SYSTEMATIC REVIEW OF INTEGRATION BETWEEN MATERNAL, NEONATAL, AND CHILD HEALTH AND NUTRITION AND FAMILY PLANNING

FINAL REPORT

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This publication was produced for review by the United States Agency for International Development. It was prepared by Debbie Bain Brickley, Karuna Chibber, Alicen Spaulding, Hana Azman, Mary Lou Lindegren, Caitlin Kennedy, and Gail Kennedy through the Global Health Technical Assistance Project.

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COCHRANE HIV/AIDS GROUP

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ACRONYMS

AIDS	Acquired immune deficiency syndrome
ANC	Antenatal care
ART	Antiretroviral therapy
CHW	Community health worker
EPI	Expanded program of immunization
FP	Family planning
GHI	Global Health Initiative
GH Tech	Global Health Technical Assistance Project
HIV	Human immunodeficiency virus
ITN	Insecticide-treated net
MCH	Maternal and child health
MDG	Millennium Development Goal
MNCH	Maternal, neonatal, and child health
MNCHN	Maternal, neonatal, and child health and nutrition
MOH	Ministry of Health
NGO	Non-governmental organization
PNC-FP	Postnatal care and family planning
PAC	Post-abortion care
PMTCT	Preventing mother-to-child transmission
QALY	Quality-adjusted life-year
RH	Reproductive health
SAPAC	Safe abortion/post-abortion clinic
SRH	Sexual and reproductive health
TOP	Termination of pregnancy
UNFPA	United Nations Population Fund
USAID	U.S. Agency for International Development
WHO	World Health Organization

I. INTRODUCTION

BACKGROUND

The Global Health Initiative (GHI) places a strong emphasis on integration and linkages of programs to address broad development challenges and also provides a comprehensive package of services to the populations served (GHI, 2010). At the international level, the importance of integrating maternal, neonatal, and child health and nutrition (MNCHN) with family planning (FP) is well recognized as a key strategy, particularly for reducing maternal and child mortality. These two areas were highlighted at the 1994 International Conference on Population and Development in Cairo (Family Health International, 1995) and are integral to successfully achieving the 2015 Millennium Development Goals (MDG) for improving maternal health (MDG, 2010). In addition, a recent report by the United Nations Population Fund (UNFPA) and the Guttmacher Institute found that linking MNCHN-FP services would cost approximately $1.5 billion less than providing MNCHN services alone (UNFPA, 2009). Despite these facts, there is limited information and evidence to guide policy action and program efforts on integration. There is a need to examine the outcomes of MNCHN-FP integration and to identify how to effectively design and implement integrated programs.

Recently, a systematic review of linkages between sexual and reproductive health (SRH) and HIV/AIDS interventions was conducted by members of the Cochrane Review Group on HIV Infection and AIDS and collaborating partners (IPPF, UCSF, UNAIDS, UNFPA, WHO, 2008). However, while this review included MNCHN as one category of SRH interventions, it did not focus on MNCHN interventions in particular, nor did it conduct as thorough a search as possible on all aspects of MNCHN that could be linked with FP interventions. In addition, this search only identified articles and program reports published or presented before December 31, 2007.

The present review seeks to specifically focus on the MNCHN and FP components of SRH to examine the evidence for MNCHN-FP integration, review the most up-to-date factors that promote or inhibit program effectiveness, discuss best practices and lessons learned, and identify recommendations for program planners, policymakers, and researchers.

II. OVERVIEW

OBJECTIVES

To systematically review the literature on MNCHN-FP integration to address the following key questions:

- What are the key integration models that are available in the literature and have been evaluated?
- What are the key outcomes of these integration approaches?
- Do integrated services increase or improve service coverage, cost, quality, use, effectiveness, and health?
- What is the quality of the evaluation study designs and the quality of the data from these evaluations?
- What types of integration are effective in what context?
- What are the best practices, processes, and tools that lead to effective, integrated services? What are the barriers to effective integration?
- What are the evidence/research and program gaps? What more do we need to know?
- How can future policies and programs be strengthened?

DEFINITIONS

In the literature on integration of services, there is growing agreement that there is no clear, agreed-upon definition of linkages or integration and that the dichotomy between integrated and non-integrated services is false (Atun et al., 2009). In fact, most health services fall somewhere in between these categories.

Linkages can occur at multiple levels. WHO, UNFPA, IPPF, and UNAIDS (2005) have defined linkages as "policy, programmatic, services and advocacy of bi-directional synergies" between MNCHN and FP. In contrast to linkages, which exist at multiple levels, integration is defined at the service delivery level only, as "different kinds of services or operational programs joined together to ensure and perhaps maximize collective outcomes."

Others have defined integration as "a variety of managerial or operational changes to health systems to bring together inputs, delivery, management and organisation of particular service functions. Integration aims to improve the service in relation to efficiency and quality, thereby maximising use of resources and opportunities" (Briggs and Garner, 2009). We use this definition of integration in our review. Linkages or integration can be bidirectional or offered simultaneously. For example, programs can combine FP-related topics with ongoing MNCHN issues and, conversely, MNCHN-related topics with ongoing FP issues. Or they can initiate both types of services at the same time.

Furthermore, this review focuses on interventions rather than observational research. An intervention is a combination "of technologies (e.g., vaccines, drugs), organizational changes, process modifications and other inputs related to decision-making, planning and service delivery" (Atun et al., 2009).

MATRIX OF MNCHN-FP INTEGRATION INTERVENTIONS

The matrix in Figure 1 was created to classify the different types of MNCHN and FP integration interventions. In this matrix, the columns represent FP interventions, while the rows represent MNCHN interventions. Each cell in the matrix is labeled with MF (for MNCHN-FP integration) and a number to designate the particular type of integration. For example, MF1 is antenatal services integrated with FP education and counseling, MF2 is antenatal services integrated with contraceptive service/commodity provision, and so on.

Figure 1. Matrix of MNCHN-FP Integration Interventions

		Family Planning Interventions*	
		Education and Counseling	Contraceptive Service/ Commodity Provision
MNCHN Interventions	Antenatal Services	MF1	MF2
	Post-Abortion Care	MF3	MF4
	Intrapartum/Childbirth Services	MF5	MF6
	Postnatal Care	MF7	MF8
	Infant/Child Services	MF9	MF10
	Nutrition Services	MF11	MF12

*Note: Both family planning education and counseling and contraceptive service/commodity provision may include referrals to these services.

METHODS

Selection of Studies for Inclusion

Types of Participants

This review includes interventions in both high- and low-income countries, as defined by the World Bank (World Bank, 2007). No restrictions based on populations were made; all ages were included.

Types of Interventions

Any intervention which implements an organizational or management strategy aimed at integrating MNCHN and FP services or different models of service delivery was considered eligible for review. Services can be integrated in both directions, by integrating FP issues into ongoing MNCHN policies and programs and MNCHN issues into FP policies and programs.

FP interventions are divided into two components:

1. **Education and counseling:** This includes any type of training and education, as well as individual, couples, and group counseling.
2. **Contraceptive service/commodity provision:** This includes modern contraceptive methods, natural family planning methods, and the lactational amennorhea method.

MNCHN interventions are divided into six components:

1. **Antenatal services:** This category includes routine antenatal services for pregnant women, including screening for anemia, syphilis, preeclampsia; tuberculosis (TB) screening, diagnosis, and treatment; tetanus toxoid; iron/folate; malaria intermittent preventive therapy and insecticide treated nets (ITNs); nutritional assessment, counseling, and support; deworming; safe water and hygiene interventions; infant feeding counseling; community outreach to promote antenatal care (ANC) and facility delivery; and interventions to promote a delivery plan.
2. **Post-abortion care:** Care and medical treatment for women after any type of abortion, including incomplete, induced, and spontaneous abortion. Post-abortion care includes three components: (1) emergency treatment for complications of spontaneous or induced abortion; (2) FP counseling and services, sexually transmitted infection evaluation and treatment (depending on disease prevalence and available resources), and HIV counseling and/or referral for testing; and (3) community empowerment through awareness and mobilization.
3. **Intrapartum/childbirth services:** This category includes interventions for mothers and infants during the intrapartum/childbirth period, including interventions to prevent maternal hemorrhage, ensure a skilled attendant at delivery, provide emergency obstetric care, and actively manage third stage labor.
4. **Postnatal care:** This category includes essential newborn care interventions (thermal, cord care), resuscitation, infant feeding support, early and exclusive breast feeding, newborn immunizations, and the identification and treatment of newborn infections.
5. **Infant/child services:** This category includes interventions for infants and children up to the age of 5, including immunizations; growth monitoring; case management of pneumonia, diarrhea, fever, and sepsis; nutritional assessment; developmental assessment; malaria prevention and treatment; vitamin A and other micronutrient supplementation; deworming; and provision of safe water, sanitation, and hygiene.
6. **Nutrition services:** This category includes interventions that focus on nutritional care for either adults or children, including nutritional assessment, counseling, support, treatment, and supplementation—regardless of location or population. For this reason, nutrition services may overlap substantially with other MNCHN services; in this case, studies were included in both categories.

Note on condoms-only as contraception: For the purposes of this review, if only condoms were provided with no additional FP counseling and no additional contraceptive methods, this was not considered an FP intervention, as condoms can be used for the purpose of HIV/STI prevention as well.

Note on MNCHN education-only interventions: Interventions that only provided MNCHN education and did not offer any type of MNCHN services were excluded from the review.

Types of Study Designs

To include a broad range of evidence, studies were included if they met the following criteria:

1. Published in a peer-reviewed journal between January 1, 1990, and April 30, 2010.
2. Presents post-intervention evaluation data of an organizational or management strategy, organizational changes, process modifications, the introduction of technologies aimed at integrating MNCHN and FP service delivery, or of different models of integrating MNCHN and FP service delivery. Rather than examine the efficacy of the intervention, studies must

evaluate the format of delivery of interventions that are assumed to be needed or efficacious.

3. Uses a pre-/post- or multi-arm comparison of individuals who received the intervention versus those who did not (according to the study design categories described below) to assess quantitative outcomes of interest (as described below).

Any intervention study involving a pre-/post- or multi-arm comparison of individuals or groups who received the intervention versus those who did not was included. This comprises the following study designs:

1. **Randomized trial–individual (experiment):** Minimum two study arms; random assignment of individuals or couples to study arm.
2. **Randomized trial– group (experiment):** Minimum two study arms; random assignment of groups, classrooms, towns, clinics, and so on to study arm.
3. **Non-randomized "trial"– individual*:** Minimum two study arms; assignment of individuals to study arm, but not done randomly.
4. **Non-randomized "trial"– group*:** Minimum two study arms; assignment of groups to study arm, but not done randomly.
5. **Before–after study:** Pre- and post-intervention assessment among the same individuals; one study arm and one follow-up assessment period.
6. **Time series study:** Pre-intervention and several post-intervention assessments among the same individuals; one study arm and multiple follow-up assessment periods.
7. **Case-control study:** Two groups defined by outcome measures, one consisting of cases and one consisting of controls. To be included, the study must compare outcomes between those who got the intervention and those who did not.
8. **Prospective cohort:** Two or more groups defined by exposure measures and followed over time.
9. **Retrospective cohort:** Two or more groups defined by exposure measures, but using previously collected or historical data.
10. **Cross-sectional:** Exposure and outcome determined in the same population at the same time. To be included, the study must compare outcomes between those who got the intervention and those who did not.
11. **Serial cross-sectional:** A cross-sectional survey conducted in a population at multiple points in time with different people in that population. To be included, the study must compare outcomes between those who got the intervention and those who did not.

*If study design 3 or 4, non-randomized allocation method must have been specified.

Studies must include a quantitative comparison of individuals or groups who received the intervention versus those who did not, or a comparison of individuals or groups before and after receiving the intervention. Studies could have either a control or a comparison group. A control group is a study arm that does not receive any type of intervention. A comparison group is a study arm that receives an intervention, which may be the standard of care, a less-intensive form of the intervention, or a separate intervention unrelated to the integration of MNCHN and FP.

When both or all comparison groups in a study received an integrated intervention, we used the following criteria to determine if the study should be included:

We ***included*** studies in which the comparison group(s) received a different extent of integration. For example, we included studies in which one group received onsite integrated services and the other group received a referral. These studies allow us to learn more about

integrated interventions by evaluating the advantages and disadvantages of more extensive versus less extensive linkages.

We ***excluded*** studies in which both groups received integrated services, but the difference in the services only consisted of different clinical interventions which can be considered the same level of integration. For example, we excluded studies in which both comparison groups receive FP commodities (e.g., one group of postpartum women received a hormonal contraception whereas the other group women received an IUD). These studies do not shed light on the advantages and disadvantages of linkage interventions.

Types of Outcome Measures

The following 16 key outcomes were extracted from the included studies: (1) mortality (including maternal mortality, infant mortality, etc.), (2) morbidity (including maternal, infant, etc.), (3) STI incidence, (4) unintended pregnancy, (5) condom use, (6) FP use, (7) unmet FP need, (8) vaccination coverage for infants or children, (9) infant/child nutrition, (10) attended or safe deliveries, (11) breastfeeding, (12) use of FP or MNCHN services, (13) coverage of FP or MNCHN services, (14) quality of FP or MNCHN services,(15) cost or cost-effectiveness, and (16) stigma.

Throughout the report, the "pregnancy" outcome is inclusive of all reported pregnancy outcomes, including unplanned pregnancy, pregnancies that were not defined as being planned or unplanned, and pregnancies that ended in abortion. The "unplanned pregnancy" outcome is limited to only those studies that specified unplanned pregnancy as an outcome. Furthermore, a distinction is made throughout the report between the outcomes "FP use" and "use of MNCHN or FP services." The latter category includes use of FP services, such as participating in FP counseling, whether or not the subject actually accepted an FP method. It also includes use of MNCHN services such as antenatal care, postpartum care, and well-baby care.

All other clinical, behavioral, programmatic, knowledge, or cost outcomes were recorded, but complete data were not extracted. Both FP- and MNCHN-related outcomes were included, as were both individual- and program-level outcomes. Programmatic outcomes such as access and uptake of services were included, but process outcomes such as number of commodities distributed or number of providers trained were not included.

Language

No language restrictions were imposed, and translations were sought where necessary.

Unpublished Studies

Unpublished program reports, conference abstracts, posters and PowerPoint presentations, and other unpublished studies that otherwise met the above inclusion criteria were compiled and reviewed in a narrative format. A particular emphasis was given to unpublished studies that covered different types of integration models or different evaluation strategies than were covered in the published articles.

Search Strategy

To compile the most complete list of articles meeting the inclusion criteria, four different methods were used to search the literature: electronic database searching, handsearching the reference lists of key journals, cross-referencing the reference lists of related articles and reviews, and interpersonal communication with experts in the fields of MNCHN and FP. In addition, online searches of organizations implementing MNCHN-FP integration interventions were conducted.

Electronic Databases

The following electronic databases were searched:

- PubMed (including MEDLINE and AIDSLINE)
- Cumulative Index to Nursing and Allied Health Literature (CINAHL)
- EMBASE (Excerpta Medica) [Cochrane HIV/AIDS search strategy]
- Popline

Search Terms

Electronic database searching was conducted based on all possible combinations of FP terms, MNCHN terms, study design terms, and population terms listed below:

FP terms: family planning, family planning counsel*, family planning educ*, reproductive counsel*, couples counsel*, reproductive planning, reproductive rights, contraception, contraceptive, birth control, birth spacing, condoms, pill, microbicide, diaphragm, IUD, cervical cap, abortion, pregnancy termination, termination of pregnancy, post-abortion, manual vacuum aspiration, post-abortion care, post-abortion treatment, contraception, natural family planning, NFP, lactational amennorhea method, LAM, periodic abstinence, rhythm method, calendar method, symptothermal method, cervical mucus, sexual abstinence, cervical secretion, Billings method, Creighton method, basal body temperature, cycle beads, two-day method, personal hormone monitoring.

MNCHN terms: maternal health, maternal child health, neonatal, women's health, obstetric*, gynecolog*, gynaecolog*, antenatal care, ANC, prenatal care, postnatal care, intrapartum, birth, childbirth, pregnancy, labor, delivery, anemia, syphilis, preeclampsia, tuberculosis, TB, tetanus, iron, folate, malaria, intermittent preventive therapy, IPT, insecticide-treated net, ITN, nutrition, safe water, hygiene, sanitation, infant feeding, facility delivery, delivery plan, hemorrhage, skilled attendant, third stage labor, EOC, active management, essential newborn care, thermal cord care, resuscitation, infant feeding counsel*, breastfeeding, immunization, vaccination, infection*, growth monitoring, baby weighing, pneumonia, diarrhea, diarrhoea, fever, sepsis, vitamin A, folic acid, iron, micronutrient, deworming, severe bleeding, eclampsia, obstetric fistula, pneumonia, pneumococ*.

Study design terms: RCT, non-randomized trial, before–after study, time-series study, case-control study, prospective cohort, retrospective cohort, cross-sectional, randomized controlled trial, randomized clinical trial, controlled clinical trial, random*, control*, prospective*, [NOT animal*].

Population terms: maternal, mother, woman, women, female, child*, baby, babies, infant*, parent*, pregnan*, fetus, fetal, stillbirth*, newborn, neonat*, preterm*, prematur*, postmatur*, school age,*, preschool*, kid, kids, toddler, adolescent, minors, teen boy, girl, puberty* pubescen*, prepubescent*, pediatric*, paediatric*, peadiatric*, schools, nursery school*, kindegar*, primary school*, secondary school* elementary school*, high school*, highschool.*

Handsearching

Handsearching was conducted on the following key journals:

- *Health Policy*
- *Perspectives on Sexual and Reproductive Health (formerly Family Planning Perspectives)*
- *International Perspectives on Sexual and Reproductive Health (formerly International Family Planning Perspectives)*
- *The Journal of Family Planning and Reproductive Health Care*

- *Studies in Family Planning*
- *Reproductive Health Matters*
- *Pediatrics*
- *Pediatric Infectious Diseases*
- *International Journal of Gynecology & Obstetrics*
- *Contraception*
- *Social Science and Medicine*
- *Lancet*
- *Lancet Infectious Diseases*

The tables of contents of these journals were searched from January 1, 1990, through April 30, 2010. Articles that looked potentially relevant were compared with the full list of articles generated by electronic database searching to determine if they had already been identified. If they had not been identified, the title and abstract were screened to determine if the inclusion criteria were met.

Cross References

The reference lists of selected reviews, articles, websites, and reports related to MNCHN and FP integration were reviewed for additional citations.

Interpersonal Communication

Experts in the field of MNCHN-FP integration were contacted to identify additional articles that the original searches may have missed.

Online Searches

In addition to the four search strategies listed above, additional online searches were conducted to identify unpublished studies meeting the criteria for the review. The following websites were searched:

- "Implementing Best Practices in Reproductive Health – Knowledge Gateway" website (www.ibpinitiative.org) [online forum for HIV-SRH integration, including library of relevant documents from participating organizations]
- "Women Deliver" website and conferences (www.womendeliver.org)
- "Access FP" website (www.accessfp.net)
- WHO website and WHOLIS (www.who.int)
- Websites of relevant implementation organizations, specifically: Advance Africa, Catalyst Consortium, CEDPA, DFID, EngenderHealth, FHI, ICRW, INFO Project, IGWG, IPPF, IntraHealth International, Global Fund, JHPIEGO, JHUCCP, John Snow Inc., Management Sciences for Health, Partners in Population and Development, PATH, Pathfinder, PEPFAR, Pop Council, PSI, UNFAO, UNFPA, and UNAIDS.

Screening

A single researcher screened all citations identified through the search strategies based on their titles and abstracts. Citations that clearly did not meet the inclusion criteria were excluded. A second researcher screened citations that might meet the inclusion criteria. For all studies that were not excluded at this stage, the full articles were downloaded and screened using the review inclusion criteria.

Data Extraction and Management

Peer-reviewed Articles

Two separate members of the study team read and extracted date from each article. Differences in data extraction or interpretation of studies were resolved by discussion and consensus.

For each study, the following information was extracted and presented in the following tables:

Table 1. Study descriptions: Information on study authors, matrix cells, location, setting, target group, years of program, years of evaluation, name of program, intervention, study design, unit of analysis, sample size, age, gender, and length of follow-up. (See Appendix 2.)

Table 2. Study outcomes: Information on study authors, intervention, study design, reported numerical outcomes and results (health, behavioral, knowledge/attitudes, and process), and text summary of outcomes. (See Appendix 3.)

Table 3. Study rigor: Assessment of study rigor on a nine-point scale, with minimum score (low rigor) of one and maximum score (high rigor) of nine. Studies receive one point for meeting each of the following criteria: (1) study design includes pre-/post-intervention data, (2) study design includes control or comparison group, (3) study design includes cohort, (4) comparison groups equivalent at baseline on sociodemographics, (5) comparison groups equivalent at baseline on outcome measures, (6) random assignment (group or individual) to the intervention, (7) participants randomly selected for assessment, (8) control for potential confounders, and (9) follow-up rate >=75%. This scale was based on the eight-point rigor assessment scale for systematic reviews of HIV behavioral interventions by the Johns Hopkins – WHO Synthesizing Intervention Effectiveness Project (Kennedy et al., 2007; Denison et al., 2008). (See Appendix 4.)

Table 4. Integration implementation: Information on integration direction, setting, goal of the study, format of integration (on-site, referral, etc.), extent of integration (full, partial, or none), level of integration (local, district, regional, or national), promoting factors, inhibiting factors, recommendations, and any other relevant information reported in the study. (See Appendix 5.)

Non-peer-reviewed Program Reports

The findings of all non-peer-reviewed program reports were summarized in a brief narrative.

III. RESULTS

SEARCH RESULTS AND FLOWCHART

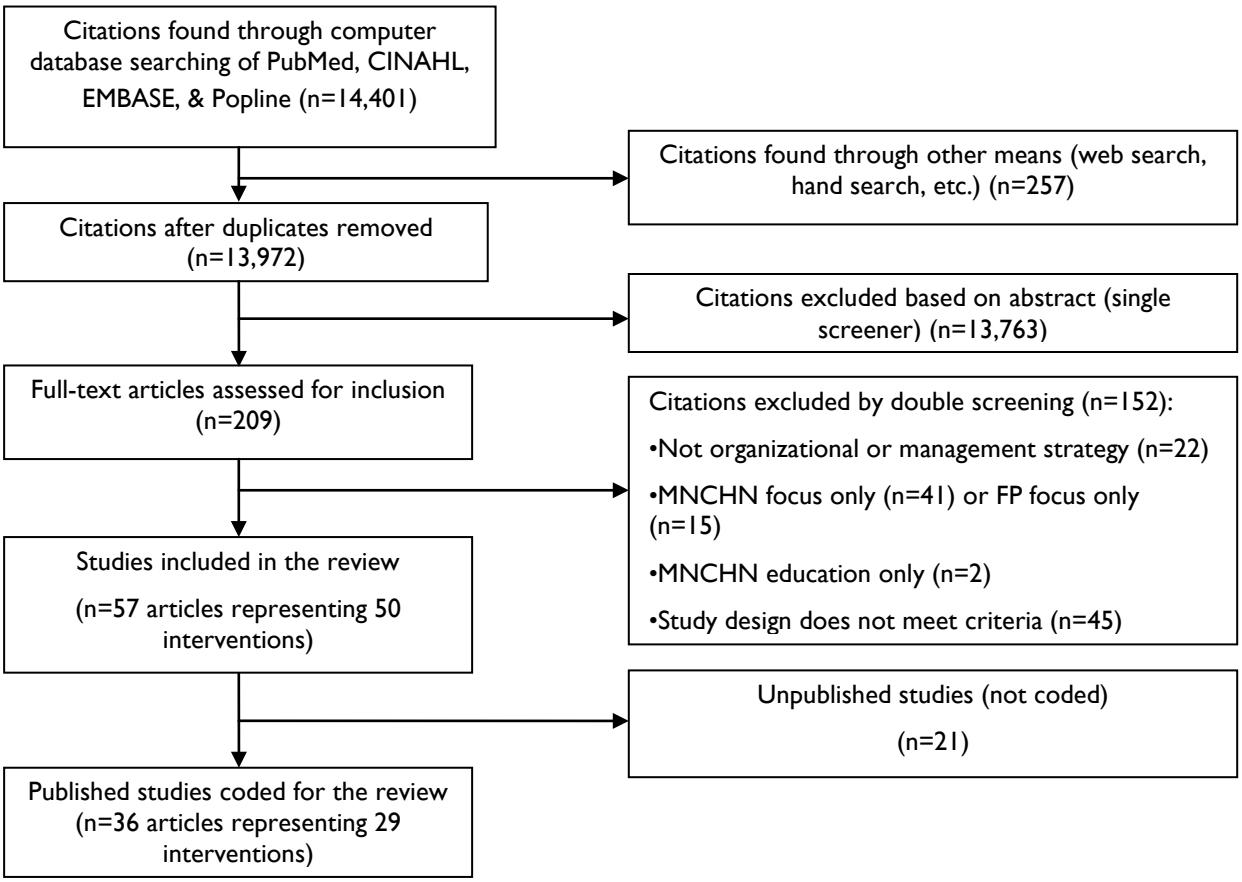
Electronic database searching was completed in May 19, 2010 (for citations through April 30, 2010) and yielded 14,401 citations (Figure 1). Handsearching, cross-reference searching, and interpersonal communication were used in addition to electronic database searching to identify articles. Combined, these additional search methods added 257 citations. After duplicates were removed, 13,972 citations remained to be screened. Because of the large number of identified studies, these citations underwent a preliminary screening by a single screener to remove articles that were clearly irrelevant to the review. This preliminary screening was based on the titles, abstracts, journals, and keywords of the articles. The screener was instructed to err on the side of inclusion and only remove citations that were clearly irrelevant to the review. The initial screening resulted in 13,763 citations being excluded from the review, with 209 remaining. These 209 citations were double-screened by two members of the study team who worked independently, then compared results and resolved any differences through discussion. When there was not enough information provided in the abstract, the full articles were reviewed to determine inclusion or exclusion from the review.

Of the 209 remaining studies, 152 were excluded for the following reasons:

- Not organizational or management strategy (n=22)
- MNCHN focus only (n=41) or FP focus only (n=15)
- MNCHN education only (n=2)
- Study design does not meet criteria (n=45)
- Other exclusion criteria (n=9)
- Article not available (n=18)

These exclusions left a total of 57 articles representing 50 interventions. Twenty-one of these were not published in the peer-reviewed literature; thus, full data extraction was not conducted. These studies are summarized separately. In total, 36 articles representing 29 distinct interventions met the inclusion criteria and were included in the review. Figure 2 provides a flowchart showing the disposition of citations during the search process, along with reasons why citations were excluded.

Figure 2. Flowchart of Search and Screen Process



MATRIX OF INCLUDED STUDIES

A total of 36 articles representing 29 interventions met the inclusion criteria. These articles reported on a wide range of interventions that covered all of the types of integration in the matrix. Figure 3 reports the breakdown of included articles by type of integration. Several studies included multiple types of integration, so the numbers reported here exceed the total number of studies included in the review.

Figure 3. Matrix of Peer-reviewed Study Results by Type of Linkage

		Family Planning Interventions	
		Education and Counseling	Contraceptive Service/ Commodity Provision
MNCHN Interventions	Antenatal Services	10	4
	Post-abortion Care	10	7
	Intrapartum/Childbirth Services	3	2
	Postnatal Care	11	7
	Infant/Child Services	16	10
	Nutrition Services	5	3

KEY CHARACTERISTICS OF INCLUDED STUDIES

The search and screening process resulted in a total of 36 articles reporting on 29 distinct interventions. There was heterogeneity among the studies in terms of study objectives, types of interventions, study designs, locations, and reported outcomes. Below are some of the key characteristics across the studies:

- Region:
  - 10 in sub-Saharan Africa.
  - 9 in South Asia.
  - 3 in Latin America.
  - 2 in East Asia.
  - 1 each in Russia, Syria, Italy, United States, and Australia.
- Setting:
  - 16 in clinic/hospital settings.
  - 5 in the community.
  - 8 in both.
- Direction of integration (studies can be in more than one category):
  - 16 integrated FP services into existing MNCHN programs.
  - 2 integrated MNCHN services into existing FP programs.
  - 13 integrated new MNCHN and FP services simultaneously.
- Target populations:
  - All targeted women.
  - 2 also targeted men.
  - 2 targeted adolescents.
- Study design rigor:
  - 7 randomized control trials.
  - Average rigor score = 3.2 out of 9 (range: 1–8).

PROMOTING AND INHIBITING FACTORS

In Figure 4, we extracted data from each article about the factors that authors reported either promoted or inhibited integration. These were usually mentioned in the discussion sections of the articles. These factors were not measured and were not reported as quantitative outcomes, yet they were found to have a significant effect on the success or failure of the integration interventions. These factors are enumerated in Figure 4, grouped according to general areas.

Figure 4. Factors Promoting and Inhibiting Integration

Integration Promoting Factors	Integration Inhibiting Factors
Providers	
• Effective provider training • High retention of staff, which enabled trainers to develop trusting relationships with target population and to provide a consistent message and detailed case management • Provider interest in providing better services to clients • Provider acceptance of new staffing and responsibilities • Flexibility of staff to identify problems, think of alternatives, test and measure these new ideas, and institutionalize the changes during implementation	• Staff turnover and resistance to changing practices • Providers being overextended and having a too heavy workload • Pressure on staff to maximize delivering commodities without sufficient client education or guidance • Time-consuming, labor-intensive training • Difficulty in identifying adequate numbers of providers to hire, particularly for roles requiring new techniques • Lack of ongoing supportive supervision and continuing education for providers • Midwives recruited from a hospital rather than the community, who might have lacked sufficient communication skills and connection to the community • Insufficient community health worker training and politicization of worker selection • Staff inabilities to address needs of different client populations (e.g., sex workers)
Contraceptive commodities	
• Large selection of contraceptives and promotion of informed free choice of contraceptives • Free contraceptives • Existing on-site availability of contraceptive methods • Higher use of injectables (Clients in many developing countries consider injections to be more effective than orally administered medication.)	• Cost and logistics of commodity procurement and supply • Numerous alternative sources of contraceptives, which inhibited clients from seeking FP services • For interventions offering only FP counseling and education, lack of contraceptive commodities may have inhibited uptake of modern contraceptives • Staff protecting limited stock of drug supplies, over supplying them to clients
Cultural context	
• Personalized, culturally appropriate education to clients	• Social constraints and cultural barriers to adoption of contraception

Integration Promoting Factors	Integration Inhibiting Factors
• Use of a previously evaluated curriculum that was culturally and age appropriate to the target population • Female outreach workers who serve as agents of change of cultural norms and bridges to the outside world for women who are socially secluded	• Male involvement in some cases considered culturally unacceptable • Difficulty of changing inherited practices and attitudes (e.g., underestimating fertility in the postpartum period, perceiving postpartum morbidity to be normal)
Cost	
• Adequate financial support for integrated services • Marginal cost of integration can achieve substantial results	• High cost of deploying community health workers • High cost of provider training • Challenges in recovering costs of services • Funding limitations to provide sufficient services • High cost of services compared to the income level of the population • Lack of insurance by the study sample as a barrier in access to care
Logistics and coordination	
• Strong internal communication between staff in different departments • Excellent internal organization of the existing clinic sites • Availability of health care equipment • Simple referral message that is easy for clients to understand • Ability of community health workers conducting home visits to identify serious cases, make referrals and appointments for clients, and provide transportation • Linkages between the community and the intervention program through a network of volunteers • Availability of a private room for counseling on-site • Establishing indicators at the outset and monitoring and measuring change	• Lack of coordination between providers, such as physicians and community health workers, and providers from different hospital units • Challenge of patient flow and stigma when patients are referred from one ward to another • Lack of provider checklist makes it difficult to make changes in provider behavior • Time-consuming administrative forms and requirement to discuss all possible contraceptive methods
Other	
• Strong demand for contraception and/or a large unmet need for FP • Availability and accessibility of a well-managed, high-quality static health clinic • Practice of home visits • Simplicity of services, which makes them applicable to the primary clinic level and therefore more accessible	• Brief duration of intervention, making it difficult to change behaviors • Lapses in program intensity leading to widespread discontinuation of contraceptive use • Availability of other sources of reproductive health services • High commitment demanded from clients for

Integration Promoting Factors	Integration Inhibiting Factors
• Outreach to community decisionmakers and stakeholders • Perception among clients of services as valuable • Involvement of traditional health workers • Strong existing programs that attract clients • Patient-centered model and emphasis on quality of care • Provision of FP services at critical times for the woman (e.g., immediately post-abortion or postnatally) • Involvement of men and male endorsement of FP • A country health policy that prescribes integration of FP services in general outpatient activities	follow-up appointments and intensive breastfeeding • Provision of information and counseling without an explicit mechanism to determine client motivations for postponing childbearing • Time-consuming nature of extensive data collection • Efficacy of a community-level intervention dependent on the successful functioning of higher levels of the health system

OUTCOMES ANALYSIS

In order to quantify the outcomes across studies, studies were classified as having a positive, mixed, negative, or no effect on outcomes. A positive effect meant that the intervention was associated with an improvement in the outcome. A mixed effect meant that there were multiple measures of an outcome that showed inconsistent results. A negative effect meant the integrated intervention was associated with a worse outcome. No effect meant that there was no difference in the outcome associated with the intervention.

Figure 5. Direction of Effect of Outcomes of Included Studies

Outcome	Number of studies reporting this outcome	Average rigor score of related studies	Number of studies that showed a positive effect	Number of studies that showed a mixed or no effect	Number of studies that showed a negative effect
Health outcomes					
Mortality	6	3.78	1	5	0
Morbidity	5	4.40	4	1	0
STI incidence	0	-	-	-	-
Pregnancy	10	4.00	4	6	0
Unplanned pregnancy	4	3.75	2	2	0
Abortion	2	5.00	0	2	0
Infant/child growth	4	4.17	2	2	0

Outcome	Number of studies reporting this outcome	Average rigor score of related studies	Number of studies that showed a positive effect	Number of studies that showed a mixed or no effect	Number of studies that showed a negative effect
Behavioral outcomes					
Condom use	3	4.33	3	0	0
FP use	26	3.22	19	7	0
Breastfeeding	4	5.75	1	3	0
Process outcomes					
Unmet FP need	1	1.00	1	0	0
Attended or safe deliveries	1	2.67	1	0	0
Use of FP or MNCH services	12	2.22	11	1	0
Vaccination coverage	4	3.50	1	3	0
Coverage of other FP or MNCH services	1	2.00	1	0	0
Quality of FP or MNCH services	15	2.20	11	4	0
Cost or cost-effectiveness	4	2.17	4	0	0
Stigma	0	-	-	-	-

Findings for Key Categories of Outcomes

Based on Figure 5, the outcomes of all included studies were assessed to determine if the body of evidence supports an integrated approach to offering MNCHN and FP services.

Coverage

Of the four studies that reported vaccination coverage as an outcome, only one demonstrated an improvement in vaccination coverage as a result of the integrated intervention. The remaining three interventions had either a mixed or no effect on vaccination coverage. One of these four studies also reported a different coverage outcome (availability of a private doctor or a government health center) and found an increase in coverage as a result of the intervention. No studies reported that coverage decreased as a result of the intervention.

Quality of Care

A total of 15 studies reported on quality of care as an outcome. Quality was measured using a variety of methods, such as client satisfaction measures, quality index scores, and proportion of clients receiving certain types of support and information. Eleven of the 15 studies reporting quality outcomes found that the integration intervention improved quality, while the remaining 4 studies found either mixed or no effect on quality. No studies reported that quality decreased as a result of the intervention.

Use of MNCHN and FP Services

Twelve studies reported use of MNCHN and FP services. This category included use of antenatal care, post-abortion care, and FP services (though not necessarily use of a contraceptive method); infant follow-up visits; immunizations administered; and visits to clinics. All but one study found that use of MNCHN and FP services increased as a result of the integrated intervention; the remaining study found that use of MNCHN and FP services did not change. No studies reported that use of MNCH and FP services decreased as a result of the intervention.

Cost and Cost-effectiveness

Only four studies reported either absolute cost or cost-effectiveness; all four studies demonstrated either a decrease in cost or an improvement in cost-effectiveness as a result of the intervention. Two studies found that cost per visit or per service decreased after an integrated intervention had been implemented. The other two studies also showed increased cost-effectiveness, although up-front costs were higher for the integration intervention.

Effectiveness

Measures of effectiveness included health and behavioral outcomes. The most commonly reported behavioral outcome was FP use. Of 26 studies reporting this outcome, 19 found an increase in FP use as a result of the integrated intervention, whereas 7 found mixed or no effect. The most commonly reported health outcome was subsequent pregnancy. Of 10 studies reporting this outcome, 4 found a decrease in pregnancy as a result of the integrated intervention, whereas 6 found mixed or no effect. (Only 4 of the 10 studies specifically measured unplanned pregnancies; 2 reported that these decreased and 2 found mixed or no effect). Results were similar for other health and behavioral outcomes, with some studies finding a positive effect and others finding mixed or no effect. No studies reported negative outcomes for any health or behavioral outcomes.

SERVICE-BASED ANALYSIS AND CASE STUDIES

Studies were heterogeneous in terms of study objectives, types of interventions, study designs, locations, and reported outcomes. Therefore, a meta-analysis was not conducted. However, studies were sorted by six models of integration based on the type of MNCHN service being integrated with FP. Many studies fell into more than one integration model and are therefore included in each. A case study was chosen for each of the six groups; a case study follows each service-based analysis.

Antenatal Care and Family Planning Services

Studies	**10 peer-reviewed studies (Agha, 2007; Alvarado, 1999; Barnet, 2007; Delvaux, 2008; Murray, 1990; Paxman, 2005; Routh, 2001; Sathar, 2005; Vernon, 1993; Matlab articles)**	
Locations	**1 in Chile** **1 in Honduras** **2 in Bangladesh** **1 in Pakistan**	**1 in Nepal** **1 in India** **1 in Kenya** **1 in Cambodia** **1 in the United States**
Interventions	• All interventions integrated some form of antenatal care services with FP education and counseling, including comprehensive integration with other FP-MNCHN components, particularly postnatal care and infant/child growth. • Contraceptives were provided in 4 out of 10 studies. • Two studies included men (partners/spouses of pregnant women) as part of their target population.	

Studies	**10 peer-reviewed studies (Agha, 2007; Alvarado, 1999; Barnet, 2007; Delvaux, 2008; Murray, 1990; Paxman, 2005; Routh, 2001; Sathar, 2005; Vernon, 1993; Matlab articles)**	
Locations	**1 in Chile** **1 in Honduras** **2 in Bangladesh** **1 in Pakistan**	**1 in Nepal** **1 in India** **1 in Kenya** **1 in Cambodia** **1 in the United States**
	• Four studies were conducted in clinics; four were carried out as community-based interventions; and two had both clinic and community sites as their point of intervention. • Six studies simultaneously integrated FP and MNCHN services as part of the intervention; two studies added FP into their existing MNCHN services; one study strengthened existing FP-MNCHN services by adding an additional MNCHN component; and one study incorporated both an integrated FP-MNCHN service and compared it to an intervention that added FP into its existing MNCHN services.	
Study Designs	1 randomized controlled trial 2 non-randomized trials 1 before-after 4 serial cross-sectional	1 cross-sectional 1 multiple evaluation (2 cross-sectional and 4 serial cross-sectional)
Reported Outcomes	Health outcomes: Maternal morbidity and mortality, infant morbidity and mortality, pregnancy, unplanned pregnancy, infant/child growth Behavioral outcomes: FP use (acceptance, uptake, and discontinuation), pre- and post-abortion FP, antenatal care use, and breastfeeding Process data/outcomes: Vaccination coverage, coverage and use of FP or MNCHN services, quality of services, cost/cost-effectiveness	
Findings	**Coverage** • Only 1 of the 10 studies reported on coverage of FP-MNCHN services. This study found that vaccination coverage increased as a result of the integration. **Quality of care** • Seven studies reported change in quality of services; five found a positive effect, one found a mixed effect, and one found no effect. **Use of MNCHN and FP services** • Seven studies reported use of MNCHN or FP services; one found a mixed effect and six found a positive effect. **Cost** • Three studies reported cost and all found a positive effect. Though the initial costs were higher in the integrated service interventions, two studies documented greater cost-effectiveness in terms of births averted in the intervention group arm (for one it was a fixed-site integrated service delivery package) when compared to groups receiving no intervention or a less-intensive integrated delivery package. **Effectiveness** • One study reported on infant mortality and found a positive effect in which infant mortality rates in one group of women who received FP education and counseling from community-based health workers were lower (5.2%) compared to the group of women who did not receive the intervention (7.2%; significance not reported).	

Studies	10 peer-reviewed studies (Agha, 2007; Alvarado, 1999; Barnet, 2007; Delvaux, 2008; Murray, 1990; Paxman, 2005; Routh, 2001; Sathar, 2005; Vernon, 1993; Matlab articles)	
Locations	1 in Chile 1 in Honduras 2 in Bangladesh 1 in Pakistan	1 in Nepal 1 in India 1 in Kenya 1 in Cambodia 1 in the United States
	• Looking at the compiled Matlab studies, however, four reported mixed effects on infant and maternal mortality. Of the two studies that reported maternal mortality, one found that the total number of direct obstetric deaths was much lower in the treatment group compared to the comparison group, though significance was not reported. In one study, the authors did not report significant results for direct obstetric mortality between groups (RR=1.00 [0.96-1.05], p=0.93). In terms of infant mortality, two studies reported mixed results. One study showed an overall sustained decrease in perinatal mortality from 1979 (8.2% for both treatment and control groups) to1986 (treatment group = 6.6%; control group = 6.8%); significance was not reported. It should be noted that the actual number of live births remained roughly the same in both treatment and comparison groups. • Two studies reported on morbidity and found a positive effect. One study reported significant results for infant morbidity rates between control and intervention groups (diarrhea: unadjusted RR=11.3, p<0.001; hospitalization: unadjusted RR=3.3, p=0.02). One study reported a sustained decrease over a three-year period (2002: 9.4% vs. 2005: 1.3%; significance not reported) in complications during intervention after safer abortion was introduced at a clinic that offered ANC, FP, and STI screening. • One study reported on attended safe deliveries and found a positive effect, as measured by admissions to Matlab maternity clinics (as proportion of live births). Specifically, 65% of admissions were from the treatment area compared to 33% from the comparison area (RR=2.31, SIG; no p-value reported). • Out of four studies on pregnancy, two found no effect, one found a mixed effect, and one found a positive effect, where the mean number of children born to women in the intervention group was consistently lower than for women in the control group, across age groups. • Eight studies reported FP use: four found a positive effect; four found mixed effects. **Rigor** • The rigor score of these 10 studies was generally low. Out of a possible score of nine, nine studies had scores of four or less and only one study had a score of seven. **Promoting and inhibiting factors** • The factors behind the success of these integrated services included: availability of preferred contraceptive method, autonomy in contraceptive choices, quality of care (cleanliness, confidentiality, client-centered), on-site integrated services, motivated providers and staff, monitoring indicators to measure change, and excellent referral systems. • A few inhibiting factors were also reported, specifically: incompatible services offered by providers with the expansion of services, significant investment of providers' time, high demand for commitment from clients, difficulty finding adequate technical staff, and competing sources of contraception dispensers (medical stores, pharmacies).	

Case Study: Bangladesh Provides Innovative Ways to Deliver FP-MNCH Services to Women (Routh, 2001; Routh, 2000)

For over two decades, Bangladesh had implemented a door-to-door MNCH-FP service delivery package to married women of reproductive age, which included bimonthly home visits by female fieldworkers distributing contraceptives and information on MNCH-FP counseling. Although the program has been successful in improving contraceptive prevalence rates and immunization coverage, among other things, increasing resource constraints required the exploration of alternative strategies. This non-randomized trial evaluated two different point-of-service delivery packages compared to standard care. In strategy 1, community-based sites (schools and clubs) became the central point for female fieldworkers to dispense contraceptive commodities and MNCH-FP counseling to women once a week. In strategy 2, services were provided at a fixed site (primary health care clinic) and included FP, ANC, postnatal care, and sick child and mother care. This enhanced service delivery package was carried out daily by three clinic staff, plus a doctor three days a week. As a way to motivate non-users, both interventions (community and fixed site) also conducted home visits. The control group received national standard services offered door-to-door, and women who desired FP were referred to clinical services. Contraceptive use increased slightly in both community and fixed sites but remained the same in the door-to-door delivery group. Average daily attendance at fixed-site clinics improved with the greatest increase at the primary health care clinic. However, it was not determined if any of these increases were statistically significant. The fixed-site strategy was more cost-effective than the other strategies, as measured by costs associated with number of births averted and quality-adjusted life-years (QALYs) gained. Costs of services were much lower in the fixed-site strategy than in the other two strategies. In terms of quality, clinics provided a more holistic approach to addressing clients' needs compared to the community-based sites and door-to-door delivery method. However, alternative sources of contraceptives (e.g., pharmacies and shops) deterred women from attending community-based sites. The authors concluded that replacing the doorstep distribution strategy with the clinic-based strategy without compromising the MNCH-FP program performance is feasible and cost-effective in urban areas.

Post-abortion Care and Family Planning Services

Studies	**10 peer-reviewed studies (Billings 2003, Cissé 2004, David 2007, Delvaux 2008, Fullerton 2003, Johnson 2002, Mahomed 1997, Nobili 2007, Solo 1999, Zhu 2009)**	
Locations	**1 in Italy** **1 in Russia** **1 in Mexico** **1 in China** **1 in Cambodia**	**2 in Zimbabwe** **1 in Kenya** **1 in Ghana** **1 in Senegal**
Interventions	• All interventions integrated some form of FP counseling and education to women receiving post-abortion care and took place at health care delivery points such as hospitals and clinics. • Family planning services were provided in a variety of forms, including pre- and post-abortion individual and group counseling sessions, contraceptive service provision, and referrals for further FP education and/or commodities. Other components of the interventions included manual vacuum aspiration (MVA) training for providers, pain management for post-abortion care, comprehensive reproductive health care, STI prevention and management, male involvement in counseling, patient-centered care, media campaigns, supervision of clinic staff, and quality control in clinics. • Only one intervention included additional MNCHN services other than post-	

Studies	**10 peer-reviewed studies (Billings 2003, Cissé 2004, David 2007, Delvaux 2008, Fullerton 2003, Johnson 2002, Mahomed 1997, Nobili 2007, Solo 1999, Zhu 2009)**	
Locations	**1 in Italy** **1 in Russia** **1 in Mexico** **1 in China** **1 in Cambodia**	**2 in Zimbabwe** **1 in Kenya** **1 in Ghana** **1 in Senegal**
	abortion care.	
Study Designs	2 randomized controlled trials 2 non-randomized trials 1 before-after	1 case-control 3 serial cross-sectional 1 cross-sectional with control group
Reported Outcomes	Health outcomes: Morbidity, unplanned pregnancy, abortion, infant/child growth Behavioral outcomes: Condom use, FP use Process outcomes: Unmet FP need, use of MNCHN or FP services, quality of services, cost/cost-effectiveness	
Findings	**Coverage** • No studies reported coverage of MNCHN or FP services. **Quality of care** • Integrated services resulted in improved quality of care in five of six studies which measured it. **Use of MNCHN and FP services** • Four studies reported a positive effect on use of MNCHN and FP services. **Cost** • The only study reporting cost found that the intervention resulted in a decreased cost per visit after the intervention (6,500 CFA francs) compared to before the intervention (10,000 CFA Francs). **Effectiveness** • Integrated services consistently resulted in increased uptake and use of FP methods, with the exception of two studies which found mixed effects. • The three studies that measured effects of the interventions on unplanned pregnancies or abortions found mixed results. • No studies reported on mortality, breastfeeding, vaccinations, attended or safe deliveries, or stigma. **Rigor** • The rigor of the included studies was generally quite low. Out of a possible nine points, 7 of the 10 studies had a rigor score of one or two; 2 had a score of five; and 1 had a score of seven. Only 2 of the studies used a randomized controlled trial design. **Promoting and inhibiting factors** • A number of factors that promoted the success of integrated services were mentioned, including free provision of contraceptives, patient-centered model of care, culturally appropriate services, onsite availability of FP services, timing of FP services (before and immediately after abortion), male involvement, and availability of resources and equipment and provider training. • A number of inhibiting factors were mentioned as well, including staffing problems (high turnover, high workload, lack of supervision and continuing	

Studies	10 peer-reviewed studies (Billings 2003, Cissé 2004, David 2007, Delvaux 2008, Fullerton 2003, Johnson 2002, Mahomed 1997, Nobili 2007, Solo 1999, Zhu 2009)	
Locations	1 in Italy 1 in Russia 1 in Mexico 1 in China 1 in Cambodia	2 in Zimbabwe 1 in Kenya 1 in Ghana 1 in Senegal
	education, and the perceived stigma of women who have had an abortion), high cost of services to both clients and clinics, cost and logistics of contraceptive commodities; and limited client follow-up to sustain contraceptive use.	

Case Study: Kenya's Various Integration Models of Post-abortion Family Planning Services (Solo, 1999)

This non-randomized trial aimed to test and compare the feasibility and acceptability of three PAC-FP integration models in six Kenyan Ministry of Health hospitals. In all settings, the MCH-FP clinics were on-site but were generally distant from the gynecological wards, and no formal linkages existed between the two units. Hence, the goal was to make post-abortion FP services more accessible to women immediately after treatment and before discharge from the hospital. In Model 1, FP services were provided in the gynecological ward by ward staff (the same provider was responsible for all aspects of a patient's management). In Model 2, FP services were provided in the gynecological ward by staff from the MCH-FP clinic. In Model 3, FP services were provided in the MCH-FP clinic by staff from the MCH-FP clinic. This study was limited both by its low rigor score (two out of a possible nine points) and the lack of pre- and post-intervention data needed to compare the three models. However, it was shown that after the intervention, the proportion of women who received FP counseling was higher in Model 1 (92%) compared to Models 2 (62%) and 3 (54%). Furthermore, the proportion of women who left the hospital with a contraceptive method was higher in Model 1 (82%) compared to Models 2 (63%) and 3 (75%). Overall, the authors concluded that Model 1 was the easiest to set up and had the greatest effect on increasing uptake of FP counseling and contraceptive methods. However, important considerations for this model included adequate staffing, availability of private space for counseling and FP commodity storage, and the ability to keep a sufficient supply of contraceptives.

Intrapartum/Childbirth Services and Family Planning Services

Studies	3 peer-reviewed studies (Paxman, 2005; Vernon, 1993; Matlab articles)	
Locations	1 in Honduras	1 in Bangladesh 1 in India
Interventions	• All three interventions integrated several MNCHN interventions, including intrapartum and childbirth services, with FP education, counseling, and service provision. • The INOPAL study was a client-oriented reproductive health program in Honduras that integrated FP services into prenatal, delivery, and postnatal hospital services. The package of services included prenatal education, individual counseling on FP and reproductive health, a variety of contraceptive commodities, a postpartum outpatient clinic for mothers and newborns, and a perinatal information system for improved data collection. • The MCH-FP project was a community-based reproductive health program in the	

Studies	3 peer-reviewed studies (Paxman, 2005; Vernon, 1993; Matlab articles)	
Locations	1 in Honduras	1 in Bangladesh 1 in India
	Matlab district of Bangladesh that was evaluated over many years. Initially, the program offered basic MCH services through household outreach, including distribution of safe delivery kits and FP. In 1996, four health centers were established to provide basic emergency obstetric care. • The India Local Initiatives Program sought to fill in the gaps in government services using community health workers to bring health and FP information, antenatal and postnatal care, and immunization services to the community.	
Study Designs	2 serial cross-sectional	1 multiple evaluations, all cross-sectional or serial cross-sectional
Reported Outcomes	Health outcomes: Mortality, infant/child growth Behavioral outcomes: FP use Process outcomes: Attended or safe deliveries, vaccination coverage, use of MNCHN or FP services, quality of services, cost/cost-effectiveness	
Findings	**Coverage** • One of the three studies reported on coverage of MNCHN or FP services. It found that vaccination coverage increased as a result of the integrated intervention. **Quality of care** • Two studies measured changes in quality of care, and both found an improvement in quality as a result of the intervention. **Use of MNCHN and FP services** • All three studies measured use of MNCHN and FP services, and all three found that service use had improved. **Cost** • Two of the studies measured cost, and both found the integrated intervention to be more cost-effective. **Effectiveness** • All three studies measured FP use, and all three found it to increase as a result of the integrated intervention. • Only one study measured mortality and infant/child growth; it found mixed or no effect for both outcomes. • None of the studies reported on morbidity, pregnancy, abortion, condom use, breastfeeding, unmet FP need, or stigma. **Rigor** • The average rigor score of the three studies was quite low at 1.6 out of 9. **Promoting and inhibiting factors** • Several factors were found to contribute to the success of the integrated services, including strong internal communication among staff, commitment of volunteers, flexibility to change services to better meet client needs, strong oversight, monitoring progress, ability of community health workers to identify and refer pregnant women with complications, and the cost-effective delivery of more services. • Several inhibiting factors were also mentioned, including adequate staffing,	

Studies	3 peer-reviewed studies (Paxman, 2005; Vernon, 1993; Matlab articles)	
Locations	1 in Honduras	1 in Bangladesh 1 in India
	operational challenges in coordinating mother/baby visits, the high cost of implementation, time-consuming data collection, possible lack of sustainability, and the need for well-functioning higher levels of the health care system for successful community-level interventions.	

Case Study: Bangladesh Implements Integrated MCH and FP Services, Including Safe Deliveries and Referral for Complications during Delivery (Matlab articles: Chaudhuri, 2008; Fauveau, 1990; Hale, 2006; Maine, 1996; Ronsmans, 1997; Simmons, 1991)

Beginning in 1977, Bangladesh implemented an FP program within Matlab district. MCH services were added in the 1980s, and the program came to be known as the Maternal Child Health Family Planning (MCH-FP) project. The program consisted of FP services, tetanus immunization during pregnancy (and later for all married women), iron/folic acid supplementation during pregnancy and lactation, distribution of safe delivery kits, and care of simple ailments during pregnancy. In each village within Matlab district, a female community health worker visited each household biweekly and then monthly with a male health assistant. In 1996, four health centers were established to provide basic emergency obstetric care for the catchment area. These were staffed by a trained nurse–midwife and a paramedic who provided antenatal care, treated minor pregnancy and delivery complications, conducted normal deliveries, and referred serious cases to a hospital. Although some mortality evaluation data did not show an effect of the intervention, there appeared to be a sustained decrease in perinatal mortality and direct obstetric deaths in Matlab district in relation to the comparison area. Furthermore, children under the age of 5 living in Matlab district were healthier (measured by height-for-age) than children living in the comparison area, although this difference was statistically significant for girls and not boys. Contraceptive prevalence rates showed greater improvement over 10 years in Matlab district (3.0–44.1) compared to the control area (3.0–11.6), though statistical significance was not reported. The MCH-FP intervention was more cost-effective in the Matlab district than in the control area, measured by cost per birth averted, though average cost was higher in the former. A key factor that helped decrease mortality was the ability of health care workers to identify and refer serious cases. In addition, the intervention delivered approximately three times more services for the same cost per eligible woman than in the comparison area. The contribution of the community-level intervention to reducing maternal mortality depended on the functioning of higher levels of the health system. However, mortality dropped over time in both the intervention and comparison areas, most likely due to spillover and provision of government and non-governmental organization (NGO) services in the comparison area. Although no difference in maternal mortality was found, there have been lower rates of fertility in the Matlab area as a result of 20 years of FP services.

Postnatal Care and Family Planning Services

Studies	**11 peer-reviewed studies (Agha, 2007; Alvarado, 1999; Barnet, 2007; Bashour, 2008; Bolam, 1998; Bossyns, 2002; Paxman, 2005; Quinlivan, 2003; Routh, 2001; Vernon, 1993; Warren, 2010)**	
Locations	**1 in Chile** **1 in Honduras** **2 in Nepal** **1 in Bangladesh** **1 in India**	**1 in Syria** **1 in Kenya** **1 in Niger** **1 in the United States** **1 in Australia**
Interventions	• In general, interventions in this row consisted of three types: (1) home visits with new mothers and their infants to provide postnatal care and education, including FP education and/or provision (n=7); (2) re-training of health care workers to offer both postnatal care and FP in their clinics and hospital settings (n=3); and (3) education about FP given to new mothers (n=1). • Seven out of 11 studies included contraceptive commodity provision. • Nine studies simultaneously integrated MNCHN and FP services integration, while two studies added FP to existing MNCHN services. • Studies in this group provided very comprehensive services with all but one study providing services integrated with multiple types of MNCHN services from different rows in the matrix.	
Study Designs	4 randomized controlled trials 3 non-randomized trials	5 serial cross-sectional
Reported Outcomes	Health outcomes: Maternal morbidity and mortality, infant morbidity and mortality, repeat and unintended pregnancy, infant/child growth Behavioral outcomes: FP use, breastfeeding Process data/outcomes: Use of FP or MNCHN services, quality of care of services, cost or cost-effectiveness, vaccination coverage	
Findings	**Coverage** • Two of the studies reported on vaccination coverage; one found an increase in coverage, whereas the other found no effect. No studies reported on coverage of other types of MNCHN or FP services. **Quality of care** • Integrated services resulted in improved quality of care in six of eight studies that measured it, and no effect in the other two studies. **Use of MNCHN and FP services** • Of the five studies that reported on use of MNCHN and FP services, four found an increase in use and the other found a mixed effect. **Cost** • Only two studies reported on cost. One study found that a clinic-based strategy (PHCC) was more cost-effective than either a community-based strategy or a control group. The cost per birth averted post-intervention was US$585 in the PHCC group compared to US$830 in the control group and the cost per QALY gained was US$491–787 in the PHCC group compared to US$1,170–1,877 in the control group. The other study found that the average cost per service declined from US$4.12–2.54 over three years of integrated services. **Effectiveness** • Two studies reported on mortality and found no effect of the intervention on	

Studies	11 peer-reviewed studies (Agha, 2007; Alvarado, 1999; Barnet, 2007; Bashour, 2008; Bolam, 1998; Bossyns, 2002; Paxman, 2005; Quinlivan, 2003; Routh, 2001; Vernon, 1993; Warren, 2010)	
Locations	1 in Chile 1 in Honduras 2 in Nepal 1 in Bangladesh 1 in India	1 in Syria 1 in Kenya 1 in Niger 1 in the United States 1 in Australia
	infant mortality. • Three out of four studies that reported on morbidity found positive effects, such as 11 times lower diarrhea for infants in the intervention group 80%, lower adverse neonatal outcomes in the intervention group, and QALYs gained highest in the intervention group. Only one study reporting no effect. • Of the four studies that reported on pregnancy outcomes, three studies found no effect and one study found the number of births averted was highest in the control group post-intervention. • Two studies reported on infant growth with one finding that infant weight was 10,093 grams in the intervention group compared to 918 grams in the control group. The other study found no effect of the intervention. • Of the four studies that reported on breastfeeding, three found no effect, and one found that 74% of the intervention group was still fully breastfeeding at six months postpartum compared to 10% of the control group. • All 11 of the included studies reported on FP use; 4 studies found no effect of the intervention, while 5 studies found positive results. **Rigor** • The rigor of the included studies was generally quite good, and there were four randomized control trials. Out of a possible 9 points, the average rigor score for this group of studies was 3.6. **Promoting and inhibiting factors** • Factors promoting integration included informed free choice, coordination of care and increased communication among providers, high staff retention, commitment of volunteers, oversight, monitoring of indicators over time, clients' perceptions that services were valuable, and increased cost-effectiveness. • Factors inhibiting integration included significant investment in provider time, high levels of coordination required between providers, high demand from clients, need for improved infrastructure to coordinate care and maintain patient records, challenges in changing inherited cultural practices and attitudes, intervention success being dependent on the quality of available midwives, possible lack of sustainability, and low quality of pre-intervention care.	

Case Study: Evaluating the Impact of Postnatal Health Education for Mothers on Infant Care Using a Combined Clinic and Home Visitation Approach in Nepal (Bolam, 1998)

A randomized control study design was used to evaluate the impact of a one-on-one postnatal education program offered to new mothers at a maternity hospital in Kathmandu, Nepal, with follow-up conducted in the mothers' homes. There were three intervention groups and one control group: the first group received health education at birth and follow-up at three months; the second group received health education at birth only; the third group received health education only at three months; and the control group did not receive any additional health

education. Intervention groups attended at least one of two interactive education sessions conducted by a trained female health educator, midwife, or community health worker. These interactive and supportive 20-minute sessions covered exclusive breastfeeding, the need for FP, treatment of diarrhea, symptoms of acute respiratory infection in infants, and immunizations. The study found mixed results. Health education given after delivery and three months later did not improve mothers' knowledge and practices. Mothers who received health education at birth were slightly more likely to use contraception at six months after birth compared to mothers who received no health education at birth; however, contraceptive use remained low (< 38%) in all four groups. There were also no significant differences between groups for outcomes of infant feeding, care, or immunization. Authors reported that the short length and limited frequency of the intervention may have influenced results unfavorably; however, the strategy was to make this intervention more practical and sustainable over the long term. Authors recommended frequently repeating simple messages, a suggestion that indicates the trade-off between efficacy and costs of such interventions in developing countries will need to be evaluated. They also recommended that interventions consider women's broader roles: the extent of their influence in household decision-making; childbearing, household, and work responsibilities; and work in the fields—all of which may significantly influence their health-care-seeking behaviors. Finally, study authors advocated evaluating a combination of antenatal and perinatal education sessions with mothers.

Infant/Child Services and Family Planning Services

Studies	**16 peer-reviewed studies (Alvarado, 1999; Amin, 2001; Barnet, 2007; Bashour, 2008; Bolam, 1998; Bossyns, 2002; Debpuur, 2002; Douthwaite, 2005; Huntington, 1994; Murray, 1990; Paxman, 2005; Quinlivan, 2003; Routh, 2001; Sathar, 2005; Sultan, 2002' Vernon, 1993)**	
Locations	**1 in Chile** **1 in Honduras** **1 in Syria** **1 in Kenya** **1 in Niger** **1 in Ghana** **1 in Togo**	**3 in Pakistan** **2 in Bangladesh** **1 in India** **1 in Nepal** **1 in the United States** **1 in Australia**
Interventions	• All interventions integrated some form of infant/child care services (e.g., treatment of childhood illnesses, basic preventive care, immunizations) with FP education and counseling. • Some interventions also offered antenatal and postpartum care, nutrition counseling, emotional support and counseling for new mothers on caring for themselves and their children, and education about early child development. • Nine studies included provision of non-clinical contraceptive methods. • Most studies emphasized training for providers (e.g., physicians, nurses, community health workers, nurse-midwives, health educators). • Two studies included specific efforts to engage with community members and important stakeholders to mobilize community support for improving FP and overall community health. • Ten studies were conducted in clinic settings; four of these included home visits by trained staff to encourage contraceptive continuation. • Six studies were conducted exclusively in homes by community health workers/nurse midwives delivering a broad range of services from treating minor childhood illnesses to monitoring growth, encouraging breastfeeding and contraceptive use, promoting health, providing antenatal and postnatal care, and providing non-clinical contraceptive methods.	

Studies	**16 peer-reviewed studies (Alvarado, 1999; Amin, 2001; Barnet, 2007; Bashour, 2008; Bolam, 1998; Bossyns, 2002; Debpuur, 2002; Douthwaite, 2005; Huntington, 1994; Murray, 1990; Paxman, 2005; Quinlivan, 2003; Routh, 2001; Sathar, 2005; Sultan, 2002' Vernon, 1993)**	
Locations	**1 in Chile** **1 in Honduras** **1 in Syria** **1 in Kenya** **1 in Niger** **1 in Ghana** **1 in Togo**	**3 in Pakistan** **2 in Bangladesh** **1 in India** **1 in Nepal** **1 in the United States** **1 in Australia**
	• Nine of the interventions simultaneously integrated MNCHN and FP services; five studies added FP services to existing MNCHN services, and two studies used dual strategies of delivering MNCHN and FP services, including both simultaneous provision of MNCHN and FP services and adding FP services to existing MNCHN services.	
Study Designs	5 randomized controlled trials 3 non-randomized trials	5 serial cross-sectional 3 cross-sectional
Reported Outcomes	Health outcomes: Mortality, morbidity, pregnancy, infant/child growth Behavioral outcomes: Condom use, FP use, breastfeeding Process outcomes: Vaccinations, attended or safe deliveries, use of MNCHN or FP services, coverage of MNCHN or FP services, quality of services, cost/cost-effectiveness	
Findings	**Coverage** • Three studies reported on vaccination coverage, and only one found an increase in coverage as a result of the intervention. The other two both found mixed or no effect. One of the three studies also reported on coverage of primary care services and found an increase. **Quality of care** • Five of seven studies that reported on quality of care found that quality improved as a result of the intervention. Quality was measured in various ways. For example, in one study the number of women who received information about how their chosen method of contraception worked went from 53% to 84% over 10 months. **Use of MNCHN and FP services** • Three studies reported a positive effect on use of MNCHN and FP services. One study reported a greater number of infant visits in the intervention group (mean=7.5) compared to the control group (mean=5.3); this positive effect was also recorded at both 6-month (93% vs. 88%) and 12-month (92% vs. 72%) infant follow-up sessions. **Cost** • Two studies reported cost. One study found that one intervention arm—a fixed public health clinic—was cost-effective, resulting in a lower cost per birth averted (585 Taka per birth averted; US$1=45 Taka) as compared to other intervention (1761 Taka) and control (830 Taka) arms. The other study found that the average cost per service declined from US$4.12 to US$2.54 over three years of integrated services. **Effectiveness**	

Studies	**16 peer-reviewed studies (Alvarado, 1999; Amin, 2001; Barnet, 2007; Bashour, 2008; Bolam, 1998; Bossyns, 2002; Debpuur, 2002; Douthwaite, 2005; Huntington, 1994; Murray, 1990; Paxman, 2005; Quinlivan, 2003; Routh, 2001; Sathar, 2005; Sultan, 2002' Vernon, 1993)**	
Locations	**1 in Chile** **1 in Honduras** **1 in Syria** **1 in Kenya** **1 in Niger** **1 in Ghana** **1 in Togo**	**3 in Pakistan** **2 in Bangladesh** **1 in India** **1 in Nepal** **1 in the United States** **1 in Australia**
	• Eleven out of the 14 studies that measured intervention effects on FP use reported positive results and an increase in FP use among intervention groups compared to control groups or post-intervention compared to pre-intervention. However, this difference was not always statistically significant. Among the remaining three studies, two reported no effects and one had mixed results. • Integrated services resulted in fewer pregnancies or repeat births among three of the four studies that measured it. • Among the four studies that measured breastfeeding duration, two reported positive results, and two reported no effect. • Three studies measured indicators of infant growth, two of which reported positive results of integrated services on infant growth. • No studies reported abortion, unmet FP need, or stigma as outcomes. **Rigor** • The rigor of the included studies was mixed. Out of a score of 9 points, six studies had a low score of 1–3; eight studies had a medium rigor score of 4–6; and two studies had a high score of 7 or above. **Promoting and inhibiting factors** • A number of factors promoting the success of integrated services were reported, including coordination and communication between different services providers; linkages with the community; male involvement; high staff retention; provider training; community-based distribution of services; home visits by providers; a patient-centered model of care; simple health education and referral messages; provision of integrated services at a single location; and availability of resources, equipment, and provider training. • A number of factors inhibiting the success of integrated services were also mentioned. These included political instability; funding shortages; complex intervention designs requiring high commitment from clients; barriers to accessing care; cultural norms regarding gender, childbearing, and fertility; poor quality provider training; lack of coordination among providers; hostility among providers about changing their practices; and costs and logistics.	

Case Study: Evaluation of Two Distinct Community-based Approaches to MCH-FP Delivery – The Navrongo Project in Ghana (Debpuur, 2002; Pence, 2007)

The Navrongo Community Health and Family Planning Project, a high-quality randomized controlled trial, was conducted in 1994 in the Navrongo Region of northern Ghana. This project employed two distinct community-based approaches to the delivery of FP and basic

primary care in addition to standard Ministry of Health clinic-based services. The intervention had four arms:

1. Outreach by community health nurses trained to offer doorstep services, including treatment of childhood illnesses, immunizations, and provision of non-clinical FP methods (oral contraceptives, condoms, and injectables).
2. Traditional social cooperation (*zurugelu*) was used to generate support for community health and FP services. Health-care action committees were formed with councils of village elders, mobilizing traditional peer networks. Community health volunteers provided basic health care, reproductive health education, outreach to men, and non-clinical contraceptives.
3. A combined nurse outreach and zurugelu approach.
4. A control arm consisting of the existing clinic-based MOH services.

Both delivery approaches (study arms 1 and 2) had positive effects, while the combined approach (arm 3) was more effective across select outcomes. The unadjusted fertility decreased in all three intervention arms. Both the nurse outreach and the zurugelu intervention significantly reduced parity progression relative to the comparison area in every year. The combined approach was more effective than each approach separately, demonstrating that each arm has an additive effect on fertility reduction. Moreover, the combined approach was associated with consistently higher levels of modern contraceptive use for the first three years, but there was no apparent effect in the fourth year and no effect if the two approaches were implemented independently. The overall contraceptive prevalence, however, was still quite low at the end of four years of study exposure, suggesting that factors external to the intervention were affecting fertility. In terms of the effects of the intervention on child mortality, the results varied by study arm. The nurse outreach approach resulted in a decrease in under-5, early child, and infant mortality, while both the zurugelu and combined approaches resulted in an increase in child mortality in all age groups. Authors felt the presence of outreach workers in the zurugelu and combined approaches may have diverted health-seeking behavior away from the skilled medical care available in subdistrict clinics. This could have been particularly unfavorable for two health conditions—acute respiratory infections and diarrheal disease—common in the second year of life. Mobilization of MOH resources to provide services within the community ensured greater access to FP. Additionally, by engaging with community leaders (including men), the zurugelu approach directly responded to cultural barriers that women face in accessing and utilizing modern contraception. Minor and temporary lapses in project intensity may have influenced the widespread discontinuation of contraceptive methods. The authors concluded that a comprehensive community mobilization approach to the provision of FP services can have a favorable impact even in a traditional setting that is widely viewed as being incompatible with FP program success.

Maternal and Infant Nutrition and Family Planning Services

Studies	**5 peer-reviewed studies (Alvarado, 1999; Amin, 2001; Bolam, 1998; Vernon, 1993; Matlab articles)**	
Locations	**1 in Chile** **1 in Honduras**	**1 in Nepal** **2 in Bangladesh**
Interventions	• All interventions integrated some form of maternal or neonatal/infant child care service, with services to specifically improve neonatal/infant or maternal nutritional status or with FP education and counseling. The services offered included encouragement of breastfeeding, infant vaccinations, immunizations, and other basic preventative care.	

Studies	**5 peer-reviewed studies (Alvarado, 1999; Amin, 2001; Bolam, 1998; Vernon, 1993; Matlab articles)**	
Locations	**1 in Chile** **1 in Honduras**	**1 in Nepal** **2 in Bangladesh**
	• Two studies included provision of non-clinical contraceptive methods. • Two studies were conducted exclusively in clinic settings. • The remaining three studies included home visits and a clinic component. In these three studies, trained community health workers visited women in their homes, offering services such as basic prenatal care, immunizations, iron/folic acid supplementation, and safe delivery kits; encouraging breastfeeding and FP; and providing non-clinical contraceptive methods. In addition, in one study (six peer-reviewed articles report on this study), health centers were established to offer emergency obstetric care, treat minor pregnancy and delivery complications, conduct normal deliveries, and refer cases with serious complications to the hospital. In another study, health education emphasizing breastfeeding was offered at the maternity clinic before discharge. In the third study, women were encouraged after home visits to visit health centers for all essential reproductive, maternal, and child health care needs, nutritional services, and basic curative and preventive care. • All five intervention studies simultaneously integrated MNCHN and FP services.	
Study Designs	1 randomized controlled trial 2 non-randomized trials	1 serial cross-sectional study 1 multiple evaluations (2 cross-sectional and 4 serial cross-sectional)
Reported Outcomes	Health outcomes: Mortality, morbidity, pregnancy, infant/child growth Behavioral outcomes: FP use, breastfeeding Process outcomes: Vaccination coverage, attended or safe deliveries, use and coverage of MNCHN or FP services, quality of services, cost/cost-effectiveness	
Findings	**Coverage** • Two of the studies reported on vaccination coverage and both found the integrated intervention had no effect on vaccination coverage. One of the two studies also reported on coverage of primary care services and found an increase. **Quality of care** • Two studies reported on the effect of integration on quality of care and both found that quality improved. **Use of MNCHN and FP services** • Four of the five studies measured an increase in use of MNCHN and FP services as a result of the integrated intervention. **Cost** • One study reported on cost and showed that the average cost per birth averted in the intervention group was lower and ranged from US$171–240 compared to US$220–298 in the control group. **Effectiveness** • All five studies measured FP use. Three studies reported positive results due to the intervention; one study reported no effect; and one study reported	

Studies	5 peer-reviewed studies (Alvarado, 1999; Amin, 2001; Bolam, 1998; Vernon, 1993; Matlab articles)	
Locations	1 in Chile 1 in Honduras	1 in Nepal 2 in Bangladesh

mixed effects. However, FP use increased over time in both the intervention and control groups. Among the three studies that reported positive outcomes, one found that FP use increased from 28% to 53% in the intervention group; another study found FP use was 35% in the primary intervention group compared to 27% in the control group; the third study found FP use increased from 9.2% to 46% over two years.

- Regarding breastfeeding, one study found no effects of the intervention and the other study found positive results—74% of the intervention group still fully breastfeeding at six months postpartum compared to 10% of the control group.
- Two of three studies measuring infant growth reported no effect of the intervention on infant growth (height and weight for age). One study reported positive effects, finding that infant weight was 10,093 grams in the intervention group compared to 918 grams in the control group.
- Among the three studies that measured the effects of integrated services on infant mortality, one reported a significant difference between the intervention and control arms; mortality rates were significantly lower in the intervention arms. The other two studies found no effect.
- Two peer-reviewed articles reporting on the same study measured the effects of integrated services on maternal mortality, but only one of these found results and reported a significant reduction in maternal mortality rates coupled with significantly higher utilization of maternity clinics for assisted delivery in the intervention arm compared to the control arm.
- No studies reported on abortion, condom use, unmet FP need, or stigma.

Rigor

- The rigor score of these included studies was generally low. Out of a possible score of 9, three studies had a low score of 1–3 and two studies had a medium score of 4–6.

Promoting and inhibiting factors

- A number of factors contributing to the success of integrated services were reported, including coordination and communication between different service providers; linkages with the community; community-based distribution of services; a patient-centered model of care; reduction in costs to clients; and availability of resources, equipment, and provider training.
- A number of factors inhibiting the success of integrated services were also mentioned. These included training programs that were time intensive and hence limited provider participation, short duration of interventions, provider unwillingness to change practices and coordinate with other providers, infrastructural costs and challenges, lack of an efficient referral system, and inefficiencies at higher health system levels.

Case Study: A Clinic in Chile Has Mixed Results Implementing Comprehensive Services, Including Breastfeeding and Maternal and Infant Nutrition (Alvarado, 1999)

Consultorio San Luis de Huechuraba (CSLH), a non-government clinic in a poor neighborhood in Santiago, provided integrated FP and maternal and infant care. The intervention had proven efficacious elsewhere, so the objective of CSLH was to evaluate it in an area of extreme poverty. All four providers were trained in breastfeeding and contraceptive management and worked as a team to provide care to mothers and infants. Two were community health workers who conducted home visits during pregnancy and visits to the maternity wards. They were trained in pregnancy care, FP, prevention of STDs/HIV, breastfeeding, infant care, and maternal and infant nutrition. Mothers and infants were seen during the same visits every 10 days in the first month postpartum and at monthly intervals thereafter for the first year. The intervention was evaluated by comparing it to a public clinic in a similar neighborhood nearby. Outcomes of the evaluation were mixed, with no effect on contraceptive uptake and unintended pregnancies and positive results for breastfeeding, infant growth, and uptake and quality of services. Contraceptive acceptance had similar rates among clients attending both clinics, but the methods chosen differed, as did contraceptive discontinuation. The number of unintended pregnancies was higher among the CSLH clinic clients, although this difference was not statistically significant. Breastfeeding rates and infant growth were significantly better among women attending CSLH compared to women at the control clinic, and infant morbidity rates were lower. All method acceptors attended the CSLH until the end of the year, whereas 21% of those attending the public clinic were considered lost to follow-up. Clients at CSLH reported feeling supported in choosing from a variety of available contraceptives free of charge, and care among providers was coordinated. Although the intervention clients spent more time at CSLH because of the greater number of scheduled visits, they felt the time was well spent and they felt empowered in their choices. However, the intervention required significant investment in provider time and a high level of commitment from clients. The study authors concluded that this type of program could be built into the national program to improve maternal and child health outcomes.

ANALYSIS OF RANDOMIZED CONTROLLED TRIALS

A separate analysis was conducted of those interventions that were evaluated by the most rigorous study design, a randomized controlled trial.

Studies	**7 peer-reviewed studies (Barnet, 2007; Bashour, 2008; Bolam, 1998; Debpuur, 2002; Nobili, 2007; Quinlivan, 2003; Zhu, 2009)**	
Locations	**1 in the United States** **1 in Italy** **1 in Australia**	**1 in Syria** **1 in Nepal** **1 in Ghana** **1 in China**
Interventions	• Four studies focused on home visits with new mothers and their infants, providing postnatal care and education, including FP education and/or provision. • Two studies focused on providing post-abortion women FP services at the clinic rather than referring them to other sites. • One study focused on nurse and community outreach providing postnatal care and education, including FP education and provision. • Three studies were conducted in participant homes and four studies were conducted in hospital or clinical settings. • Only two of the seven studies included provision of FP commodities.	

Studies	**7 peer-reviewed studies (Barnet, 2007; Bashour, 2008; Bolam, 1998; Debpuur, 2002; Nobili, 2007; Quinlivan, 2003; Zhu, 2009)**	
Locations	**1 in the United States** **1 in Italy** **1 in Australia**	**1 in Syria** **1 in Nepal** **1 in Ghana** **1 in China**
Reported Outcomes	Health outcomes: Infant mortality, infant and maternal morbidity, pregnancy, unplanned pregnancy, infant/child growth Behavioral outcomes: FP use, condom use, induced abortion, breastfeeding Process data/outcomes: Vaccination coverage, quality of services	
Findings	**Coverage** • Only one study reported on changes in coverage of MNCHN-FP services. It found that vaccination coverage did not change as a result of integration. **Quality of care** • Two of the seven studies reported on quality of services; neither study reported an effect on quality of services due to the intervention. **Use of MNCHN and FP services** • No studies reported on use of MNCHN and FP services. **Cost** • No studies reported on cost or cost-effectiveness. **Effectiveness** • Three studies reported on infant mortality and found no effect of the intervention on this outcome. • Two studies reported on morbidity; one study found a positive effect on infant morbidity (80% lower adverse neonatal outcomes in the intervention group) and one study reported no effect on various maternal morbidity outcomes. • All seven of the included studies reported on family planning use; four studies found no effect due to the intervention. Of the three that found an effect, one study reported that those in the intervention group were 1.35 (p=0.007) times more likely to use reliable contraception at six months postpartum; another study found FP use was at 35% in the primary intervention group compared to 27% in the control group; and the final study indicated that 80% of those in the intervention group used contraceptives at follow-up compared to 38% in the control group. • No studies reported on STI incidence, unmet FP need, attended or safe deliveries, or stigma. **Rigor** • The rigor score of the seven included RCTs was high. Out of a possible score of 9, the average score was 6.3 (range 5–8). **Promoting and inhibiting factors** • Promoting factors included staff retention, high community involvement, personality of the midwives involved in the intervention and their ability to help mothers coordinate care more effectively during home visits, mobilization of clinics to the community level, using a patient-centered model, the provision of FP methods free of charge, and face-to-face interactions.	

Studies	7 peer-reviewed studies (Barnet, 2007; Bashour, 2008; Bolam, 1998; Debpuur, 2002; Nobili, 2007; Quinlivan, 2003; Zhu, 2009)	
Locations	1 in the United States 1 in Italy 1 in Australia	1 in Syria 1 in Nepal 1 in Ghana 1 in China
	• Inhibiting factors included the results of home visits not always being communicated to the primary care provider, short interventions, lack of sustainability of interventions, necessity of having midwives from the local community, difficulty in working with inherited practices and attitudes, many challenges related to promoting continued breastfeeding, overwhelming workloads for staff, and lack of male partner involvement.	

ANALYSIS OF CO-LOCATED VERSUS REFERRAL SERVICES

A separate analysis was conducted of studies that specifically compared services that were offered in the same place to those that referred clients to another location for certain services. The studies below all had at least two arms, one with co-located services and one with clients referred elsewhere for certain services.

Studies	4 peer-reviewed studies (Nobili 2007, Routh 2001, Solo 1999, Zhu 2009)	
Locations	1 in Italy 1 in Bangladesh	1 in China 1 in Kenya
Interventions	• All studies analyzed interventions that compared co-located services (i.e., provision of MNCHN and FP services by the same provider or in the same location) with referral services (i.e., referring patients to another location for FP services). • Four studies met inclusion criteria (three were PAC-FP integration studies); all of these studies reported outcomes comparing the co-located and referral services. (One study in Nepal compared co-located to referral services but did not report outcomes.)	
Reported Outcomes	Health outcomes: Maternal morbidity, pregnancy, unplanned pregnancy Behavioral outcomes: FP use Process data/outcomes: Use of FP or MNCHN services, quality of services, costs	
Findings	**Coverage** • No studies reported on coverage of MNCHN or FP services. **Quality of care** • No studies reported on quality of care. **Use of MNCHN and FP services** • Two studies reported on use of MNCHN and FP services; one found an increase in use of MNCHN and FP services as a result of co-located services, whereas the other found mixed effects. **Cost** • Only one study reported on cost, finding that although co-located services were more cost-effective, they also required higher up-front costs.	

Studies	4 peer-reviewed studies (Nobili 2007, Routh 2001, Solo 1999, Zhu 2009)	
Locations	1 in Italy 1 in Bangladesh	1 in China 1 in Kenya
	Effectiveness • All four studies reported on FP use. Two studies reported that FP use was higher for co-located services compared to referral services. The other two studies found mixed outcomes due to co-located services. • Only two of the studies reported on any other health or behavioral outcomes. One found that unplanned pregnancies and abortions did not change due to co-located services but that condom use increased. The other found that morbidity decreased as a result of co-located services but that there was a mixed effect on pregnancy outcomes. **Rigor** • The average rigor score was 4.5 out of 9 (range 2–7). **Promoting and inhibiting factors** • Promoting factors included a culturally appropriate and patient-centered model of care, timing of the FP intervention (before termination of pregnancy), provider acceptance of new staffing and responsibilities, existing on-site availability of FP resources and free contraceptives, male partner involvement, and a multi-component intervention. • Inhibiting factors included lack of sustainability, lack of coordination between units and poor patient flow, high cost of provider training and high staff workload, and cultural limitations around male involvement.	

SUMMARY OF UNPUBLISHED STUDIES

Unpublished studies were reviewed separately from those published in the peer-reviewed literature. The studies were divided into two groups based on the type of MNCHN services integrated with FP services: post-abortion care (11 studies) or other MNCHN services (10 studies). The cities and countries, intervention descriptions, and key outcomes reported are briefly described in Figure 6.

Figure 6. Unpublished Studies

First author, year	City, country	Brief description of the intervention	Key outcomes measured pre/post or multi-arm
Unpublished studies reporting on post-abortion care and FP services (11 studies)			
Benson, 2002	Lima, Peru	Improvement of the quality of care of PAC services at a tertiary care hospital. Intervention included training of staff involved in PAC service delivery, switch from sharp curettage to MVA, switch from inpatient to outpatient service, and provision of contraceptives and FP information. This is a follow-up study to determine sustainability of the program.	Provision of FP and medical care information FP use Length of hospital stay

First author, year	City, country	Brief description of the intervention	Key outcomes measured pre/post or multi-arm
Billings, 2003	La Paz, Santa Cruz, and Sucre, Bolivia	Free post-abortion care in three hospitals, aiming to increase women's access to services, reduce the cost of delivery and length of hospital stay, and improve quality of care. The interventions consisted of reorganization of services, PAC training and refresher training, and supportive supervision.	Quality of services (e.g., informing women of their health status) Unmet FP need FP use Pregnancy Cost of services
Billings, 2007	Bolivia, Guatemala, Honduras, Mexico, Nicaragua, Peru, Dominican Republic	A collection of multiple reports from the countries listed all focused on providing post-abortion care in a hospital setting. All interventions contained three main components: (1) rapid treatment of complications due to an unsafe or spontaneous abortion, (2) contraceptive provision to help meet women's contraceptive needs and help avoid repeated abortions, and (3) provision on-site or via referral of additional reproductive health services needed as a result of abortion complications.	Use of FP or MNCHN services Quality of FP or MNCHN services FP use Cost
McCarraher, 2007	Santo Domingo and La Romana, Dominican Republic	An intervention to improve the quality of post-abortion care for adolescents was implemented in four public hospitals. The intervention consisted of provider training, youth friendly materials, and FP counseling and methods.	FP use Receipt of counseling on pregnancy risk, post-abortion complications, and HIV/STI
Medina, 2001	Honduras	Improvement of postpartum and post-abortion care FP services in five hospitals. Intervention included staff training, equipment provision, clinical and educational materials, and quarterly meetings to analyze achievements and plan new activities.	Receipt of information about contraceptive methods Clients being offered a contraceptive method FP use Unmet need for FP
Savelieva, 2003	Perm, Russia	Two models of post-abortion care service improvement were compared at five health care facilities. Model I consisted of training providers in FP counseling and interpersonal communication skills, and provider job aids and client-education materials. Model II consisted of Model I activities as well as a free initial supply of contraceptives to clients.	FP use Repeat abortion Cost to client of contraceptive methods vs. abortion

First author, year	City, country	Brief description of the intervention	Key outcomes measured pre/post or multi-arm
Tesfaye, 2006	Addis Ababa, Amhara, and Oromia regions, Ethiopia	The intervention was conducted at 42 facilities in three regions in Ethiopia and included provider training, MVA equipment, pain management, counseling, FP and referral for FP, and training of community health workers.	Quality of services (e.g., availability of contraceptives, MVA, and antibiotics)
Thiam, 2006	Senegal (23 districts)	An intervention was implemented to scale up the availability of PAC in health centers and health posts.	Use of PAC services Provision of counseling to clients FP use
Wanjiru, 2007	Mwanza province, Tanzania	An intervention to decentralize the management of post-abortion care from district hospitals to 11 primary health care facilities. The intervention consisted of introduction of the PAC model and community education and mobilizations.	Use of PAC services Receiving counseling on FP FP use Program cost Cost to clients
Wickstrom, 2008	Nakuru, Kenya	Community mobilization for post-abortion care to improve community participation and increase access to reproductive health and FP services, especially PAC.	FP use and continuation
Youssef, 2007	Fayoum and Beni Suef governorates, Egypt	Comparison of two models of post-abortion care in six hospitals. Model I consisted of training providers on MVA, pain control, and post-abortion FP counseling and referral. Clients were given a post-abortion brochure. Model II consisted of implementing Model I for three months, followed by re-organization of care in order to offer FP on the OB/GYN ward.	Client receipt of FP counseling Referral to FP clinic
Unpublished studies reporting on other MNCHN and FP services (10 studies)			
Abdel-Tawab, 2008	Assiut and Sohag, Upper Egypt	Six districts randomized to receive one of two models of birth spacing messages. For Model I (health services model), health workers communicated birth spacing messages to women through services during prenatal and postpartum periods. Model II (community awareness model) provided this service and included an awareness-raising component that targeted men through influential members of the community.	Use of FP or MNCHN services
Cappa, 2007	16 regions of the Russian Federation	Comprehensive maternity and infant care program integrating FP. The program helped regional and municipal government-supported health facilities adopt internationally recognized, client-centered, evidence-based maternal and	Unplanned pregnancy Quality of FP or MNCHN services

First author, year	City, country	Brief description of the intervention	Key outcomes measured pre/post or multi-arm
		child health standards and practices in multiple areas: antenatal care; family-centered maternity care; essential newborn care; exclusive breastfeeding; and FP counseling and services, especially for postpartum and post-abortion clients.	Coverage of FP or MNCHN services
Jacobs, 2002	Multiple regions in Guatemala	Aimed to provide comprehensive care to mothers and children during the first year postpartum; to train physicians, nurses, auxiliary nurses, and social workers in its use; and to develop and test strategies and materials for training community health agents who provide services for new mothers during the first year postpartum. It also collected data to establish if these strategies improved the quality and comprehensiveness of the care received by mothers and children less than 1 year of age.	Use of FP or MNCHN services FP use
Lynam, 1994	Kenya (city/district not given)	Engender Health, together with the Kenya MoH and the Christian Health Association of Kenya (CHAK), used the COPE (Client Oriented and Providers Efficient) exercise to identify reasons behind missed opportunities for FP services within health facilities. The partners then developed an action plan to address the issues. The intervention included training providers and staff from MCH clinics (from a government and a mission hospital) on available FP services and materials, promoting the use of FP I&E within their clinics, and encouraging health workers to be more proactive in asking clients if they need/want FP. The importance of linked services was emphasized. Assessments (client interviews) were conducted immediately post-intervention and six months later.	FP use (received FP method before discharge) Unmet FP need (missed opportunities) Quality of FP or MNCHN services (received FP I&E)
Mwangi, 2008	Embu district, Kenya	The PNC-FP package increased both the recommended timing and content of PNC services (48 hours, two weeks, six weeks, and six months post-delivery for checkups at the MCH clinic). Intervention was carried out at one hospital and four health centers in the district. The content of each visit was specific to the timing of the visit, such that it would be "focused" postnatal care. Components included STI screening, maternal health checks, counseling on self care (breast care, clean perineum, maternal nutrition), vitamin A supplementation, newborn checks and counseling on basic newborn care (exclusive breastfeeding, clean	FP use Quality of FP or MNCHN services (FP counseling, recommended check-ups, provider's MNCHN knowledge)

First author, year	City, country	Brief description of the intervention	Key outcomes measured pre/post or multi-arm
		cord care, warmth, infant feeding, hygiene, infant growth monitoring and immunization), danger signs for mother and newborn in postnatal period, FP information and services or referral, HIV testing (if status not known), nutritional and other supportive advice for HIV-positive women, antiretroviral therapy (ART) for HIV-positive women and babies, as well as follow-up consultations if required. A three-day training was conducted for providers, and a new postnatal register was used. A pre-/post-intervention evaluation among providers and clients was carried out to assess quality of care and uptake of services.	
Gasco, 2006	Multiple districts throughout Romania	The Romanian Family Health Initiative (RFHI) rapidly expanded access to FP services and supplies by integrating FP into primary health care delivery. The program had three components: (1) training rural family health doctors and nurses at primary health care centers in contraceptive technology and client-centered counseling, (2) contraceptive supplies, and (3) demand-creation activities.	Mortality FP use
Shaheen, 2002	West Bank and Gaza, Palestine	The Pilot Health Project basic service delivery model includes home visits by a community health worker (CHW) to women two to three days postpartum. The study intervention involved adding a second home visit to consenting women of low parity 30–38 days after delivery by the same CHW who conducted the first visit. During the second home visit the CHW reminded the women about their day 40 clinic visit for postpartum care and highlighted the importance and benefits of that visit. The CHW also provided counseling and health education specific to low-parity women and their husbands (if available) relating to maternal and child health, contraception, and breast and cervical cancer awareness and prevention. CHWs were trained to provide counseling and services tailored to the needs of low-parity women.	FP use Breastfeeding
Varkey, 2004	New Delhi, India	Six dispensaries were chosen as study sites (three interventions, three controls). The study encouraged husbands to participate in their wives ANC and PNC and included and individual or group counseling session in the antenatal clinic, separately for men and women; couple	Condom use FP use Breastfeeding Vaccination coverage for infants

First author, year	City, country	Brief description of the intervention	Key outcomes measured pre/post or multi-arm
		counseling sessions in antenatal and postnatal clinics; screening of all pregnant women for syphilis using the RPR test; and syndromic management of men reporting urethral discharge and men and women reporting genital ulcers during individual counseling. Pre- and post-intervention (at six months) assessments were conducted.	and children Quality of FP or MNCHN services (clients' knowledge of dual protection condom use, breastfeeding, and pregnancy danger signs; STI screening; client–provider interaction and satisfaction) Cost
Warren, 2008a	Butha Buthe district, Lesotho	A postpartum package of care with three consultations within 48 hours, one week, and six weeks after delivery was developed to strengthen linkages with existing preventing mother-to-child transmission of HIV (PMTCT) follow-up services and FP services. A postpartum register was also introduced. Intervention sites included the district hospital and four public health facilities. The postpartum family planning (PPC-FP) package of care consists of STI screening, maternal health checks, counseling on self care (breast care, maternal nutrition), vitamin A supplementation, newborn checks and counseling on basic newborn care (exclusive breastfeeding, infant feeding, hygiene, infant growth monitoring, and immunization), danger signs for mother and newborn in the postnatal period, FP information and services or referral, HIV testing (if status not known), nutritional and other supportive advice for HIV-positive women and ART for HIV-positive women and babies, as well follow-up consultations if required. A three-day training was conducted with providers. A pre-/post-intervention evaluation among providers and clients was carried out to assess quality of care and uptake of services.	Condom use FP use Use of FP or MNCHN services (# of women attending postpartum care) Quality of FP or MNCHN services (FP counseling, recommended check-ups, provider's MNCHN knowledge, infant feeding counseling, client satisfaction)
Warren, 2008b	Manzini and Hhohho regions, Swaziland	Intervention sites were three maternity units and four public health units or maternal child health (MCH) clinics. The intervention improves the timing and content of care for both mother and infant care occurred at the following intervals: after birth and pre-discharge, within one week in the MCH clinic, and after six weeks in the MCH clinic. The	Breastfeeding Use of FP or MNCHN services (# of women attending PNC, HIV testing, # of partners who underwent HIV

First author, year	City, country	Brief description of the intervention	Key outcomes measured pre/post or multi-arm
		mother and her newborn were to be seen by the same health provider and all necessary services rendered at the same time (FP, PNC, PMTCT follow up, infant immunizations, and growth monitoring). In each setting, HIV testing and counseling were provided, including partner counseling and testing. For HIV-positive women, providers included information on CTX prophylaxis, infant feeding options, and OI information. These women were also asked about the HIV status of their partners. Verification of care and treatment by HIV-positive postpartum women was also conducted.	testing and shared results) Quality of FP or MNCHN services (all aspects of linked care presented to clients, provider's MNCHN knowledge, provider's MNCHN knowledge with HIV-positive women, HIV testing and counseling, care and support for HIV-positive postpartum women and HIV-exposed infants, FP counseling among postpartum women)

IV. CONCLUSIONS

OVERALL FINDINGS

- A total of 36 peer-reviewed articles met the inclusion criteria, and they reported on 29 distinct interventions. Ten were conducted in sub-Saharan Africa; nine in South Asia; three in Latin America; two in East Asia; and one each in Russia, Syria, Italy, the United States, and Australia.
- Seven studies used a randomized control trial design; most studies used less rigorous designs such as pre/post or cross-sectional with a comparison group. The average rigor score of the studies was 3.2 (range 1–8).
- Integrating MNCHN and FP services was feasible. Despite the variety of integration models, settings, and target populations, most studies reported that integration had a positive impact on reported outcomes; however, many studies also reported mixed effects or no effect on some outcomes. No studies reported negative outcomes due to providing integrated services, although this could be the result of publication bias—studies are more likely to be published if they have positive results.
- Fifteen interventions involved several MNCHN services; all other interventions offered only one type of MNCHN service.
- Eight interventions offered only FP counseling and education, without FP contraceptive services/commodity provision. Interventions that provided contraceptive commodities in addition to FP counseling and education were more likely to report increased use of contraceptives compared to interventions that did not offer contraceptive commodities.
- Most studies that measured use of MNCHN and FP services reported an increase in use due to integration (11 out of 15). Moreover, all but one study that measured the quality of services showed that quality improved after integration (11 out of 12).
- Few studies (four) reported on the cost of providing integrated services, and none of them found integration of services to result in increased costs. Although two studies did find the initial costs of providing integrated services to be higher, over time—and with enhanced capacity utilization—integrated services were more cost-effective (as measured by cost per birth averted and/or quality-adjusted life years gained) than traditional services.
- *An analysis of the four studies that compared co-located and referral services found that co-located services were more cost-effective (although with higher up-front costs) and resulted in higher contraceptive and condom use, and fewer unplanned pregnancies and induced abortions (though this was not statistically significant).*

GAPS IN THE RESEARCH

Although this review included a large number of studies, it also identified several gaps in the existing evidence.

- Few studies had rigorously designed evaluations. Only seven studies were randomized controlled trials. Many studies were cross-sectional (with a comparison group) or serial cross-sectional designs and had low rigor scores.
- Few studies specifically compared integrated MNCHN and FP services to the same services offered separately.
- Few studies examined FP services integrated with maternal and infant nutrition services.

- All studies targeted women; only three studies also targeted men, even though men in most resource-limited and traditional settings influence fertility decisions and actions. Four studies explicitly recommended greater male involvement, indentifying the lack of male involvement as a limiting factor in study success.
- Few studies reported on cost data and only one measured cost-effectiveness, despite the fact that cost-effectiveness remains a key argument in favor of integration. Furthermore, few studies measured coverage of services as an outcome.
- No studies measured changes in the costs to clients, including transportation cost and time spent. Few studies asked clients what they wanted or sought to determine how clients made decisions.
- No studies reported negative results of integration. This is likely due to publication bias, as negative results are often not reported. Since much can be learned from integration interventions that failed to achieve desired results, these studies should be reported widely.
- Few of the studies provided sufficient information about the interventions to allow them to be replicated.
- Few studies sought to scale up a successful integration intervention or measured and compared the success of the intervention across a variety of settings.

RECOMMENDATIONS FOR FUTURE RESEARCH

The rigor score criteria used in this review can provide a guide for improving future evaluations of integrated MNCHN and FP services. Using these techniques will allow a basis of comparison for post-intervention evaluation data and will also reduce bias and confounding. Three techniques offer a basis of comparison: (1) following a cohort of subjects over time, (2) collecting pre-intervention data to compare to post-intervention data, and (3) including a control or a comparison group. A number of techniques can be used to reduce bias and confounding in evaluation studies: (1) randomly assigning participants to the intervention group; (2) randomly selecting subjects, or including all participants, for assessment; (3) retaining as many subjects in the evaluation over time as possible; (4) having comparison groups that are equivalent at baseline on sociodemographic and outcome measures; and (5) using data analytic techniques that control for potential confounders. Although it is not always possible to use all of these techniques, employing as many as feasible will improve the quality of the evaluation and make the results more reliable.

STRENGTHS AND LIMITATIONS OF THE REVIEW

Strengths

The two main strengths of this review are its broad scope and systematic methodology. We attempted to define and cover the entire field of MNCHN and FP linkages. We also used standard Cochrane methods to systematically review and analyze this body of evidence.

Limitations

The strengths of this review are also its limitations. Because this review was so broad in scope, including a wide variety study types, it was difficult to synthesize data. The included studies were heterogeneous in terms of their interventions, populations, research questions and objectives, study designs, rigor, and outcomes.

Publication bias is an inevitable limitation of systematic reviews of the literature, as studies with negative findings are less likely to be published. In addition, given the nature of distribution of unpublished reports, our search strategy may not have captured all of them.

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MF6: Contraceptive Service/Commodity Provision and Intrapartum/Childbirth Services

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MF7: Family Planning Education and Counseling and Postnatal Care

Agha, S., A. M. Karim, A. Balal, and S. Sosler "The impact of a reproductive health franchise on client satisfaction in rural Nepal." *Health Policy and Planning.* 2007; 22(5):320–328.

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MF11: Family Planning Education and Counseling and Nutrition Services

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MF12: Contraceptive Service/Commodity Provision and Nutrition Services

Alvarado, R., A. Zepeda, S. Rivero, N. Rico, S. Lopez, and S. Diaz. "Integrated maternal and infant health care in the postpartum period in a poor neighborhood in Santiago, Chile." *Studies in Family Planning.* 1999; 30(2):133–141.

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ANNOTATED BIBLIOGRAPHY OF INCLUDED STUDIES

The following annotated bibliography includes short abstracts, taken from the journals in which the studies appear.

Agha, S., A. M. Karim, A. Balal, and S. Sosler "The impact of a reproductive health franchise on client satisfaction in rural Nepal." *Health Policy and Planning.* 2007; 22(5):320–328.

> This study evaluates the impact of a nurse and paramedic reproductive health franchise in rural Nepal on client satisfaction and utilization of services. A quasi-experimental study design, with baseline and follow-up measurements on nonequivalent control groups, was used to assess the effects of the intervention. The study collected data from exit interviews with male and female clients at clinics and from household interviews with married women. Our assessment covers the project's performance for about a year of actual implementation. Client satisfaction with the quality of services increased across a range of indicators at intervention clinics but not at control clinics. Overall satisfaction with services also increased only at intervention clinics but not at control clinics. Consistent with these changes, loyalty increased among clients of franchised

clinics. The analysis showed a positive relationship between client satisfaction and loyalty. Although the project's implementation was examined over a relatively short period of time, there appears to have been a net positive effect of the intervention on obtaining family planning products from medical stores/pharmacies. The study shows that franchising reproductive health services increases a provider's interest in delivering better quality services in rural areas of a developing country.

Alvarado, R., A. Zepeda, S. Rivero, N. Rico, S. Lopez, and S. Diaz. "Integrated maternal and infant health care in the postpartum period in a poor neighborhood in Santiago, Chile." *Studies in Family Planning.* 1999; 30(2):133–141.

An integrated postpartum health care program was established by the Consultorio San Luis de Huechuraba (CSLH), a non-governmental organization in a neighborhood of extreme poverty in Santiago, Chile. The main components were education, maternal and infant health care, support for the mothers, and active participation of women from the community served. The program was evaluated through indicators of contraceptive use, breastfeeding performance, infant growth and health, and a qualitative assessment of women's satisfaction. Controls were women of similar characteristics attending the nearby public clinic. Acceptability of contraceptive methods was similar but contraceptive options differed between clinics. The total number of pregnancies and of respondents lost to follow-up was significantly higher for the public clinic than for the CSLH. Breastfeeding duration was significantly longer and infant growth and health were found to be significantly better at the CSLH than at the public clinic. Women valued being treated with respect, receiving education and support, and being offered timesaving services and wider contraceptive choices at the CSLH. This study demonstrates that such interventions are possible for poor communities, providing significant advantages for women and children.

Amin, R., M. St. Pierre, A. Ahmed, and R. Haq. "Integration of an essential services package (ESP) in child and reproductive health and family planning with a micro-credit program for poor women: Experience from a pilot project in rural Bangladesh." *World Development.* 2001; 29(9):1611–1621.

In early 1992, a two-phased pilot project, initially integrating a micro-credit program for poor women with a family planning and expanded program of immunization (EPI) (in the first phase) and subsequently and incrementally with an essential services package (ESP) in reproductive and maternal and child health (in the second phase), was initiated in rural Bangladesh. Data on the project show that there has been a significant increase in contraceptive use and a decline in fertility since the initiation of the first phase of the project. There also has been an increase in the dissemination of information on and utilization of ESP medical technologies in the intervention community at large.

Barnet, B., J. X. Liu, M. DeVoe, K. Alperovitz-Bichell, and A. K. Duggan. "Home visiting for adolescent mothers: Effects on parenting, maternal life course, and primary care linkage." *Annals of Family Medicine.* 2007; 5(3):224–232.

Purpose: Adolescent mothers are at risk for rapidly becoming pregnant again and for depression, school dropout, and poor parenting. We evaluated the impact of a community-based home visiting program on these outcomes and on linking the adolescents with primary care. Methods: Pregnant adolescents aged 12 to 18 years, predominantly with low incomes and of African -American race, were recruited from urban prenatal care sites and randomly assigned to home visiting or usual care. Trained home visitors, recruited from local communities, were paired with each adolescent and provided services through the child's second birthday. They delivered a parenting

curriculum, encouraged contraceptive use, connected the teen with primary care, and promoted school continuation. Research assistants collected data via structured interviews at baseline and at one and two years of follow-up using validated instruments to measure parenting (Adult–Adolescent Parenting Inventory) and depression (Center for Epidemiologic Studies Depression). School status and repeat pregnancy were self-reported. We measured program impact over time with intention-to-treat analyses using generalized estimating equations (GEE). Results: Of 122 eligible pregnant adolescents, 84 consented, completed baseline assessments, and were randomized to a home-visited group (n=44) or a control group (n=40). Eighty-three percent completed year 1 or year 2 follow-up assessments, or both. With GEE, controlling for baseline differences, follow-up parenting scores for home-visited teens were 5.5 points higher than those for control teens (95% confidence interval, 0.5–10.4 points; P=.03), and their adjusted odds of school continuation were 3.5 times greater (95% confidence interval, 1.1–11.8; P<.05). The program did not have any impact on repeat pregnancy, depression, or linkage with primary care. Conclusions: This community-based home visiting program improved adolescent mothers' parenting attitudes and school continuation, but it did not reduce their odds of repeat pregnancy or depression or achieve coordination with primary care. Coordinated care may require explicit mechanisms to promote communication between the community program and primary care.

Bashour, H.N., M.H. Kharouf, A.A. Abdulsalam, K. El Asmar, M.A. Tabbaa, and S. A. Cheikha. "Effect of postnatal home visits on maternal/infant outcomes in Syria: A randomized controlled trial." *Public Health Nursing.* 2008; 25(2):115–125.

Objective: Early postpartum home visiting is universal in many Western countries. Studies from developing countries on the effects of home visits are rare. In Syria, where the postpartum period is rather ignored, this study aimed to assess whether a community-based intervention of postnatal home visits has an effect on maternal postpartum morbidities, infant morbidity, uptake of postpartum care, use of contraceptive methods, and on selected neonatal health practices. Design**:** A randomized controlled trial was carried out in Damascus. Three groups of new mothers were randomly allocated to receive either four postnatal home visits (A), one visit (B), or no visit (C). Sample: A total of 876 women were allocated and followed up. Intervention: Registered midwives with special training made one or a series of home visits providing information, educating, and supporting women. Results: A significantly higher proportion of mothers in Groups A and B reported exclusively breastfeeding their infants (28.5% and 30%, respectively) as compared with Group C (20%), who received no visits. There were no reported differences between groups in other outcomes. Conclusions: While postpartum home visits significantly increased exclusive breastfeeding, other outcomes did not change. Further studies framed in a nonbiomedical context are needed. Other innovative approaches to improve postnatal care in Syria are needed.

Billings, D.L., J. Velasquez Fuentes, and R. Perez-Cuevas. "Comparing the quality of three models of postabortion care in public hospitals in Mexico City." *International Family Planning Perspectives.* 2003; 29(3):112–120.

Context: Each year, an estimated 120,000 women in Mexico seek treatment in public hospitals for abortion-related complications—the country's fourth leading cause of maternal mortality. Models of post-abortion care emphasizing counseling and provision of contraceptives have the potential to improve the quality of care these women receive. Methods: Between April 1997 and August 1998, women treated for abortion

complications in six Mexican Institute of Social Security (IMSS) hospitals in the Mexico City metropolitan area were surveyed. Data related to patient–provider interaction, information provision, and counseling were analyzed for three models of care: sharp curettage standard care, sharp curettage post-abortion care, and manual vacuum aspiration post-abortion care. Results: Women in the two post-abortion care groups rated the quality of services they received more highly than did those receiving sharp curettage standard care. A significantly greater proportion of women treated under the post-abortion care models than of those treated under the sharp curettage standard model received information about their health status before treatment, the uterine evacuation procedure, signs of post-abortion complications, and care at home. In addition, a greater proportion of women treated under the postabortion care models accepted a contraceptive method before leaving the facility (64%–78% vs. 40%). Conclusions: Implementation of a post-abortion care model contributes to the delivery of high-quality services to women experiencing abortion complications. The standard IMSS model of post-abortion treatment should be modified to emulate those in hospitals that systematically link general counseling and family planning services to the clinical services provided to women with abortion complications.

Bolam, A., D. S. Manandhar, P. Shrestha, M. Ellis, and A. M. Costello. "The effects of postnatal health education for mothers on infant care and family planning practices in Nepal: A randomised controlled trial." *British Medical Journal.* 1998; 316(7134):805–811.

Objectives: To evaluate impact of postnatal health education for mothers on infant care and postnatal family planning practices in Nepal. Design: Randomized controlled trial with community follow-up at three and six months postpartum by interview. Initial household survey of study areas to identify all pregnant women to facilitate follow-up. Setting: Main maternity hospital in Kathmandu, Nepal. Follow up in urban Kathmandu and a periurban area southwest of the city. Subjects: 540 mothers randomly allocated to one of four groups: health education immediately after birth and three months later (group A), at birth only (group B), at three months only (group C), or none (group D). Interventions: Structured baseline household questionnaire; 20 minute, one to one health education at birth and three months later. Main Outcome Measures: Duration of exclusive breast feeding, appropriate immunization of infant, knowledge of oral rehydration solution and need to continue breast feeding in diarrhoea, knowledge of infant signs suggesting pneumonia, uptake of postnatal family planning. Results: Mothers in groups A and B (received health education at birth) were slightly more likely to use contraception at six months after birth compared with mothers in groups C and D (no health education at birth) (odds ratio 1.62, 95% confidence interval 1.06 to 2.5). There were no other significant differences between groups with regards to infant feeding, infant care, or immunization. Conclusions: Our findings suggest that the recommended practice of individual health education for postnatal mothers in poor communities has no impact on infant feeding, care, or immunization, although uptake of family planning may be slightly enhanced.

Bossyns, P., H. Miye, et al. "Supply-level measures to increase uptake of family planning services in Niger: The effectiveness of improving responsiveness." *Tropical Medicine & International Health.* 2002; 7(4):383–390.

Objective: To show that low-cost attitudinal, structural, and procedural changes aimed at improving responsiveness to patients have the potential to increase uptake of family planning (FP) even among populations considered reluctant to do so by health personnel. Methods: Intervention study with before–after comparison of contraceptive acceptance, couple-years of protection (CYP), and an "index of contraceptive uptake" (IUC) in rural health centers in Niger. The intervention consists of a package of

instructions to actively propose family planning, integrated within curative and under-5s consultations, coupled with measures to increase the health centers' responsiveness to their clients. Results: Implementation of the intervention package was followed by marked increases in family planning uptake. Conclusion: Health services in Niger present an untapped potential for improving family planning through low-cost supply-side measures.

Cisse, C. T., A. Diagne, and H. O. el Faye. "Improving the quality of care after spontaneous abortions in rural Senegal." *Sante.* 2004; 14(4):245–50.

Objectives: To evaluate the feasibility and impact on quality of decentralizing care for spontaneous abortion (post-abortion care, PAC) in rural areas of Senegal. Patients and Method: This prospective study concerns all patients who had PAC services at six medical centers in the districts of Kaolack and Fatick. A pre-intervention baseline study was performed to evaluate the number of cases treated in these centers. We then introduced a new treatment protocol for PAC, which included manual vacuum aspiration (MVA) and quarterly visits for supervision in each centre from 1 August 2001 through 30 September 2002. An evaluation was performed at the end of the program and 6 months after that. Results were compared with the baseline data for the 14 months before the intervention period. We used the chi(2) test to compare proportions and set the threshold of significance at 5%. Results: The new model for PAC made it possible to increase the number of patients treated for incomplete abortion by 22%. Their average age was 25 years, and 71% had first-trimester pregnancy losses. MVA was performed for 56%. Hospitalization lasted a mean of 4 hours compared with the 48 hours at baseline, and the proportion of patients referred to the regional hospital for complications fell from 35% to 7%. The mean direct average cost fell by 3,500 CFA. The number of patients with contraception in place before discharge rose from 0% to 20%, and 94% of the patients questioned were satisfied with the quality of the services they received. Six months after the program ended, the level of utilization of PAC services continued to increase (by 11%) and the proportion leaving with contraception reached 33%. Conclusion: Decentralization of PAC treatment in rural areas is possible without major expense, and it improves care for women with incomplete abortions.

David, P. H., L. Reichenbach, I. Savelieva, N. Varapetova, and R. Potemkina. "Women's reproductive health needs in Russia: What can we learn from an intervention to improve post-abortion care?" *Health Policy and Planning.* 2007; 22(2):83–94.

It has been well documented that abortion is a common means of controlling fertility in Russia. Women undergo repeat abortions throughout their reproductive lives, but recent studies of abortion trends in the Russian Federation suggest that abortion rates are on the decline, use of modern contraceptives is increasing, and women dislike abortion as a method of fertility control. Using data collected during 1999–2003 in women's health facilities in three Russian cities, this paper reports the results of an evaluation of interventions to improve post-abortion care, which show an impressive increase in post-abortion contraceptive counseling but no reduction in the rate at which women present at clinics for repeat abortions. The findings indicate a discrepancy between women's stated preferences for modern medical contraceptive methods and their abortion-seeking behavior. Further exploration of these data suggests that certain women resort to abortion with greater frequency than others, and points to the need for a more focused investigation of these women. These results indicate the complexities associated with changing what has been a relatively common and longstanding practice, and have implications for improving reproductive health services.

Meeting the reproductive health needs of Russian women requires not only improved provider and client knowledge but may also demand a more focused delivery of client-centered care than may be the case in other settings.

Delvaux, T., S. Saeur, T. Rathavy, F. Crabbe, and A. Buve. "Integration of comprehensive abortion-care services in a Maternal and Child Health clinic in Cambodia." *Tropical Medicine & International Health.* 2008; 13(8):962–969.

Objectives: To document the pilot experience of provision of safe abortion/post-abortion services implemented in 2002 at the Mother Child Health clinic in Sihanoukville, Cambodia, and to profile clients and assess their uptake of post-abortion contraception. Methods: The initial package of safe abortion/post-abortion clinics (SAPAC) services included counseling on family planning and prevention of sexually transmitted infections, pain management, manual vacuum aspiration procedure and standard universal precautions at an affordable price (US$12.5). SAPAC services became operational in August 2002. The data of medical records from 1 August 2002 to 31 December 2005 (2224 clients) were analyzed. Results: The mean number of clients per month attending SAPAC services ranged from 26 in 2002 to 64 in 2005. Fifty-three percent were housewives, 24% worked in sales or services, 8% in factories, 11% in bars or karaoke lounges, and 3% were brothel-based sex workers. Ninety-three percent of clients came for induced abortion and 7% sought post-abortion care. Pain management was used in 99% of cases. The overall rate of complications during intervention was 2.1% and dropped from 9.4% in 2002 to 1.3% in 2005. After SAPAC implementation, fewer women in Sihanoukville sought abortion services without any quality control and a safer technique was used. On average, 40% of patients took up contraception after the abortion. Conclusions: Integrating comprehensive abortion-care services at a peripheral government health facility is feasible. There is a demand for such services provided at an affordable price in Sihanoukville, Cambodia.

Douthwaite, M., and P. Ward. "Increasing contraceptive use in rural Pakistan: An evaluation of the Lady Health Worker Programme." *Health Policy and Planning.* 2005; 20(2):117–123.

Past efforts to promote family planning in Pakistan have been disappointing, but between 1990–1991 and 2000–2001 contraceptive use has more than doubled. This rise has coincided with a concerted effort on the part of the Pakistani government to increase access to contraceptive services, particularly in rural areas. The Lady Health Worker Programme (LHWP), initiated under the Ministry of Health in the early 1990s, aimed at integrating family planning into the doorstep provision of primary health care. This paper presents findings from the first national evaluation of this programme. Data are analyzed from a random sample survey of 4277 women living in households served by the LHWP and those living in control areas. Logistic regression analysis was performed to determine the effect of the programme on the uptake of modern reversible contraceptive methods, controlling for other independent variables. The data provide strong evidence that the LHWP has succeeded in increasing modern contraceptive use among rural women. Women served by Lady Health Workers are significantly more likely to use a modern reversible method than women in communities not served by the programme (OR=1.50, 95% CI=1.04-2.16, p=0.031), even after controlling for various household and individual characteristics. The model of providing doorstep services through community-based female workers should remain central to achieving universal access to safe family planning methods by the end of the decade—the long-term objective of Pakistan's most recent population policy adopted in 2002.

Fullerton, J., A. Fort, and K. Johal. "A case/comparison study in the Eastern Region of Ghana on the effects of incorporating selected reproductive health services on family planning services." *Midwifery.* 2003; 19(1):17–26.

> Objective**:** To assess the impact on the provision of family planning (FP) services when FP providers were also trained to provide additional, selected reproductive health services. Design: Case/comparison study. Participants and settings: Twenty-four FP service delivery points, in which training in sexually transmitted infection prevention and control services or post-abortion care services had been initiated (case facilities), were compared to 19 control facilities in which similar provider training had not yet been targeted. All settings were located in the Eastern Region of Ghana. Measurements: Service statistics for three study years (1996–1998) were reviewed. Structured interviews with providers, managers, and clients provided qualitative data concerning impact and satisfaction. Findings: Case facilities which had integrated these additional reproductive health (RH) services experienced consistently higher numbers of clients and the total number of clients receiving FP services increased over time. There was also a statistically significant increase in continuing FP clients within case facilities. In contrast, the number of FP clients serviced in the comparison area remained basically unchanged over time. Key conclusions: Interviews conducted with providers and managers in both types of settings indicated strong support for receipt of training to provide these integrated services and a request for additional training in an even broader array of RH and adult/child services. Clients also perceived the benefit of additional RH services and perceived these services to be of high quality. Implications for practice expanding the repertoire of clinical skills of FP providers, enabling these practitioners to render RH services that augment basic FP services, has the potential to increase the number of new and continuing FP clients, and increases the satisfaction of both providers and consumers with respect to these services.

Huntington, D. and A. Aplogan. "The integration of family planning and childhood immunization services in Togo." *Studies in Family Planning.* 1994; 25(3):176–183.

> Improvements in the constellation of services in the African context are largely addressed through attaining better measures of service integration, which can be achieved through improved referral across categories of health programs. The use of an unobtrusive referral message that linked family planning and the Expanded Program of Immunizations (EPI) services was tested in an operations research study in Togo. The introduction of the referral message was accompanied by an 18% increase in awareness of available family planning services and an increase in the average monthly number of new family planning clients of 54%. These positive results indicate that the use of referral can have a significant and dramatic impact on family planning services in a relatively short time. In Togo, no evidence existed of a negative impact on EPI services, and a majority of the EPI providers reported satisfaction with the effect of the referral message at the close of the study.

Johnson, B. R., S. Ndhlovu, S. L. Farr, and T. Chipato. "Reducing unplanned pregnancy and abortion in Zimbabwe through postabortion contraception." *Studies in Family Planning.* 2002; 33(2):195–202.

> In many countries, women treated for complications from spontaneous or unsafely induced abortion lack access to contraceptive services. As a result, many of them soon have a subsequent unplanned pregnancy or a repeat abortion, placing their health at increased risk. This report presents the results of a prospective intervention study on post-abortion family planning conducted in the two largest public hospitals in Zimbabwe.

Women at Harare Central Hospital, in the capital, received a post-abortion intervention, and Mpilo Central Hospital in Bulawayo served as the control site. The study cohort was 982 women, 527 of whom were followed for a 12-month period. During the follow-up period, significantly more women used highly effective methods of contraception, significantly fewer unplanned pregnancies occurred, and fewer repeat abortions were performed at the intervention site than at the control site. These results offer compelling evidence that ward-based contraceptive services provided to women treated for incomplete abortion can significantly reduce subsequent unplanned pregnancies. The results also suggest that post-abortion family planning services can reduce the incidence of repeat abortion.

Mahomed, K., J. Healy, and S. Tandom. "Family planning counselling—a priority for post abortion care." *Cent African Journal of Medicine.* 1997; 43(7):205–207.

Objective: To assess the impact of providing contraceptive care to post-abortal women. Design: This was a descriptive study in which data were collected through subject interviews. Setting: Women presenting with complications of abortion at Harare and Parirenyatwa Hospitals, Harare. Subjects: 2,050 women with complications of abortion. Main Outcome Measures: Use of a contraceptive method before and after the intervention. Results: Basic characteristics are similar to those reported previously. Seventy-six percent were not using any form of contraception prior to pregnancy. After the intervention, 97% were discharged with a contraceptive method of their choice. Conclusions: The results emphasize the importance of family planning in the prevention of unplanned pregnancies and the need to make these services easily available and accessible. Emphasis should initially be on eliminating need for abortion by provision of adequate family planning services.

Murray, S.A. "Family planning in rural Africa: Can it work?" *Family Practice.* 1990; 7(1):5–8.

High fertility is the major demographic problem presently affecting rural Kenya. Chogoria Hospital has attempted to provide a community-based family planning service to address this issue. This paper describes the intervention used and analyzes the current contraceptive practice in the area. It is concluded that community-based distribution of family planning commodities may be associated with a marked decrease in fertility rate and family size within a relatively short period. Family planning initiatives in Africa may be remarkably cost-effective interventions in the development of a nation and be associated with well-spaced and healthy children.

Nobili, M. P., S. Piergrossi, V. Brusati, and E. A. Moja. "The effect of patient-centered contraceptive counseling in women who undergo a voluntary termination of pregnancy." *Patient Education and Counseling.* 2007; 65(3):361–368.

Objective: The aim of the study was to evaluate, by means of a randomized controlled trial, whether a patient-centered contraceptive counseling intervention increased the use of contraception, and the knowledge and positive attitudes toward contraception, in women who undergo a termination of pregnancy (TOP). Methods: The study was carried out at the San Paolo Hospital of Milan between the 1st of February and the 31st of May 2004. Participants (41 women; ages 20–44 years) were randomly divided into two groups: an experimental group (n=20), who received patient-centered contraceptive counseling, and a control group (n=21), who received the routine treatment in use at the San Paolo Hospital and were referred to the community health centers after the TOP. Both groups were administered a questionnaire at two points in time (before the counseling and one month later) which evaluated participants' knowledge, attitudes, and use of contraception (the latter was also followed up three

months later). The counseling intervention lasted 30 minutes and was carried out by a psychologist and a gynecologist. Results: It was found that knowledge, favorable attitudes, and use of effective contraception increased significantly for the experimental group, whereas there was no significant change for the control group. Conclusion: The counseling intervention was therefore found to be efficacious in improving understanding and use of contraception in women who have undergone a TOP. The hope is that this will contribute to increased use of effective contraception in the future. Practice Implications: Following the principles of patient-centered medicine, this study provides evidence for the importance of exploring woman's feelings, beliefs, wishes, and expectations regarding contraception within a contraceptive counseling intervention.

Paxman, J. M., A. Sayeed, et al. "The India Local Initiatives Program: A model for expanding reproductive and child health services." *Studies in Family Planning.* 2005; 36(3):203–220.

The India Local Initiatives Program adapted a model used in Indonesia and Bangladesh to implement the government's reproductive and child health strategy. From 1999 to 2003, three Indian nongovernmental organizations (NGOs) provided services for 784,000 people in four northern states. The program established health committees in 620 villages, recruited and trained 1,850 community health volunteers, and added 232 sites to extend government services. Using three strategies—demand creation, increased access to services, and local capacity building—the NGOs increased contraceptive use rates by 78% on average, child immunizations by 67%, and antenatal care by 78% among the populations served. Community resources such as local health personnel, community-supplied clinic sites, and community drug funds added 40 cents to every dollar provided by donors. This model proved to be a suitable platform upon which to build health care service delivery and create behavioral change, and the NGOs quickly found ways to sustain and expand services

Quinlivan, J. A., H. Box, and S. F. Evans. "Postnatal home visits in teenage mothers: A randomised controlled trial." *Lancet.* 2003; 361(9361):893–900.

Background: Teenage pregnancies are associated with negative socioeconomic effects. Our aim was to ascertain whether a postnatal home visiting service for teenage mothers younger than age 18 years could reduce the frequency of adverse neonatal outcomes and improve knowledge of contraception, breastfeeding, and infant vaccination schedules in this parent group. Methods: We enrolled 139 adolescents, attending a teenage pregnancy clinic, in a randomized controlled trial. After completing an antenatal questionnaire designed to assess their knowledge of contraception, infant vaccination, and breastfeeding, we assigned participants to either receive five structured postnatal home visits by nurse–midwives (n=65) or not (n=71). Assessment interviews were done 6 months postpartum. Our primary endpoint was unadjusted difference in knowledge between groups and incidence of predefined adverse neonatal outcomes. Analysis was by intention to treat. Findings: Three women withdrew before randomisation because of late fetal loss, 11 mothers withdrew because of adverse neonatal outcomes (adverse neonatal outcome was a primary endpoint, but resulted in withdrawal from the study for knowledge outcomes), and one left voluntarily. Follow-up data were, therefore, available for 124 teenagers. Postnatal home visits were associated with a reduction in adverse neonatal outcomes (intervention: 2; control: 9; relative risk 0.24, 95% CI 0.05–1.08), and a significant increase in contraception knowledge (mean difference 0.92, 95% CI 0.32-1.52). However, there was no significant increase in knowledge with respect to breastfeeding or infant vaccination schedules associated with the home visits. Interpretation: Postnatal home visiting services by nurse–midwives reduce adverse

neonatal events and improve contraception outcomes but do not affect breastfeeding or infant vaccination knowledge or compliance.

Sathar, Z., A. Jain, S. RamaRao, M. ul Haque, and J. Kim. "Introducing client-centered reproductive health services in a Pakistani setting." *Studies in Family Planning.* 2005; 36(3):221–234.

Pakistan is a high-fertility country with elevated levels of maternal mortality and unmet need for family planning. Limited access to and poor quality of reproductive health services and gender-related problems comprise the major explanations for these poor indicators. The authors designed an intervention to address some of these issues and implemented it on a quasi-experimental basis in Bhalwal Tehsil of the Sargodha district of Punjab. The intervention introduced a client-centered approach to providing reproductive health services, including family planning and infant, child, and maternal health care. The intervention consisted of training health care providers based in fixed-location clinics and in communities. It introduced the concept of SAHR (an acronym for salutation, assessment, help, and reassurance) to inculcate a client-centered approach to care that acknowledges explicitly and addresses a client's gender and power relations within her family and household. Results of the intervention indicate significant effects on providers' behavior related to SAHR elements. The changes provide demonstrable evidence that the public sector can shift toward client-centered services in reproductive health care in a challenging setting.

Simmons, G. B., D. Balk, and K. K. Faiz. "Cost-effectiveness analysis of family planning programs in rural Bangladesh: Evidence from Matlab." *Studies in Family Planning.* 1991; 22(2):83–101.

The Family Planning Health Services Project in Matlab is often seen as more expensive than similar activities carried out by the government of Bangladesh. At the same time, it has been observed that the project is much more effective. The alleged high cost of the project is said to make it difficult to replicate throughout the nation. Previously, the true costs of the project had not been documented. This study systemically examines the cost of the project and assesses its cost-effectiveness. An experimental design framework is used as a basis for understanding the cost-effectiveness of the project, although a sensitivity analysis lends further support to the relative efficiency of the approach undertaken in Matlab. Although in the aggregate, the Matlab Project is more expensive than the government's family planning program, it is also more effective, generating enough output to offset the extra costs of the intensified delivery system.

Solo, J., D. L. Billings, C. Aloo-Obunga, A. Ominde, and M. Makumi. "Creating linkages between incomplete abortion treatment and family planning services in Kenya." *Studies in Family Planning.* 1999; 30(1):17–27.

Post-abortion care has received increasing emphasis as an important intervention to address part of the problem of unsafe abortion. Although a good deal of attention has been paid to improving emergency treatment of abortion complications, the other elements of post-abortion care, including providing post-abortion family planning services, have received less attention and are rarely found in health care settings around the world. This report describes a study that was conducted in Kenya to test three different models of ways to provide post-abortion family planning. The study shows that these new services are both feasible and acceptable to providers and patients, and also shows how effective they can be. Whereas only 7% of women received family planning counseling according to the baseline survey, this proportion increased to 68% in the post-intervention period. In addition, 70% of women who decided to begin using contraceptives received a method, compared with only 3% at baseline. The provision of

post-abortion family planning counseling and methods on the gynecological ward by ward staff was found to be the preferred and most effective model.

Sultan, M., J. G. Cleland, and M. M. Ali. "Assessment of a new approach to family planning services in rural Pakistan." *American Journal of Public Health.* 2002; 92(7):1168–1172.

Objectives**:** In 1993, the government of Pakistan started a new approach to the delivery of contraceptive services by training literate married women to provide doorstep advice and supplies in their own and neighboring communities. This report assesses whether this community-based approach is starting to have an impact on contraceptive use in rural areas. Methods: A clustered nationally representative survey was used to collect data on contraceptive use and access to services in each cluster. Two-level logistic regression was applied to assess the effects of service access, after potential confounders were taken into account. Results: Married women living within 5 km of two community-based workers were significantly more likely to be using a modern, reversible method of contraception than those with no access (odds ratio=1.74; 95% confidence interval=1.11, 2.71). Conclusions**:** After decades of failure, the managers of the family planning program have designed a way of presenting modern contraceptives that is appropriate to the conditions of rural Pakistan. The new community-based approach should be steadily expanded.

Vernon, R., J. R. Lopez-Canales, J. A. Carcamo, and J. Galindo. "The impact of a perinatal reproductive health program in Honduras." *International Family Planning Perspectives.* 1993; 19(3):103–109.

To improve perinatal service delivery at the Hospital Matemo-Infantil in Tegucigalpa, the Honduran Social Security System created a reproductive health program with five main components: a prenatal education program, a reproductive health counseling service, an expansion of contraceptive options offered in the postpartum period, a postpartum clinic for women to visit on the 40th day after birth, and an improved perinatal data collection system. The prenatal education program, attended by approximately half of the more than 6,000 women who delivered at the hospital during a 15-month period, significantly increased the women's knowledge about such topics as reproductive risk factors, warning signs during pregnancy, breastfeeding, and infant care. Rates of acceptance of postpartum family planning increased significantly and rapidly, from 9% of women who delivered in December 1990 to 47% in February 1992. Over a 10-month period, the number of women seeking family planning and reproductive health counseling increased from 33 per month to 296 per month. The proportion of women who returned for a checkup at 40 days postpartum increased from about 15% to almost 40%.

Warren, C., A. Mwangi, E. Oweya, R. Kamunya, and N. Koskei. "Safeguarding maternal and newborn health: Improving the quality of postnatal care in Kenya." *International Journal for Quality in Health Care.* 2010; 22(1):24–30.

Objective: To assess changes in the quality of care following the introduction of a new postnatal package. Design: Using a pre-test, post-test design to observe client–provider interactions with women 0–6 weeks postpartum. Setting: at four health facilities in a rural district, eastern Kenya. Participants: Health providers and postpartum women. Intervention: Introduction of comprehensive postnatal package of care, with three targeted assessments within 48 hours, of birth, one–two weeks, and six weeks to providers working in maternity and maternal and child health clinics. Main outcome measure: Improved quality of postnatal counseling. Results: Increased mean scores for counseling on danger signs in the newborn (0.24–1.39) and infant feeding (1.33–2.19)

were noted. The total quality of care index for the newborn increased overall but remained lower than desired (from 3.37–to 6.45 out of 11). Essential maternal care index improved (3.4–8.72 out of 23). More women accepted a family planning method at 6 weeks (35%–63%). Conclusions: The introduction of new comprehensive postnatal care package improved performance of providers in counseling in maternal and newborn complications, infant feeding, and family planning. Additional studies looking at the postpartum family planning needs for women living with HIV would also be useful. However, providers would benefit from additional clinical skills for managing maternal and newborn complications during the critical period following childbirth.

Zhu, J. L., W. H. Zhang, Y. Cheng, J. Xu, X. Xu, D. Gibson, et al. "Impact of post-abortion family planning services on contraceptive use and abortion rate among young women in China: A cluster randomised trial." *European Journal of Contraception and Reproductive Health Care.* 2009; 14(1):46–54.

Objectives: To compare two post-abortion family planning (FP) service packages on contraceptive use and repeat abortion rate among young women in three cities in China. Methods: In this cluster-randomized trial, one FP service package included provision of limited information and referral to existing FP services, and the other, more comprehensive package consisted - in addition to the above simple package - of individual counseling, free provision of contraceptive materials, and involvement of the male partner. Eight matched pairs of hospitals were certified by centralized randomization. Women undergoing abortion were followed up for six months, and data were collected in two rounds, before and after the intervention. Results: We followed a total of 2,336 women younger than 25 years (555 before and 555 after the simple intervention package; 634 before and 592 after the comprehensive intervention package). Both packages increased use of any contraceptive method, but the comprehensive approach also increased use of more effective methods. Odds ratios for consistent and correct use of condoms were 2.32 (95% confidence interval 1.55–3.46) and 2.78 (1.81–4.26), respectively, compared with the simple package. The rates of unwanted pregnancies and repeat abortions were somewhat reduced for both packages, with no significant statistical difference between them. Conclusion: Couples who received the comprehensive post-abortion FP service appear to use more effective contraceptive methods and show better compliance.

The Navrongo Project

Debpuur, C., J. F. Phillips, E. F. Jackson, A. Nazzar, P. Ngom, and F. N. Binka. "The impact of the Navrongo Project on contraceptive knowledge and use, reproductive preferences, and fertility." *Studies in Family Planning.* 2002; 33(2):141–164.

The Navrongo Community Health and Family Planning Project is a quasi-experimental study designed to test the hypothesis that introducing health and family planning services in a traditional African societal setting will introduce reproductive change. This article presents the impact of the initial three years of project exposure on contraceptive knowledge, awareness of supply sources, reproductive preferences, contraceptive use, and fertility. Findings show that knowledge of methods and supply sources increased as a result of exposure to project activities and that deployment of nurses to communities was associated with the emergence of preferences to limit childbearing. Fertility impact is evident in all treatment cells, most prominently in areas where nurse outreach activities are combined with strategies for involving traditional leaders and male volunteers in promoting the program. In this combined cell, the initial three years of project exposure reduced the total fertility rate by one birth, comprising a 15% fertility decline relative to fertility levels in comparison communities.

Pence, B. W., P. Nyarko, J. F. Phillips, and C. Debpuur. "The effect of community nurses and health volunteers on child mortality: The Navrongo Community Health and Family Planning Project." *Scandinavian Journal of Public Health.* 2007; 35(6):599–608.

Background: Despite effective treatments and preventive measures for the major causes of child illness and death in less wealthy nations, child mortality remains high in resource-poor settings due in part to ineffective health service delivery models. Method: The Navrongo Community Health and Family Planning Project is a longitudinal community trial of alternative organizational strategies for health service delivery in a rural, impoverished area of Ghana. In one area, nurses are placed in communities with doorstep visitation and service responsibilities. A second area includes training of a local health volunteer and community involvement in health delivery. A third area combines both strategies. Under-5 mortality rates were calculated and Poisson regression was used to adjust for potential confounding characteristics.

Results: In areas with village-based community nurse services, under-5 child mortality fell by 14% during five years of program implementation compared with before the intervention, with reductions in infant (5%), early child (18%), and late child (39%) mortality. The volunteer intervention was associated with a 14% increase in mortality, primarily driven by a 135% increase in early child mortality. Areas with both nurses and volunteers saw an 8% increase, with small increases in all age groups. Mortality in a comparison area with standard Ministry of Health services fell by 4% during the same time period. Conclusions: These results suggest that convenient, accessible professional nursing care can reduce child mortality in impoverished African settings. However, they do not demonstrate a beneficial effect of community volunteers and suggest a possible negative impact on children's survival.

Dhaka Doorstep Strategy

Routh, S., and Barkat-e-Khuda. "An economic appraisal of alternative strategies for the delivery of MCH-FP services in urban Dhaka, Bangladesh." *International Journal of Health Planning Management.* 2000; 15(2):115–132.

The strategy of distributing maternal and child health and family planning (MCH-FP) services at the doorsteps of the clients—through routine visits to the eligible couples by trained fieldworkers—has been instrumental in increasing the contraceptive prevalence rate (CPR), reducing fertility, and attaining a considerably higher immunization coverage of children and women in Bangladesh. The doorstep strategy, however, appeared to be labor intensive and costly. With the maturity of the program, priorities of the national MCH-FP program have shifted to a stage that calls for more cost-effective service delivery strategies, capable of offering a broader package of reproductive and other essential health services. The main objective of the present study was to examine the cost and effectiveness implications of the alternative strategies of delivering services from fixed sites—field-tested within an ICDDR,B operations research—in comparison to the conventional (existing) doorstep strategy. The key findings of the economic appraisal indicated that, at the end of the operations research intervention, both cost per birth averted and cost per QALY gained were lowest for the option of delivering services from static (fixed-site) clinics: US$13 and US$17 compared with the corresponding values of US$18 and US$42 for the doorstep strategy. Provision of health and family planning services from clinics—complemented with a reduced system of outreach workers to inform and target the hard-to-reach clients—was found to be the most cost-effective service delivery alternative.

Routh, S., S. el Arifeen, S. A. Jahan, A. Begum, A. A. Thwin, and A. H. Baqui. "Coping with changing conditions: Alternative strategies for the delivery of maternal and child health and family planning services in Dhaka, Bangladesh." *Bulletin of the World Health Organization.* 2001; 79(2):142–149.

The door-to-door distribution of contraceptives and information on maternal and child health and family planning (MCH-FP) services, through bimonthly visits to eligible couples by trained fieldworkers, has been instrumental in increasing the contraceptive prevalence rate and immunization coverage in Bangladesh. The doorstep delivery strategy, however, is labor intensive and costly. More cost-effective service delivery strategies are needed, not only for family planning services but also for a broader package of reproductive and other essential health services. Against this backdrop, operations research was conducted by the Centre for Health and Population Research at the International Centre for Diarrhoeal Disease Research, Bangladesh (ICDDR,B) from January 1996 to May 1997, in collaboration with government agencies and a leading national non-governmental organization, with a view to developing and field-testing alternative approaches to the delivery of MCH-FP services in urban areas. Two alternative strategies featuring the withdrawal of home-based distribution and the delivery of basic health care from fixed-site facilities were tested in two areas of Dhaka. The clinic-based service delivery strategy was found to be a feasible alternative to the resource-intensive doorstep system in urban Dhaka. It did not adversely affect program performance and it allowed the needs of clients to be addressed holistically through a package of essential health and family planning services.

Matlab Studies

Chaudhuri, A. "Revisiting the impact of a reproductive health intervention on children's height-for-age with evidence from rural Bangladesh." *Economic Development and Cultural Change.* 2008; 56(3):619–656.

This article evaluates the impact of a reproductive health program on the nutritional status of children under the age of 10 in rural Bangladesh. The program was administered in a treatment area while retaining an equally impoverished area as control through a doorstep delivery, allowing us to estimate treatment effects without problems of endogenous program placement and self-selected participation. A reduced-form demand approach has been applied using Matlab Health and Socioeconomic Survey of 1996 data to estimate program effects, returns to mother's education, the joint effect of the program and household characteristics, as well as gender differences in nutritional outcomes. Results indicate that the program significantly improves the health of boys and girls in the treatment area. Mother's education has a positive impact on child's health, more so for girls than boys. The program is a substitute for maternal education in improving boys' health, whereas it is a complement to household wealth in improving girls' nutritional status.

Fauveau, V., B. Wojtyniak, G. Mostafa, A. M. Sarder, and J. Chakraborty. "Perinatal mortality in Matlab, Bangladesh: A community-based study." *International Journal of Epidemiology.* 1990; 19(3):606–612.

Perinatal deaths, comprising stillbirths and deaths during the first week of life, were monitored over the eight-year period 1979 to 1986 in a rural Bangladeshi population of 196,000. The perinatal mortality rate was 75 per 1,000 total births. The rate was 13% higher in males than females. Stillbirth and early neonatal mortality rates were 37 and 38 per 1,000 total births, respectively. The major causes of perinatal deaths are presented, as well as some of the maternal determinants. During the period under study, perinatal

mortality declined regularly and significantly over time in an area covered by an intensive family planning and health services program, but not in the adjacent control area. This raises the issue of the impact of such a program upon perinatal mortality, and the need to include a strong maternity care component in primary health care strategies if further reductions of perinatal mortality are to be achieved.

Hale, L., J. DaVanzo, A. Razzaque, and M. Rahman. "Why are infant and child mortality rates lower in the MCH-FP area of Matlab, Bangladesh?" *Studies in Family Planning.* 2006; 37(4): 281–292.

Infant and child mortality rates are significantly lower in the Maternal and Child Health-Family Planning (MCH-FP) area of Matlab, Bangladesh, than in a comparison area. The two areas are similar in terms of socioeconomic characteristics, but the MCH-FP area provides better maternal and child health and family planning services, resulting in different reproductive patterns, including lower fertility rates and longer intervals between pregnancies. We use data from the Matlab Demographic Surveillance System for nearly 126,000 singleton live births that occurred between 1982 and 2002 to investigate the extent to which the different reproductive patterns in the MCH-FP area explain why infant and child mortality rates are lower there. Differences in reproductive patterns account for a small portion (up to 20%) of the variation in these rates between the MCH-FP and comparison areas, suggesting that the majority of the difference is due to the quality of MCH services.

Maine, D., M. Z. Akalin, J. Chakraborty, A. de Francisco, and M. Strong. "Why did maternal mortality decline in Matlab?" *Studies in Family Planning.* 1996; 27(4):179–187.

In 1991, an article on the Maternity Care Program in Matlab, Bangladesh, reported a substantial decline in direct obstetric deaths in the intervention area, but not in the control area. The decline was attributed primarily to the posting of midwives at the village level. In this article, data are presented from the same period and area on a variety of intermediate events. They indicate that the decline in deaths was probably due to the combined efforts of community midwives and the physicians at the Matlab maternity clinic. Their ability to refer patients to higher levels of care was important. The data further indicate that the decline in deaths depended upon the functioning of the government hospital in Chandpur, where cesarean sections and blood transfusions were available. Midwives might also have made a special contribution by providing early termination of pregnancy, which is legal in Bangladesh.

Ronsmans, C., A. M. Vanneste, J. Chakraborty, and J. van Ginneken. "Decline in maternal mortality in Matlab, Bangladesh: A cautionary tale." *Lancet.* 1997; 350(9094):1810–1814.

Background: A study in Matlab, Bangladesh, has provided evidence favoring a community-based maternity care delivery system. Three years of this program coincided with a significant reduction in direct obstetric mortality compared with the three years before the program. We have examined whether the effects of the program are sustained over time. Methods: Using data from the continuing demographic surveillance system and from special investigations into the rates and causes of maternal mortality during 1976–1793, we compared the trends in direct obstetric maternal mortality ratios in the Maternal and Child Health and Family Planning (MCH-FP) area (which has received extensive services in health and family planning since 1977) with those in the comparison area (with no such intensive health inputs). We divided the areas and time periods into discrete groups that best represented the effects of the introduction of the maternity care program. Findings: Direct obstetric mortality declined by 3% per year (rate ratio 0.97 per year [95% CI 0.95–0.99]); there was no difference between the

MCH-FP and comparison areas (1.00 [0.96–1.05]). Direct obstetric mortality halved between 1976–1986 and 1987–1989 in the northern MCH-FP area, where the maternity care program was initiated in 1987 (0.50 [0.22–0.99]), but showed no change in the southern MCH-FP area, which had no such intervention at that time (1.07 [0.64–1.72]). After 1990, when the program was expanded throughout the MCH-FP area, the southern part showed a downward (non-significant) trend in direct obstetric mortality (0.68 [0.35–1.32]). However, direct obstetric mortality also declined between 1987 and 1989 in the southern comparison area (0.48 [0.26–0.83]) in the absence of an intense maternity care program and remained stable thereafter. In the northern comparison area, there was no such decline in direct obstetric mortality (0.78 [0.40–1.40]). Interpretation: Although the introduction of the maternity care program coincided with declining trends in direct obstetric mortality in the areas covered by the program, a decline also occurred in one of the areas not receiving any such interventions. Caution is required in the interpretation of short-term trends in one indicator in studies designed without random allocation of interventions into treatment and control groups.

Simmons, G. B., D. Balk, and K. K. Faiz. "Cost-effectiveness analysis of family planning programs in rural Bangladesh: Evidence from Matlab." *Studies in Family Planning.* 1991; 22(2):83–101.

The Family Planning Health Services Project in Matlab is often seen as more expensive than similar activities carried out by the government of Bangladesh. At the same time, it has been observed that the project is much more effective. The alleged high cost of the project is said to make it difficult to replicate throughout the nation. Previously, the true costs of the project had not been documented. This study systemically examines the cost of the project and assesses its cost-effectiveness. An experimental design framework is used as a basis for understanding the cost-effectiveness of the project, although a sensitivity analysis lends further support to the relative efficiency of the approach undertaken in Matlab. Although in the aggregate, the Matlab Project is more expensive than the government's family planning program, it is also more effective, generating enough output to offset the extra costs of the intensified delivery system.

ANNOTATED BIBLIOGRAPHY OF UNPUBLISHED STUDIES

Abdel-Tawab, N., S. Loza, et al. "Helping Egyptian women achieve optimal birth spacing intervals through fostering linkages between family planning and maternal/child health services." Frontiers. Population Council. 2008.

One major challenge facing policymakers is how to support women in achieving healthier birth intervals, i.e., a birth to conception interval of at least two years. To respond to this challenge, the Population Council's USAID-funded Frontiers in Reproductive Health (Frontiers) program, in collaboration with the Egyptian Ministry of Health and Population (MOHP) and the NGO Social Planning, Analysis and Administration Consultants (SPAAC) conducted an operations research study to measure the acceptability and effectiveness of two birth spacing message models. For Model I (health services model), birth spacing messages were communicated through services by health workers to women during prenatal and postpartum periods. Model II (community awareness model) provided this service plus an awareness-raising component that targeted men through training community influentials to communicate messages.

Benson, J. and V. Huapaya. "Sustainability of postabortion care in Peru, Ipas." 2002.

The study described in this report is a follow-up to the original research conducted at Hospital Carrión in 1996–1998. The goal of the present study, carried out from 2000-

02, was to determine the sustainability of the PAC intervention introduced in the hospital and the extent to which the outcomes of the intervention have continued. Hospital Carrión has provided PAC services without external technical or financial assistance for post-abortion care since the conclusion of the original study. The present study is the first known research to examine how well a PAC intervention and resulting improvements have been maintained over the long term.

Billings, D. L., E. Del Pozo, et al. "Testing a model for the delivery of emergency obstetric care and family planning services in the Bolivian public health system." Ipas, Population Council, Frontiers. 2003.

Unsafe abortion is a serious public health problem in Bolivia, accounting for up to 25% of maternal mortality. Post-abortion care (PAC) was recognized as a priority public health action in Bolivia in 1994 in the country's preparatory statement for the ICPD. In 1999, PAC services, known as the "treatment of complications of hemorrhage during the first half of pregnancy," were included in Bolivia's revised national health plan, the Seguro Básico de Salud (SBS). Inclusion in the SBS makes PAC services free of charge to women and aims to: (1) increase women's access to services, (2) reduce the cost of service delivery and hospital length of stay, and (3) improve the quality of care. The operations research (OR) project carried out from May 1999– through August 2001 and summarized in this report was undertaken at the request of the Ministry of Health (MSPS) to help guide the improvement of PAC services as the SBS was implemented. A non-experimental design with pre- and post-intervention measurements was implemented in three major maternity hospitals—Hospital de la Mujer (La Paz), Maternidad Percy Boland (Santa Cruz), and Hospital "Jaime Sánchez Porcel" (Sucre). Given the differences in infrastructure, size, and characteristics of the population served, comparisons are made between pre- and post-intervention results within but not between hospitals. A variety of data collection methods were used, including interviews, observations, and record reviews. Data were collected from women treated for incomplete abortion, male partners (with women's consent and only in the Sucre site), and physicians. Three-month follow-up interviews were conducted with women in the Sucre site. The intervention consisted of re-organization of services to ambulatory care, PAC training, refresher training, and supportive supervision."

Billings, D. L. and R. Vernon. "Avances en la atención posaborto en América Latina y el Caribe: Investigando, aplicando y expandiendo." Mexico City: Ipas, Population Council, 2007.

Advances in post-abortion care in Latin America and the Caribbean: Investigating, Applying and Expanding. This report is divided into five sections covering the following topics: (1) introduction to PAC and necessary elements for successful PAC; (2) country-level experiences, including data from 7 different countries; (3) provider and program information, including how to conduct counseling in PAC settings; (4) clinical care using diverse technologies, including how to manage pain; and (5) involvement of men, youth, and the community, including how to increase involvement of these various groups in PAC. The appendix includes a list of organizations in the LAC region involved in PAC.

Cappa, L., N. Vartapetova, et al. "Russia: Integrating family planning into the health system. A case study of the Maternal and Child Health Initiative. Arlington, VA: DELIVER, for USAID, 2007.

The pilot phase 1999–2003 Women and Infants' Health (WIN) project and the scale-up phase 2003–2006 Maternal and Child Health Initiative (MCHI) integrated family planning into the spectrum of maternal and infant health care in 16 regions of the Russian Federation. WIN/MCHI's innovative design helped regional and municipal government-

supported health facilities adopt internationally recognized, client-centered, evidence-based maternal and child health standards and practices in multiple areas: antenatal care; family-centered maternity care; essential newborn care; exclusive breastfeeding; and family planning counseling and services, especially for postpartum and post-abortion clients. Attention was also given to family planning for HIV-positive women and the prevention of mother-to-child transmission of HIV. The objectives were to provide a new evidence-based model for reproductive health care services and to increase access to, demand for, and quality of these services, as well as to increase the practice of preventive health behaviors among women in the community. WIN/MCHI chose strategies that not only stressed evidence-based medicine but that also offered a total paradigm shift from focus on the provider to focus on the client, a shift that transformed the way maternal and infant services were delivered. Implementation involved health care providers, administrators, and authorities in the planning, policy-making, hands-on training, and public education needed to achieve change. This case study looks specifically at the integration (horizontalization) of the family planning component into the other WIN/MCHI components. As a result, access to client-centered counseling has increased, unplanned pregnancies have decreased, and the abortion rate has declined.

Gasco, M., C. Wright, et al. "Romania: Scaling up integrated family planning services: A case study." Arlington, VA: DELIVER, for USAID, 2006.

The Romanian Family Health Initiative (RFHI) rapidly expanded access to family planning services and supplies by integrating family planning into primary health care delivery. The program initially focused on reaching rural clients. The clients represented the majority of Romania's poor and had limited access to family planning services, which were located primarily in urban areas. The RFHI used an innovative Three Pillars Approach that focuses on creating the following three conditions at the same place and at the same time: (1) training rural family health doctors and nurses at primary health care centers in contraceptive technology and client-centered counseling, (2) contraceptive supplies, and (3) demand creation activities. Between 2001 and 2005, family planning services expanded beyond the 210 urban-based clinics to more than 2,200 primary health care centers in rural communities, representing 80% of the country's rural areas. As a result, contraceptive prevalence increased significantly, and there was a concurrent and dramatic decrease in abortion rates.

Jacobs, E., C. Brambila, et al. "Reproductive health care in the postnatal period in Guatemala." Quetzaltenango, Mexico: Ministry of Health Guatemala, 2002.

The problem that this operations research addressed was how to increase the proportion of women in Guatemala who receive postnatal care. The study aimed to develop and test a job aid to provide comprehensive care to mothers and children during the first year postpartum; to train physicians, nurses, auxiliary nurses, and social workers in its use; and to develop and test strategies and materials for training community health agents to promote services for new mothers during the first year postpartum. It also collected data to establish if these strategies were effective in improving the quality and comprehensiveness of the care received by mothers and children less than 1 year of age.

Lynam, P. F., J. C. Dwyer, et al. "Inreach: Reaching potential family planning clients within health institutions." New York: AVSC International, EngenderHealth, 1994.

Many women and men all over the world want to delay their next child or do not wish to have any more children. Some do not know about family planning. Of those who do, many do not know how to get services, where and when services are available, what

contraceptive methods are offered, or how much services cost. Also, some women and men who do have this information about family planning and want to get services do not seek out services or initiate discussions with a health worker. Family planning providers usually try to reach these potential clients through outreach strategies, which have been valuable in encouraging the use of services. However, by concentrating its energies in outreach activities, family planning has failed in many ways to reach potential clients within the health facilities themselves. This paper discusses a strategy to reach these potential clients: the concept of inreach. Inreach focuses on the tens of thousands of service providers, patients, and visitors who spend time in hospitals and clinics every day. Although many of these people would like family planning information and services, opportunities for informing these potential clients are often missed. By orienting all of a health facility's staff to family planning and by creating linkages between family planning and other departments, family planning providers could use a minimum of effort and a few additional resources to reach these clients with information and the offer of services. A combination of inreach and outreach activities can give family planning providers an effective program for informing potential clients and directing them to service-delivery points.

McCarraher, D. R., T. Oronoz, et al. "Operations research study to improve postabortion care (PAC) services among adolescents in the Dominican Republic." Research Triangle Park, NC: FHI, 2007.

We designed an operations research study to improve the PAC counseling and contraceptive uptake among adolescent PAC patients seeking public services in the DR. Among PAC patients, the main study goal was that 60% of patients who wished to delay pregnancy be discharged with a contraceptive method. We also examined patients' reports on the counseling they received related to their immediate risk of pregnancy, contraception, HIV/STI risk, and post-abortion complications. We evaluated changes in providers' PAC counseling knowledge and practices, and attitudes toward working with adolescent patients, prior to and after implementing the intervention.

Medina, R., R. Vernon, et al. "Expansion of postpartum/postabortion contraception in Honduras." Population Council. 2001.

Between 1996 and 1999, the Ministry of Health and the Population Council's INOPAL III Project tested the acceptability of postpartum/post-abortion contraception at the Escuela Hospital, the largest in the country. The project showed that more than 30% of the women seen for a delivery or a complication due to abortion were interested in adopting a contraceptive method prior to discharge from the hospital. Given the success of the project, the MOH asked the Population Council's Frontiers Program for technical and financial support to extend those services to five additional hospitals in the country.

Mwangi, A., C. Warren, et al. "Strengthening postnatal care services including postpartum family planning in Kenya." Frontiers in Reproductive Health, Population Council, ACCESS-FP, JHPIEGO. 2008.

To improve the health and survival of mothers and infants in the postnatal period, the Ministry of Health (MOH) in Kenya increased both the recommended timing and content of postnatal services a women and her infant should receive to at least three assessments within the first six weeks after childbirth. The feasibility and acceptability of providing postnatal care at these times has not been evaluated, however, and most providers are not aware of this change in policy or how to implement it. The objectives of the study were to develop and introduce a strengthened postnatal care package into one hospital and four health centers in one district; to document the feasibility,

acceptability, and quality of care of the strengthened postnatal care; and to evaluate the effectiveness of the postnatal package on women's reproductive health behaviors.

Savelieva, I. "Postabortion family planning counseling and services lead to increased contraceptive use." Frontiers in Reproductive Health. 2004.

The introduction of post-abortion family planning service delivery involving training in counseling skills and job aids for providers led to increased use of modern contraceptive methods at 12 months post-abortion. The provision of family planning counseling at a postabortion follow-up visit appears to be an important factor in reducing repeat abortions.

Savelieva, I., J. M. Pile, et al. "Postabortion family planning operations research in Perm, Russia." EngenderHealth. 2003.

In August 2000, EngenderHealth, the Population Council's Frontiers Program and the Research Center of Obstetrics, Gynecology, and Perinatology of the Russian Academy of Medical Sciences (RAMS), with support from the Perm Health Departments, undertook an operations research study to test models for increasing contraceptive use and reducing the repeat abortion rate among abortion clients in Perm, Russia. The study also assessed the direct and indirect costs of abortion and contraceptive use incurred by women in the year following their index abortion (the abortion which took place the day of entry into the study).

Shaheen, M., R. Salman, et al. "Improving postpartum care among low parity mothers in Palestine." Center for Development in Primary Health Care, Al Quds University. 2003.

In an effort to improve the health status of Palestinian women and their children in the West Bank and Gaza, the United States Agency for International Development (USAID), in collaboration with the Palestinian Ministry of Health and a number of NGOs, designed and funded a 28-month pilot activity, the Pilot Health Project (PHP), that is expected to have a positive impact on the health of women and children. The project's interventions include establishing a basic package of quality antenatal and postpartum care services aimed at improving the health giving practices of providers and health-seeking behavior of families. In addition, the project included three experimental service delivery interventions: (1) reaching low parity women through a second home visit by community health workers (CHWs), (2) involving women's husbands and influential males, and (3) creating outreach linkages with hospitals. This report describes the results of the intervention for low parity women.

Tesfaye, S., T. Fetters, et al. "Expanding our reach: An evaluation of the availability and quality of postabortion care services in three regions in Ethiopia between 2000 and 2004." Chapel Hill, NC: Ipas, 2006.

This monograph is the product of four years of collaboration between Ipas Ethiopia and three Regional Health Bureaus (RHBs) to address the problem of maternal deaths and morbidity from the complications of unsafe abortion. These efforts have included work at the community, facility, and national levels: conducting advocacy, building the capacity of local partners to provide post-abortion care (PAC) services, improving access to manual vacuum aspiration (MVA) instruments for treatment of incomplete abortion, and training health care providers. This report presents the results of a pre-/post-intervention comparative assessment of PAC services in 119 non-randomly selected facilities in the Addis Ababa, Amhara, and Oromia regions. In these regions, an intensive package of post-abortion care intervention activities was introduced in 42 of 119 facilities to improve quality and availability of PAC services. The evaluation elaborates on

the successes and challenges of scaling up PAC services in three regions where PAC is provided to more than 6,500 Ethiopian women each year. Analyses based on data collected in 2000 (pre-intervention) and 2004 (post-intervention) were performed to answer the following research questions: 1. How did services at all 119 facilities compare between 2000 and 2004? 2. How did the intervention affect availability and quality of PAC services between 2000 and 2004 between the 42 intervention facilities and the 77 comparison facilities? 3. How did the quality and availability of post-abortion care change between 2000 and 2004 among the 42 intervention facilities?

Thiam, F. T. and S. Suh. "Scaling-up postabortion care services: Results from 23 health districts in Senegal." *PAC In Action.* Management Sciences for Health Occasional Paper No. 5. 2006.

In Senegal, operations research (OR) has served as a major advocacy tool for post-abortion care (PAC) since the late 1990s. The scale-up of PAC in Senegal began with a pilot project initiated by the Ministry of Health (MOH) of Senegal in 1997–1998 to assess the feasibility, acceptability, and efficiency of implementing the original PAC model in two hospitals in Dakar and a district health center. The study showed that nearly 97% of abortion cases were treated with digital curage1or dilation and curettage (D&C) and only 18% of patients received information about contraception after treatment.

Thiam, F. T., S. Suh, et al. "Scaling up postabortion care services: Results from Senegal." Management Sciences for Health Occasional Paper No. 5. 2006.

Senegal has recently emerged as a leader in West Africa in the extension of post-abortion care (PAC). This paper describes the extension of PAC to the district level in Senegal, where complications of abortion continue to claim too many women's lives. Between November 2003 and June 2005, Management Sciences for Health introduced PAC services in 23 districts covering more than half the population of Senegal. The availability of PAC rapidly increased in both health centers and health posts. The proportion of health centers with a provider trained in PAC and that offered PAC services increased from 39% in 2003 to 100% in 2005. In 300 health posts, the proportion increased from 0% in 2003 to 72% in 2006. The number of women who sought treatment for an incomplete abortion at a health center more than doubled between 2003 and 2005. The availability of PAC services in the 23 health centers probably contributed to this increase, as did community education efforts. The proportion of women with incomplete abortions who received counseling before leaving a facility increased from 36% in 2003–2004 to 82% in 2005. Of those who received counseling, the proportion leaving a facility with a family planning method rose almost fourfold in two years, from 15% in 2003 to 56% in 2005.

Varkey, L. C., A. Mishra, et al. "Involving men in maternity care in India." New Delhi, Frontiers in Reproductive Health Program, Population Council. 2004.

The Men in Maternity (MiM) study investigated the feasibility, acceptability, and cost of a new, more comprehensive model of maternity care that encouraged husbands' participation in their wives' antenatal and postpartum care. The study specifically assessed the impact of the intervention on family planning in the postpartum period and STI preventive practices among men and women. The study was conducted in collaboration with the Employees' State Insurance Corporation (ESIC), Delhi Directorate at their primary health facilities called dispensaries.

Wanjiru, M., I. Askew, et al. Assessing the feasibility, acceptability, and cost of introducing postabortion care in health centres and dispensaries in rural Tanzania: Final report." USAID's EngenderHealth ACQUIRE Project, Population Council's Frontiers in Reproductive Health Program. 2007.

The EngenderHealth ACQUIRE Project has been supporting the Tanzanian Ministry of Health (MOH) since early 2005 to decentralize the management of post-abortion care (PAC) services to primary health care facilities (health centers and dispensaries), with the intention of bringing services closer to women who are unable to access them at district hospitals. The decentralized service has been pilot tested in one district, Geita District in Mwanza Province, northern Tanzania, to provide the Ministry with experience and operational information before it expands decentralization to the rest of the country. The pilot project was introduced by ACQUIRE in eleven health facilities (seven health centers and four dispensaries) in May 2005. In November 2005, the Population Council Frontiers Program began documenting the process of decentralizing PAC and prospectively assessing its feasibility, effectiveness and cost. Frontiers collected data in selected pilot sites at two points in time; November 2005, the findings from which were provided to the MOH and ACQUIRE to address issues arising from introduction of the intervention; and in September 2006, to assess the feasibility, cost, and effectiveness of the intervention. The specific objectives of this evaluation were to: document the process of introducing and implementing the package in health centres; assess changes in provider knowledge, attitudes, and practices in the management of miscarriage and abortion complications that can be attributed to the training; describe experiences of post-abortion clients and their perceptions of the new service; document changes in community attitudes and knowledge about abortion complications following introduction of the services, and the acceptability of local facilities offering PAC services; examine the kinds of referral networks put in place by the intervention and document their effectiveness; and establish the additional resources that would be required by the MOH to support introduction of PAC services.

Warren, C., S. Phafoli, et al. "Extending prevention of mother-to-child transmission through postpartum family planning in Lesotho." Frontiers in Reproductive Health, Family Health Department, Ministry of Health and Social Welfare, Lesotho. 2008.

In Lesotho, only 28% of new mothers receive a checkup after delivery (LDHS 2004). The prevention of future unintended pregnancies as a strategy and fundamental component of PMTCT programs has not received much attention to date, and is the focus of this project. This study has a specific focus on strengthening linkages with existing PMTCT follow up services and family planning services during the postpartum period by changing the number, timing, and content of postpartum consultations that a woman and her newborn should receive. The objectives of the study were: (1) to develop and introduce a strengthened postpartum care package with three consultations within 48 hours, one week, and six weeks, and (2) to document the feasibility and quality of care of the strengthened postpartum care package, and its acceptability to providers and postpartum women.

Warren, C., R. Shongwe, et al. "Repositioning postnatal care in a high HIV environment: Swaziland." Washington, DC; Swaziland Ministry of Health and Social Welfare; Horizons Program/Population Council; Elizabeth Glaser Pediatric AIDS Foundation; BASICS. 2008.

Recognizing the need to improve the care and follow-up of mothers and infants in the postnatal period, the Swaziland Ministry of Health and Social Welfare (MOHSW), with support from the Horizons Program of Population Council, the Elizabeth Glaser Pediatric AIDS Foundation (EGPAF), Basics Support for Institutionalising Child Survival

(BASICS), and the Central Statistics Office (CSO), carried out an operations research project to reposition postnatal care (PNC) within the context of a high HIV environment. The objectives of the study were to determine if changes to the sexual and reproductive health guidelines on postnatal care would result in the timely and quality provision of key components of essential maternal and newborn care in the postnatal period, increase utilization of postnatal care services among all postpartum (PP) women, and improve the care and follow up of HIV-positive postpartum women and their infants.

Wickstrom, J., N. Russell, et al. "Engaging communities as partners in postabortion care: A desk review of the Community Postabortion Care Project in Nakuru, Kenya." New York, USAID's ACQUIRE Project/EngenderHealth. 2008.

In 2005, the ACQUIRE Project received support from the U.S. Agency for International Development (USAID)/Washington PAC Working Group to replicate a community-based project from Bolivia for the Kenya context to test approaches to community mobilization for PAC. ACQUIRE staff from New York and Kenya, and our partner the Society for Women and AIDS in Kenya (SWAK), worked to design a project using the Community Action Cycle process to improve community participation and ultimately meet the PAC needs of local women and couples in Nakuru, Kenya. Addressing unsafe abortion is important in Kenya, where an estimated 300,000 abortions are performed each year, with 20,000 women being admitted with abortion-related complications to public hospitals annually. This translates into a daily abortion rate of more than 800 procedures and 2,600 abortion-related deaths every year (KMA, FIDA-K, KMOH, and Ipas; 2004). The project was implemented to build community confidence and to give community members the tools to help themselves make positive changes in their environment. The goal was to increase access to reproductive health (RH) and FP services, especially PAC. Community mobilization had a substantial impact on the local environment and on health service delivery. Communities were engaged, and resources were found at the local level to implement activities that the communities decided were important to them.

Youssef, H., N. Abdel-Tawab, et al. "Linking family planning with postabortion services in Egypt: Testing the feasibility, acceptability and effectiveness of two models of integration." Population Council FRONTIERS in Reproductive Health program, Family Health International, TAHSEEN/Catalyst Project, USAID. 2007.

Effective linkage between post-abortion evacuation services and family planning is essential to reduce the incidence of repeat unwanted pregnancy and unsafe abortion. This collaborative operations research study between Frontiers Program, TAHSEEN/Catalyst Project, and the Egyptian Ministry of Health and Population (MOHP), with funds from USAID, was undertaken to test the feasibility, acceptability, and effectiveness of two models of integrating family planning services with post-abortion services. The first model involves provision of family planning counseling to post-abortion patients and referral to a clinic near their residence to receive a method. The second model involves, in addition, offering family planning methods to post-abortion patients who are interested in immediate initiation of contraception.

ANNOTATED BIBLIOGRAPHY OF EXCLUDED STUDIES

Excluded Articles—MNCHN Education-only (N=2)

These studies were excluded because the MNCHN component of the intervention consisted of education only; no MNCHN services were offered.

Parwej, S., R. Kumar, et al. "Reproductive health education intervention trial." *Indian Journal of Pediatrics.* 2005; 72(4):287–291.

> Objective: To measure the effectiveness of a reproductive health education package in improving the knowledge of adolescent girls aged 15–19 years in Chandigarh (India). Methods: A reproductive health education package, developed in consultation with parents, teachers, and adolescents, was delivered to randomly sampled classes of two senior secondary schools, and one school was selected as control. In one school, a nurse conducted 15 sessions for 94 students in three batches using conventional education approach. In another school she conducted sessions for a selected group of 20 adolescents who later disseminated the messages informally to their 84 classmates (peer education). Using a 70-item structured questionnaire, the knowledge of 95 adolescents from conventional, 84 from peer, and 94 from control school were assessed before and one month after the last session. Change in the score in intervention and control groups was tested by ANOVA taking age and socioeconomic status as covariates. Results: Teachers, parents, and students overwhelmingly (88%, 95.5%, and 93% respectively) favored reproductive health education program. Five percent of the respondents reported that someone in their class is having sexual relations, and 13% of the girls approved of pre-marital sexual relations. Reproductive health knowledge scores improved significantly after intervention in conventional education (27.28) and peer education group (20.77) in comparison to the controls (3.64). Post-test scores were not significantly different between peer education group and conventional education group (43.65 and 40.52 respectively), though the time consumed in delivering the peer education intervention was almost one-third of the time taken to implement conventional education. Conclusion: Peer education and conventional education strategies were effective in improving the reproductive health knowledge of adolescent girls, but peer strategy was less time consuming.

Tang, S. Y., L. C. Tian, et al. "Improving Reproductive Health Knowledge in Rural China: A Web-Based Strategy." *Journal of Health Communication.* 2009; 14(7):690–714.

> In China, one of the major problems in upgrading rural health services is the difficulty of communicating between the rural and urban areas. Enabling local agencies to access the Internet in resource-poor areas can provide an efficient means of diffusing current training and information and will have far-reaching policy implications. To test the feasibility of using the Internet to deliver needed health information to the countryside, the UCLA School of Public Health and the Institute of Health Studies of Kunming Medical College (IHS-KMC) collaborated in an experimental website project to improve the quality of reproductive health services to promote women's health in three rural counties of Yunnan. The project involved the county government and the Bureau of Public Health, the Bureau of Family Planning; the Bureau of Education, Women's Federation, and the Maternal and Child Health Station targeting village health workers and teachers; and women's cadres. Three counties, matched on socioeconomic status, participated in the study and were randomized to receive three programs. Nanhua County received computer skill training and logistic support including a planning workshop for information diffusion. Mouding County received computers only. Dayao,

the control county, did not receive the full program until the conclusion of the project. The study demonstrated that the use of a website to disseminate health information in remote rural areas is not only feasible but that it also will be enthusiastically adopted by local health workers and interested parties. Moreover, the knowledge was diffused from the primary population of village doctors, family planning workers, women's cadres, and teachers to the secondary population of villagers and students.

Excluded Articles—Population Linkages (N=18)

These studies were excluded because services of one type (FP or MNCHN) were offered to clients of the other type, yet clients did not receive both types of services. For example, if FP was offered to postnatal women, but no postnatal services were offered, then this was a population linkage and therefore was excluded from the review. In order to be included in the review, both FP and MNCHN services had to be offered as part of the intervention.

Balkus, J., R. Bosire, et al. "High uptake of postpartum hormonal contraception among HIV-1-seropositive women in Kenya." *Sexually Transmitted Diseases.* 2007; 34(1):25–29.

Objectives: The objectives of this study were to determine patterns of contraceptive utilization among sexually active HIV-1-seropositive women postpartum and to identify correlates of hormonal contraception uptake. Goal: The goal of this study was to improve delivery of family planning services to HIV-1-infected women in resource-limited settings. Study Design: HIV-1-infected pregnant women were followed prospectively in a perinatal HIV-1 transmission study. Participants were referred to local clinics for contraceptive counseling and management. Results: Among 319 HIV-1-infected women, median time to sexual activity postpartum was 2 months and 231 (72%) women used hormonal contraception for at least 2 months during follow-up, initiating use at approximately 3 months postpartum (range, 1–11 months). Overall, 101 (44%) used DMPA, 71 (31%) oral contraception, and 59 (25%) switched methods during follow-up. Partner notification, infant mortality, and condom use were similar between those using and not using contraception. Conclusions: Using existing the health care infrastructure, it is possible to achieve high levels of postpartum hormonal contraceptive utilization among HIV-1-seropositive women.

Ceylan, A., M. Ertem, et al. "Post abortion family planning counseling as a tool to increase contraception use." *BMC Public Health.* 2009; 9:20.

Background: To describe the impact of the post-abortion family planning counseling in bringing about the contraceptive usage in women who had induced abortion in a family planning clinic. Method: The Diyarbakir Office of Turkish Family Planning Association (DTFPA) is a nonprofit and non-governmental organization which runs a family planning clinic to serve the lower socioeconomic populations in Diyarbakir-Turkey. Post-abortion counseling is introduced by using proper communication skills and with using appropriate methods to women. In this study we introduced contraceptive usage of women who had induced abortion one year ago and followed by DTFPA's clinic. Results: 55.3% of our clients were not using contraceptive methods before abortion. At the end of the one year, 75.9% of our followed-up clients revealed that they were using one of the modern contraceptive methods. There were no women with IUDs before induced abortion. At the end of one year 124 (52.3%) women had IUDs. "A modern method was introduced immediately after abortion" was the most important factor increasing modern method usage. Conclusion: Our results advocate that post-abortion counseling may be an effective tool to increase the usage of contraceptives. Improved and more qualified post-abortion family planning counseling should be an integral part of abortion services.

Dhont, N., G. F. Ndayisaba, et al. "Improved access increases postpartum uptake of contraceptive implants among HIV-positive women in Rwanda." *European Journal of Contraception and Reproductive Health Care*. 2009; 14(6):420–425.

Background: Long-acting reversible contraceptives (LARCs) and sterilization are the most cost-effective methods of contraception but are rarely used in sub-Saharan Africa, partly due to limited access. Study Design: HIV-positive pregnant women attending two urban clinics in Rwanda were followed prospectively in a perinatal HIV transmission cohort study. Women attending one clinic were referred to public family planning (FP) services for all contraceptive methods (Site A) and women attending the other clinic (Site B) were offered implants and intrauterine devices (IUDs) on-site. Results: Fifty-three percent of the pregnant women reported an intention to use a LARC or to be sterilized after delivery. The uptake of implants was significantly higher at Site B (38%) than at Site A (6%). The IUD uptake was extremely low at both sites (2%). Twenty-eight of the 39 women at Site B who had intended to start using a LARC actually did so as compared to only one of 23 at Site A. Conclusion: When access to LARC was provided, a substantial number of HIV-positive women started using hormonal implants, but not IUDs, in the postpartum period. HIV and FP services should consider improving access to implants to reduce the number of unintended pregnancies.

Diaz, S., R. Aravena, et al. "Contraceptive efficacy of lactational amenorrhea in urban Chilean women." *Contraception*. 1991; 43(4):335–352.

The contraceptive efficacy of breastfeeding was assessed in 236 healthy urban women who were followed at monthly intervals during the first postpartum year. Proportional hazard models were used to evaluate the influence of time postpartum, menstrual status, and breastfeeding pattern upon the risk of pregnancy. Time and menstrual status had a highly significant effect on this risk. Those women who remained in amenorrhea had cumulative probabilities of pregnancy of 0.9% and 17% at 6 and 12 months postpartum, respectively. In those who recovered menstrual cycles, the risk rose to 36% and 55% at 6 and 12 months, respectively. Milk supplementation also increased significantly the risk when considered alone but not when time and/or menstrual status were included in the analysis. However, amenorrheic women who introduced bottle feeding had a higher risk of pregnancy after 6 months postpartum than those who remained fully nursing. The analysis was unable to detect a significant influence of the nursing frequency. The results confirm that lactational amenorrhea is an effective contraceptive during the first six months postpartum. The first postpartum bleeding marks a great increase in the risk of pregnancy. Supplementation also increases the risk, particularly in amenorrheic women.

Diaz, S., H. Cardenas, et al. "Early difference in the endocrine profile of long and short lactational amenorrhea." *Journal of Clinical Endocrinology and Metabolism*. 1991; 72(1):196–201.

The endocrine profiles associated with long and short lactational amenorrhea were assessed in a longitudinal study in which morning blood samples were drawn in 48 women from the first postpartum month until the recovery of ovulation and in a cross-sectional study in which the samples were drawn throughout 24 h at the end of the third postpartum month in 10 fully nursing and amenorrheic women. PRL, LH, FSH, estradiol (E2), progesterone, cortisol, and dehydroepiandrosterone sulfate were measured. In both studies we detected a smaller PRL increase in response to suckling (P less than 0.001) and higher E2 levels (P less than 0.001) in nursing women who ovulated within 6 months postpartum compared to those in women who did not. Such differences were observed early after delivery when all women were fully nursing and amenorrheic. These results suggest some probable sources of variability in the duration

of lactational amenorrhea in our population. The greater PRL response to suckling associated with longer amenorrhea may be due to higher sensitivity of the breast-hypothalamus-pituitary system or a stronger suckling stimulus in this group. Differences in plasma E2 levels between longer and shorter periods of amenorrhea may reflect dissimilar endogenous production, intake, or clearance of estrogens.

Egbuonu, I., C. C. Ezechukwu, et al. "Breast-feeding, return of menses, sexual activity and contraceptive practices among mothers in the first six months of lactation in Onitsha, South Eastern Nigeria." *Journal of Obstetrics and Gynaecology*. 2005; 25(5):500–503.

The objective of this study was to determine the exclusive breastfeeding practices, return of menstruation, sexual activity, and contraceptive practices among breastfeeding mothers in the first six months of lactation. The study was based in Onitsha, South Eastern Nigeria. A structured questionnaire was used to obtain data from breastfeeding mothers on their age, educational attainment, breastfeeding practices, return of menstruation, sexual activity, and contraceptive practices within the first six months of lactation at intervals of 6 weeks, 10 weeks, 14 weeks, and 6 months post delivery. Analysis of the information obtained showed that out of the 178 mothers who participated in the study, 81% of the mothers were within the ages of 20–34 years. While all the mothers had formal education, the majority (59%) had secondary education. Seventy-three percent initiated breastfeeding within one hour of delivery. On discharge from hospital, all of them had already established breastfeeding which continued up to six weeks and dropped to 97.8% at six months. Exclusive breastfeeding, which was practiced by 100% on discharge, dropped to 3.9% at six months. The feeding regimen was on demand as practiced by 98.9% of the mothers. Menstrual flow had returned in 33.8% of the mothers by 6 weeks of lactation, and had risen to 70.2% at six months. There was more prolonged lactational amenorrheoa in exclusively breastfeeding mothers than in those who were not. By six weeks post delivery, 31.6% of the mothers had resumed sexual activity and this rose to 93.6% at six months. With the resumption of sexual activity, only 5% of the mothers resorted to contraceptive practices other than lactational amenorrhea and this increased to 54% at six months. There was no pregnancy in any of these women during the six months period. While appreciating the role of lactational amenorrhea in child spacing and considering the early return of sexual activity among the mothers, the practice of introducing contraceptive practices needs to be encouraged especially in women whose menstruation has returned.

Gilliam, M. L., N. Zite, et al. "Postpartum contraceptive use among women who did not undergo desired postpartum sterilization." *Contraception*. 2005; 72: 240.

Introduction: This pilot study explores patterns of postpartum contraceptive use among women who expressed desire but did not obtain postpartum sterilization. Materials and Methods: We conducted interviews with women who desired postpartum sterilization and did not undergo the procedure, and age-matched controls (women not desiring sterilization). Semistructured interviews were conducted at delivery, 6 weeks and 6 months postpartum. Descriptive statistics and Mann–Whitney U test and qualitative methods were used for analysis. Results: Thirty-four women who had expressed desire for postpartum sterilization were recruited along with 29 age-matched controls. Our sample was 83% African American, 11% Latino, and 4% white. At baseline, women in both groups felt that they had received adequate antepartum contraceptive counseling. Eleven women in the sterilization group had requested it in a previous pregnancy. At 6-month follow-up, of women requesting sterilization, 5 had undergone the procedure. The majority of women in this group were using depot medroxyprogesterone acetate

(DMPA) or nothing. Many expressed concerns about DMPA side effects. Discussion: At follow-up, many women used DMPA or nothing at all; few women obtained postpartum sterilization. The majority of women who did not request sterilization used the IUD. Conclusion: Longitudinal follow-up of women who express desire for sterilization but do not undergo the procedure demonstrates that some use long-acting hormonal methods, but many are at risk for repeat pregnancy.

Kazi, A., K. I. Kennedy, et al. "Effectiveness of the lactational amenorrhea method in Pakistan." *Fertility and Sterility.* 1995; 64(4):717–723.

Objective: To determine the efficacy of the lactational amenorrhea method of family planning (amenorrhea during full or nearly full breastfeeding for 6 months postpartum). Design: Prospective noncomparative study. Setting: Normal breastfeeding women in Karachi and Multan, Pakistan, most delivered at home by a midwife. Patients: Three hundred ninety-nine newly delivered mothers who successfully had breastfed a previous child and chose the lactational amenorrhea method to prevent a subsequent pregnancy, 391 of whom were followed for a full year. Interventions: Mothers were taught, before or shortly after delivery, to use the method and were interviewed in their homes each month by a Lady Health Visitor. Main Outcome Measure: Life-table pregnancy rates. Periods of postpartum or lactational abstinence were excluded in the calculation of the pregnancy rates. Results: During full or nearly full breastfeeding, while the women were amenorrheic and not otherwise contracepting, the rate of pregnancy was 0.6%. The pregnancy rate during lactational amenorrhea alone was 1.1% at 1 year postpartum. conclusion: The lactational amenorrhea method was found to be highly effective for 6 months. A high degree of contraceptive protection endures for a full year during lactational amenorrhea, but not after the return of menses during breastfeeding.

Khan, M. E., M. P. Sebastian, et al. "Promoting healthy timing and spacing of births in India through a community-based approach." Frontiers program, Population Council.

The Indian Family Welfare Program, though successful in increasing contraceptive use among couples who have achieved their desired family size, has failed in educating people about the importance and need of using contraceptive methods for spacing births. The concept of inter-pregnancy spacing and its advantages was never given serious attention as a program objective. The latest National Family Health Survey (NFHS) results show that 77% of sterilized women did not use a family planning method before their sterilization (IIPS and Marco International 2007). Furthermore, available studies demonstrate that a birth interval of 3 to 5 years could increase chances of infant and maternal survival by 2.5 times more than children born at an interval of 2 years or fewer. Thus, Healthy Timing and Spacing of Pregnancy (HTSP) is considered an important family planning intervention to improve maternal and child health. Keeping this in view, the Department of Health & Family Welfare, Government of Uttar Pradesh, the Integrated Child Development Services (ICDS), Department of Women & Child Development, Uttar Pradesh, the Lala Lajpat Rai Memorial Medical College, Meerut, Uttar Pradesh, the Department of Economics, Jamia Milia Islamia University, Delhi, and the Population Council's Frontiers in Reproductive Health Program (Frontiers), Population Council undertook a study to test a model to increase use of postpartum contraception among young pregnant women with a parity of 0 or 1. The specific objectives were to (a) test a comprehensive behavior change communication (BCC) model for its effectiveness to educate young couples and community members about healthy spacing and its advantages; and (b) increase the use of lactational amenorrhea method (LAM) and postpartum contraception to expand the interval between pregnancies.

Perez, A., M. H. Labbok, et al. "Clinical study of the lactational amenorrhoea method for family planning." *Lancet*. 1992; 339(8799):968–970.

The effect of breastfeeding on fertility is well known; however, its use as a method of family planning was, until recently, untested. In 1988, the Bellagio Consensus Conference proposed guidelines that became the basis for a method of family planning called the lactational amenorrhoea method (LAM). The principle of LAM is that a woman who continues to fully or nearly fully breastfeed her infant and who remains amenorrhoeic during the first 6 months postpartum is protected from pregnancy during that time. We have assessed this method in the context of a breastfeeding support intervention study of 422 middle-class women in urban Santiago, Chile. The cumulative 6-month life-table pregnancy rate was 0.45% among women who relied on LAM as their only family planning method (1 woman pregnant in month 6). The findings indicate that LAM, with its high acceptance and efficacy, is a viable method of family planning and can safely serve as an introductory method for breastfeeding women.

Potter, J. E., I. H. O. Perpetuo, et al. "Frustrated demand for postpartum female sterilization in Brazil." *Contraception*. 2003; 67:385–390.

During the last three decades, Brazilians have relied almost exclusively on two contraceptive methods, the pill and female sterilization, with sterilization use increasing over time. Until a new law was passed in 1997, sterilization was virtually illegal and not covered by either public or private health insurance. It was, however, frequently provided in public and private hospitals in conjunction with a cesarean section. The new law regulating sterilization provided for reimbursement for interval sterilizations by public health insurance, but placed restrictions on availability intended to reduce the use of cesareans. These restrictions included the prohibition of postpartum sterilizations. This paper focuses on women's sterilization intentions during pregnancy and their experiences postpartum. In a prospective study of 1,612 pregnant women carried out in four Brazilian cities, there was substantial demand for postpartum sterilization in both the private and public sectors among women who wanted no more children. However, public patients were much less likely to be sterilized than private patients. Thus, the new law may not have reduced inequities in access or, paradoxically, the incentive for unnecessary cesarean sections.

Ramos, R., K. I. Kennedy, et al. "Effectiveness of lactational amenorrhoea in prevention of pregnancy in Manila, the Philippines: Non-comparative prospective trail." *British Medical Journal*. 1996; 313(7062):909–912.

Objective: To determine the contraceptive efficacy of the lactational amenorrhoea method. Design: Non-comparative prospective trial. Setting: Urban Manila, the Philippines. Subjects: 485 lower income, educated women with extensive experience of breastfeeding. Intervention: Women were offered all available contraceptives for use after birth. Those who chose the lactational amenorrhoea method were taught the method, screened for the study, and followed for 12 months to determine the risk of pregnancy when the method was used. Main Outcome Measures: Life table pregnancy rates during correct and incorrect use of the method, censored monthly in the event of sexual abstinence or the use of another contraceptive method. Results: The lactational amenorrhoea method was 99% effective when used correctly (that is, during lactational amenorrhoea and full or nearly full breastfeeding for up to six months). At 12 months the effectiveness during amenorrhoea dropped to 97%. Conclusions: The lactational amenorrhoea method provided as much protection from pregnancy as non-breastfeeding women experience with non-medicated intrauterine devices and barrier

methods. The contraceptive effect of lactation cannot be attributed to lactational or postpartum abstinence.

Ravera, M., C. Ravera, et al. "A study of breastfeeding and the return of menses in Hoima District, Uganda." *East African Medical Journal.* 1995; 72(3):147–149.

The effect of breastfeeding on reestablishment of ovulation and fertility and on birth spacing are now well known. A study was conducted on lactational amenorrhoea (LAM) at 180 days in Hoima District, Uganda in order to understand whether and how LAM could be applied in fertility control and birth spacing. Since the introduction of supplementary food by Ugandan women does not replace or substitute for breastfeeding, a study was designed to determine if LAM was effective irrespective of supplementation of infant's diet. One hundred and fifty four mother/child pairs were entered into the study and 134 women completed the sixth month of the study. At the end of the period, eighty four women (62.7%) were amenorrhoeic, of whom only 33 (39.3%) were exclusively breastfeeding and no woman had dropped out of the study because of pregnancy or the use of other family planning methods other than LAM. The study confirmed that LAM could be applicable in Uganda to the majority of the breastfeeding women (62.7%). It is expected that if health workers increase the intensity of breastfeeding support as well as the women's knowledge and motivation to use LAM for family planning, this would contribute to children's health as well as to birth spacing that is one of the major factors related to infant deaths. According to data from this study, the return of menses is irrespective of whether supplements have been introduced and their frequency.

Rodriguez, G. and S. Diaz "Breast feeding and the length of postpartum amenorrhea: A hazards model approach." in R. Gray, H. Leridon, and A. Spira. *Biomedical and Demographic Determinants of Reproduction.* New York: Clarendon Press/Oxford University Press, 1993. 413–427.

The influence of the breastfeeding pattern and several clinical variables upon the duration of postpartum amenorrhea was assessed in a group of healthy women selected for having had a normal pregnancy and delivery and being highly motivated for prolonged breastfeeding on demand. 676 women who were fully nursing at the second month postpartum entered the study. Supplements were administered to 11% and 48% of the infants by the end of the third and sixth month, respectively. The first bleeding was experienced before the end of the sixth month postpartum by 57% of the cases. Supplementation had a strong negative influence while nursing frequency had a significant positive influence upon the length of amenorrhea. Notwithstanding, a frequency of 8 + suckling episodes per 24 hours could not maintain amenorrhea in around half of the subjects. Age and parity had a moderate negative influence upon the risk of experiencing the first postpartum bleeding. Maternal weight and ponderal index, infant sex, birth weight, and growth rate showed no significant influence upon the length of amenorrhea. In this urban population selected for having the highest motivation and best breastfeeding performance, the association of breastfeeding with amenorrhea was weak in comparison with what has been described for other populations. The risk of experiencing the first bleeding was reduced while fully breastfeeding with a high number of nursing episodes per day and night, particularly in older women with higher parity. But even in such situations, 25% and 50% of the women had started to cycle by the end of the fifth and eighth postpartum month.

Schreiber, C. A., S. J. Ratcliffe, et al. "A randomized controlled trial of the effect of advanced supply of emergency contraception in postpartum teens: A feasibility study." *Contraception*. 2010; 81:435–440.

Background: The study was conducted to test the feasibility of conducting a randomized controlled contraceptive trial in postpartum teens and to assess whether postpartum advanced supply of emergency contraception (EC) to teenage mothers helps to prevent repeat pregnancies of close proximity. Study Design: We performed a randomized controlled trial of 50 postpartum teens at an urban academic medical center. Participants in the intervention arm received routine postpartum contraceptive care and advanced supply of one pack of EC pills with unlimited supply thereafter upon request. The routine care arm (RCA) received routine postpartum contraceptive care. We asked open-ended questions about how we might maximize study retention and implemented the participants' requests in both arms. Results: Our retention rate was 78%. There were three (13%) pregnancies out of 23 participants in the intervention arm and eight (30%) pregnancies out of 27 participants in the RCA. The risk of pregnancy occurring in the intervention arm was 0.57 times that of the RCA (95% CI 0.20–1.60; p=.23). Conclusions: A randomized controlled trial of postpartum teens to receive and not to receive advanced supply of EC is both feasible and necessary. Our study provides preliminary data to suggest that advanced supply of EC may help decrease repeat teen pregnancies.

Vikhlyaeva, E., E. Nikolaeva, et al. "Contraceptive use and family planning after labor in the European part of the Russian Federation: 2-year monitoring." *European Journal of Contraception and Reproductive Health Care*. 2001; 6(4):219–226.

Objectives: To explore the main determinants of the reproductive behavior of nursing mothers, all inhabitants of the central part of the European region of the Russian Federation, their use of modern contraceptive methods, and their attitude to future family planning. Methods: Open cohort multicenter study of 1200 nursing mothers aged 16–42 years interviewed at three to five days' postpartum, with subsequent longitudinal monitoring of the majority in the local family planning centers during the two years after labor. Results: The main determinants of the reproductive behavior of this cohort of women are an early debut of sexual activity, several partners in their reproductive history, relatively early marriage with a motivation to have one child in their family and the tendency to use induced abortion as one of the methods of birth regulation. Our experience of postpartum counselling demonstrated positive changes in the women's attitudes to modern contraceptive methods. The data reveal that the induced abortion rate among 639 mothers regularly followed-up during the first year postpartum was 4.4%, and among 606 during the second year was 5.1%. The corresponding rates among 129 women who did not visit the family planning centers and who were only interviewed two years after labor were 9.3% and 8.5%, respectively. Conclusions: Our data show that the unmet needs are remarkably concentrated among women who have given birth within the last year or two, and who need augmented attention from the family planning and reproductive health services.

Welkovic, S., L. O. B. F. Costa, et al. ""Post-partum bleeding and infection after post-placental IUD insertion." *Contraception*. 2001; 63:155–158.

The incidence of excessive bleeding and endometritis in 145 women who accepted post-placental insertion of a copper T380A intrauterine device (IUD) was compared with that of 157 subjects who did not accept the insertion of the IUD. The subjects delivered at the Maternidade da Encruzilhada, Recife, Brazil in the period from March 30, 1994, to

December 15, 1995. A blood sample for hemoglobin was collected before placental expulsion and 10 days after labor. The IUD was inserted up to 10 minutes after the expulsion of the placenta. There was no difference between the groups in the incidence of excessive bleeding, neither regarding mean hemoglobin concentration before placental expulsion (t= 0.039; p=0.83) nor at day 10 postpartum (t=1.04; p=0.29). There were five cases of clinically diagnosed endometritis among the 145 subjects with placental-IUD (3.4%) and seven cases among the 157 women without IUD (4.6%) (p=0.40). Post-placental insertion appears to be a convenient approach to IUD initiation, with no observed increase in the incidence of excessive bleeding or endometritis.

Wilder, J., R. Masilamani, et al. "Promoting change in the reproductive behavior of youth: Pathfinder International's PRACHAR Project." Bihar, India: Pathfinder International, 2005.

In 2001, the David and Lucile Packard Foundation generously funded Pathfinder International to conduct a three-year project in Bihar, India, designed to significantly improve the reproductive behavior of adolescents and young adults. Called "Promoting Change in Reproductive Behavior in Bihar" (PRACHAR), the project took to scale successful approaches that had been developed in an earlier project funded by the Bill and Melinda Gates Foundation. PRACHAR was designed to reach a large proportion of the population in three districts of the state of Bihar and to change beliefs, attitudes, and practices among adolescents, young married couples, and parents and influential adult figures in these communities. PRACHAR's long-term goal was to improve the health and welfare of young mothers and their children by changing traditional customs of early childbearing. By delaying the first child until the woman is 21 years of age and spacing subsequent children by three to five years, communities could benefit from a significant drop in maternal and infant mortality rates, and from improvements in the survival and general health of mothers and children after later pregnancies.

Excluded Articles – Not an Organizational/Management Strategy with the Aim of Integrating Services (N=22)

These studies were excluded because the intervention was not an organizational or management strategy with the aim of integrating services.

Abdel-Tawab, N., D. Huntington, et al. "Effects of husband involvement on postabortion patients' recovery and use of contraception in Egypt," *Postabortion Care: Lessons from Operations Research*. Edited by D. Huntington and N. Piet-Pelon. New York: Population Council, 1999. 16–37.

Despite the documented role of husbands as decision-makers in matters of reproductive health (Abdel-Aziz, El-Zanaty, and Cross, 1992; Ali, 1995), very little has been done to formally involve husbands in matters related to the health of their wives, particularly in relation to post-abortion care. Current health services for post-abortion patients seldom give any information to the patients themselves, let alone to their husbands. Studies that measure the effects of husbands' involvement have commonly been conducted in family planning settings. Moreover, most of the past research focused on a self-selected group of husbands who received counseling. Prior to the present study, it was not known in Egypt whether involving husbands would be feasible and acceptable, or whether it would have a positive impact on the health of their spouses. The study examines the effects of counseling the husbands of post-abortion patients on husbands' level of involvement in their spouses' recovery and on patients' recovery and subsequent use of contraception.

Bawah, A. A. "Spousal communication and family planning behavior in Navrongo: A longitudinal assessment.' *Studies in Family Planning.* 2002; 33(2):185–194.

The poor performance of most family planning programs in the 1980s, especially in sub-Saharan Africa, generated concern among researchers and led to a quest for explanations. In most countries, the alienation of men from participation in these programs was subsequently identified as one of the major causes, a finding that led researchers to redirect their attention to couples instead of individuals as the focus of such programs. Lack of spousal communication about family planning was identified as one reason for the low level of contraceptive use among women. Subsequent research has persistently demonstrated a positive relationship between spousal communication and contraceptive use. Most prior studies on this topic have been based on cross-sectional data, so that whether the identified relationships are causal remains unclear. Does communication, in fact, predict contraceptive use, or does the use of contraceptives generate communication among couples? This study addresses the question of causality by using longitudinal data from the Navrongo Health Research Centre panel survey. Results from both cross-sectional and longitudinal analysis demonstrate that spousal communication does, indeed, predict contraceptive behavior, even when other factors are controlled.

Becker, S., E. S. Bazant, et al. "Couples counseling at an abortion clinic: A pilot study." *Contraception.* 2008; 78(5):424–431.

Background: Nearly half of all pregnancies in the United States (US) are unintended. Non-use, incorrect, or inconsistent use of contraception may be related to limited support of male partners. Partners often accompany women seeking abortions to the clinic, representing an opportunity for health providers to engage them. This pilot study estimates the proportion of abortion patients accompanied by a male partner, the proportion agreeing to couples counseling and describes couples' experiences with the counseling. Study Design: At a Baltimore clinic providing abortion, after preliminary qualitative research we recorded the number of patients who came with partners and accepted couples counseling in a three-month period and sought feedback on the couples counseling in questionnaires from women, partners, and the counselor. The counseling session consisted of giving information about the procedure and counseling regarding choices of a post-abortion contraceptive method and related topics that the woman and/or partner might raise. Results: Overall, 27% of 774 patients came with their male partner, 28% with someone else, and 45% alone. Fewer African Americans (23%) came with a male partner, compared to 35% each among whites and Hispanics ($p<.001$). Among all couples, 42% (n=88) accepted couples counseling. Many women (77%) and partners (59%) completing questionnaires (n=66) had expected the partner to be involved in the clinic visit. The patients appreciated having the partner's support, having an informed partner with whom to communicate, and being able to share decision-making. Conclusion: Over a quarter of patients to an abortion clinic came with a partner without any advance notice of the availability of couples counseling, and a sizable minority of these couples accepted couples counseling. Those who had the counseling evaluated it favorably.

Charandabi, S., M., R. Vahidi, et al. "Effect of a peer-educational intervention on provider knowledge and reported performance in family planning services: A cluster randomized trial." *BMC Medical Education.* 2010; 10:11.

Background: Peer education is an interactive method of teaching or learning which is widely used for educating school and college students, in a variety of different forms.

However, there are few studies on its effectiveness for in-service education. The aim of this study was to evaluate the effect of an educational program including peer discussions, based on a needs assessment, on the providers' knowledge and reported performance in family planning services. Methods: An educational program was designed and applied in a random selection of half of in-charges of the 74 family health units (intervention group) in Tabriz at a regular monthly meeting. The other half constituted the control group. The program included eight pages of written material and a two-hour, face-to-face discussion session with emphasis on the weak areas identified through a needs assessment questionnaire. The educated in-charges were requested to carry out a similar kind of program with all peers at their health facilities within one month. All in-charges received one self-administered questionnaire containing knowledge questions one month after the in-charge education (follow-up I: 61 responses), and another one containing knowledge and self-reported performance questions 26 months later (follow-up II: 61 responses). Also, such tests were done for the peers facilitated by the in-charges one (105 responses) and 27 months (114 responses) after the peer discussions. Multiple linear regression was used for comparing mean total scores, and Chi square for comparing proportions between control and intervention groups, after defining facility as the unit of randomization. Results: The mean total percentage scores of knowledge (percent of maximal possible score) in the intervention group were significantly higher than in the control group, both at follow-up I (63%) and at follow-up II (57%), with a difference of 16 (95% CI: 11, 22) and 5 (95% CI: 0.4, 11) percentage units, respectively. Only two of the nine reported performance items were significantly different among the non in-charges in the intervention group at follow-up II. Conclusions: The educational program including peer discussions using existing opportunities with no need for additional absence from the workplace might be a useful complement to formal large group education for the providers.

Fine, P. M., J. Tryggestad, et al. "Safety and acceptability with the use of a contraceptive vaginal ring after surgical or medical abortion." *Contraception*. 2007; 75(5):367–371.

Objective: The study was conducted to determine if a contraceptive vaginal ring (CVR) is a safe and acceptable method of contraception when used in the proximate post-abortion period following first-trimester surgical or medical abortion. Methods: A CVR was inserted within one week following a medical or surgical abortion. Participants were followed-up for three months to determine safety and acceptability. Safety was measured by the absence of signs of infection or serious adverse events. Acceptability was assessed by the CVR satisfaction survey, completed at the three-month follow-up visit. Results: Of 81 participants enrolled in the study, 69 (85%) completed the first-month follow-up visit, and 54 (67%) completed the final three-month follow-up visit. There were no serious adverse events and no signs of infection on physical exam. Most adverse events were mild and not specifically related to the CVR. Related adverse events were those commonly associated with hormonal contraception use. Eighty-nine percent of participants chose to continue the CVR as their birth control method. Conclusion: The CVR is potentially safe and has high acceptability when used in the proximate post-abortion period following a first-trimester abortion.

Gilliam, M. L., N. Zite, et al. "Postpartum contraceptive use among women who did not undergo desired postpartum sterilization.' *Contraception*. 2005; 72:240.

Introduction: This pilot study explores patterns of postpartum contraceptive use among women who expressed desire but did not obtain postpartum sterilization. Materials and Methods: We conducted interviews with women who desired postpartum sterilization and did not undergo the procedure, and age-matched controls (women not desiring sterilization). Semistructured interviews were conducted at delivery, six weeks and six

months postpartum. Descriptive statistics and Mann–Whitney U test and qualitative methods were used for analysis. Results: Thirty-four women who had expressed desire for postpartum sterilization were recruited along with 29 age-matched controls. Our sample was 83% African American, 11% Latino, and 4% white. At baseline, women in both groups felt that they had received adequate antepartum contraceptive counseling. Eleven women in the sterilization group had requested it in a previous pregnancy. At sixth-month follow-up, of women requesting sterilization, five had undergone the procedure. The majority of women in this group were using depot medroxyprogesterone acetate (DMPA) or nothing. Many expressed concerns about DMPA side effects. Discussion: At follow-up, many women used DMPA or nothing at all; few women obtained postpartum sterilization. The majority of women who did not request sterilization used the IUD. Conclusion: Longitudinal follow-up of women who express desire for sterilization, but do not undergo the procedure, demonstrates that some use long-acting hormonal methods, but many are at risk for repeat pregnancy.

Graf, A. H., A. Staudach, et al. "An evaluation of the Filshie clip for postpartum sterilization in Austria." *Contraception.* 1996; 54(5):309–311.

Voluntary sterilization is a popular method of family size limitation. Among other techniques for surgical induction of female sterility, the application of various kinds of clips to the fallopian tubes has been introduced. The Filshie clips consist of rubber-lined titanium and their use for interval sterilization has been repeatedly published. So far, there are only a few reports regarding the use of Filshie clips during the postpartum period, when tubes are edematous and more friable. Therefore, 300 women voluntarily requesting postpartum surgical sterilization for the purpose of family size limitation were enrolled into a prospective trial. Within 72 hours of delivery, 282 women were sterilized under general anesthesia using a subumbilical minilaparotomy approach and Filshie clip application. Of these women, 251 were available for follow-up examination at 6 weeks, 240 at 6 months, 234 at 12 months, and 209 at 24 months after the sterilization procedure. Complication rates were low, and there were no pregnancies during the follow-up period. These results indicate that the application of Filshie clips is a safe and efficacious method of surgical female sterilization in the postpartum period.

Main, B., T. Lower, et al. "Changes in ante-natal care and family planning in Krakor, Pursat, Cambodia, 1996-1998." *Asia Pacific Journal of Public Health.* 2001; 13(2):74–78.

This study examines variations in antenatal care (ANC) and family planning in Krakor, Pursat, Cambodia, between 1996 and 1998. Population-based survey interviews were conducted with a total of 291 women in 1996 and 211 women in 1998. An intervention strategy designed to enhance the skills and roles of Health Centre staff, Village Health Volunteers (VHVs), and Traditional Birth Attendants (TBAs) was conducted. Over this timeframe, reported ANC access increased from 37% to 47%. Most women delivered their last child at home, usually assisted by a TBA. Few women practiced family planning, despite the fact that most reported that they did not want any further children. A range of reasons for not practicing family planning were found to be highly significant, including the lack of available services ($p<0.01$). The fear of side-effects decreased significantly ($p<0.01$), with the community education provided by the VHVs and TBAs, potentially being one contributing factor. The results of this study suggest that continual support of VHVs and TBAs will further improve the health of women in Cambodia.

Martin, C. W., A. H. Brown, et al. "A pilot study of the effect of methotrexate or combined oral contraceptive on bleeding patterns after induction of abortion with mifepristone and a prostaglandin pessary." *Contraception.* 1998; 58(2):99–103.

> Although a combination of mifepristone and a prostaglandin is a safe, acceptable alternative to vacuum aspiration for inducing abortion in early pregnancy, the longer period of vaginal bleeding after medical abortion is a disadvantage. The present study investigated whether administration of the combined oral contraceptive pill (COC) or the injection of methotrexate at the time of abortion would shorten the period of vaginal bleeding after medical abortion. After having a medical abortion induced with mifepristone (200 mg) and 0.5 mg gemeprost pessary, 80 women were randomized to four groups of 20 women each; Group A, COC; Group B, control; Group C, 50 mg/m2 methotrexate; and Group D, placebo injection. There was no significant difference in the duration of bleeding between Groups A and B (median 14 and 17 days) or between Groups C and D (18 and 15 days), or in the amount of bleeding (four days of heavy bleeding in each group). The first period occurred sooner in Group A who took the COC (median/range: 25/15–54 control group versus 32/16–46 days, $p<0.04$). The administration of methotrexate was associated with a temporary elevation in liver enzyme concentration in one woman. It is concluded that women who wish to use COC can start immediately after medical abortion. Addition of methotrexate after abortion has no significant beneficial effect on patterns of bleeding and cannot be recommended.

Mullany, B. C., S. Becker, et al. "The impact of including husbands in antenatal health education services on maternal health practices in urban Nepal: Results from a randomized controlled trial." *Health Education Research*. 2007; 22(2):166–176.

> Observational studies suggest that including men in reproductive health interventions can enhance positive health outcomes. A randomized controlled trial was designed to test the impact of involving male partners in antenatal health education on maternal health care utilization and birth preparedness in urban Nepal. In total, 442 women seeking antenatal services during second trimester of pregnancy were randomized into three groups: women who received education with their husbands, women who received education alone, and women who received no education. The education intervention consisted of two 35-minute health education sessions. Women were followed until after delivery. Women who received education with husbands were more likely to attend a postpartum visit than women who received education alone [RR= 1.25, 95% CI=(1.01, 1.54)] or no education [RR=1.29, 95% CI(1.04, 1.60)]. Women who received education with their husbands were also nearly twice as likely as control group women to report making >3 birth preparations [RR=1.99, 95% CI=(1.10, 3.59)]. Study groups were similar with respect to attending the recommended number of antenatal care checkups, delivering in a health institution, or having a skilled provider at birth. These data provide evidence that educating pregnant women and their male partners yields a greater net impact on maternal health behaviors compared with educating women alone.

Mullany, B. C., B. Lakhey, et al. "Impact of Husbands' Participation in Antenatal Health Education Services on Maternal Health Knowledge." *Journal of Nepal Medical Association*. 2009**;** 48(1):28–34.

> Introduction: A randomized controlled trial was designed to test the impact of involving husbands in antenatal health education on women's maternal health knowledge.
> Methods: Total 442 women receiving antenatal services at a hospital in Kathmandu, Nepal, were randomized into three groups: women who attended education sessions with their husbands, women who attended education sessions alone, and women who

attended no education sessions (controls). At baseline and after delivery, women's maternal health knowledge and change in knowledge levels were compared between the groups. Results: Compared to control group women, women educated with husbands increased their knowledge scores by an average of 0.61 points (95% CI=0.32–0.89, P<0.001), while women educated alone increased their scores by only 0.34 points (95% CI=0.04–0.65, P<0.05). Women educated with partners could identify more pregnancy complications and family planning methods than women in both other groups. Conclusions: These findings suggest that women learn and retain the most information when they are educated with their partners.

Nacar, M., A. Ozturk, et al. "The effect of family planning education given during postpartum period on the use of contraceptive methods." [ORIGINAL (NON-ENGLISH) TITLE "Dogum sonrasi donemde verilen aile planlamasi egitiminin yontem kullanmaya etkisi"] *Erciyes Tip Dergisi.* 2003; 25(3):122–130.

Purpose: The aim of this study was to determine the effect of education given to women in postpartum period on the use of family planning methods. Material and Methods: This study was carried out between December 1999 and June 2000 in the State Maternity Hospital of Kayseri. A total of 300 postpartum women were randomly assigned to control (150 women) and intervention (150 women) groups. After a preliminary questionnaire was applied to women in both groups, an individual education about postpartum family planning was given to women in the intervention group and a brochure was distributed. Six months later, a final questionnaire about their use of methods was applied to women, 137 in the intervention group and 123 in the control group. Results: After the education, the rate of using any contraceptive methods rose from 62.0% to 88.3% in the intervention group and from 61.0% to 71.6% in the control group. While the rate of using modern contraceptive methods was 32.8% in the intervention group and 36.6% in the control group before education, this rate increased respectively to 21.9% and 4.0% after the education. Conclusion: We concluded that giving family planning education for women in early postpartum period increased the rate of using family planning methods.

O'Sullivan, A. L. and B. S. Jacobsen. "A randomized trial of a health care program for first-time adolescent mothers and their infants." *Journal of Nursing Research.* 1992; 41(4):210–215.

To test the effectiveness of a special health care program for adolescent mothers (17 years old or younger) and their infants, 243 mother-infant pairs were randomly assigned to one of two groups. All of the mothers were unwed, on Medicaid, and black. The control group received routine well-baby care. The experimental group received routine care and services that included rigorous follow-up, discussions with the mother about her plans for return to school and use of family planning methods, and extra health teaching. The dropout rate in the experimental group (60%) was significantly less after 18 months than the control group (82%). In spite of the high dropout rate, 91% of the mothers were located for the 18-month follow-up interview. The repeat pregnancy rate in the experimental group was 12% after 18 months, and 28% in the control group. There was no significant difference in the percentage returning to school. After 12 months, the infants in the experimental group were more likely to be fully immunized (33%) than the infants in the control group (18%). Mothers in the special care program who continued to attend clinic used the emergency room less than the mothers who continued to attend in the control group. These results suggest that a comprehensive health care program is one way to bring about better outcomes for both adolescent mothers and their infants.

Olds, D. L., J. Eckenrode, et al. "Long-term effects of home visitation on maternal life course and child abuse and neglect - Fifteen-year follow-up of a randomized trial." *Jama-Journal of the American Medical Association.* 1997; 278(8):637–643.

Context: Home-visitation services have been promoted as a means of improving maternal and child health and functioning. However, long-term effects have not been examined. Objective: To examine the long-term effects of a program of prenatal and early childhood home visitation by nurses on women's life course and child abuse and neglect. Design: Randomized trial. Setting: Semi-rural community in New York. Participants: Of 400 consecutive pregnant women with no previous live births enrolled, 324 participated in a follow-up study when their children were 15 years old. Intervention: families received a mean of 9 home visits during pregnancy and 23 home visits from the child's birth through the second birthday. Data Sources and Measures: Women's use of welfare and number of subsequent children were based on self-report; their arrests and convictions were based on self-report and archived data from New York State. Verified reports of child abuse and neglect were abstracted from state records. Main Results: During the 15-year period after the birth of their first child, in contrast to women in the comparison group, women who were visited by nurses during pregnancy and infancy were identified as perpetrators of child abuse and neglect in 0.29 vs 0.54 verified reports (P<.001), Among women who were unmarried and from households of low socioeconomic status at initial enrollment, in contrast to those in the comparison group, nurse-visited women had 1.3 vs 1.6 subsequent births (P=.02), 65 vs 37 months between the birth of the first and a second child (P=.001), 60 vs 90 months' receiving Aid to Families With Dependent Children (P=.005), 0.41 vs 0.73 behavioral impairments due to use of alcohol and other drugs (P=.03), 0.18 vs 0.58 arrests by self-report (P<.001), and 0.16 vs 0.90 arrests disclosed by New York State records (P<.001). Conclusions: This program of prenatal and early childhood home visitation by nurses can reduce the number of subsequent pregnancies, the use of welfare, child abuse and neglect, and criminal behavior on the part of low-income, unmarried mothers for up to 15 years after the birth of the first child.

Pakarinen, P., J. Toivonen, et al. "Randomized comparison of levonorgestrel- and copper-releasing intrauterine systems immediately after abortion, with 5 years' follow-up." *Contraception.* 2003; 68(1):31–34.

Women who seek an abortion are motivated to use contraceptive methods afterwards. Because the return of fertility after abortion is immediate, there is a need for effective and safe contraception promptly after the termination of pregnancy. A randomized trial of Mirena and NovaT intrauterine contraceptive devices inserted at the time of elective termination of pregnancy, duration no more than 12 weeks, is reported here. Women were randomized 2:1 resulting in 305 subjects with Mirena and 133 with NovaT as a segment of a larger study of 3000 women. In the Mirena group, two pregnancies at year 4 resulted in a final gross rate of 0.8 at five years, which was significantly ($p < 0.0004$) lower than the corresponding rate of 9.5 with NovaT. Terminations because of expulsion, bleeding problems, pain, pelvic inflammatory disease, and other medical reasons were less common in the Mirena group, but not significantly different. The cumulative expulsion gross rate for NovaT at five years was 15.4 and for Mirena it was 10.5. Termination rates because of amenorrhea were low in both groups. It is concluded that both devices were well tolerated. Mirena was more effective and the rate of adverse events was lower than with NovaT. Special attention should be paid to the insertion procedure when carried out at the time of abortion.

RamaRao, S., E. Ottolenghi, et al. "Assessment of the extension of postabortion care services in Senegal." Population Council, Centre for Training and Research in Reproductive Health (CEFOREP). 2007.

> The Ministry of Health (MOH)-Senegal has systematically tested, introduced, and scaled-up PAC since 1997 with the help of several national and international partners. Operations Research conducted by EngenderHealth demonstrated that it was feasible to extend PAC services to the primary health level by doctors and midwives. In 2003, Management Sciences for Health (MSH) was charged to assist the MOH to extend services to health centers and posts in its five focus regions. During 2000–2004, MSH was the holder of the Project for the Reduction of Maternal Mortality (PREMOMA) and PREMOMA's activities included post-abortion care services. From November 2003 to June 2005, Management Sciences for Health (MSH) partnered with the MOH to extend PAC services in 23 Health Districts in the Regions of Kaolack, Louga, Thies, and Ziguinchor and, to a lesser extent, in Fatick. Five hundred and twenty-three providers from 23 health centers and 300 health posts were trained in PAC; all trainees were provided with equipment; a Management Information System (MIS) was developed; and a new supervisory approach was installed.

Rasch, V., F. Yambesi, et al"Post-abortion care and voluntary HIV counselling and testing - an example of integrating HIV prevention into reproductive health services." *Tropical Medicine & International Health*. 2006; 11(5):697–704.

> Objective: To assess the acceptance and outcome of voluntary HIV counseling and testing (VCT) among women who had an unsafe abortion. Method: 706 women were provided with post-abortion contraceptive service and offered VCT. We collected data on socioeconomic characteristics and contraceptive use and determined the HIV status of those who accepted VCT. Using a nested case-control design, we compared women who accepted HIV testing with women who did not. To study the association between socioeconomic factors, HIV testing acceptance, and condom use in more detail, we did stratified analyses based on age and marital status. Results: 58% of the women who had an unsafe abortion accepted HIV testing. Women who earned an income were more likely to accept testing than housewives. Women who accepted testing were more likely to accept using a condom. The HIV prevalence rate was 19% among single women aged 20–24 years and 25% among single women aged 25–45 years. Conclusion: HIV testing and condoms were accepted by most women who had an unsafe abortion. The poor reproductive health of these women could be improved by good post-abortion care that includes contraceptive counseling, VCT, and condom promotion.

Saeed, G. A., S. Fakhar, et al. "Change in trend of contraceptive uptake—effect of educational leaflets and counseling." *Contraception*. 2008; 77(5):377–381.

> Background: The study was conducted to determine the impact of counseling and educational leaflets on contraceptive practices of couples. Study Design: Randomization of 600 women was done in two groups matched for age, parity, and socioeconomic status at the Department of Obstetrics and Gynaecology, Shifa Foundation Community Health Centre, Shifa International Hospital, Islamabad, Pakistan. In Group A, the intervention group was exposed to contraceptive counseling and educational leaflets in the postnatal ward after delivery, whereas in Group B, the nonintervention group was not given any formal contraceptive advice. Later on, both groups were assessed regarding their contraceptive practices. Results: At their follow-up visit (8–12 weeks) postpartum, 19 (6.3%) women in the non-intervention group had started contraceptive use, whereas 153 (50.8%) had decided to start contraception in the next six months,

and 129 (42.8%) women were still undecided. The main contraceptive user was the male partner (n=117, 38.8%), and the most common method used was coitus interruptus (n=62, 36.3%). In the intervention group, 170 women (56.9%) had started using contraceptives, whereas 129 (43.1%) had decided to start contraceptive use in the next six months. The predominant contraceptive user was the females (n=212, 70.9%), and the most popular method chosen was oral contraceptive pills (n=111, 37.1%). Conclusion: There is a definite increase in contraceptive uptake in women provided with educational leaflets and counseling session with a shift toward use of more reliable contraceptive methods.

Shepard, D. S., R. N. Bail, et al. "Cost-effectiveness of USAID's regional program for family planning in West Africa." *Studies in Family Planning*. 34(2):117–126.

Between 1994 and 1996, the U.S. Agency for International Development (USAID) closed 23 country missions worldwide, of which 8 were in West and Central Africa. To preserve U.S. support for family planning and reproductive health in four countries in that region, USAID created a subregional program through a consortium of U.S.-based groups that hired mainly African managers and African organizations. This study assesses cost-effectiveness of the program through an interrupted time-series design spanning the 1990s and compares cost-effectiveness in four similar countries in which mission-based programs continued. Key indicators include costs, contraceptive prevalence rates, and imputed "women-years of protection." The study found that, taking into account all external financing for population and family planning, the USAID West Africa regional approach generated women-years of protection at one-third the cost of the mission-based programs. This regional approach delivered family planning assistance in West Africa cost-effectively, and the findings suggest that regional models may work well for many health and population services in small countries.

Smith, K. B., Z. M. van der Spuy, et al. "Is postpartum contraceptive advice given antenatally of value?" *Contraception*. 2002; 65(3):237–243.

In response to the concept that a good postpartum program should begin prenatally, this study was designed to determine whether the provision of expert contraceptive counseling during the antenatal period would have an impact on contraceptive uptake, patterns of contraceptive usage, and pregnancy rates during the first year after childbirth. Over 500 women attending antenatal clinics in each of three centers (Edinburgh, Scotland; Shanghai, People's Republic of China; Cape Town, South Africa) were randomized to receive expert contraceptive advice (participants, n=771) or the standard advice routinely given in that setting (controls, n=866). Follow-up was by postal or interviewer-administered questionnaires at 16 and 52 weeks after childbirth. There were no significant differences in the prevalence of contraceptive use at one year (over 79% in all centers) between participants and controls. In Edinburgh, participants were more likely to undergo sterilization ($p<0.01$) than controls, otherwise there were no differences among Edinburgh, Shanghai, or Cape Town in either the methods of contraception chosen or in the methods used over time. Contraceptive counseling delivered antenatally appeared to have no impact on the pregnancy rate during the first year after childbirth. In Shanghai, over 11% of women in both groups underwent termination of pregnancy in the year of follow-up. In conclusion, although women in all centers said they found the opportunity to discuss contraception antenatally was useful, it had very little effect on contraceptive use or on subsequent pregnancy rates.

Thapa, S., J. Poudel, et al. "Triaging patients with post-abortion complications: A prospective study in Nepal." *Journal of Health Population and Nutrition*. 2004; 22(4):383–398.

The first manual vacuum aspiration (MVA) services unit in Nepal was established in 1995 at the country's largest national maternity hospital in Kathmandu. This research sought to assess and evaluate the safety, acceptability, and effectiveness of MVA services. This prospective study was conducted during 12 months in 1998, and follow-up was made at six weeks. Two groups of patients were compared: 529 patients treated in the MVA unit and 236 patients who were clinically eligible for treatment in the MVA unit but were treated instead in the main operation theatre (OT) owing to the unavailability of services in the MVA unit during the hours of their admission. The two groups differed with respect to some of their background characteristics but were similar in their clinical characteristics. The MVA group received contraceptive counseling and services and had significantly shorter stays in hospital. However, the direct cost incurred by the patients, regardless of the type of facility they used, was about the same. Follow-up at six weeks revealed that the MVA patients had significantly fewer complaints and were generally more satisfied with the services they had received than their counterparts. Slightly more than half of the women in the MVA group were using contraception at the time of follow-up compared to no women in the OT group. It is concluded that the MVA unit provided safe, effective, and efficient services to about 50% of all the patients admitted to the hospital with post-abortion complications. An additional 25% of the post-abortion patients could be served if the unit were kept open 24 hours a day, saving resources and time for patients and hospital staff. As a parallel development, both MVA and main OT services would need to be more effectively integrated with outside antenatal and family planning clinics to address the reproductive health needs of women, thereby reducing the number of patients requiring post-abortion care.

Truong, H. M., T. Kellogg, et al. "Contraceptive intentions among adolescents after abortion." *Journal of Adolescent Health.* 2006; 39(2):283–286.

Changes between choice of contraceptive methods before abortion and contraceptive intentions after abortion were assessed among 482 adolescents with regards to efficacy to prevent pregnancy or sexually transmitted diseases (STD) and human immunodeficiency virus (HIV). Adolescents substantially increased their intention to use oral contraceptives (214 of 452 who did not use before intended to after; $p<.001$) and depot-medroxyprogesterone acetate (DMPA) (121 of 469 who did not use before chose to after; $p<.001$). None of the 134 adolescents who used condoms as their primary contraceptive method before abortion intended to continue afterwards ($p<.001$). There was no difference in intention to use condoms after abortion among adolescents who received voluntary HIV counseling and testing compared to those who did not. Twenty-two percent of adolescents intended to use condoms together with spermicidal foam as their primary contraceptive method after abortion, thereby combining contraceptive efficacy with STD prevention. The intention to preferentially adopt hormonal methods as the primary contraceptive, especially among adolescents counseled and tested for HIV, is discouraging for STD and HIV prevention efforts in this adolescent population.

APPENDIX 1. SCOPE OF WORK

Global Health Technical Assistance Project, Task Order No. 1
GH Tech, Contract No. GHS-I-00-05-00005-00

SCOPE OF WORK

(Revised: 12-13-2010)

I. TITLE:

Evidence Review and Development of Report on Best Practices, Promising Approaches and Policy/ Program Considerations for FP, MNCH, Nutrition and HIV Integration

Activity: Consultants will review and summarize the evidence (peer reviewed and grey literature) on FP, MNCH, Nutrition and HIV integration to (1) highlight best practices, promising approaches and key considerations for policy action and field programming and (2) summarize available evidence on integration models that increase use of family planning and health services.

Contract: Global Health Technical Assistance Project (GH Tech), Task Order No. 01

II. PERFORMANCE PERIOD

The performance period for this consultancy will begin in December 2009 and continue through the end of February 2011.

III. FUNDING SOURCE

Funds will come from the Office of HIV/AIDS (GHAI funds), the Office of Population and Reproductive Health (population funds) and GH/HIDN through GH Tech.

IV. OBJECTIVES AND PURPOSE OF THE ASSIGNMENT

The objective of this scope of work is to review the literature on FP, MNCH, HIV integration to identify and provide answers to key questions related to the following:

- What are the key linkages/ integration models that are available in the literature and have been evaluated?
- What are the key outcomes from these integration approaches?
- Based on the evidence, to what extent does FP, MNCH, Nutrition, and HIV integration increase or hinder use of family planning and health services?
- What are the emerging best practices and what type of linkages are effective in what context? Are there specific practices in FP, MNCH, Nutrition and HIV for youth?
- What are some of the research gaps?
- How can policies and programs be strengthened?
- What are some of the key recommendations for policy makers, programs, and service delivery?

There has been a resurging interest in the concept of integration, and its role in contributing to the sustainability and efficiency of development efforts. The recent Global Health Initiative launched by President Obama[1], highlights Integration as a major focus.

While the concept of Integration is far reaching and can be explored across a whole range of interventions, the specific focus of this review is to address the questions above in the context of integration of Maternal, Newborn and Child Health. USAID defines maternal child health interventions broadly as those high impact interventions that contribute to the reduction of child and maternal mortality.

Child health high impact interventions include Immunization, Vitamin A and Micronutrient supplementation, infant and young child feeding, prevention and treatment of diarrheal disease, prevention and treatment of malaria and pneumonia case management.

A key strategy that may appear in the literature for child health is the ***IMCI—Integrated Management of Childhood Illnesses***, that was initiated by the UN in the early 1990s. IMCI brings together a package of interventions for child survival i.e. management of diarrhea, ARI (acute respiratory infections, malaria, malnutrition and immunization). While it started out as primarily a facility based approach and package of services, it has now expanded to include community and household practices that promote child survival.

Key Interventions that constitute maternal and newborn care include -Improving birth preparedness,-focused antenatal care (including education and counseling for healthy timing and spacing of pregnancy); tetanus toxoid immunization; promoting skilled attendants for birth and improving skills of providers; clean delivery and infection control; appropriate household- and community-based strategies including referral; management of obstetric complications, including active management of third stage of labor; postnatal (mother and newborn) care and appropriate postnatal massages (e.g. education and counseling for healthy timing and spacing of pregnancy); essential newborn care practices (thermal care, cord care, and immediate and exclusive breastfeeding) and sick newborn care (identification and treatment of neonatal infection and complications, resuscitation, and special care of premature and low birth weight infants.)

A second objective of the SOW is to update the SRH and HIV Linkages Cochrane Review completed in December 2007. Therefore interventions in FP, MNCH, and HIV/AIDS will be fully addressed. As part of this SOW, the consultants should review and update two other prior reviews: an FP, MNCH review prepared by Marge Koblinksy in 2004 (very few evidence-based FP and MNCH integration models were identified); and an FP-MNCH literature review currently being prepared for the GH FP and MNCH Working Group by Julie Soto. It is GH's hope that the consultants can update these reviews up to December 2009.

A final list of interventions included under the umbrella of "maternal, neonatal, child health interventions" for the purposes of this review will be developed in collaboration between USAID and Cochrane during the creation of the study protocol.

V. BACKGROUND

The PEPFAR Re-authorization Act of 2008 and the Global Health Initiative, both place a strong emphasis on integration and linkages of programs to address broad development challenges, and also respond effectively in providing a comprehensive package of services for the populations served. At the international level, the importance of integrating maternal and child health with nutrition, HIV and family planning is recognized as essential to meeting the Millennium

[1] http://www.state.gov/s/dmr/remarks/2009/123023.htm

Development Goals, particularly with respect to reducing maternal and child mortality, while also contributing to the prevention and control of HIV. Despite this clear mandate, there is limited information and evidence to guide policy action and program efforts on integration. There are questions on the evidence for improved outcomes, on the quality of that evidence and on how to effectively design and implement integrated programs.

This consultancy is expected to address some of these key questions and provide further guidance and direction for integration efforts.

VI. SCOPE OF WORK

Tasks:

1. Review the evidence and draft a background document that will inform and guide FP, MNCH and HIV integration efforts. The review will include the following:
   - Update and summarize the evidence on FP, MNCH, Nutrition and HIV integration using the 2008 Cochrane on the same subject as a basis.
   - Explore and describe the evidence for bi-directional linkages between FP, MNCH, Nutrition and HIV and FP, MNCH and Nutrition.
   - Define some of the best practices and promising approaches and models of integration.
   - Identify the main benefits and challenges to integration.
   - Describe the main outcomes (key findings) of the integration efforts.
2. Develop key documents that present the main findings and results of the reviews, following the format of the Cochrane Review. These Papers will include key recommendations for policy, program considerations and recommendations for future research.
3. Prepare final reports in consultation with USAID.

The timeline for the SOW would be by the end of January 2011.

VII. METHODOLOGY

The consultant team selected for this activity has already undertaken a comprehensive Cochrane Review on SRH/HIV integration (in 2008)—and is therefore familiar with the content and methodology of the process. Using and drawing from the compilation of research, studies and literature of that initial review, this team will conduct a further analysis with special focus on FP, MNCH, Nutrition and HIV integration.

VIII. TEAM COMPOSITION, SKILLS AND LEVEL OF EFFORT

The consultant group will comprise of most of the members of the same COCHRANE Review Group that completed the 2008 review (IPPF/UNFPA/UNAIDS/USCF).

Specific skill sets required:

- Research skills
- Global programmatic and technical experiences
- Writing and editing

Table of Level of Effort (LOE)

Activity	Team Member(s)	Total Team Days	Period of Performance
Conduct the evidence review and develop key documentation (reports and briefing paper) that highlight the key findings	Consultant team	150 days of LOE	December 2009—TBD

IX. LOGISTICS

Two members of the consultant group, along with the PI, will travel to DC to present/discuss the findings of the search, present/discuss approaches and methodology, and discuss the final report. GH Tech will be responsible for providing travel to DC for three consultants to travel to/from DC, lodging and M&IE in DC, and other related logistics for up to 2 trips each.

X. DELIVERABLES AND PRODUCTS

Various deliverables are expected at different stages from this scope of work-and will include the following:

1. First deliverable: Initial Research Protocols that specify the time frame and search terms that will be used to compile the evidence on FP, MNCH, HIV, and Nutrition integration for both the FP/MNCH/HIV/Nutrition report and the FP/MNCH/Nutrition report.
2. Second deliverable: Final list of included studies for both reports and coding of those studies complete. This will include:
   - Key Studies and promising approaches that are identified through the search
   - Coding of the studies
   - Summary of findings across studies by outcome
3. Third deliverable: Final 8 page reports for both the FP/MNCH/HIV/Nutrition review and the FP/MNCH/Nutrition review. The format of the 8 pager to include:
   - Background and methods of review
   - Summary of findings
   - Case studies
   - Recommendations

   After receiving signoff from USAID, GH Tech will have these reports edited and formatted. GH Tech will provide 200 printed copies.
4. Fourth and final deliverable: Final report that summarizes findings and analysis of the evidence on FP, MNCH, HIV, and Nutrition integration and final report that summarizes the findings and analysis of the evidence on FP, MNCH, and Nutrition integration. The process for finalizing these reports will be as follows (exact dates TBD):
   - Consultants meet with USAID to discuss the final report (Dec 15th).
   - Draft report submitted to USAID for review by mid January.
   - USAID will have 10 working days following the submission of the draft report to respond and provide written comments and feedback.
   - The consultants will make revisions and the final unedited report will be provided to USAID 5 days after the comments are received.

- Once USAID signs off on the final unedited report, GH Tech will have the document edited, formatted, and printed (if desired). This process will take approximately 30 days. GH Tech will provide 3 CDs of the final report.

These reports will be public documents. The final reports should include a summary with key findings (2-4 pages), a full report (12 pages), annexes of the literature reviews (including coding sheets of all studies), an annotated bibliography of screened but not included studies, and a summary of the unpublished literature.

It is expected that this final report should be completed by latest TBD.

XI. RELATIONSHIPS AND RESPONSIBILITIES

N/A

XII. MISSION AND/OR WASHINGTON CONTACT PEOPLE/PERSON

Mary Ann Abeyta-Behnke, Maureen Norton, Troy Jacobs and Milly Kayongo, Sr. Advisors at USAID, will be the main USAID/Washington points of contact.

XIII. COST ESTIMATE

XIV. REFERENCES

Specific documents sent by email; all have been acknowledged as received.

http://www.hivandsrh.org/newsletter/Integration_STI_HIV_into_FP_Review.pdf

APPENDIX 2. TABLE 1—STUDY DESCRIPTIONS

Study	Matrix cells	Location, setting & target group	Years	Intervention	Study Design	Sample Size	Age	Gender	Length of Follow-up
Agha, 2007	MF1, MF2, MF7, MF8	Location: Rupandehi district, Nepal Setting: Franchised clinics run by nurses and paramedics Target group: Males and females attending one of the franchised clinics	Years of program: February 2001–January 2003 Years of evaluation: April 2001–January 2003	Name: Sewa Intervention: A franchising network intended to improve the quality of reproductive health services. Nurses were given training in infection prevention, availability of essential equipment, provision of temporary contraceptive methods, reproductive health, and STIs. The network was also supported by marketing activities. Two types of referrals were offered—one internal to female providers for IUD services and one external to private physicians and government health care facilities for more complicated health issues.	Study design: Serial cross-sectional Unit of analysis: Individual Selection of participants: Selection of providers was random but selection of clients for exit surveys was non-random. For household surveys, selection of homes was random.	Sample size: Exit surveys: I BL: 491 FU: 435 C B: 394 FU: 298 Household surveys: I BL: 461 FU: 495 C BL: 480 FU: 471	Age: Mean age in years All clients at exit surveys: 33 Married women in household surveys: 29	Gender: Exit surveys: Approximately 50% female and 50% male Household surveys: 100% female	Follow-up: Approximately 2 years

Study	Matrix cells	Location, setting & target group	Years	Intervention	Study Design	Sample Size	Age	Gender	Length of Follow-up
Alvarado, 1999	MF1, MF7, MF8, MF9, MF10, MF11, MF12	Location: Conchali, Santiago, Chile Setting: NGO clinic Target group: Pre- and postpartum women and infants	Years of program: Not explicitly stated, but this was possibly an ongoing program. Years of evaluation: January 1991–March 1993	Name: Consultorio San Luis de Huechuraba (CSLH) Intervention: An NGO in a poor neighborhood provided integrated maternal and infant care. All four providers were trained in breastfeeding and contraceptive management and worked as a team. Two were community health workers who conducted home visits during pregnancy and visits to the maternity wards. They were trained in pregnancy care, FP, prevention of STDs/HIV, breastfeeding, infant care, and maternal and infant nutrition. Mothers and infants were seen during the same visits every 10 days in the first month postpartum and at monthly	Study design: Non-randomized trial – group Unit of analysis: Individual Selection of participants: Non-random	Sample size: Pre I: 200 C: 200 Post Women I: 200 C: 180 Infants I: 192 C: 200	Age: Mean age in years (std deviation) I: 24.8 (5.7) C: 25.7 (5.2)	Gender: Mothers 100% female Infants I: 48% female, 52% male C: 50% female, 50% male	Follow-up: 1 year

Study	Matrix cells	Location, setting & target group	Years	Intervention	Study Design	Sample Size	Age	Gender	Length of Follow-up
				intervals thereafter for the first year, unless additional visits were needed.					
Amin, 2001	MF9, MF10, MF11, MF12	Location: Gazipur District, Bangladesh Setting: Phase 1: In the community; Phase 2: NGO clinics Target group: Women age 15–50 and their children	Years of program: Phase 1: January 1992–February, 1998 Phase 2: February 1998–-present Years of evaluation: 1992, 1997, and February–July, 1998	Name: NR Intervention: Phase 1 (1992–1997) consisted of a focus on FP, child immunizations, and micro-credit. Door-to-door educational campaigns and delivery of non-clinical FP methods and child immunization by NGO staff, reinforced by group meetings of NGO micro-credit recipients. Phase 2 (1998 to present) consisted of a larger focus on an Essential Services Package (ESP) in reproductive, maternal, and child health care needs; nutritional services; and basic curative and preventive care through static clinics.	Study design: Non-randomized trial – group Unit of analysis: Individual (clients) Selection of participants: Non-random	Sample size: 1992: I: 656 1997: I: 2105 C: 1721 1998: I: 1068 C: 700	Age: Range: 15–50 years	Gender: 100% female	Follow-up: NA

Study	Matrix cells	Location, setting & target group	Years	Intervention	Study Design	Sample Size	Age	Gender	Length of Follow-up
				The clinic included a strong outreach program with 50 community-wide micro-credit volunteers (who were recipients of micro-credit and ESP) who were trained in midwifery, preventive health care, and other elementary health care services.					
Barnet, 2007	MF1, MF7, MF9	Location: Baltimore, MD, USA Setting: Homes of pregnant and parenting adolescents (or alternate safe location) Target group: Pregnant (≥24 weeks gestation) adolescents, most of whom were low income and African American	Years of program: February 2001–January 2003 Years of evaluation: 2002–2005 Year 1 FU until child's 1st birthday Year 2 FU until child's 2nd birthday	Name: NR Intervention: A community-based home visiting program for pregnant and parenting adolescents to impact parenting attitudes and beliefs, repeat pregnancies, maternal depression, school continuation, and link adolescents with primary care. Trained home visitors delivered a parenting curricula (sessions to improve adolescents' understanding of child development,	Study design: Randomized trial—individual Unit of analysis: Individual (clients) Selection of participants: Non-random	Sample size: Total: 84 I: 44 C: 40	Age: Range: 12–18 years Mean age in years All: 16.9 I: 16.4 C: 16.6	Gender: 100% female	Follow-up: 2 years

Study	Matrix cells	Location, setting & target group	Years	Intervention	Study Design	Sample Size	Age	Gender	Length of Follow-up
				parenting attitudes and skills, and health care use) and an adolescent curricula (skill-based, interactive instruction on safer sexual practices and negotiation skills, and the provision of contraceptive information and counseling). Additionally, they linked adolescents with primary care for contraceptive needs and sought to identify intimate partner violence, depression, and school dropout.					
Bashour, 2008	MF7, MF9	Location: Damascus, Syria Setting: Home visits Target group: Women who had recently given birth recruited from a teaching hospital	Years of program: June–December 2004 Years of evaluation: June–December 2004	Name: Home Visiting Intervention Intervention: Home visits aimed to examine, follow up, educate, support, and counsel women who had recently given birth. Registered nurse midwives underwent training in postpartum home	Study design: Randomized control trial—individual Unit of analysis: Individual Selection of participants: Non-random	Sample size: Total: 876 Group A (four home visits): 285 Group B (one home visit): 294 Group C (standard protocol/no home visit): 297	Age: NR	Gender: 100% female	Follow-up: 4 months postpartum

Study	Matrix cells	Location, setting & target group	Years	Intervention	Study Design	Sample Size	Age	Gender	Length of Follow-up
				visits. Participants were randomly allocated to receive one of three interventions: Group A received four postnatal home visits (first day, third day, seventh day, and fourth week after delivery); Group B received one postnatal home visits; and Group C received no home visits.					
Billings, 2003	MF3, MF4	Location: Mexico City metropolitan area, Mexico Setting: Social security hospitals Target group: Women seeking care for abortion-related complications with gestational age ≤12 weeks either from an unsafely induced abortion	Years of program: 1994–1997 Years of evaluation: April 1997–August 1998	Name: NR Intervention: Three models of care: 1) SC Control = Control group: Traditional service delivery which included sharp curettage and provision of family planning methods 2) MVA + PAC = Manual vacuum aspiration in addition to post-abortion care components, including general counseling and FP	Study design: Cross-sectional Unit of analysis: Individual Selection of participants: Non-random	Sample size: SC Control group N=282 MVA + PAC N=251 SC + PAC N=270 Total N=803	Age: <20: C: 5.7% MVA: 8.4% SC: 8.5% 20–34: C: 82.6% MVA: 77.7% SC: 81.5% >35: C: 11.7% MVA: 13.9% SC: 10.0%	Gender: 100% female	Follow-up: N/A cross-sectional

Study	Matrix cells	Location, setting & target group	Years	Intervention	Study Design	Sample Size	Age	Gender	Length of Follow-up
		performed outside the hospital or from a spontaneous abortion.		counseling and provision; and 3) SC + PAC = Sharp curettage was used but post-abortion care components were also provided, including general counseling and FP counseling and provision. Providers at the post-abortion care sites received refresher training in general counseling and FP counseling and services. Providers at the hospitals practicing the traditional method did not receive any additional training.					
Bolam, 1998	MF7, MF9, MF11	Location: Kirtipur and Kalimati, near Kathmandu, Nepal Setting: Main maternity hospital in Kathmandu, follow-up in	Years of program: November 1994–May 1996 Years of evaluation Not explicitly stated, but evaluation	Name: NR Intervention: Intervention groups received at least one of two interactive education sessions conducted by a trained female health educator, midwife, or	Study design: Randomized trial – Individual Unit of analysis: Individual (clients) Selection of participants:	Sample size: Total: 540 mothers (Note: Four intervention groups, so retained group names for simplicity groups A–D)	Age: Mean ages in years All subjects: 23.4 Group A: 23.4 Group B: 23.2 Group C: 23.1	Gender: 100% female	Follow-up: 6 months

Study	Matrix cells	Location, setting & target group	Years	Intervention	Study Design	Sample Size	Age	Gender	Length of Follow-up
		households in/around Kathmandu Target group: Pregnant women	conducted at birth and three and six months postpartum	community health worker. The first session was conducted before hospital discharge and emphasized exclusive breastfeeding. The second session was conducted three months after delivery in the mothers' homes and emphasized the need for FP. These sessions were interactive and supportive and lasted approximately 20 minutes. Topics included: importance of breastfeeding, need for FP, treatment of diarrhea, recognition of response to symptoms suggesting acute respiratory infection in infants, the importance of immunization, and contraception after the puerperium.	Non-random	Group A (health education at birth and 3 months): 135 Group B (birth only): 135 Group C (3 months only): 135 Group D (control – no health education): 135	Group D: 24.0		
Bossyns, 2002	MF7, MF8, MF9,	Location: Ouallam	Years of program:	Name: None Intervention:	Study design: Serial cross-	Sample size: Before: Total	Age: NR	Gender: Female:	Follow-up: NA

Study	Matrix cells	Location, setting & target group	Years	Intervention	Study Design	Sample Size	Age	Gender	Length of Follow-up
	MF10	district, Niger Setting: One small town clinic and two rural health centers Target group: Women attending health centers	June 1999–possibly ongoing Years of evaluation: July 1995–June 2000	Structural, procedural, and attitudinal changes to FP provision. The package was introduced during a four-day training, followed by supervision visits. Structural: Special FP clinics were abolished. Staff offered FP to all eligible women during any working session, be it curative consultation, under-5s' clinic or postnatal care. Procedural: Non-menstruating women were no longer refused contraceptives, and strict schedules for repeat visits were relaxed. Women received three cycles of OC at the first visit and were encouraged to return within the second cycle. Women could come for a subsequent visit at any time. Attitudinal:	sectional Unit of analysis: Individual Selection of participants: Non-random selection of both clinics and clients	NR, but 277 direct observations used to calculate Contraceptive Index After (Year 5): 3953 eligible women		100%	

Study	Matrix cells	Location, setting & target group	Years	Intervention	Study Design	Sample Size	Age	Gender	Length of Follow-up
				Staff were asked to engage in a respectful dialogue with patients.					
Cissé, 2004	MF3, MF4	Location: Kaolack and Fatick districts, west-central Senegal Setting: Six rural health centers Target group: Patients receiving PAC services	Years of program: August 2001–September 2002 Years of evaluation: Baseline: June 2000–July 2001 During-intervention evaluation #1: October 2002 Post-intervention evaluation: April 2003	Name: None Intervention: 2 phases: 1. Introduction of package of PAC services: Three components of post-abortion care were implemented: manual vacuum aspiration (MVA), improved access to FP, and comprehensive reproductive health care. Providers were trained in MVA, counseling, quality management (using COPE: Client Oriented and Providers Efficient), and prevention of infections. Equipment was purchased for MVA and data collection. 2. Supervision: Quarterly visits were conducted, two to	Study design: Serial cross-sectional Unit of analysis: Individual Selection of participants: Non-random	Sample size: Total: 1013 BL: 374 During intervention: 457 EL (post-intervention): 182	Age: Mean: 25 years Range: 14–45 years	Gender: Female: 100%	Follow-up: NA

Study	Matrix cells	Location, setting & target group	Years	Intervention	Study Design	Sample Size	Age	Gender	Length of Follow-up
				three days per site. Visits consisted of observation and data collection to ensure national standards are met, training and re-training of staff, and a COPE exercise with staff to identify problems and create and monitor action plans.					
David, 2007	MF3	Location: Perm, Veliky Novgorod, and Berezniki, Russia Setting: 20 health care sites (5 maternity hospitals, 6 women's consultation centers, 3 FP clinics, 6 children's clinics) Target group: Women visiting health care sites for	Years of program: 2000–2002 Years of evaluation Before: February–March, 2000 During: December 2001–February 2002 After: February 2003	Name: Women and Infant Health Project (WIN) Intervention: WIN was designed to improve overall quality and effectiveness of maternal and infant services, including post-abortion care services, through training for providers. This study assessed the impact of WIN interventions that focused specifically on FP. Obstetricians/gynecologists and midwives providing postpartum and post-abortion	Study design: Serial cross-sectional Unit of analysis: Individual Selection of participants: Non-random	Sample size: Total: 1575 abortion clients 2000: 489 2002: 559 2003: 527	Age: Mean age in years: 2000: 26.4 2002: 26.1 2003: 26.3	Gender: 100% female	Follow-up: N/A

Study	Matrix cells	Location, setting & target group	Years	Intervention	Study Design	Sample Size	Age	Gender	Length of Follow-up
		abortions		care and FP services received training on the principles of FP counseling, interpersonal communication, essential elements of quality post-abortion FP, discussing contraception options, and managing side effects and complications. Additionally, informational brochures were given to all participating facilities, and a national media campaign was conducted from December 2001–February 2002 to inform women about contraceptive choices.					
Debpuur, 2002	MF9, MF10	Location: Kassena-Nankena district, Navrongo Region, northern Ghana Setting: Rural	Years of program: Program began in 1994, end date NR Years of evaluation: Baseline: 1993 Endline:	Name: Navrongo Community Health and Family Planning Project (CHFP) Intervention: Four arms: 1. Nurse outreach:	Study design: Randomized trial – group Unit of analysis: Individual Selection of participants:	Sample size: Total: 8,998	Age: Range: 15–49 years	Gender: 100% female	Follow-up: NR

Study	Matrix cells	Location, setting & target group	Years	Intervention	Study Design	Sample Size	Age	Gender	Length of Follow-up
		health centers and communities Target group: Currently married women age 15–49 and their spouses	1995–1999	Community health nurses were trained in community entry, equipped with motorbikes, and provided with a system for monitoring doorstep service delivery. Services included treatment of childhood illnesses, immunizations, and FP (oral contraceptives, condoms, and injectables). 2. Zurugelu: Traditional social cooperation ("zurugelu") is used to mobilize support for community health and FP services. Health care action committees were created from councils of elders, mobilizing traditional peer networks. Community health volunteers provided basic health care, reproductive health education, outreach to men, and	Random				

Study	Matrix cells	Location, setting & target group	Years	Intervention	Study Design	Sample Size	Age	Gender	Length of Follow-up
				contraceptives. 3. Combined nurse-outreach and zurugelu approach 4. Existing MOH system (control): Clinical service sites					
Delvaux, 2008	MF1, MF3	Location: Sihanoukville, Cambodia Setting: Government reproductive health clinic Target group: Women utilizing safe abortion/post-abortion services at the MCH clinic	Years of program: August 2002–present Years of evaluation: August 2002–December 2005	Name: Mother Child Health clinic Intervention: Safe abortion/post-abortion clinics (SAPAC) were integrated into the regular services of the government clinic, comprising ANC, FP, and management of STIs. The MCH clinic is located near an STI clinic, which provides—in a separate building—STI prevention and care to female sex workers through monthly consultations. The initial package of safe abortion care included counseling on FP and STI	Study design: Before-after study Unit of analysis: Individual (clients) Selection of participants: Non-random	Sample size: N: 2224	Age: Median: 28 years Range: 16–47 years	Gender: 100% female	Follow-up: NA

Study	Matrix cells	Location, setting & target group	Years	Intervention	Study Design	Sample Size	Age	Gender	Length of Follow-up
				prevention, pain management, and the manual vacuum aspiration (MVA) procedure. A follow-up visit was proposed but was not compulsory. Those providing SAPAC received one month practical training in safe abortion techniques. Additionally, in 2004, misoprostol and electric vaccum aspiration device were introduced.					
Douthwaite, 2005	MF9, MF10	Location: Pakistan Setting: Households in communities served by LHWs Target group: Married rural women aged 15–49 years and their children	Years of program: 1994; end date not specified Years of evaluation: October 2000–April 2001	Name: The Lady Health Worker Programme (LHWP) Intervention: Lady Health Workers (LHWs) deliver a range of services to households in rural areas, including promoting childhood immunization, growth monitoring, FP, and health promotion and education. They	Study design: Cross-sectional Unit of analysis: Individual Selection of participants: Random	Sample size: Total: 4277 I: 3346 C: 931	Age: Range: 15–49 years	Gender: 100% female	Follow-up: NA

Study	Matrix cells	Location, setting & target group	Years	Intervention	Study Design	Sample Size	Age	Gender	Length of Follow-up
				treat minor ailments and injuries, and are trained to identify and refer more serious cases. Their FP responsibilities include motivating women to practice FP; providing pills and condoms; and referring for injections, IUDs, and sterilization. Each LHW is attached to a government health facility, from which they receive training and medical supplies.					
Fullerton, 2003	MF3, MF4	Location: Eastern region of Ghana Setting: FP service delivery points (public hospitals, health centers, health clinics, health posts, private maternity homes) Target group: Women using services at the	Years of program: Not explicitly stated Years of evaluation: 1996, 1997, 1998	Name: NR Intervention: An integrated and decentralized model to improve quality of reproductive health services. Intervention entailed training FP providers in provision of STI and PAC services. Providers were trained in FP service delivery and then separately in STI and PAC services. These	Study design: Case-control study Unit of analysis: Facilities Selection of participants: Random selection of three case and four comparison districts	Sample size: Total: 43 Case: 24 (providers were trained to offer STI/PAC services with FP services) Control: 19 (no training for providers)	Age: NR	Gender: 100% female	Follow-up: NA

Study	Matrix cells	Location, setting & target group	Years	Intervention	Study Design	Sample Size	Age	Gender	Length of Follow-up
		above mentioned facilities		providers were instructed to offer STI and/or PAC prevention, treatment, or referral services when treating FP patients.					
Huntington, 1994	MF9, MF10	Location: Kara and Maritime regions, Togo Setting: Public MCH-FP clinics Target group: Mothers of children presenting for Expanded Program of Immunizations (EPI) visits	Years of program: January/February 1992–September 1992 (possibly continuing) Years of evaluation: BL: January 1992; FU: August 1992	Name: NR Intervention: An individual referral message about FP services was provided to EPI clients. During each childhood immunization session, the EPI service provider made the following three statements to the mother before immunizing her child: 1. Your child is still young, and you should be concerned about having another pregnancy too soon. 2. This clinic provides FP services that can help you delay your next pregnancy. 3. You should visit	Study design: Serial cross-sectional study with a control arm Unit of analysis: Individual Selection of participants: Random selection of both clinics and clients; census sample of providers	Sample size: Total sample size was NR and varied by outcome. Largest sample size: Before: 1071 After: 1108 Before I: 545 C: 526 After I: 560 C: 548	Age: Mean age: ~25 years at both before and after	Gender: 100% female	Follow-up: NA (serial cross-sectional)

Study	Matrix cells	Location, setting & target group	Years	Intervention	Study Design	Sample Size	Age	Gender	Length of Follow-up
				the FP services after the immunization today for more information. No additional information was provided, and all questions were referred to the FP services that were available in the same clinic at the same time as all other MCH-FP services (including immunizations). One-and-a-half-day orientation was provided for EPI providers.					
Johnson, 2002	MF3, MF4	Location: Harare and Bulawayo, Zimbabwe Setting: Gynecology ward, two central hospitals Target group: Women treated for incomplete abortion	Years of program: 1995; end date not reported Years of evaluation: June 1996–February 1998	Name: NR Intervention: A curriculum was designed on post-abortion FP, and eight providers were trained: two gynecology nurses, four hospital-based distributors, and two research coordinators. Free, ward-based FP services were provided prior to	Study design: Non-randomized trial – group Unit of analysis: Individual Selection of participants: Non-random	Sample size: Overall I: 1355 C: 873 The analysis focused on women wanting to postpone pregnancy >2 yrs who kept >1 FU visit, so numbers in the analysis are	Age: Mean age in years (std deviation) I: 27.9 (6.5) C: 27.1 (7.0)	Gender: 100% female	Follow-up: 12 months

Study	Matrix cells	Location, setting & target group	Years	Intervention	Study Design	Sample Size	Age	Gender	Length of Follow-up
				discharge, including information and counseling about short- and long-term fertility control and the option to receive condoms, oral contraceptives, or an injectable. Clients who desired implants, IUDs, or other methods were given referral appointments. During quarterly follow-up visits, women were provided with free contraceptive resupplies or different contraceptives if they were not satisfied with their original choice.		below: BL Total: 636 I: 316 C: 320 3-mo FU Total: 418 I: 232 C:186 6-mo FU Total: 401 I: 204 C: 197 9-mo FU Total: 432 I: 204 C:228 12-mo FU Total: 529 I: 271 C:258			
Mahomed, 1997	MF3, MF4	Location: Harare, Zimbabwe Setting: Two main hospitals in Harare and	Years of program: 1991–1992 Years of evaluation: 1991–1992	Name: NR Intervention: FP counselors were hired to offer FP advice and services at the same site where women with abortion	Study design: Serial cross-sectional Unit of analysis: Individual Selection of	Sample size: N: 2,050	Age: Mean age: 25.9 years	Gender: 100% female	Follow-up: 1 year

Study	Matrix cells	Location, setting & target group	Years	Intervention	Study Design	Sample Size	Age	Gender	Length of Follow-up
		Parirenyatwa Target group: Women presenting with complications of abortion		complications are treated. Prior to evacuation, the woman was given the opportunity to discuss and ask questions related to her problem. She would also initiate conversation regarding need or otherwise to use contraception. After the procedure and prior to going home, the same person would sit with the woman and re-discuss the various methods of contraception available, advise on the most suitable method, and ensure—if desired—that supplies were dispensed for the first three months or arrangements were made for methods such as sterilization, insertion of intra-uterine devices, or implants.	participants: Not reported (assumed to be non-random)				
Murray, 1990	MF1, MF9,	Location: Chogoria,	Years of program:	Name: NR	Study design:	Sample size:	Age: Range: 15-44	Gender:	Follow-up:

Study	Matrix cells	Location, setting & target group	Years	Intervention	Study Design	Sample Size	Age	Gender	Length of Follow-up
	MF10	Kenya Setting: Community-based Target group: Women of reproductive age in the community	NR Years of evaluation: 1985	Intervention: A provincial hospital helped surrounding communities develop a network of clinics around the hospital, so that preventive (including FP) and curative care would be within walking distance of all homes. The emphasis then turned to providing health education and contraceptives to villagers in their own homes through volunteer health workers. Free oral contraceptive pills, condoms, and cream were distributed by volunteer health workers. Traditional birth attendants near each clinic were befriended and the concepts of FP and asepsis explained to them. Immunizations and infant mortality were also targets of this intervention. Frequent seminars and training were	Cross-sectional Unit of analysis: Individual Selection of participants: Non-random	I: 1545, C: 3806 (for outcomes related to contraceptive uptake)	years	100% female	NA (cross-sectional)

Study	Matrix cells	Location, setting & target group	Years	Intervention	Study Design	Sample Size	Age	Gender	Length of Follow-up
				conducted in primary health care strategies for local government, church officials, and women's group leaders.					
Nobili, 2007	MF3	Location: Milan, Italy Setting: Public hospital Target group: Women (age 20–44) seeking termination of pregnancy at a large public hospital	Years of program: February–May 2004 Years of evaluation 2004 Time 0 (baseline) = February–May 2004 Time 1 = one month after TOP Time 2 = three months after TOP	Name: NR Intervention: Women seeking a termination of pregnancy (TOP) received an FP intervention. Trained gynecologists and psychologists offered women a personalized, patient-centered contraceptive counseling session. The 30-minute session was conducted in the week preceding the TOP and repeated after administration of the first of three questionnaires. Counseling considered women's feelings and beliefs about and expectations of	Study design: Randomized trial – individual Unit of analysis: Individual (clients) Selection of participants: Non-random	Sample size: BL: 43 I: 21 C: 22 At first and second FU: 41 I: 20 C: 21	Age: Range: 20–44 years	Gender: 100% female	Follow-up: 3 months

Study	Matrix cells	Location, setting & target group	Years	Intervention	Study Design	Sample Size	Age	Gender	Length of Follow-up
				contraception. The session included the provision of information and education on a range of contraceptive methods and assistance in choosing a method and checking understanding. Women in the comparison group received routine TOP treatment and were referred to community health centers for information about and access to contraceptives.					
Paxman, 2005	MF1, MF2, MF5, MF7, MF8, MF9, MF10	Location: Four northern states in India (Punjab and Himachal Pradesh; Uttaranchal; Kolkata slums in West Bengal) Setting: Community	Years of program: 1999–present Years of evaluation BL: 1999 FU: 2003 .	Name: India Local Initiatives Program (India-LIP) Intervention: Management Sciences for Health (MSH) worked with three Indian NGOs (CCRID, HIHT, and CINI) to adapt the LIP model. The India-LIP employed a	Study design: Serial cross-sectional Unit of analysis: Individuals Selection of participants: Non-random	Sample size: Sample size for survey not reported. Sample size for the overall intervention were: Total: 784,400 CINI:	Age: Women of reproductive age	Gender: 100% Female	Follow-up: 4 years

Study	Matrix cells	Location, setting & target group	Years	Intervention	Study Design	Sample Size	Age	Gender	Length of Follow-up
		level Target group: Women of childbearing age in communities within the NGOs' coverage		variety of service-delivery techniques to fill in the gaps in government services by bringing in health and family planning information (and commodities at some locations), antenatal and postnatal care, and immunization services (and provision of immunizations) closer to the doorstep of the target population. The intervention was implemented by more than 600 local RCH committees and around 1,800 community health volunteers (CHVs). These trained CHVs (initially two weeks of training with follow-up) delivered basic health care information and services, including some methods of contraception. Each volunteer assumed responsibility for keeping track of the health status of approximately 50		238,000 CRRID: 286,300 HIHT: 260,100			

Study	Matrix cells	Location, setting & target group	Years	Intervention	Study Design	Sample Size	Age	Gender	Length of Follow-up
				households (250–400 individuals). They also organized grassroots services through household visits, promoting health fairs and attracting clients to services offered at mobile and satellite clinics (govt and LIP). CHVs also referred clients to services inside and outside their communities.					
Quinlivan, 2003	MF7, MF9	Location: Australia Setting: Recruitment at public-care teenage pregnancy clinic, but intervention conducted at participant homes Target group: Pregnant teenagers in prenatal care	Years of program: July 1998–December 2000 Years of evaluation: July 1998–December 2000	Name: NR Intervention: A postnatal home-visiting service was undertaken by nurse–midwives with the goal of reducing adverse neonatal outcomes and improving knowledge about contraception, vaccination schedules, and breastfeeding in teenage mothers younger than 18 years of age.	Study design: Randomized control trial – individual Unit of analysis: Individual Selection of participants: Non-random	Sample size: Total: 136 I: 71 C: 65	Age: Mean = 16 years I: Mean 16.4 (SD 0.96) C: Mean 16.6 (SD 0.90)	Gender: 100% female	Follow-up: 6 months post-natal

Study	Matrix cells	Location, setting & target group	Years	Intervention	Study Design	Sample Size	Age	Gender	Length of Follow-up
Routh, 2001	MF1, MF2, MF7, MF8, MF9, MF10	Location: Dhaka, Bangladesh Setting: All urban areas; Strategy 1: Community service points (CSPs) such as schools and clubs; Strategy 2: Primary health care clinic (PHCC); Control: Community-based household distribution (CBD) Target group: Married women of reproductive age (15-49 years)	Years of program: 1996; end date NR Years of evaluation: January 1996–May 1997	Name: Operations Research Project of the ICDDR,B Intervention: Strategy 1 (CSP): Contraceptives (pills and condoms) and MCH-FP counseling were provided by three female fieldworkers weekly at CSPs (e.g., schools and clubs). Selective home visits were made to non-users to motivate them. Strategy 2 (PHCC): Services were provided at a PHCC and included FP, ANC, postnatal care, and sick child and mother care. Services were provided daily by three clinic staff, plus a doctor three days a week. Three fieldworkers conducted home visits to motivate non-users. Control: Standard services offered via community-based	Study design: Non-randomized trial – group Unit of analysis: Individual Selection of participants: Random	Sample size: Before Total: 1600 CSP: 400 PHCC: 400 C1: 400 C2: 400 After Total: 1600 CSP: 400 PHCC: 400 C1: 400 C2: 400	Age: NR	Gender: 100% female	Follow-up: NA

Study	Matrix cells	Location, setting & target group	Years	Intervention	Study Design	Sample Size	Age	Gender	Length of Follow-up
				distribution. Field workers made household visits to married women of reproductive age in their catchment area to deliver contraceptive commodities, FP education and counseling, and selective MCH services. Women who desired clinical services were referred to clinics.					
Sathar, 2005	MF1, MF9	Location: Sargodha district; Punjab, Pakistan Setting: Rural Pakistan in fixed location clinics and community settings Target group: Men and women attending fixed location clinics and working with	Years of program: February–September 2000 Years of evaluation: December 1999 (BL)– June 2001 (FU)	Name: SAHR (salutation, assessment, help, and reassurance) Intervention: Client-centered approach to reproductive health services that (1) integrated infant health, safe motherhood, and FP within overall reproductive health care; (2) ensured the services respond to client needs; and (3) addressed gender-	Study design: Serial cross-sectional Unit of analysis: Individual (providers observable actions during client interaction) Selection of participants: NR but assumed to be non-random	Sample size: Fixed location clinics: Providers Pre: N=78 Post: N= 77 Observations of interactions Pre: N=706 Post: N=823 Community workers Pre: N=72 Post: N=86	Age: Average age of providers: At fixed location clinics Intervention: 36.8 (Range 22–56) Control: 36.2 (Range 19–50) Community workers: Intervention 29.4 (Range	Gender: NR	Follow-up: 10 months

Study	Matrix cells	Location, setting & target group	Years	Intervention	Study Design	Sample Size	Age	Gender	Length of Follow-up
		community-based health workers		related and familial constraints to health care services. Intervention was aimed at changing provider attitudes and behavior to help clients meet their needs by eliminating barriers to service access and use. Training program used a framework, SAHR. Staff from both fixed location clinics and the community-level, as well as supervisors and senior managerial staff, were trained.		Observation of interactions Pre: N=381 Post: N=443	20–45) Control 29.9 (Range 20–45)		
Solo, 1999	MF3, MF4	Location: Kenya (Kisumu, Mombasa, Eldoret, Nakuru, Nyeri) Setting: Six Kenyan MOH hospitals Target group: Women presenting with incomplete	Years of program: September 1996–January 1997 Years of evaluation Pre I: February–March and June–July 1996 Post I: March–May 1997	Name: NR Intervention: Three different post-abortion FP models were implemented in two hospitals each. The intervention consisted of training of staff in MVA and/or post-abortion FP, provision of equipment and supplies, and reorganization of	Study design: Non-randomized trial – group Unit of analysis: Individual Selection of participants: Non-random	Sample size: Female patients Pre I: 481 Post I: 319 Staff Pre I: 140 Post I: 106 Male partners Post I: 92	Age: Patients age range: 15–35 + years Providers mean age Pre I: 35 Post I: 34	Gender: Patients: 100% female and male partners 100% male (only 92 male partners interviewed) Proportions for providers not provided	Follow-up: NA

Study	Matrix cells	Location, setting & target group	Years	Intervention	Study Design	Sample Size	Age	Gender	Length of Follow-up
		abortion at less than 16 weeks gestation		services. In Model 1, gynecological ward staff members received both MVA and post-abortion FP training. In Models 2 and 3, gynecology ward staff received MVA training, while staff from the MCH-FP clinics of the hospital received post-abortion FP training. Reorganization of services entailed creating space for counseling patients, making contraceptives available in the ward, and reallocation of staff time and responsibilities. In Models 1 and 2, private spaces for post-abortion counseling were created in the gynecological wards. Model 1: FP services provided on ward by ward staff (same provider responsible for all aspects of a					

Study	Matrix cells	Location, setting & target group	Years	Intervention	Study Design	Sample Size	Age	Gender	Length of Follow-up
				patient's management, distance is bridged between services). Model 2: FP services provided on ward by MCH-FP staff (providers with FP experience provide FP services, distance is bridged). Model 3: FP services provided in MCH-FP clinic by MCH-FP staff (experienced FP providers offer FP services, FP commodities are not moved from clinic to ward, potentially easier follow-up but distance NOT bridged).					
Sultan, 2002	MF9, MF10	Location: Pakistan Setting: Households in communities served by community health workers Target group: Ever married rural women	Years of program: 1993; end date NR Years of evaluation: late 1996–early 1997	Name: The Lady Health Worker Programme (Ministry of Health) and the village-based family planning worker programme (Ministry of Population Welfare) Intervention: Lady Health Workers	Study design: Cross-sectional Unit of analysis: Individual Selection of participants: Random	Sample size: Total: 4676 Exposed to 0 health workers: 1820 Exposed to 1 health worker: 2128 Exposed to ≥2 health workers:	Age: Women age 15–49 were interviewed <25 years: 1250 (27%) 25-34 years: 1955 (42%) ≥35 years:	Gender: 100% female	Follow-up: NA

Study	Matrix cells	Location, setting & target group	Years	Intervention	Study Design	Sample Size	Age	Gender	Length of Follow-up
		age 15–49 years		(LHWs) deliver a range of services to households in rural and urban areas, including promoting childhood immunization, growth monitoring, FP, and health promotion and education. [See Douthwaite for more details.] Village-based FP health workers operate in rural areas, have >10 years of education and are trained for seven months. They compile a register of local married women of reproductive age and visit them at home regularly. Workers distribute oral and injectable contraceptives and condoms and have medications to treat sick children.		728	1425 (31%)		
Vernon, 1993	MF1, MF2 MF5, MF6, MF7,	Location: Tegucigalpa, Honduras Setting: Honduran	Years of program: October 1990–February	Name: Population Council's INOPAL (Investigation Operacional en America Latina)	Study design: Serial cross-sectional Unit of analysis: Individual	Sample size: N=1440 from 3 serial cross-sectional surveys	Age: No mean available. 6% younger than 20	Gender: 100% female	Follow-up: NA

Study	Matrix cells	Location, setting & target group	Years	Intervention	Study Design	Sample Size	Age	Gender	Length of Follow-up
	MF8, MF9, MF11	social security maternal-infant hospital Target group: Pre- and postpartum women who gave birth at the hospital	1992 Years of evaluation August 1990–March 1992	project Intervention: A client-oriented reproductive health program that included five separate components: (1) prenatal education offered through videos and in-person by nurses on six topics (reproductive risk factors, family planning, prenatal care, breastfeeding, labor, and baby care); (2) full-time individual counseling on family planning and reproductive health; (3) increased range of contraceptive methods available after delivery, including pills, condoms, and, vaginal tablets in addition to IUD and female sterilization services already being offered; (4) a postpartum outpatient clinic where mothers and newborns could be seen simultaneously on the 40th day after	Selection of participants: Non-random	N=614 Feb N=344 Oct N=482 Dec Perinatal info system N=6,617 Logbooks N=9326	10% older than 34		

Study	Matrix cells	Location, setting & target group	Years	Intervention	Study Design	Sample Size	Age	Gender	Length of Follow-up
				birth, where all services for mother and newborn could be offered at a single visit, and where staff had an additional opportunity to offer family planning services; and (5) a perinatal information system for improved data collection which included two methods of data collection: medical history and carnets, a copy of the clinical history kept by the patient. Data was collected on acceptance of contraception and attendance at educational sessions					
Warren, 2010	MF7, MF8	Location: Eastern Kenya Setting: Maternity and maternal child health clinics Target group: Postpartum women and	Years of program: Initiated between September 2006 and July 2007; ongoing Years of evaluation: September	Name: NR Intervention: A postnatal care package and job aid were created to increase provider awareness of the need to focus on providing the continuum of care	Study design: Serial cross-sectional Unit of analysis: Individual Selection of participants: Non-random selection of both clinics	Sample size: Total: 249 48 hour visit Post only: 29 1–2 week visit Post only: 64 6 week visit	Age: NR	Gender: Female: 100%	Follow-up: NA

Study	Matrix cells	Location, setting & target group	Years	Intervention	Study Design	Sample Size	Age	Gender	Length of Follow-up
		their children	2006–July 2007	from pregnancy through the postnatal period. A three-day training took place for 24 staff and their supervisors in the postnatal care package and the use of a new postnatal register. Regular supervision visits were made to the clinics. The postnatal care package recommended three assessments (including examinations and counseling on FP, breastfeeding, newborn care, HIV, syphilis, etc.) within the first six weeks after childbirth.	(purposive) and clients (consecutive)	Pre: 86 Post: 70			
Zhu, 2009	MF3, MF4	Location: Beijing, Shanghai and Zhengzhou, China Setting: 24 abortion clinics in selected public hospitals Target group: Pregnant	Years of program: May–November 2006 Years of evaluation Exact dates not reported. For both pre and post I groups of	Name: NR Intervention: Culturally appropriate, post-abortion FP service packages were implemented in 24 hospitals across three cities. These packages provided training for providers as well as services for abortion clients. Hospitals	Study design: Randomized trial – group Unit of analysis: Individual Selection of participants: Non-random	Sample size: Total = 2336 participants Package A Hospitals: Pre I: 555 Post I: 555 Package B Hospitals Pre I: 634	Age: Package A Pre I: 15-20: 22.5% 21-24: 77.5% Post I: 15–20: 26.3% 21–24: 73.7 Package B Pre I:	Gender: 100% women	Follow-up: 6 months

Study	Matrix cells	Location, setting & target group	Years	Intervention	Study Design	Sample Size	Age	Gender	Length of Follow-up
		women <25 years during their first trimester who visited hospital for abortion services	women data was collected at the time of abortion and six months later.	were randomized to receive one of two intervention packages: essential (package A) or comprehensive (package B). Package A: (1) One-day training for abortion service providers and the provision of service guidelines, (2) group education for women who sought an abortion, and (3) referral to FP services. Package B: (1) Two-day training for providers and provision of service guidelines; (2) group education for women; (3) individual counseling, information, and recommendations about suitable FP methods; (4) free contraceptive provision; (5) involvement of male partners in group		Post I: 592	15–20: 22.6% 21–24: 77.4% Post I: 15–20: 26.0% 21–24: 74.0%		

Study	Matrix cells	Location, setting & target group	Years	Intervention	Study Design	Sample Size	Age	Gender	Length of Follow-up
				education and individual FP counseling; and (6) referral of women to existing FP services.					
Matlab studies									
Chaudhuri, 2008	MF1, MF5, MF6, MF11, MF12	Location: Matlab district, Bangladesh Setting: Community level Target group: Women of childbearing age in select communities in the Matlab district	Years of program: 1977–late 1990s Years of evaluation: 1996	Name: Family Planning Health Services Project (FPHSP), renamed Maternal Child Health Family Planning (MCH-FP) in 1986 Intervention: A community-based FP program associated with a few basic MCH services, including tetanus immunization during pregnancy (and later for all married women), iron/folic acid supplementation during pregnancy and lactation, distribution of safe delivery kits, and care of simple ailments during pregnancy. In each village, a female CHW visited each household biweekly	Study design: Cross-sectional Unit of analysis: Individual Selection of participants: Randomly selected two children per household to be measured	Sample size: Total: 3,225 children Girls: 1,623 Boys: 1,632	Age: 0–10 years of age	Gender: 50% boys, 50% girls	Follow-up: NA (cross-sectional)

Study	Matrix cells	Location, setting & target group	Years	Intervention	Study Design	Sample Size	Age	Gender	Length of Follow-up
				and then monthly with a male health assistant. In addition, four health centers were established in 1996 providing basic emergency obstetric care for the catchment area. These are staffed by a trained nurse–midwife and a paramedic who provide antenatal care, treat minor pregnancy and delivery complications, conduct normal deliveries, and refer cases with serious complications to the Matlab hospital.					
Fauveau, 1990	See above	See above	Years of program: See above Years of evaluation: 1979–1986	See above	Study design: Serial cross-sectional Unit of analysis: Individual Selection of participants: Non-random	Sample size: 1979–1982: I:13,818 C: 16,781 1983–1986: I: 13,433 C: 16,018	Age: NR	Gender: Assumed to be 100% female	Follow-up: 7 years
Hale, 2006	See above	See above	Years of program:	See above	Study design: Serial cross-	Sample size:	Age: Under 5 years	Gender:	Follow-up: NA (serial

Study	Matrix cells	Location, setting & target group	Years	Intervention	Study Design	Sample Size	Age	Gender	Length of Follow-up
			See above Years of evaluation: 1982–2002		sectional Unit of analysis: Individual Selection of participants: NR (but assumed to be non-random)	125,720 (N was not broken down by I or C area) 1982–1986: N= 32,199 1987–1991: 32,858 1992–1996: 27,319 1997–1999: 16,394 2000–2002: 16,950	of age	NR	cross-sectional)
Maine, 1996	See above	See above	Years of program: See above Years of evaluation: 1984–1989 Pre-intervention: 1984–1986 Post-intervention: 1987–1989	See above	Study design: Serial cross-sectional Unit of analysis: Individual Selection of participants: Non-random	Sample size: Matlab clinic registry=300 For other outcomes, NR	Age: Women of reproductive age	Gender: 100% female	Follow-up: NR (serial cross-sectional)

Study	Matrix cells	Location, setting & target group	Years	Intervention	Study Design	Sample Size	Age	Gender	Length of Follow-up
Ronsmans, 1997	See above	See above	Years of program: See above Years of evaluation 1976–1993	See above	Study design: Serial cross-sectional Unit of analysis: Individual Selection of participants: Non-random	Sample size: NR for outcomes comparing the intervention to control group (i.e., outcomes of interest)	Age: 15–44 years	Gender: 100% female	Follow-up: N/A (serial cross-sectional)
Simmons, 1991	See above	See above	Years of program: See above Years of evaluation: 1985	See above	Study design: Cross-sectional (outcomes of cost reported are cross-sectional) Unit of analysis: Individual Selection of participants: NR	Sample size: NA (cost data)	Age: NR	Gender: NR	Follow-up: NA

APPENDIX 3. TABLE 2—STUDY OUTCOMES

Study	Reported outcomes and results (I=Intervention; C=Comparison; NS=Non-significant p>0.05; Sig=Significant p<0.05; NR=Not reported; BL=Baseline; EL=Endline; FU=Follow-up)	Summary of outcomes
Agha, 2007 **Intervention:** A franchising network intended to improve the quality of reproductive health services **Study design:** Serial cross-sectional **Rigor score: 2/9**	**Biological Outcomes** NR **Behavioral Outcomes** From household surveys—married women ages 15–45 **1. Family planning current use** I: BL 44.7% vs. FU 50.0% (p=0.279, NS); C: BL 55.9% vs. FU 48.3% (p=0.134, NS) Difference in trend (p=0.067, NS) **2. Family planning from medical store/pharmacy** I: BL 5.4% vs. FU 7.0% (p=0.262, NS); C: BL 2.8% vs. FU 1.2% (p=0.113, NS) Difference in trend (p=0.036, SIG) **3. Antenatal care any use during last pregnancy** I: BL 57.5% vs. FU 62.5% (p=0.314, NS); C: BL 62.5% vs. FU 67.3% (p=0.314, NS) Difference in trend (p=0.990, NS) **4. Antenatal care from medical store/pharmacy** I: BL 1.4 vs. FU 3.3% (p=0.175, NS); C: BL 2.4% vs. FU 0.9% (p=0.147, NS) Difference in trend (p=0.147, NS) **Process Outcomes/Output** From exit surveys **1. % very satisfied with cleanliness of clinic** I: BL 37.4% vs. FU 64.8% (p<0.0001, SIG); C: BL 16.8% vs. FU 20.2% (p=0.540, NS)	Substantial increases in client satisfaction were observed across a range of elements of quality at intervention clinics but not at control clinics. Also, trends in client satisfaction were significantly different between intervention and control clinics. Return visits also increased at intervention clinics. However, there were no significant differences between intervention and control clinics in regards to family planning use, antenatal care use during last pregnancy, or antenatal care from medical store/pharmacy. There was a significant difference in trends between intervention and control clinics in regard to obtaining FP from medical stores/pharmacies.

Study	Reported outcomes and results (I=Intervention; C=Comparison; NS=Non-significant p>0.05; Sig=Significant p<0.05; NR=Not reported; BL=Baseline; EL=Endline; FU=Follow-up)	Summary of outcomes
	Difference in trend (p=0.060, NS) **2. % very satisfied with essential equipment** I: BL 35.3% vs. FU 62.2% (p=0.001, SIG); C : BL 12.7% vs. FU 7.7% (p=0.183, NS) Difference in trend (p=0.002, SIG) **3. % very satisfied with essential medicines** I: BL 60.9% vs. FU 70.5% (p=0.119, NS); C : BL 26.1% vs. FU 27.6% (p=0.829, NS) Difference in trend (p=0.002, SIG) **4. % very satisfied with good handling of clients** I: BL 82.4% vs. FU 88.4% (p=0.138, NS); C : BL 58.2% vs. 64.6% (p=0.348, NS) Difference in trend (p=0.631, NS) **5. % very satisfied with the service charge** I: BL 74.6% vs. FU 68.6% (p=0.381); C : BL 22.1% vs. FU 25.1% (p=0.654, NS) Difference in trend (p=0.360, NS) **6. % very satisfied with physical look** I: BL 25.6% vs. FU 64.0% (p<0.001, SIG); C : BL 13.6% vs. FU 14.8% (p=0.810, NS) Difference in trend (p=0.007, SIG) **7. % very satisfied with range of services** I: BL 40.3% vs. FU 71.3% (p=0.001, SIG); C BL 16.5% vs. FU 11.2% (p=0.336, NS) Difference in trend (p=0.004, SIG) **8. % very satisfied with privacy** I: BL 37.6% vs. FU 72.2% (p<0.001, SIG); C : BL 13.7% vs. FU 11.4% (p=0.008, SIG) Difference in trend (p=0.008, SIG) **9. % overall satisfied**	

Study	Reported outcomes and results (I=Intervention; C=Comparison; NS=Non-significant p>0.05; Sig=Significant p<0.05; NR=Not reported; BL=Baseline; EL=Endline; FU=Follow-up)	Summary of outcomes
	I: BL 54.7% vs. FU 76.8% (p=0.007, SIG); C : BL 27.3% vs. FU 241.% (p=0.032, SIG) Difference in trend (p=0.032, SIG) **10. % of clients making a return visit (adjusted)** I: BL 83% vs. FU 93% (p=NR); C: BL 88% vs. FU 89% (p=NR) Difference in trend (p=0.053, SIG)	
Alvarado, 1999 **Intervention:** Integrated maternal and infant care for first year postpartum **Study design:** Non-randomized trial – group **Rigor score: 4/9**	**Biological Outcomes** **1. Unintended pregnancy (among contraceptive acceptors)** I: 1.1% (N=182) C: 0.5% (N=173) (p=NR) **2. Infant mean weight (grams) and length (cm)** Weight at 0 months: I: 3360 + 502; C: 3339 + 429 (p=NS) Weight at 6 months: I: 7962 + 801; C: 7779 + 811 (p=0.03, SIG) Weight at 12 months: I: 10,093 + 918; C: 9665+ 1069 (p=0.0001, SIG) Length at 0 months: I: 49.7 + 2.8, 49.9 + 1.8 (p=NS) Length at 6 months: I: 66.7 + 2.3; C: 65.7+ 2.1, or is it (p<0.00001, SIG) Length *at 12 months:* I: 75.3 ± 2.4; C: 73.2± 2.5, or is it (p<0.00001, SIG) **3. Infant morbidity rates (per 100 infant-months) during the first year of age** Diarrhea: I: 0.1; C: 1.5 Unadjusted RR (C vs. I): 11.3 (p=0.00001, SIG) Respiratory ailment: I: 3.3; C: 5.1 Unadjusted RR (C vs. I): 1.6 (p=NS) Other: I: 1.3; C: 1.5 Unadjusted RR (C vs. I): 1.1 (p=NS) Hospitalization: I: 0.2; C: 0.7 Unadjusted RR (C vs. I): 3.3 (p=0.02, SIG) **Behavioral Outcomes**	Contraceptive acceptance was similar in both groups, but methods chosen differed, as did contraceptive discontinuation. Number of unintended pregnancies was higher in the CSLH clinic, although this difference was not significant. Loss to follow-up was higher in the control group. All method acceptors attended the CSLH until the end of the year, whereas 21% of those attending the public clinic were considered lost to follow-up. Breastfeeding duration and infant growth and health were significantly better at the intervention clinic than the control clinic.

Study	Reported outcomes and results (I=Intervention; C=Comparison; NS=Non-significant p>0.05; Sig=Significant p<0.05; NR=Not reported; BL=Baseline; EL=Endline; FU=Follow-up)	Summary of outcomes
	1. Contraceptive acceptance (all methods) I: 91.5% (N=199); C: 96.1% (N=180) (p=NR) **2. Contraceptive uptake (continued initial method)** I: 74.2%; C: 0.0% * (p=NR) * No data on control group who did not attend the scheduled visits **3. Contraception discontinuation (discontinued contraception)** I: 2.2%; C: 1.7%, (p=NR) **4. Breastfeeding** *Fully* breastfeeding at 6 months postpartum: I: 74%; C: 10% (p=0.0001, SIG) Weaned at 6 months postpartum: I: 7%; C: 50% (p=0.0001, SIG) **Process Outcomes/Output** **4. Infant follow-up** FU at 6 months/ I: 93%; C: 88% (p=NR) FU at 12 month/I: 92%; C: 72% (p <0.0001, SIG) **1. Mean number of infant visits during first year after birth** I: 7.5; C: 5.3 (p <0.0001, SIG) **2. 3. Loss to follow-up among contraceptive acceptors** I: 0% (N=182); C: 20.8% (N=173) (p=NR) **3. Proportion who did not have visits scheduled among contraceptive acceptors** I: 0% (N=182); C: 69.9% (N=173) (p=NR) **Other Reported Outcomes**	

Study	Reported outcomes and results (I=Intervention; C=Comparison; NS=Non-significant p>0.05; Sig=Significant p<0.05; NR=Not reported; BL=Baseline; EL=Endline; FU=Follow-up)	Summary of outcomes
	1. Contraceptive methods used **2. Proportion of clients who changed contraceptive methods** **3. Qualitative assessment of client and provider satisfaction**	
Amin, 2001 **Intervention:** ESP in reproductive and child health care, nutritional services, and basic curative and preventive care through static clinics **Study design:** Non-randomized – individual **Rigor score: 2/9**	**Biological Outcomes** **1. Total fertility rate** I: BL/1992: 4.61, EL/1997: 3.66; C: BL/1992: No data, EL/1997: 4.72 (p=NR) **2. Total number of children ever born** I: BL/1992: 4.51, EL/1997: 3.62; C: BL/1992: No data, EL/1997: 3.61 (p=NR) **3. Infant mortality rate (per 1000 live births) (**From survey collected in 1997) I: 1992/88.0, 1993–94/74.6, 1995–96/62.5 (p=NR)** C: 1992/80.7, 1993–94/68.7, 1995–96/54.3 (p=NR) (**: Discrepancy in data, 2 figures for IMR for 1992. (1) According to data collected from survey in 1997 IMR in I in 1992=88.0, while (2) according to data collected from survey in 1992 IMR in I in 1992=81.5) **Behavioral Outcomes** **1. Contraceptive prevalence rate** I: BL/1992: 28%, EL/1997: 53%; C: BL/1992: No data, EL/1997: 38.41% (p=NR) **Process Outcomes/Outputs** (Only pertain to Phase 2. Comparing Intervention and Control groups) **1. Coverage** **Availability of private doctor with pharmacy** I :55.2%; C: 35% (p=NR) **Availability of private doctor**	Phase 1: Contraceptive prevalence rate (CPR) nearly doubled within the intervention area over the study period, and the CPR in the intervention area post-intervention was much higher compared to the control area. Infant mortality declined substantially in the experimental area, but a similar decline was seen in the control area. Both groups experienced a similar slight rise in the coverage of child immunizations. Phase 2: The intervention area had greater availability and utilization of modern doctors, pharmacies, health centers, etc. compared to the control area. Availability of traditional providers was still strong in both areas.

Study	Reported outcomes and results (I=Intervention; C=Comparison; NS=Non-significant p>0.05; Sig=Significant p<0.05; NR=Not reported; BL=Baseline; EL=Endline; FU=Follow-up)	Summary of outcomes
	I: 24.2%; C: 7% (p=NR) **Availability of government health center** I: 98.1%; C: 80% (p=NR) **Availability of government satellite clinic** I : 88.3%; C: 60% (p=NR) **Availability of Palli Mangal Clinic** I: 64.3%; C: 5% (p=NR) **2. Utilization** **Utilization of private doctor with pharmacy** I: 15.4%; C: 11% (p=NR) **Utilization of private doctor** I: 8%; C: 3% (p=NR) **Utilization of government health center** I: 14.3%; C: 9% (p=NR) **Utilization of government satellite clinic** I: 12.4%; C: 7.1% (p=NR) **Utilization of Palli Mangal Clinic** I: 14.2%; C: 0% (p=NR) **3. Immunization coverage** **TT immunization** I: BL/1992: 80.9%, EL/1997: 89.9%; C: BL/1992: No data, EL/1997: 86.1% (p=NR) **DPT immunization** I: BL/1992: 83.2%, EL/1997: 94.3%; C: BL/1992: No data, EL/1997: 96.2%(p =NR)	

Study	Reported outcomes and results (I=Intervention; C=Comparison; NS=Non-significant p>0.05; Sig=Significant p<0.05; NR=Not reported; BL=Baseline; EL=Endline; FU=Follow-up)	Summary of outcomes
	Measles immunization I: BL/1992: No data, EL/1997: 88.6%; C: BL/1992: No data, EL/1997: 79.2% (p= NR) **Other Reported Outcomes** 1. **Age-specific fertility rate** 2. **Percentage of respondents reporting availability of sources of credit of poor women** 3. **Influence of credit membership on contraceptive use and ESP use (logistic regression)**	
Barnet, 2007 **Intervention:** A community-based home visitation and education program about parenting and family planning for adolescent mothers **Study design:** Randomized trial – Individual **Rigor score: 7/9**	**Biological Outcomes** 1. **Repeat pregnancy** I: Year 1: 19%, Year 2: 45%; C: Year 1: 19%, Year 2: 38% AOR*=1.2; 95% CI: (0.4-3.5); (p=0.69, NS) 2. **Repeat birth** I: Year 1: 8%, Year 2=13%; C: Year 1: 8%, Year 2=19% AOR*:0.6; 95% CI: (0.2-2.6); (p=0.54, NS) **Behavioral Outcomes** 1. **Condom use "always" in past 12 months** I: Year 1: 50%, Year 2: 55%; C: Year 1: 35%, Year 2: 38% AOR*:3.6; 95% CI: (0.9-14.4); (p=0.07, NS) 2. **Hormonal contraception use in past 12 months** I: Year 1:50%, Year 2: 58%; C: Year 1: 58%, Year 2: 66% AOR*=0.7; 95% CI: (0.2-1.9); (p=0.46, NS)	Home visiting intervention significantly improved parenting attitudes and beliefs relative to usual care program. There was a significant trend toward consistent condom use among the home visitation group as compared to the control group, but no difference in repeat pregnancy, repeat birth, hormonal contraception, and depressive symptoms. Finally, there was no significant difference between the two groups with regard to linking teens to a primary care service.

Study	Reported outcomes and results (I=Intervention; C=Comparison; NS=Non-significant p>0.05; Sig=Significant p<0.05; NR=Not reported; BL=Baseline; EL=Endline; FU=Follow-up)	Summary of outcomes
	Knowledge Outcomes **1. Total mean AAPI (adult adolescent parenting inventory) scores** I: Year 1: 119.6 (SD 14.6), Year 2: 122.0 (SD 17.2) C: Year 1: 110.1 (SD 13.7), Year 2: 111.8 (SD 14.7) Difference in Score Change (I vs. C): β = 5.5; 95% CI: (0.5 – 10.4); (p=0.03, SIG) **Process Outcomes/Outputs** **1. Linked with primary care: has a regular personal doctor at year 2** I: Year 2: 61%; C: Year 2: 47% AOR*=1.9; 95% CI: (0.7-5.6); (p=0.23, NS) **2. Percentage who completed fewer than 75% of planned curriculum sessions** I: 39% *Adjusted for baseline depressive symptoms and baseline household violence. **Other Reported Outcomes** **1. In-school status (in school or graduated)** **2. Mental health depressive symptoms**	
Bashour, 2008 **Intervention:** Home visits aimed to examine, follow up, educate, support, and counsel women who had recently given birth.	**Biological Outcomes** **Maternal morbidity** **1. Severe vaginal bleeding** A: 15/284 (5.3%); B: 25/293 (8.5%); C: 26/296 (8.8%) p=0.208 NS **2. Swelling of the legs** A: 24/284 (8.5%); B: 24/293 (8.2%); C: 24/296 (8.1%) p=0.988 NS	A significantly higher proportion of mothers reported exclusively breastfeeding at four months, and maternal pallor and sleep disorders were more often reported in groups A and B compared with group C. There were no reported differences in groups in other (numerous)

Study	Reported outcomes and results (I=Intervention; C=Comparison; NS=Non-significant p>0.05; Sig=Significant p<0.05; NR=Not reported; BL=Baseline; EL=Endline; FU=Follow-up)	Summary of outcomes
Study design: Randomized control trial – individual **Rigor score:** 5/9	**3. Vaginal discharge** A: 49/282 (17.4%); B: 51/292 (17.5%); C: 54/292 (18.5%) p=0.926 NS **4. Lower abdominal pain** A: 75/282 (26.4%); B: 77/292 (26.4%); C: 74/295 (25.1%) p=0.917 NS **5. Back pain** A: 135/284 (47.5%); B: 133/293 (45.4%); C: 143/294 (48.6%) p=0.726 NS **6. Dysuria** A: 49/285 (17.2%); B: 53/294 (18.0%); C: 63/297 (21.2%) p=0.422 NS **7. Breast engorgement** A: 45/285 (15.8%); B: 52/294 (17.7%); C: 44/297 (14.8%) p=0.628 NS **8. Fever** A: 55/285 (19.3%); B: 49/294 (16.7%); C: 41/297 (13.8%) p=0.204 NS **9. Constipation** A: 123/283 (43.5%); B: 106/293 (36.2%); C: 115/296 (38.5%) p=0.189 NS **10. Hemorrhoids** A: 43/281 (15.3%); B: 50/292 (17.1%); C: 56/294 (19.0%) p=0.492 NS **11. Dyspepsia** A: 12/278 (4.3%); B: 22/291 (7.6%); C: 18/296 (6.1%) p=0.266 NS **12. Pallor** A: 88/283 (31.1%); B: 102/292 (34.9%); C: 67/296 (22.6%) p=0.004 **SIG** **13. Perineal pain** A: 85/283 (30%); B: 85/292 (29.1%); C: 77/293 (26.3%) p=0.580 NS **14. Dyspareunia**	outcomes. The three arms did not differ in their current contraceptive use or postpartum care uptake (defined as paying one postpartum visit to a health provider).

Study	Reported outcomes and results (I=Intervention; C=Comparison; NS=Non-significant p>0.05; Sig=Significant p<0.05; NR=Not reported; BL=Baseline; EL=Endline; FU=Follow-up)	Summary of outcomes
	A: 66/282 (23.4%); B: 72/292 (24.7%); C: 60/295 (20.3%) p=0.439 NS **15. Fatigue** A : 104/282 (36.9%); B : 120/292 (41.1%); C : 96/295 (32.5%) p=0.099 NS **16. Others** A: 41/278 (15.3%); B: 49/281 (17.4%); C: 36/292 (12.3%) p=0.227 NS **Infant outcomes** **17. Death of the newborn (Yes)** A: 3/284 (1.1%); B: 2/293 (0.7%); C: 0/296 (0%) p=0.231 NS **18. Fever** A: 111/282 (39.5%); B: 123/288 (42.7%); C: 109/292 (37.3%) p=0.413 NS **19. Cold and/or cough** A : 151/281 (53.7%); B: 161/291 (55.3%); C: 158/293 (53.9%) p=0.916 NS **20. Fast breathing** A: 28/281 (10.0%); B: 34/288 (11.8%); C: 24/291 (8.3%) p=0.361 NS **21. Diarrhea** A: 123/280 (43.9%); B: 133/288 (46.2%); C: 155/293 (52.9%) p=0.080 NS **22. Sleep disorders** A: 67/279 (24.0%); B: 76/288 (26.4%); C: 49/291 (16.8%) p=0.015 **SIG** **23. Nutritional problems** A: 33/278 (11.9%); B: 39/287 (13.6%); C: 39/292 (13.4%) p=0.805 NS **24. Infection** A: 50/280 (17.5%); B: 63/289 (21.8%); C: 51/292 (17.5%) p=0.341 NS **25. Jaundice**	

Study	Reported outcomes and results (I=Intervention; C=Comparison; NS=Non-significant p>0.05; Sig=Significant p<0.05; NR=Not reported; BL=Baseline; EL=Endline; FU=Follow-up)	Summary of outcomes
	A: 92/280 (32.9%); B: 107/288 (37.2%); C: 99/293 (33.8%) p=0.525 NS **26. Others** A: 52/248 (21.0%); B: 59/262 (22.5%); C: 54/282 (19.1%) p=0.625 NS **27. Woman is currently pregnant** Yes: A: 4/262 (1.4%); B: 3/292 (1.0%); C: 3/293 (1.0%) No: A: 257/262 (91.1%); B: 263/292 (90.1%); C: 255/293 (87.0%) Don't know: A: 21/262 (7.4%); B: 26/292 (8.9%); C: 35/293 (12.0%) p =0.439 NS **Behavioral Outcomes** **28. Current contraception use (Yes)** A: 117/276 (42.24%); B; 107/289 (37.0%); C: 118/291 (40.5%) p =0.415 NS **29. Type of contraceptive method** Pills: A: 42/117 (34.1%); B: 40/107 (35.1%); C: 46/118 (35.9%) IUDs: A: 23/117 (18.7%); B: 30/107 (29.3%); C: 35/118 (27.3%) Condoms: A: 16/117 (13.0%); B: 8/107 (7.0%); C: 10/118 (7.8%) Others: A: 36/117 (30.8%); B: 29/107 (27.1%); C: 27/118 (31.4%) p=0.352 NS **30. Mother is currently breastfeeding (Yes)** A: 272/283 (96.1%); B: 279/287 (97.2%); C: 283/295 (95.9%) p=0.670 NS **31. Mother is still breastfeeding four months after delivery (Yes)** A: 261/265 (98.5%); B: 270/279 (96.8%); C: 269/278 (96.8%) p=0.360 NS **32. Mother is still exclusively breastfeeding (Yes)** A: 69/242 (28.5%); B: 77/256 (30.1%); C: 52/258 (20.2%) p=0.023 **SIG** **33. Baby was vaccinated at the health center (Yes)**	

Study	Reported outcomes and results (I=Intervention; C=Comparison; NS=Non-significant p>0.05; Sig=Significant p<0.05; NR=Not reported; BL=Baseline; EL=Endline; FU=Follow-up)	Summary of outcomes
	A: 269/283 (95.1%); B: 281/289 (97.2%); C: 289/296 (97.6%) p=0.180 NS **Knowledge Outcomes** NR **Process Outcomes/Outputs** **34. Contraceptive method prescribed by** Self: A: 52/117 (44.4%); B: 46/103 (44.7%); C: 52/117 (44.4%) Doctor: A: 11/117 (9.4%); B: 12/103 (11.7%); C: 11/117 (9.4%) Health center: A: 39/117 (33.3%); B: 34/103 (33.0%); C: 49/117 (41.9%) Midwife: A: 6/117 (5.1%); B: 4/103 (3.9%); C: 0/117 (0%) Others: A: 9/117 (7.7%); B: 7/103 (6.8%); C: 5/117 (4.3%) p=0.460 NS **35. Woman went to doctor for her problem (Yes)** A: 97/285 (34%); B: 109/294 (37.1%); C: 109/297 (36.7%) p=0.709 NS **36. Woman is happy about her experience during postnatal period (Yes)** A: 225/281 (80.1%); B: 234/289 (81.0%); C: 246/292 (84.2%) p=0.392 NS **37. Availability of the vaccination card with the mother (Yes)** A: 229/270 (84.8%); B: 236/282 (83.7%); C: 247/286 (86.4%) p=0.669 NS	
Billings, 2003 **Intervention:** Different models of post-abortion care were compared to a standard control among women receiving PAC in hospitals in Mexico City. **Study design:** Cross-	**MVA=manual vacuum aspiration; SC=standard care** **Behavioral Outcomes** **Method selection (among those who received a method)** **1. Chosen by the woman** MVA: 43.4% vs. SC: 80.2% (p<0.01, **SIG)** SC: 80.2% vs. C: 37.9% (p<0.01, **SIG)** MVA: 43.4% vs. C: 37.9% (NS)	Women in the two PAC groups rated the quality of services they received more highly than did those receiving sharp curettage standard care. A greater proportion of women treated under the PAC models accepted a contraceptive method before leaving the hospital and

Study	Reported outcomes and results (I=Intervention; C=Comparison; NS=Non-significant p>0.05; Sig=Significant p<0.05; NR=Not reported; BL=Baseline; EL=Endline; FU=Follow-up)	Summary of outcomes
sectional **Rigor score:** 2/9	**2. Offered by a physician** MVA: 17.0% vs. SC: 16.9% (NS) SC: 16.9% vs. C: 25.2% (NS) MVA: 17.0% vs. C: 25.2% (NS) **3. Chose by a woman and physician together** MVA: 32.7% vs. SC: 6.8% (p<0.01, **SIG)** SC: 6.8% vs. C: 20.4% (p<0.01, **SIG)** MVA: 32.7% vs. C: 20.4% (p<0.01, **SIG)** **4. Imposed by physician** MVA: 6.9% vs. SC: 1.9% (p<0.01, **SIG)** SC: 1.9% vs. C: 18.4% (p<0.01, **SIG)** MVA: 6.9% vs. C: 18.4% (p<0.01, **SIG)** **Received methods before leaving the hospital** **5. Received a method before leaving the hospital - yes** MVA: 64.4% vs. SC: 77.8% (p<0.01, **SIG)** SC: 77.8% vs. C: 39.6% (p<0.01, **SIG)** MVA: 64.4% vs. C: 39.6% (p<0.01, **SIG)** **6. Type of method received - IUD** MVA: 84.9% vs. SC: 74.4% (p<0.01, **SIG)** SC: 74.4% vs. C: 79.6% (NS) MVA: 84.9% vs. C: 79.6% (NS) **7. Type of method received – oral contraceptives** MVA: 6.3% vs. SC: 16.4% (p<0.01, **SIG)**	were given information about their chosen contraceptive method. Of women who left the hospital with a contraceptive method, those in the post-abortion care models were more likely than women in the sharp curettage standard care model to receive information about the method and to feel that they had played a role in choosing it. The overall results favored the sharp curettage PAC approach over the manual vacuum aspiration PAC approach.

Study	Reported outcomes and results (I=Intervention; C=Comparison; NS=Non-significant p>0.05; Sig=Significant p<0.05; NR=Not reported; BL=Baseline; EL=Endline; FU=Follow-up)	Summary of outcomes
	SC: 16.4% vs. C: 3.9% (p<0.01, **SIG)** MVA: 6.3% vs. C: 3.9% (NS) **8. Type of method received – injectable** MVA: 6.9% vs. SC: 8.7% (NS) SC: 8.7% vs. C: 15.5% (p<0.01, **SIG)** MVA: 6.9% vs. C: 15.5% (p<0.01, **SIG)** **9. Type of method received – other** MVA: 1.9% vs. SC: 0.5% (NS) SC: 0.5% vs. C: 1.0% (NS) MVA: 1.9% vs. C: 1.0% (NS) **Process Outcomes/Outputs** **Receiving information about health status prior to uterine evacuation procedure** **10. General** MVA-PAC : 78.5% vs. SC PAC : 82.2% (NS) MVA-PAC: 78.5% vs. SC-Control: 67.4% (p<0.01, **SIG**) SC-PAC: 82.2% vs. SC-Control: 67.4% (p<0.01, **SIG**) **11. Specific problem found by physician** MVA-PAC: 783.7% vs. SC PAC: 87.0% (NS) MVA-PAC: 83.7% vs. SC-Control: 55.7% (p<0.01, **SIG**) SC-PAC: 87.0% vs. SC-Control: 55.7% (p<0.01, **SIG**) **Receiving information about the uterine evacuation procedure** **12. Instrument to be used** MVA-PAC: 75.6% vs. SC PAC: 11.5% (p<0.01, **SIG**)	

Study	Reported outcomes and results (I=Intervention; C=Comparison; NS=Non-significant p>0.05; Sig=Significant p<0.05; NR=Not reported; BL=Baseline; EL=Endline; FU=Follow-up)	Summary of outcomes
	MVA-PAC: 75.6% vs. SC-Control: 6.8% (p<0.01, **SIG**) SC-PAC: 11.5% vs. SC-Control: 6.8% (p<0.01, **SIG**) **13. Risks** MVA-PAC: 57.2% vs. SC PAC: 15.2% (p<0.01, **SIG**) MVA-PAC: 57.2% vs. SC-Control: 5.8% (p<0.01**, SIG**) SC-PAC: 15.2% vs. SC-Control: 5.8% (p<0.01, **SIG**) **14. Possible discomfort** MVA-PAC: 84.1% vs. SC PAC: 30.9% (p<0.01, **SIG**) MVA-PAC: 84.1% vs. SC-Control: 9.4% (p<0.01, **SIG**) SC-PAC: 30.9% vs. SC-Control: 9.4% (p<0.01, **SIG**) **15. Pain control to be used** MVA-PAC: 80.0% vs. SC PAC: 40.4% (p<0.01, **SIG**) MVA-PAC: 80.0% vs. SC-Control: 14.4% (p<0.01, **SIG**) SC-PAC: 40.4% vs. SC-Control: 14.4% (p<0.01, **SIG**) **Received information about signs of post-uterine evacuation complications** **16. General health problems** MVA-PAC: 32.3% vs. SC PAC: 36.6% (p<0.01, **SIG**) MVA-PAC: 32.3% vs. SC-Control: 9.6% (p<0.01, **SIG**) SC-PAC: 36.6% vs. SC-Control: 9.6% (p<0.01, **SIG**) **17. Intense pain** MVA-PAC: 30.3% vs. SC PAC: 37.4% (p<0.01, **SIG**) MVA-PAC: 30.3% vs. SC-Control: 37.4% (p<0.01, **SIG**) SC-PAC: 37.4% vs. SC-Control: 5.7% (p<0.01, **SIG**)	

Study	Reported outcomes and results (I=Intervention; C=Comparison; NS=Non-significant p>0.05; Sig=Significant p<0.05; NR=Not reported; BL=Baseline; EL=Endline; FU=Follow-up)	Summary of outcomes
	18. Bleeding for >2 weeks MVA-PAC: 29.6% vs. SC PAC: 41.3% (p<0.01, **SIG**) MVA-PAC: 29.6% vs. SC-Control: 9.3% (p<0.01, **SIG**) SC-PAC: 41.3% vs. SC-Control: 9.3% (p<0.01, **SIG**) **19. Fever** MVA-PAC: 28.3% vs. SC PAC: 32.3% (p=NS) MVA-PAC: 28.3% vs. SC-Control: 4.7% (p<0.01, **SIG**) SC-PAC: 32.3% vs. SC-Control: 4.7% (p<0.01, **SIG**) **20. Chills** MVA-PAC: 25.9% vs. SC PAC: 30.0% (p=NS) MVA-PAC: 25.9% vs. SC-Control: 4.3% (p<0.01, **SIG**) SC-PAC: 30.0% vs. SC-Control: 4.3% (p<0.01, **SIG**) **21. Foul-smelling vaginal discharge** MVA-PAC: 22.8% vs. SC PAC: 36.7% (p<0.01, **SIG**) MVA-PAC: 22.8% vs. SC-Control: 2.2% (p<0.01, **SIG**) SC-PAC: 36.7% vs. SC-Control: 2.2% (p<0.01, **SIG**) **Receiving information about care at home** **22. Where to seek help in case of complications** MVA: 32.0% vs. SC: 42.0% (p<0.01, **SIG)** SC: 42.0% vs. C: 26.0% (p<0.01, **SIG)** MVA: 32.0% vs. C: 26.0% (p<0.01, **SIG)** **23. Resumption of sexual relations** MVA: 20.7% vs. SC: 39.6% (p<0.01, **SIG)**	

Study	Reported outcomes and results (I=Intervention; C=Comparison; NS=Non-significant p>0.05; Sig=Significant p<0.05; NR=Not reported; BL=Baseline; EL=Endline; FU=Follow-up)	Summary of outcomes
	SC: 39.6% vs. C: 10.8% (p<0.01, **SIG)** MVA: 20.% vs. C: 10.8% (p<0.01, **SIG)** **24. Nutrition** MVA: 16.8% vs. SC: 33.3% (p<0.01, **SIG)** SC: 33.3% vs. C: 8.0% (p<0.01, **SIG)** MVA: 16.8% vs. C: 8.0% (p<0.01, **SIG)** **25. Medications to take (if any)** MVA: 12.4% vs. SC: 31.1% (p<0.01, **SIG)** SC: 31.1% vs. C: 4.0% (p<0.01, **SIG)** MVA: 12.4% vs. C: 4.0% (p<0.01, **SIG)** **Receiving information about future pregnancy** **26. Advantages of preventing immediate pregnancy** MVA: 64.5% vs. SC: 84.4% (p<0.01, **SIG)** SC: 84.4% vs. C: 29.4% (p<0.01, **SIG)** MVA: 64.5% vs. C: 29.4% (p<0.01, **SIG)** **27. Pregnancy prevention** MVA: 74.1% vs. SC: 74.1% (NS) SC: 74.1% vs. C: 33.0% (p<0.01, **SIG)** MVA: 74.1% vs. C: 33.0% (p<0.01, **SIG)** **28. Plans to become pregnant** MVA: 60.2% vs. SC: 71.4% (p<0.01, **SIG)** SC: 7.14% vs. C: 29.5% (p<0.01, **SIG)** MVA: 60.2% vs. C: 29.5% (p<0.01, **SIG)**	

Study	Reported outcomes and results (I=Intervention; C=Comparison; NS=Non-significant p>0.05; Sig=Significant p<0.05; NR=Not reported; BL=Baseline; EL=Endline; FU=Follow-up)	Summary of outcomes
	29. Willingness to use a contraceptive method MVA: 87.3% vs. SC: 97.4% (p<0.01, **SIG)** SC: 97.4% vs. C: 65.2% (p<0.01, **SIG)** MVA: 87.3% vs. C: 65.2% (p<0.01, **SIG)** **30. Possibility of pregnancy during unprotected intercourse (among women who said "yes" to whether they had plans to become pregnant again)** MVA: 49.7% vs. SC: 64.1% (p<0.01, **SIG)** SC: 64.1% vs. C: 43.9% (p<0.01, **SIG)** MVA: 49.7% vs. C: 43.9% (NS) **31. Resumption of menstrual period (among women who said "yes" to whether they had plans to become pregnant again)** MVA: 23.2% vs. SC: 29.7% (NS) SC: 29.7% vs. C: 15.9% (p<0.01, **SIG)** MVA: 23.2% vs. C: 1.59% (NS) **Methods offered by hospital staff (could give more than one response)** **32. No method offered** MVA: 12.4% vs. SC: 5.9% (p<0.01, **SIG)** SC: 5.9% vs. C: 31.9% (p<0.01, **SIG)** MVA: 12.4% vs. C: 31.9% (p<0.01, **SIG)** **33. IUD** MVA: 81.7% vs. SC: 90.0% (p<0.01, **SIG)** SC: 90.0% vs. C: 59.2% (p<0.01, **SIG)** MVA: 81.7% vs. C: 59.2% (p<0.01, **SIG)** **34. Injectable**	

Study	Reported outcomes and results (I=Intervention; C=Comparison; NS=Non-significant p>0.05; Sig=Significant p<0.05; NR=Not reported; BL=Baseline; EL=Endline; FU=Follow-up)	Summary of outcomes
	MVA: 12.4% vs. SC: 28.9% (p<0.01, **SIG)** SC: 28.9% vs. C: 13.8% (p<0.01, **SIG)** MVA: 12.4% vs. C:13.8% (NS) **35. Oral contraceptives** MVA: 14.7% vs. SC: 37.4% (p<0.01, **SIG)** SC: 37.4% vs. C: 12.1% (p<0.01, **SIG)** MVA: 14.7% vs. C:12.1% (NS) **36. Tubal sterilization** MVA: 12.4% vs. SC: 15.6% (NS) SC: 15.6% vs. C: 7.8% (p<0.01, **SIG)** MVA: 12.4% vs. C: 7.8% (p<0.01, **SIG)** **Receiving information about characteristics of contraceptive services received** **37. Satisfied with the method received - yes** MVA: 94.9% vs. SC: 96.9% (NS) SC: 96.9% vs. C: 92.1% (NS) MVA: 94.9% vs. C: 92.1% (NS) **Information about the method received (among those who received a method)** **38. Effectiveness** MVA: 56.6% vs. SC: 53.1% (NS) SC: 53.1% vs. C: 28.2% (p<0.01, **SIG)** MVA: 56.6% vs. C: 28.2% (p<0.01, **SIG)** **39. Possible advantages**	

Study	Reported outcomes and results (I=Intervention; C=Comparison; NS=Non-significant p>0.05; Sig=Significant p<0.05; NR=Not reported; BL=Baseline; EL=Endline; FU=Follow-up)	Summary of outcomes
	MVA: 54.7% vs. SC: 51.2% (NS) SC: 51.2% vs. C: 25.2% (p<0.01, **SIG)** MVA: 54.7% vs. C: 25.2% (p<0.01, **SIG)** **40. Risks** MVA: 43.4% vs. SC: 47.3% (NS) SC: 47.3% vs. C: 15.5% (p<0.01, **SIG)** MVA: 43.4% vs. C: 15.5% (p<0.01, **SIG)** **41. Secondary effects** MVA: 40.3% vs. SC: 44.9% (NS) SC: 44.9% vs. C: 10.7% (p<0.01, **SIG)** MVA: 40.3% vs. C: 10.7% (p<0.01, **SIG)** **42. How to use** MVA: 52.8% vs. SC: 51.7% (NS) SC: 51.7% vs. C: 20.4% (p<0.01, **SIG)** MVA: 52.8% vs. C: 20.4% (p<0.01, **SIG)** **43. Follow-up care** MVA: 55.3% vs. SC: 62.3% (NS) SC: 62.3% vs. C: 22.3% (p<0.01, **SIG)** MVA: 55.3% vs. C: 22.3% (p<0.01, **SIG)** **Most commonly mentioned reasons for not receiving a method before leaving hospital (among those not receiving a method)** **44. Insufficient information provided to make a choice** MVA: 10.2% vs. SC: 0.0% (p<0.01, **SIG)** SC: 0.0% vs. C: 27.3% (p<0.01, **SIG)**	

Study	Reported outcomes and results (I=Intervention; C=Comparison; NS=Non-significant p>0.05; Sig=Significant p<0.05; NR=Not reported; BL=Baseline; EL=Endline; FU=Follow-up)	Summary of outcomes
	MVA: 10.2% vs. C: 27.3% (p<0.01, **SIG)** **45. Did not want a method** MVA: 48.9% vs. SC: 76.3% (p<0.01, **SIG)** SC: 76.3% vs. C: 45.5% (p<0.01, **SIG)** MVA: 48.9% vs. C: 45.5% (NS) **46. Medical indications** MVA: 17.0% vs. SC: 16.9% (NS) SC: 16.9% vs. C: 3.2% (p<0.01, **SIG)** MVA: 17.0% vs. C: 3.2% (p<0.01, **SIG)** **47. No options presented** MVA: 1.1% vs. SC: 1.7% (NS) SC: 1.7% vs. C: 6.5% (p<0.01, **SIG)** MVA: 1.1% vs. C: 6.5% (p<0.01, **SIG)**	
Bolam, 1998 **Intervention:** Trained health educators provided one to one postnatal education to new Nepali mothers about breast feeding and family planning **Study design:** Randomized trial -	Three intervention groups and one control: Group A (health education at birth and three months), Group B (health education at birth only), Group C (health education at three months only), and Group D (control). **Biological Outcomes** **1. Appropriate Immunization** *3 mo FU:* Groups A & B: 87%; Groups C & D: 85% OR=1.18 (95% CI : (0.67-2.08)); (p=0.66, NS) *6 mo FU:* Group A: 95%; Group B: 96%; Group C: 93%; Group D: 94%	Health education given after delivery and three months later did not improve mothers' knowledge and practices of infant health outcomes. Mothers who received health education at birth (groups A and B) were slightly more likely to use contraception at six months after birth as compared to mothers who received no health education at birth (groups C and D). Otherwise, there were no significant differences between groups for outcomes of infant

Study	Reported outcomes and results (I=Intervention; C=Comparison; NS=Non-significant p>0.05; Sig=Significant p<0.05; NR=Not reported; BL=Baseline; EL=Endline; FU=Follow-up)	Summary of outcomes
Individual **Rigor score: 6/9**	Groups A and B vs. C and D: OR=1.52, CI (0.65-0.29); (p=0.39, NS) Groups A and C vs. B and D: OR=0.79, CI (0.34-1.82); (p=0.66, NS) **2. Infant Mortality (all infant deaths occurred in the neonatal period)** Group A: 2 infants Group B: 2 infants Group C: 3 infants Group D: 3 infants (p=NR) **3. Maternal deaths** Total: 0 **4. Cause of infant death** Premature birth and birth weight less than 2.5kg: 7 Acute respiratory infection: 1 Congenital abnormalities: 2 (only overall reported) **5. Infant mean weight in kg** *3 mo FU:* Groups A & B: 5.7; Groups C & D: 5.6 Mean difference=0.100, CI (-.072-0.271); p=0.25, NS) *6 mo FU:* Group A: 7.2; Group B: 7.3; Group C: 7.2; Group D: 7.2 Groups A and B vs. C and D: Mean difference=0.028, CI (-0.169-0.225); (p = 0.78, NS) Groups A and C vs. B and D: Mean difference=-0.06, CI (-0.255-0.139); (p = 0.56,	feeding, care, or immunization.

Study	Reported outcomes and results (I=Intervention; C=Comparison; NS=Non-significant p>0.05; Sig=Significant p<0.05; NR=Not reported; BL=Baseline; EL=Endline; FU=Follow-up)	Summary of outcomes
	NS) **6. Infant mean length in cm** *3 mo FU:* Groups A & B: 58.4 ; Groups C & D: 58.5 Mean difference=-0.041, CI (-.1.11-1.03) ; p = 0.94, NS) *6 mo FU*: Group A: 62.4; Group B: 63.2; Group C: 62.3; Group D: 62.9 Groups A and B v C and D: Mean difference=0.223, CI (-0.95-1.39); (p = 0.71, NS) Groups A and C v B and D: Mean difference=-0.07, CI (-1.87-0.47); (p = 0.24, NS) **7. Infant mean head circumference in cm** *3 mo FU:* Groups A & B: 40.9; Groups C & D: 40.7 Mean difference=0.217, CI (-.469-0.902) ; p = 0.53, NS) *6 mo FU:* Group A: 42.5; Group B: 42.4; Group C: 42.5; Group D: 42.6 Groups A and B vs. C and D: Mean difference=-.06 (-0.41-0.29); (p = 0.74, NS) Groups A and C vs. B and D: Mean difference=-0.32, CI (-0.39-0.32); (p = 0.86, NS) **Behavioral Outcomes** **8. Breastfeeding** **3 months exclusive breastfeeding:** Groups A & B: 59%; Groups C & D: 59%; OR=1.00, CI: (0.67-1.49); (p=1.00, NS) **6 months greater than or = 5 months breastfeeding at 6 months** Group A: 33%; Group B: 24%; Group C: 29%; Group D: 28%	

Study	Reported outcomes and results (I=Intervention; C=Comparison; NS=Non-significant p>0.05; Sig=Significant p<0.05; NR=Not reported; BL=Baseline; EL=Endline; FU=Follow-up)	Summary of outcomes
	Groups A and B vs. C and D: OR=1.01 (0.65-1.56); (p=1.00, NS) Groups A and C vs. B and D: OR=1.29 (0.83-2.0); (p=0.31, NS) **9. Contraceptive used for FP** *3 mo FU:* Groups A & B: 20%; Groups C & D: 14% OR=1.49 (0.87-2.53); (p=0.14, NS) *6 mo FU:* Group A: 35%; Group B: 38%; Group C: 26%; Group D: 27% Groups A and B vs. C and D: OR=1.62 (1.06-2.50); (p=0.03, SIG) Groups A and C vs. B and D: OR=0.86 (0.58-1.35); (p=0.59, NS) **Process Outcomes/Outputs** NR **Other Reported Outcomes** None	
Bossyns, 2002 **Intervention:** A package of instructions to actively propose FP, integrated within curative and under-fives consultations, coupled with measures to increase the health centers' responsiveness to their	**Biological Outcomes** NR **Behavioral Outcomes** **1. Number of new acceptors (per year), whole district** Before Year 1: 568 Year 2: 508 Year 3: 489 After (the intervention took place at the end of year 4)	All reported outcomes, including the number of new acceptors, couple-years of protection, and index of uptake contraception, showed a marked increase in the year after the intervention compared to the three years before the intervention. Outcomes increased by a factor of 2.0 to 2.7 in the year after the intervention compared to three to four years before the intervention. There was a peak of uptake in the month after the

Study	Reported outcomes and results (I=Intervention; C=Comparison; NS=Non-significant p>0.05; Sig=Significant p<0.05; NR=Not reported; BL=Baseline; EL=Endline; FU=Follow-up)	Summary of outcomes
clients. **Study design:** Serial cross-sectional **Rigor score: 1/9**	Year 4: 1496 Year 5: 1509 Ratio, year 5/year 1: 2.7 **2. Couple-years of protection (CYP)** Before Year 1: 487 Year 2: 564 Year 3: 566 After Year 4: 920 Year 5: 1109 Ratio, year 5/year 1: 2.3 **3. Index of uptake of contraception (IUC)** (proportion of eligible women offered contraception times the proportion accepting the offer times the proportion actually provided with contraceptives) Before: 0.86% After – based on direct observation: 23.3% After – based on nurses' report: 28.8% After – under-5 clinic only: 26.9% After – curative services only: 35.2% **4. Contraception accepted by clients** Before: 4% of all clients (79.8% of those who were offered contraception) After, under-5 clinic: 43% of all clients (43.6% of those who were offered	intervention (end of year 4), which leveled off afterward, yet remained higher than before.

Study	Reported outcomes and results (I=Intervention; C=Comparison; NS=Non-significant p>0.05; Sig=Significant p<0.05; NR=Not reported; BL=Baseline; EL=Endline; FU=Follow-up)	Summary of outcomes
	contraception) After, curative care clinic: 56% of al clients (57.4% of those who were offered contraception) **Process Outcomes** **5. Contraception offered by providers** Before: 5.4% of all clients After, under-5 clinic: 99.4% of all clients After, curative care clinic: 98.4% of all clients **6. Contraception supplied by providers** Before: 1% of all clients (20% of those who accepted contraception) After, under-5 clinic: 27% (62.0% of those who accepted contraception) After, curative care clinic: 35% (62.4% of those who accepted contraception) Data also reported by clinic, by year before and after the intervention, and by type of contraceptives (oral contraceptives and injections) and by couple years of protection. **Other outcomes reported** Oral contraceptive cycles distributed Progesterone injections administered Reasons for refusing FP when proposed	
Cissé, 2004 **Intervention:** Improving the quality of post-abortion care by training providers in MVA, FP and other reproductive health	BL: June 2000–July 2001; During #1: Aug. 2001–Sept. 2002; During #2: Oct. 2001–March 2002; EL: Oct. 2002–March 2003 **Behavioral Outcomes** **1. Patients utilizing contraception** BL: 0 (0%); During #1: 93 (20%); p<0.01 During #2: 41 (25%); EL: 60 (33%); p<0.01	The number of patients treated for incomplete abortion increased by 22%, from 374 before the intervention to 457 during the intervention. Both the number of MVA procedures performed and the number of patients utilizing contraception increased from 0 at baseline to

Study	Reported outcomes and results (I=Intervention; C=Comparison; NS=Non-significant p>0.05; Sig=Significant p<0.05; NR=Not reported; BL=Baseline; EL=Endline; FU=Follow-up)	Summary of outcomes
services **Study design:** Serial cross-sectional **Rigor score: 1/9**	**Process Outcomes/Outputs** **2. Patients referred to hospital for complications** BL: 131 (35%); During #1: 31 (7%); p<0.01 During #2: 8 (5%); EL: 5 (2.7%); p<0.01 **3. Number of patients accessing services** BL: 374 (434 spontaneous, 23 induced); During #1: 457 (359 spontaneous, 15 induced) During #2: 164; EL: 182 **4. Number of eligible patients who received MVA** BL: 0 (0%); During #1: 183 (56%); p<0.01 During #2: 107 (65%); EL: 122 (67%); p<0.01 **5. Patients receiving counseling on contraception** BL: 142 (38%); During #1: 366 (80%); p<0.01 During #2: 134 (81.7%); EL: 153 (84%); p<0.01 **6. Time of hospitalization** BL: 48 hours; During #1: 4 hours (p=NR) **7. Cost of services per visit** BL: 10,000 CFA Francs; During #1: 6,500 CFA Francs (p=NR) **Other outcomes reported** Number of providers trained Qualitative data on providers' opinions and patient satisfaction	56% (MVA) and 20% (contraception). The quality of services improved, as hospitalization lasted a mean of 4 hours compared with 48 hours at baseline, and the proportion of patients referred to the regional hospital for complications fell from 35% to 7%. The mean direct average cost fell by 3,500 CFA francs. Six months after the program ended, the level of utilization of PAC services continued to increase (by 11%) and the proportion leaving with contraception reached 33%.
David, 2007	**Biological Outcomes** **1. Of all clients, got pregnant while using a method**	Some aspects of project interventions were implemented effectively, but they did not

Study	Reported outcomes and results (I=Intervention; C=Comparison; NS=Non-significant p>0.05; Sig=Significant p<0.05; NR=Not reported; BL=Baseline; EL=Endline; FU=Follow-up)	Summary of outcomes
Intervention: Training courses in family-centered maternity care, essential newborn care, exclusive breast-feeding, contraceptive technologies and client-centered FP counseling for physicians, midwives and pediatric nurses **Study design:** Serial cross-sectional **Rigor score: 1/9**	2000: 49.1%; 2002: 42.4%; Comparing 2000 to 2002 (p<0.05, **SIG**) 2003: 38.0%; Comparing 2000 to 2003 (p<0.01, **SIG**) **2. Of ever-users of contraceptives, got pregnant while using a method** 2000: 69.6%; 2002: 61.4%; Comparing 2000 to 2002 (p<0.01, **SIG**) 2003: 61.9%; Comparing 2000 to 2003 (p<0.01, **SIG**) **Behavioral Outcomes** **1. Proportion of clients who reported choosing a specific contraceptive method prior to discharge** 2000: 85.3%; 2002: 89.1%; 2003: 83.3% (p=NS) **Process Outcomes/Outputs** **1. Counseled about contraception before discharge** 2000: 41.4%; 2002: 82.1% (p< 0.001, **SIG**) 2003: 91.5% (p< 0.001, **SIG**) **2. Discussed a specific method with doctor or midwife** 2000: 47.2%; 2002: 56.4%; 2003: 54.5% (p=NS) **3. Received a brochure on pregnancy prevention to take home** 2000: 5.9%; 2002: 74.8% (p< 0.01, **SIG**) 2003: 76.5% (p< 0.01, **SIG**) **4. Told when to make a follow-up visit** 2000: 85.3%; 2002: 88.2%; 2003: 86.0% (p=NS) **Other reported outcomes** **Intention to use FP method** **Knowledge that fertility can return immediately or within 2 weeks after abortion**	diminish the number of repeat abortions. The intervention resulted in a significant decline in the proportion of clients reporting unintended pregnancies during contraceptive use. The proportion of clients who had chosen a method of contraceptive before discharge was high in all three years. Study also reported a significant increase in abortion clients' receipt of FP services such as counseling on FP and receipt of written information. There are directional but not statistical differences in discussion with doctor about contraception and being told when to make follow-up visits over the three years.

Study	Reported outcomes and results (I=Intervention; C=Comparison; NS=Non-significant p>0.05; Sig=Significant p<0.05; NR=Not reported; BL=Baseline; EL=Endline; FU=Follow-up)	Summary of outcomes
	Previously used a contraceptive method	
Debpuur, 2002 **Intervention:** Two approaches to delivery of FP: traditional social cooperation to mobilize support; and community health nurse outreach **Study design:** Randomized trial – group **Rigor score: 6/9**	N=Nurse outreach; Z=Zurugelu (social cooperation); NZ=both; C=control **Biological Outcomes** **1. Total fertility rate (TFR), unadjusted** C: 1995/ 5.1; 1997/ 5.0; 1999/ 4.8 N: 1995/ 5.9; 1997/ 5.4; 1999/ 4.8 Z: 1995/ 5.2; 1997/ 4.5; 1999/ 4.2 NZ: 1995/ 5.0; 1997/ 4.2; 1999/ 4.0 **2. Adjusted marital fertility** Combined intervention (NZ) reduced fertility by approximately 15% (graph presented) and to lower levels than in the comparison area. **3. Parity progression after # years of program exposure** *N vs. C* 1 year/Adjusted OR=0.97 (p<0.05, SIG) 2 years/Adjusted OR=0.94 (p<0.05, SIG) 3 years/Adjusted OR=0.90 (p<0.05, SIG) 4 years/Adjusted OR=0.87 (p<0.05, SIG) 5 years/Adjusted OR=0.85 (p<0.05, SIG) *Z vs. C* 1 year/Adjusted OR=0.96 (p<0.05, SIG) 2 years/Adjusted OR=0.92 (p<0.05, SIG) 3 years/Adjusted OR=0.88 (p<0.05, SIG) 4 years/Adjusted OR=0.84 (p<0.05, SIG)	Unadjusted fertility decreased in all three intervention areas. Fertility in all age groups was affected. Both the nurse-outreach and the zurugelu intervention each significantly reduced parity progression relative to the comparison area in every year. The combined strategy was greater than each intervention separately, demonstrating that each arm has an additive effect on fertility reduction. The zurugelu and nurse-outreach combined strategy was associated with consistently higher levels of modern contraceptive prevalence use for the first three years of the project, but there was no apparent effect in the fourth year and no effect if implemented independently. Prevalence increased from a baseline adjusted contraceptive prevalence rate of 3.4% in 1993 to 8.2% in 1999 for the combined strategy. The difference in prevalence in absolute terms is small, as the nurse and zurugelu-only exposure areas increased contraceptive prevalence to 6% by 1999, similar to the control group. In addition, contraceptive prevalence is still

Study	Reported outcomes and results (I=Intervention; C=Comparison; NS=Non-significant p>0.05; Sig=Significant p<0.05; NR=Not reported; BL=Baseline; EL=Endline; FU=Follow-up)	Summary of outcomes
	5 years/Adjusted OR=0.81 (p<0.05, SIG) *NZ vs. C* 1 year/Adjusted OR=0.93 (p<0.0001, SIG) 2 years/Adjusted OR=0.87 (p<0.0001, SIG) 3 years/Adjusted OR=0.83 (p<0.0001, SIG) 4 years/Adjusted OR=0.79 (p<0.01, SIG) 5 years/Adjusted OR=0.77 (p<0.05, SIG) *Z vs. N* 1 year/Adjusted OR=0.99 (p>0.05, NS) 2 years/Adjusted OR=0.98 (p>0.05, NS) 3 years/Adjusted OR=0.97 (p>0.05, NS) 4 years/Adjusted OR=0.97 (p>0.05, NS) 5 years/Adjusted OR=0.96 (p>0.05, NS) *NZ vs. N* 1 year/Adjusted OR=0.96 (p<0.01, SIG) 2 years/Adjusted OR=0.94 (p<0.05, SIG) 3 years/Adjusted OR=0.92 (p>0.05, NS) 4 years/Adjusted OR=0.91 (p>0.05, NS) 5 years/Adjusted OR=0.91 (p>0.05, NS) *NZ vs. Z* 1 year/Adjusted OR=0.97 (p<0.05, SIG) 2 years/Adjusted OR=0.95 (p>0.05, NS) 3 years/Adjusted OR=0.94 (p>0.05, NS)	quite low at the end of four years of exposure. In terms of child mortality, in nurse-outreach areas, under-5 child mortality fell by 14% during five years of program implementation compared with before the intervention, with reductions in infant (5%), early child (18%), and late child (39%) mortality. The zurugelu intervention was associated with a 14% increase in mortality, primarily driven by a 135% increase in early child mortality. The combined approach area saw an 8% increase, with small increases in all age groups. Mortality in the control area fell by 4% during the same time period.

Study	Reported outcomes and results (I=Intervention; C=Comparison; NS=Non-significant p>0.05; Sig=Significant p<0.05; NR=Not reported; BL=Baseline; EL=Endline; FU=Follow-up)	Summary of outcomes
	4 years/Adjusted OR=0.94 (p>0.05, NS) 5 years/Adjusted OR=0.95 (p>0.05, NS) **Infant and child mortality** **Under-5 mortality** Z: 0.8 per year average increase N: -4.3 per year average decrease NZ: -2.8 per year average decrease C: -1.2 per year average decrease (All areas experienced a spike in under-5 mortality in 1996, with the increase somewhat higher in the MOH and combined areas than the community and comparison areas.) **Early childhood mortality % increase or decrease, 1994–1999** Z: 4.3 per year increase N: 4.5 per year decrease NZ: 3.2 per year decrease C: 0.8 per year decrease **Infant mortality** Z: 1.0 per year average decrease N: 9.1 per year average decrease NZ: 8.1 per year average decrease C: 5.4 per year average decrease **Infant mortality % decrease, 1994–1999** Z: -11%; N: -43%; NZ: -33%; C: -13%	

Study	Reported outcomes and results (I=Intervention; C=Comparison; NS=Non-significant p>0.05; Sig=Significant p<0.05; NR=Not reported; BL=Baseline; EL=Endline; FU=Follow-up)	Summary of outcomes
	Late childhood (24–59 months) mortality Z: no change N: 1.8 average per year average decrease (60%) NZ: 20.8 average per year decrease C: 0.2 average per year increase **Mortality Rate Ratios ((95% Confidence intervals)** *Age 0-59 months* Z: RR=1.14 (0.97, 1.35) N: RR=0.86 (0.74, 0.99) NZ: 1.08 (0.97, 1.20) C: 0.96 (0.87, 1.06) *Age 0-11 months* Z: 1.01 (0.83, 1.24) N: 0.95 (0.79, 1.15) NZ: 1.05 (0.92, 1.21) C: 0.90 (0.80, 1.02) *Age 12-23 months* Z: 2.35 (1.52, 3.63) N: 0.82 (0.57, 1.17) NZ: 1.11 (0.88, 1.41) C: 1.09 (0.87, 1.36) *Age 24-59 months* Z: 0.92 (0.64, 1.32)	

Study	Reported outcomes and results (I=Intervention; C=Comparison; NS=Non-significant p>0.05; Sig=Significant p<0.05; NR=Not reported; BL=Baseline; EL=Endline; FU=Follow-up)	Summary of outcomes
	N: 0.61 (0.42, 0.88) NZ: 1.10 (0.87, 1.39) C: 1.09 (0.87, 1.37) **Behavioral Outcomes** **1. Use of modern contraceptive after # years of program exposure** *N vs. C* 1 year/Adjusted OR=1.04 (p>0.05, NS) 2 years/Adjusted OR=1.06 (p>0.05, NS) 3 years/Adjusted OR=1.07 (p>0.05, NS) 4 years/Adjusted OR=1.05 (p>0.05, NS) *Z vs. C* 1 year/Adjusted OR=1.18 (p>0.05, NS) 2 years/Adjusted OR=1.25 (p>0.05, NS) 3 years/Adjusted OR=1.18 (p>0.05, NS) 4 years/Adjusted OR=0.99 (p>0.05, NS) *NZ vs. C* 1 year/Adjusted OR=1.24 (p<0.05, SIG) 2 years/Adjusted OR=1.38 (p<0.05, SIG) 3 years/Adjusted OR=1.40 (p<0.05, SIG) 4 years/Adjusted OR=1.36 (p>0.05, NS) *Z vs. N* 1 year/ Adjusted OR=1.14 (p>0.05, NS) 2 years/ Adjusted OR=1.17 (p>0.05, NS)	

Study	Reported outcomes and results (I=Intervention; C=Comparison; NS=Non-significant p>0.05; Sig=Significant p<0.05; NR=Not reported; BL=Baseline; EL=Endline; FU=Follow-up)	Summary of outcomes
	3 years/ Adjusted OR=1.10 (p>0.05, NS) 4 years/ Adjusted OR=0.95 (p>0.05, NS) *NZ vs. N* 1 year/Adjusted OR=1.19 (p<0.05, SIG) 2 years/Adjusted OR=1.29 (p>0.05, NS) 3 years/Adjusted OR=1.32 (p>0.05, NS) 4 years/Adjusted OR=1.29 (p>0.05, NS) *NZ vs. Z* 1 year/Adjusted OR=1.05 (p>0.05, NS) 2 years/Adjusted OR=1.10 (p>0.05, NS) *3 years/Adjusted OR=1.19 (p>0.05, NS)* *4 years/Adjusted OR=1.37 (p>0.05, NS)* *Logistic regression results:* *Z vs. C: AOR=1.249 (p>0.05, NS)* *N vs. C: AOR=1.050 (p>0.05, NS)* *NZ vs. C*: AOR=1.007 (p>0.05, NS) **Process Outcomes/Outputs** NR **Other Reported Outcomes** **1. Contraceptive knowledge** **2. Awareness of supply sources** **3. Reproductive preferences** **4. Fertility rates by age**	

Study	Reported outcomes and results (I=Intervention; C=Comparison; NS=Non-significant p>0.05; Sig=Significant p<0.05; NR=Not reported; BL=Baseline; EL=Endline; FU=Follow-up)	Summary of outcomes
Delvaux, 2008 **Intervention:** Safe abortion/post-abortion clinics were integrated into a clinic offering ANC, FP, and management of STIs **Study design:** Before-after **Rigor score: 1/9**	Note: P-values not reported **Biological Outcomes** **1. Complications during intervention (bleeding or shock)** 2002: 9.4%; 2003: 2.9%; 2004: 1.0%; 2005: 1.3% (N=2224) **2. Any problem diagnosed at follow-up visit (bleeding, fever or pain)** 2002: NA; 2003: NA; 2004: 14.2%; 2005: 14.7% (N=1188) **Behavioral Outcomes** **1. Pre-abortion contraception** 2002: *NA*; 2003: NA; 2004: 14.2%; 2005: 14.7% (N=1085) **2. Post-abortion contraception** 2002: *NA*; 2003: 38.1%; 2004: 40.4%; 2005: 42.0% (N=1970) **Process Outcomes** **1. Number of clients (abortion or PAC interventions) per year** 2002: *128* (5 months only); 2003: 629; 2004: 691; 2005: 776 **2. Mean number of clients (abortion or PAC interventions) per month** 2002: 26; 2003: 52; 2004: 58; 2005: 65 **3. Reported location of services at last abortion** *Private clinic* *2002: 51.0%; 2003: 52.1%; 2004: 47.4%; 2005: 40.1%* *Government clinic* *2002: 2.0%; 2003: 12.4%; 2004: 29.4%; 2005: 41.3%* *Mobile clinic or nurse (unqualified health worker who may come to client's house)* *2002: 41.2%; 2003: 27.7%; 2004: 2.9%; 2005: 10.7%*	After the introduction of SAPAC, the number of clients, and the mean number of clients attending SAPAC clients per month increased. After SAPAC implementation, fewer women sought unsafe and mobile abortion services regarded to be of poorer quality, and more women sought the skilled facilities at SAPAC. Additionally, utilization of traditional abortion methods went down while utilization of aspiration method went up. The rate of complications from the interventions fell from 9.4% in 2002 to 1.3% in 2005. Finally, a greater proportion of clients (40%) accepted contraception after the intervention.

Study	Reported outcomes and results (I=Intervention; C=Comparison; NS=Non-significant p>0.05; Sig=Significant p<0.05; NR=Not reported; BL=Baseline; EL=Endline; FU=Follow-up)	Summary of outcomes
	Other (pharmacy, NGO) *2002: 5.9%*; 2003: 7.9%; 2004: 10.3%; 2005: 7.9% **4. Reported method used at last abortion** *Aspiration* *2002: 44.0%; 2003: 64.0%; 2004: 80.1%; 2005: 81.6%* *Curetage* *2002: 26.0%; 2003: 28.8%; 2004: 11.7%; 2005: 8.6%* *Traditional method* *2002: 20.0%; 2003: 2.2%; 2004: 0.6%; 2005: 0.6%* *Drugs* 2002: 10.0%; 2003: 4.9%; 2004, 7.6%; 2005: 9.2% **5. Percentage of abortion patients who came for follow-up visit after 5 days** 2002: 54.7%; 2003: 47.1%; 2004: 59.6%; 2005: 54.4% (N=2204) **Other Reported Outcomes** **1. Age of pregnancy (for induced abortions)** **2. Type of service provided (induced abortion or PAC)** **3. Technique used for abortion (MAV or electric aspiration)** **4. Pain management used during abortion** **5. Reported reasons for current abortion** **6. Types of post-abortion contraception used**	
Douthwaite, 2005 **Intervention:** LHWs deliver services, including childhood	*Note: National data are presented where available as another point of comparison. **Biological Outcomes** NR	The percentage of women reporting use of contraceptive methods was consistently higher in the intervention compared to the control areas, but this

Study	Reported outcomes and results (I=Intervention; C=Comparison; NS=Non-significant p>0.05; Sig=Significant p<0.05; NR=Not reported; BL=Baseline; EL=Endline; FU=Follow-up)	Summary of outcomes
immunization, growth monitoring, and FP to households in rural areas **Study design:** Cross-sectional **Rigor score: 4/9**	**Behavioral Outcomes** **1. Percentage reporting ever using reversible modern contraceptive method** *(Married women aged 15–40, married in the year given)* *BL (from 1993, data collected retrospectively): I: 9.3%; C: 8.7%* *EL (from* 2000): I: 32.5%;C: 19.6% (p=NR) **2. Percentage reporting current use of any reversible modern contraceptive method** (N=3759 women with children) I: 13%; C: 7% (p=NR) National data 2000–2001: 10% Adjusted OR=1.50, 95% CI: (1.04-2.16) (p=0.031, SIG) **3. 3. Percentage reporting use of any modern contraceptive method** I: 20%; C: 14% (p=NR) National data 2000–2001: 10% **4. 4. Percentage reporting use of any contraceptive method** I: 30%; C: 21% (p=NR) National data 2000–2001: 22% **Process Outcomes/Outputs** NR **Other Reported Outcomes** **Specific contraceptive methods used**	difference may have been due to the advantages of the intervention areas on a number of socioeconomic indicators (such as poverty, adult literacy, and women's empowerment). A regression analysis, controlling for a number of these socioeconomic indicators, found a significantly higher percentage of women in the intervention areas were currently using a reversible contraceptive method compared to the control areas (OR=1.50). There have been large increases in the ever-use of contraceptives in served areas since the LHWs began working, and these increases are larger than those in the control population and in the national rural population as a whole.
Fullerton, 2003 **Intervention:**	**Biological Outcomes** NR	Overall this study presents some evidence to suggest that training FP providers in the provision of

Study	Reported outcomes and results (I=Intervention; C=Comparison; NS=Non-significant p>0.05; Sig=Significant p<0.05; NR=Not reported; BL=Baseline; EL=Endline; FU=Follow-up)	Summary of outcomes
Providers were trained to offer STI and/or PAC services with FP services **Study design:** Case-control study **Rigor score: 1/9**	**Behavioral Outcomes** NR **Process Outcomes/Outputs** **1. Total number of clients** Case: 1996: 2300; 1997: 3000; 1998: 3000 Control: No data reported. Authors say that it remained static **2. Mean number of new clients** Case: 1996: 83.5; 1997: 82.8; 1998: 93.8 Chi square test for significant change over time=2.18, df=2, (p=0.36, NS) Control: 1996: 60.1; 1997: 67.4; 1998: 77.8 Chi square test for significant change over time =2.22, df=2, (p=0.36, NS) **3. Mean number of continuing clients** Case: 1996: 112.8; 1997: 114.5; 1998: 164.0 Chi square test for significant change over time=7.53, df=2, (p=.02, SIG) Control: 1996: 159.5; 1997: 146.5; 1998: 151.4 Chi square test for significant change over time=2.00, df=2, (p=.41, NS) **4. Provision of integrated services** Case: 71%, where 33% offered FP/STI/PAC, 25% FP/PAC, 13% FP/STI, and 29% only FP Control: 74% FP and regular MCH services, 5.3% FP/STI/PAC, 5.3% FP/STI **5. Number of clients served for STI services** Case: 1996: 50 clients; 1997: 240 clients; 1998: 340 clients Control: Very few clients, mean number ranged from 0 to 13 per month **6. Number of facilities offering PAC services**	integrated RH services can have a positive effect on provision of FP services, specifically in terms of clients returning to clinics for services. Study results demonstrate a higher mean of new clients, and a statistically significant higher mean of continuing clients in the case facilities as compared to control facilities. PAC services were offered only in case facilities, suggesting that there were positive benefits of providing training in integrated services to providers from case facilities. Case facilities were significantly more likely to have equipment and supplies for exams, procedures, and lab tests.

Study	Reported outcomes and results (I=Intervention; C=Comparison; NS=Non-significant p>0.05; Sig=Significant p<0.05; NR=Not reported; BL=Baseline; EL=Endline; FU=Follow-up)	Summary of outcomes
	Case: 1996: 9; 1997: 12; 1998: 14 Control: No statistical data for these services in these 3 years **7. Number of clients served for PAC services** Case: 1996: 136 clients; 1997: 426 clients; 1998: 209 clients Control: No data since no controls providing PAC services **8. Providers reporting receipt of training in dual FP methods** Case: 14; Control: 5 **9. Number of clients who reported receiving integrated services in STI/HIV** Case: 4; Control: 0 **10. PAC clients offered or referred to post-abortion FP services** Cases: 1996: 98 clients; 1997: 170 clients; 1998: 59 clients Control: No PAC services provided **<u>Other Reported Outcomes</u>** **1. Equipment/supplies for conducting examinations, procedures, and lab tests** **2. Availability of IEC materials available in waiting room or in provider's office** **3. Availability of client records, referral forms, monthly FP report forms** **4. Age of clients (youngest and oldest) served at cases and control facilities** **5. Number of clinical training sessions offered to case facilities and control facilities** **6. Number of clients who reported receiving integrated services (not reported only listed since by integrated services they were mostly referring to FP services and not FP and PAC)** **7. Facilities offering manual vacuum aspiration and/or emergency treatment**	

Study	Reported outcomes and results (I=Intervention; C=Comparison; NS=Non-significant p>0.05; Sig=Significant p<0.05; NR=Not reported; BL=Baseline; EL=Endline; FU=Follow-up)	Summary of outcomes
	of abortion on site	
Huntington, 1994 **Intervention:** Individual referral message about family planning services provided to expanded program of immunizations (EPI) clients **Study design:** Serial cross-sectional study with a control arm **Rigor score: 5/9**	**Biological Outcomes** NR **Behavioral Outcomes** **1. New FP clients (mean N per month)** BL/I: 200 per month; C: 144 per month I vs. C average difference=56 clients/month EL/I: 307 per month; C: 167 per month I vs. C average difference=140 clients/month I: BL vs. EL (p<.001, SIG (54% increase) C: BL vs. EL (p=NS) Average difference in I vs. C, BL vs. EL (p<.003, SIG) **2. Total FP clients (mean N per month)** BL/I: 1,035 per month; C: 704 per month I vs. C average difference=56 clients/month EL/I: 1,311 per month; C: 768 per month I vs. C average difference=NR I: BL vs. EL (p<0.0001, SIG (27% increase); C: BL vs. EL (p=NS) Average difference in I vs. C, BL vs. EL (p<.0001, SIG) **3. Childhood vaccines administered (mean N per month)** I: BL: 5,839; EL: 7,525, BL vs. EL average difference: 1,686 (p<.02, SIG) C: BL: 4,185; EL: 6,357, BL vs. EL average difference: 2,172 (p<.001, SIG)	Number of new FP and total FP clients increased in the intervention group, but not in the control group. Both intervention and control groups increased the average number of childhood vaccine doses—although the control group increased more than the intervention group (comparison not made by authors).

Study	Reported outcomes and results (I=Intervention; C=Comparison; NS=Non-significant p>0.05; Sig=Significant p<0.05; NR=Not reported; BL=Baseline; EL=Endline; FU=Follow-up)	Summary of outcomes
	Process Outcomes/Outputs **NR** **Other Reported Outcomes** (not key outcomes) 1. **Recall of FP referral message:** % of EPI clients who answered affirmatively to the question: "Did the nurse mention family planning when your child was immunized today?" 2. **Awareness of FP service availability:** % of EPI clients who responded affirmatively, negatively, or "don't know" to the question "Does this clinic provide FP services?" 3. **Reproductive intentions:** Interval desired before next pregnancy.	
Johnson, 2002 **Intervention:** Post-abortion FP intervention, including provider training, FP counseling, and provision of free contraceptives **Study design:** Non-randomized trial – group **Rigor score: 5/9**	**Biological Outcomes** 1. **Unplanned pregnancy** 12-mo FU/I: 15%; C: 34% (p<0.0001, SIG) Adjusted OR=3.38, 95% CI: (2.16-5.29) 2. **Repeat abortion** 12-mo FU/I: 2.5%; C: 5.3% (p=0.23) 3. **Mortality** I: 23; C: 8 (p=NR) **Behavioral Outcomes** 1. **Percentage reporting use of highly effective contraceptives** BL/I: 96%; C: 5% (p<0.0001, SIG) 3-mo FU/I: 96%; C: 55% (p<0.0001, SIG) 6-mo FU/I: 95%; C: 60% (p<0.0001, SIG) 9-mo FU/I: 93%; C: 63% (p<0.0001, SIG)	At each visit, significantly more women in the intervention group reported using a highly effective contraceptive compared to the control group, adjusting for baseline marital status and contraceptive use (p<0.0001). The incidence of unplanned pregnancies and repeat abortions over the 12-month follow-up period was more than double in the control group compared to the intervention group; this effect was statistically significant for unplanned pregnancies (p<0.0001) but not for repeat abortions (p=0.23).

Study	Reported outcomes and results (I=Intervention; C=Comparison; NS=Non-significant p>0.05; Sig=Significant p<0.05; NR=Not reported; BL=Baseline; EL=Endline; FU=Follow-up)	Summary of outcomes
	12-mo FU/I: 84%; C: 64% (p<0.0001, SIG) **Process Outcomes/Outputs** NR **Other Reported Outcomes** **1. Contraceptive methods used** **2. Pregnancy rates among users of highly effective and less effective methods of contraception**	
Mahomed, 1997 **Intervention:** Family planning counselors were hired to offer family planning advice and contraception provision at the same site where women with abortion complications are treated **Study design:** Serial cross-sectional study **Rigor score: 1/9**	**Biological Outcomes** NR **Behavioral Outcomes** **1. Contraception after procedure – none** BL: 471 (52%); EL: 30 (3%) (p=NR) **2. Contraception after procedure – some method chosen** BL: 432 (49%); EL: 979 (97%) (p=NR) **Process Outcomes/Outputs** **1. Provided general information on contraception** BL: 506 (56%); EL: 50 (5%) (p=NR) **2. Given contraception** BL: 307 (34%); EL: 928 (92%) (p=NR) **3. Made contraception appointment only** BL: 63 (7%); EL: 30 (3%) (p=NR)	Whereas before, some general information regarding family planning may have been given, now 97% versus 49% of the women chose a method and 92% versus 34% actually went home from hospital with some form of contraceptive method.
Murray, 1990 **Intervention:**	**Biological Outcomes** **1. Mean number of children born to women 15–19**	On average in Kenya (control group) only 17% of fertile women practiced family planning, with

Study	Reported outcomes and results (I=Intervention; C=Comparison; NS=Non-significant p>0.05; Sig=Significant p<0.05; NR=Not reported; BL=Baseline; EL=Endline; FU=Follow-up)	Summary of outcomes
To provide community-based family planning and general health education and services **Study design:** Cross-sectional **Rigor score: 1/9**	I: 0.26; C: 0.35 **2. Mean number of children born to women 20–24** I: 1.52; C: 1.96 **3. Mean number of children born to women 25–29** I: 3.41; C: 3.96 **4. Mean number of children born to women 30–34** I: 5.14; C: 5.70 **5. Mean number of children born to women 35–39** I: 6.49; C: 7.04 **6. Mean number of children born to women 40–44** I: 7.84; C: 7.84 **7. Infant mortality rate (0–1 years)** I: 52 per 1000; C: 72 per 1000 **Behavioral Outcomes** **1. Using any contraceptive method** I: 42.5%; C: 17.0% (p=NR) **2. Using supplied oral contraceptives** I: 15.7%; C: 3.1% (p=NR) **3. Using supplied IUCD** I: 10.6%; C: 3.0% (p=NR) **4. Using supplied female sterilization** I: 2.5%; C: 2.6% (p=NR) **5. Using supplied foam**	42.5% of women in Chogoria (intervention group) reporting using any method of contraception. The mean number of children born to women in the intervention group was "far lower" than figures which have been reported for Kenya as a whole. Community-based distribution of FP commodities may be associated with a marked decrease in fertility rate and family size within a relatively short period.

Study	Reported outcomes and results (I=Intervention; C=Comparison; NS=Non-significant p>0.05; Sig=Significant p<0.05; NR=Not reported; BL=Baseline; EL=Endline; FU=Follow-up)	Summary of outcomes
	I: 2.5%; C: 0.1% (p=NR) **6. Using supplied condoms** I: 1.7%; C: 0.3% (p=NR) **7. Using supplied injectables** I: 0.5%; C: 0.5% (p=NR) **Process Outcomes/Outputs** NR	
Nobili, 2007 **Intervention:** Patient-centered contraceptive counseling for women seeking termination of pregnancy care provided by trained gynecologists and psychologists **Study design:** Randomized trial – Individual **Rigor score: 7/9**	**Biological Outcomes** NR **Behavioral Outcomes** 1. **Change in attitudes toward contraception from BL to T1** (based on a scale with a maximum score of 40) I: Z=-3.81, (p=0.0001), mean score increased from 30 to 36 C: Z=-0.83, NS, mean score increased from 30 to 32 2. **Use of effective contraceptive method** I: BL=20% T1=65%, variation between BL and T1 (p=0.004, SIG) T2=80%, variation between BL and T2 (p=0.0002, SIG) C: BL=19% T1=32%, variation between BL and T1 (p=NS) T2=38%, variation between BL and T2 (p=NS) **Knowledge Outcomes** 1. **Increase in knowledge of contraception from BL to T1** (based on a scale with a maximum score of 20)	The patient-centered contraceptive counseling intervention resulted in a significant increase in women's knowledge about, and favorable attitudes toward, contraception. Study results also showed a significant increase in the self-reported use of an effective contraceptive method from BL to T1 and BL to T2, among women who received the intervention. The percentage of women using effective contraceptives increased from 20% to 80% in the intervention group, compared to 19% to 38% in the comparison group.

Study	Reported outcomes and results (I=Intervention; C=Comparison; NS=Non-significant p>0.05; Sig=Significant p<0.05; NR=Not reported; BL=Baseline; EL=Endline; FU=Follow-up)	Summary of outcomes
	I: Z=-3.91, (p=0.0001, SIG), mean score increased from 9 to 18 C: Z=-1.78 (p=NS), mean score stayed the same at 10 **Process Outcomes/Outputs** NR **Other Reported Outcomes** **1. Numbers from control and intervention who switched from effective to ineffective method and vice versa**	
Paxman, 2005 **Intervention:** The India-LIP employed a variety of service-delivery techniques to fill in the gaps in government services by bringing in health and family planning information, antenatal and postnatal care, and immunization services closer to the doorstep of the target population. **Study design:** Serial cross-sectional **Rigor score:** 1/9	**Note:** For comparison, the data from the National Family Health Survey II (NFHS, 1999) in states where each NGO undertook India-LIP are presented. *CRRID = Center for Research in Rural and Industrial Development; CINI = Child in Need Institute; HIHT = Himalayan Institute Hospital Trust.* BL: 1999 FU: 2003 **Biological Outcomes** NR **Behavioral Outcomes** **1. Contraceptive prevalence rates in LIP areas** CRRID: BL 59% vs. FU 69% (p-value NR) CINI: BL 34% vs. FU 59% (p-value NR) HIHT: BL 27% vs. FU 66% (p-value NR) **Process Outcomes** **2. Percentages of full child immunization in LIP areas** CRRID: BL 51% vs. FU 54% (p-value NR) CINI: BL 47% vs. FU 89% (p-value NR)	Overall, drastic improvements with regards to behavioral change are seen in the HIHT-LIP area. For CINI and CRRID, there seems to be internal improvement from baseline to mid-term evaluation period but not when compared to national statistics (national statistics not reported here). By early 2002, as contraceptive use increased to 66% overall in HIHT-LIP area, the use of pills and condoms nearly doubled, whereas sterilization (male and female) nearly tripled.

Study	Reported outcomes and results (I=Intervention; C=Comparison; NS=Non-significant p>0.05; Sig=Significant p<0.05; NR=Not reported; BL=Baseline; EL=Endline; FU=Follow-up)	Summary of outcomes
	HIHT: BL 52% vs. FU 79% (p-value NR) **3. Percentages of women who received complete ANC services in LIP areas** CRRID: BL 70% vs. FU 92% (p-value NR) CINI: BL 60% vs. FU 88% (p-value NR) HIHT: BL 30% vs. FU 79% (p-value NR) **4. Percentage distribution of contraceptive method use for HIHT population*, by method (*FU in 2002)** Pill: BL 4.0% vs. FU 7.3% (p-value NR) Condom: BL 7.0% vs. FU 13.0% (p-value NR) IUD: BL 0.5% vs. FU 3.5% (p-value NR) Tubectomy: BL 14.6% vs. FU 39.0% (p-value NR) Vasectomy: BL 1.0% vs. FU 3.1% (p-value NR) Total not using a method: BL 72.9% vs. FU 34.1% (p-value NR) **5. Average cost per service (throughout India-LIP)** Sept. 1999–Feb. 2002: Average cost per service declined over time from 190 rupees (US$4.12) to 117 rupees (USD 2.54), with an average cost per service of 143 rupees (US$3.11) Sept. 2001–Dec. 2001: Average cost per service fell to 112 rupees (US$2.44)	
Quinlivan, 2003 **Intervention:** A postnatal home-visiting service undertaken by nurse–midwives. **Study design:**	**Biological Outcomes** **1. Adverse neonatal outcomes at 6 months postnatal (unadjusted)** I vs. C: RR 0.24 (95% CI: 0.05-1.08, p=0.04, **SIG)** **2. Adverse neonatal outcomes at 6 months postnatal (adjusted)** I vs. C: RR 0.22 (95% CI: 0.02-0.98, p=0.04, **SIG)**	Postnatal home visits were associated with a reduction in adverse neonatal outcomes and a significant increase in use of reliable contraception at six months postpartum. However, there was no significant increase

Study	Reported outcomes and results (I=Intervention; C=Comparison; NS=Non-significant p>0.05; Sig=Significant p<0.05; NR=Not reported; BL=Baseline; EL=Endline; FU=Follow-up)	Summary of outcomes
Randomized control trial –individual **Rigor score:** 8/9	**Behavioral Outcomes** **3. Using reliable contraception at 6 months postnatal (unadjusted)** I vs. C: 1.33 RR (95% CI: 1.07-1.64, p=0.007, **SIG)** **4. Using reliable contraception at 6 months postnatal (adjusted)** I vs. C: 1.35 RR (95% CI: 1.09-1.68, p=0.007, **SIG)** **5. Completed infant vaccination schedule at 6 months postnatal (unadjusted)** I vs. C: 0.98 (95% CI: 0.80-1.20, NS) **6. Completed infant vaccination schedule at 6 months postnatal (adjusted)** I vs. C: 0.99 (95% CI: 0.85-1.15, NS) **7. Still breastfeeding at 6 months postnatal** I vs. C: 1.00 (95% CI: 0.55-1.82, p=1.00, NS) **8. Median duration of breastfeeding** I: 12 weeks (95% CI: 2-26) vs. C: 8 weeks (95% CI: 2-26) (p=0.73, NS) **Knowledge Outcomes** **9. Median contraception knowledge scores (max=9)** I: 4 (IQR 3.5) vs. C: 3 (IQR 2.4), p=0.017, **SIG** **10. Mean difference in contraception knowledge (unadjusted)** I vs. C. 0.92 (95% CI: 0.32-1.52, p=0.0056**, SIG)** **11. Mean difference in contraception knowledge (adjusted)** I vs. C. 0.86 (95% CI: 0.26-1.46, p=NR) **12. Median infant vaccination schedule knowledge (max=10)** I: 4 (IQR 1.6) vs. C : 2 (IQR 1.4) (p=0.08, NS)	in breastfeeding or completion of infant vaccination schedules associated with home visits.

Study	Reported outcomes and results (I=Intervention; C=Comparison; NS=Non-significant p>0.05; Sig=Significant p<0.05; NR=Not reported; BL=Baseline; EL=Endline; FU=Follow-up)	Summary of outcomes
	13. Mean difference in infant vaccination schedule knowledge (unadjusted) I vs. C. 0.85 (95% CI: 0.06-1.76, NS) **14. Mean difference in infant vaccination schedule knowledge (adjusted)** I vs. C. 0.87 (95% CI: -0.04-1.78, p=NR) **15. Median breastfeeding knowledge scores (max=11)** I: 3 (IQR 0.5) vs. C: 3 (IQR 0.5), p=0.92, NS **16. Mean difference in breastfeeding knowledge (unadjusted)** I vs. C. 0.83 (95% CI: -0.19-1.85, p=NR, NS) **Process Outcomes/Outputs** NR.	
Routh, 2001 **Intervention:** Two MCH-FP delivery strategies were compared: fieldworkers offering services at community sites vs. medical staff at a fixed clinic, compared to standard conventional doorstep strategy **Study design:** Non-randomized trial – group **Rigor score: 4/9**	CSP=Community service points; PHCC=Primary health care clinic C1=Control site #1; C2=Control site #2 Note: Cost data not available for Control site #2. Costs are reported in local currency, Taka; US$1=Tk 45. P-values not reported. **Biological Outcomes** **1. Births averted** CSP: BL/11.6, EL/10.7 PHCC: BL/39.8, EL/34.2 C1: BL/26.6, EL/28.1 **2. QALYs gained (lower and upper estimates)** CSP: BL/3.2-5.1, EL/5.9-9.4 (p=NR) PHCC: BL/18.7-29.8, EL/26.6-42.6 (p=NR) C1: BL/6.3-10.0, EL/9.1-14.6 (p=NR)	Contraceptive prevalence rates increased slightly (PHCC) or remained the same (C) in the experimental and both control areas. Average daily attendance at static clinics increased in all areas except one control area, and the increase was greatest in the PHCC area. Reported visits to clinics also increased slightly in all four areas. Because p-values were not reported, it is unclear if any of the increases were statistically significant. The clinic-based (PHCC) strategy was more cost-effective than either the CSP or control strategy. The numbers of births averted and QALYs gained were

Study	Reported outcomes and results (I=Intervention; C=Comparison; NS=Non-significant p>0.05; Sig=Significant p<0.05; NR=Not reported; BL=Baseline; EL=Endline; FU=Follow-up)	Summary of outcomes
	Behavioral Outcomes **1. Contraceptive prevalence (from survey results)** CSP: BL/55%, EL/56% PHCC: BL/60%, EL/64% C1: BL/61%, EL/61% C2: BL/60%, EL/61% **Process Outcomes/Outputs** **1. Average daily attendance at static clinics (from clinic records)** CSP: BL/16; After: 17 PHCC: BL/18; After: 30 C1: BL/20; After: 22 C2: BL/14; After 13 **2. Reported visits to clinics (from survey results)** CSP: BL/55%; After: 57% PHCC: BL/55%; After: 59% C1: BL/60%; After: 63% C2: BL/61%; After 65% **3. Number of services provided per day** PHCC: BL/22; After: 42 (p<0.01) CSP: BL/20; After: 21 C1: BL/30; After: 31 C2: BL/22; After: 21 **4. Total recurrent costs**	highest for the PHCC area and lowest for the CSP area. Cost per birth averted and cost per additional QALY gained were substantially lower for the PHCC area compared to the CSP and control areas. However, transition from the doorstep (control) to the clinic-based strategy initially increased the program operating costs due to required strengthening of the existing clinic facility. Key to higher cost-effectiveness of the clinic-based strategy was enhanced capacity utilization of the clinic services.

Study	Reported outcomes and results (I=Intervention; C=Comparison; NS=Non-significant p>0.05; Sig=Significant p<0.05; NR=Not reported; BL=Baseline; EL=Endline; FU=Follow-up)	Summary of outcomes
	CSP: BL/29,761; After: 33,046 PHCC: BL/44,377; After: 40,919 C1: BL/39,227; After: 40,408 C2: NR **5. Total production costs** *FP services* CSP: Before: 17,205; After: 18,839 PHCC: Before: 22,796; After: 19,991 C1: Before: 22,702; After: 23,324 *MCH and other services* CSP: BL/12,556; After: 14,207 PHCC: BL/21,581; After: 20,928 C1: BL/16,525; After: 17,084 **6. Unit cost per MCH-FP output** *FP at community* CSP: BL/36.99; After: 53.77 PHCC: BL/NA; After: NA C1: BL/10.80; After: 10.51 *FP at clinic* CSP: BL/80.35; After 64.70 PHCC: BL/56.29; After: 44.82 C1: BL/79.37; After: 76.64 *Maternal health care* CSP: BL/162.39; After: 106.96	

Study	Reported outcomes and results (I=Intervention; C=Comparison; NS=Non-significant p>0.05; Sig=Significant p<0.05; NR=Not reported; BL=Baseline; EL=Endline; FU=Follow-up)	Summary of outcomes
	PHCC: BL/64.39; After: 47.61 C1: BL/142.42; After: 123.74 *Child health care* CSP: BL/207.63; After: 139.00 PHCC: BL/80.49; After: 46.24 C1: BL/158.84; After: 149.00 *Pathology and other services* CSP: BL/135.06; After: 88.22 PHCC: BL/44.00; After: 30.14 C1: BL/131.95; After: 120.03 **7. Cost per birth averted** CSP: BL/1,483; After: 1,761 PHCC: BL/573; After: 585 C1: BL/853; After: 830 **8. Cost per QALY gained (lower and upper estimates)** CSP: BL/2,462-3,924; After: 1,511–2,408 PHCC: BL/724-1,154; After: 491–787 C1: BL/1,653-2,623; After: 1,170–1,877 **<u>Other Reported Outcomes</u>** **1. Contraceptive methods used** **2. Sources of contraceptive services** **3. Specific services provided daily at static clinics, e.g., FP, maternal health, child health (from clinic records)**	

Study	Reported outcomes and results (I=Intervention; C=Comparison; NS=Non-significant p>0.05; Sig=Significant p<0.05; NR=Not reported; BL=Baseline; EL=Endline; FU=Follow-up)	Summary of outcomes
	4. Reasons for clinic visits **5. Total couple years of protection** **6. Program costs itemized** **7. Recurrent costs for salaries, drugs, clinical supplies, and overhead**	
Sathar, 2005 **Intervention:** Training aimed at changing provider attitudes to help clients meet their needs by eliminating barriers to service access and use. **Study Design:** Serial cross-sectional study **Rigor score: 4/9**	**Biological Outcomes** NR **Behavioral Outcomes** NR **Process Outcomes/Outputs** 1. **Quality of care** (Note: Component scores were not explained in the text; total SAHR scores are the sum of the components above it.) **Fixed location providers** *Bivariate analysis* **1. Salutation** Before: I: 4.30 vs. C: 4.25 (p=NS) After: I: 4.35 vs. C: 3.57 (p<0.01, SIG) **2. Assessment** Before: I: 1.60 vs. C: 1.68 (p=NS) After: I: 1.25 vs. C: 1.01 (p<0.01, SIG) **3. Help** Before: I: 4.02 vs. C: 3.97 (p=NS) After: I: 3.99 vs. C: 3.86 (p<0.05, SIG) **4. Reassurance**	SAHR score declined in both the intervention and controls groups post-intervention. However, despite the decline in quality of care found for both groups between pre- and post-intervention time periods, both types of providers in the experimental areas were performing better than providers in the control areas, as measured by their scores for the four SAHR items. From pre- to post-intervention period, there was a decline in quality of fixed-location provider interactions in the control area from 10.7 to 9.53, whereas quality of care in the intervention area declined slightly overall from 10.90 to 10.10. Similarly, in the community workers, the intervention was successful in maintaining quality of care compared with the decrease in interaction quality in the control group from pre to post. Declines for the experimental group were smaller than those observed for the control group.

Study	Reported outcomes and results (I=Intervention; C=Comparison; NS=Non-significant p>0.05; Sig=Significant p<0.05; NR=Not reported; BL=Baseline; EL=Endline; FU=Follow-up)	Summary of outcomes
	Before: I: 0.98 vs. C: 0.80 (p=NS) After: I: 1.40 vs. C: 1.09 (p<0.01, SIG) **5. Total SAHR score** Before: I: 10.90 vs. C: 10.70 (p=NS) After: I: 10.10 vs. C: 9.53 (p<0.01, SIG) *Multivariate regression analysis* **Overall SAHR index** Intervention*Round (Pre/Post) interaction term coefficient 1.28 (p<.05, SIG) Round (Pre/Post) coefficient -1.18 (p<.05, SIG) Intervention coefficient 0.20 (p=NS) **Overall SAHR index** (adjusted for age, marital status, number of children, higher education, languages, and ministry affiliation) **Intervention*Round (Pre/Post) interaction term coefficient** Salutation 0.72 (p=NS) Assessment 0.35 (p<0.05, SIG) Help 0.05 (p=NS) Reassurance 0.00 (p=NS) SAHR 1.11 (p=NS) **Community-based workers** *Bivariate analysis* **6. Salutation** Before: I: 5.27 vs. C: 4.73 (p<0.01, SIG) After: I: 5.04 vs. C: 4.27 (p<0.01, SIG)	Regression analysis showed significant change in care provided by the intervention group relative to that provided by the control, despite declines in quality of care in both groups. The improvements were significant for assessment for fixed site providers and assessment and help for community workers.

Study	Reported outcomes and results (I=Intervention; C=Comparison; NS=Non-significant p>0.05; Sig=Significant p<0.05; NR=Not reported; BL=Baseline; EL=Endline; FU=Follow-up)	Summary of outcomes
	7. Assessment Before: I: 1.21 vs. C: 1.41 (p<0.01, SIG) After: I: 1.19 vs. C: 1.11 (p=NS) **8. Help** Before: I: 0.72 vs. C: 0.86 (p=NS) After: I: 0-.75 vs. C: 0.60 (p=NS) **9. Reassurance** Before: I: 1.00 vs. C: 0.81 (p=NS) After: I: 1.18 vs. C: 0.80 (p<0.01, SIG) **10. Total SHAR score** Before: I: 8.19 vs. C: 7.80 (p=NS) After: I: 8.16 vs. C: 6.79 (p<0.01, SIG) Multivariate *regression analysis* **Overall SAHR index** Intervention*Round (Pre/Post) interaction term coefficient 0.99 (p=NS) Round (Pre/Post) coefficient -1.02 (p<.01, SIG) Intervention coefficient 0.39 (p=NS) **Overall SAHR index** (adjusted for age, marital status, number of children, higher education, languages, and ministry affiliation) Intervention*Round (Pre/Post) interaction term coefficient Salutation 0.08 (p=NS) Assessment 0.26 (p<.05, SIG) Help 0.41 (p<.05, SIG) Reassurance 0.31 (p=NS)	

Study	Reported outcomes and results (I=Intervention; C=Comparison; NS=Non-significant p>0.05; Sig=Significant p<0.05; NR=Not reported; BL=Baseline; EL=Endline; FU=Follow-up)	Summary of outcomes
	SAHR 1.06 (p=NS)	
Solo, 1999 **Intervention:** Three models of implementing FP services for PAC patients in a hospital setting were compared; intervention was training, provision of supplies and equipment, and reorganization of services between the FP clinic and the gyn ward **Study design:** Non-randomized trial – group **Rigor score: 2/9**	Female patient interviews EXCLUDING Nyeri Hospital* *Data from Nyeri Hospital excluded in the following outcomes because intervention was implemented prior to BL interviews; actual total interviews were N=481 BL and N=319 EL **Biological Outcomes** NR **Behavioral Outcomes** **1. Patients decided to begin using contraceptives** Overall: 1996/BL: 22%, 1997/EL: 68% **Process Outcomes/Outputs** **1. Patients received family planning counseling** Overall: BL/7%; EL/68% Model specific: Model 1/92%; Model 2/62%; Model 3/54% **2. Patients received a method prior to leaving hospital** Overall: BL/3%; EL/70% Model specific: Model 1/82%; Model 2/63%; Model 3/75% **Other Reported Outcomes** **1. Providers trained in post-abortion family planning** **2. Providers trained in MVA** **3. Acceptability of timing, location, and staffing of service delivery according to providers** **4. Acceptability of providers' additional responsibilities and workload** **5. What advice providers would give to other hospitals that intended to set**	Based on the authors' indicators of effectiveness, acceptability, and feasibility, model 1 provided the best overall post-abortion FP services. More patients from model 1 settings received family planning counseling and a method prior to leaving the hospital than patients from model 2 or model 3 settings. In total, the number of patients who decided to begin using contraceptives increased from 22% at pre-intervention to 68% at post-intervention, while the number of providers trained in post-abortion FP increased from 6% to 27%. However, these outcomes were not stratified by model. No effect size or variance estimates were provided for any outcomes.

Study	Reported outcomes and results (I=Intervention; C=Comparison; NS=Non-significant p>0.05; Sig=Significant p<0.05; NR=Not reported; BL=Baseline; EL=Endline; FU=Follow-up)	Summary of outcomes
	up similar linked services **6. Female patients' sentiments about the FP counseling and staff providing those services** **7. Distribution of types of contraceptives provided to women who left the hospital with a method; method mix by intervention model** **8. Specific information provided to women about contraceptive method chosen (e.g., side effects); breakdown by intervention model** **9. % of male partners who received FP counseling, received information about their wives' conditions, would have liked to have received family counseling, and would have liked to have received more information about wives' conditions**	
Sultan, 2002 **Intervention:** Two types of health workers delivered services, including childhood immunization, growth monitoring, treatment of childhood illnesses, and FP to households in rural areas. **Study design:** Cross-sectional **Rigor score:** 3/9	Note: Odds ratios are reported with 95% confidence intervals. **Biological Outcomes** **Behavioral Outcomes** **10. 1. Overall prevalence of contraceptive use in rural areas** 1996–1997/19% (national survey 1996–1997); 1994–1995/11% (national survey 1994–1995) **11. 2. Use of reversible modern methods of contraception** Access *to community-based workers* None: 5.3%; unadjusted OR=1.00; adjusted OR=1.00 1 worker: 9.4%; unadjusted OR=1.83 (95% CI 1.30, 2.56); adjusted OR=1.14 (95% CI 0.80, 1.61) 2 or more workers: 16.8%; unadjusted OR=4.05 (95% CI 2.71, 6.07); adjusted OR=1.74 (95% CI 1.11, 2.71) Access *to any static health facility* No: 8.3%; unadjusted OR=1.00; adjusted OR=1.00	Use of reversible modern methods of contraception is significantly higher in localities having good access to literate, female community-based workers than in localities with little or no access, which persisted when adjusted for a wide range of community, individual, and household characteristics. Access to private practitioners who offer contraceptive services also had a significant effect on use. No impact was detected from access to static family planning services. Availability of schools also had significant effect on contraceptive uptake, but presence of other modern institutions or proximity to a town had no effect.

Study	Reported outcomes and results (I=Intervention; C=Comparison; NS=Non-significant p>0.05; Sig=Significant p<0.05; NR=Not reported; BL=Baseline; EL=Endline; FU=Follow-up)	Summary of outcomes
	Yes: 9.8%; unadjusted OR=1.12 (95% CI 0.81, 1.56); adjusted OR=0.84 (95% CI 0.62, 1.14) Access *to a private practitioner* No: 7.3%; unadjusted OR=1.00; adjusted OR=1.00 Yes: 14.4%; unadjusted OR=2.41 (95% CI 1.74, 3.34); adjusted OR=1.47 (95% CI 1.00, 2.15) School *availability (number and types of schools within 5km)* Low: 3.9%, unadjusted OR=1.00; adjusted OR=1.00 Medium: 5.6%; unadjusted OR=1.45 (95% CI 0.84, 2.52); adjusted OR=1.42 (95% CI 0.80, 2.54) High: 10.5%; unadjusted OR=3.07 (95% CI 1.82, 5.19); adjusted OR=2.57 (95% CI 1.36, 4.88) Very high: 12.8%; unadjusted OR=3.90 (95% CI 2.39, 6.36); adjusted OR=2.67 (95% CI 1.35, 5.27) **Process Outcomes/Outputs** NR **Other outcomes reported** **1. Effects of various community indicators of modernization and characteristics of individuals and households on use of reversible modern methods of contraception** **2. Visited by a health or FP worker within previous 12 months by access to type of worker** **3. Recall that contraception was discussed at most recent visit from a FP worker**	
Vernon, 1993 **Intervention:** Client-	**Behavioral Outcomes** From perinatal clinic history records (n=6315)	Note: Used multiple sources of data so there is no consistent pattern of reporting results for

Study	Reported outcomes and results (I=Intervention; C=Comparison; NS=Non-significant p>0.05; Sig=Significant p<0.05; NR=Not reported; BL=Baseline; EL=Endline; FU=Follow-up)	Summary of outcomes
centered reproductive health program that included prenatal education, individual FP and reproductive health counseling, availability of a wide range of contraceptive methods, a postpartum clinic, and an improved perinatal data collection system. **Study design:** Serial cross-sectional **Rigor score: 1/9**	**1. Acceptance rates of modern methods of contraception (condom, IUD, pill, sterilization)** 9.2 % December 1990 23.7% January–March 1991 22% April–June 1991 22.5% July–September 1991 29.2% October–December 1991 46.1% February 1992 **2. Referred to 40 day clinic or outpatient clinic (so could accept at later date)** 21.1 % December 1990 40.3% January–March 1991 33.2% April–June 1991 46.1% July–September 1991 48.8% October–December 1991 44.2% February 1992 **3. Not referred "none" (at discharge)** 68.9 % December 1990 35.5% January–March 1991 38.0% April–June 1991 26.9% July–September 1991 19.4% October–December 1991 8.8% February 1992 Start of the project/December 1990: 9% March 1991: 20%	outcome measures and p values reported. Study suggests overall improvement in women's knowledge of reproductive health services and satisfaction with the services provided. Study also showed an increase in contraceptive acceptance according to multiple data sources: perinatal clinic records, 40-day clinic records, and client exit surveys. In terms of process outcomes, the program appears to have reached a higher proportion of women (from February to December 1991) in offering contraceptive methods.

Study	Reported outcomes and results (I=Intervention; C=Comparison; NS=Non-significant p>0.05; Sig=Significant p<0.05; NR=Not reported; BL=Baseline; EL=Endline; FU=Follow-up)	Summary of outcomes
	4. Contraceptive Acceptance at 40-day clinic (no time period reported) 41% (according to open-ended clinic histories) 61% (according to client exit surveys) Using the above data, authors estimate on average 39.5% of women attended the 40-day clinic, and 51% of them adopted a method. **Process Outcomes/Outputs** **1. Number of women attending FP and reproductive health counseling services** N=33 in May 1991 to N=296 in May largely due to increase in attendance by women at 40 days postpartum or later **2. Overall contraceptive provision by program** 20% of all women attending deliveries 25% of all postpartum women who received a method before discharge Total= 45% of all women delivering at the IHSS hospital in 1991 From postpartum surveys (n=1440) **3. Proportion of women reporting being offered contraception at their postpartum hospital stay (according to survey data)** February 1991: 33% December 1991: 69% **4. Proportion of women in prenatal visits who requested that they be given a method immediately after delivery (according to survey data)** February 1991: 19% December 1991: 49% **5. Proportion of acceptors who received information on how their chosen method worked or was used (according to survey data)**	

Study	Reported outcomes and results (I=Intervention; C=Comparison; NS=Non-significant p>0.05; Sig=Significant p<0.05; NR=Not reported; BL=Baseline; EL=Endline; FU=Follow-up)	Summary of outcomes
	February 1991: 53% December 1991: 84% **6. Proportion who reported having their doubts resolved by hospital staff (according to survey data)** February 1991: 20% December 1991: 47% **7. Proportion who reported being told that they could return if they had problems or desired a change in method (according to survey data)** February 1991: 52% December 1991: 81% **8. Utilization of prenatal education sessions** Family planning and reproductive risk: 56% of all women delivering Pregnancy and labor: 45% Breastfeeding and baby care: 40% **9. Utilization of reproductive health counseling sessions** Total visits: Between May 15–February 29, 1991, 1472 women made 1872 counseling visits Increase in number of visits: 33 in May to 296 in February **10. Utilization of 40-day postpartum clinic** Pre-project estimate: 15% During the duration of project: 39% of all women who delivered at IHSS hospital **11. Client satisfaction with services (attention received from physicians, nurses, pharmacy, laboratory services, and records and administration)** Mean satisfaction score February: 4.1	

Study	Reported outcomes and results (I=Intervention; C=Comparison; NS=Non-significant p>0.05; Sig=Significant p<0.05; NR=Not reported; BL=Baseline; EL=Endline; FU=Follow-up)	Summary of outcomes
	December: 4.9 (p=SIG, no value reported) Overall score given to all services (total of 25) February: 20.7 October: 21.5 December: 24.3 **Other outcomes reported** **1. Changes in the mix of contraceptive methods used** **2. Changes in women's knowledge about warning signs during pregnancy, baby care, reproductive risk factors** **3. Knowledge of reproductive health** **4. Knowledge of specific warning signs during pregnancy** **5. Specific recommendations on how to care for baby's navel** **6. Specific risk factors for pregnancy (score included above)** **7. Satisfaction scores, client rating aspects of the prenatal education program**	
Warren, 2010 **Intervention:** Training providers in a postnatal care package, including maternal and newborn health, FP, HIV, breastfeeding, etc. **Study design:** Serial cross-sectional **Rigor score: 1/9**	Note: Data reported only for the six week postnatal visit, as this was the only visit for which there was both pre- and post-intervention data. **Biological Outcomes** NR **Behavioral Outcomes** Uptake of family planning method – Before: 35%, After: 63%, SIG (p=NR) **Process Outcomes/Output** **Quality of care, reported as mean scores (range of possible scores in parentheses)**	The quality of care index score increased significantly for both maternal health and infant health at the six week postnatal visit after the introduction of the postnatal care package. However, the quality of care still remained lower than desired. More women accepted a FP method at six weeks postpartum before the intervention (35%) compared to after (63%).

Study	Reported outcomes and results (I=Intervention; C=Comparison; NS=Non-significant p>0.05; Sig=Significant p<0.05; NR=Not reported; BL=Baseline; EL=Endline; FU=Follow-up)	Summary of outcomes
	Maternal health Asking about danger signs since childbirth (0–4) – Before: 0.34, After: 1.11 (p<0.01) Physical exam conducted (0–7) – Before: 1.88, After: 3.79 (p<0.01) Counseling on HIV/STIs (0–8) – Before: 0.51, After: 1.15 (p<0.05) Family planning (0–4) – Before: 0.53, After: 1.7 (p<0.01) Total quality of care index for postpartum woman (0–23) – Before: 3.26, After: 8.27 (p<0.01) *Infant health* Counseling on possible danger signs (0–3) – Before: 0.24, After: 1.39 (p<0.01) Counseling on infant feeding (0–3) – Before: 1.33, After: 2.19 (p<0.01) Immunizations received (0–2) – Before: 1.25, After: 1.76 (p<0.01) Total quality of care index for newborn (0–11), Before: 3.37, After: 6.45 (p<0.01) **Other outcomes reported** **Number of provider–client interactions in which providers were observed asking about specific elements of maternal and newborn health**	
Zhu, 2009 **Intervention:** A comparison of two post-abortion family planning interventions aimed to increase contraceptive use and reduce repeat abortion. Package A, the provision of limited information and referral to existing FP services, was	Package A: Essential services; Package B: Comprehensive services *All outcomes recorded at sixth month follow-up **Biological Outcomes** **1. Pregnancy** Before-A/8.3%; After-A/7.4% Before-B/4.3%; After-B/2.7% **2. Unwanted pregnancy** Before-A/5.4%; After-A/4.1%; AOR=0.66 (95% CI 0.37-1.18) Before-B/2.2%; After-B/1.4%; AOR=0.61 (0.24-1.53)	Neither package changed contraceptive knowledge, but both packages resulted in increased use of any contraceptive method. Package B had a stronger effect on increasing use of effective contraceptive methods and consistent and correct use of condoms. Rates of pregnancies, unwanted pregnancies, and induced abortion at the sixth month follow-up were higher for

Study	Reported outcomes and results (I=Intervention; C=Comparison; NS=Non-significant p>0.05; Sig=Significant p<0.05; NR=Not reported; BL=Baseline; EL=Endline; FU=Follow-up)	Summary of outcomes
compared to Package B, face-to-face counseling, free provision of contraceptive materials, and male involvement in addition to Package A **Study design**: Randomized trial – group **Rigor score: 5/9**	Package B vs. Package A: AOR=0.84 (95% CI 0.29-2.39) **3. Induced abortion** Before-A/4.7%; After-A/3.2%; AOR = 0.57 (95% CI 0.30-1.07) Before-B/1.9%; After-B/1.2%; AOR = 0.69 (95% CI 0.26-1.84) Package B vs. Package A: AOR=1.01 (95% CI 0.33-3.13) **Behavioral Outcomes** *Among women who had intercourse during six month follow-up period **1. Total sexually active women at sixth month follow-up=2077 women** Package A: Before I (Before-A)/500 After I (After-A)/507 Package B: Before I (Before-B)/576 After I **(After-B)**/494 **2. Use of any contraceptive method** Before-A/93.8%; After-A/97.6%; OR=2.62, AOR=2.45 (95% CI 1.22-4.95) Before-B/6.4%; After-B/98.4%; OR=2.50, AOR=2.55 (95% CI 1.00-6.46) Package B vs. Package A: OR=0.82, AOR=0.81 (95% CI 0.27-2.40) **3. Use of effective contraceptive methods** Before-A/87.2%; After-A/89.3%; OR=1.36, AOR=1.19 (95% CI 0.79-1.81) Before-B/89.9%; After-B/96.2%; OR=2.78, AOR=2.35 (95% CI 1.33-4.17) Package B vs. Package A: OR=2.13, AOR=2.03 (95% CI 1.04-3.98) **4. Consistent use of condoms** Before-A/33.0%; After-A/39.7%; OR=1.42, AOR=1.37 (95% CI 1.01-1.85) Before-B/37.1%; After-B/62.1%; OR=2.93, AOR=2.75 (95% CI 2.05-3.68)	Package A hospitals than Package B hospitals, for both the before-intervention and after-intervention cohorts. While both packages reduced the aforementioned rates, the differences were not statistically significant.

Study	Reported outcomes and results (I=Intervention; C=Comparison; NS=Non-significant p>0.05; Sig=Significant p<0.05; NR=Not reported; BL=Baseline; EL=Endline; FU=Follow-up)	Summary of outcomes
	Package B vs. Package A: OR=3.68, AOR = 2.32 (95% CI 1.55-3.46) **5. Correct use of condoms** Before-A/41.1%; After-A/49.9%; OR=1.40, AOR=1.53 (95% CI 1.13-206) Before-B/37.3%; After-B/67.3%; OR=8.67, AOR=8.38 (95% CI 5.64-12.46) Package B vs. Package A: OR=2.81, AOR = 2.78 (95% CI 1.81-4.26) **6. Consistent and correct use of condoms** Before-A/17.0%; After-A/21.4%; OR=1.40, AOR=1.36 (95% CI 0.93-1.97) Before-B/10.4%; After-B/41.6%; OR=8.43, AOR=8.01 (95% CI 5.46-11.77) Package B vs. Package A: OR=5.71, AOR=5.68 (95% CI 3.39-9.53) **7. Regular intake of the oral contraceptives** Before-A/83.0%; After-A/62.5%; OR=0.96, AOR=1.33 (95% CI 0.29-6.16) Before-B/89.8%; After-B/77.1%; OR=0.49, AOR=0.64 (95% CI 0.10-4.13) Package B vs. Package A: OR=0.19, AOR=0.19 (95% CI 0.03-1.38) *Adjusted OR adjusted for women's birth place, education, occupational status, and history of contraceptive/effective contraceptive/condom/pill use, and men's occupational status **Knowledge Outcomes** **1. Knowledge of contraception using a scale with 13 items – score and standard deviation** Before-A/7.1 (SD 2.9), After-A/7.3 (SD 3.1) Before-B/6.9 (SD 3.0), After-B/7.6 (SD 3.4) *Linear regression did not show any significant differences in the score between before and after intervention of either package, as well as between packages. **Process Outcomes/Outputs** **1. Post-abortion FP services received –** data not shown but mentioned in text	

Study	Reported outcomes and results (I=Intervention; C=Comparison; NS=Non-significant p>0.05; Sig=Significant p<0.05; NR=Not reported; BL=Baseline; EL=Endline; FU=Follow-up)	Summary of outcomes
	2. Satisfaction regarding abortion and FP services – data not shown but mentioned in text	
Matlab Studies		
Chaudhuri, 2008 **Intervention:** A community-based family planning program associated with a few basic MCH services **Study design:** Cross-sectional study **Rigor score: 4/9**	**Biological Outcomes** **1. Height-for-age Z-score – girls (below 10 years of age)** I: -2.05 (SD 1.45); C: -2.21 (SD 1.33) (p=0.02, SIG) *Means are weighted to correct for unequal sampling probabilities. **2. Height-for-age Z-score – boys (below 10 years of age)** I: -2.04 (SD 1.33); C: -2.13 (SD 1.44) (p=0.16, NS) *Means are weighted to correct for unequal sampling probabilities. **3. Treatment vs. control group on height-for-age Z-score – girls (less than 5 years old) adjusted** Coefficient for I vs. C (n=540): 0.3226 (SD 1.82) (p=0.10, NS)* *Adjusted for child characteristics, household and parental controls, mother's height and age, interaction term between mother's education and treatment dummy variable, and interaction term between expenditure per capita and treatment dummy variable. **4. Interaction of mother's education and treatment vs. control group on height-for-age Z-score – girls (less than 5 years old) adjusted** Coefficient for I vs. C (n=540): -0.0688 (SD 1.56) (p=NS)* *Adjusted for child characteristics, household and parental controls, mother's height and age, interaction term between mother's education and treatment dummy variable, and interaction term between expenditure per capita and treatment dummy variable. **5. Interaction of expenditure and treatment vs. control group on height-for-age Z-score – girls (less than 5 years old) adjusted**	Boys and girls in the treatment area were less stunted than those in the control area, but this finding is SIG for girls but not for boys. Author concludes that children under 5 in the treatment area are significantly healthier than children living in the control area and that it significantly affects younger children directly targeted by the program. However, the author reports that the results for outcomes #3 and #7 are significant at the 10% level, but we consider this NS. For girls under 5 years, no significant differences in health was found for those in the treatment arm interacted with mother's education, expenditure, or family land ownership. For boys under 5 years, health was decreased for those in the treatment arm interacted with mother's education and expenditure, and was increased for those in the treatment arm interacted with family land ownership. Adjusted data was only coded for children under 5 years (even though data

Study	Reported outcomes and results (I=Intervention; C=Comparison; NS=Non-significant p>0.05; Sig=Significant p<0.05; NR=Not reported; BL=Baseline; EL=Endline; FU=Follow-up)	Summary of outcomes
	Coefficient for I vs. C (n=540): -0.0882 (SD 0.85) (NS)* *Adjusted for child characteristics, household and parental controls, mother's height and age, interaction term between mother's education and treatment dummy variable, and interaction term between expenditure per capita and treatment dummy variable. **6. Interaction of land owned and treatment vs. control group on height-for-age Z-score – girls (less than 5 years old) adjusted** Coefficient for I vs. C (n=493): 0.0142 (SD 0.16) (NS)* *Adjusted for child characteristics, household and parental controls, mother's height and age, interaction term between mother's education and treatment dummy variable, and interaction term between expenditure per capita and treatment dummy variable. **7. Treatment vs. control group on height-for-age Z-score – boys (less than 5 years old) adjusted** Coefficient for I vs. C (n=593): 0.2801 (SD 1.83) (p=0.10, NS)* *Adjusted for child characteristics, household and parental controls, mother's height and age, interaction term between mother's education and treatment dummy variable, and interaction term between expenditure per capita and treatment dummy variable. **8. Interaction of mother's education and treatment vs. control group on height-for-age Z-score – boys (less than 5 years old) adjusted** Coefficient for I vs. C (n=593): -0.0894 (SD 2.34) (p=0.05, SIG) *Adjusted for child characteristics, household and parental controls, mother's height and age, interaction term between mother's education and treatment dummy variable, and interaction term between expenditure per capita and treatment dummy variable. **9. Interaction of expenditure and treatment vs. control group on height-for-age Z-score – boys (less than 5 years old) adjusted** Coefficient for I vs. C (n=593): -0.2378 (SD 2.11) (p=0.05, SIG) *Adjusted for child characteristics, household and parental controls, mother's height	was provided for less than 10 years) based on our targeted group outcomes.

Study	Reported outcomes and results (I=Intervention; C=Comparison; NS=Non-significant p>0.05; Sig=Significant p<0.05; NR=Not reported; BL=Baseline; EL=Endline; FU=Follow-up)	Summary of outcomes
	and age, interaction term between mother's education and treatment dummy variable, and interaction term between expenditure per capita and treatment dummy variable. **10. Interaction of land owned and treatment vs. control group on height-for-age Z-score – boys (less than 5 years old) adjusted** Coefficient for I vs. C (n=511): 0.0103 (SD 2.86) (p=0.05, SIG) *Adjusted for child characteristics, household and parental controls, mother's height and age, interaction term between mother's education and treatment dummy variable and interaction term between expenditure per capita and treatment dummy variable. **Behavioral Outcomes** NR **Process Outcomes/Outputs** NR	
Fauveau, 1990 **Intervention:** A community-based family planning program associated with a few basic MCH services **Study design:** Serial cross-sectional **Rigor score: 2/9**	**Biological Outcomes** **1. Perinatal mortality** 1979/I: 82 per 1000 total births; C: 82 per 1000 (p=NR) 1980/I: 81 per 1000 total births; C: 72 per 1000 (p=NR) 1982/I: 73 per 1000 total births; C: 73 per 1000 (p=NR) 1983/I: 72 per 1000 total births; C: 78 per 1000 (p=NR) 1984/I: 71 per 1000 total births; C: 82 per 1000 (p=NR) 1985/I: 65 per 1000 total births; C: 74 per 1000 (p=NR) 1986/I: 66 per 1000 total births; C: 68 per 1000 (p=NR) 1979–1982/I: 79.5 per 1000 total births (1258/16781); C: 75.0 per 1000 (1098/13818) (Sig NS) 1983–1986/I: 68.6 per 1000 total births (922/13422); C: 75.4 per 1000 (922/13433)	In the intervention area there was a sustained decrease in perinatal mortality rates from 1979–1986; however, the authors concluded that the decline was more likely to be the result of health care than FP intervention. Actual number of live births remained roughly the same in both intervention and control areas.

Study	Reported outcomes and results (I=Intervention; C=Comparison; NS=Non-significant p>0.05; Sig=Significant p<0.05; NR=Not reported; BL=Baseline; EL=Endline; FU=Follow-up)	Summary of outcomes
	(p=0.04, SIG) **Behavioral Outcomes** NR **Process Outcomes/Output** NR	
Hale, 2006 **Intervention:** A community-based family planning program associated with a few basic MCH services **Study design:** Serial cross-sectional **Rigor score: 3/9**	**Biological Outcomes** **1. First week mortality** 1982–2002/I: 26.7 per 1000 children alive; C: 31.8 (N=125,720) (M-H RR=0.842, p<0.001, SIG), (Adjusted M-H RR=0.840*, p<0.001, SIG) 1982–1986/I: 31.2 per 1000 children alive; C: 35.6 (N=32,199) (M-H RR=0.875, p<0.001, SIG), (Adjusted M-H RR=0.842*, p<0.001, SIG) 1987–1991/I: 27.7 per 1000 children alive; C: 30.9 (N=32,858) (M-H RR=0.896, NS)(Adjusted M-H RR=0.887*,NS) 1992–1996/I: 26.4 per 1000 children alive; C: 32.1 (N=27,319) (M-H RR=0.8222, p<0.01, SIG), (Adjusted M-H RR=0.850*, p<0.01, SIG) 1997–1999/I: 22.7 per 1000 children alive; C: 28.4 (N=16,394) (M-H RR=0.800 p<0.05, SIG), (Adjusted M-H RR=0.826*, NS) 2000–2002/I: 21.5 per 1000 children alive; C: 28.5 (N=16,950) (M-H RR=0.756, p<0.01, SIG), (Adjusted M-H RR=0.742*, p<0.001, SIG) **2. Weeks 2–4 mortality – 1982–2002** 1982–2002/I: 11.0 per 1000 children alive; C: 17.4 (N=121,693) (M-H RR=0.631, p<0.001, SIG), (Adjusted M-H RR=0.651*, p<0.001, SIG)	For the entire period (1982–2002) the difference between the mortality rate in the intervention and comparison areas is statistically significantly different and suggests that infant and child mortality are generally lower in the intervention areas compared to the control areas. For each sub-period of infancy and childhood, the mortality rate decreases nearly perfectly monotonically within each area over the five time periods considered. The general pattern of the relative-risk ratios of mortality between the two areas reflects that infant and child mortality are generally lower in the MCH-FP area than in the comparison area. All four ratios for the entire 1982–2000 period are lower in the MCH FP area (27% lower on average), as are 19 of the 20 sub-periods of calendar years, 16 of which are statistically significantly lower. The magnitude

Study	Reported outcomes and results (I=Intervention; C=Comparison; NS=Non-significant p>0.05; Sig=Significant p<0.05; NR=Not reported; BL=Baseline; EL=Endline; FU=Follow-up)	Summary of outcomes
	1982–1986/I: 17.5 per 1000 children alive; C: 24.7 (N=31,023) (M-H RR=0.709, p<0.001, SIG), (Adjusted M-H RR=0.696*, p<0.001, SIG) 1987–1991/I: 11.7 per 1000 children alive; C: 20.8 (N=31,847) (M-H RR=0.565, p<0.001, SIG), (Adjusted M-H RR=0.557*, p<0.001, SIG) 1992–1996/I: 8.9 per 1000 children alive; C: 13.6 (N=25,502) (M-H RR=0.652, p<0.001, SIG), (Adjusted M-H RR=0.716*, p<0.001, SIG) 1997–99/I: 5.8 per 1000 children alive; C: 10.6 (N=15,958) (M-H RR=0.545, p<0.001, SIG), (Adjusted M-H RR=0.564*, p<0.001, SIG) 2000–2002/I: 6.1 per 1000 children alive; C: 8.5 (N=16,363) (M-H RR=0.714, NS), (Adjusted M-H RR=0.714*, NS) **3. Weeks 5–52 mortality** 1982–2002/I: 28.5 per 1000 children alive; C: 35.7 (N=119,651) (M-H RR=0.798, p<0.001, SIG), (Adjusted M-H RR=0.847*, p<0.001, SIG) 1982–1986/I: 43.4 per 1000 children alive; C: 48.3 (N=29,110) (M-H RR=0.897, p<0.05, SIG), (Adjusted M-H RR=0.897*, NS) 1987–1991/I: 32.7 per 1000 children alive; C: 40.8 (N=31,364) (M-H RR=0.801, p<0.001, SIG), (Adjusted M-H RR=0.846*, p<0.01, SIG) 1992–96/I: 21.7 per 1000 children alive; C: 30.3 (N=26,222) (M-H RR=0.716, p<0.001, SIG), (Adjusted M-H RR=0.764*, p<0.001, SIG) 1997–1999/I: 15.3 per 1000 children alive; C 25.5 (N=15,801) (M-H RR=0.602, p<0.001, SIG), (Adjusted M-H RR=0.648*, p<0.001, SIG) 2000–2002/I: 15.3 per 1000 children alive; C:15.2 (N=15,796) (M-H RR=1.011, NS), (Adjusted M-H RR=1.082*, NS)	of difference in mortality is generally largest during the first five-year time period from when the intervention started.

Study	Reported outcomes and results (I=Intervention; C=Comparison; NS=Non-significant p>0.05; Sig=Significant p<0.05; NR=Not reported; BL=Baseline; EL=Endline; FU=Follow-up)	Summary of outcomes
	4. Years 1–5 mortality 1982–2002/I: 26.2 per 1000 children alive; C: 41.3 (N=110,155) (M-H RR=0.635, p<0.001, SIG), (Adjusted M-H RR=0.698*, p<0.001, SIG) 1982–1986/I: 42.2 per 1000 children alive; C: 67.4 (N=29,110) (M-H RR=0.626, p<0.001, SIG), (Adjusted M-H RR=0.667*, p<0.001, SIG) 1987–1991/I: 22.5 per 1000 children alive; C: 35.7(N=30.243) (M-H RR=0.631, p<0.001, SIG), (Adjusted M-H RR=0.735*, p<0.001, SIG) 1992–1996/I: 17.8 per 1000 children alive; C: 27.2 (N=25,552) (M-H RR=0.655, p<0.001, SIG), (Adjusted M-H RR=0.708*, p<0.001, SIG) 1997–1999/I: 16.3 per 1000 children alive; C: 22.4 (N=14,984) (M-H RR=0.727, p<0.001, SIG), (Adjusted M-H RR=0.800*, NS) 2000–02/I: 14.0 per 1000 children alive; C: 20.0 (N=10,266) (M-H RR=0.698, NS), (Adjusted M-H RR=0.796*, NS) *Adjusted for treatment area, mother's education, father's education, father's absence, religion, household space, child's month of birth, sex of child, and multiple reproductive variables **Behavioral Outcomes** NR **Process Outcomes/Outputs** NR	
Maine, 1996 **Intervention:** A community-based family planning program associated with a few	**Biological Outcomes** **1. Case fatality rate for 1987–1989 for women admitted to Chandpur District Hospital** I: 0.020 vs. C: 0.030, RR=0.68 (Sig NR)	The total number of obstetric deaths declined from 20 pre-intervention to 6 post-intervention. Of admissions to the Matlab study clinic during the study period, 65% were from the

Study	Reported outcomes and results (I=Intervention; C=Comparison; NS=Non-significant p>0.05; Sig=Significant p<0.05; NR=Not reported; BL=Baseline; EL=Endline; FU=Follow-up)	Summary of outcomes
basic MCH services **Study design:** Serial cross-sectional **Rigor score: 3/9**	**Number of direct obstetric deaths – cause (1984–1986)** **2. Total** I: 20 vs. C: 20 (Sig NR) **Number of direct obstetric deaths – cause (1987–1989)** **3. Total** I: 6 vs. C: 20 (Sig NR) **Behavioral Outcomes** N/A **Process Outcomes/Outputs** **4. Admissions to Matlab maternity clinics (proportion of live births)** I: 65% vs. C: 33%, RR 2.31 (SIG) **5. Admission as a proportion of live births** I: 0.044 vs. C: 0.019 (Sig NR) **6. Percentage distribution of referred admissions to Chandpur District Hospital maternity ward** I: 69% vs. C: 27%, RR 2.58 (SIG)	intervention area and 33% from the control area. Women in the intervention area were 2.3 times more likely to be treated at the Matlab clinic than were their counterparts from the control area, and this difference was statistically significant.
Ronsmans, 1997 **Intervention:** A community-based family planning program associated with a few basic MCH services **Study design:** Serial cross-sectional **Rigor score: 2/9**	Time period: 1976–1993 **Biological Outcomes** **1. Maternal mortality (all causes)** I vs. C: 1.00 rate ratio [0.96 - 1.04], p=0.88 NS **2. Direct obstetric mortality** I vs C: 1.00 rate ratio [0.96 - 1.05], p=0.93 NS **3. Direct obstetric mortality (over time)** 1976–1986: I (south) 400 vs. I (north) 410 vs. C (south) 400 vs. C (north) 475	There was no significant difference in maternal mortality rate ratio (from all causes) between the MCH-FP and comparison areas. Similarly, the rate ratio of direct obstetric mortality between MCH-FP and the comparison were also not significantly different.

Study	Reported outcomes and results (I=Intervention; C=Comparison; NS=Non-significant p>0.05; Sig=Significant p<0.05; NR=Not reported; BL=Baseline; EL=Endline; FU=Follow-up)	Summary of outcomes
	(Sig NR) 1987–1989: I (south) 450 vs. I (north) 210 vs. C (south) 200 vs. C (north) 375 (Sig NR) 1990–1993: I (south) 300 vs. I (north) 175 vs. C (south) 200 vs. C (north) 475 (Sig NR) **Behavioral Outcomes** N/A **Process Outcomes/Outputs** N/A	
Simmons, 1991 **Intervention:** A community-based family planning program associated with a few basic MCH services **Study design:** Cross-sectional **Rigor score: 2/9**	**Biological Outcomes** NR **Behavioral Outcomes** **1. Contraceptive prevalence rates over time** 1975/I: 3.0,C: 3.0 (p=NR) 1976/I: 9.5, C: 9.5(p=NR) 1977/I: 7.9,C: 9.0(p=NR) 1978/I: 7.0, C: 24.2 (p=NR) 1979/I: 7.7, C: 30.9 (p=NR) 1980/I: 8.2, C: 30.0 (p=NR) 1981/I: 8.9, C: 30.0 (p=NR) 1982/I: 9.6, C: 33.6 (p=NR) 1983/I: 10.4, C: 37.3 (p=NR) 1984/I: 11.0, C: 41.7 (p=NR) 1985/I: 11.6, C: 44.1 (p=NR)	The intervention area was more cost-effective than the control area, although the differences were not large. The average cost was higher in the intervention area compared to the control area, but total births prevented was higher in the intervention vs. the control area.

Study	Reported outcomes and results (I=Intervention; C=Comparison; NS=Non-significant p>0.05; Sig=Significant p<0.05; NR=Not reported; BL=Baseline; EL=Endline; FU=Follow-up)	Summary of outcomes
	Process Outcomes/Outputs Model IIIA: In this model, external effects generated by the intervention are *not* included in the intervention area, but are in the control area. Model IIIB: In this model, external effects generated by the intervention are included in the intervention area and have been subtracted from the control area. **1. Average annual costs for program (in US$)** Model IIIA/I: $150,000, C: $50,000 (p=NR) Model IIIB/I: $152,000, C: $50,000 (p=NR) **2. Total births prevented** Model IIIA/I: 6,000, C: 2,000 (p=NR) Model IIIB/I: 7,500, C: 1,500 (p=NR) **3. Average cost per birth averted** Model IIIA/I: $171, C: $220 (p=NR) Model IIIB/I: $240, C: $298 (p=NR)	

APPENDIX 4. TABLE 3—STUDY RIGOR

Study	Study design includes pre/post intervention data	Study design includes control or comparison group	Study design includes cohort	Comparison groups equivalent at baseline on socio demographics	Comparison groups equivalent at baseline on outcome measures	Random assignment (group or individual) to the intervention	Participants randomly selected for assessment	Control for potential confounders	Follow-up rate (>=75% counts toward total score)	Total rigor score (min score=1; max score=9)
Agha, 2007	Yes	Yes	No	NA	NA	No	No	No	NA	2
Alvarado, 1999	Yes	Yes	Yes	No	NA	No	No	No	Yes	4
Amin, 2001	Yes	Yes	No	NR	NR	No	No	No	NA	2
Barnet, 2007	Yes	Yes	Yes	Yes	No	Yes	No	Yes	Yes	7
Bashour, 2008	Yes	Yes	Yes	No	NR	Yes	No	No	Yes	5
Billings, 2003	No	Yes	No	Yes	NA	No	No	No	NA	2
Bolam, 1998	No	Yes	Yes	Yes	NA	Yes	No	Yes	Yes	6
Bossyns, 2002	Yes	No	No	NR	NA	No	No	No	NA	1
Cissé, 2004	Yes	No	No	NA	NA	NA	No	No	NA	1
David, 2007	Yes	No	No	NA	NA	NA	No	No	NA	1
Debpuur, 2002	Yes	Yes	Yes	No	No	Yes	Yes	Yes	NR	6
Delvaux, 2008	Yes	No	No	NA	NA	No	No	No	NA	1
Douthwaite, 2005	No	Yes	No	No	Yes	No	Yes	Yes	NA	4

Study	Study design includes pre/post intervention data	Study design includes control or comparison group	Study design includes cohort	Comparison groups equivalent at baseline on socio demographics	Comparison groups equivalent at baseline on outcome measures	Random assignment (group or individual) to the intervention	Participants randomly selected for assessment	Control for potential confounders	Follow-up rate (>=75% counts toward total score)	Total rigor score (min score=1; max score=9)
Fullerton, 2003	No	Yes	No	NR	NR	No	No	No	NA	1
Huntington, 1994	Yes	Yes	No	Yes	NR	Yes	Yes	No	NA	5
Johnson, 2002	Yes	Yes	Yes	No	No	No	No	Yes	Yes	5
Mahomed, 1997	Yes	No	No	NA	NA	No	No	NA	NA	1
Murray, 1990	No	Yes	No	NA	NA	No	No	No	NA	1
Nobili, 2007	Yes	Yes	Yes	Yes	Yes	Yes	No	No	Yes	7
Paxman, 2005	Yes	No	No	NR	NR	NA	No	NR	NR	1
Quinlivan, 2003	Yes	Yes	Yes	Yes	Yes	Yes	No	Yes	Yes	8
Routh, 2001	Yes	Yes	No	NR	Yes	No	Yes	No	NA	4
Sathar, 2005	Yes	Yes	No	Yes	No	No	No	Yes	NA	4
Solo, 1999	Yes	Yes	No	NR	NR	No	No	No	NA	2
Sultan, 2002	No	Yes	No	NR	NR	No	Yes	Yes	NA	3
Vernon, 1993	Yes	No	No	NA	NA	No	No	No	NA	1
Warren, 2010	Yes	No	No	NA	NA	No	No	No	NA	1
Zhu, 2009	Yes	Yes	Yes	No	No	Yes	No	Yes	No	5

Study	Study design includes pre/post intervention data	Study design includes control or comparison group	Study design includes cohort	Comparison groups equivalent at baseline on socio demographics	Comparison groups equivalent at baseline on outcome measures	Random assignment (group or individual) to the intervention	Participants randomly selected for assessment	Control for potential confounders	Follow-up rate (>=75% counts toward total score)	Total rigor score (min score=1; max score=9)
Matlab Studies										
Chaudhuri, 2008	No	Yes	No	Yes	NA	No	Yes	Yes	NA	4
Fauveau, 1990	No	Yes	No	Yes	NR	No	No	No	NA	2
Hale, 2006	No	Yes	No	Yes	NA	No	No	Yes	NA	3
Maine, 1996	Yes	Yes	No	Yes	NR	No	No	No	NA	3
Ronsmans, 1997	No	Yes	No	Yes	NR	No	No	No	NA	2
Simmons, 1991	No	Yes	No	Yes	NA	NA	NA	NA	NA	2

APPENDIX 5. TABLE 4—INTEGRATION IMPLEMENTATION

Study	Type of Integration	Study Objective	Integration Promoting Factors	Integration Inhibiting Factors	Recommendations	Other
Agha, 2007	Direction: Simultaneous Setting: Franchised clinics run by nurses and paramedics Format: Provider and off-site (both offered) Level: District	Objective: To evaluate the impact of a nurse and paramedic reproductive health franchise in rural Nepal on client satisfaction and utilization of services.	Promoting factors: That the intervention was able to motivate providers to improve client perceptions of the services they delivered indicates provider interest in providing better services to clients living in rural areas. Higher use of injectables may also have contributed to greater client satisfaction: clients in many developing countries consider injections to be more effective than orally administered medication.	Inhibiting factors: Political factors meant that the intervention was implemented for less than a year, making it hard to actually change and measure behavior change. It seems that services offered by nurses and paramedics were not compatible with a substantial expansion of reproductive health services. Population-level data showed that 10%–12% of the population in the intervention district went to a medical store/pharmacy for reproductive health services. This suggests that other sources of reproductive health are available to clients.	Recommendations: Higher client satisfaction with services increased client loyalty to providers. Client perceptions of the quality of reproductive health services delivered through rural providers improve when these providers became part of a franchise network that emphasizes quality of care.	Other: Women in the control district had lower levels of education than women in the intervention district. SES was higher in the intervention district than in the control district. Exit surveys showed that 87% of intervention clinic visits and 93% control visits were not related to SRH. One issue with outcome in table II re: last pregnancy is that this may not have occurred during the intervention period.
Alvarado, 1999	Direction:	Objective: Given the established benefits of	Promoting factors: *Intervention design*	Inhibiting factors: *Significant investment in*	Recommendations: A program such as the	Other: Qualitative interviews

Study	Type of Integration	Study Objective	Integration Promoting Factors	Integration Inhibiting Factors	Recommendations	Other
	Simultaneous Setting: NGO clinic Format: Provider Level: Local	an integrated health care program for mothers and infants in Chile, this study aimed to test this approach to health care in an area of extreme poverty in northern Chile.	*promoted informed free choice:* The intervention was oriented toward informed free choice. Women attending CSLH had access to a larger number of contraceptives free of charge. This may have enhanced women's contraceptive uptake as well as their feeling of being supported in their right to change methods. In contrast, women in the control group had limited choices, had to pay for oral contraceptives and condoms (which were seldom available), and had less time receiving information and counseling. This may explain why some women did not accept a method even though they were at risk of pregnancy. *Coordination of care among all providers:* At CSLH, all providers were trained in breastfeeding and contraceptive	*provider time:* Providers invested a large amount of time in follow-up, education, and counseling procedures. However, no evaluation was performed of the cost-benefit balance. *High commitment demanded from clients:* The program demanded a high level of commitment from clients. For example, intensive breastfeeding may jeopardize women's opportunities for work and self-development	one applied n the CSLH could be built upon the current national program so as to improve the quantitative outcomes of public services.	with clients and providers corroborate quantitative findings. The qualitative assessment showed that personal interactions are extremely important to clients, who value being treated with respect and receiving information that empowers them to make informed decisions in addition to other elements of quality care that the program incorporated. Although they expressed appreciation that the program allowed them to save time (due to the integrated mother and infant care), they may, in fact, have invested more time in the intervention than in the public clinic because of the larger number of visits scheduled at CSLH and because more educational activities were offered there.

Study	Type of Integration	Study Objective	Integration Promoting Factors	Integration Inhibiting Factors	Recommendations	Other
			management in the same way, and worked as a team. Each provider reinforced messages provided by other team members. Providers could also consult and collectively find solutions to special cases. Additionally, mothers and infants were scheduled for appointments together and shared a common clinical record. This enabled providers to be informed of the health status of both mother and child. In contrast, in the control clinic there was no coordination between the team that cared for mothers and infants, and the visits were scheduled separately depending on the infants' and mothers' specific needs. In effect, infants received more attention than mothers.			The quality of time spent at the clinics appears to have been more important to the clients than the amount of time they spent at the clinic.

Study	Type of Integration	Study Objective	Integration Promoting Factors	Integration Inhibiting Factors	Recommendations	Other
Amin, 2001	Direction: Simultaneous Setting: Phase 1: In the community; Phase 2: NGO clinics Format: Phase 1: provider; Phase 2: NR, but at minimum on-site delivery of services Level: District	Objective: To assess an integrated program of microcredit, FP, reproductive health, and other basic health services in an action research project in rural Bangladesh.	Promoting factors: *Availability of resources:* The encouraging results seem to have resulted from the availability and accessibility of a well-managed high-quality static health clinic with simple modern medical facilities. *Community linkages*: The intervention design enabled linkages with the community (poor women and children) at large. The bridge to the community was built through a network of micro-credit volunteers, who were both users and promoters of the ESP. Because the volunteers had been empowered through consciousness-raising efforts of micro-credit programs, they were likely to have been more appreciative and therefore better promoters of the value of preventive	Inhibiting factors:	Recommendations: Results from this innovative integrated ESP suggest the realistic potential for an ESP in maternal, reproductive, and child health that would improve the dismal morbidity and mortality situation. Additionally, authors recommend that in parallel the state make concerted efforts to introduce a comprehensive range of services in reproductive health care, family planning, maternal and child care, and other basic care. In tandem, heavy investment in improving hospitals, equipment, and providers' skills is necessary. The latter can be better utilized by improving the primary care services such that patients can be screened at the first level to ensure that only the most high-risk cases can be	Other: Bangladesh had experienced significant increases in contraceptive use and corresponding decreases in fertility as a result of a massive categorical FP program. However, with resources diverted to FP, mortality and morbidity among mothers and children had remained high. Also, although an existing government-run clinic served the area (including the intervention and control areas), the services were under-utilized because of lack of outreach and therefore awareness of services, suspicion about the quality of services, and the regularity of the hours of operation. This evaluation was designed to test an integrated program as an alternative.

Study	Type of Integration	Study Objective	Integration Promoting Factors	Integration Inhibiting Factors	Recommendations	Other
			health care. The advantage of integrating micro-credit and basic health services is that the micro-credit component is self-sustainable because of its recoupability and because it can play an important role in economic survival of the poor.		appropriately diagnosed, referred, and treated at higher levels.	Caution should be exercised in interpreting results for several reasons: (1) Study uses data from multiple data sets to arrive at these conclusions, but authors do not explain the sources of data, how they compare, etc. (2) No baseline data for control group and no significance testing between control and intervention group, or across multiple time periods for intervention group. (3) We found a discrepancy in the data. There were two figures for IMR in 1992: according to data collected from a survey in 1997 the IMR in I was 1992=88.0, and according to data collected from a survey in 1992 the IMR in I was 1992=81.5.

Study	Type of Integration	Study Objective	Integration Promoting Factors	Integration Inhibiting Factors	Recommendations	Other
Barnet, 2007	Direction: Simultaneous Setting: Homes of pregnant and parenting adolescents Format: Provider and referral Level: Local	Objective: To evaluate the impact of a community-based home-visiting program for adolescent mothers on depression, school dropout, parenting, repeat pregnancy, and linkage to primary care.	Promoting factors: Use of a previously evaluated curriculum that was culturally and age appropriate to target population, and having a sample of younger age. High retention of staff enabled trainers to develop trusting relationships with target population and provide a consistent message and detailed case management—all of which may have increased the impact of their messages.	Inhibiting factors: Program provided information and counseling, but did not have an explicit mechanism addressing adolescents' motivation to postpone childbearing. Program lacked a system to coordinate services and information between the home visit trainer and the physician—this could have been a missed opportunity for bidirectional flow of information, where both providers could build upon and/or reinforce the same messages. The long-term impact of the intervention may be mitigated by the fact that there were barriers in access to care. While 75% of the sample had insurance during pregnancy, fewer than 35% were covered during the two-year study period, which	Recommendations: For future interventions, the authors recommend better coordination of care between community-based and primary care services to improve outcomes such as repeat pregnancy and depression.	Other: Depressive symptoms were an important outcome of this study and were the focus of the discussion. Though randomized, study groups did not score comparably on the main parenting measure, AAPI score, at baseline.

Study	Type of Integration	Study Objective	Integration Promoting Factors	Integration Inhibiting Factors	Recommendations	Other
				could have influenced low primary care service utilization.		
Bashour, 2008	Direction: Simultaneous Setting: Home visits Format: Provider Level: Local	Objective: To assess the effectiveness of an intervention of postpartum home visits on maternal and neonatal outcomes at four months postpartum.	Promoting factors: The value of home visits is highly related to the performance of midwives. Women in this study highly valued the home visits; it could well correspond with some sort of felt need.	Inhibiting factors: Midwives were recruited from a hospital and not from a community setting. Community nurses who are usually more skillful in communication and working with the community do not exist in the country so far. Inherited practices and attitudes are difficult to change. In Syrian society, women underestimate their fertility in the postpartum period. Also, postpartum morbidity may be perceived by women as normal, and thus not requiring medical consultation.	Recommendations: Should consider looking in to emotional and social support outcomes next time. For home visits, the value of higher maternal satisfaction with the postpartum experience will need to be weighed against their additional cost. Decisions among alternative postpartum follow-up services ideally should incorporate the perspectives of all parties including caregivers, mothers, and families themselves. Based on the study's findings, the biomedical framework was perhaps not the most important framework of reference for postpartum care, and	Other: There were a number of significant flaws in this study. First of all, although an RCT, no baseline data was reported on, so it's really more of a serial cross-sectional study than an RCT. Secondly, although one of the key outcomes of interest was contraception uptake, discussion of FP was not done until the last home visit (and one would assume not at all for group B that got one home visit) and contraceptives were not provided, so it's confusing that the authors thought they could have an effect on this outcome. The authors reported that maternal pallor and infant sleep disorders were more commonly reported

Study	Type of Integration	Study Objective	Integration Promoting Factors	Integration Inhibiting Factors	Recommendations	Other
					thus social support interventions and emotional outcomes should be considered in future research on health care planning for the postpartum, especially in the Syrian context.	in the intervention groups, but speculate that this may be due to the fact that nurse midwives were directly visiting them in the homes and observing this (as opposed to the control group which received no home visits). The mothers in the study did not have diverse backgrounds and they mostly come from a low socioeconomic status. Thus, findings cannot be generalized to other populations.
Billings, 2003	Direction: MNCH services adding FP services Setting: Social security urban hospitals Format: Provider Level: Local	Objective: To compare three models of care for women with abortion complications on quality of PAC care services: sharp curettage standard care, sharp curettage and post-abortion care (emphasizing counseling and provision of contraceptives), and manual vacuum	Promoting factors: The process of introducing a new technology into health services provides opportunities for innovation regarding service delivery. Excellent internal organization of the SC sites.	Inhibiting factors: Findings that favored the sharp curettage PAC model over the MVA model were due in part to staffing difficulties with one of the MVA PAC hospitals throughout the study and to the excellent internal organization of the two sharp curettage PAC sites. These results also highlight	Recommendations: The standard IMSS model of PAC should be modified to emulate those in hospitals that systematically linked general counseling and FP services to the clinic services provided to women with abortion complications. More in-depth qualitative studies	Other: Confusing as it appears the same question was asked/answered in different ways, i.e., both Table 3 and Table 4 asked if a method of contraceptive was offered, but the numbers aren't the same. Providers at MVA-PAC sites had put the full model of care into

Study	Type of Integration	Study Objective	Integration Promoting Factors	Integration Inhibiting Factors	Recommendations	Other
		aspiration with post-abortion care among women treated for abortion complications in six social security hospitals in Mexico.		the effects of long-term challenges to incorporating MVA in to PAC for this population as an institutionalized alternative to sharp curettage.	that follow up with women obtaining PAC over time are needed. Authors feel the findings support the expansion of the essential elements of PAC to include counseling as separate from and as important as contraceptive and FP services. Results do not support hypothesis that MVA-PAC results in better quality of care compared to SC-PAC. Implementation of PAC model rather than the clinical technique itself is the determining factor in the information and counseling that women receive.	practice following their original training one to three years prior to the study, whereas providers in the SC-PAC sites had not practiced the other PAC components in a systematic manner after their original training. Thus, refresher training served as orientation to research protocol in MVA-PAC sites and it served as an intervention in the SC-PAC sites. WHO recommends vacuum aspiration as the surgical technique for use in health centers and hospitals.
Bolam, 1998	Direction: Simultaneous Setting: Main maternity	Objective: To evaluate impact of postnatal health education for mothers on infant	Promoting factors: NR	Inhibiting factors: *Intervention design influences results:* The length and frequency of the intervention	Recommendations: Despite their negative findings, authors suggest the need for future, well-designed	Other: NR

Study	Type of Integration	Study Objective	Integration Promoting Factors	Integration Inhibiting Factors	Recommendations	Other
	hospital in Kathmandu, follow-up in households in/around Kathmandu Format: Provider Level: Local	care and postnatal family practices in Nepal.		may have been an issue that influenced results unfavorably. However, authors explain that they deliberately designed a short duration and less intensive intervention toward making it more practical and sustainable over the long term.	evaluations of health education interventions that are randomized, controlled, and provide pre- and post-intervention data for well-defined outcome measures. This is important since the efficacy of health education interventions is not yet well established. They also recommend qualitative research to understand how recipients of these interventions receive and react to the health education messages. They suggest that perhaps recipients' behavior can be changed by simple messages that are frequently repeated, suggesting that such interventions in developing countries will need to evaluate the trade-off between efficacy and costs. Interventions should also take into	

Study	Type of Integration	Study Objective	Integration Promoting Factors	Integration Inhibiting Factors	Recommendations	Other
					consideration women's broader context; the extent of their influence in household decision-making; childbearing household, and work responsibilities; and work in the fields—all of which may significantly influence their health care seeking behavior and practices. Finally, authors advocate for testing a combination of antenatal and perinatal education sessions with mothers stating that this may be more successful than the tested education schedule.	
Bossyns, 2002	Direction: MNCH services adding FP services Setting: One small town clinic and two rural health centers Format: Provider Level: District	Objective: To show that low-cost attitudinal, structural, and procedural changes aimed at improving responsiveness to patients have the potential to increase uptake of family planning (FP) even among	Promoting factors: *Country policy:* Niger's health policy prescribes integration of family planning services in general outpatient activities. *Unmet need for FP:* There was a large unmet need for FP, contributing to the large uptake	Inhibiting factors: *Staff attitudes:* Staff were skeptical about the feasibility and possible results of a change in attitude toward patients. Some staff were reluctant to accept that contraception can be started during postpartum amenorrhea. Many	Recommendations: There is scope for further increase in responsiveness and improvement in quality of communication. Less rigid timetables and instructions might also improve case holding by making it easier for women to comply with the	Other: This intervention addresses supply-side barriers to contraceptive uptake, and not the more difficult cultural barriers. This intervention also requires more consistent contraceptive

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		populations considered reluctant to do so by health personnel.	immediately after the intervention. *Cost:* The marginal cost of obtaining these results was negligible, and comparable to training, follow-up, and replacement costs of community-based distribution strategies.	staff members refused to comply with the delivery of three to six contraceptive cycles at a time. The quality of communication could still be improved, such as the focus on possible side effects of contraceptives. *Staff workload:* Staff showed concern about the additional workload. Some women were referred to another consultation to get contraceptive supplies, and this was attributed by staff to workload. *Bureaucratic hurdles:* Pregnancy checklists were not introduced, making it difficult for staff to lift the menstruation requirement (that patients must be menstruating in order to receive contraceptives). Other barriers included the requirement to give exhaustive	health center's requirements. Even so, this study shows how important supply-side barriers to FP uptake can be. These barriers are more amenable to change than other barriers. The first priority remains to make existing services and programs perform well. Improving the responsiveness of FP activities through integration, active proposal and client-friendly procedures has potential as a low-cost, effective way of improving FP uptake.	supplies. Continuation data were not readily available and would be difficult to interpret because of men commonly being absent for long periods for work.

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				information on all methods, and the time-consuming filling out of administrative forms. *Supplies:* Drug supplies often run out, so staff protect stock rather than supplying them to clients.		
Cissé, 2004	Direction: MNCH-FP integrated services strengthening their FP services Setting: Six rural health centers Format: Provider Level: District	Objective: To evaluate the feasibility and impact of the introduction of post-abortion care at the district health center level on the quality of care in rural areas of Senegal.	Promoting factors: *Accessibility of services in rural areas:* The package of PAC services was simple to implement, making it applicable to the primary care clinic level and making services more accessible to patients who needed them. Also, because of the use of MVA, the management of incomplete abortions became more accessible to midwives, which is important because midwives provide the bulk of emergency obstetric care in rural	Inhibiting factors: *Limited number of providers:* MVA was not always used because of the limited number of competent providers, thus explaining why the practice of D&C persisted. *Cost:* Cost of services, though lower compared to the pre-intervention period, was still quite high compared to the income level of the population.	Recommendations: Decentralization of PAC services in rural areas of Senegal provides benefits to patients by increasing accessibility, decreasing treatment time, and lowering cost. These services should be expanded to all health districts in Senegal.	Other: Qualitative data showed that providers expressed a number of advantages about the package of PAC services, and patients were satisfied with the quality of care. The intervention improved overall quality of obstetric care because it improved cross-cutting issues like infection control, communication between providers and patients, and organization of care. Specifically, the intervention resulted in better observance

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			areas. *Economic impact:* The intervention resulted in reduced time for treatment and fewer referrals to regional hospitals.			of rules to prevent hospital-acquired infections—such as hand-washing, sterilizing instruments, and disposal of biomedical waste— Also, MVA is less invasive, less traumatic, reduces risk of infection, and reduces pain because of the use of local anesthesia (whereas D&C requires general anesthesia, which was generally not available at the primary care clinic level).
David, 2007	Direction: MNCH services adding FP services Setting: 20 health care sites Format: Provider Level: Local	Objective: To assess the impact of WIN family planning interventions in reducing unwanted pregnancies and repeat abortions at participating study sites.	Promoting factors: *Effective provider training:* Training for providers facilitated increased (and possibly more useful and effective) discussions and counseling about contraception.	Inhibiting factors: *No intent to use contraception*: Abortion clients may represent a distinct group of women who prefer to seek repeat abortions rather than use contraception to prevent pregnancy. *Cultural considerations:* Abortion is easily accessible in Russia and thus commonly used as an alternative to consistent	Recommendations: Client-centered counseling about contraceptive methods is probably effective for some women, but still the needs of all potential clients are not being met. To address study shortcomings the authors recommend the following: (1) in-depth investigation of the women most at risk of multiple abortions	Other: Authors discuss the reasons for no change in number of repeat abortions. This finding is not surprising, as the intervention was given to women only when they came in for an abortion. The change in their awareness about fertility and receipt of FP counseling are true measures of the intervention, but not of the numbers

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				contraception. In contrast, modern contraceptive methods may be less acceptable or readily available, and women may know less about these methods. *Gaps between knowledge and practice:* Though contraceptive counseling by providers increased, there was no mechanism to ensure that abortion clients took advantage of this new information or consistently used contraceptives after the intervention.	to understand their reasons for choosing this method; (2) an assessment of the barriers to long-term or permanent contraceptive methods, since these may be a safer and more acceptable alternative for women who go in for repeat abortions and may not be currently easily available to them; (3) post-abortion counseling that is more than FP counseling and includes messages about the relative health risks of these methods as compared to the abortion procedure, and (4) a review of hospital records to document the extent of post-abortion complications. Additionally, future studies must consider cultural factors that influence the acceptability of abortion and women's	coming for repeat abortions. Authors make several inferences about why abortion rates did not fall, but their analysis suffers from some limitations: (1) They use aggregate data from women collected across facilities, rather than following a single cohort, so they cannot measure the impact of the intervention on client abortion or contraception practices. (2) Clients could not be linked to the providers who received the training. (3) Clients could have received previous abortions at different facilities where the FP intervention was not available, and hence their repeat abortion rates were not influenced. (4) Since data comes from different women across different facilities there could be many other

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					contraceptive choices in Russia.	confounders influencing the reduction in unintended pregnancies and increased abortions, and authors do not discuss these factors. In brief, it is appropriate to measure change in FP KAP but not to draw inferences about abortion rates.
Debpuur, 2002	Direction: Simultaneous Setting: Rural health centers and communities Format: Provider Level: Regional	Objective: To assess the impact of new active community-outreach programs for basic primary health care and FP in addition to the standard MOH clinic-based services on the knowledge of contraceptive methods, awareness of supply sources, reproductive preferences, current use of modern contraceptive methods, and fertility.	Promoting factors: *Increased access to services:* In the past, the MOH fixed clinics were dormant and not connected to communities. Mobilization of MOH resources to provide health services within communities provided greater access to FP. *Outreach to chiefs, elders, and men:* Culturally, the adoption of modern FP is constrained by traditions that restrict women's autonomy and shape men's	Inhibiting factors: *Social institutional constraints:* Women's decision to adopt contraception is often at odds with perceptions of appropriate female roles, and that decision may cause contraceptive adopters considerable risk of embarrassment and ostracism from their husbands, co-wives, and kin. *Program intensity:* Minor and temporary lapses in program	Recommendations: Fertility can be reduced when strategies are combined into a comprehensive community mobilization strategy for provision of FP services. Despite limitations of the study, the results provide evidence that a supply-side program can have an impact, even in a traditional setting that is widely viewed as being incompatible with FP program success. There are, however,	Other: Northern Ghana has not experienced fertility transition, in part because of cultural structures that reinforce high fertility. There is debate about whether improved access to FP could have any impact. Because the settlement pattern is dispersed in this area of Ghana, the district is relatively isolated, complicating efforts to organize health services. Polygyny is common, the language is different from that in southern

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			perception about the value of children. By reaching out directly to village leaders and men, the zurugelu intervention helped to overcome some of these barriers.	intensity can lead to widespread discontinuation of contraceptive use.	other strong determinants of fertility, and contraceptive norms have yet to replace traditional means of fertility control (abstinence), even in areas of the district where the project began to have an impact.	Ghana, and literacy among women is only 7%. Conclusions about the effectiveness of the interventions should be tempered by the fact that fertility levels were already falling in the region and that other determinants of fertility, such as later marriage and prolonged breastfeeding, better explained lower fertility than did increased use of contraception. Also, measurement of contraceptive use is challenging because women often deny contraceptive practice for cultural reasons. However, the use of fertility as an outcome bypasses this problem.
Delvaux, 2008	Direction: Integrated FP/MNCH services adding more MNCH services	Objective: To document the pilot experience of provision of safe abortion/post-	Promoting factors: NR	Inhibiting factors: *Challenge in recovering costs:* The prices charged to women at SAPAC did not allow	Recommendations: This study shows that integrating safe abortion/post-abortion services in a	Other: Because the evaluation was based on routine data collection, there were

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	Setting: Government reproductive health clinics Format: On-site provision of services Level: Local	abortion services implemented in 2002 at the Mother Child Health clinic, and to profile clients and assess their uptake of post-abortion contraception.		for full cost recovery, and external financial support, although limited, was needed to provide financial incentives to health staff. *Staff inabilities in dealing with client variation:* The clinic faced difficulties with FSW clients not feeling welcome, in part because staff had trouble dealing with different groups of clients and were concerned about fee exemptions for FSWs which they perceived as affecting staff incentives. After team discussions, the problem was resolved.	health facility at the peripheral level is feasible and that there is a demand for safe abortion at an affordable price in Sihanoukville, Cambodia. However, if SAPAC services are to be extended throughout the country, program managers should make sure that health care providers are prepared to adequately deal with different groups of clients and that incentives to staff are not affected by lower or exempted fees charged to underprivileged clients.	some limitations. (1) Data on education level was not collected. (2) adjustments had to be made in order to collect exhaustive data on contraception; (3) data on condom use for HIV prevention were not routinely collected, and after supervision was reduced at the end of 2004, post-abortion contraception data became less exhaustive; and (4) there was no ability to assess the effect of confounders which could influence the success of the project. Study shows that safe abortion services in Cambodia are an opportunity to increase contraceptive use.
Douthwaite, 2005	Direction: MNCH services adding FP services Setting: Households	Objective: To assess the impact of the LHWP on uptake of modern contraceptive	Promoting factors: *Agents of social change:* Social and cultural restrictions on women's mobility and	Inhibiting factors: *Funding limitations:* The LHWP, primarily funded by the Pakistani government,	Recommendations: The LHWP succeeded in integrating FP into the doorstep provision of	Other: *Contextual issues:* While Pakistan is experimenting with doorstep FP services,

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	in communities served by LHWs Format: Provider and referral Level: National	methods using data from a national evaluation of the LHWP, completed in 2002.	decision-making in rural Pakistan make accessing health services difficult for them. LHWs may serve as agents of change, offering women a choice where otherwise they would have none due to limited mobility.	was experiencing a funding shortfall of 39% at the time of the evaluation, and less than 50% of the 100,000 planned LHW posts were filled. A fully funded program could absorb as much as 25% of total government expenditure on health. *Poor quality:* There was skepticism that the program could actually deliver FP services, as previous attempts to integrate FP into the overburdened health system had failed. The LHWP was not pilot tested, and before the evaluation there was concern about the poor quality of worker training and the politicization of worker selection.	preventive health care and in increasing the use of modern reversible methods in rural areas. An improved understanding of women's mobility and other social factors make LHWs the most cost-effective method of providing services and, where fixed site services can be used, will be important in ensuring a sustainable mix of services.	Bangladesh, a country with comparable restrictions on women's mobility and with a long history of doorstep services, is moving toward offering fixed site clinics. This is primarily due to international donor complaints about the high cost of outreach workers. Anecdotally, women's mobility has increased over the last 20 years in Bangladesh, reducing the need for universal doorstep provision of services. The impact of this change of approach is currently being evaluated, and the results will be interesting in light of Pakistan's need for services.
Fullerton, 2003	Direction: FP services adding MNCH services Setting: FP service	Objective: To assess the impact on the provision of family planning (FP) services when FP	Promoting factors: *Resource availability:* Availability of health care equipment and	Inhibiting factors: *Resources/inputs not sustainable:* Lack of ongoing	Recommendations: Need for future reach to confirm this study's findings and to examine what is the	Other: The authors also provide qualitative data from in-depth interviews with

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	delivery points Format: On-site provision of services Level: Regional	providers were also trained to provide additional, selected reproductive health services	recent provider training (specifically in PAC services) favored integration. *Perceived value:* Clients perceived added value in the services they received, and this promoted client retention. Providers also endorsed training and incorporating PAC/STI services.	supportive supervision for providers and continuing education was a limitation *Provider turnover:* Provider turnover impeded integration.	ideal mix of RH services for each country context. Further, authors call for research to identify the factors that contribute to the retention of FP clients; they suggest employing these findings to improve services.	clients that underscore the positive benefits of training providers in integrated services. For example, clients were supportive of the services, and the availability of these services reduced the need for PAC referrals and increased the number of clients who were offered or referred to FP services. Additionally, the authors also report that providers and managers reported satisfaction with provision of integrated services and made requests for training in FP/STI/PAC services, indicating the willingness to offer integrated RH services. Some study limitations that may influence the results of the integration: (1) Provider cross-over could not be controlled for. (2)

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						Since case and control facilities were randomly selected, it was later noted that several case facilities were not providing integrated services, and a few control facilities were providing integrated services. (3) Small sample size limited statistical significance. (4) Many outcomes were only reported for case facilities. (5) Study results were based on use of mixed research methods and many different data sources, making it unclear at times where the results were coming from, and much harder to clearly delineate the outcomes of interest for this review.
Huntington, 1994	Direction: MNCH services adding FP services Setting: MCH-FP clinics (EPI clinic	Objective: To evaluate the impact of the FP referral message on the EPI clients' knowledge of FP	Promoting factors: *Strong existing programs:* The EPI in Togo was an example of a well-developed categorical program	Inhibiting factors: *Clinic management practices and capacities:* The intervention (change to established	Recommendations: Integrated MCH services, particularly through the use of referral of EPI clients to FP services. Future	Other: Despite increases in the number of clients who stated that the nurse mentioned FP during EPI visits, a

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	visits) Format: On-site provision of services (referral within the same clinic) Level: Regional	methods and of the availability of FP services in the clinic, on clients' intention to use a contraceptive method (for non-users), and to examine changes in the number of vaccines administered through the EPI services in intervention and control clinics.	that has achieved impressive gains in reducing childhood morbidity and mortality. It has also demonstrated ability to increase access to health care services, making it an attractive "hook" for drawing clients into a clinic. *Similar target populations:* EPI focuses on a significant proportion of FP services' target population: women who have recently given birth. *Simple messages:* Referral message is simple and easier to perform than counseling EPI clients about FP	practices) was met with initial resistance by EPI providers and required supervisory visits and personal discussions before it was adopted by all of the EPI staff in the test sites. *Emphasis on commodities delivered:* Clinic staff feel pressured to move clients through as quickly as possible, as a premium is placed on delivering commodities (e.g., vaccines) without instructing them about services they received or others that are available to them.	integration strategies should examine clinic management practices and capacities, as many providers lack experience with overall clinical management procedures. There is a need to address how health education activities are conducted in MCH clinics in Africa, specifically the difficulties in shifting away from ineffective group talks to individual messages. There should be less focus on commodity provision and more on client knowledge of available services.	very low proportion of women (21%) recalled this in the intervention group, suggesting that the intervention was not being consistently performed by all of the EPI staff in the test clinics.
Johnson, 2002	Direction: MNCH services adding FP services Setting: Gynecology ward, Two central hospitals Format: Provider Level: Local	Objective: To assess the impact of a post-abortion family planning intervention, including provider training, FP counseling, and provision of free contraceptives, on subsequent	Promoting factors: *Free contraceptives:* The provision of free contraceptives may have had a positive effect on uptake. *Demand for contraception:* There was a strong demand	Inhibiting factors: NR	Recommendations: The study shows that post-abortion contraception decreases the risk of subsequent unplanned pregnancy and, therefore, decreases the risk of repeat abortion, including	Other: The ethnic mix of patients may have differed between the two hospitals; that is, more Shona women reside in Harare and more Ndebele women in Bulawayo. These ethnic and

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		contraceptive use, pregnancy, and repeat abortion.	for contraceptives among women treated for incomplete abortion. *Strong staff:* There was strong support by the OB/GYN staff who continued to provide post-abortion FP at the intervention sites after the study ended.		the risk of unsafe abortion.	cultural differences may or may not have affected women's responses regarding marital status, planned pregnancies, and contraceptive use. However all three of these variables were controlled in the data analysis. Also, although contraceptives were offered free of charge, shortly after the study ended the government began charging a small fee for contraceptives. Therefore the results may not apply when contraceptives are offered for a fee. Finally, a large proportion (5%) of study participants died during the study. This merits investigation of HIV status and other risk factors among women who present with abortion complications in Zimbabwe.

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Mahomed, 1997	Direction: MNCH services adding FP services Setting: Two main referral hospitals in Harare and Parirenyatwa in Zimbabwe Format: Provider Level: Regional (two regional hospitals)	Objective: To assess the impact of providing contraceptive care to post-abortion women.	Promoting factors: An advantage of well organized post-abortion care is said to be the reduction in time spent by women in hospital.	Inhibiting factors: It is possible that existing services are offered in ways that limit women's access to them. The unsympathetic attitude of care providers to women with miscarriages, often presumed to have been induced, has been noted to be a significant factor in nurses' perception of emotional seriousness and priority of care.	Recommendations: The high number of unwanted pregnancies, however, could have been prevented in the first place if an appropriate method of contraception was initiated at the appropriate time. Why was it that national figures show that 35% of all women use some form of contraception, while 76% of their sample of women had not been using any form of contraception prior to the abortion, despite the fact that nearly half had not intended to fall pregnant? Doctors need to be more motivated to participate more actively in providing FP services. There is a need to figure out which intervention methods are most appropriate after abortion and	Other: Of the 30 women who did not accept a method after the intervention, 20 did so because they wanted to plan a pregnancy soon. There is no long-term continuity data on accepters after the study and no data on long-term health of the women.

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					more specifically after complicated abortions. There is also a pressing need to provide appropriate sex education in schools as well as the wider community so as to research young men and women outside the formal education sector.	
Murray, 1990	Direction: MNCH services adding FP services Setting: Community-based Format: Provider and on-site both provided Level: District	Objective: To provide community-based family planning and general health education and services.	Promoting factors: A key feature in the success of the clinics is thought to be that family planning was totally integrated with primary health care. There were no special family planning clinics or family planning nurses. Services were always available, confidentially was improved, and the nurse was able to adopt an opportunistic approach to the provision of family planning services. Also, accessibility was	Inhibiting factors: NR	Recommendations: Making family planning services easily available and accessible, together with an information and education program using local volunteers has results both in high use of contraceptives and a significantly decreased fertility rate relative to the rest of Kenya.	Other: Family planning in Chogoria started in the mid-1970s. Intervention also reached 80% immunization coverage rate.

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			improved even further by community-based distribution. A little extra in fees was charged to for curative care, to subsidize maternal/child health and FP attendances, and the clinics in the upper zone where there was money from cash crops charged a fee to help subsidize the more arid areas. The traditional birth attendants in the vicinity of each clinic were befriended and the concepts of family planning and asepsis explained to them. Nearly all these traditional birth attendants (on average 10 around each clinic) would discuss family planning after each delivery they supervised.			
Nobili, 2007	Direction: MNCH services	Objective: To evaluate whether a patient-centered	Promoting factors: *Patient centered model:* The core of	Inhibiting factors: *Lack of sustainability:* This intervention	Recommendations: Authors call for future research to	Other: Though the authors randomized

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	adding FP services Setting: Public Hospital Format: Provider Level: Local	contraceptive counseling intervention increased the use of contraception, and the knowledge and positive attitudes toward contraception, in women who undergo a termination of pregnancy (TOP)	their intervention (women or patient-centered) was important, based on the assumption that the quality of an intervention is an important factor for its efficacy. Such an approach not only improves knowledge and use but their satisfaction and, in turn, compliance. This intervention was guided by the patient-centered model of medicine (rather than a disease-centered model) which recognizes the importance of communication and relationships as the critical components necessary to achieve the aims of any clinical intervention. *Timing of the intervention:* Authors felt the timing of the intervention before TOP was critical for project success since women are likely to	design may not be sustainable. Researchers only conducted a three-month follow-up and could not ascertain whether participants continued to use an effective contraceptive method for an extended period following TOP.	evaluate the long-term effects of patient-centered interventions. In terms of intervention design, they offer the suggestion that any professional providing informational/educational programs on contraception should pay attention to women's feelings, beliefs, attitudes, and expectations regarding contraception. Additionally, sufficient follow-ups are necessary to encourage compliance with contraception.	participants to the intervention and comparison arms, the sample size was small and should be considered while interpreting study results. Second, study follow-up was soon after TOP and raises questions about the sustainability of contraceptive use. Authors recognize this limitation but highlight the variation in patterns of use of contraception between the two groups as being indicative of some favorable impact of the intervention. Finally, the authors point out that since these data are based on self-reports, they could suffer from social desirability bias, causing women in the intervention group to report greater use of contraception and more positive attitudes toward contraceptive use.

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			be more motivated to begin the use of a contraceptive method in the duration of time that immediately follows a TOP. Further, many patients do not attend the scheduled post-TOP appointments, so conducting counseling at that appointment would reduce the number of potential participants to a self-selected group of TOP patients. *Personalized, culturally appropriate education:* Providing education about contraceptives to reduce negative attitudes and false beliefs, as well as creating a personalized, culturally appropriate counseling intervention, facilitated integration.			
Paxman, 2005	Direction: Simultaneous Setting:	Objective: To gauge how far and fast pilot initiatives, like India-LIP, can	Promoting factors: Enthusiastic commitment of volunteers, vigilant	Inhibiting factors: *Staffing:* Finding adequate number of doctors and nurses to	Recommendations: Government (national or state) should embrace this	Other: BL data was actually collected starting at month 3 of the

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	Community level Format: Provider and referral Level: Regional	move toward improved health status, continuity of services, and program sustainability at the community level.	advocacy of oversight committees, management, training, supervision of committees by NGOs, and financial contributions of communities. *Promotion of available services:* Nearly 40% of those receiving FP services in CINI's LIP area received them from non-project sources, including government facilities. *Empowerment* of the CHVs (who were mainly female) transcends the achievement of health care objectives. Through the LIP, many women have been able to work outside their homes for the first time in their lives, gaining unprecedented mobility, recognition, and status. *Monitoring:* The NGOs involved India-LIP established indicators at the	provide care was a challenge. *Sustainability:* A question remained about the extent to which these service-delivery innovations would survive beyond the funding for the initial phase.	community-based model with management and training by NGOs. One approach could be to use NGOs for the start-up phase, then gradually reduce reliance on them or contract with them for specialized support.	intervention. Differences across NGOs were not done in this article, but each NGO could measure its progress against its own baseline criteria. Each NGO also had the leeway to set up its own baseline survey. Program costs and type, number, and use of services were analyzed together, which allowed the average cost, over time, of each type of service to be calculated.

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			outset and monitored and measured change in each focus area: behavioral change, community support and local mobilization of resources, access to services, cost of services, and management systems. *Sustainability:* All three NGOs are still carrying out their LIP activities, even expanding them in some cases. They have succeeded in bringing in other donors and successfully linked themselves with the government for supplies of contraceptives and vaccines.			
Quinlivan, 2003	Direction: Simultaneous Setting: Public-care teenage pregnancy clinic Format: Provider Level: Local	Objective: To assess the effect of a postnatal home-visiting service, undertaken by certified nurse–midwives, in reducing adverse neonatal outcomes and in improving knowledge about contraception,	Promoting factors: Nurse–midwives conducted postnatal home visits, which have been shown to be particularly effective at engaging the participation of pregnant teenagers in MCH activities.	Inhibiting factors: The authors list common reasons given by women for not breastfeeding or not continuing to breastfeed, including concerns over the adequacy of their supply, personal embarrassment, their	Recommendations: The findings show that a more limited program of five postnatal home visits undertaken by nurse–midwives can also reduce adverse neonatal outcomes. This is comparable to an intensive program	Other: Many women stopped breastfeeding before even leaving the hospital and, as such, there is no way the intervention could have had an effect. Their program could have possibly actually

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		vaccination schedules, and breastfeeding in teenage mothers younger than age 18 years.	Home visiting midwives were able to make appointments for mothers with the FP services and could facilitate service access for them.	partner expressing a dislike of breastfeeding, the presence of painful or cracked nipples, and a dislike of being tied to the baby. In view of the high rates of formula feeding, many home visits were spent advising mothers how to prepare bottles to prevent gastrointestinal infections and failure to thrive. Many midwives reported that mothers often lacked the math skills to correctly measure the formula, which resulted in neonatal health problems and undernutrition. The cost of formula often lead mothers to start solid foods very early on.	that reduces childhood injuries and hospital admissions in high-risk mothers, but has not been widely adopted because of cost implications. Although there is political support for home visits, many programs have not been formally assessed and while longer programs (i.e., 23–29 postnatal visits) have been found to work, shorter programs like this one (i.e., 5 visits) may also be effective and more cost-effective.	increased the risk of child protection services getting involved with mothers in the intervention group because the midwives were in their homes more often than in the control group (which got no home visits). To help assess this, the authors included non-voluntary fostering to 12 months after birth as a confounder and found their results did not change.
Routh, 2001	Direction: Strategy 1 and Control: simultaneous; Strategy 2: MNCH services adding FP	Objective: To compare the cost and cost-effectiveness of alternative strategies for delivering maternal	Promoting factors: *Lowered cost and cost-effectiveness:* The unit costs of services in the PHCC strategy were much lower	Inhibiting factors: *Alternate sources of contraceptives:* Because there were numerous pharmacies and shops dispensing	Recommendations: Replacement of the doorstep distribution strategy with the clinic-based strategy is feasible and cost-	Other: Since the 1970s, Bangladesh has implemented door-to-door MCH-FP services, which were

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	services Setting: Strategy 1: community service points (CSPs) such as schools and clubs; Strategy 2: primary health care clinic; Control: doorstep/ household Format: Strategy 1 and Control: provider; Strategy 2: on-site provision of services Level: Local	and child health and family planning (MCH-FP) services to the conventional (existing) doorstep service delivery strategy.	than those in the CSP and CBD strategies. There was a decline in operating costs through savings on salary costs from reduced numbers of field workers and increased use of PHCC services. Longer-acting clinical methods available at the clinics were less costly and more effective. *Holistic approach to care:* Clinics provided a holistic approach to addressing clients needs through a package of essential services.	pills and condoms, women were not motivated to attend the CSPs.	effective in urban areas without adverse affects on MCH-FP program performance. Because higher utilization of services at clinics was critical in its cost-effectiveness, it is essential to have an effective mechanism for promoting clinic services in the community. Also, in the absence of routine home visits, there is a need for a clinic-based information system to identify non-users.	responsible for dramatically increasing the contraceptive and immunization rates and decreasing TFR. Due to resource constraints and the decreasing effectiveness of the door-to-door system, there is a demand for alternative delivery strategies. Cost analysis was done based on changes in the total recurrent costs (providers, staff, commodities), as insufficient data on the capital costs (equipment, furniture, and facilities) was available. However, estimated capital costs in total program costs was estimated to be around 10%, and the authors noted that there was no major difference among the three programs in terms of capital costs/items outlay and relatively few capital assets.

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						For cost-utility analysis, commodity costs of contraceptives were not considered, but would have led to even greater cost-effectiveness for the clinic-based FP services.
Sathar, 2005	Direction: MNCH services adding FP services Setting: Fixed-site clinics and community-level health workers Format: Provider Level: District	Objective: To design and test the effectiveness of a training program in implementing a client-centered approach to reproductive health care services, in bringing about changes in the attitudes and behavior of providers, and in yielding positive outcomes at the individual level within communities.	Promoting factors: Authors reported that training is not prohibitively expensive, as it requires no technical training or additional infrastructure to put in place. The main costs are trainers fees, per diem for trainees, and the venue costs.	Inhibiting factors: Training is time consuming and labor intensive. The full impact of the intervention could not be captured because of the difficulty of maintaining strict separation between the experimental and the control areas. Because the study did not measure the intervention effect in the same group of people pre/post (i.e., had to do serial cross-sectional study design due to time and funding constraints). The authors speculate	Recommendations: SAHR training was able to change some important elements of providers' behavior. Decline in quality of care over time was stalled by the training. The small changes that were measured appear to mark the beginning of a shift in providers' attitudes and behavior in Pakistan. More efforts must be made to sustain these changes and other aspects of provider-client interactions. Scaling up the SAHR training could have significant beneficial impact. However, there was much room for improvement in	Other: Transfers of providers did occur, although they were not supposed to, during study between intervention and control area and could have diffused intervention effects. Authors report that qualitative data would have enhanced the evaluation of behavioral change. No comparisons directly comparing before vs. after – not sure why the authors did not do so.

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				that the declines in scores in both groups could be the result of organizational restructuring brought about by the merger of the MIH and Population Welfare that translated into disarray at the service-delivery level.	scores, particularly in the areas of assessment and help. Providers did not pay adequate attention to assessing a client's reproductive health needs or to providing her with enough information to encourage her to choose a solution or option on her own.	
Solo, 1999	Direction: MNCH services adding FP services Setting: Gyn wards and family planning clinics in six Kenyan ministry of health hospitals Format: Provider, on-site provision of services Level: Local	Objective: To determine the most effective, feasible, and acceptable way to deliver post-abortion family planning counseling and methods in a hospital setting, using three different models which varied by where the services were offered and by who provided the services.	Promoting factors: *Provider acceptance of new staffing and responsibilities:* Providers in the gyn ward acknowledged the advantages of being responsible for all aspects of patient care, from PAC to FP, and were receptive to the reallocation of staff responsibilities and workload. Additionally, staff and patients in the same location in Model 1 offered the most flexibility because staff and patients were located in the same place. *On-site availability of*	Inhibiting factors: *Lack of coordination between different hospital units:* In Model 2, clinic staff had to travel to the ward to provide FP services. Providers found this commute difficult. *Costs of provider training:* In settings in which staff has little to no previous FP training, the cost of implementation may make these integrated models unrealistic. Hospitals must institute on-the-job training, along with staff refresher courses for sustainability, and	Recommendations: Authors recommend that FP services be promoted in PAC services. Health facilities intending to provide post-abortion FP services should consider implementation of Model 1. Important considerations for this model include adequate staffing, availability of private space for counseling and space for FP commodity storage, and the ability to keep a sufficient supply of contraceptives. Additionally, authors recommend that	Other: Interviews with male partners suggest that there is an unmet need for FP information among male partners, and that males would like to be involved with, or at least more knowledgeable about, the PAC care and family planning process. Though none of the three models explicitly examined the effects of male involvement, providers at one of the Model 1 sites offered FP counseling to couples when males accompanied

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			resources: Because contraceptive methods (e.g., pills, injectables, condoms) were already on-site at the MCH-FP clinics, moving FP services and products to the gyn ward was feasible and facilitated integration. *Location of FP counseling onward*: The construction of a private room for counseling facilitated patient flow and the provision of both PAC and FP services, as patients did not have to be shuttled from the ward to the clinic. Additionally, the privacy of the on-site ward eliminated the stigma that PAC patients previously experienced while traveling in groups from the ward to the clinic. *Involvement of men in gyn ward:* Greater access to men on the gyn wards as opposed to MCH-FP clinics	ultimately incorporate these courses into pre-service training. *Cost and logistics of commodity procurement and supply:* The ward had to obtain contraceptive methods from the MCH-FP clinic, which was not a problem at these hospitals; but, if supplies were not readily available on-site, they would have to identify alternative methods of obtaining and maintaining a steady supply of contraceptives. *Patient flow and stigma:* In Model 3, patients had to travel as a group at a set time from the gyn ward to the MCH-FP clinic, which represented a challenge. The PAC women were subject to stigma as "abortion patients," when they were escorted between areas of the hospital.	studies include long-term follow up to determine whether or not PAC patients continue to use FP methods provided at the hospital. Lastly, a need remains for addressing linkages to more comprehensive reproductive health care (STI prevention, diagnosis, and treatment, etc).	their female partners to the hospital. Interviewed males were receptive to receiving counseling, suggesting that male involvement should be evaluated in future studies of FP care. Various outcomes were described that compare the success of different types of PAC-FP linkage models but were not considered "key" outcomes (listed under "Other Outcomes"). For example, 71% of interviewed providers from Model 3 hospitals (FP services provided in MCH-FP clinic by MCH-FP staff) said they would prefer to offer FP services on or near the ward, rather than in FP clinics that are physically separate from the ward. Authors advocate an investigation of what factors cause unsafe abortions to occur.

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			promoted integration, as 93% of women said they would like to involve men in these services and many men who were interviewed expressed a desire for FP information.			This intervention only targeted women who sought PAC and thus did not reach women who underwent unsafe abortions in other settings.
Sultan, 2002	Direction: For FP workers: Simultaneous For LHWP: MNCH services adding FP services Setting: Households Format: Provider Level: National	Objective: To determine whether use of modern reversible methods of contraception is higher in rural localities served by community-based workers than in other localities.	Promoting factors: *Close to the community:* Health workers are members of the communities they serve. *Education/literacy of health workers:* Recruiting literate women means that health workers typically belong to influential families and can act as bridges to the outside world for women who are socially secluded. *Male endorsement:* By allowing wives or daughters-in-law to work for a ministry, male members of workers' families implicitly endorse FP.	Inhibiting factors: *Cost:* Although costs are not reported, the deployment of thousands of salaried workers is not inexpensive. *Logistics:* There are difficulties in maintaining adequate logistical and supervisory systems.	Recommendations: his analysis shows that use of reversible modern methods of contraception is significantly higher in localities having good access to literate, female community workers than in localities with little or no access. There is therefore a strong argument for increasing the fraction of health expenditure on the village-based FP program.	Other: Pakistan has experienced a relatively slow decline in fertility relative to neighboring countries, in part due to the low political priority given to FP programs in the past. FP is now a higher priority. The link between access to CHWs and contraceptive use is not based on an experimental study design, so causal attribution must be cautious. From additional questions on the 1996–1997 survey, only 15% of rural women had been outside their village in the previous month

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						without being accompanied by another adult, and only 20% said they would be able to visit a hospital by themselves. Thus accessing a health or FP center in a nearby village is logistically complex because typically the husband, mother-in-law, or another adult family member must be persuaded to be an escort, to preserve the family's honor. The positive link between access to schools and contraceptive use is an area of future study.
Vernon, 1993	Direction: MNCH services adding FP services Setting: Maternity hospital Format: On-site provision of services Level: Local	Objective: To test the effects of the five program components on contraceptive rates, knowledge of reproductive health, and client satisfaction.	Promoting factors: *Strong internal communication* to keep staff of the different services and departments informed. Collaboration and motivation of all persons involved in service delivery was	Inhibiting factors: *Coordination among ob/gyn and pediatric departments* Pediatric personnel objected to shifting their equipment to the ob/gyn department and to modifying their	Recommendations: Beyond the importance of its counseling services in helping women choose a contraceptive, providing service to women at the end of the postpartum period was able to	Other: They relied on several sources of data (perinatal information systems, serial cross sectional data, exit interviews, mini surveys, and qualitative studies) and not all had pre/post-evaluation

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			aided by conducting periodic meetings to discuss the production of materials and the implementation of strategies and by attending to suggestions by the participants. The increase in women's knowledge about reproductive risks between surveys is explained by the fact that the evaluation team shared survey results with the education team, who probably made adjustments to their presentations to make sure they were well understood. *Importance of flexibility* to identify problems, to think of alternatives, to test and measure these new ideas, and to institutionalize the changes during implementation. They note virtually all of the main project components became different than	schedules. The ob/gyn staff took longer to provide services to mothers, so pediatric team had to wait to see the baby. It was operationally challenging to coordinate the mother–baby visit, and after six months of trying a joint mother–baby visit, the program reverted back to former routine where only women were seen in the 40-day postpartum clinic and children were seen on a different schedule in the pediatric department. *Extensive data collection was time consuming:* Three surveys and the large amount of data collected required project staff to devote large amounts of time in managing data collection at the cost of time to other project activities. By the end of the project, personnel	almost double the contraceptive protection provided. Introduction of the condom and mini pill as alternatives for postpartum FP accounted for a large proportion of the increase in contraceptive acceptance. Further testing of this strategy in health systems providing perinatal services is needed. The information system not only provided data but helped establish an effective referral system from the outpatient clinics to the hospital. The authors recommend internal communication at all stages to keep staff involved in the different programs informed. This project achieved this through periodic staff meetings. A second recommendation was to keep data collection simple and	data. In addition, the components of the program and the evaluation methods were begun at different times, and it was difficult to see the changes over entire period, along with what components were implemented during what time period.

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			originally planned. *Project design* allowed the program to continue after the end of the research intervention, as all personnel involved in service delivery activities were part of the regular staff. Thus only research-related activities ceased at the end of the research project. Emphasize the *direct provision of services.* For example, components dealing directly with FP service delivery (availability of different contraceptive methods in the postpartum period and at the 40-day clinic) should be given greater emphasis at the beginning stages of a program than supporting components such as the prenatal education program.	relied more on mini-surveys designed to obtain specific needed information than the data collection instruments designed at the beginning of the project.	to only collect the most relevant information needed for managing the program. A final recommendation was the need for flexibility which is important to identify problems, think of creative alternatives, test and measure these alternatives, and institutionalize the changes. The authors also recommend the further testing of the benefits of providing contraceptives in the postpartum period. Finally they emphasis paying close attention to the direct provision of services.	

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Warren, 2010	Direction: MNCH services adding FP services Setting: Maternity and maternal child clinics Format: Provider Level: District	Objective: To assess whether the introduction of a postnatal package of care contributes to improved counseling on essential maternal and newborn health and FP.	Promoting factors: NR	Inhibiting factors: *Low pre-intervention quality of care:* The quality scores post-intervention were low because the scores pre-intervention were lower than anticipated. Although all providers observed during the study already provided services to postpartum women, many had not been trained in the formal Kenya FP/ reproductive health training program, indicating a nationwide gap in training.	Recommendations: A strategy to roll out the package should be implemented in line with the National Reproductive Health Policy. The package should have a stronger clinical skills component for managing maternal and newborn complications. Linkages with PMTCT, community strategies, and using focused ANC as a platform for strengthening the continuum of care are essential next steps. Additional studies should look at the postpartum FP needs of HIV+ women. It is important to strengthen community linkages and co-op critical actors such as male partners, mothers-in-law, community leaders, health committees, community midwives, and community health	Other: The contraceptive prevalence rate in Eastern Province is ~51%, higher than the national rate of 39%, so not representative of the country. Client-provider interactions were only observed at the six-week visit pre-intervention because the earlier assessments were not routinely conducted. Therefore, a comparison of quality of care for these time points was not possible.

Study	Type of Integration	Study Objective	Integration Promoting Factors	Integration Inhibiting Factors	Recommendations	Other
					workers.	
Zhu, 2009	Direction: MNCH services adding FP services Setting: Hospital abortion clinics Format: Provider, on-site provision of services, referral Level: Local	Objective: To compare two post-abortion family planning service packages on contraceptive use and repeat abortion rates among young women in three cities in China	Promoting factors: *Timing of service provision:* Authors suggest that promoting contraceptive use directly after induced abortion is essential given that fertility can return shortly afterward. *Face to face counseling and free contraceptives:* According to the authors, the two intervention components above likely had the strongest impact on couples' utilization of contraceptive methods, given that neither intervention package increased contraceptive knowledge. *Multi-component intervention package:* A comprehensive approach to FP services may lead to an increase in the use of more effective	Inhibiting factors: *Gynecologist workload:* Providers were hindered from receiving FP training and providing quality individual FP counseling because of their busy schedules. *Male involvement considered unacceptable:* In some hospitals, males were not allowed into the gynecology departments or counseling rooms, and/or only provided with basic informational material, prohibiting full implementation of the Package B intervention. Authors mention that men know very little about contraception and women have little or no influence on condom use in China. Addressing the barriers to male involvement in an FP intervention could	Recommendations: Authors recommend further investigation of the long-term effects of individual counseling and provision of contraceptives on abortion rates, as previous randomized trials show mixed results and neither package changed contraceptive knowledge.	Other: Current FP in China exclusively targets married couples and rarely reaches migrants and unmarried people. The post-abortion care setting is an important and probably the only opportunity for offering FP counseling and services to migrants and unmarried couples.

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			contraceptive methods and user compliance among abortion-seeking couples. This approach includes individual counseling, provision of contraceptives, and male involvement, in addition to group education and referral.	increase the impact of the intervention and increase contraceptive knowledge and use.		
Matlab Studies						
Chaudhuri, 2008	Direction: Simultaneous Setting: Community-level Format: Provider Level: District-level (Matlab district)	Objective: To study the impact of this FPHSP on the health status of children below the age of 10 years.	Promoting factors: The intervention most likely decreased the price of health care, inducing parents to invest more in child quality.	Inhibiting factors: NR	Recommendations: The program acts as a substitute for formal education for less-educated mothers, so where religious and social norms do not allow women to leave their homes to attend school, a short-term solution for better community health could be achieved through delivery of basic information-based health services.	Other: In the treatment area, marginal impacts of the program were higher on the health of girls in more landed households and on the health of boys in less landed households. Results show that mother's education has a higher impact on daughter's health rather than son's health, and that the program has a marginally higher benefit on girls from the more landed households—but you

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						cannot attribute these findings directly to the intervention, nor were these compared for the intervention vs. control group.
Hale, 2006	Direction: Simultaneous Setting: Community-level Format: Provider Level: District-level (Matlab district)	Objective: To investigate the extent to which the different reproductive patterns in the area with better family planning services (the MCH-FP area) explain why infant and child mortality rates are lower there than in an otherwise similar comparison area that provides standard government and non-governmental services.	Promoting factors: NR	Inhibiting factors: The authors comment that some have criticized the Matlab program for its expense, but the authors argue that this program has led to a reduction in infant and child mortality and has also reduced fertility. Married women in the comparison area were supposed to (but did not always) receive the standard visits every two months from female welfare assistants of the government family planning program, who provided counseling and supplied contraceptive pills and condoms. In the MCH-FP area, community health	Recommendations: Revised cost-benefit analyses should be conducted to consider the dual benefits of simultaneous fertility and mortality reduction. Future research should also include an investigation of the other components of the MCH-FP services that have helped to reduce mortality in the MCH-FP area, such as immunizations, specific antenatal-care services, and breastfeeding.	Other: The cost of FP services are estimated to be approximately $180 per birth averted (in 1985 US$). Mortality has dropped over time in the intervention and comparison areas, mostly likely due to spillover and provision of government and NGO services in the comparison area. Fewer unintended pregnancies occur in the MCH-FP area because of higher contraceptive use rates (though not coded here).

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				workers visited married women of reproductive age every two weeks to provide counseling about family planning services and to deliver injectables, oral contraceptives, and condoms at the doorstep. Since 2001, these workers visit homes only to collect data and not to deliver services; women in the MCH-FP area must now go to a health center in order to receive family planning services. Therefore, at least until 2001, the MCH-FP area was characterized by greater contact among clients, workers, and supervisors, as well as greater availability and a broader selection of contraceptive methods than was available in the comparison area.		
Fauveau, 1990	Direction: Simultaneous	Objective: To determine how a	Promoting factors: The authors felt that	Inhibiting factors: Availability and	Recommendations: Maternity clinics or	Other: The control group

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	Setting: Community-level Format: Provider Level: District-level (Matlab district)	carefully implemented family planning program associated with a few basic maternal and child health services reduced fertility and improved child survival.	the impact of the program on outcome was primarily due to provision of the tetanus vaccine.	efficacy of referral system for delivery complications will have an impact on MCH outcomes. The requirements for an effective system include rapid transportation, well-maintained infrastructures, trained and dedicated staff, and confidence on the part of the community.	obstetric wards in hospitals are being built but are unlikely to attract rural women. In rural situations, only community-based and outreach-oriented maternity care programs have the potential to reach village women. Consider adding adequate nutritional education, e.g,. insisting on early colostrum feeding and dispelling feeding taboos during pregnancy and the postpartum period.	was half of the surveillance area that only received family planning and health services provided by the government program. The authors admit that individual data should be controlled for SES and education since some people are likely to use several services while others may not use any, but they do not do this in the data analysis. There was also a steady decrease in perinatal mortality in the comparison group as well (Figure 1).
Maine, 1996	Direction: Simultaneous Setting: Community-level Format: Provider Level: District-level (Matlab	Objective: To gain a better understanding of what caused the reduction of maternal mortality in Matlab.	Promoting factors: Midwives provided first aid and treatment, but relied heavily on their ability to refer pregnant women with complications to the Matlab clinic. Also, midwives were able to facilitate transport	Inhibiting factors: Midwives may have treated women for complications or told women to go to the clinic in Matlab, but not noted the treatment or referral on their cards. These data suggest that an intervention	Recommendations: Authors recommend their approach – considering the full range of an intervention as leading to success – instead of looking at a single component (i.e., posting of midwives to rural	Other: Women arriving with complications to the Matlab clinic who were not from the intervention area were not turned away (in fact, slightly less than 1/3 of the 300 admissions to the clinics were referrals).

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	district)		by boat. These two factors may have been the reason women from the intervention group were more likely to be brought in to the clinic compared to women from the intervention areas. The ability of the midwives to identify the serious cases (those that might have resulted in death) and to channel these women to Chandpur for cesarean section, blood transfusion, and D&C.	at the community level alone is unlikely to result in a substantial reduction in maternal mortality. The contribution of community-level intervention to reducing maternal mortality depends upon the functioning of higher levels of the health system.	subcenters).	This pattern of self-referral strongly suggests that if quality emergency obstetrics services are available, substantial numbers of people will use them, even in the absence of community interventions encouraging use.
Ronsmans, 1997	Direction: Simultaneous Setting: Community-level Format: Provider Level: District-level (Matlab district)	Objective: To examine whether the effects of the Matlab MCH-FP program were sustained over time in regards to direct obstetric maternal mortality.	Promoting factors: In 1987, an intensive MCH-FP program was introduced, which included the establishment of a maternity-care clinic in Matlab, the posting of four trained midwives in two health centers in the northern part of the MCH-FP area, and the provision of 24 hour access to a	Inhibiting factors: Whether Safe Motherhood programs can be evaluated using the gold-standard random allocation to intervention arm will ever be feasible or affordable is in question.	Recommendations: The lower rates of direct obstetric mortality among women living within a reasonable distance with essential obstetric care facilities, or among those benefiting from a highly effective referral system in an intensive community-based maternity-care program, are	Other: An unexpected finding was that direct obstetric mortality fell in the southern part of the comparison area in the absence of an intensive maternity-care program. There was no such decline in the northern part of the comparison area. One could attribute the

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			speedboat. Midwives were asked to attend pregnant women antenatally or during delivery, to provide minimum obstetric care, and to accompany the patients to Matlab when required. In 1990, the southern MCH-FP area began receiving the intensive MCH-FP services. Midwives were also posted in the southern area and were joined by a paramedic who had received 18 months of midwifery training. In addition, antenatal care services in both areas were expanded by provision of a simple screening tool for the community health worker for detection of high-risk pregnancies.		consistent with the hypothesis that access to essential obstetric care is a key factor in the decline of maternal mortality. The authors argue that caution is required in the interpretation of short-term trends in one indicator in studies designed without random allocation of interventions into treatment and control groups.	difference to geographical location of the areas: access to hospital (that provide essential obstetric care) is easiest for people in the southern part of the comparison area (less than two hours by river or road) compared to their northern counterpart (at least four hours by river or road). Although no difference in maternal mortality was found, there have been lower rates of fertility in the intervention area as a result of 20 years of FP services being provided.
Simmons, 1991	Direction: Simultaneous Setting: Community-	Objective: To examine the cost of the MCH-FP project and to assess	Promoting factors: The intervention delivers about three times more services	Inhibiting factors: The absence of the government program in the intervention	Recommendations: More needs to be learned about costs and cost-effectiveness	Other: The intervention had a worker-to-client ratio of 1:1,200

Study	Type of Integration	Study Objective	Integration Promoting Factors	Integration Inhibiting Factors	Recommendations	Other
	level Format: Provider Level: District-level (Matlab district)	its cost-effectiveness.	per eligible woman than delivered in the comparison area at the same cost per woman.	means that the costs of the intervention are overestimated, since the intervention devoted resources to the delivery of services that would normally be provided by the government. Also, the intervention shouldered the responsibility of delivering some services that would otherwise have been provided by the government.	of health and FP interventions. A concerted effort to incorporate such issues in the design of programs and evaluations would benefit policymakers and planners in the allocation of scarce resources aimed at reducing fertility.	compared to the government's ratio of 1:7,500. The only data that compared intervention to control groups was provided in Models IIIA and IIIB, but the data is only provided in bar graph form (except for the ABP – the last outcome) so the values are estimates. The results are not entirely representative of program effort in Matlab. The relative absence of the government program in the treatment area has implications for both cost and effect. We report some data that is serial cross-sectional in the outcomes table, but this is not data from the primary study that this paper focuses on, which provides only cross-sectional data. There was a large

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						amount of excellent data presented in this table related to the cost of the intervention, but this was not compared to the control group for most of the data provided.

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