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LIMITATIONS AND DIRECTION OF THIS SYNTHESIS

A number of literature reviews have been done on integration and on various aspects of family planning, including the use of hormonal contraceptives among women living with HIV. The broader family planning literature is beyond the scope of this synthesis, which looked only at literature describing programmatic interventions, specifically for postpartum family planning (PPFP) programs. We were looking for program interventions that have had positive results that can be translated into PPFP program design and implementation. While not exhaustive, this synthesis reviewed gray and peer-reviewed literature, using Medline/PubMed, PubMed Central and Cochrane databases as well as Google and Bing search engines. Although much research exists from the United States, we limited our search to studies conducted in Asia, Africa and Latin America, and included published articles, abstracts, full papers and presentations from international conferences, program reports, unpublished papers, PowerPoint presentations and personal communications from experts in the field.

BACKGROUND AND GENERAL LITERATURE

Postpartum family planning is critical—it saves lives. Family planning (FP) could avert more than 30% of maternal deaths and 10% of child mortality if couples spaced their pregnancies more than 2 years apart. According to an analysis of Demographic and Health Survey (DHS) data from 27 countries, 65% of women who are 0–12 months postpartum have an unmet need for contraception. Only 5.4% of these women wanted to give birth within 24 months after their last birth. In addition to being unintended, closely spaced pregnancies within the first year postpartum are the riskiest for mother and baby. These pregnancies increase the risks for adverse outcomes such as preterm birth, low birth weight and small size for gestational age. When socioeconomic and demographic covariates are controlled, of the interpregnancy (IPI) intervals that began with a live birth, those <6 months in duration were associated with a 7.5-fold increase in the odds of an induced abortion (95% CI 6.0–9.4), a 3.3-fold increase in the odds...
of a miscarriage (95% CI 2.8–3.9), and a 1.6-fold increase in the odds of a stillbirth (95% CI 1.2–
2.1) compared with 27- to 50-month IPIs.4 And short birth intervals also result in increased risk to the health of the mother. Compared with those conceiving 18 to 23 months after a previous birth, women with interpregnancy intervals of 5 months or less had higher risks of maternal death (OR 2.54; CI 1.22–5.38), third trimester bleeding (OR 1.73; CI 1.42–2.24), premature rupture of membranes (OR 1.72; CI 1.53–1.93), postpartum endometritis (OR 1.33; CI 1.22–
1.45) and anemia (OR 1.30; CI 1.18–1.45).5 However, women in the postpartum period have not received the attention and FP services necessary to ensure access to lifesaving contraception during this vulnerable postpartum period.

What program principles and practices are the most effective and efficient for meeting the FP needs of postpartum women? This synthesis of literature attempts to bring to light the evidence-based practices that have been effective for PPFP success. While this is not an exhaustive review of the literature, we have tried to identify key information published within the past 10 years that describes interventions and outcomes that are significant for PPFP programming or practice. With the exception of two studies on postpartum levonorgestrel intrauterine devices (PP-LNG-IUDs), which are not commonly used in the developing world, we have limited the review to studies conducted in Africa, Asia, or South or Central America. We have also included key systematic reviews. While the focus is on published literature, a few unpublished articles that describe significant findings not available in published literature are also included. The interventions necessary to ensure effective services span the maternal and child health (MCH) continuum of care—including care during the antenatal period and at delivery; prior to discharge from a facility; during delivery and postpartum care (PPC) in the community; at immunization and child health care; and as integrated with other services such as HIV/PMTCT. An illustration of this integration follows.

Figure 1. Integration across the continuum of care

ANTENATAL CARE

Research involving the effect of PPFP counseling during antenatal care (ANC) on the use of contraceptives in the postpartum period shows mixed results.6 Several studies show that FP counseling during ANC increases knowledge and use of FP in the postpartum period.7,8,9,10,11,12 Not all studies, however, focus on a full range of methods. Varkey et al. focused on breastfeeding and condoms, but saw the greatest increase with use of condoms.13 While Barber focused on a full range of methods, the study found an increase in use of condoms, intrauterine devices (IUDs) and sterilization, but not for contraceptive pills or injections.14 A study in Bolivia, Egypt and Thailand found a positive association between ANC attendance and subsequent use of contraception; however, the content of the ANC visits was not described.15

In a randomized controlled study conducted in Edinburgh, Scotland, Shanghai, People’s Republic of China, and Cape Town, South Africa, Smith et al. found that PPFP counseling during ANC had little effect on contraceptive use or subsequent pregnancy rates during the first year postpartum. However, pre-discharge FP counseling was given to all control groups, and
routine ANC FP counseling was part of two control groups.\textsuperscript{16} The introduction of a community-based ANC education program that included PPFP, such as the one offered as part of the Healthy Beginnings Project in Istanbul, has been associated with an increased chance that women will adopt behaviors beneficial to contraceptive use following a birth.\textsuperscript{17}

Several studies looked at male involvement in ANC counseling, with mixed results that seemed to be largely influenced by local cultural norms. Several studies that found a significant increase in contraceptive use associated the change with counseling conducted as couples counseling.\textsuperscript{18} One such study compared counseling couples together with counseling couples in sex-segregated groups. In the cultural setting of Turkey, men preferred community-based counseling separated by gender.\textsuperscript{19} Likewise, Sahip and Turan found no difference in contraceptive use at 3 months or 9 months for couples in which the man received counseling at his workplace. This expansion of FP counseling to husbands in the workplace was associated with an improvement of other supportive behaviors related to pregnancy, childbirth and infant care.\textsuperscript{20} The importance of influencing men was highlighted in a study in Mexico. Among women who refused postpartum contraception, reasons related to husbands, such as a husband’s disapproval of a method or lack of a husband’s permission, were the most closely correlated with a woman’s refusal of contraception.\textsuperscript{21}

**Implications for Practice:**

- FP counseling during ANC may increase postpartum contraceptive use.
- Including the husband in FP counseling during ANC may increase postpartum contraceptive use.

### DELIVERY AND IMMEDIATE POSTPARTUM

**Postpartum IUD**

Strong data support the IUD, inserted during the immediate and later postpartum periods, as a safe and effective method of contraception.\textsuperscript{22} The popularity of immediate postpartum IUD (PPIUD) insertion in countries as diverse as China, Mexico and Egypt support the feasibility of this approach.\textsuperscript{23} Advantages of immediate postpartum insertion of the IUD include client motivation, safety,\textsuperscript{24} convenience, assurance of no pregnancy\textsuperscript{25} and cost-effectiveness.\textsuperscript{26} Also, at 6 months postpartum, significantly more women who received immediate PPIUD counseling and services were using contraception and an IUD than women who did not receive counseling and services.\textsuperscript{27}

There are mixed conclusions concerning the postplacental or early PPIUD, as compared with the IUD inserted after 4 weeks postpartum or between pregnancies (i.e., interval). A systematic review that examined the outcomes from copper-containing IUD insertions within the postpartum time period, compared with other time intervals or compared routes (vaginal or via trans-cesarean) of postpartum insertion, found that immediate IUD insertion (within 10 minutes of placental delivery) was safe when compared with later postpartum time periods and interval insertion. The review also found that a decrease in expulsion rates occurred with postplacental insertions, as compared with delayed postpartum insertion,\textsuperscript{28,29} and with interval insertions, as compared with immediate insertion.\textsuperscript{30} On the other hand, several studies have shown higher discontinuation rates, primarily due to expulsion, for postplacental and early PPIUDs, compared with interval IUDs.\textsuperscript{31,32} However, no difference was found in perforation or infection among the three groups,\textsuperscript{33} which have generally been found to be low.\textsuperscript{34} While 6-month cumulative pregnancy rates have been found to be lower for postplacental placement than immediate/pre-discharge postpartum placement of the IUD,\textsuperscript{35} another study found no significant difference in cumulative pregnancy rates between these two groups.\textsuperscript{36} No difference for any outcome was found between instrumental and manual insertion.\textsuperscript{37} And no difference
was found in complications or expulsion rates between the CuT380A IUD and Multiload 375 IUD inserted in early postpartum.\textsuperscript{38}

The intraoperative placement of an IUD during cesarean delivery has been shown to be associated with lower expulsion rates than postplacental vaginal insertions, without increasing rates of postoperative complications.\textsuperscript{39} The latter finding was confirmed in another study that found a 0\% expulsion rate for post-cesarean section insertion.\textsuperscript{40} Another study, however, found that although the intraoperative IUD placed during cesarean section provides adequate protection from pregnancy, greater than one-fourth of participants discontinued IUD use due to spontaneous expulsion or other medical reasons.\textsuperscript{41} Few complications have been found for IUD placement at any time during the postpartum period.\textsuperscript{42}

While the aforementioned information applies to the CuT380A IUD, other considerations are necessary regarding the use of a levonorgestrel IUD. One study showed that postplacental placement of the levonorgestrel IUD is associated with shorter duration of breastfeeding and less exclusive breastfeeding.\textsuperscript{43} Another study found that although postplacental placement of the levonorgestrel IUD had higher rates of expulsion than after dilation and curettage (D\&C) or dilation and evacuation (D\&E), women undergoing immediate PPIUD insertion were more likely to be using an IUD at 6 months than women in the comparison group. One study found that while there was no difference in utilization rates at 3 and 6 months for women with postplacental, immediate or interval insertions of levonorgestrel IUDs, expulsion rates were significantly higher and pain during insertion was significantly lower in the postplacental and immediate groups, compared with the interval group.\textsuperscript{44}

One unpublished study found a significant increase in PPIUD utilization when providers were trained in PPIUD service provision and commodities were available. This same study demonstrated that nurse-midwives as well as physicians can successfully implement PPIUD services.\textsuperscript{45,46} Another study explored the feasibility of training nurse-midwives in PPIUD insertion with simulations and with actual clients. This study found that after achieving competency on models, the learners required an average of four PPIUD insertions with clients to become competent. The authors also concluded that motivation played a large role in whether or not the learners became competent to provide PPIUD services.

In an unpublished study from Rwanda, the intervention included training of physician and midwife providers, establishing performance standards, adjusting ANC and maternity procedures, supplying equipment and commodities, providing supportive supervision, and developing and using a postpartum FP brochure. During the study, 478 PPIUD insertions occurred in health centers and hospitals. While 81\% of trained providers were competent in counseling, only 50\% of untrained providers were competent. Slightly more doctors than midwives showed competence in counseling, and midwives scored slightly higher than doctors on clinical parameters of care. Seventy percent of all ANC clients interviewed said they received PPFP counseling during ANC, but only 51\% said they had ever heard of an IUD. Among key lessons learned in this study was that knowledge gaps are one factor contributing to low client uptake of PPIUD services.\textsuperscript{47}

**Implications for Practice:**

- PPIUD programs can safely include postplacental, immediate/pre-discharge, later PPIUD and intraoperative cesarean section insertions.
- Provider competence and commodity availability can increase PPIUD utilization.
- Non-physician skilled birth attendants, with competency-based training, can provide PPIUD services.

**Postpartum Tubal Ligation and Sterilization**
While much of the current available evidence concerning postpartum tubal ligations (PPTLs) comes from the developed world, there is some evidence from the developing world to indicate that antenatal counseling increases the use of PPTLs in the postpartum.\textsuperscript{48,49,50} In Kenya, Mwangi et al. found an increase in contraceptive uptake, including female sterilization, with the introduction of a PPC package that included counseling on contraceptive methods.\textsuperscript{51,52} The literature also suggests that many women who request a PPTL do not receive it for a variety of reasons. In Brazil, where legislation discouraged PPTL following cesarean section, a prospective study of 1,612 pregnant women found that 47.5\% of ANC clients in the public sector and 14.6\% in the private sector stated that they wanted to be sterilized before leaving the hospital after the birth of their baby. Of these women, 69\% in the private sector and only 33\% in the public sector received a PPTL. Almost all of the women who were sterilized had the procedure performed during cesarean section (73/80).\textsuperscript{53} In a study in Egypt, only 20\% of physicians reported that they would perform sterilization during cesarean section based on a patient’s request, while approximately 24\% approved tubal ligation when indicated intraoperatively and with high order cesarean. This study also found that cesarean section and tubal ligations at cesarean section are less likely to be performed in public facilities, compared with private facilities.\textsuperscript{54}

“Regret” has been a concern for interval and PPTL, and regret for tubal ligations performed at emergency cesarean section has been considered unethical. In attempt to address these concerns, a study in Zimbabwe followed 418 women for a mean time of 31.8 months following delivery. This study found that 89\% of the women who had a tubal ligation with an emergency cesarean section were happy with the decision. Of the 117 women who did not have a tubal ligation at cesarean section, 64.1\% (75/117) regretted not having one (RR 6; 95\% CI 4.2–8.6; \textit{p}<0.001). Tubal ligations performed during emergency cesarean section had no higher regret rate (2.5\%) than those performed during elective cesarean section (3.2\%). Further, women who did not have a tubal ligation during an emergency cesarean section regretted it (56.4\%) significantly more often than women who did not have a tubal ligation with an elective cesarean section (34.6\%, \textit{p}<0.01) or after vaginal delivery (45\%, \textit{p}<0.02). Women were far more likely to regret declining a tubal ligation (40\%) than regret accepting one (2.5\%). The main ethical argument against offering sterilization with an emergency cesarean section is that such an important decision should not be taken on such short notice and during such a stressful situation. However, the authors of this study concluded that it is unethical \textit{not} to offer such woman a tubal ligation. Some women are more likely to die from another pregnancy than to regret having a tubal ligation.\textsuperscript{55}

We know that a tubal ligation performed at the time of a cesarean section, compared with an interval tubal ligation, is less expensive because the cost is included in the cesarean section—and the woman is saved from an additional intervention. A study in Turkey found that tubal ligation at the time of cesarean section, compared with an interval tubal ligation, results in less damage to ovarian function and fewer symptoms, such as dysfunctional uterine bleeding, dysmenorrhea, dyspareunia, exacerbation of premenstrual symptoms and pelvic pain, and hormonal disturbances.\textsuperscript{56}

Introducing vasectomy services in government hospitals and maternities is feasible, but success requires staff motivation. Potential clients may be identified through pre-discharge counseling in postpartum wards.\textsuperscript{57}
Implications for Practice:

- Postpartum services need to ensure that women who desire a PPTL have the opportunity to receive this procedure prior to discharge after delivery.

- Cesarean section surgery may be an appropriate opportunity to perform a voluntary tubal ligation with informed consent.

- When effective vasectomy services are available, postpartum pre-discharge counseling should include vasectomy counseling and identification of potential acceptors.

Postpartum Progestin-Only Contraceptives (Etonogestrel [ETG] implants and depot medroxyprogesterone acetate [DMPA])

While evidence of varying quality shows mixed results concerning the use of progestin-only contraceptives in the postpartum period, a systematic review (five randomized trials and 38 observational studies) demonstrated no adverse effects of various progestogen-only methods of contraception on multiple measures of breastfeeding performance through 12 months in women using these methods in the postpartum period. Many of these studies also demonstrated no adverse effects on infant growth, health or development from 6 months to 6 years of age. Furthermore, additional studies demonstrated no effects on infant immunoglobulins or sex hormones of exposed male infants. The authors concluded that progestogen-only methods of contraception do not adversely affect breastfeeding performance when used during lactation. Evidence that progestogen-only contraception does not adversely affect infant growth, health or development when used by breastfeeding women is consistent but methodologically limited.58

A prospective, randomized pilot study in which women received an etonogestrel (ETG)-releasing implant within 48 hours of delivery or DMPA more than 6 weeks postpartum was conducted. During the first 12 weeks postpartum, decreases in mean maternal weight, body-mass index and waist circumference were significantly greater; and total cholesterol and high-density lipoproteins (HDL) were greater in the ETG-releasing implant group than in the DMPA group during the first 6 weeks postpartum.59 Further, a randomized control trial did not find any deleterious effects on maternal hemostasis and metabolic alteration when this implant was inserted immediately after delivery, during the period of highest risk for thrombosis throughout reproductive years or during the first 6 weeks postpartum.60 Newborns of implant users showed a trend toward gaining more weight, as compared with the infants of DMPA mothers during the first 6 weeks of life. The remaining variables, including the duration of exclusive breastfeeding, were similar among groups.61

A prospective analysis of 61 postpartum women who chose Implanon® was followed to observe side effects and removals. While bleeding irregularities were more common, other side effects were few. During the 2 years of follow-up, Implanon was removed from 24 patients (39%).62

An extensive review of the literature concerning the use of progestin-only contraceptives in the postpartum period has conclusively shown that progestin-only contraceptives do not decrease, but may actually increase, milk production in the breastfeeding woman.63 The U.S. Centers for Disease Control and Prevention has also done an extensive literature review and concluded that direct evidence from available clinical studies demonstrates no significant negative effect of progestin-only contraceptives on breastfeeding performance or on the health of the infant.64 However, in October 2008, WHO convened a technical consultation from neonatology, neurology, neuroscience and pediatrics to review all scientific evidence on the topic. This group determined that no changes should be made to the WHO recommendation that progestin-containing contraceptives not be used among lactating women during the first 6 weeks postpartum.65,66
Another concern has been the impact of DMPA on milk lipids and other nutritional parameters. While a double-blind clinical trial in Hungary and Thailand showed a decrease in total lipids and 25 essential fatty acids, infant weight and growth were similar among three groups, suggesting that the differences are not clinically significant. Research suggests that infants are not able to metabolize and absorb progestins effectively until 3 months of age. However, it is estimated that the amount of hormones transferred to the newborn over a 3-month dose is 0.05% of the maternal dose. In a small Thai cohort, Virutamasen et al. examined the urine of neonates whose mothers had received DMPA and were unable to detect any metabolites. No change in luteinizing hormone, follicle-stimulating hormone, unconjugated testosterone or cortisol was noted in the infants when compared with controls. The literature review concluded that existing data are not sufficient to limit postpartum DMPA use in women at high risk for unintended pregnancy.

A study conducted in Egypt and Singapore compared life table events for breastfeeding women who had a CuT380A inserted within 4–9 weeks postpartum, compared to breastfeeding women who began using a progestrone-releasing vaginal ring at 4–9 weeks postpartum. There were no differences between the groups in weaning or infant health. However, continuation rates at 12 months were significantly greater for the women using an IUD, while menstrual problems, medical problems and other use-related problems were greater for the ring users. Pregnancy rates were low and similar.

A 12-month study in Brazil that followed 44 postpartum adolescents who had implants inserted 42–178 days after delivery found that all 44 completed the follow-up and no implants were removed. There were no pregnancies during the study, compared with a 20% pregnancy rate among teens during the first year of using oral contraceptives. And laboratory parameters indicated a significant increase in hemoglobin and hematocrit among users.

The use of hormonal contraceptives, including implants and DMPA, has been studied in HIV-positive women. A prospective cohort study of women living with HIV in Kenya looked at breastfeeding and intercurrent illness among hormonal contraceptive users for the first 2 years postpartum. This study found no significant immediate or longer-term effects of the use of oral contraceptive pills (OCP) or DMPA on HIV-1-RNA plasma viral loads and CD4 T-cell counts. A prospective cohort study of Norplant® use in the immediate postpartum period followed 88 asymptomatic HIV-1-positive women in Bangkok, Thailand, for 24 weeks. Irregular bleeding was common among these participants. Major side effects were headache and hair loss, but no subject terminated Norplant use during the study period. A non-randomized prospective cohort study found use of implants and IUDs among women living with HIV to be quite low and variable by site. Only 6% of women in the first study site received implants, while 38% in another site received them.

Implications for Practice:

- Implants and DMPA may be safe and acceptable for the postpartum woman, including:
  - Women who are living with HIV
  - Adolescents

LACTATIONAL AMENORRHEA METHOD

The efficacy of the Lactational Amenorrhea Method (LAM) as a contraceptive method for the first 6 months postpartum has been established. Now, studies are showing the benefit of LAM to infant health practices with the increased rate of exclusive breastfeeding for the first 6 months and increased duration of breastfeeding, as compared with non-users. In addition, the
use of other modern methods of contraception at 12 months postpartum is shown to be greater for LAM users than for non-users. A study of 519 LAM users from 10 countries found that among all women studied, 68% were using a contraceptive method at 9 months, which was 79% of women who reported wanting to space their births. A study in Brazil showed that the proportion of women who were counseled on and accepted LAM were more than twice as likely to be using contraception at 12 months than women who had not been counseled on and accepted LAM. Likewise, another study showed that satisfaction with the method was high and the rate of continuation to another method after LAM was 66.7% at 7 months postpartum. Of the women who had never used FP before LAM, 63% continued to use another method of FP in a timely manner.

Studies indicate that fully or exclusively breastfeeding may be the most crucial criterion in LAM’s effectiveness as a contraceptive method. A Cochrane review showed no clear differences in life table pregnancy rates between women using LAM and women who are fully breastfeeding and not using any method. One study found that intense breastfeeding first, before complementary feeds, and continuing frequency maintained efficacy for 9 to 12 months as long as amenorrhea was present. Various studies have looked at the effect of LAM counseling on the uptake and continuation of LAM, but the type and quality of the counseling could not be assessed and may account for the range of findings. In one study, the fact that the pregnancy rate per 100 women was only 0.45 and only 19% of LAM users restarted menses by 180 days was attributed to the intense LAM/breastfeeding support during ANC and PPC. An analysis that looked at socio-demographic characteristics and counseling concluded that counseling had a very positive effect on acceptance and use of LAM. An evaluation of a LAM and spacing methods campaign that focused on counseling by CHWs found that at 9 months postpartum, women in the intervention group had better knowledge of two or more birth spacing methods and were more likely than the control group to be using a contraceptive method (CI 1.5–3.5). While looking at only one component of LAM—breastfeeding—another study found that a home visit to provide breastfeeding support at 3 days postpartum was associated with a significant increase in the percentage of exclusively breastfed infants at 2 and 6 weeks and at 6 months.

**Implications for Practice:**

- LAM counseling, including supportive home visits and breastfeeding support, increase LAM use.
- Include LAM in any program that aims to:
  - Increase prevalence of other modern methods of contraception at 12 months postpartum
  - Increase exclusive breastfeeding

**PRE-DISCHARGE FROM FACILITY**

The time after delivery in a facility and before discharge provides opportunity to counsel women on PPFP and to provide contraceptive methods as appropriate. Reports on studies that look at pre-discharge PPFP counseling and services often fail to describe the counseling or the quality of this intervention.

Women soon after delivery often have a desire or intent to use contraception, but if contraception is not provided at that time, the use of contraception may lag behind this initial desire. One study in Vietnam found that less than 2% of women desired pregnancy within 2 years of their delivery, and 95.8% of these women at 1 week postpartum said they desired to use a contraceptive. However, only 17.4% were using contraception at 16 weeks postpartum and 43.4% at 24 weeks postpartum. When PPFP clients acquired sufficient contraceptive knowledge, primarily through pre-discharge counseling, it had a major influence on their use of contraception.
One randomized study showed a significant increase in contraceptive uptake with a shift toward more reliable contraceptive methods in a group of women who received pre-discharge counseling and leaflets, compared with women who received no counseling or leaflets. At 8 to 12 weeks after discharge, 56.9% of women in the intervention group started using contraceptives, with oral contraceptives being the predominant method used (70.9%), whereas only 6.3% of women in the nonintervention group started using contraceptives, with coitus interruptus being the predominant method (36.3%). In a study of 1,560 women in Peru, the women in one ward were given counseling and temporary methods, while the women in a second ward were discharged without comparable services. At 6 months postpartum, 82% in the experimental group (those who received counseling and services) were using a FP method, with 40% using an IUD. In comparison, 69% of controls used a method, with 27.3% using an IUD. Pre-discharge IUD insertion was estimated to cost US$9.38 per woman, compared with US$24.16 for an interval insertion.

A randomized controlled trial in Nepal found that mothers who had health education immediately after birth and 3 months later, as well as mothers who had health education immediately after birth only, were slightly more likely to use contraception at 6 months after birth, compared with mothers who received health education at 3 months postpartum only or who received no health education (OR 1.62; 95% CI 1.06–2.5). A single-blind randomized controlled trial found that being given an appointment for a postpartum check-up before discharge from the hospital was the most important independent determinant of uptake of PPC (OR 6.8; 95% CI 6.2–7.4). The FP component was not studied independently, only the postpartum visit.

A study in Honduras looked at postpartum and postabortion clients in five Honduran hospitals where providers were trained, equipment and commodities were supplied, educational materials were produced and regular performance-improvement activities were conducted with staff. Following this intervention: 1) the proportion of women who received information about contraceptive methods during their hospital stay increased from 43% to 87%; 2) the proportion of women who were offered a contraceptive method increased from 42% to 82%; 3) the proportion of women who received a contraceptive method during their stay increased from 10% to 33%; and 4) the proportion of women who had delivered and wanted a method before leaving the hospital but did not receive it decreased from 41% to 7%.

Implications for Practice:

- Pre-discharge counseling (including information, education and communication [IEC] messages and materials) and contraceptive services can increase utilization of PPFP.
- Competent providers, adequate supplies/commodities, and continual performance improvement can help ensure that counseling is provided and services are received.
- Women should receive an appointment for a return visit prior to discharge from the facility.

COMMUNITY-BASED SERVICES

The effect of postpartum community-based care on the use of contraception shows mixed results, but may be dependent on the quality and content of those visits, which are not always described in available study reports. Very little PPC of any type occurs in most countries, and little association has been found between community visits and contraceptive acceptance.

Positive effects have been seen in several studies. In Bangladesh, an ongoing study has integrated behavior change and communication (BCC) messages on birth spacing, essential newborn care, use of LAM, exclusive breastfeeding for 6 months, return to fertility, and transition from LAM to other contraceptive methods, as well as the provision of contraceptive
pills and condoms during postnatal home visits by community health workers (CHWs). Visits occurred during pregnancy and/or at two to four points during the postpartum period (day 6, day 29–35, month 2 or 3, and month 4 or 5 postpartum). The comparison group received the same BCC messages as the intervention group, with less frequency. Visits from CHWs occurred during pregnancy and/or at two time points postpartum (day 6, day 29–35 postpartum). Any use of contraception at 3 months was 36% in the intervention arm, compared with only 10% in the comparison arm; at 12 months, it was 41% in the intervention group and 27% in the comparison arm. LAM use at 3 and 6 months in the intervention group was 23% and 12%, respectively, while in the control group, LAM use was 0% throughout the study period. Significantly higher rates of exclusive breastfeeding and duration of breastfeeding were found in the intervention group compared with non-users. LAM users in the intervention group had a significantly longer duration of amenorrhea than women who reported not using LAM (from both intervention and control groups).95

A study in India—in which an intervention group of women were counseled individually at antenatal home visits, husbands were counseled, and IEC materials were distributed and posted—found that at the 9-month postpartum follow-up, 62% of couples from the experimental area were using contraceptives, compared with only 32% in the control area.96 Another study in India tested the implementation of a community self-care and empowerment intervention to reduce delays in transport to emergency obstetric care facilities and to increase FP use. While emergency obstetric care results were mixed, post-intervention women were significantly more likely to use FP.97 Also in India, significant results were yielded by an intense community project that involved training, job aids (registry of topics) and supervisory support of community workers to provide PPFP counseling, a PPFP IEC campaign, and coordination by district authorities. At the 9-month postpartum follow-up, 62% of the women in experimental sites, compared with 31% in the control sites, were using a contraceptive method. At 4 months postpartum, 22% used LAM, compared with 0% of the control group. Further, of the 22% of women who used LAM as a contraceptive, 68% transitioned to a modern contraceptive.98 Several articles cited in the LAM section of this paper also show a positive effect of counseling by CHWs. In a study in India, LAM and other PPFP were integrated with counseling by CHWs in the existing government program. At 9 months postpartum, the use of modern contraceptives for spacing was 57% in the intervention group versus 30% in the comparison group.99

Other studies found less association between community health interventions and FP acceptance. In Chile, Alvarado and colleagues’ case-control study that compared women who had regular PPC in a public clinic with those who participated in an integrated maternal-infant health care program in a community clinic did not find a positive effect on any FP-related outcome. The contraceptive initiation rate in the intervention clinic was similar to that in the comparison clinic, despite the active participation of women from the community served and the availability of a broader range of contraceptive methods at the intervention clinic.100 Likewise, in Syria, a randomized controlled trial found no difference in contraceptive uptake at 4 months postpartum among women who had four postpartum home visits during the first 30 days postpartum (group A), women who had one postpartum home visit (group B), and women who had no postpartum home visit (group C). However, the subject of contraception was not introduced to women in group A until the final visit at 30 days postpartum—we do not know the content of the education provided.101 Another study in Syria also found no significant effect of a community intervention on FP outcomes. In this study, both the intervention and control groups of postpartum women received visits at 2 to 3 days postpartum from a CHW, but the intervention group also received a visit at 30 to 38 days postpartum. The intervention was not associated with increased use of FP methods, improved knowledge or more positive attitudes toward FP. Even knowledge of LAM was equally low in the two study groups (47.7% of mothers in the intervention group and 39.3% of mothers in the control group did not know any criteria for effective use of LAM). Attitudes toward the use of FP were more positive in the control group than the intervention group (48.6% of control group mothers versus 27.6% of intervention group mothers).
mothers want a birth interval of 3 or more years, p<0.01). Although we are told that the visits included LAM counseling, we do not know the extent or quality of counseling concerning other FP methods.\textsuperscript{102}

In a reverse-type study in Bangladesh, an area typically served by home-based contraceptive provision was changed to a clinic-based service. Clinic-based services from a primary health care center rather than in a home-based program did not decrease—but rather increased—the contraceptive prevalence rate at the end of the intervention.\textsuperscript{103}

**Implications for Practice:**

- A community-based program that involves training and support of CHWs to provide PPFP counseling, together with effective IEC and coordinated district support, can increase postpartum contraceptive use, including early uptake at 3 or 4 months postpartum.
- Supportive home-based care during the antenatal and postpartum periods can increase postpartum contraceptive use, including LAM.
- Community-based care that includes husbands, as well as IEC material, may effectively increase the use of PPFP.

**CONTACTS ACROSS THE CONTINUUM**

A number of studies have looked at the effect of PPFP contacts across a continuum of care, including prenatal care through postpartum and later care. A systematic review of eight randomized trials of PPFP education about FP showed how such programs affected FP use. All interventions occurred within 1 month postpartum. Of four trials with short programs, one did not have enough data and the other was a very small study. The other two trials had programs given while the women were still in the hospital. They showed more birth control use for those with the counseling. However, not all measures showed an effect in one study and the other looked at short-term use. Three of four trials with longer, complex programs made a difference. Two showed fewer pregnancies or births among teenagers in the special group that had extra services. Also, a special home-visit component showed more birth control use.\textsuperscript{104}

In addition, a study in Honduras followed participants in a reproductive health program with five main components: prenatal education program, a reproductive health counseling service, expansion of contraceptive options offered in the postpartum period, a postpartum clinic for women to visit on day 40 after birth, and an improved perinatal data-collection system. Rates of acceptance of PPFP increased significantly and rapidly, from 9% of women who delivered 2 months after initiation of the program to 47% 14 months later. Over a 10-month period, the number of women seeking FP and reproductive health counseling increased from 33 per month to 296 per month.\textsuperscript{105} Likewise, an intervention in the Russian Federation that focused on antenatal, postabortion and postpartum services, as well as community education, included training of providers, obtaining contraceptives and developing IEC materials. During the 1-year field-test, the use of contraceptives by postpartum women increased from less than 5% to more than 60%. The effect of observers may have also influenced provider behavior.\textsuperscript{106}

A study in Guatemala included facility and community components for antenatal and postnatal care. Specifically, the study focused on training of physicians in facilities, nurses and nurse-auxiliaries in facilities and communities, and community health agents, including traditional birth attendants in communities, and establishing service delivery guidelines that included referrals. The intervention resulted in a significant increase in the use of contraception at 40 days and 3 months postpartum in the intervention site, as compared with the control site. By the fifth and sixth month, however, there were no significant differences between the two sites.\textsuperscript{107}
In Kenya, the development and implementation of a postnatal care/FP package (implemented at 48 hours, 1 to 2 weeks, 6 weeks, and at MCH clinics) with materials development (training and IEC), training of providers, new postnatal care registry and supportive supervision resulted in improved provider knowledge, quality of care and uptake of FP during the 6-week postpartum visit. Providers were satisfied and confident, and postpartum women started using contraception earlier.108

In Egypt, FP messages were introduced with ANC and PPC visits of low-parity women in five rural clinics. At 10 to 11 months postpartum, 48% of mothers in the intervention group were using contraception, compared with 31% among control group mothers. The median duration of protection against pregnancy was 6.8 months for mothers in the intervention group and 2.9 months for mothers in the control group. The intervention was associated with an increased utilization of FP services by women who only had one child (36% increase in intervention clinics and 3.2% in control clinics).109

A study in Turkey found that one episode of postpartum counseling had little effect on use of more effective contraceptive methods at 5 months postpartum. The postpartum period during which the counseling was given as well as the quality of the counseling is not described.110

Since menstruation requirements remain a barrier to contraceptive provision, and the pregnancy checklist becomes less effective the further a woman is from delivery, a study in Ghana and Zambia sought to determine if free access to pregnancy tests will reduce the proportion of clients who are denied an effective contraceptive method. In Zambia, only 4% of non-menstruating women were denied a contraceptive when free pregnancy tests were provided, while 17% in the control group were denied a contraceptive. In Ghana, however, the provision of free pregnancy testing did not reduce the percentage of non-menstruating women who were denied pregnancy tests. The study concluded that providers should be trained in use of the pregnancy checklist as well as the pregnancy test.111

Implications for Practice:
- Longer programs with multiple contacts across the continuum of care may have more effect on PPFP utilization than short programs with few contacts.
- The implementation of a comprehensive postnatal care package that includes PPFP may result in earlier use of contraception by postpartum women.

INTEGRATION WITH MATERNAL AND CHILD HEALTH AND CHILDHOOD IMMUNIZATION SERVICES

Several interventions to integrate FP with MCH services, including immunization services, have shown positive results. In Togo, the use of unobtrusive three-statement referral messages by Expanded Program of Immunizations (EPI) service providers to each mother bringing her child for immunization was tested in an operations research study. The introduction of the referral message was accompanied by an 18% increase in awareness of available FP services and a 54% increase in the average monthly number of new FP clients. No evidence of a negative impact on EPI services existed, and a majority of the EPI providers reported satisfaction with the effect of the referral message at the close of the study.112 In a project in Mali, women were provided counseling and offered long-acting reversible contraception (LARC) (e.g., IUD or implant insertion) by a project midwife when bringing children for immunizations on Immunization Days. From May to November 2009, 12,204 women were reached with FP messages through 292 event days held during clinic immunization days. A total of 2,202 women
(18%) chose and received a LARC during an event day, indicating a demand for such contraceptives.\textsuperscript{113}

A study in Rwanda tested a model of FP-immunization integration that included group education, a health education brochure, pregnancy risk screening, referral to same-day FP services and quarterly supportive supervision to ensure that the model was implemented. While the control group showed a 9% decrease in contraceptive use from baseline to outcome 2 years later, the intervention group showed a 6% increase in contraceptive use during that same timeframe, a statistically significant 15% difference. At the same time, utilization of immunization services was not affected. Also, during this time, in the intervention group there was a statistically significant increase in perceived susceptibility to pregnancy, perceived severity of results of unplanned pregnancy and perceived benefits of family planning. Lessons learned during the implementation of this intervention included a need to reinforce the messages, because they were not always delivered, or delivered with accurate information, and the importance of engaging both central-level and district-level MOH personnel and the FP technical working groups.\textsuperscript{114}

In a systematic screening intervention in large public clinics and small outposts in India, women coming for any service were screened for reproductive and child survival needs and offered needed services. In experimental group clinics, the number of services per visit increased by 22%, while control clinics experienced a slight decrease. The additional services most frequently provided in experimental clinics were FP and vaccinations. The effect of systematic screening was smaller in health posts than in clinics. In experimental posts, services per visit increased by 9%, compared with a decrease of 16% among controls.\textsuperscript{115} A study in Guinea-Bissau tested the possibility of promoting breastfeeding and FP (i.e., condoms and IUDs). There was no difference between intervention and control groups on breastfeeding, but significantly more mothers in the intervention group had an IUD inserted (OR 2.45 [1.27–4.70]), compared with the control group.\textsuperscript{116} On the other hand, a cluster randomized control trial conducted in Ghana and Zambia studied the effect of provider use of a job aid that encouraged referral by immunization service providers to FP services. Immunization providers in both countries were positive about the intervention, but because of various challenges did not implement it as designed. Subsequently, the intervention did not lead to a statistically significant contraceptive uptake.\textsuperscript{117}

A literature (grey and published) review of immunization programs integrated with other services included a study on services in the Philippines 1 year after the integration of FP and immunization services, and found that coverage increased from 80% to 90% and family planning utilization by mothers from 70% to 80%.\textsuperscript{118} A similar literature review examined four studies that showed a 4% to 27% increase in FP planning acceptance with MCH integration. Authors concluded that the theoretical strengths of integrating other health services with immunization services remain to be rigorously proved in practice. When additional interventions are carefully selected for compatibility and when they receive adequate support, coverage of these interventions may improve, provided immunization coverage is already high.\textsuperscript{119} One caution noted in a literature review of 33 articles looking at integration of other services with immunization programs is that primary health care workers who have been responsible for immunization services may not have the knowledge and skills demanded for an additional service such as FP. However, in-service training of various types has been successful in addressing that knowledge gap.\textsuperscript{120} Also, when FP services (recurrent methods) were integrated with immunization services, the visit was increased by an average of 11.52 minutes per visit. The time of the visit increased to 12.14 minutes if IUD services were included.\textsuperscript{121}

A reanalysis of DHS surveys from 28 sub-Saharan African countries determined that the unmet need for FP could be reduced by 50% among women surveyed if FP was integrated with current childhood immunization programs.\textsuperscript{122} A further task analysis based on observations and
interviews around 28 interventions that may be integrated with childhood immunization found that the addition of recurrent FP services that include DMPA administration would require an additional 11.54 minutes, while added IUD services would require an additional 12.24 minutes.\textsuperscript{123}

**Implications for Practice:**

- FP uptake may increase if contraception is offered during immunization services.
- EPI providers may need FP skills development, while FP providers may need skills development in EPI.

**INTEGRATION WITH HIV AND PMTCT SERVICES**

A prospective cohort study in Kenya followed HIV-positive mothers from 32 weeks’ gestation through 1 year postpartum. During ANC and PPC, women were counseled antenatally to initiate contraception postpartum. In this cohort, 72\% used hormonal contraception (progestin-only for breastfeeding mothers and combined oral contraceptives or DMPA for non-breastfeeding mothers) for at least 2 months and 28\% used no contraception. 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. Authors concluded that using the existing health care infrastructure, it is possible to achieve high levels of postpartum hormonal contraceptive utilization among women living with HIV.\textsuperscript{124} Another prospective cohort study in Kenya had similar findings. Women living with HIV were followed monthly in the first year and quarterly in the second year postpartum. There were no significant immediate or longer-term effects of the use of OCPs or DMPA on HIV-1-RNA plasma viral loads and CD4 T-cell counts. Women who initiated OCP use had a significantly lower HIV-1-RNA plasma viral load at their first and second visits, as compared with women in the non-hormonal group. There was no significant difference in the change in the HIV-1-RNA plasma viral load during follow-up between women initiating OCP use and women in the non-hormonal group, indicating no significant, immediate effect of OCP initiation on HIV-1 disease status. Women who initiated DMPA use were similar to women in the non-hormonal group. There was no significant difference in the change in the HIV-1-RNA plasma viral load or in the CD4 T-cell count during follow-up between women initiating DMPA use and women in the non-hormonal group, indicating no significant immediate effect of DMPA initiation on HIV-1 disease status. Authors concluded that hormonal contraception reassuringly had no immediate or longer-term effects on the rate of disease progression in chronically HIV-1-infected postpartum women.\textsuperscript{125}

A non-randomized prospective cohort study followed groups of HIV-positive and HIV-negative women who were given FP counseling prenatally and at four points during the first 9 months postpartum. Women attending one clinic were referred to public FP services for all contraceptive methods (site A) and women attending the other clinic (site B) were offered implants and IUDs onsite. There was no difference in overall contraceptive uptake between the two sites. The uptake of implants was significantly higher at site B (38\%) than at site A (6\%). 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, compared with only 1 of 23 at site A. However, IUDs and implants at site B were offered free of charge, while there was a modest fee for services at site A. Provision of implant services onsite and without charge may be an effective strategy for increasing implant uptake among women living with HIV in the postpartum period.\textsuperscript{126}

A randomized intervention cohort study enrolled women living with HIV using various breastfeeding styles (i.e., exclusive, mixed, bottle) during ANC and followed them for at least 3 months postpartum. Cumulative 3-month mortality in exclusively breastfed infants was 6.1\%
(4.74–7.92) versus 15.1% (7.63–28.73) in infants given replacement feeds (RR: 2.06, 1.00–4.27, p=0.051). This finding helps substantiate that the use of LAM with exclusive breastfeeding is safe for the infant of an HIV-positive mother in a low-resource setting.\textsuperscript{127} The benefits of exclusive breastfeeding were shown in another study of 14,110 mother-infant pairs. In this study, predominant breastfeeding was associated with a 2.63 (95% CI: 0.59–11.67), 2.69 (95% CI: 0.95–7.63) and 1.61 (95% CI: 0.72–3.64) trend toward greater postnatal transmission risk at 6, 12 and 18 months, respectively, as compared with exclusive breastfeeding.\textsuperscript{128}

In addition to contraception in general, PPTL for women living with HIV has been studied. A study in Brazil found that while three times as many women living with HIV in the postpartum period received sterilization compared with HIV-negative women, still, as many as 90% of women living with HIV who requested sterilization did not receive it. There were large differences in sterilizations provided among sites and providers (51% in one site and 4% in another site).\textsuperscript{129}

**Implications for Practice:**

- Hormonal contraceptives can be safely provided to women living with HIV during the postpartum period.
- Implants are feasible and acceptable to provide to women living with HIV during the postpartum period.
- LAM, with exclusive breastfeeding, can be safely used by postpartum woman living with HIV, particularly if the mother or baby is receiving antiretroviral therapy.
- There may be a large unmet need for PPTL among HIV-positive mothers in the postpartum period.

**SUMMARY**

While the body of literature that concerns PPFP is large, in this synthesis of literature, we have included only comparative studies and key peer-reviewed systematic reviews. Other descriptive surveys and studies also yield valuable insight into PPFP use, but did not fit our inclusion criteria.

At each contact point across the maternal and infant continuum of care, we find opportunities to provide PPFP services. To avoid missing crucial opportunities, we must highlight the interventions that have been proven effective in meeting the postpartum woman’s need for contraception at each contact point. From the comparative literature reviewed, we find the following implications for practice:

**ANC:**

- FP counseling during ANC may increase postpartum contraceptive use.
- Including the husband in FP counseling during ANC may increase postpartum contraceptive use.

**PPIUD:**

- PPIUD programs can safely include postplacental, immediate/pre-discharge, later PPIUD and intraoperative cesarean section insertions.
- Provider competence and commodity availability can increase PPIUD utilization.
- Non-physician skilled birth attendants, with competency-based training, can provide PPIUD services.
Postpartum Family Planning Program Literature

PPTL:
- Postpartum services need to ensure that women who desire a PPTL have the opportunity to receive this procedure prior to discharge after delivery.
- Cesarean section surgery may be an appropriate opportunity to perform a voluntary tubal ligation, with informed consent.
- When effective vasectomy services are available, postpartum pre-discharge counseling should include vasectomy counseling and identification of potential acceptors.

Progestin-Only (Implants, DMPA):
- Implants and DMPA may be safe and acceptable for the postpartum woman:
  - Women who are living with HIV
  - Adolescents
- Increasing access can increase utilization.

LAM:
- LAM counseling, including supportive home visits and breastfeeding support, increases LAM use.
- Include LAM in any program that aims to:
  - Increase prevalence of other modern methods of contraception at 12 months postpartum
  - Increase exclusive breastfeeding

Facility and Pre-Discharge:
- Pre-discharge counseling (including information, education and communication [IEC] messages and materials) and contraceptive services can increase utilization of PPFP.
- Competent providers, adequate supplies/commodities and continual performance improvement can help ensure that counseling is provided and services are received.
- Women should receive an appointment for a return visit prior to discharge from the facility.

Community-Based Services:
- A community-based program that involves training and support of CHWs to provide PPFP counseling, together with effective IEC and coordinated district support, can increase postpartum contraceptive use, including early uptake at 3 or 4 months postpartum.
- Supportive, home-based care during the antenatal and postpartum periods can increase postpartum contraceptive use, including LAM.
- Community-based care that includes husbands, as well as IEC material, may effectively increase the use of PPFP.
Contacts across the Continuum:

- Longer programs with multiple contacts across the continuum of care may have more effect on PPFP utilization than short programs with few contacts.

Integration with MCH and Immunization Services:

- FP uptake may increase if contraception is offered during immunization services.
- EPI providers may need FP skills development, while FP providers may need skills development in EPI.

Integration with HIV and PMTCT Services:

- Hormonal contraceptives can be safely provided to women living with HIV during the postpartum period.
- Implants are feasible and acceptable to provide to women living with HIV during the postpartum period.
- LAM, with exclusive breastfeeding, can be safely used by postpartum women living with HIV, particularly if the mother or baby is receiving antiretroviral therapy.
- There may be a large unmet need for PPTL among HIV-positive mothers in the postpartum period.

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can generally be used but close follow-up may be required.)

Eligibility Criteria category 3 (Use of that method is not usually recommended unless other more appropriate methods are not available or acceptable. Careful follow-up will be required) and CDC Medical Eligibility Criteria category 2 (The method can generally be used but close follow-up may be required.)


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