1999a; Frontiers in Reproductive Health, 2000; Mahomed et al., 1997; Malla et al., 1997; Nelson et al., 2002; Rasch et al., 2007; Rogo et al., 1998; Thapa et al., 2004). The samples in the remaining three studies included both types of patient (having induced and spontaneous abortion), however the authors restricted their analysis to what was considered an appropriate subset of the main sample: women who stated that either (i) they wished to postpone their next pregnancy for at least two years from the time of the index abortion (Johnson et al., 2002), (ii) their pregnancy had been unwanted (Rasch et al., 2005), or (iii) they did not want to become pregnant again (Solo et al., 1999).

The majority of studies measured the proportion of women receiving the post-abortion family planning intervention that accepted or used a contraceptive method. For two studies (Nelson et al., 2002; Thapa et al., 2004) reviewers calculated this figure. For the study by Billings et al. (1999a) the findings refer to the proportion of women treated who accepted or used a contraceptive method following the abortion (i.e., not all women receiving post-abortion care received

[15] Reviewers found that this information was often not clearly reported. The problem of misdiagnosis (due in part to women's reluctance to admit to an induced abortion) was mentioned by several authors.

family planning counselling and services). In a further study (Frontiers in Reproductive Health, 2000) it is unclear whether the figure for the number of patients accepting a method is a proportion of all treated patients or only those who received the family planning component of the intervention. Two studies measured the proportion of women offered the services that accepted or used contraception (Rasch et al., 2005; Rasch et al., 2007). These differences between the studies should be taken into account when considering the figures presented in section 4.4 and in Appendix 4.2.

4.4 Synthesis of study findings

This synthesis uses the findings from the included studies to address the following question:

> *What is the impact of post-abortion care family planning counselling and services in low-income countries on maternal mortality or morbidity, repeat abortions or unplanned pregnancies, or acceptance or use of contraception?*

The synthesis groups and reports the findings of studies that attempt to answer this question, according to the outcomes addressed. Evidence profile tables are presented in Appendix Table 4.2.

Repeat induced abortion (n=1)

One study found that 2.5 percent of women who received family planning counselling went on to have a repeat abortion during the twelve-month follow-up period. This is compared to 5.3 percent of women who did not receive the counselling (Johnson et al., 2002).

Repeat unplanned pregnancy (n=1)

One study found that 15 percent of women who received family planning counselling following an induced or spontaneous abortion had a repeat unplanned pregnancy during the twelve-month follow-up period. This is compared to 34 percent of women who did not receive the counselling (Johnson et al., 2002).

Acceptance or use of modern contraception (n=15)

Seven of the fifteen studies used some form of comparison group. Johnson et al. (2002) found that the proportion of women who stated they were using a contraceptive method was higher at the intervention site than at the control site. This trend continued over a twelve-month period following the women's discharge from hospital. At 12 months, 83.3 percent of women in the intervention group and 64 percent of the control group were using modern contraceptive methods. Thapa et al. (2004) reported that 54 percent of women stated at their six-week follow-up that they were using contraception.[16] This compares with less than one percent of the comparison group (women who had received standard in-patient care) who said they were currently using or had used contraception since discharge from hospital. A further five studies used, as their comparison group, women who had attended the health facility before the intervention was introduced. Each of these studies found that the introduction or improvement of post-abortion family planning counselling and services led to an increase in the proportion of women using and/or accepting a modern contraceptive method. Alemayehu et al. (2009) found that the proportion of women receiving abortion services who obtained contraception before leaving the health facility increased from 31 percent at baseline to 78 percent at the end of the two-year study period. Solo et al. (1999) found that, in the post-intervention period, 70 percent of women received a method of contraception before leaving hospital, a dramatic increase from the baseline when only three percent of women received a method. Billings et al. (1999a) found that in the pre-intervention period, no women interviewed actually chose a family planning method before leaving the hospital, compared to 35 percent after improvements to the services. Frontiers in Reproductive Health (2000) found that, post-intervention, 83 percent of patients accepted a contraceptive method, compared with 57 percent before the intervention.[17] For the study by Mahomed et al. (1997), 92 percent (versus 34 percent) went home from hospital with a contraceptive method (a slightly higher proportion of women chose a method but did not leave with one).

Eight studies measuring this outcome did not involve the use of a comparison group, although some studies collected follow-up data. Rasch et al. (2007)

[16] At discharge, a method was discharged to 53 percent of those who had received counselling about contraception (95.6 percent of patients in the intervention group received such counselling).
[17] Nearly all patients (94 percent) received family planning counselling; unclear if these figures (83 and 57 percent) refer to all patients or only those who received the intervention.

reported that 95 percent of women accepted a method at discharge (follow-up data not clearly reported). In the study by Lema et al. (2000) 80.4 percent of the total study group accepted to use contraceptives, while amongst those who indicated that the abortion was induced, 77.5 percent accepted to do so. In the study by Rasch et al. (2004), 90 percent of women accepted a method before leaving the health facility. Follow up data was collected from around two thirds of these women and 86 percent of the group who were followed up stated that they were using contraception 1-6 months after discharge. The study by Malla et al. (1997) found that 70 percent of those treated in the post-abortion unit requested a contraceptive method. In contrast, Nelson et al. (2002) found that 56 percent of the studied post-abortion care clients either left the facility with a modern contraceptive method or stated that they would return to purchase one (for those who actually received the intervention, the figure is 69 percent).[18] Delvaux et al. (2008) reported that 41.1% of patients attending due to induced abortion adopted a contraceptive method after receiving the intervention. An evaluation of newly introduced training for private physicians to provide post-abortion care services (Rogo et al., 1998) found very different success rates for the individual health facilities (between 12.5 and 100 percent of clients left each clinic with a method).

Outcomes according to the type of setting and/or provider were reported for four studies. Two studies measured outcomes for women who had attended different types of health facility. Billings et al. (1999a) found that more women left health centres and maternity homes with a contraceptive method (70 percent and 55 percent, respectively) as compared to women treated in district hospitals (35 percent). Alemayehu et al. (2009) found that the proportion of women leaving health centres with a contraceptive method was higher (85 percent) than it was for women leaving hospitals (75 percent). One study (Rasch et al., 2005) investigated the difference in outcomes for women attending rural and urban hospitals, finding that the proportion leaving with a contraceptive method was higher for urban hospitals (93 percent) than for rural facilities (71 percent). Rasch et al. (2005) also looked at the influence of the religious affiliation of the staff members delivering the intervention in rural Tanzania, where all hospitals are owned and administered by either the Catholic or Protestant church. The study found that for hospitals administered by the Catholic Church less than half the studied women (48 percent) left with a modern method; the corresponding figure for women attending

[18] Nurse-midwives counselled 81 percent of all post-abortion clients for family planning.

hospitals administered by the Protestant Church was 86 percent. One study compared different providers and hospital settings (Solo et al., 1999). The proportion of women leaving hospital with a contraceptive method was highest (82 percent) for model 3 (the provision of post-abortion family planning counselling and methods on the gynaecological ward by ward staff). This compared to 63 percent for model 2 (provision of family planning services on the gynaecological ward by MCH-family planning staff) and 75 percent for model 3 (provision of family planning services in MCH-family planning clinics by MCH-family planning staff).

4.5 Summary of results of synthesis

Repeat induced abortion (n=1)

- One medium quality study found that the proportion of women who had repeat abortions was lower at the intervention site than at the control site.

Unplanned pregnancy (n=1)

- One medium quality study found that the proportion of women who had repeat unplanned pregnancies was lower at the intervention site than at the control site.

Acceptance or use of modern contraception (n=15)

- Seven studies (one medium quality, six low quality) found that acceptance or use of contraception was higher among the group receiving family planning counselling and services than for the group not receiving the intervention.
- Eight non-comparative studies (all low quality) that measured the proportion of women who accepted or used a contraceptive method following receipt of family planning counselling and services reported a relatively broad range of figures.
- One low quality study found that the proportion of women who accepted or used a contraceptive method was higher in urban facilities, compared with rural facilities.
- Two low quality studies found that the proportion of women leaving health centres with a contraceptive method was higher than it was for women leaving hospitals.

- One low quality study found that a higher proportion of women accepted or used a contraceptive method when family planning counselling was delivered on the gynaecological ward by ward staff (compared to delivery by other trained staff or delivery in a separate clinic).
- One low quality study found that the proportion of women who accepted or used a contraceptive method was higher for Protestant hospitals, as compared with Catholic hospitals.

5. Discussion

5.1 Introduction

This chapter reflects on the synthesis findings reported in Chapter 4 and forms the basis of the conclusions outlined in Chapter 6. First, we discuss our interpretation of the findings. This is followed by consideration of the nature of the existing evidence base, in an attempt to better understand the factors that limit the utility of the findings. Finally, the strengths and limitations of this systematic review are outlined, since the design and conduct of the review itself may also have influenced our findings. The resulting recommendations are listed in Chapter 6.

5.2 Interpretation of synthesis findings

Good quality evaluations of post-abortion family planning counselling and services in low-income countries are scarce. In our opinion, the studies included for synthesis do not have sufficient evidence to provide a conclusive answer about the use of post-abortion family planning as a means of addressing the problem of unsafe abortion and its harmful consequences. The review found no studies that examined the impact of such programmes on maternal mortality or morbidity, and evidence from a single study on their impact on the rate of repeat abortion and unplanned pregnancies. It did identify a relatively large body of evidence, albeit mostly low quality, on the impact of providing post-abortion family planning on contraception-related outcomes.[19] Although this evidence is not strong enough to support a causal claim, our interpretation is that there is 'insufficient yet promising' evidence that post-abortion family planning counselling and services improves use of modern contraceptive methods among women in low-income countries. This is based on there being at least one medium quality study and the majority of the remaining evidence showing a 'positive effect' (i.e., women in the intervention group had a better outcome than the comparison group).

Albeit a somewhat disappointing finding that the review did not find conclusive evidence, this is an important finding nonetheless. It highlights the need for more methodologically rigorous research in this area. They review offers insights into the type of family planning interventions that have been delivered in low-income countries since the mid 1990s and highlights ways forward to improve the

[19] The review did not identify any studies that separately assessed the impact that the training of staff (in family planning counselling, its delivery, etc.) had on outcomes.

evaluation of them. The studies included in the review provide some promising avenues for future research. The review identified fifteen studies, undertaken in nine different countries, many of which took place in the context of United States policy banning overseas organisations receiving federal funding from involvement with abortion.[20] The review also found evidence of key partnerships between different stakeholders, at both national and international level, with various actors playing a substantial role in guiding interventions and/or evaluations in this area. This suggests considerable potential for further research collaboration across a number of geographical contexts.

5.3 Limitations of the existing evidence base

A number of features of the existing body of research literature contribute to its insufficiency for understanding the complexity of post-abortion family planning interventions and their impact.

There are considerable limitations in the design and execution of the studies included in the review, thus undermining the reliability, validity and generalisability of the findings. Randomised controlled trials (RCTs) are generally accepted as the most rigorous way of determining whether a cause-effect relation exists between treatment and outcome. No eligible RCTs were identified. Of those studies that did use a comparison group, only one study (Johnson et al., 2002) was reasonably well-designed (in particular, although randomisation was not used, important differences between the groups were controlled for). Over half the total number of studies did not involve the use of a comparison group.

Overall, this body of literature was also characterised by poor reporting practices. Few studies provided adequate descriptions of the intervention itself, and there was often insufficient information reported on the study methods and findings. There was a lack of standardised instruments/techniques for measuring the outcomes of interest. Furthermore, the reviewed studies made little contribution to contextualising outcomes in relation to the mechanisms which underpin the interventions, nor understand the factors that shape implementation and affect outcomes. Gaining access to the reports of the studies also posed some

[20] The 'Mexico City Policy' was re-imposed by President Bush in 2001 and the ban lifted by President Obama in 2009. There are some suggestions that subsequent measures taken by the European Union countered the impact of this policy (Sandbaek, 2003).

difficulties, and for two studies we were unable to locate the full text, despite extensive efforts.

As briefly discussed in Chapter 1, measurement of the contribution of post-abortion family planning interventions to reductions in abortion-related maternal mortality and morbidity is impeded by major challenges (Benson, 2005; Grimes, 2006). Therefore, in designing this review, we also included a number of intermediary outcomes. All but one study focused solely on measuring contraceptive behaviour following an abortion. This raises a number of important issues. First, self-reported use of contraceptives is subject to recall and response bias, as noted by a number of the authors themselves. Second, use of long-acting semi-permanent methods, such as intrauterine devices (IUDs) and implants, is arguably a more useful outcome for policy-makers than acceptance of self-administering methods, such as condoms. Even when used correctly, birth control methods vary in effectiveness and reliability. If the method requires motivation by the recipient, partner support, and/or the possession of some basic knowledge and skills if they are to be used, then there is even less certainty of contraception protection (Edwards, 2006; Williamson, 2009). Six of the 15 studies did not report the types of methods offered. Third, no study followed women up for longer than one year. There is an acute need for long-term studies collecting data on use of long-acting methods, particularly if the aim is to demonstrate the association between up-take of post-abortion contraception and reduced levels of maternal mortality and ill-health.

Although it was generally unclear from the study reports, the majority of the family planning programmes do not appear to have specifically targeted unsafe abortion users (there was no indication, for example, that any of the interventions were trying to educate women about the dangers of unsafe abortion practices). Considering the legal situation in many of the countries represented in the review, this is hardly surprising. That many studies included women who had experienced either an induced abortion or a miscarriage may be problematic however, as the profile of these two groups of women may be very different. Although researchers working in this area are undoubtedly limited by powerful disincentives for women to admit having had an unsafe abortion (Grimes et al., 2006), focusing particularly on women who seek treatment following an unsafe induced abortion would seem to be critical to understanding this complex issue. It is therefore notable that one of

the included studies in this review used an empathetic interviewing approach to distinguish more accurately between women who have experienced induced abortions and those whose pregnancies ended as the result of miscarriage (Rasch et al, 2004). According to the authors, this method of identification has been documented to give more trustworthy results than using a classification based on clinical criteria.

5.4 Strengths and limitations of this systematic review

A major strength of the review lies in its systematic nature. The methods used, and the comprehensiveness of the reporting, ensure that the review process is transparent, replicable, updateable and extendable. The quality of the primary studies has been taken into account in the synthesis and interpretation of the results. The quality appraisal and data extraction for each of the studies was carried out independently by two members of the team, thereby minimising the risk of error and improving the quality of the data. The timeframe for completing this review, however, was six months. Moreover, the financial resources were insufficient to carefully conduct a comprehensive review in that time. Therefore, in an attempt to deal with the challenges of time and money, we did not conduct an exhaustive literature search. Whilst a range of different search sources were used, the number of international sources was limited and particular items (such as dissertations) were not specifically sought. Although some handsearching was undertaken at the in-depth review stage (for example, it included the reference lists of included studies and we had a very good response from the study authors and other key individuals who were contacted with requests for information) some studies may have been missed. We are aware of one study (Kiggundu, 1999) that may be relevant to the review for which we could not locate a copy of the full report, which raises issues relating to both efficient dissemination of research findings and publication bias. Negative results may be published only as reports to funders, or publication may have been restricted to languages other than English. Resource limitations meant that inclusion in this review was restricted to studies published in the English language. Although we are not aware of any eligible non-English language studies, it remains unknown how many relevant studies are published in other languages. Conducting the review within the agreed resources was demanding, and therefore some human error may be present. Whilst rapid reviews serve a useful purpose in providing policy-makers with new knowledge in a shortened time-frame, it is important not to overlook the potential implications of

placing limits on the review methodology (Ganann et al., 2010; Abrami et al., 2010).

The involvement of representatives from the Department for International Development at all stages of the review process, especially at the point of moving from the scoping review to the in-depth review and synthesis, was invaluable for making the review more policy-relevant.

In the context of developing recommendations for policy and practice, systematic reviews are generally considered the gold standard because they clarify whether assertions about the value of an intervention are based on strong evidence. However, any systematic review can only be as good as the amount and quality of primary research that is included in it. A main limitation of the review was the scarcity of high quality research evidence of the effectiveness of post-abortion family planning interventions to inform policy and practice.

6. Conclusions and recommendations

6.1 Conclusions

The current evidence on the use of post-abortion family planning counselling and services in low-income countries as a strategy to address the problem of unsafe abortion and its harmful consequences is inconclusive. This is due to a lack of good quality evaluations measuring outcomes which are important for future programming and policy-making.

Currently, there is no evidence on the impact of post-abortion family planning counselling and services on maternal mortality or morbidity and there is insufficient evidence on their impact on repeat abortions and unplanned pregnancies. There is insufficient yet promising evidence on the impact of post-abortion family planning counselling and services on acceptance or use of contraception.

After receiving post-abortion family planning counselling and services, women accepted or used a broad range of types of modern contraceptive, including long-acting methods. On the whole, the most popular types were oral pills and injectables. However, this data was often not reported, and may not have been collected. In general, the review found poor reporting practices in the existing evidence base.

An emerging body of research conducted in low-income countries appears to be supported by key partnerships between different stakeholders (including NGOs and government agencies), at both national and international level. This suggests considerable potential for further research collaboration.

Abortion-related maternal mortality and morbidity are widely recognised as being difficult and expensive to measure, suggesting a need to focus on other outcomes of importance, particularly repeat abortions and unplanned pregnancies but also use of long-acting, semi-permanent methods of contraception.

With a specific focus on post-abortion family planning counselling and services in low-income countries, this systematic review provides a timely contribution to current debates and an opportunity to strengthen evidence-informed decision-making. There is an urgent need to reduce maternal mortality and improve

maternal health in the developing world. Whilst some progress has been made towards Millennium Development Goal 5 (MDG5), the international community is still far from reaching its target.[21] Policymakers, both within the UK and internationally, recognise that addressing the problem of unsafe abortion is an important strategy of lowering maternal mortality and morbidity overall. The focus on the use of family planning as a key means of achieving MDG5 is not, however, without its critics. In our view, there is a clear need for the development of a more extensive and rigorous evidence base that is capable of demonstrating effectiveness, to ensure policymakers and other donors focus their funding on programmes that produce the best results for women and provide value for money. This review highlights a number of opportunities for going forward. While the lack of rigour in the included studies does not enable us to provide recommendations for decision-makers currently involved in designing and delivering interventions, there is considerable scope to inform strategies for future research. The remainder of this chapter set out these recommendations with the anticipation that such research will usefully serve to inform policy and practice in the future.

6.2 Recommendations

6.2.1 Recommendations for policy

- Build rigorous evaluation into post-abortion-family planning and reproductive health interventions. Where possible, introduce requirements for rigorous evaluation of pilot programmes before roll out. While acknowledging that there are practical, methodological, and ethical issues that need to be addressed for rigorous study designs (such as randomised controlled trials) to be used in this field, simply commissioning more evaluation studies with weak research designs will not add to, or strengthen, the evidence base in ways which will be helpful.
- Consideration should also be given to the commissioning of a new programme of research involving major stakeholder groups, including national and international non-governmental organisations. A coordinated approach would have the potential to play a major role in shaping the development of a cumulative knowledge base, by ensuring that the range of studies were of a sufficient scale and coherence to support policy and practice. The Department for International Development would, for a variety of reasons, appear to be

[21] The International Bank for Reconstruction and Development/ The World Bank (2010) Global Monitoring Report 2010: The MDGs after the crisis (Washington: The World Bank).

ideally situated to initiate a dialogue between the major stakeholders on the possibility of such a programme.

- Funders commissioning future systematic reviews related to developing countries need to consider providing adequate resources in terms of funding to allow for exhaustive searching (including non-English language search sources) and, if necessary, the translation of reports published in languages other than English.

6.2.2 Recommendations for research

***Future primary research*:**

- Conduct rigorous evaluations with research designs that can provide conclusive evidence about the impact of post-abortion counselling and services in low-income countries and measure outcomes of importance, such as repeat abortions, unplanned pregnancies and use and type of contraceptive. The controlled study by Johnson et al. (2002) provides a reasonably sound research design which can be refined methodologically in future primary research in this area. Ideally, new research should have a built-in commitment to evaluate processes and long-term outcomes as part of any study, and focus more specifically on women who have undergone an unsafe abortion. In this regard, the empathetic interviewing approach developed by Rasch and colleagues (2004) warrants further investigation.
- Adopt consistent and detailed reporting of methods, interventions and findings, and develop and employ greater standardisation of instruments and techniques, to enable more effective synthesis of findings across studies.
- Enable better access to rigorous outcome evaluations, by ensuring research reports are included in existing bibliographical databases and other research repositories. To aid retrieval of all relevant literature for future evidence syntheses, non-government organisations and other key stakeholders in host countries involved in the evaluation of post-abortion family planning interventions should make their evaluations publicly available and accessible, and disseminate more widely. A more coordinated approach to the organisation of knowledge about post-abortion care family planning interventions is recommended.

***Future systematic research syntheses*:**

- A systematic review of research conducted in middle-income countries could potentially increase understanding of the processes and practices that are effective. Such lessons may be transferable to other contexts and/or guide decisions that need to be made by policy-makers or practitioners in low-income countries. The literature identified by the scoping exercise undertaken as part of this review serves as a useful starting point and could be supplemented with updated and targeted searches.

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Appendix 1.1: Authors and acknowledgments

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Advisory Group
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Conflicts of interest
None of the authors have any financial interests in this review topic, nor have been involved in the development of relevant interventions, primary research, or prior published reviews on the topic.

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The views and the conclusions expressed in this review are those of the authors and do not necessarily reflect views of DFID or of the aforementioned people.

Appendix 2.1: Search strategy for electronic databases

PubMed

#1 = (((("Abortion, Induced/adverse effects"[Mesh] OR "Abortion, Induced/blood"[Mesh] OR "Abortion, Induced/complications"[Mesh] OR "Abortion, Induced/mortality"[Mesh] OR "Abortion, Induced/standards"[Mesh])) OR ("Abortion, Criminal/adverse effects"[Mesh] OR "Abortion, Criminal/complications"[Mesh] OR "Abortion, Criminal/mortality"[Mesh])) OR ("Abortion, Legal/adverse effects"[Mesh] OR "Abortion, Legal/mortality"[Mesh])) OR "Abortion, Septic"[Mesh]

#2 = (((((("Postoperative Period"[Mesh] OR ("Hemorrhage"[Mesh] OR "Postoperative Hemorrhage"[Mesh] OR "Uterine Hemorrhage"[Mesh])) OR ("Infection"[Mesh] OR "Pelvic Infection"[Mesh])) OR "Aftercare"[Mesh]) OR "Rehabilitation Nursing"[Mesh]) OR "Rehabilitation"[Mesh]) AND ("Abortion, Induced"[Mesh] OR "Abortion, Criminal"[Mesh] OR "Abortion, Legal"[Mesh] OR "Abortion, Incomplete"[Mesh])

#3 = ((((postabortion[Title/Abstract] OR "post abortion"[Title/Abstract]) OR postabortal[Title/Abstract]) OR "post abortal"[Title/Abstract]) OR "post-abortion"[Title/Abstract] OR "post-abortal"[Title/Abstract] OR "incomplete abortion"[Title/Abstract]) OR "incomplete abortions"[Title/Abstract] OR "unsafe abortion"[Title/Abstract] OR "unsafe abortions"[Title/Abstract]

#4 = ((((((("aftercare"[Title/Abstract] OR "after care"[Title/Abstract]) OR "after-care"[Title/Abstract) OR "postoperative"[Title/Abstract]) OR "post operative"[Title/Abstract]) AND "abortion"[Title/Abstract]

#5 = ((((((("Contraception"[Mesh] OR "Contraception, Postcoital"[Mesh] OR "Contraception, Immunologic"[Mesh] OR "Contraception, Barrier"[Mesh] OR "Contraception Behavior"[Mesh])) OR ("Contraceptive Agents"[Mesh] OR "Contraceptive Devices"[Mesh] OR "Contraceptive Agents, Male"[Mesh] OR "Contraceptive Agents, Female"[Mesh] OR "Contraceptive Devices, Male"[Mesh] OR "Contraceptive Devices, Female"[Mesh] OR "Vaccines, Contraceptive"[Mesh] OR "Spermatocidal Agents"[Mesh] OR "Contraceptives, Oral, Hormonal"[Mesh] OR "Contraceptives, Oral, Sequential"[Mesh] OR "Contraception, Immunologic"[Mesh] OR "Intrauterine Devices"[Mesh])) OR ("Condoms"[Mesh] OR "Condoms, Female"[Mesh])) OR "Population Control"[Mesh]) OR "Natural Family Planning Methods"[Mesh]) OR ("Family Planning Services"[Mesh] OR "Family Planning Policy"[Mesh] OR "Sex Education"[Mesh])

#6 = ((("contraception"[Title/Abstract] OR "contraceptive"[Title/Abstract]) OR "contraceptives"[Title/Abstract]) OR "family planning"[Title/Abstract]) OR "fertility control"[Title/Abstract]) OR "population control"[Title/Abstract]) OR "condom"[Title/Abstract]) OR "condoms"[Title/Abstract]) OR "sex education"[Title/Abstract]

#7= ((((((("Inservice Training"[Mesh] OR "Education, Nonprofessional"[Mesh]) OR "Education, Professional"[Mesh]) OR "Education, Nursing"[Mesh]) OR "Education, Public Health Professional"[Mesh]) OR "Staff Development"[Mesh]) OR "Education, Medical"[Mesh]) OR "Teaching"[Mesh]

#8 = ((((((("Nurses' Aides"[Mesh] OR ("Nurses"[Mesh] OR "Nurse Clinicians"[Mesh] OR "Nurse Practitioners"[Mesh] OR "Nurse Midwives"[Mesh] OR "Public Health Nursing"[Mesh] OR "Nurses, Male"[Mesh] OR "Community Health Nursing"[Mesh])) OR "Health Personnel"[Mesh]) OR "Nursing Staff"[Mesh]) OR ("Physicians"[Mesh] OR "Community Health Aides"[Mesh])) OR "Physicians, Women"[Mesh]) OR "Physicians, Family"[Mesh]) AND "Education"[Mesh]

#9 = ("professional education"[Title/Abstract]) OR "professional training"[Title/Abstract]) OR "inservice training"[Title/Abstract]) OR "staff development"[Title/Abstract]) OR "nonprofessional training"[Title/Abstract]) OR "non-professional training"[Title/Abstract]) OR "non professional training"[Title/Abstract]) OR "non professional education"[Title/Abstract]) OR "non-professional education"[Title/Abstract]) OR "nonprofessional education"[Title/Abstract]) OR "health education"[Title/Abstract]) OR "health training"[Title/Abstract]) OR "in-service training"[Title/Abstract])

#10 = ("health personnel"[Title/Abstract] OR "nurse"[Title/Abstract] OR "nurses"[Title/Abstract] OR "doctor"[Title/Abstract] OR "doctors"[Title/Abstract] OR "practitioner"[Title/Abstract] OR "practitioners"[Title/Abstract]) OR "healer"[Title/Abstract] OR "healers"[Title/Abstract])

AND ("train"[Title/Abstract] OR "training"[Title/Abstract] OR "teach"[Title/Abstract] OR "teaching"[Title/Abstract] OR "instruct"[Title/Abstract] OR "instruction"[Title/Abstract] OR

education[Title/Abstract])
#11 = 1 OR 2 OR 3 OR 4
#12 = 5 OR 6
#13 = 7 OR 8 OR 9 OR 10
#14 = 12 OR 13
#15 = 11 AND 14

Popline
postabortal programs OR postabortion OR postabortion care

CINAHL
S1 =(MH "Nurses+") or (MH "Nurse Counselors") or (MH "Nursing Staff, Hospital") or (MH "Nursing Assistants") or (MH "Community Health Workers") or (MH "Health Personnel") or (MH "Midwives+") or (MH "Allied Health Personnel") or (MH "Health Educators") or (MH "Childbirth Educators") or (MH "Physicians") or (MH "Physicians, Women") or (MH "Physicians, Family")
S2 =(MH "Nursing Practice") or (MH "Nursing Assistants") or (MH "Community Health Nursing") or (MH "Nursing Care") or (MH "Nurse Midwifery")
S3 =(MH "Nurse Midwives/ED") or (MH "Health Personnel/ED") or (MH "Education, Nonprofessional") or (MH "Health Education") or (MH "Education, Clinical") or (MH "Staff Development") or (MH "Teaching") or (MH "Nurses+/ED") or (MH "Community Health Workers/ED") or (MH "Allied Health Personnel/ED") or (MH "Physicians/ED") or (MH "Physicians, Family/ED") or (MH "Physicians, Women/ED")
S4 = S1 or S2
S5 = (MH "Education")
S6 =S4 and S5
S7 = (MH "Nurse Counselors/ED") or (MH "Nursing Staff, Hospital/ED") or (MH "Nursing Assistants/ED") or (MH "Midwives/ED") or (MH "Health Educators/ED") or (MH "Childbirth Educators/ED")
S8 = TI ("professional education" OR "professional training" OR "inservice training" OR "staff development" OR "nonprofessional training" OR "non-professional training" OR "non professional training" OR "non professional education" OR "non-professional education" OR "nonprofessional education" OR "health education" OR "health training" OR "in-service training") or AB ("professional education" OR "professional training" OR "inservice training" OR "staff development" OR "nonprofessional training" OR "non-professional training" OR "non professional training" OR "non professional education" OR "non-professional education" OR "nonprofessional education" OR "health education" OR "health training" OR "in-service training")
S9 =TI ("health personnel" OR "nurse" OR "nurses" OR "doctor" OR "doctors" OR "practitioner" OR "practitioners" OR "healer" OR "healers") or AB ("health personnel" OR "nurse" OR "nurses" OR "doctor" OR "doctors" OR "practitioner" OR "practitioners" OR "healer" OR "healers")
S10 =TI ("physician" OR "health aide" OR "health worker" OR "birth attendant" OR "midwife" OR "physicians" OR "health aides" OR "health workers" OR "birth attendants" OR "midwives") or AB ("physician" OR "health aide" OR "health worker" OR "birth attendant" OR "midwife" OR "physicians" OR "health aides" OR "health workers" OR "birth attendants" OR "midwives")
S11 = TI ("train" OR "training" OR "teach" OR "teaching" OR "instruct" OR "instruction" OR education) or AB ("train" OR "training" OR "teach" OR "teaching" OR "instruct" OR "instruction" OR education)
S13 =S9 or S10
S14 =S11 and S13
S15 =S3 or S6 or S7 or S14
S16 = S8 or S15
S18 =(MH "Contraception+") or (MH "Contraceptives, Postcoital+") or (MH "Contraceptive Agents, Male") or (MH "Contraceptives, Oral+") or (MH "Contraceptives, Oral Combined") or (MH "Contraceptive Agents+") or (MH "Contraceptive Devices+") or (MH "Diaphragms, Contraceptive") or (MH "Spermatocidal Agents") or (MH "Reproductive Control Agents") or (MH "Intrauterine Devices") or (MH "Condoms") or (MH "Female Condoms") or (MH "Family

Planning+") or (MH "Family Planning Policy") or (MH "Family Planning, Natural") or (MH "Sex Education")
S19 = TI ("contraception" OR "contraceptive" OR "contraceptives" OR "family planning" OR "fertility control" OR "population control" OR "condom" OR "condoms" OR "sex education") or AB ("contraception" OR "contraceptive" OR "contraceptives" OR "family planning" OR "fertility control" OR "population control" OR "condom" OR "condoms" OR "sex education")
S20 =S18 or S19
S21 = (MH "Abortion, Criminal") or (MH "Abortion, Incomplete") or (MH "Abortion, Induced+")
S22 = (MH "After Care") or (MH "Postoperative Complications+") or (MH "Postoperative Hemorrhage") or (MH "Postoperative Period") or (MH "Infection") or (MH "Surgical Wound Infection") or (MH "Postoperative Pain") or (MH "Sepsis") or (MH "Pelvic Pain") or (MH "Rehabilitation") or (MH "Uterine Hemorrhage+") or (MH "Hemorrhage+")
S23 = S21 and S22
S24 =TI (postabortion OR "post abortion" OR "post-abortion" OR postabortal OR "post abortal" OR "post-abortal" OR "incomplete abortion" OR "incomplete abortions" OR "unsafe abortion" OR "unsafe abortions") or AB (postabortion OR "post abortion" OR "post-abortion" OR postabortal OR "post abortal" OR "post-abortal" OR "incomplete abortion" OR "incomplete abortions" OR "unsafe abortion" OR "unsafe abortions")
S25 = TI (aftercare OR care OR postoperative OR "post operative") or AB (aftercare OR care OR postoperative OR "post operative")
S26 = S21 and S25
S27 =TI (abortion OR abortions) or AB (abortion OR abortions)
S28 = S25 AND S27
S30 =S23 or S24 or S26 or S28
S31 = S16 or S20
S32 = S30 and S31

Cochrane

#1 MeSH descriptor Abortion, Induced explode all trees with qualifier: AE
#2 MeSH descriptor Abortion, Induced explode all trees with qualifier: BL
#3 MeSH descriptor Abortion, Induced explode all trees with qualifier: CO
#4 MeSH descriptor Abortion, Induced explode all trees with qualifier: MO
#5 MeSH descriptor Abortion, Induced explode all trees with qualifier: ST
#6 MeSH descriptor Abortion, Criminal explode all trees with qualifier: AE
#7 MeSH descriptor Abortion, Criminal explode all trees with qualifier: CO
#8 MeSH descriptor Abortion, Criminal explode all trees with qualifier: MO
#9 MeSH descriptor Abortion, Legal explode all trees with qualifier: AE
#10 MeSH descriptor Abortion, Legal explode all trees with qualifier: MO
#11 MeSH descriptor Abortion, Septic explode all trees
#12 MeSH descriptor Postoperative Care explode all trees
#13 MeSH descriptor Postoperative Period explode all trees
#14 MeSH descriptor Hemorrhage explode all trees
#15 MeSH descriptor Postoperative Hemorrhage explode all trees
#16 MeSH descriptor Uterine Hemorrhage explode all trees
#17 MeSH descriptor Infection explode all trees
#18 MeSH descriptor Pelvic Infection explode all trees
#19 MeSH descriptor Aftercare explode all trees
#20 MeSH descriptor Rehabilitation Nursing explode all trees
#21 MeSH descriptor Rehabilitation explode all trees
#22 MeSH descriptor Abortion, Induced explode all trees
#23 MeSH descriptor Abortion, Criminal explode all trees
#24 MeSH descriptor Abortion, Legal explode all trees
#25 MeSH descriptor Abortion, Incomplete explode all trees
#26 (#1 OR #2 OR #3 OR #4 OR #5 OR #6 OR #7 OR #8 OR #9 OR #10 OR #11)
#27 (#12 OR #13 OR #14 OR #15 OR #16 OR #17 OR #18 OR #19 OR #20 OR #21)

#28 (#22 OR #23 OR #24 OR #25)
#29 (#27 AND #28)
#30 (#26 OR #29)
#31 (postabort*):ti,ab,kw or (post abort*):ti,ab,kw or (post-abort*):ti,ab,kw or (incomplete abortion*):ti,ab,kw or (unsafe abortion*):ti,ab,kw
#32 (aftercare NEAR/ abortion):ti,ab,kw or (after care NEAR/ abortion):ti,ab,kw or (after-care NEAR/ abortion):ti,ab,kw or (postoperative NEAR/ abortion):ti,ab,kw or (post operative NEAR/ abortion):ti,ab,kw
#33 (#30 OR #31 OR #32)
#34 (#25 OR #33)
#35 (#34), from 1994 to 2010

Sociological abstracts and Social Services abstracts

((KW=(postabortion or ("post abortion") or "post-abortion") or KW=(postabortal or ("post abortal") or ("incomplete abortion")) or KW=(("incomplete abortions") or ("unsafe abortion") or ("unsafe abortions"))) or((KW=abortion) and(KW=(("after care") or aftercare or "after-care") or KW=(rehabilitation or postoperative or (post operative)) or KW=(hemorrhage or infection)))) and((KW=(contraception or contraceptive or contraceptives) or KW=(("family planning") or ("fertility control") or ("population control")) or KW=(("birth control") or condom or condoms) or KW=(("sex education") or ("sex information"))) or(KW=("training" or train or teach) or KW=(teaching or instruct or instruction) or KW=education))

IBSS

1. TX postabortion or TX "post abortion" or TX "post-abortion" or TX postabortal or TX "post abortal" or TX "incomplete abortion" or TX "incomplete abortions" or TX "unsafe abortion" or TX "unsafe abortions"
2. TX "after care" or TX aftercare or TX "after-care" or TX rehabilitations or TX postoperative or TX "post operative" or TX hemorrhage or TX infection
3. TX abortion
4. 2 AND 3
5. 4 OR 1

Virtual Health Library

(((((train or training or teach or teaching or instruct or instruction or education) AND (health personnel or nurse or nurses or doctor or doctors or practitioner or practitioners or healer or healers or professional or nonprofessional or non-professional or non professional)) OR (professional education or professional training or inservice training or staff development)) OR (contraception of contraceptive or contraceptives of family planning of fertility control or population control or condom or condoms or sex education)) AND (postabortion or post abortion or post-abortion or postabortal or post abortal or post-abortal or incomplete abortion or incomplete abortions or unsafe abortion or unsafe abortions or septic abortion or septic abortions or illegal abortion or illegal abortions or criminal abortion or criminal abortions or legal abortion or legal abortions or induced abortion or induced abortions))

LILACS and IBECS (free text and Mesh terms-those words in "")

(postabortion or post abortion or post-abortion or postabortal or post abortal or post-abortal) AND ((train or training or "training" or "training courses" or "training programs" or "training support" or teach or teaching or instruct or instruction or education or "community health education" or "education, health") AND (health personnel or nurse or nurses or doctor or doctors or practitioner or practitioners or healer or healers or professional or nonprofessional or non-professional or non professional)) OR (professional education or professional training or "professional training" or inservice training or "inservice training" or staff development or "education, nonprofessional" or "education, nursing") OR

((contraception or "contraceptive agents" or "contraceptive devices" or contraceptive or contraceptives or family planning or "family planning" or "family planning programs" or "family planning programmes" or "family planning services" or "family planning policy" or "natural family planning" fertility control or population control or condom or condoms or sex education))

Appendix 2.2: Web searches (scoping exercise)

Web searches

- Ipas http://www.ipas.org/

Items listed on selected pages were screened on title and abstract (where available). All items were screened on the following pages: those listed under the 'Research-Evaluation' keyword on the main 'publications' page; main 'research and evaluation' page, 'recent research and evaluation publications', 'publications' listed under different regions

- Jhpiego http://www.jhpiego.jhu.edu/

Items listed on selected pages were screened on title and abstract (where available). All items listed under the 'postabortion care' topic on the 'publications' pages were screened.

- Family Health International (FHI) http://www.fhi.org/en/index.htm

Website searched using the 'abortion' keyword and items screened.

- Marie Stopes International (MSI) http://www.mariestopes.org.uk/

Screened items listed on the 'research' page of the 'health programmes' section.

- Population Council http://www.popcouncil.org/

Searched publications page with following string: postabortion or post-abortion or post abortion or PAC; screened all items.

Appendix 2.3: Coding tool (scoping review)

Section A: Study design

A.1 Study design *Please select the category that best describes the study design and add as much information as possible to justify your choice.*	A.1.1 Randomised controlled trial A.1.2 Non-randomised (matched) controlled study (pre-post test) A.1.3 Unmatched comparison group stuc (pre-post test) A.1.4 Unmatched comparison group stuc (post test only) A.1.5 Single-group study (pre-post test) A.1.6 Single-group study (post test only A.1.7 Systematic review A.1.8 Unclear A.1.9 Not stated

Section B: Country

B.1 In which country/countries are the participants situated?	B.1.1 Country stated in abstract/title B.1.2 Not stated

Section C: Intervention

C.1 Which of the following best describes the intervention? *Select as many as apply and write in as much information as possible. Interventions may be multi-component (and it may not be clear if individual components are being evaluated) – make a note of this, if relevant.*	C.1.1 Provision of post-abortion family planning counselling and services C.1.2 Training of personnel (delivery of post-abortion family planning counselling and services) C.1.3 Training of personnel (delivery of treatment for abortion-related complications) C.1.4 Training of personnel (other aspects of post-abortion care) C.1.5 Other (please specify) C.1.6 Unclear (please specify)

Section D: Outcomes

D.1 What outcomes have been measured?	D.1.1 Maternal mortality D.1.2 Maternal morbidity D.1.3 Repeat abortion D.1.4 Repeat unplanned pregnancy D.1.5 Intention to use modern contraceptive D.1.6 Use of a modern contraceptive D.1.7 Receipt of information on family planning options D.1.8 Receipt of information on post-abortion self-care D.1.9 Receipt of modern contraceptive method D.1.10 Quality of post-abortion services D.1.11 Provision/access to post-abortion services D.1.12 Numbers of trained providers D.1.13 Provider knowledge and skills D.1.14 Other relevant outcomes (please specify) D.1.15 Unclear/not stated (please specify)

Appendix 2.4: Coding tool (in-depth review)

Section A: Administrative details

A.1 Name of the reviewer	A.1.1 Details
A.2 Date of the review	A.2.1 Details
A.3 Please enter the details of other reports on this item/study (i.e., so called 'linked reports') and whether they have been used to complete this data extraction.	A.3.1 Details
A.4 Status of 'main' report *Please use one keyword only* **Do not select 'unpublished' if the item is available online.*	A.4.1 Published in a journal, as a book chapter, etc A.4.2 Published as a report or conference paper, etc A.4.3 Unpublished*

Section B: Study aims and rationale

B.1 What are the broad aims of the study? *Please write in authors' description if there is one. Elaborate if necessary, but indicate which aspects are the reviewers' interpretations.* *Use 'explicitly stated' if it is possible to lift the answer directly from the text (the word 'aim/s' itself need not necessarily have not been used).*	B.1.1 Not stated B.1.2 Explicitly stated (please specify) B.1.3 Implicit (please specify) B.1.4 Unclear (please specify)
B.2 Do authors report how the study was funded?	B.2.1 Not stated B.2.2 Details B.2.3 Unclear (please specify)
B.3 When was the study carried out? *If the authors give a year or range of years, then put that in. If not, give a 'not later than' date by looking for a date of first submission to the journal, or for clues like the publication dates of other reports from the study.*	B.3.1 Not stated B.3.2 Explicitly stated (please specify) B.3.3 Implicit (please specify) B.3.4 Unclear (please specify)

Section C: Participants

If there are several samples or levels of sample, please complete for each level

C.1 What was the total number of participants in the study (the actual numbers that the analyses are based on)? *This may not be the total number of participants who were initially recruited at interview (for example, the researchers may have set criteria for inclusion in the analysis, such as only requiring the participation of women who do not want to fall pregnant within the next two years and/or only including women who attended both the baseline and at least one follow-up interview).* *If more than one group if being compared, please give numbers for each group.*	C.1.1 Not stated C.1.2 Explicitly stated (please specify) C.1.3 Implicit (please specify) C.1.4 Unclear (please specify)
C.2 What ages are covered by the actual sample?	C.2.1 Details
C.3 What is the sex of participants?	C.3.1 Not stated C.3.2 Single sex (please specify) C.3.3 Mixed sex (please specify) C.3.4 Unclear (please specify)
C.4 Ethnicity?	C.4.1 Not stated C.4.2 Stated (please specify) C.4.3 Unclear (please specify)
C.5 Religion of participants?	C.5.1 Not stated C.5.2 Christianity C.5.3 Islam C.5.4 Other (please specify) C.5.5 Unclear (please specify)
C.6 Does the study provide details about whether the participants had	C.6.1 Induced only

undergone an induced or spontaneous abortion?	C.6.2 Spontaneous (miscarriage) only C.6.3 Induced and spontaneous C.6.4 Unclear (please specify) C.6.5 Please state any further relevant details about this aspect of the sample (such as exclusion of women who stated they wanted to fall pregnant again immediately)
C.7 Please specify any other useful information about the study participants (and/or where this can be found in the paper)	C.7.1 Details
C.8 If the study involves studying samples prospectively over time, what proportion of the sample dropped out over the course of the study? *If the study involves more than one group, please give drop-out rates for each group separately. If necessary, refer to a page number in the report (e.g., for a useful table).*	C.8.1 Not applicable (not following samples prospectively over time) C.8.2 Not stated C.8.3 Explicitly stated (please specify) C.8.4 Implicit (please specify) C.8.5 Unclear (please specify)
C.9 For studies that involve following samples prospectively over time, do the authors provide any information on whether, and/or how, those who dropped out of the study differ from those who remained in the study?	C.9.1 Not applicable (not following samples prospectively over time) C.9.2 Not applicable (no drop outs) C.9.3 Yes (please specify) C.9.4 No

Section D: Programme/intervention description

D.1 Country/s where intervention carried out	D.1.1 Details
D.2 Urban or rural location?	D.2.1 Not stated D.2.2 Urban (please specify) D.2.3 Rural (please specify) D.2.4 Unclear (please specify)
D.3 Specific location of the intervention	D.3.1 Not stated D.3.2 Gynaecological ward/area

	D.3.3 Other(please specify) D.3.4 Unclear(please specify)
D.4 Does the programme/intervention being studied have a formal name?	D.4.1 Yes (please specify) D.4.2 No D.4.3 Unclear (please specify)
D.5 Does the intervention involve training of personnel? *Interventions may be multi-component (and it may not be clear if individual components are being evaluated) – if relevant, make a note of this.*	D.5.1 Yes (please specify) D.5.2 No D.5.3 Unclear/not stated
D.6 Content of the intervention package *Provide details about the intervention (for example, what specific services/training were provided?)* *Describe the intervention in detail, whenever possible copying the authors' description from the report word for word.* *If training was given to people providing the intervention, provide as much information as possible.*	D.6.1 Details
D.7 What are the characteristics of the intervention providers (i.e., the individuals/organisations designing/funding the intervention)? *For example, state/government/public service providers; charities/NGOs using paid staff to provide services; not-for-profit organisations providing services by volunteer(s).*	D.7.1 Details
D.8 Who delivered the (a) services, and/or (b) training? *This refers to the frontline services or training.* *Select as many as appropriate.* *Where possible, add the number of people that were delivering the*	D.8.1 Not stated D.8.2 Doctor D.8.3 Nurse D.8.4 Midwife D.8.5 Other health professional D.8.6 Community worker D.8.7 Traditional birth attendant

services/training. *Where applicable, differentiate between the 2 interventions (FP provision of services and FP training of personnel).*	D.8.8 Other non-professional D.8.9 Other (please specify) D.8.10 Unclear (please specify)
D.9 Duration of the intervention for each individual (i.e., for how long did they receive 'treatment'?	D.9.1 Details
D.10 If applicable, what treatment/intervention did the control/comparison group receive? *If specified in the report, describe in detail what the control/comparison group(s) were exposed to.*	D.10.1 Not applicable (one group only) D.10.2 No treatment D.10.3 Treatment as usual (please specify) D.10.4 Alternative intervention (please specify) D.10.5 Unclear (please specify) D.10.6 Not stated

Section E: Methods

E.1 Study timing *If the study examines one or more samples but each at only one point in time, it is cross-sectional.* *If the study examines the same samples but as they have changed over time, it is retrospective, providing that the interest is in starting at one time-point and looking backward over time.* *If the study examines the same samples as they have changed over time and if data are collected forward over time, it is prospective.*	E.1.1 Cross-sectional E.1.2 Retrospective E.1.3 Prospective E.1.4 Unclear (please specify)
E.2 When were the measurements of the variable(s) used as outcome measures made, in relation to the intervention?	E.2.1 Before and after E.2.2 Only after E.2.3 Other (please specify) E.2.4 Unclear (please specify)

E.3 What is the study design? *Please select the category that best describes the study design and add as much information as possible to justify your choice.*	E.3.1 Randomised controlled trial E.3.2 Non-randomised (matched) controlled trial (pre -post test) E.3.3 Unmatched comparison group study (pre-post test) E.3.4 Unmatched comparison group study (post test only) E.3.5 Single group study (pre -post test) E.3.6 Single group study (post test only)
E.4 Number of groups	E.4.1 One E.4.2 Two E.4.3 Three E.4.4 Four or more (please specify) E.4.5 Unclear (please specify)
E.5 If applicable, how do the groups differ (at baseline)? (please supply brief details)	E.5.1 Not stated E.5.2 Not applicable (not more than one group) E.5.3 Explicitly stated (please specify) E.5.4 Implicit (please specify) E.5.5 Unclear (please specify)
E.6 If prospective allocation into more than one group, what was the unit of allocation?	E.6.1 Not stated E.6.2 Not applicable (not more than one group) E.6.3 Not applicable (no prospective allocation) E.6.4 Individuals E.6.5 Groupings or clusters of individuals (e.g. classes or schools - please specify) E.6.6 Other (e.g. individuals or groups acting as their own controls - please specify) E.6.7 Unclear (please specify)
E.7 If applicable, was there concealment of which group that subjects were assigned to (i.e. the	E.7.1 Not stated E.7.2 Not applicable (not more than

intervention or control) or other key factors from those carrying out measurement of outcome?	one group) E.7.3 Not applicable (e.g., analysis of existing data - please specify) E.7.4 Yes (please specify) E.7.5 No (please specify) E.7.6 Unclear (please specify)
E.8 If applicable, were the groups treated equally? *For example:* *(a) Were the data collection measures for the intervention and control groups the same?* *(b) Were the settings the same for both groups?* *(c) If relevant, was the activity delivered to both groups by the same person?* *(d) Was there any relationship between the intervention and the outcome measures?*	E.8.1 Not applicable (not more than one group) E.8.2 Yes (please specify) E.8.3 No (please specify) E.8.4 Unclear (please specify)
E.9 Were methods of recruitment likely to introduce bias into the selection of the sample? *For example, written letters of invitation may exclude women who are unable to read.*	E.9.1 Not stated E.9.2 Explicitly stated (please specify) E.9.3 Implicit (please specify) E.9.4 Unclear (please specify)
E.10 Details of data collection methods or tool(s). *Please provide details (including names) of all tools used to collect data and state whether source is cited in the report.*	E.10.1 Not stated E.10.2 Explicitly stated (please specify) E.10.2 Implicit (please specify) E.10.3 Unclear (please specify)
E.11 Do the authors' describe any ways they addressed the repeatability or reliability of their data collection tools/methods? *For example, test-retest methods (e.g., did they look at inter-rater reliability?*	E.11.1 Details

Or re-test a sample of results to see if they got the same answer?) *Where more than one tool was employed, please provide details for each.*	
E.12 Do the authors describe any ways they have addressed the validity or trustworthiness of their data collection tools/methods? *Please mention any previous validation of the tools, published versions of the tools, involvement of target population in the development of the tools.* *Where more than one tool was employed, please provide details for each.*	E.12.1 Details
E.13 Details of methods used to analyse the data *Please comment on any important analytic or statistical issues, if relevant.*	E.13.1 Not stated E.13.2 Explicitly stated (please specify) E.13.3 Implicit (please specify) E.13.4 Unclear (please specify)
E.14 Do the authors describe strategies used in the analysis to control for bias from confounding variables?	E.14.1 Not applicable (e.g., random allocation used) E.14.2 Yes (please specify) E.14.3 No E.14.4 Unclear (please specify)
E.15 Do the authors describe any ways they have addressed the repeatability or reliability of data analysis? *For example, using more than one researcher to analyse data, use of software packages.*	E.15.1 Details
E.16 Do the authors describe any ways that they have addressed the validity or trustworthiness of data analysis? *Did the analysis seek to rule out alternative explanation for findings? For example, searching for negative cases/exceptions, feeding back/checking preliminary results with participants, asking colleague to review the data, multiple sources of data (triangulation), significance testing. Have any statistical assumptions*	E.16.1 Details

necessary for analysis been met?	

Section F: Outcome

F.1 What outcomes were measured in the study?	F.1.1 Maternal mortality F.1.2 Maternal morbidity F.1.3 Repeat abortion F.1.4 Repeat unplanned pregnancy F.1.5 Use of modern contraceptive method F.1.6 Receipt of modern contraceptive method F.1.7 Other (please specify)
F.2 What are the results of the study as reported by the authors?	F.2.1 Details
F.3 Do the authors report on all variables they aimed to study as specified in the aims/research questions?	F.3.1 Yes F.3.2 No (please specify)
F.4 What do the author(s) conclude about the findings of the study?	F.4.1 Details

Section G: Planning and process measures

G.1 Do the authors present any data or reflections on planning and process measures?	G.1.1 Formal process evaluation (please specify) G.1.2 Post-hoc reflections (please specify) G.1.3 No G.1.4 Unclear (please specify)
G.2 Was the intervention piloted? *A pilot study involves preliminary use of some or all of the elements of the intervention in order to refine the intervention or its delivery. This does not include similar interventions tested by others.*	G.2.1 Not stated G.2.2 The authors consider this study to be a pilot G.2.3 Yes, previously piloted with the study population G.2.4 Yes, previously piloted with a some of the target population (please specify) G.2.5 Yes, previously piloted with others

	(please specify) G.2.6 No G.2.7 Unclear (please specify)
G.3 Do the authors indicate any specific barriers to developing/delivering the intervention?	G.3.1 Yes (please specify) G.3.2 No
G.4 Do the authors indicate any factors favourable to developing/delivering the intervention?	G.4.1 Yes (please specify) G.4.2 No
G.5 About which processes do the authors offer conclusions? *Tick as many as appropriate. Write in all conclusions.*	G.5.1 None G.5.2 Acceptability of the intervention G.5.3 Accessibility of the intervention/programme reach G.5.4 Consultation/collaboration/partnerships G.5.5 Content of the intervention G.5.6 Implementation of the intervention G.5.7 Costs associated with the intervention G.5.8 Management and responsibility G.5.9 Quality of the programme G.5.10 Skills and training of the intervention providers G.5.11 Other (please specify) G.5.12 Unclear (please specify)

Section H: Quality of study- User involvement

H.1 Which groups, if any, were consulted in working out the aims of the study, or issues to be addressed in the study? *Please write in authors' description if there is one. Elaborate if necessary, but indicate which aspects are the reviewers' interpretations. Please cover details of how and why people were consulted and how they influenced the aims/issues to be addressed.*	H.1.1 Not stated H.1.2 Explicitly stated (please specify) H.1.3 Implicit (please specify) H.1.4 Unclear (please specify)

Section I: Quality of study- ethics

I.1 Are there ethical concerns about the way the study was done? *Consider if 1) consent was sought from the participants in the study, 2) ethical approval for the study was sought/given.*	I.1.1 Yes, some concerns I.1.2 No

Section J: Quality of the study – methods and data

J.1 Weight of Evidence a: Taking account of all quality assessment issues, can the study findings be trusted in answering the study question(s)? *Woe A judgements are to be based on:* *-Drop out (C. 8 and C.9)* *-Equivalence/equal treatment of groups (E.5, E.7, E.8)* *-Bias in sample selection (E.9)* *-Reliability and validity of data collection (E.11, E. 12)* *-Control for bias (E.14)* *-Reliability and validity of data analysis methods (E.15, E.16)* *-Reporting of outcomes (F.3)*	J.1.1 High trustworthiness J.1.2 Medium trustworthiness J.1.3 Low trustworthiness
J. 2 Weight of evidence B: Appropriateness of research design and analysis for addressing the question, or sub-questions, of this specific systematic review. *High: randomised controlled trials* *Medium: quasi-experimental, non-randomised, control group designs that make use of statistical techniques to control for differences between the groups* *Low: other study designs* *See answer to question E.3*	J.2.1 High J.2.2 Medium J.2.3 Low
J.3 Weight of evidence C: Relevance of particular focus of the study (including	J.3.1 High

conceptual focus, context, sample and measures) for addressing the question, or sub-questions, of this specific systematic review *Studies to score a maximum of 'medium' if sample included women who had experienced spontaneous and induced abortions and no attempt was made to restrict analyses to an appropriate subset of the main sample (e.g., women who stated that they did not want to become pregnant again).*	J.3.2 Medium
J.4 Weight of evidence D: Overall weight of evidence *WoE D: an average of A, B and C, but cannot be higher than either A or B.*	J.4.1 High J.4.2 Medium J.4.3 Low

Appendix 4.1: Details of studies included in the synthesis

Study / Country	Age of women / Abortion status	Intervention	Comparison	Outcomes / Data collection methods
Alemayehu et al. (2009) Ethiopia Abortion legally permitted to save a woman's life or preserve physical health, or in cases of rape, incest, foetal impairment or other grounds Linked report: Otsea and Tesfaye S (2007)	Age: unclear/not stated Induced abortion	**Family planning counselling and services part of an improved comprehensive post-abortion care programme being introduced.** The broad programme included Comprehensive Abortion Care (CAC), a holistic approach developed by Ipas **Site/setting**: all 50 public health facilities in the Tigray region of the country; setting within each facility not reported **Provider training**: training staff was one element of the improved services; limited information provided, but noted that providers from the sites participated in workshops that stressed the importance of good record-keeping, the goal being to involve facility staff in using the information to address gaps and build on strengths to improve abortion care and post-abortion contraceptive-service provision (no further details) **Content of FP counselling/services:** unclear/not stated **FP counselling/services delivered by**: unclear/not stated **FP counselling/services delivered when:** unclear/not stated **Charge**: unclear/not stated	Pre- and post-intervention comparison using 2 different groups of women Women received standard care (reported that there was limited availability of post-abortion family planning services in the Tigray region before the intervention to improve provision) Findings were also reported for different types of health facility.	Proportion of women who "left with" a modern contraceptive method. Data collection: case records
Billings et al. (1999a) Ghana Abortion legally permitted to save a woman's life or preserve physical or mental health, or in cases of rape,	Women only Age: unclear/not stated Induced or spontaneous abortion	**Family planning offered to women as part of a package of PAC services which incorporated MVA, infection control, pain management, FP counselling and referral** **Site/setting**: four districts in the Eastern region; intervention implemented in a non-random selection of district hospitals (three in total) and selected health centres and maternity homes (12 in total) that refer patients to district hospitals; setting within each facility	Pre- and post-intervention comparison using 2 different groups of women (see also Appendix 4.2, key †††) Women who received standard care (prior to the intervention, post-abortion family planning	Proportion of women who "left with" a modern contraceptive method. Data collection: log book record review

Study / Country	Age of women / Abortion status	Intervention	Comparison	Outcomes / Data collection methods
incest or foetal impairment Linked report: Billings et al. (1999b)		not reported. The intervention involved not only training of staff, but also monitoring and support visits, and community education activities. **Provider training**: four-months of competency-based training provided to 40 midwives (4 physicians trained at same time, however focus of study was on midwives); reported that training focused on post-abortion care services, including family planning (no further details) **Content of FP counselling/services:** unclear/not stated **FP counselling/services** delivered by: midwives **FP counselling/services delivered when:** unclear/not stated **Charge**: unclear/not stated	services were not being offered systematically at any of the district hospitals included in the study; ten percent of women reported that someone did speak to them about family planning; information about provision at other sites not reported) Findings (post-test only) were also reported for different types of health facility: • district hospitals • maternity homes • health centres	
Delvaux et al. (2008) Cambodia Abortion legally permitted without restriction as to reason, but with gestational and other limits	Median age: 28 yrs (includes 14% sex workers) Induced abortion (93%) and spontaneous abortion (7% of clients "sought post-abortion care"). Relevant results are reported for induced abortion only.	**Family planning offered to women as part of a comprehensive safe abortion/post-abortion care programme which incorporated family planning counselling, STI prevention, pain management, safer aspiration techniques (MVA procedures) and standard universal precautions** This was a pilot study. **Site/setting**: one mother and child health clinic (government health facility) in the harbour city Sihanoukville **Provider training**: no reference to training related to family planning (physicians attended a one-month practical training course in safe abortion techniques) **Content of FP counselling/services:** unclear/not stated **FP counselling/services delivered by:** unclear/not stated	No comparison	Proportion of women who "adopted" a modern contraceptive method. Contraceptives: pills, injectables, IUDs and condoms. Data collection: medical records.

Study / Country	Age of women / Abortion status	Intervention	Comparison	Outcomes / Data collection methods
		FP counselling/services delivered when: unclear/not stated **Charge**: information provided about how much women were charged for all PAC services: 50,000 Riels (US$12.5), female sex workers charged less (30,000 Riels (US$7.5); programme staff provided with financial incentives (between US$15 – 50 monthly)		
Frontiers in Reproductive Health (2000) Burkina Faso Abortion legally permitted to save the life of a woman or preserve physical health, or in cases of rape, incest or foetal impairment Linked report: Ministry of Health, Burkina Faso (1998)	Age: unclear/not stated Induced or spontaneous abortion	**Family planning offered to women as part of a comprehensive post-abortion care programme which included MVA and family planning** This was a pilot study to introduce and then assess improvements to post-abortion emergency medical care, including family planning, through the training of providers. **Site/setting**: two large hospitals in Ouagadougou and Bobo-Dioulasso; setting within each hospital not reported **Provider training**: training staff was one element of the improved services; it was delivered to physicians, nurses and midwives and covered MVA, family planning methods, infection prevention and communication with patients (no further details about family planning) **Content of FP counselling/services:** unclear/not stated **FP counselling/services delivered by**: unclear/not stated **FP counselling/services delivered when**: unclear/not stated **Charge**: unclear/not stated	Pre- and post-intervention comparison using 2 different groups of women. Nature of comparison not explicitly stated (assumed to be standard care before improvements to abortion services).	Proportion of women who "accepted" a modern contraceptive method. Data collection: unclear (inferred that interviews and hospital records).
Johnson et al. (2002)	Mean age: 27 yrs	**Post-abortion family planning counselling and services**	Usual discharge practices were followed for women in the	Proportion of women who had experienced

Study / Country	Age of women / Abortion status	Intervention	Comparison	Outcomes / Data collection methods
Zimbabwe Abortion legally permitted to save the life of a woman or preserve physical health, or in cases of rape, incest or foetal impairment	Induced or spontaneous abortion (however researchers selected a subset of the main sample - women who stated that they wished to postpone their next pregnancy for at least two years from the time of the index abortion – and restricted their analysis to these women)	Study assessed the impact of a new intervention that was designed to include provider training, family planning counselling, and provision of free contraceptives. **Site/setting**: two city hospitals (hospital in Harare used as the intervention site and the other city hospital used as a control site); gynaecological wards **Provider training:** two-week training of post-abortion family planning to two gynaecological nurses, four hospital-based distributors and two researchers **Content of FP counselling/services**: women were provided with information and counselling about short and long-term fertility control, and the option to receive condoms, oral contraceptives, or the injectable Depo Provera prior to leaving the hospital; women requesting implants or other methods were given referral appointments **FP counselling/services delivered by**: obstetric-gynaecological staff **FP counselling/services delivered when**: following treatment **Charge**: free service and contraceptives	control group, with no special attention paid to women's post-abortion contraceptive needs, although contraceptive methods were available for a nominal fee in the nearby maternity ward.	a repeat abortion. Proportion of women who had experienced a repeat unplanned pregnancy. Proportion of women who "reported use" of a modern contraceptive method. Methods: pills, injectables, condoms, implants, diaphragms and sterilisation (male and female). Data collection: Interviews.
Lema et al. (2000) Malawi Abortion legally permitted to save the life of a woman (spousal authorisation required)	Median age: 22 yrs Induced and spontaneous abortion (relevant results reported for induced abortion only)	**Post-abortion family planning counselling and services** As there were no organised linkages between emergency post-abortion care services and family planning counselling and services in Malawi, the hospital introduced them in 1995 (to complement introduction of MVA in 1993). **Site/setting**: urban university teaching hospital in Blantyre; gynaecological ward **Provider training:** nurse in-charge of MVA undertook an	No comparison	Proportion of women who "accepted" a modern contraceptive method. Contraceptive methods chosen: pills, injectables, IUDs, condoms, implants, sterilisation and

Study / Country	Age of women / Abortion status	Intervention	Comparison	Outcomes / Data collection methods
		eight-week course on general and post-abortion family planning counselling and service provision **Content of FP counselling/services**: reproductive health education; information on contraceptives that are available in Malawi, how contraceptives work, how to use them, who can use which methods, and side-effects; provision of contraceptives or referral to FP clinic. **FP counselling/services delivered by**: nurses **FP counselling/services delivered when**: before, during and after patient received treatment **Charge**: unclear/not stated		spermicides. Data collection: questionnaires/ interviews
Mahomed et al. (1997) Zimbabwe Abortion legally permitted to save the life of a woman or preserve physical health, or in cases of rape, incest or foetal impairment	Mean age: 26 yrs Induced or spontaneous abortion	**Post-abortion family planning counselling and services** **Site/setting:** two main hospitals in Harare (referral hospitals); gynaecological wards **Provider training**: two-week family planning counselling training undertaken by support staff who had previously worked with women in the gynaecology department **Content of FP counselling/services**: woman given opportunity to initiate discussion regarding need or otherwise to use contraception; to discuss/re-discuss the various methods of contraception available; and given advice on the most suitable method. A contraceptive method was administered where it was accepted by the patient. Supplies were dispensed for first three months, or arrangements/referrals made for other reproductive services. **FP counselling/services delivered by**: support staff who had previously worked with women in the gynaecology department (and who were trained for the role of family planning counsellor)	Pre- and post-intervention comparison using 2 different groups of women Women received standard care (on discharge, women were advised to attend a family planning clinic nearest to their place of residence).	Proportion of women who "went home with" a modern contraceptive method of their choice. Data collection: questionnaires and interviews

Study / Country	Age of women / Abortion status	Intervention	Comparison	Outcomes / Data collection methods
		FP counselling/services delivered when: before and after the patient had received the treatment **Charge:** unclear/not stated		
Malla et al. (1997) Nepal Abortion legally permitted without restriction as to reason, but with gestational and other limits (including prohibition of sex-selective abortions) Linked report: Malla et al. (1996)	Age: unclear/not stated Induced or spontaneous abortion	**Family planning offered to women as part of a post-abortion care package which focused on linking treatment using MVA and family planning counselling and contraceptive services** Study evaluated a new outpatient unit which established model PAC services and a training programme. Family planning counselling and services not generally available to inpatients at the hospital. **Site/setting:** one major referral hospital in Kathmandu; new outpatient PAC unit located next to the admitting area **Provider training**: this was the first PAC training conducted by JHPIEGO using the new training materials developed by the Postabortion Care Consortium; JHPIEGO utilised a team training approach to provide the initial on-the-job training; supplementary training involved physicians and support staff receiving training in five two-hour sessions; training predominantly focused on MVA procedures but also covered family planning **Content of FP counselling/services**: staff provided post-abortion family planning counselling and contraceptive services (with the exception of Norplant implants and voluntary sterilisation); discussion of reproductive goals; provided referrals for patients with other reproductive health needs; family planning generally involved both husband and wife **FP counselling/services unclear/not stated (authors refer to** physicians and nurses being trained, but not	No comparison	Proportion of women treated in the unit who "requested" a modern contraceptive method. Contraceptive methods provided: injectables, oral pills, IUDs and condoms. Referrals were made for women requesting implants or sterilisation. Data collection: unclear/not stated.

Study / Country	Age of women / Abortion status	Intervention	Comparison	Outcomes / Data collection methods
		reported if both were involved in the delivery of family planning) **FP counselling/services delivered when:** before or after treatment, depending on woman's medical condition **Charge**: unclear/not stated		
Nelson et al. (2002) Kenya Abortion legally permitted to save the life of a woman Linked reports: Yumkella and Githiori (2000), Blyth et al. (2001)	Age: 50% aged 15-24 yrs Induced or spontaneous abortion	**Family planning offered to women as part of a comprehensive post-abortion care programme involving MVA and family planning** This study evaluated PRIME II, a scaled-up primary-level post-abortion care programme which trained private sector nurse-midwives. **Site/setting**: three of Kenya's seven provinces; private/NGO nurse-midwives' clinics (155 providers from 120 facilities were trained) **Provider training**: private/NGO nurse-midwives were trained using PRIME's training strategy which emphasised a comprehensive approach to PAC; in addition to providing treatment for potentially life-threatening complications, the nurse-midwives were training to offer clients family planning counselling and services; particular focus in the training on reaching out to adolescents and young unmarried women with the right messages about family planning **Content of FP counselling/services:** unclear/not stated **FP counselling/services delivered by**: private/NGO nurse-midwives **FP counselling/services delivered when:** unclear/not stated **Charge**: unclear (authors reported that some women 'would return to purchase' a contraceptive method)	No comparison	Proportion of women who "left with" a modern contraceptive method or "stated that they would return to purchase one". Data collection: unclear

Study / Country	Age of women / Abortion status	Intervention	Comparison	Outcomes / Data collection methods
Rasch et al. (2004) Tanzania Abortion legally permitted to save the life of a woman	Women only Age: 19-30+ yrs Induced abortion	**Post-abortion family planning counselling and services (including STIs/HIV prevention)** **Site/setting**: one urban hospital (one of three municipal hospitals in Dar es Salaam); gynaecological ward **Provider training**: none reported **Content of FP counselling:** women counselled about consequences of unsafe abortion, contraception and the risk of contracting STDs/HIV; offered contraceptive service, which emphasised condoms as form of protection against both pregnancy and STIs (double protection); provided with a method of their choice and asked to return to follow-up **FP counselling/services delivered by**: unclear/not stated **FP counselling/services delivered when**: unclear/not stated **Charge**: no charge	No comparison	Proportion of women who "stated that they were using" a modern contraceptive method. Contraceptive methods reported being used: pills, injectables, condoms, and condoms plus pills. Data collection: interviews.
Rasch et al. (2005) Tanzania Abortion legally permitted to save the life of a woman	Women only Age: 19-35+ yrs Induced or spontaneous abortion (however researchers selected a subset of the main sample - women who stated that their pregnancy had been	**Post-abortion family planning counselling and services** **Site/setting**: all three district hospitals in the urban setting of Dar es Salaam and from 10 hospitals serving six rural districts in the Kagera region (all district hospitals in Kagera owned and administered by either the Roman Catholic or Protestant Church) **Provider training**: nurses provided with one-day training in post-abortion care with special emphasis on post-abortion family planning services	No comparison (NB: separate findings were reported for facilities in urban and rural areas of Tanzania, and for hospitals administered by the Catholic vs the Protestant Church). No overall result was provided)	Proportion of women who "left with" a modern contraceptive method. Contraceptives accepted: pills, injectables, condoms, and other modern

Study / Country	Age of women / Abortion status	Intervention	Comparison	Outcomes / Data collection methods
	unwanted – and restricted their analysis to these women)	**Content of FP counselling/services**: unclear/not stated **FP counselling/services delivered by**: nurses **FP counselling/services delivered when** unclear/not stated **Charge**: unclear/not stated		methods, primarily bilateral tube ligation (sterilisation). Data collection: questionnaires
Rasch et al. (2007) Tanzania Abortion legally permitted to save the life of a woman	Age: 60% aged <19-30 yrs Induced or spontaneous abortion	**Post-abortion family planning counselling and services** (the intervention aimed at introducing the female condom as a means of preventing unwanted pregnancies and STIs/HIV) **Site/setting:** one regional hospital; gynaecological ward **Provider training**: none reported **Content of FP counselling/services**: offered contraceptive counselling and counselling on STIs/HIV; advice given on the use of the female condom and the benefits of using condoms as a form of protection against both pregnancy and STIs (double protection); women offered a choice of contraceptive methods; provided with 10 female condoms before discharge **FP counselling/services delivered by**: unclear/not stated **FP counselling/services delivered when**: unclear/not stated **Charge**: no charge	No comparison	Proportion of women who "left with" a modern contraceptive method. Contraceptives accepted: condoms, pills and injectables (each of these either accepted alone or as part of double protection). Main focus of this study was on female condoms. Data collection: interviews.
Rogo et al. (1998) Kenya Abortion legally permitted to	Mean age: 25 yrs Induced or spontaneous abortion	**Family planning offered to women as part of a post-abortion package which included MVA, FP counselling, contraceptive provision and treatment of STDs** **Site/setting**: two Western Kenyan provinces (selected because they had fertility rates above the national	No comparison	Proportion of women who "left with" a modern contraceptive method.

Study / Country	Age of women / Abortion status	Intervention	Comparison	Outcomes / Data collection methods
save the life of a woman		average); private physicians' practices **Provider training**: 35 private physicians received five-days' training to provide a range of post-abortion services which included practical and theoretical components on all aspects of reproductive health, including family planning and management of STDs; a post abortion care training curriculum was developed as part of the project; there was also on-site training for nurses/nurse-aids to assist physicians **Content of FP counselling/services**: FP counselling; emergency contraception provision; condom promotion **FP counselling/services delivered by**: private physicians **FP counselling/services delivered when**: unclear/not stated **Charge**: minimal consultation fee (sliding scale); no charge for contraceptives		Method choice: pills, injectables, IUDs, condoms, and condoms plus pills. Data collection: Interviews and client records
Solo et al. (1999) Kenya Abortion legally permitted to save the life of a woman	Age: 84% aged 15-29 yrs Induced or spontaneous abortion (however researchers selected a subset of the main sample - women who stated that they did not want to become pregnant again – and restricted their analysis to these women)	**Family planning offered to women as part of a post abortion care package which included MVA services and FP counselling service** The intervention included improving emergency treatment services through introducing/upgrading MVA services, introducing family planning, and the provision of equipment/supplies and reorganisation of services. **Site/setting**: six Kenyan public hospitals (four provincial and two district); gynaecological wards and MCH-FP clinics **Provider training**: five-day training that covered both MVA and post-abortion family planning; approximately five providers (gynaecological nurses and/or MCH-FP staff) from each site were trained	Pre- and post-intervention comparison using 2 different groups of women. Women received standard care (this did not involve providing post-abortion patients with family planning information and methods). While family planning services were offered at the hospitals in the study, they were located at MCH-FP clinics which were often located far from the gynaecological wards.	Proportion of women who "received" a modern contraceptive method. Chosen methods: pills, injectables, condoms, implants, IUDs, and female sterilisation. Data collection: interviews.

Study / Country	Age of women / Abortion status	Intervention	Comparison	Outcomes / Data collection methods
		Content of FP counselling/services: unclear/not stated **FP counselling/services delivered by**: gynaecological nurses; MCH-FP staff **FP counselling/services delivered when**: unclear/not stated **Charge**: unclear/not stated	Study also involved a comparison (post-test only) of 3 models of provision: -FP on gynaecological ward by ward staff -FP on gynaecological ward by MCH-FP staff -FP in MCH-FP clinic by MCH-FP staff	
Thapa et al. (2004) Nepal Abortion legally permitted without restriction as to reason, but with gestational and other limits (including prohibition of sex-selective abortions)	Mean age: 23-26 yrs Induced or spontaneous abortion	**Family planning offered to women as part of a post-abortion care package which focused on linking treatment using MVA and family planning counselling and contraceptive services** Study evaluated a PAC outpatient unit that had been examined several years earlier by Malla et al. (1997) when the unit was first established. Thapa et al. conducted their study 30 months after the unit opened. **Site/setting**: Kathmandu's largest national maternity hospital; gynaecological wards **Provider training**: none reported **Content of FP counselling/services:** unclear/not stated **FP counselling/services delivered by**: unclear/not stated **FP counselling/services delivered when**: unclear/not stated **Charge**: unclear (reported that women paid 645 rupees (US $9.50) for basic MVA services, but unclear if this included family planning)	Comparison group included women who were treated in operating theatre owing to the unavailability of services in the MVA unit. They received standard inpatient care (family planning counselling and services not routinely provided, though reported that 6% received counselling).	Proportion of women who "left with" modern contraceptive method. Contraceptives received: pills, injectables and condoms. Data collection: interviews.

Appendix 4.2: Synthesis table

Outcomes / Studies	(WoE A)	(WoE B)	(WoE C)	No of clients † (intervention)	No of clients † (comparison) ††	Summary of findings	Overall Quality (WoE D)
Maternal Mortality							
No studies							
Maternal morbidity							
No studies							
Repeat abortion							
Johnson et al. (2002)	high	medium	high	276	281	At 12 months post-intervention: 2.5% (I) vs 5.3%(C) [p=0.23]	medium
Repeated unplanned pregnancy							
Johnson et al. (2002)	high	medium	high	276	281	At 12 months post-intervention: 15% (I) vs 34% (C) [OR 3.38; 95% CI 2.16 to 5.29]	medium
Acceptance or use of a modern contraceptive method							
Alemayehu et al. (2009)	low	low	high	2231	2301*	Pre- vs post-intervention: 30.8% vs 78.2%	low
Billings et al. (1999a)	low	low	medium	323	29*†††	Pre-intervention: 0% Post-intervention: health centres 70%; maternity homes 55%; hospitals 35%	low
Delvaux et al 2008	medium	low	high	Unclear (induced only) 1970 (both types abortion)		Post-intervention: 41.1% (induced only); 40.1% (both types abortion)	low
Frontiers in RH (2000)	low	low	medium	456	330*	Pre- vs post-intervention: 57% vs 83%	low
Johnson et al. (2002)	high	medium	high	At 3 months: 232 At 6 months: 204 At 9 months: 204 At 12 months: 271	At 3 months: 186 At 6 months: 197 At 9 months: 228 At 12 months: 258	At 3 months: 95.7% (I) vs 55.4%(C) At 6 months: 94.6% (I) vs 60.4% (C) At 9 months: 93.1% (I) vs 63.2% (C) At 12 months: 83.8% (I) vs 64% (C)	medium
Lema et al. (2000)	low	low	high	80 (induced only) 464 (both types abortion)		Post-intervention: 77.5% (induced only), 80.4% (both types abortion)	low
Mahomed et al. (1997)	medium	low	medium	1009	903*	Pre vs post-intervention 34% vs 92%	low
Malla et al. (1997)	low	low	medium	Unclear		Post-intervention: 70%	low
Nelson et al. (2002)	low	low	medium	1600		Post-intervention: 69%	low
Rasch et al. (2004)	high	low	high	At inclusion: 788 At inclusion, follow-up stage: 482 At 1-6 months: 315		At discharge: 90% At 1-6 months: 86% (of those followed up)	low
Rasch et al. (2005)	low	low	high	766		Post-intervention: urban 91%; rural 62%	low
Rasch et al. (2007)	low	low	medium	At inclusion : 548 At 3 mths: unclear		At discharge: 95% At 3 months: unclear	low
Rogo et al. 1998	low	low	medium	675		Post-intervention: 12.5% - 100% (range for all facilities)	low
Solo et al. (1999)	low	low	high	Unclear	unclear*	Pre vs post-intervention: 3% vs 70% (for all 3 models** combined) Post-intervention: model 1: 82%; model 2: 63%; model 3: 75%	low
Thapa et al. (2004)	medium	low	medium	At inclusion: 529 At 6 weeks: 385	At discharge: 236 At 6 weeks: 130	At discharge: 53% vs 0% At 6 weeks: 54% vs <1%	low

WoE A: quality of the execution of the study; WoE B: appropriateness of the research design/analysis; WoE C: relevance of the study topic/foci; WoE D: overall quality of evidence
† denotes number of patients used in the analysis (may differ from the sample at recruitment)
†† see Appendix 4.1 for nature of the comparison (i.e., the services – if any – that women in the comparison group received)
††† reported that a pre-/ post-intervention design with non-randomised intervention and control groups was used, however no results reported for control groups (for receipt of contraception)
* comparison group was made up of a different sample of women attending the same facilities prior to the introduction/improvement of family planning counselling and services
** model 1: FP delivered on gynaecological ward by ward staff; model 2; FP delivered on gynaecological ward by MCH-FP staff; model 3: FP delivered in MCH-FP clinic by MCH-FP staff

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