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

The impact of selected post-abortion care strategies: a systematic review

PROTOCOL

Main title	The impact of providing post-abortion family planning counselling and services to women in low-income countries: a systematic review (provisional title)
Sub title	
Review group	
Section	PROCOTOL
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Conflicts of interest (if any)	None
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Contents

1. Background

1.1 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). Mortality and ill-health due to unsafe abortion, defined by the World Health Organisation (WHO) as "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", is a staggering public health issue (WHO, 2007). Every year, unsafe abortion accounts for around 80,000 deaths worldwide (13% 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 (WHO, 2007). The vast majority (95-97%) of these deaths occur in the world's poorest countries, and are at their highest in Africa (WHO, 2007). Almost half of all 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% between 1990 and 2015 will not be met without addressing unsafe abortion (UN, 2000).

There are many reasons why women seek abortion, including the inability of millions of women globally to avoid unplanned and unwanted pregnancies. Women continue to lack access to modern contraception, or do not use it for a range of reasons, including health concerns, social disapproval and partner opposition. Women not using any contraception account for approximately two-thirds of unintended pregnancies in developing countries (Guttmacher Institute, 2008). For many, the consequences of unplanned pregnancy are harsh - including social exclusion, expulsion from the family, abandonment and deepening poverty – and many women resort to abortion. In settings where access to safe services is limited, particularly countries where it remains illegal, women are faced with little choice other than unsafe abortions. Data indicate an association between restrictive abortion laws and abortion-related deaths – 34 deaths per 100,000 childbirths in countries with more restrictive abortion laws compared to 1 or fewer per 100,000 childbirths in countries with less restrictive laws (WHO, 2007). However, legalisation of abortion does not always guarantee women's safety, as

other barriers such as poverty, inaccessibility, and social pressures, stop women from accessing safe abortions.

The WHO deems unsafe abortion to be one of the easiest preventable causes of maternal mortality and ill-health (WHO, 2007). Some barriers to addressing unsafe abortion and related ill-health have been reduced or eliminated over the past few decades. There is evidence suggesting that liberalising abortion laws can reduce the rate of abortion-related morbidity and mortality. For example, after the abortion law was liberalised in South Africa in 1996, infection resulting from abortion reduced by 52 percent (Guttmacher Institute, 2008). However, many social, political and religious obstacles remain, and the roles of women's health groups and other advocates, researchers, health providers, activists, politicians and the media may be crucial in highlighting the need to relax abortion laws (Ravindran, 2003; Haddad and Nour, 2009).

Key suggestions have been made as to what needs to be done aside from liberalising abortion laws. Both the WHO and the UK's Department for International Development (DFID) recognise the need to assist countries to reduce levels of death and injury from unsafe abortion. International and UK policy with regards to unsafe abortion includes the promotion of post-abortion care (PAC) as an effective strategy for addressing this global problem (DFID, 2009).

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 unsafe abortion at the 1994 International Conference on Population and Development (ICPD). That same year, Ipas developed the original post-abortion care model which was subsequently adopted by the Postabortion Care (PAC) Consortium. 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. The PAC model, as it became known, listed three essential elements:

- Treatment of incomplete and unsafe abortion;
- Contraceptive and family planning services; and

- Reproductive and other health services.

To update the original PAC model, transforming it from a largely medical model to a public health model, the PAC Consortium added two elements in 2002:

- Counselling; and
- Community and service provider partnerships.[1]

These five categories are not mutually exclusive and should not be thought of as distinct entities.

1.2 Research background

A range of regional and country-specific evaluations of PAC services have been conducted since the mid 1990s (e.g., McCarraher et al., 2010; Delvaux et al., 2008; Gomez-Sanchez et al., 2007; Billings et al., 2007; David et al., 2007; Kestler et al., 2006; Cisse et al., 2004; Htay et al., 2003; Solo et al., 1999; Rahman et al., 2001). A brief survey of some of the studies identified to date indicates that they employ diverse evaluation designs, vary in the type of PAC evaluated and use a range of outcome measures. Whilst USAID (2007) has summarised some of the research evidence on what works in each of the elements of PAC, the summary does not appear to be based on the findings of a systematic review. There is a large body of literature which evaluates the effectiveness of interventions for the emergency treatment of complications associated with abortion, and systematic reviews have been conducted (e.g., Forna and Gulmezoglu, 2001). Whilst there are systematic reviews about the training of traditional birth attendants (e.g., Sibley et al., 2007), none have been published that specifically focus on the impact of training health personnel in the management of abortion complications, as far as we are aware. A systematic review of post-abortion contraceptive counselling has recently been published; however, the authors noted that its findings may not apply to developing countries, where the matter still needs to be investigated (Ferriera et al., 2009).

[1] Postabortion Care Consortium Community Task Force, Essential Elements of Postabortion Care: an expanded and updated model, *PAC in Action*, 2002, No. 2, Special Supplement

1.3 Scope of the review and review question

Within the resources available, reviewing the literature on all five components of the PAC model is too ambitious a project. This systematic review will therefore contribute to the growing evidence base on the effectiveness of PAC by focusing upon select elements of the PAC framework. The scope of this project has been limited to:

(i) Those aspects of post-abortion care programmes that are concerned in any way with family planning services. A very broad approach will be adopted, in that we recognise that there is substantial overlap between elements of the revised PAC model outlined in section 1.1 (e.g., some counselling is about family planning options, and some family planning provision will be provided by community and service provider partnerships); and
(ii) Training related to any aspect of post-abortion care.

These aspects of the PAC framework have been selected because i) this review will build on and extend the work of previous reviews (such as Ferriera et al., 2009) to include low and low-middle income countries, ii) this review will fill gaps in the evidence base by examining the effectiveness of training which, thus far, has not been subject to systematic review. This scope 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 choices had to be made.

This project aims to focus primarily on PAC in the developing world. The potential lessons that can be learnt from studies of PAC in the developed world, however, mean that the initial part of the review will have a broad geographical scope encompassing all countries.

1.4 Conceptual and definitional issues

Conceptually, the causal linkage between PAC and reduced mortality is clear: deaths from unsafe abortion account for 13% of maternal mortality worldwide. However, precise measurement of the contribution of PAC to maternal mortality is impeded by major challenges. Therefore, for practical purposes of evaluation it is necessary to consider a range of intermediary outcomes as proxy measures. For the purpose of this review, here we are guided by the conceptual framework for evaluating safe abortion programmes developed by Benson (2005).

- **Abortion:** refers to the intentional termination of a pregnancy (induced abortion) or spontaneous abortion (miscarriage).
- **Scoping review**: refers to a preliminary, systematic assessment of the potential size and scope of the available relevant literature.
- **In-depth review**: refers to the use of systematic review methodology to address a narrow, policy-relevant research question (a synthesis of study findings using an approach such as meta-analysis or thematic synthesis will be undertaken).
- **Intervention**: refers to an activity undertaken to modify an outcome (for example, change in participants' knowledge, attitudes, intentions or behaviour).
- **Outcome evaluation**: refers to a study in which an evaluation is designed to establish whether an intervention works or not (i.e., whether or not the intervention changes the outcomes specified in the aims of the study).
- **Process evaluation:** refers to a study which examines the acceptability and feasibility of an intervention, studies the ways in which the intervention is delivered, assesses the quality of the procedures performed by the programme staff, etc. It is designed to describe what goes on rather than to establish whether or not the programme achieves its objectives, and may suggest ways in which the programme design and implementation could be improved.

1.5 Authors, funders, and other users of the review

This systematic review will be undertaken by members of staff from the Evidence for Policy and Practice Information and Co-ordinating Centre (EPPI-Centre), Institute of Education, University of London. The EPPI-Centre is acknowledged as a centre of excellence for conducting secondary research of direct relevance to policy-makers in the United Kingdom and beyond. It has pioneered the development of systematic review methods for social interventions since 1993 and is a formal partner of the Campbell Collaboration.

The review was commissioned by the Department for International Development (DFID). There are a range of other potential users, including:

- Policy makers working at the international level (e.g., WHO, UNFPA)

- International Professional organisations (e.g., FIGO, FHI, Marie Stopes International)
- NGOs working in the field (e.g., Ipas, Jhpiego, Family Care International, IPPF, Population Council)
- Scientific community, including academics and researchers working in the maternal health field

Researchers and practitioners working in LMIC and maternal health (e.g., members of the Cochrane Developing Counties Network, the Cochrane Pregnancy and Childbirth Group, and the Cochrane Public Health Review Group)

2. Methods used in the review

This chapter provides an overview of the procedures underpinning the review. It provides the reader with details on the rigour of the methodology used.

2.1 Type of review

A two-stage review model will be followed: stage 1 (rapid scoping review), stage 2 (in-depth review). Both stages will be systematic, using standardised procedures and processes developed by the EPPI-Centre A benefit of this two-stage approach is that it allows us to generate a picture of the size and scope of the relevant literature. This knowledge can then be used to inform a consultation with relevant stakeholders to identify a focused policy-relevant in-depth review question. A further advantage of undertaking a scoping review prior to in-depth review is that it provides the potential for undertaking additional in-depth reviews in the future.

Stage 1 (scoping review)

The broad question to be answered by the scoping review is:

> *What is the nature and extent of the research literature on the effectiveness of selected post abortion care strategies (family planning services and training) to reduce maternal mortality and its proxy indicators?*

The scoping review will involve the following steps:

- Literature searching and identification;
- Selection of relevant literature (screening) in accordance with inclusion criteria; and
- Systematic coding on key variables and analysis to describe the relevant evidence.

The findings of the scoping review will be used to inform decisions about the focus of the in-depth review to be conducted as part of this project. The scoping review will also identify future directions for research in the area by uncovering potential gaps in the research field.

Stage 2 (in-depth review): At this stage of the review, a more detailed investigation of a focused subset of the literature identified through consultation

(see below) will be undertaken and a synthesis of relevant studies conducted. The in-depth review will involve the following steps.

- Supplementary searches;
- Data extraction;
- Assessing study quality and relevance; and
- Synthesis of findings.

All reviewing processes will be carried out in the EPPI-Centre's specialist web-based systematic review software programme, EPPI-Reviewer (Thomas and Brunton, 2006). EPPI-Reviewer enables researchers to manage the entire lifecycle of a review in a single location.

2.2 User involvement

The two-stage approach to conducting the review has been designed to incorporate consultations with representatives from DFID at key stages of the review process. The first consultation took place on 17th June 2010 prior to finalising the review protocol. A teleconference was attended by members of the review team and DFID policy lead, Natasha Mesko, who will be the thematic contact point for this work. These discussions played a central role in establishing the conceptual scope of the review, including agreeing the inclusion/exclusion criteria for the scoping stage. Advice was also sought on which outcomes to include as proxy measures of maternal mortality.

The second consultation with the DFID team will consider the findings of the scoping review and identify a more narrowly focused, policy-relevant question to be addressed by a sub-set of the scoped literature. It is anticipated that this meeting will take place in the week beginning 2nd August 2010.

In November 2010, DFID representatives will be presented with an opportunity to comment on the draft final report. The protocol and the draft final report will also be reviewed by two additional specialists in this field. Peer reviewers will be asked to comment, in particular, on the contextual implications of the review findings.

In addition, contact will be made with researchers and practitioners in low- and middle-income countries (LMICs) (e.g., members of the Cochrane Developing Counties Network, the Cochrane Pregnancy and Childbirth Group, and the Cochrane Public Health Review Group), with a view to identifying key publications (including grey/unpublished literature) and further important contacts.

In order to engage the wide range of stakeholders, as identified in section 1.5, the following methods will be used at different stages of the review process:

- The protocol will be published online. Existing networks and e-lists will be used to alert key stakeholders to the project (e.g., Cochrane Developing Counties Network, Yahoo groups such as RH-MDGs4-5Forum, Pakistan Alliance for Post Abortion Care, press release to key organisations and websites, www.Zunia.org; www.globalsafeabortion.org)
- On completion of the final report, the findings will 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.

2.3 Scoping review methods

2.3.1 Defining relevant studies: inclusion and exclusion criteria

Studies will be selected for inclusion in the scoping review based on pre-specified selection criteria derived from the review question and conceptual framework. The selection criteria will be applied to the papers identified using the search strategy.

The boundaries of the scoping review are broad. Although the focus will only be on selected aspects of post-abortion care, at the scoping stage no limitations will be placed on (a) design of outcome evaluation, (b) the country in which participants are situated, or (c) the types of outcomes measured. Only English-language reports can be considered, as members of the review team do not have sufficient language

skills to undertake translation from other languages. However, these non-English items will be 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 must meet the following criteria:

1) Have a title and abstract/executive summary available in the English language;
2) Conducted since 1994 (date PAC initiative introduced);
3) Empirical primary research study or systematic review;
4) Evaluates the impact[2] of PAC interventions related to:
    (i) family planning services (includes, but is not limited to, provision of counselling, provision of modern contraception methods, and training of providers of family planning services), or
    (ii) training of health personnel in the emergency management/treatment of incomplete induced abortion and related potentially life-threatening complications;
5) Reports one or more relevant outcomes[3], including but not limited to the following:
    - abortion-related mortality
    - abortion-related morbidity
    - repeat abortions
    - repeat unplanned/unintended pregnancies
    - usage of a modern contraceptive method
    - receipt of a modern contraceptive method
    - intention to use a modern contraceptive method
    - receipt of important information on family planning options
    - receipt of important information on self-care following an abortion

[2] Any study design is relevant at this stage. Natural experiments will be included.

3 The focus is on outcome evaluations (see section 1.4 for a general definition). Process evaluations assessing the appropriateness and/or acceptability of an intervention, or studies reporting qualitative data which explore perceived effects, will be included only if they accompany an outcome evaluation (i.e., reporting one or more relevant outcomes).

- knowledge of modern contraceptive methods
- quality of post-abortion care services
- access to post-abortion care services
- numbers of trained providers of post-abortion care.

2.3.2 Identifying potentially relevant studies: search strategy

The search strategy will be carried out in two phases. The first phase will include a relatively broad search undertaken for the scoping review. Details of this search are provided below. The second phase of the search will include more focused searching for the in-depth review (see section 2.4.1 for preliminary details). Both searches aim to identify academic and 'grey' literature. Many of the bibliographic databases listed below index scientific articles, books, reports and conference proceedings. Handsearching websites will also serve to identify further grey literature. However, as this is a rapid review, it will not be possible to undertake handsearching of individual journals or to search for conference proceedings or dissertations separately.

A search strategy combining controlled language (index) and free text terms will be developed which capture the main concepts in the inclusion criteria (post-abortion care, family planning, and training). A publication year filter to identify studies published since 1994 will be added to the search strategy. A draft search developed for Pubmed can be found in Appendix 1.

The strategy will be used to identify research from a range of sources, including those relevant to LMICs (some of which were sourced from http://epocoslo.cochrane.org/lmic-databases). Once finalised, the search strategy developed for Pubmed will be translated to the other databases and specialist registers.

Bibliographic databases and specialist registers

- Pubmed
- Popline
- CINAHL
- Cochrane Database
- Sociological Abstracts
- Social Services Abstracts
- International Bibliography of the Social Sciences

- Virtual Health Library (This portal provides a facility to search a number of different bibliographic sources including, for example, LILACS, IBECS)
- Trophi
- Bibliomap

Web searches

- 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/

2.3.3 Identifying relevant studies: applying inclusion and exclusion criteria

It is anticipated that the relevance of each item will be decided upon examination of the title and abstracts of records of research identified in our searches (i.e., through manual screening). Full-text copies of studies identified through screening will not be retrieved at this stage. If required, an automated approach to identifying relevant studies using text-mining technology may be employed to assist with the selection process.

2.3.4 Characterising included studies (descriptive coding of included studies)

The studies remaining after application of the selection criteria will be coded using a tool developed specifically for this systematic review. This first level of coding for all studies included in the scoping review will allow us to provide DFID with a descriptive analysis of the quantity and type of research available in this area. Study reports will be coded on the basis of title and abstract only, according to the following criteria:

- Study design
- Country in which the study was carried out
- Population characteristics
- Intervention type
- Intervention location
- Intervention provider
- Outcomes measured

A draft coding tool for the scoping exercise can be found in Appendix 2.

The findings of the scoping review will be delivered in a very short report to DFID's policy lead on 23rd July, with a view to discussing the way forward for the in-depth review in the week beginning 2nd August 2010.

2.4 In-depth review methods

2.4.1 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 will be held with DFID representatives after they have considered the findings of the scoping review alongside any immediate policy priorities. Guided by the in-depth review question, a second set of selection criteria will be developed. These criteria will initially be applied to the title/ abstract and then decisions will be confirmed using the full text of the study/report. This will ensure, for example, that outcomes are measured for populations of interest, i.e. those that work with, or include, women who have had an abortion. At the in-depth review stage, the focus will be on low- and/or middle-income countries (to be based on World Bank classifications). Only reviewing high quality evaluations (e.g., controlled trials) may also be a priority for the DFID team.

Once the in-depth review question has been agreed, supplementary targeted searches will be conducted to identify further relevant studies. The following will be undertaken:

- Experts contacted (including, but not limited to, authors of studies included in the in-depth review)
- Citation checking exercises (using relevant primary studies and literature/systematic reviews)
- Further website searching (for example, Google Scholar, Eldis).

This search will continue to seek academic and grey literature. However, given the strict time limits within which we will be conducting the later stages of the review, it is possible that items such as dissertations may not arrive in time for inclusion in the review.

2.4.2 Assessing quality of studies and weight of evidence for the review question

The question of study quality is important. Relevant studies will be assessed using an appropriate quality assessment tool that takes into account a range of factors: e.g., quality of execution of the study, appropriateness of the research design and analysis, and relevance of the study topic/foci (see Appendix 3 for details of the tool to be used). We will draw on methods for quality appraisal that have been developed in previous EPPI-Centre reviews. The aim of this procedure is to provide an indication of which studies should be seen as contributing most significantly and robustly to understanding the effectiveness of PAC programmes. Studies which meet a quality threshold will be included in the synthesis.

2.4.3 Data extraction

Full reports will be interrogated at this stage using a set of data-extraction questions developed specifically for this review. This will provide detailed information necessary for the purpose of in-depth analysis and synthesis.

2.4.4 Synthesis of evidence

The methods or approaches to synthesis used will be driven by the research question, the types of studies/data that are included in the review, the detail and quality of reporting in these studies, and their heterogeneity. The synthesis of study findings is likely to be structured by the expected impacts of PAC. Where it is appropriate, standard methods for statistical meta-analysis will be used to synthesis data. Where meta-analysis is not appropriate, a narrative synthesis will be conducted using methods developed in previous EPPI-Centre reviews. Where sufficient data are available from process evaluations and/or other relevant qualitative data which provide contextual factors which may explain the success or failure of the intervention, we will provide a thematic analysis. In previous reviews, themes have tended to group around issues such as appropriateness and acceptability of the intervention, fidelity of implementation, intervention content, etc.

2.5 Quality assurance process

The systematic review will follow standard EPPI-Centre procedures for maintaining quality.

At the scoping review stage, to ensure consistency in application of the selection criteria, reviewers will undertake double screening on a sample of papers to pilot the inclusion/exclusion criteria. The remainder of the screening will be carried out by individual reviewers. Where there is uncertainty, reports will be marked for discussion and at the end of the screening process these reports will be considered by both reviewers. As a final check, all reports selected for inclusion will be checked by the second reviewer to confirm their relevance. The scoping review coding tool will be piloted by two researchers working independently.

At the in-depth review stage, data extraction and quality assessment processes will be undertaken by two researchers working independently, in order to achieve a high level of consistency.

3. References

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Appendix 1: Draft search strategy for PubMed

The search string is based on combining indexed and free text terms for the concepts derived from the research question: 'postabortion', 'family planning services' and 'training'. These are combined in the following way:

Post abortion AND (family planning services OR training)

The individual terms selected for each concept are detailed below.

Concept 1. Post abortion
1. Indexed ('Mesh') terms:

(("Abortion, Induced/adverse effects"[Mesh] OR "Abortion, Induced/complications"[Mesh] OR "Abortion, Induced/standards"[Mesh])) OR "Abortion, Incomplete"[Mesh]

("Abortion, Induced"[Mesh] OR "Abortion, Habitual"[Mesh] OR "Abortion, Criminal"[Mesh] OR "Abortion, Legal"[Mesh] OR "Abortion, Incomplete"[Mesh]) AND "Aftercare"[Mesh]

2. Free text terms:
((((postabortion[Title/Abstract] OR "post abortion"[Title/Abstract]) OR postabortal[Title/Abstract]) OR "post abortal"[Title/Abstract]) OR "incomplete abortion"[Title/Abstract]) OR "incomplete abortions"[Title/Abstract] OR "unsafe abortion"[Title/Abstract] OR "abortion complication"[Title/Abstract] OR "abortion complications"[Title/Abstract] OR "post-abortion"[Title/Abstract] OR "post-abortions"[Title/Abstract]

(("abortion"[Title/Abstract] AND "aftercare"[Title/Abstract] OR "after care"[Title/Abstract]) OR "after-care"[Title/Abstract])

Concept 2. Family Planning Services
1. Indexed ('Mesh') terms:

(((((("Contraception"[Mesh] OR "Contraceptive Agents"[Mesh]) OR "Contraceptive Devices"[Mesh]) OR "Family Planning Services"[Mesh]) OR "Family Planning Policy"[Mesh]) OR "Sex Education"[Mesh]) OR "Population Control"[Mesh]

2. Free text terms:
((((("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]

family[Title/Abstract] AND "planning"[Title/Abstract]

Concept 3. Training
1. Indexed ('Mesh') terms:

"Health Personnel"[Mesh] AND "Education"[Mesh]

"Inservice Training"[Mesh] OR "Education, Professional"[Mesh]

2. Free text terms:

((("professional education"[Title/Abstract]) OR "professional training"[Title/Abstract]) OR "inservice training"[Title/Abstract]) OR "staff development"[Title/Abstract]

OR

("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 "midwife"[Title/Abstract] OR "midwives"[Title/Abstract] OR "attendant"[Title/Abstract] OR "attendants"[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])

Appendix 2: Coding tool (scoping review)

Section A: Study design

A.1 Study design	A.1.1 Randomised controlled trial A.1.2 Non-randomised (matched) controlled trial (pre-post test) A.1.3 Unmatched comparison group stu (pre-post test) A.1.4 Unmatched comparison group stu (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 Intervention type	C.1.1 Family planning services (not training) C.1.2 Training in relation to delivery of family planning services C.1.3 Training in relation to delivery of treatment for abortion-related complications C.1.4 Training in relation to other aspects of PAC 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 3: 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 undergone an induced or spontaneous abortion?	C.6.1 Induced only 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 Intervention type	D.5.1 Family planning services (provision of services such as information and counselling, contraceptive methods, etc) D.5.2 Training of personnel in relation to the delivery of family planning services D.5.3 Other (i.e., an element of PAC that is not the focus of this review)
D.6 What was the aim of the intervention?	D.6.1 Not stated D.6.2 Explicitly stated (please specify, as stated by the authors) D.6.3 Implicit (please specify, as worded by the reviewer) D.6.4 Unclear (please specify)
D.7 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.7.1 Details
D.8 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.8.1 Details
D.9 Who delivered the (a) services, and/or (b) training? *This refers to the frontline services or training.*	D.9.1 Not stated D.9.1 Doctor D.9.2 Nurse

Select as many as appropriate. *Where possible, add the number of people that were delivering the services/training.* *Where applicable, differentiate between the 2 interventions (FP provision of services and FP training of personnel).*	D.9.3 Midwife D.9.4 Other health professional D.9.5 Community worker D.9.6 Traditional birth attendant D.9.7 Other non-professional D.9.8 Other (please specify) D.9.9 Unclear (please specify)
D.10 Duration of the intervention for each individual (i.e., for how long did they receive 'treatment'?	D.10.1 Details
D.11 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.11.1 Not applicable (one group only) D.11.2 No treatment D.11.3 Treatment as usual (please specify) D.11.4 Alternative intervention (please specify) D.11.5 Unclear (please specify) D.11.6 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?	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 Not applicable (not more than one group) E.4.2 One E.4.3 Two E.4.4 Three E.4.5 Four or more (please specify) E.4.6 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? Or re-test a sample of results to see if they got the same answer?)*	E.11.1 Details

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 necessary for analysis been met?*	E.16.1 Details

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 unwanted 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	G.3.1 Yes (please specify)

specific barriers to developing/delivering the intervention?	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: RCTs and non-randomised matched (i.e., equivalent groups) controlled trials* *Medium: Unmatched comparison group design studies (pre-post test and post-test only)* *Low: Single group design studies (pre-post test and post-test only)* *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 conceptual focus, context, sample and measures) for addressing the question, or sub-questions, of this specific systematic review	J.3.1 High J.3.2 Medium J.3.3 Low

J.4 Weight of evidence D: Overall weight of evidence *Calculation of WoE D is based on an average of WoE A, WoE B and WoE C.*	J.4.1 High J.4.2 Medium J.4.3 Low