

UPDATE: Annotated Bibliography of Postpartum Family Planning Literature

MAY 2010

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UPDATE: ANNOTATED BIBLIOGRAPHY OF POSTPARTUM FAMILY PLANNING LITERATURE MAY 2010

Introduction

ACCESS-FP, in an effort to promote documented best practices, has supported the development of this annotated bibliography of postpartum family planning literature to serve as reference for both researchers and program managers.

This updated bibliography of postpartum family planning is an addendum to the May 2009 version and mostly represents literature published in the last two years. Over fifty new entries are included. The literature has been reorganized for this edition, and new categories for progestin-only contraception and postpartum contraception in special populations have been added. The literature categories are described in the following table.

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Methodology

This edition focused primarily on journal articles published in 2008 or later with an emphasis on studies that were undertaken in developing countries. The literature review began with a search on Medline (2008–current update) using the following keywords: family planning services, family planning policy, contraception, birth intervals, prenatal care, postnatal care, postpartum period, maternal-child health, immunizations, and breastfeeding. This search was then repeated on CINAHL (a database for nursing and allied health) and EMBASE (a database of biomedical and pharmacological literature). Next, the reference lists of the selected articles were examined for appropriate articles that had not been captured with previous searches or by the May 2009 version.

1. DESCRIPTIVE STUDIES

Adegbola, O., & Okunowo, A. (2009). Intended postpartum contraceptive use among pregnant and puerperal women at a university teaching hospital. *Archives of Gynecology and Obstetrics*, 280(6), 987-992.

Objective: To assess the intention to use postpartum contraceptives and factors influencing use. **Method:** A total of 423 consecutive consenting women attending the pregnancy and puerperal clinics at Lagos University Teaching Hospital (LUTH), Lagos, Nigeria, were interviewed using structured questionnaire.

Results: The prevalence of previous contraceptive use was 35.5%. Fifty-four percent of the respondents intended to use contraceptives after delivery, though 3% were yet to decide. Condoms (38.3%) followed by intrauterine contraceptive device (IUCD) 11.5%, were the most preferred choice of postpartum contraceptives. However, spermicide (0.4%) was the least preferred. Advanced age and high parity significantly predicted intention to use postpartum contraceptives ($P = 0.02$ and 0.01 , respectively). Also high level of respondent's education and family planning counseling by doctors and nurses increased the intention to use postpartum contraceptives ($P = 0.03$ and 0.01 , respectively). **Conclusion:** Family planning counseling and education play a vital role in increasing the use of contraceptives in the postpartum period (Adegbola & Okunowo, 2009, abstract).

Day, T., Raker, C. A., & Boardman, L. A. (2008). Factors associated with the provision of antenatal contraceptive counseling. *Contraception*, 78(4), 294-299.

Background: A chart review was conducted to evaluate patient and provider characteristics associated with having a documented antenatal plan regarding future contraception.

Study Design: A retrospective chart review of 528 parturients delivering between January and August 2002 was performed. Data obtained from chart review included demographics, antecedent pregnancy outcome, number of prenatal visits, provider type and documentation of an antenatal plan for postpartum contraception.

Results: Non-Hispanic white women, as compared to other racial/ethnic groups, were more likely to have documented counseling plans (OR 1.5, 95% CI 0.9-2.3), while non-English-speaking women were significantly less likely to have contraceptive plans recorded (OR 0.5, 95% CI 0.3-0.8). Women with recorded antenatal plans attended more prenatal visits (median 10 vs. 8, $p < 0.05$), being seen by a nurse practitioner (adjusted OR 6.2, 95% CI 2.9-13.2), being seen by a nurse practitioner (adjusted OR 4.5, 95% CI 2.9-7.0) and being non-English speaking (adjusted OR 0.6, 95% CI 0.3-1.0).

Conclusion: The provision of antenatal contraceptive counseling is associated with certain characteristics, including the patient's primary language, the number of prenatal visits and type of provider seen (Day, Raker & Boardman, 2008, abstract).

**Haider, S., Todd, C., Ahmadzai, M., Rahimi, S., Azfar, P., Morris, J. L., et al. (2009).
Childbearing and contraceptive decision making amongst Afghan men and women: A
qualitative analysis. *Health Care for Women International*, 30(10), 935-953.**

Afghanistan has one of the highest maternal mortality ratios and lowest contraceptive prevalence rates globally. Limited information is known regarding Afghan men and women's attitudes toward childbearing, child spacing, and contraceptive use, which is essential for delivery of appropriate services. We conducted a qualitative study among postpartum couples enrolled at maternity hospitals in Kabul, Afghanistan. We identified important themes that highlight the complex inter-relationship between acknowledged risks of childbearing, desire for family planning, rationales for limited contraceptive use, and sociocultural barriers to contraceptive use. We offer practical recommendations for application of findings toward family planning and maternal mortality reduction programs (Haider et al., 2009, abstract).

**Khalaf, I. A., Abu-Moghli, F., Callister, L. C., Mahadeen, A. I., Kaawa, K., & Zomot, A. F. (2009).
Jordanian health care providers' perceptions of post-partum health care.
International Nursing Review, 56(4), 442-449.**

Purpose: This qualitative descriptive study explored Jordanian health care providers' perceptions of the health care that they provide for post-partum mothers.

Methods: Thirty Jordanian health care providers (physicians, nurses and midwives) participated in three focus group discussions. A content analysis approach was used to analyse the data as appropriate for descriptive qualitative inquiry.

Findings: Health care providers indicated that the care they deliver includes breastfeeding, family planning, childcare and laboratory tests. Health care providers reflected confidence in the care given but indicated the need for continuing education, more resources and expressions of appreciation.

Conclusions: Findings provide insights into Jordanian health care providers' perspectives on post-partum health care and emphasized the importance of enhancing utilization of such care in Jordan. It is suggested that the Jordanian Ministry of Health develop a comprehensive plan of educational offerings for providers, with a standardized educational programme for post-partum women. It is essential that all health care facilities provide high-quality post-partum health care that meets the needs of the maternal/infant dyad. Like all qualitative descriptive studies, generalizability of the results may be limited to similar situations and cultures (Khalaf et al., 2009, abstract).

**Khalaf, I. A., Abu-Moghli, F. A., Mahadeen, A. I., Callister, L. C., & Al-Hadidi, M. (2007).
Jordanian women's perceptions of post-partum health care. *International Nursing
Review*, 54(3), 288-294.**

Purpose: This qualitative descriptive study aimed to explore Jordanian childbearing women's perceptions of their needs for health care and the post-partum healthcare services they received.

Methods: Twenty-four Jordanian childbearing women participated in the focus groups. Discussions focused on infant and maternal health concerns, access to post-partum health care, including family-planning services, the characteristics and behaviour of healthcare providers, and suggestions for the provision of quality maternal post-partum health care.

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Findings: The majority of the women indicated that most of the services perceived and provided during the post-natal period were related to child care. They indicated that they attend post-natal visits mostly for treatment, family planning and/or child care and stated that they have not been told about the post-natal visits during pregnancy, or after giving birth.

Conclusions: Study findings provided insight and understanding of women's perspectives on post-partum health care and implied a need to translate qualitative findings into clinical practice guidelines. It is suggested that the Jordanian Ministry of Health develops a comprehensive plan to improve educational offerings for post-partum women, and ensure that all healthcare facilities offer affordable and high-quality post-partum health care (Khalaf et al., 2007, abstract).

Krepelka, P., Hanacek, J., & Hrdlicka, D. (2009). Contraceptive methods used by women in the period before and after giving birth. [Praxe v pouzivani kontracepcnich metod u zen v obdobi pred porodem a po porodu] *Ceska Gynekologie / Ceska Lekarska Spolecnost J.Ev.Purkyne*, 74(3), 211-218.

Goal of the study: To provide information on the knowledge and practices involving the use of the contraceptive methods employed by women of a fertile age, especially in the period of lactation.

Design: A cross-section, descriptive study. Setting: Institute for the Care of Mother and Child, Prague.

Methodology: The method involved a written questionnaire in a structured form. The investigation was undertaken in two phases; the first round took place directly after giving birth, while the second took place 6 months after giving birth. The group consisted of 4535 women who gave birth at the Institute for the Care of Mother and Child in the period between 15. 11. 2006 - 15. 11. 2007.

Results: 2540 women (56.0%) answered the questions in the first round; 85% of them were in the 26-35 age group, 44.3% were secondary school graduates and 36.7% were university graduates. 61.3% were first-time mothers, 32.3% were second-time mothers and 5.4% were third-time mothers. Contraception used before current gravidity: (n=2540) oral hormonal contraception 59.7%, a condom 11.1%, intrauterine contraception 1.0% and 20.6% of the women used no contraceptive method. The users of oral hormonal contraception (n=1517) were most frequently prescribed (12.8% of the women) a preparation containing 20 microg ethinylestradiol and 150 eLg desogestrel (Mercilon). The contraception used during the course of lactation after a birth in the group of mothers of more than one child (n=982): oral hormonal contraception 19.6%, a condom 17.1%, intrauterine contraception 1.3%, no contraceptive method 54.5%. Breastfeeding users of oral hormonal contraception (n=192) were most frequently prescribed (20.3% of women) a preparation containing 500 microg lynestrenol (Exluton) and a preparation containing 75 microg desogestrel (Cerazette) (16.1% of women). The contraceptive methods planned by women after birth (n=2540): oral hormonal contraceptive 36.5%, a condom 18.8%, intrauterine contraception 18.8%, no method 20.1%. 1440 women (56.7%) answered the questions in the second round; 83.5% of them were in the 26-35 age group, 45.0% were secondary school graduates and 37.0% were university graduates. 64.4% were first-time mothers, 30.6% were second time mothers and 4.2% were third-time mothers. 74.6% of women were still breastfeeding 6 months after giving birth. Contraception used by breastfeeding women (n=1074): oral hormone contraception 27.6%, a condom 21.8%, an intrauterine system with levonorgestrel 2.8%, intrauterine contraception 2.4%, no method 39.5%. Contraception used by non-breastfeeding women (n=366): oral hormonal contraception 42.1%, a condom 15.0%, an intrauterine system with levonorgestrel 2.7%, intrauterine contraception 2.7%, no method 31.4%. In both groups of women, the users of oral hormonal contraception were most frequently prescribed a preparation containing 75 pg desogestrel (Cerazette); this

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accounted for 99.3% of the breastfeeding women and 18.8% of those not breastfeeding. 40.0% of breastfeeding and 48.4% of non-breastfeeding women are planning to use hormonal contraception in the coming period. The self-evaluation of the knowledge of contraception methods (n=2540): 61.6% of women evaluated their knowledge as good, but 77.6% of women did not know a suitable hormonal contraceptive for the period of lactation. According to 80.7% of the women, their main source of expert information in the area of family planning is their gynaecologist.

Conclusion: The prevalence of breastfeeding women 6 months after giving birth is high in the monitored group. Oral hormonal contraceptives are the most frequently used contraceptive method in general, including during the lactation period when women prefer a preparation containing 75 microg desogestrel regardless of whether or not they are breastfeeding. The women's knowledge of suitable methods of contraception during the period of lactation is unsatisfactory and represents a challenge for healthcare providers to improve the amount of information available to women in this area (Krepelka, Hanacek & Hrdlicka, 2009, abstract).

Sannisto, T., & Kosunen, E. (2009). Initiation of postpartum contraception: A survey among health centre physicians and nurses in Finland. *Scandinavian Journal of Primary Health Care*, 27(4), 244-249.

Objective: To examine self-reported professional practices of postpartum contraceptive counselling at Finnish community health centres.

Design: A survey study with self-administered online questionnaires.

Setting: All local municipalities (n = 107) in the Expert Responsibility Area of Tampere University Hospital in Western Finland in 2005.

Subjects: A total of 69 (64% of 107) health centre physicians and 80 (75%) nurses performing postpartum check-ups.

Main Outcome Measures: Contraceptive method most often initiated or recommended to breastfeeding women at postpartum visit; timing of postpartum initiation of hormonal and intrauterine contraceptive methods in relation to breastfeeding and resumption of menses.

Results: The most common contraceptive method initiated or recommended to breastfeeding women by both physicians (41%) and nurses (45%) was the condom, followed by progestin-only pills and intrauterine contraception. Few professionals recommended breastfeeding (lactational amenorrhea) as the only contraceptive method. Only eight (12%) physicians inserted a copper-releasing intrauterine device and five (7%) a levonorgestrel-releasing intrauterine system typically at the postpartum visit; the majority delayed the insertions until the resumption of menses. Fifty-three (77%) physicians initiated combined oral contraceptives mostly when breastfeeding was terminated and menses had returned. Over half of the municipalities involved in the study did not provide any medical contraceptives free of charge postpartum.

Conclusion: Professionals' reports indicate that initiation of effective contraceptive methods is delayed after childbirth. In order to promote better postpartum contraception practices, updated evidence-based guidelines are needed (Sannisto & Kosunen, 2009, abstract).

2. COMMUNITY AND FACILITY

Bashour, H. N., Kharouf, M. H., Abdulsalam, A. A., El Asmar, K., Tabbaa, M. A., & Cheikha, S. A. (2008). Effect of postnatal home visits on maternal/infant outcomes in Syria: A randomized controlled trial. *Public Health Nursing (Boston, Mass.)*, 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 4 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 a 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 (Bashour et al., 2008, abstract).

Bennett, I. M., Coco, A., Anderson, J., Horst, M., Gambler, A. S., Barr, W. B., et al. (2009). Improving maternal care with a continuous quality improvement strategy: A report from the interventions to minimize preterm and low birth weight infants through continuous improvement techniques (IMPLICIT) network. *Journal of the American Board of Family Medicine: JABFM*, 22(4), 380-386.

Background: Maternal medical care (prenatal and postpartum) involves a set of clinical interventions addressing risk factors associated with important maternal and infant outcomes. Programs to increase the rate of delivery of these interventions in clinical practice have not been widely implemented.

Methods: A practice-based research network focused on developing continuous quality improvement (CQI) processes for maternal care among 10 family medicine residency training sites in the northeastern United States (the IMPLICIT Network) from January 2003 through September 2007. Documented delivery of 5 standard maternal care interventions was assessed before and after initiating a program to increase their frequency. Proportion chart analyses were conducted comparing the period before and after implementation of the CQI interventions.

Results: Data were available for 3936 pregnancies during the course of the study period. Results varied across the clinical interventions. Significant improvement in care processes was seen for 3 screening activities: (1) prenatal depression symptomatology (by 15 weeks' gestation); (2) screening for smoking at 30 weeks' gestation; (3) and postpartum contraception planning. Screening for smoking by 15 weeks' gestation and testing for asymptomatic bacteriuria were already conducted >90% of the time during the baseline period and did not increase significantly after initiating the CQI program. Screening for postpartum depression

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symptomatology was recorded in 50% to 60% of women before the CQI program and did not increase significantly.

Conclusions: A practice-based research network of family medicine residency practices focused on CQI outcomes was successful in increasing the delivery of some maternal care interventions (Bennett et al., 2009, abstract).

Feldman, B. S., Zaslavsky, A. M., Ezzati, M., Peterson, K. E., & Mitchell, M. (2009). Contraceptive use, birth spacing, and autonomy: An analysis of the Oportunidades program in rural Mexico. *Studies in Family Planning*, 40(1), 51-62.

Oportunidades, a conditional cash-transfer program instituted in Mexico in 1997, provides cash incentives to mothers to invest in the health and education of family members. Drawing from data gathered by Mexico's National Institute of Public Health, this study assesses the effect of the program on contraceptive use and birth spacing among titulares (female household heads) living in rural areas during the experimental period, 1998-2000, and during 2000-03, after incorporation of the control group. In 2000, titulares were more likely to use modern contraceptives than were women in the control group, although by 2003 all beneficiaries had the same probability of use. Change in autonomy was not a mediator, although baseline autonomy modified the program's influence on contraceptive use. Cox proportional hazard models produced estimates that birth spacing was similar between the beneficiaries and controls. Inconsistent findings may be the result of the way contraceptive use was defined in this study. Findings from this study may be useful for helping program planners better understand the role of conditional cash transfers in modifying family planning and fertility among poor rural women in Latin America (Feldman et al., 2009, abstract).

Huber, D., Saeedi, N., & Samadi, A. K. (2010). Achieving success with family planning in rural Afghanistan. *Bulletin of the World Health Organization*, 88(3), 227-231.

Problem: Afghan women have one of the world's highest lifetime risks of maternal death. Years of conflict have devastated the country's health infrastructure. Total fertility was one of the world's highest, contraceptive use was low and there were no Afghan models of success for family planning.

Approach: We worked closely with communities, providing information about the safety and non-harmful side-effects of contraceptives and improving access to injectable contraceptives, pills and condoms. Regular interaction with community leaders, mullahs (religious leaders), clinicians, community health workers and couples led to culturally acceptable innovations. A positive view of birth spacing was created by the messages that contraceptive use is 300 times safer than pregnancy in Afghanistan and that the Quran (the holy book of Islam) promotes two years of breastfeeding. Community health workers initiated the use of injectable contraceptives for the first time.

Local setting: The non-for-profit organization, Management Sciences for Health, Afghan nongovernmental organizations and the Ministry of Public Health implemented the Accelerating Contraceptive Use project in three rural areas with different ethnic populations.

Relevant changes: The contraceptive prevalence rate increased by 24-27% in 8 months in the project areas. Men supported modern contraceptives once they understood contraceptive safety, effectiveness and non-harmful side-effects. Injectable contraceptives contributed most to increases in contraceptive use.

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Lessons learnt: Community health workers can rapidly increase contraceptive use in rural areas when given responsibility and guidance. Project innovations were adopted as best practices for national scale-up (Huber, Saeedi & Samadi, 2010, abstract).

Lopez, L. M., Hiller, J. E., & Grimes, D. A. (2010). Education for contraceptive use by women after childbirth. *Cochrane Database of Systematic Reviews (Online)*, (1)(1), CD001863.

Background: Providing contraceptive education is now considered a standard component of postpartum care. The effectiveness is seldom examined. Questions have been raised about the assumptions on which such programs are based, e.g., that postpartum women are motivated to use contraception and that they will not return to a health center for family planning advice. Surveys indicate that women may wish to discuss contraception prenatally and after hospital discharge. Nonetheless, two-thirds of postpartum women may have unmet needs for contraception. In particular, many adolescents become pregnant again within a year a giving birth.

Objectives: Assess the effects of educational interventions for postpartum mothers about contraceptive use

Search Strategy: We searched the computerized databases of MEDLINE, CENTRAL, EMBASE, CINAHL, PsycINFO, and POPLINE. We also searched for current trials via ClinicalTrials.gov and ICTRP. In addition, we examined reference lists of relevant articles, and contacted subject experts to locate additional reports.

Selection Criteria: Randomized controlled trials were considered if they evaluated the effectiveness of postpartum education about contraceptive use. The intervention must have started postpartum and have occurred within one month of delivery.

Data Collection and Analysis: We assessed for inclusion all titles and abstracts identified during the literature searches with no language limitations. The data were abstracted and entered into RevMan. Studies were examined for methodological quality. For dichotomous outcomes, the Mantel-Haenszel odds ratio (OR) with 95% CI was calculated using a fixed-effect model.

Main Results: Eight trials met the inclusion criteria. Of four trials with short-term interventions in the immediate postpartum period, one did not have sufficient data and one was statistically underpowered. The remaining two showed a positive effect on contraceptive use. However, most comparisons did not show an effect in one study and the other had short-term assessments. Of four multifaceted programs with multiple contacts, two showed fewer pregnancies or births among adolescents in the experimental group that had enhanced services, and a structured home-visiting program showed more contraceptive use. The effective interventions were conducted in Australia, Nepal, Pakistan, and the USA.

Conclusions: Postpartum education about contraception led to more contraception use and fewer unplanned pregnancies. Both short-term and multiple-contact interventions had effects. The former were limited by self-reported outcomes or showing no effect for many comparisons. The longer-term interventions were promising and not necessarily more costly than usual care. Health care providers can determine if one of these interventions suits their setting and level of resources (Lopez, Hiller & Grimes, 2010, abstract).

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Warren, C., Mwangi, A., Oweya, E., Kamunya, R., & Koskei, N. (2010). Safeguarding maternal and newborn health: Improving the quality of postnatal care in Kenya. *International Journal for Quality in Health Care : Journal of the International Society for Quality in Health Care / ISQua*, 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: 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 h of birth, 1-2 weeks and 6 weeks, to providers working in maternity and maternal and child health clinics. Main outcome measure Improved quality of postnatal counselling.

Results: Increased mean scores for counselling 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 counselling 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 (Warren et al., 2010, abstract).

3. BREASTFEEDING FOR CONTRACEPTION & LACTATION AMENORRHEA METHOD

King, J. (2007). Contraception and lactation. *Journal of Midwifery & Women's Health*, 52(6), 614-620.

The benefits of breastfeeding for both the infant and the mother are undisputed. Longer intervals between births decrease fetal/infant and maternal complications. Lactation is an effective contraceptive for the first 6 months postpartum only if women breastfeed exclusively and at regular intervals, including nighttime. Because a high percentage of women in the United States supplement breastfeeding, it is important for these women to choose a method of contraception to prevent unintended pregnancies. Both the method of contraception and the timing of the initiation of contraceptives are important decisions that a clinician must help the breastfeeding woman make. Ideally, the chosen method of contraception should not interfere with lactation. This article reviews the research on the effect of contraceptives, including hormonal contraceptives, on lactation (King, 2007, abstract).

Turk, R., Terzioglu, F., & Eroglu, K. (2010). The use of lactational amenorrhea as a method of family planning in eastern Turkey and influential factors. *Journal of Midwifery & Women's Health*, 55(1), e1-7.

Although the lactational amenorrhea method (LAM) is commonly used for contraception, it frequently fails and pregnancy ensues. This descriptive study was conducted to determine the status of the use of breastfeeding as a method of family planning and the influential factors that may have contributed to the success or failure of LAM. The research sample was comprised of 188 women with 6-month-old infants in eastern Turkey. A semistructured interview form was used for data collection in face-to-face meetings with the women during visits in their homes. In this study, 34% of the women used LAM to prevent pregnancy after childbirth. However, it was observed that only 17.2% of women using LAM fulfilled the LAM criteria with success, and 82.8% did not fulfill one or more of the LAM criteria. The pregnancy rate of women using this method was 32.8%. Two of the three basic criteria necessary for LAM to be effective were not met by the women: having menses (43.8%) and starting supplemental feeding (70.3%). Prenatal and postnatal counseling services need to be integrated and include information and education about the criteria that are necessary for LAM to be used effectively. These services should be given to women who choose to use LAM for contraception (Turk, Terzioglu & Eroglu, 2010, abstract).

Van Wouwe, J. P., Lanting, C. I., Van Dommelen, P., Treffers, P. E., & Van Buuren, S. (2009). Breastfeeding duration related to practised contraception in the Netherlands. *Acta Paediatrica (Oslo, Norway: 1992)*, 98(1), 86-90.

Aim: The aim of this study was to gain insight into contraception practised and related to breastfeeding duration.

Methods: Mothers with infants up to 6 months received a questionnaire on infant feeding (breast or formula feeding) and contraception (hormonal or non-hormonal methods). Estimates of the time interval between resuming contraception and cessation of lactation was calculated by Chained Equations Multiple Imputation.

Results: Of all women (n = 2710), 30% choose condoms, 22% the combined oral contraceptive pill (OCP) and few other methods. Breastfeeding was started by 80%, and 18% continued up to 6 months. Of the

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breastfeeding mothers, 5% used hormonal contraception; 7% of women who used hormonal contraception practised breastfeeding. After adjustment for background variables, the use of OCP is strongly associated with formula feeding: after delivery to the third month postpartum, the crude OR being 17.5 (95% CI: 11.3-27.0), the adjusted OR 14.5 (9.3-22.5); between the third and sixth month postpartum, respectively, 13.1 (95% CI: 8.6-19.9) and 11.7 (7.6-17.9). Of all breastfeeding women, 20-27% resumed OCP at 25 weeks postpartum and 80% introduced formula feeding. The time lag between these events is 6 weeks. Hormonal contraception was resumed after formula introduction.

Conclusion: Mothers avoid hormonal contraception during lactation; they change to formula feeding 6 weeks before they resume the OCP. To effectively promote longer duration of breastfeeding, the BFHI needs to address contraception as practiced (Van Wouwe et al., 2009, abstract).

4. HIV AND FAMILY PLANNING, AND PMTCT

Bii, S. C., Otieno-Nyunya, B., Siika, A., & Rotich, J. K. (2008). Family planning and safer sex practices among HIV infected women receiving prevention of mother-to-child transmission services at Kitale district hospital. *East African Medical Journal*, 85(1), 46-50.

Objectives: To determine the usage of family planning services and safer sex practices among HIV infected mothers who had gone through the prevention of mother to child transmission (PMTCT) process.

Design: Descriptive cross-sectional study.

Setting: The maternal and child health and family planning (MCH-FP) clinics in Kitale District Hospital, Western Kenya.

Results: A total of 146 respondents were recruited for this study. Only 44% of the respondents were using some form of family planning. The most popular method of contraception was the hormonal injectable contraceptives. Although 73% of respondents were no longer planning to have more babies, only 45% of them were using a family planning method. Only 38% of respondents reported condom use with their partners for safe sex. Married women and those who had revealed their HIV status to their partners were more likely to use condoms ($p < 0.05$).

Conclusions: Usage of family planning services in this study was low. A large percentage of the women were still planning to have more babies and very few women were using condoms for safe sex. Women who had informed their partners about their HIV status were more likely to use condoms than those who had not. Male partner involvement is crucial in decisions-pertaining to family planning use and safe sex practices (Bii et al., 2008, abstract).

Brou, H., Viho, I., Djohan, G., Ekouevi, D. K., Zanou, B., Leroy, V., et al. (2009). Contraceptive use and incidence of pregnancy among women after HIV testing in Abidjan, Ivory Coast. *Revue d'Epidemiologie Et De Sante Publique*, 57(2), 77-86.

Background: Within the framework of programs for the prevention of mother-to-child HIV transmission, women who discover their HIV-infection during their pregnancy receive perinatal interventions in order to reduce the risk of HIV transmission to the child. They also receive family planning counselling and free contraceptives in order to avoid a new pregnancy. In this study, we compared contraceptive use and pregnancy incidence between HIV-positive and HIV-negative women who were offered HIV counselling and testing during a program of prevention of mother-to-child HIV transmission.

Methods: In the Ditrane Plus program in Abidjan, 546 HIV-positive and 393 HIV-negative women were HIV-tested prenatally and followed up 2 years after delivery. At each post-partum visit, proportions of contraceptive use were noted, by method. The pregnancy incidence was calculated as the number of pregnancies for 100 women-years at risk. Factors related to the arrival of a new pregnancy were analyzed by Cox model.

Results: Between 6 and 24 months post-partum, proportions of women using modern contraception varied from 52 to 65% among HIV-positive women, and from 65 to 75% among HIV-negative women. Pregnancy incidence for 100 women-years at risk was 5.70 (95%CI: 4.17-7.23) and 4.37 (95%CI: 2.83-5.91) ($p = 0.237$) and unwanted pregnancy incidence was 1.07 (95%CI: 0.41-1.73) and 2.39 (95%CI: 1.25-3.53) ($p = 0.023$), respectively among HIV-positive and HIV-negative women. The end of post-partum abstinence, the death of

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the index child and the end of breastfeeding were positively linked to the arrival of a new pregnancy in the post-partum period.

Conclusion: Among these women prenatally HIV-tested, family planning counselling and regular follow-up was accompanied by a high rate of contraceptive use after delivery, and consecutively to a low pregnancy incidence irrespective of serostatus. In particular, HIV-positive women had fewer unwanted pregnancies than HIV-negative women. Integration of adequate family planning services in the post-partum follow-up in prevention programs plays an important role in reducing the risk of mother-to-child transmission, by reducing pregnancies among HIV-positive women (Brou et al., 2009, abstract).

Dhont, N., Ndayisaba, G. F., Peltier, C. A., Nzabonimpa, A., Temmerman, M., & van de Wijgert, J. (2009). Improved access increases postpartum uptake of contraceptive implants among HIV-positive women in Rwanda. *The European Journal of Contraception & Reproductive Health Care*, 14(6), 420-425.

Background: Long-acting reversible contraceptives (LARCs) and sterilisation 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 sterilised 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 (Dhont et al., 2009, abstract).

Elul, B., Delvaux, T., Munyana, E., Lahuerta, M., Horowitz, D., Ndagije, F., et al. (2009). Pregnancy desires, and contraceptive knowledge and use among prevention of mother-to-child transmission clients in Rwanda. *AIDS (London, England)*, 23 Suppl 1, S19-26.

Objective: To understand pregnancy intentions and contraception knowledge and use among HIV-positive and negative women in the national prevention of mother-to-child transmission (PMTCT) program in Rwanda.

Design: A cross-sectional survey of 236 HIV-positive and 162 HIV-negative postpartum women interviewed within 12 months of their expected delivery date in 12 randomly selected public-sector health facilities providing PMTCT services.

Methods: Bivariate analyses explored fertility intentions, and family planning knowledge and use by HIV status. Multivariate analysis identified socio-demographic and service delivery-related predictors of reporting a desire for additional children and modern family planning use.

Results: HIV-positive women were less likely to report wanting additional children than HIV-negative women (8 vs. 49%, $P < 0.001$), and although a majority of women reported discussing family planning with a health worker during their last pregnancy (HIV-positive 79% vs. HIV-negative 69%, $P = 0.057$), modern

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family planning use remained low in both groups (HIV-positive 43% vs. HIV-negative 12%, $P < 0.001$). Condoms were the most commonly used method among HIV-positive women (31%), whereas withdrawal was most frequently reported among HIV-negative women (19%). In multivariate analysis, HIV-negative women were 16 times more likely to report wanting additional children and nearly 85% less likely to use modern family planning. Women who reported making two or less antenatal care visits were 77% less likely to use modern family planning. **Conclusion:** Our results highlight success in provision of family planning counseling in PMTCT services in Rwanda. As family planning use was low among HIV-positive and negative women, further efforts are needed to improve uptake of modern methods, including dual protection, in Rwandan PMTCT settings (Elul et al., 2009, abstract).

Hladik, W., Stover, J., Esiru, G., Harper, M., & Tappero, J. (2009). The contribution of family planning towards the prevention of vertical HIV transmission in Uganda. *PloS One*, 4(11), e7691.

Background: Uganda has one of the highest total fertility rates (TFR) worldwide. We compared the effects of antiretroviral (ARV) prophylaxis for the prevention of mother-to-child HIV transmission (PMTCT) to that of existing family planning (FP) use and estimated the burden of pediatric HIV disease due to unwanted fertility.

Methodology/Principle Findings: Using the demographic software Spectrum, a baseline mathematical projection to estimate the current pediatric HIV burden in Uganda was compared to three hypothetical projections: 1) without ARV-PMTCT (to estimate the effect of ARV-PMTCT), 2) without contraception (effect of existing FP use), 3) without unwanted fertility (effect of unmet FP needs). Key input parameters included HIV prevalence, ARV-PMTCT uptake, MTCT probabilities, and TFR. We estimate that in 2007, an estimated 25,000 vertical infections and 17,000 pediatric AIDS deaths occurred (baseline projection). Existing ARV-PMTCT likely averted 8.1% of infections and 8.5% of deaths. FP use likely averted 19.7% of infections and 13.1% of deaths. Unwanted fertility accounted for 21.3% of infections and 13.4% of deaths. During 2008-2012, an estimated 131,000 vertical infections and 71,000 pediatric AIDS deaths will occur. The projected scale up of ARV-PMTCT (from 39%-57%) may avert 18.1% of infections and 24.5% of deaths. Projected FP use may avert 21.6% of infections and 18.5% of deaths. Unwanted fertility will account for 24.5% of infections and 19.8% of deaths.

Conclusions: Existing FP use contributes as much or more than ARV-PMTCT in mitigating pediatric HIV in Uganda. Expanding FP services can substantially contribute towards PMTCT (Hladik et al., 2009, abstract).

Keogh, S. C., Urassa, M., Kumogola, Y., Mngara, J., & Zaba, B. (2009). Reproductive behaviour and HIV status of antenatal clients in northern Tanzania: Opportunities for family planning and preventing mother-to-child transmission integration. *AIDS (London, England)*, 23 Suppl 1, S27-35.

Objectives: To examine reproductive and contraceptive history and intentions by HIV status among women at antenatal clinics to help inform initiatives to integrate family planning into antenatal/preventing mother-to-child transmission services in Mwanza region, Tanzania. **DESIGN:** A questionnaire survey was carried out in antenatal clinics in Mwanza region, Tanzania in 2007-2008. **Methods:** We interviewed 5284 pregnant women attending 15 antenatal clinics offering HIV testing in Mwanza City and Magu district, northern Tanzania. The questionnaires asked about reproductive and contraceptive history and intentions, and sexual behaviour.

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Subject to participants' consent, we collected blood to determine HIV status and linked these results to the questionnaire data through individual numbers.

Results: HIV prevalence was 8.9% overall, and family planning ever use was 26%. HIV-positive and HIV-negative women differed with respect to age, parity, length of last birth interval, child survival, childbearing intentions and intention to breastfeed. HIV-positive women were more likely to have used family planning, particularly hormonal methods. Patterns of family planning use and unmet need for contraception yielded useful information for the design of family planning counselling services at antenatal clinics.

Conclusion: Our survey findings point to numerous potential benefits of offering family planning counselling as a part of antenatal services, particularly in clinics offering HIV testing. The differences in reproductive history and intentions between HIV-positive and HIV-negative women highlight the necessity of tailoring family planning counselling to their specific needs (Keogh et al., 2009, abstract).

Peltzer, K., Chao, L. W., & Dana, P. (2009). Family planning among HIV positive and negative prevention of mother to child transmission (PMTCT) clients in a resource poor setting in South Africa. *AIDS and Behavior*, 13(5), 973-979.

The purpose of this study was to investigate family planning needs, knowledge of HIV transmission and HIV disclosure in a cohort sample that had undergone PMTCT in a resource poor setting. Five public clinics implementing PMTCT from Qaukeni Local Service Area, O.R. Tambo District in the Eastern Cape. The sample at postnatal care consisted of 758 women with known HIV status. From 116 HIV positive women 76.3% and from 642 HIV negative women 85.2% got counseling on safe sex during pregnancy but only 65.8% and 62.3% of the women respectively practiced safe sex during pregnancy, which did not differ by HIV status. Postnatally, almost all women received counseling on family planning, yet use of contraceptives and condoms were low. Among HIV positive women PMTCT knowledge and younger age of the mother were associated with pregnancy desire, and among HIV negative women HIV disclosure to the partner, younger age of the mother and having a lower number of children were associated with pregnancy desire. High pregnancy desires (yet lower than for HIV negative women); low contraceptive and condom use were found among HIV positive women. HIV prevention and family planning must acknowledge the reproductive desires of HIV positive women and men (Peltzer, Chao & Dana, 2009, abstract).

5. BIRTH SPACING

Adam, I., Ismail, M. H., Nasr, A. M., Prins, M. H., & Smits, L. J. (2009). Low birth weight, preterm birth and short interpregnancy interval in Sudan. *The Journal of Maternal-Fetal & Neonatal Medicine*, 22(11), 1068-1071.

Objective: To investigate whether short interpregnancy interval (IPI) is associated with increased risk of low birth weight and preterm labour.

Methods: The study was conducted in the labour ward of Khartoum hospital in Sudan during November 2007 through February 2008. Odds ratios (ORs) were adjusted for the confounding factors using multiple logistic regression models.

Results: Compared with IPI of 18-30 months, those women with intervals shorter than 18 months had an increased risk of low birth weight (OR = 1.9, 95% CI = 1.0-3.5, P = 0.04) and preterm labour (OR = 2.3, 95% CI = 1.1-4.7, P = 0.01).

Conclusion: In this study, IPI shorter than 18 months are independently associated with increased risk of adverse perinatal outcomes (Adam et al., 2009, abstract).

Cecatti, J. G., Correa-Silva, E. P., Milanez, H., Morais, S. S., & Souza, J. P. (2008). The associations between inter-pregnancy interval and maternal and neonatal outcomes in Brazil. *Maternal and Child Health Journal*, 12(2), 275-281.

Objectives: Global estimates of maternal and perinatal mortality have remained unchanged over the past 20 years, and strategies are being sought to decrease the occurrence of maternal and perinatal death. The objective of this study was to evaluate the association between inter-pregnancy interval and the occurrence of adverse maternal and perinatal outcomes.

Methods: Design and Setting: Cross-sectional study of the obstetrical and perinatal records in an intra-hospital obstetrics database between 1986 and 2000 at a tertiary maternity hospital in Brazil. Participants: A total of 14,930 records of parous women who delivered singleton infants. Main outcome measures: Crude and adjusted odds ratio estimates of gestational outcome according to inter-pregnancy intervals.

Results: During the period of the study, 34.6% of records referred to women with an inter-pregnancy interval <18 months. After the adjustment performed for 11 confounding factors and assuming an inter-pregnancy interval of 18-23 months as reference, short intervals (<6 months) were observed to be associated with a greater risk of low birth weight (odds ratio: 1.74; 95% confidence interval: 1.18-2.55), and preterm birth (1.56; 1.01-2.46). On the other hand, long intervals were significantly associated with fewer C-sections (0.69; 0.56-0.82), and a greater risk of premature rupture of membranes (PROM) (1.57; 1.20-2.06) and low birth weight (1.46; 1.03-2.06).

Conclusions: Short inter-pregnancy intervals are associated with a higher risk of low birth weight and preterm birth, while long intervals are associated with a higher risk of PROM, low birth weight and a lower risk of C-section (Cecatti et al., 2008, abstract).

DaVanzo, J., Hale, L., Razzaque, A., & Rahman, M. (2008). The effects of pregnancy spacing on infant and child mortality in Matlab, Bangladesh: How they vary by the type of pregnancy outcome that began the interval. *Population Studies*, 62(2), 131-154.

Using high-quality longitudinal data on 125,720 singleton live births in Matlab, Bangladesh, we assessed the effects of duration of intervals between pregnancy outcomes on infant and child mortality and how these effects vary over subperiods of infancy and childhood and by the type of outcome that began the interval. Controlling for other correlates of infant and child mortality, we find that shorter intervals are associated with higher mortality. Interval effects are greater if the interval began with a live birth than with another pregnancy outcome. In the first week of the child's life, the effects of short intervals are greater if the sibling born at the beginning of the interval died; after the first month, the effects are greater if that sibling was still alive. Many relationships found are consistent with the maternal depletion hypothesis, and some with sibling competition. Some appear to be due to correlated risks among births to the same mother (DaVanzo et al., 2008, abstract).

Gribble, J. N., Murray, N. J., & Menotti, E. P. (2009). Reconsidering childhood undernutrition: Can birth spacing make a difference? an analysis of the 2002-2003 El Salvador national family health survey. *Maternal & Child Nutrition*, 5(1), 49-63.

It is well understood that undernutrition underpins much of child morbidity and mortality in less developed countries, but the causes of undernutrition are complex and interrelated, requiring a multipronged approach for intervention. This paper uses a subsample of 3853 children under age 5 from the most recent family health survey in El Salvador to examine the relationship between birth spacing and childhood undernutrition (stunting and underweight). While recent research and guidance suggest that birth spacing of three to five years contributes to lower levels of infant and childhood mortality, little attention has been given to the possibility that short birth intervals have longer-term effects on childhood nutrition status. The analysis controls for clustering effects arising from siblings being included in the subsample, as well as variables that are associated with household resources, household structure, reproductive history and outcomes, and household social environment. The results of the multiple regression analyses find that in comparison to intervals of 36-59 months, birth intervals of less than 24 months and intervals of 24-35 months significantly increase the odds of stunting (<24 months Odds Ratio (OR) = 1.52; 95% confidence interval (CI): 1.21-1.92; 25-36 months OR = 1.30; 95% CI: 1.05-1.64). Other factors related to stunting and underweight include standard of living index quintile, child's age, mother's education, low birthweight, use of prenatal care, and region of the country where the child lives. Policy and program implications include more effective use of health services and outreach programs to counsel mothers on family planning, breastfeeding, and well child care (Gribble, Murray & Menotti, 2009, abstract).

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Grisaru-Granovsky, S., Gordon, E. S., Haklai, Z., Samueloff, A., & Schimmel, M. M. (2009). Effect of interpregnancy interval on adverse perinatal outcomes--a national study. *Contraception, 80*(6), 512-518.

Background: The interpregnancy interval (IPI) has been reported to influence the outcome of pregnancy and birth. We performed a national study in Israel to determine the impact of IPI on multiple adverse perinatal outcomes.

Study Design: This longitudinal cohort study used birth certificates of siblings born to the same biological mother, with at least one previous birth and a subsequent singleton pregnancy. Adverse pregnancy outcomes included preterm delivery, very preterm birth, small for gestational age (SGA), very SGA (VSGA), early neonatal death and major congenital malformations. Multivariate logistic regression was performed for each outcome.

Results: The study included 440,838 of a total of 846,845 reported live births in Israel over 5 years; excluded were primiparas (32%), multifetal births (4.9%) and those with incomplete data (10.9%). For IPIs shorter than 6 months, there were significantly increased risks for preterm birth (OR=1.23), SGA (OR=1.14), VSGA (OR=1.15), early neonatal death (OR=1.62) and congenital malformations (OR=1.14). Intervals of 60 months or longer had higher risks for preterm birth (OR=1.39) and VSGA (OR=1.16).

Conclusion: Optimal IPI recommendation of >11 months is an accessible and low-cost means to improve multiple adverse perinatal outcomes (Grisaru-Granovsky et al., 2009, abstract).

Hajian-Tilaki, K. O., Asnafi, N., & Aliakbarnia-Omrani, F. (2009). The patterns and determinants of birth intervals in multiparous women in Babol, northern Iran. *The Southeast Asian Journal of Tropical Medicine and Public Health, 40*(4), 852-860.

The present study aimed to determine the patterns and factors associated with birth intervals in multiparous women in Babol, northern Iran. We conducted a cross-sectional study of 500 multiparous women at health centers and referred to the hospital for delivery in Babol, northern Iran in 2007. Data were collected using a questionnaire, including birth intervals, demographics, fertility variables, such as maternal education, maternal age at birth, gender of index child, history of still births, child status (infant mortality or still birth) of index child, parity, duration of breast feeding, residence area, contraception method used, and attendance at a family planning clinic. The data were analyzed using a logistic regression model. The mean (+/- SD) birth interval was 61 +/- 25.7 months. In 3.8% of women the birth interval was or = 6 years. The majority of women (76.8%) were age 20-34 years old at the time of pregnancy. About one-fourth (22.4%) of women were > or = 35 years old at the time of pregnancy and 0.8% of women were < 20 years old at pregnancy. Maternal age, duration of breast feeding, sex of index child, history of still births, history of infant mortality of the index child, type of contraception used, regular attendance at a family planning clinics and parity showed a significant correlation with birth interval ($p < 0.05$) (Hajian-Tilaki, Asnafi & Aliakbarnia-Omrani, 2009, abstract).

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Rasheed, P., & Al-Dabal, B. K. (2007). Birth interval: Perceptions and practices among urban-based Saudi Arabian women. *Eastern Mediterranean Health Journal, 13*(4), 881-892.

To determine perceptions towards birth spacing, actual birth interval and associated sociodemographic factors, we carried out a cross-sectional study on 436 mothers aged 15-50 years in Al-Khobar. All had had > or = 2 children within the previous 10 years. Only 5.2% preferred a birth interval of or = 3 years. Education and employment status were predictors of birth spacing preference. About half were not aware of the physical benefits associated with longer birth interval. Only 26.3% had mean birth interval < 2 years. Age and employment status were significant positive predictors of longer birth interval. Oral contraception was the most popular method adopted for child spacing (Rasheed & Al-Dabal, 2007, abstract).

Williams, E. K., Hossain, M. B., Sharma, R. K., Kumar, V., Pandey, C. M., & Baqui, A. H. (2008). Birth interval and risk of stillbirth or neonatal death: Findings from rural north India. *Journal of Tropical Pediatrics, 54*(5), 321-327.

Short birth intervals have been associated with adverse birth outcomes. This study examines the association between preceding interval and risk of stillbirth or neonatal death in rural north India (n = 80 164). Adjusted odds ratios (OR) and 95% confidence interval (CI) of stillbirth and neonatal mortality were calculated. The odds of stillbirth were significantly greater among birth intervals of 59 months (OR 1.44; CI 1.19-1.73), compared with intervals of 36-59 months. Neonatal death was associated with birth intervals of <18 months (OR 4.12; CI 3.74-4.55) and 18-35 months (OR 1.78; CI 1.63-1.94), compared to births spaced 36-59 months. Previous history of either stillbirth or neonatal death was significantly associated with risk of stillbirth and neonatal death, respectively, as were multiple births (Williams et al., 2008, abstract).

Yeakey, M. P., Muntifering, C. J., Ramachandran, D. V., Myint, Y., Creanga, A. A., & Tsui, A. O. (2009). How contraceptive use affects birth intervals: Results of a literature review. *Studies in Family Planning, 40*(3), 205-214.

Short birth intervals can have adverse consequences for maternal and infant outcomes. Optimal birth spacing is often presumed to be achieved through the practice of family planning and use of contraceptives, yet most of the available research does not address explicitly the contribution of contraceptive-method use to birth spacing or maternal and infant survival. We conducted a systematic literature review to assess the body of evidence linking contraceptive use to birth-interval length. Fourteen studies published in English between 1980 and 2008 met our eligibility criteria for inclusion. The findings from these studies are mixed but suggest that the use of contraceptives is protective against short birth intervals. Although results are favorable, many of the studies and methodologies employed are dated. More current research is needed to determine the impact of contraceptive-method use on birth-interval length in order to inform the promotion of family planning for reducing maternal and infant morbidity and mortality through birth spacing (Yeakey et al., 2009, abstract).

6. POSTPARTUM IUD, AND LONG-ACTING AND PERMANENT CONTRACEPTION

Akkuzu, G., Vural, G., Eroglu, K., Dilbaz, B., Taskin, L., Akin, A., et al. (2009). Reasons for continuation or discontinuation of IUD in postplacental/early postpartum periods and postpuerperal/interval periods: One-year follow-up. *Turkiye Klinikleri Journal of Medical Sciences*, 29(2), 353-360.

Objective: To compare postplacental and early postpartum intrauterine device (IUD) insertions with postpuerperal and interval IUD insertions regarding the reason for continuation and discontinuation.

Material and Methods: A study of 130 women (84 postplacental and 46 postpartum) and a control group of 138 women (62 postpuerperal and 76 interval) who had T Cu 380A IUDs inserted were followed-up at 8 weeks and 6 and 12 months, and the data was analyzed.

Results: Continuation occurred in 38.6% of the study group and in 72.3% of the control group ($p < 0.001$). The highest continuation rate was in interval, postpuerperal and postplacental groups respectively ($p < 0.05$). The reason for discontinuation was frequently partial expulsion in the study group (52.6%) and displacement in the control group (27.8%). The insertion time of IUD most frequently discontinued was postplacental in the study group (55.2%) and interval in the control group (31.3%). **Conclusion:** The results of this study suggest that the postplacental and early postpartum IUD insertion techniques should be re-evaluated in units that offer this service to decrease the rate of discontinuation due to complications (Akkuzu et al., 2009, abstract).

Kapp, N., & Curtis, K. M. (2009). Intrauterine device insertion during the postpartum period: A systematic review. *Contraception*, 80(4), 327-336.

Background: Insertion of an intrauterine device (IUD) at different times or by different routes during the postpartum period may increase the risk of complications.

Methods: We searched Medline, Lilacs and Cochrane Collaboration databases for articles in any language, between database inception until December 2008, which compared outcomes of postpartum IUD insertion time intervals. Search terms included postpartum, puerperium, postcesarean delivery, cesarean section, IUD(s), IUCD(s), intrauterine device(s) and insertion. **Results:** From 297 articles, we identified 15 for inclusion in this review: all studies examined the outcomes from copper IUD insertions within the postpartum time period compared to other time intervals or compared routes (vaginal or via hysterotomy) of postpartum insertion. No studies of levonorgestrel IUDs were identified. Immediate IUD insertion (within 10 min of placental delivery) was safe when compared with later postpartum time periods and interval insertion. Immediate postpartum IUD insertion demonstrated lower expulsion rates when compared with delayed postpartum insertion but with higher rates than interval insertion. Immediate insertion following cesarean delivery demonstrated lower expulsion rates than immediate insertion following vaginal delivery.

Conclusion: Poor to fair quality evidence from 15 articles demonstrated no increase in risk of complications among women who had an IUD inserted during the postpartum period; however, some increase in expulsion rates occurred with delayed postpartum insertion when compared to immediate insertion and with immediate insertion when compared to interval insertion. Postplacental placements during cesarean delivery are associated with lower expulsion rates than postplacental vaginal insertions, without increasing rates of postoperative complications (Kapp & Curtis, 2009, abstract).

Nelson, A. L., Chen, S., & Eden, R. (2009). Intraoperative placement of the copper T-380 intrauterine devices in women undergoing elective cesarean delivery: A pilot study. *Contraception, 80*(1), 81-83.

Background: The purpose of this pilot project was to test the feasibility of a technique designed to place a copper intrauterine device (IUD) through the hysterotomy incision of an elective cesarean delivery to minimize possible contamination and to guarantee that tailstrings were visible in the vagina for easy removal should complications occur.

Study Design: Women were monitored in the hospital for signs of infection or excessive blood loss. At the time of hospital discharge and at 2 and 6 weeks postpartum, they were examined to determine the status of the tailstrings. The position of the IUD was assessed by ultrasound at week 6.

Results: All seven of the subjects had successful placement. The sutures tied to the IUD strings were visible on vaginal examination in each case. The original tailstrings were visible in the vagina at 6 weeks and each IUD was fundally positioned.

Conclusion: Successful intraoperative placement of Copper T-380A IUDs through incision at the time of cesarean birth is possible (Nelson, Chen & Eden, 2009, abstract).

Seibel-Seamon, J., Visintine, J. F., Leiby, B. E., & Weinstein, L. (2009). Factors predictive for failure to perform postpartum tubal ligations following vaginal delivery. *Journal of Reproductive Medicine, 54*(3), 160-164.

Objective: To identify patients requesting postpartum sterilization and compare those who underwent the procedure with those who did not.

Study Design: A retrospective study of requested postpartum tubal ligations was completed. Demographics and clinical characteristics were analyzed. We analyzed whether the failure to obtain postpartum sterilization resulted in an interval laparoscopic tubal ligation or future pregnancy.

Results: A total of 135 women requested sterilization, but only 56% received the desired procedure. Time of delivery (OR 2.23, CI 1.08-4.58), body mass index (OR 2.38, CI 1.10-5.16) and gravidity (OR 0.80, CI 0.65-0.97) were significant variables that were different between the 2 groups. Of the women who left the hospital postpartum without a sterilization procedure, 44% received an interval laparoscopic tubal ligation and 18% later became pregnant.

Conclusion: Postpartum tubal ligations are often not performed despite patient request. Additional measures should be undertaken to ensure that patient requests for postpartum tubal ligation are implemented (Seibel-Seamon et al., 2009, abstract).

Vernon, R., Solórzano, J., & Muñoz, B. (2007). Introducing sustainable vasectomy services in Guatemala. *International Family Planning Perspectives, 33*(4), 182-187.

“From a public health perspective, it would be desirable for a greater proportion of couples to adopt vasectomy rather than female sterilization. Vasectomy has a lower rate of post-operative complications than female sterilization, and the client’s recovery time is shorter; it is also a less expensive procedure for the providing institution. Furthermore, vasectomy is the only long-term method that men can use to achieve their fertility ideals, and it allows for direct male involvement in reproductive decision making” (Vernon, Solórzano & Muñoz, 2007, p. 182). “To increase the availability and use of vasectomies, the Ministry of Health and the

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Population Council's Frontiers in Reproductive Health program (FRONTIERS) developed, tested and evaluated a model for the introduction of sustainable no-scalpel vasectomy services in Ministry hospitals and maternities" (Vernon, Solórzano & Muñoz, 2007, p. 182-3). "This project demonstrated that vasectomy can be successfully introduced into the contraceptive method mix promoted by public-sector family planning programs. Our experience suggests the desirability of screening out health units that lack the motivation or ability to implement the required activities, the importance of including the trainee's self-confidence in performing the procedure as a criterion for certification, the feasibility of conducting on-site training and the effectiveness of encouraging hospital employees to identify vasectomy candidates. Presenting—in the immediate post-partum period—vasectomy as an option to women who desire a permanent contraceptive method is also important" (Vernon, Solórzano & Muñoz, 2007, p. 186).

7. PROGRAM APPROACH (INCLUDING MALE INVOLVEMENT) AND OTHERS

Mullany, B. C., Lakhey, B., Shrestha, D., Hindin, M. J., & Becker, S. (2009). Impact of husbands' participation in antenatal health education services on maternal health knowledge. *JNMA; Journal of the Nepal Medical Association, 48*(173), 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 (Mullany et al., 2009, abstract).

Nte, A. R., Odu, N., & Enyindah, C. E. (2009). Male involvement in family planning: Women's perception. *Nigerian Journal of Clinical Practice, 12*(3), 306-310.

Objectives: To assess the knowledge of mothers of under-five children brought to immunisation centres of contraceptive methods applicable by males and their perceptions of the roles of males in family planning.

Subjects and Methods: This cross-sectional descriptive study involved a questionnaire interview of mothers who came to immunise their children at five public immunisation centres in Port Harcourt. Data entry and analysis employed EPI-Info version 6.

Results: Amongst the 558 mothers interviewed, the contraceptive prevalence rate was 5.6% and 85.6% of them knew at least a family planning method for males. About 15.8% would depend on their spouses for choice of contraceptive methods and 52.7% would discontinue family planning if their spouses objected. About 33.5% of the spouses had used some form of contraception while only 22.1% of the females recognised that male involvement could impact on the acceptance rate of family planning services. Despite their knowledge of safe child spacing, about 53% of the respondents delivered within shorter intervals and had significantly more pregnancies/children that they would have had if they were in 'control' of their reproductive health decisions. The spouses, despite being significantly older, more educated, with higher level jobs, and in-charge of the reproductive health decision in the home, did not contribute to the knowledge of the women and their practices of family planning.

Conclusion: Despite the advantaged position of males in family matters, their roles in family planning remains largely unutilised. If the acceptance of family planning must improve, males should also be targeted by family planning programmes (Nte, Odu & Enyindah, 2009, abstract).

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Robin, G., Massart, P., Graizeau, F., & Guerin du Masgenet, B. (2008). Postpartum birth control: State-of-the-art. [La contraception du post-partum: etat des connaissances] *Gynecologie, Obstetrique & Fertilité*, 36(6), 603-615.

It takes approximately six weeks for menstrual flow to come back after delivery, but ovulation may occur from the twenty-fifth day. That is why postpartum birth control must be integrated into care on maternity wards. Obstetricians and midwives should deliver updated information about different contraceptive means. They should consider risk factors and prescribe an effective contraceptive option for every woman who wishes it before she leaves the maternity ward. Recent studies call for a change in current medical behavior regarding postpartum contraception, even if there is no consensus at present. In a normal context without additional risk factors, it is possible to prescribe a birth control pill containing low dosage of combined oral contraceptives. Doing so, the patient will not be exposed to an increased risk of deep venous thrombosis nor to significant breastfeeding disruption. Low-dose progestin-only pills are also a good choice because there are no risks during lactation. When the patient is unable to take combined oral contraceptives, it is still possible to prescribe progestin-only oral contraceptives. Intra-uterine devices may also be inserted from the fourth or sixth week following delivery. In certain conditions, intra-uterine devices may be inserted in the 48 hours following a delivery, some obstetricians may even perform an insertion during caesarean sections. The main purpose of this article is to simplify the contraceptive outline in order to ease its prescription and to avoid unwanted pregnancies (Robin et al., 2008).

Sahip, Y., & Turan, J. M. (2007). Education for expectant fathers in workplaces in Turkey. *Journal of Biosocial Science*, 39(6), 843-860.

Worldwide, there is increasing recognition that if family and reproductive health programmes are to be successful, the involvement of men is essential. As part of the problem, men also have to be seen as part of the solution. The reality is that in many countries, including Turkey, men generally do not accompany their partners to health facilities for family planning, antenatal and postnatal services and are not expected to attend the labour or birth of their child. Workplace programmes are a potential strategy for meeting the reproductive health education needs of men in industrial cities such as Istanbul. This intervention study was developed to test the feasibility and effects of expanding a special programme for expectant fathers to large workplaces in Istanbul, with the aim of improving the health of Turkish families during the pregnancy, birth and newborn periods. The findings indicate that it is possible to train workplace physicians in Istanbul to conduct regular educational programmes for expectant fathers on reproductive health, and that such programmes may have beneficial effects, especially in the areas of pregnancy nutrition, exclusive breast-feeding, and support behaviours. Considering the difficulty of getting men to attend hospital or clinic-based educational programmes in large urban areas, bringing such training programmes to men at their places of work has the potential to be an important strategy. Given that large workplaces in Turkey already have full-time physicians charged with the duty of health education for employees, this is also a feasible strategy (Sahip & Turan, 2007, abstract).

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Speroff, L., & Mishell, D. R., Jr. (2008). The postpartum visit: It's time for a change in order to optimally initiate contraception. *Contraception*, 78(2), 90-98.

This commentary calls for a change in the traditional six-week postpartum visit for new mothers. Establishing a three-week postpartum visit would allow for the effective and timely initiation of contraception. The recommendation draws on evidence from multiple studies that many women resume sexual activity before six weeks postpartum and that ovulation may occur by four weeks postpartum in non-breastfeeding women. The three-week visit would also be beneficial for breastfeeding mothers to evaluate if breastfeeding meets the criteria of the lactational amenorrhea method and whether an additional contraceptive method is necessary. The commentary also reviews evidence for the use of different contraceptive methods in postpartum and lactating women, including sections on: estrogen-progestin contraception, depot-medroxyprogesterone acetate (DMPA), contraceptive implants, fertility-awareness-based methods (periodic abstinence), barrier methods, and the postpartum IUD. Of note, the authors recommend the use of the progestin-only pill in lactating women due to the effect of combined contraceptives on lactation, and assert that “the combination of lactation and the progestin-only minipill is associated with near total contraceptive efficacy” (Speroff & Mishell, 2008, p. 940). The commentary concludes with a discussion of the risk of VTE in the postpartum period and the increased risk of VTE with exogenous estrogens in combined contraceptives.

Vernon, R. (2009). Meeting the family planning needs of postpartum women. *Studies in Family Planning*, 40(3), 235-245.

Drawing on the evidence for women’s unmet need for contraception in the first year after childbirth, this commentary is a review of “social and operations research that tests the delivery of postpartum [contraceptive] services in less developed countries... in order to present programmatic lessons regarding the organization of these programs” (Vernon, 2009, p. 235). The importance of counseling and information given during antenatal care is highlighted, as well as the potential for the involvement of male partners to improve health knowledge and outcomes. Concerning postpartum care in hospitals, the greatest barrier to the provision of postpartum contraception is the need to adequately train providers. Three lessons learned are to focus on a few key behaviors during training with appropriate follow-up, to offer women a full range of contraceptives immediately following childbirth, and to establish and monitor outcome indicators. The postpartum IUD and lactational amenorrhea method are also discussed, and the importance of integrating informed consent into programs offering sterilization and IUD is stressed. In postpartum care provided in outpatient clinics, the greatest barrier to service is low attendance at scheduled postpartum visits. Strategies for improving the rate of return of postpartum women are explored, mainly eliminating independent service-delivery schedules for mothers and infants and establishing a minimum number of joint follow-up visits. Approaches for community-based postpartum care are also reviewed, and the importance of providing postpartum contraception to HIV-infected women is emphasized as a top priority.

8. FAMILY PLANNING INTEGRATION

Maynard-Tucker, G. (2009). HIV/AIDS and family planning services integration: Review of prospects for a comprehensive approach in sub-Saharan Africa. *African Journal of AIDS Research (AJAR)*, 8(4), 465-472.

In most parts of the world, family planning and HIV-related services are usually offered separately. Family planning services, especially those that are government-supported, primarily serve married women and couples of reproductive age, while HIV-related services target individuals at higher-risk of exposure to HIV. However, the integration of family planning into HIV/AIDS programmes, or vice versa, would permit women of reproductive age who are infected or affected by HIV to benefit from family planning and/or HIV-prevention counselling and services. Sub-Saharan Africa is characterized by low modern contraceptive prevalence (below 20%), along with unmet needs for contraception, high use of abortion and the feminisation of HIV. Furthermore, the majority of children infected by HIV live in this region. The use of contraception would permit HIV-positive women to avoid unintended pregnancies and would reduce the number of children who are born with the virus. However, funding for family planning has decreased steadily over the last decade; the UNFPA recently reported that current assistance is less than half the amount needed. Donors more often support responses to HIV and AIDS, rather than other health interventions. This article reviews the difficulties and limitations facing the integration of family planning and HIV-related services. In addition, it suggests strategies to promote information for women and men of reproductive age about family planning, HIV prevention and referrals, including outside the context of health facilities (Maynard-Tucker, 2009, abstract).

Wallace, A., Dietz, V., & Cairns, K. L. (2009). Integration of immunization services with other health interventions in the developing world: What works and why? systematic literature review. *Tropical Medicine & International Health*, 14(1), 11-19.

Objective: To assess benefits, challenges and characteristics of integrating child and maternal health services with immunization programmes.

Methods: Literature review using journal databases and grey literature. Papers meeting the inclusion criteria were rated for the quality of methodology and relevant information was systematically abstracted.

Results: Integrated services were vitamin A supplementation, bednet distribution, deworming tablet distribution, Intermittent Preventive Therapy for infants and referrals for family planning services. Two key characteristics of success were compatibility between interventions and presence of a strong immunization service prior to integration. Overburdened staff, unequal resource allocation and logistical difficulties were mentioned as risks of integration, whereas rapid uptake of the linked intervention and less competition for resources were listed as two key benefits of integration.

Conclusion: 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. Evidence for the effectiveness of integration in increasing efficiency of resource use was insufficient and most benefits and challenges were not statistically quantified. More substantive information about the costs of integrated vs. vertical programmes and full documentation of the impacts of integration on immunization services should be published (Wallace, Dietz & Cairns, 2009, abstract).

9. RETURN TO FERTILITY

Li, W., & Qiu, Y. (2007). Relation of supplementary feeding to resumptions of menstruation and ovulation in lactating postpartum women. *Chinese Medical Journal*, 120(10), 868-870.

Background: Resumption of menstrual cycles is one of the indicators for restoration of reproductive capability in postpartum women. However, menstruation does not necessarily mean that ovulation has taken place. The aim of this study was to investigate the relation of supplementary feeding to return of menstruation and ovulation after delivery.

Methods: A questionnaire was used to obtain data from 101 breastfeeding mothers. The following elements were analyzed: age, education level, breastfeeding practice, time of return of menstruation, contraceptive practice, and starting time of supplementary feeding during the lactation at intervals of 6 weeks to 18 months after delivery. The ovulation was continuously monitored by ultrasonography and basal body temperature (BBT) measurement.

Results: By ultrasonography, 53 of the 101 women (52.5%) had the first ovulation (follicle > 1.8 cm in diameter) within 154 days after delivery on average, among whom 11 (10.9%, 11/101) had restoration of ovulation within 4 months and 42 (41.6%, 42/101) had it after 4 months. In women with follicles > 1.8 cm in diameter (n = 53), the menstruation resumed (138 +/- 84) days after delivery, and the supplementary feeding was started at (4.0 +/- 1.1) months, which were significantly earlier than those in the women with follicular diameter < 1.7 cm (n = 48; (293 +/- 88) days, (5.1 +/- 1.3) months; t = 9.003, P < 0.01 and t = 4.566, P < 0.01). In the women with follicles < 1.8 cm in diameter, 30 had return of menstruation before the end of ultrasonographic monitoring, while only 8 in the women with follicular diameter < 1.7 cm had menstrual resumption at the same time (chi(2) = 16.91, P < 0.01). The starting time of supplementary feeding was positively correlated with the time of the restoration of menstruation (n = 100, r = 0.4764, P < 0.01) and first ovulation after delivery (n = 53, r = 0.5554, P < 0.01). In this series, no woman had pregnancy within 18 months postpartum.

Conclusion: Supplementary feeding can affect the restoration of menstrual cycles and ovulation in lactating postpartum women (Li & Qiu, 2007, abstract).

Valeggia, C., & Eellison, P. (2009). Interactions between metabolic and reproductive functions in the resumption of postpartum fecundity. *American Journal of Human Biology*, 21(4), 559-566.

Lactation has long been recognized as a major determinant of interbirth intervals. The temporal pattern of nursing has been proposed as the mechanism behind lactational amenorrhea. We present a new model of the dynamic regulation of lactational amenorrhea that identifies maternal energy availability as the main determinant of ovarian resumption. Variation in the intensity of lactation remains a component of the model as a determinant of the absolute energetic cost of milk production. However, maternal energy supply determines net energy availability; a larger energy supply leaves a greater net energy surplus than a smaller energy supply (lactation costs being equal). We characterize the hormonal postpartum profile of 70 lactating Toba women of Argentina. We use C-peptide, which reflects maternal insulin production, as a measure of energy availability. Initially low, insulin production rises as the postpartum period progresses, reflecting the declining metabolic load of lactation. A short period of supernormal insulin production precedes menstrual

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resumption. The high levels of insulin may play a role in stimulating the resumption of ovarian activity, which in turn may help to resolve the transient period of insulin resistance. The dynamics of insulin sensitivity during lactation would aid in synchronizing the resumption of ovarian function with a reduction in the energy demands of milk production. This hypothesis is supported by the sustained weight gain experienced by lactating women during the months preceding the first postpartum menses. The link between fecundity and energy balance could serve as a mechanism for adjusting the duration of lactational amenorrhea to the relative metabolic load of lactation (Valeggia & Eellison, 2009, abstract).

Woranitat, W., & Taneepanichskul, S. (2007). Sexual function during the postpartum period. *Journal of the Medical Association of Thailand, 90(9), 1744-1748.*

Objective: To study the characteristics of sexual function during the postpartum period.

Study Design: Cross-sectional descriptive study.

Material and Method: From May 2006 to July 2006. Eighty women, who attended the family planning clinic at King Chulalongkorn Memorial Hospital, were enrolled in the present study. All subjects were interviewed by the investigators with a questionnaire about general characteristic and Female Sexual Function Index questionnaire (FSFI) to determine their sexual function.

Results: Twenty-eight (35%) women had sexual intercourse within the six weeks postpartum period before they attended the family planning clinic. In this group, 18 women (35%) had vaginal deliveries and 10 women (34.5%) had cesarean deliveries. No statistically significant difference was demonstrated in terms of route of delivery ($\chi^2 = 0.005$, p -value = 0.57). Women without episiotomy resumed sexual intercourse more than women with episiotomy (66.7% and 25.6%, $\chi^2 = 6.76$, p -value = 0.015). There was no association between route of delivery and sexual function including sexual desire, sexual arousal, sexual lubrication, sexual orgasm, satisfaction, pain, and FSFI score.

Conclusion: Resumption of sexual intercourse in the postpartum period was quite high. However, route of delivery was not associated with resumption of sexual intercourse and female sexual function in postpartum period. More women without episiotomy had resumption of sexual intercourse than the others. Sexual demand of the partner is the influencing factor to resumption of sexual intercourse during the post partum period. Counseling about sexuality and contraception after birth should be a regular practice in the hospital (Woranitat & Taneepanichskul, 2007, abstract).

10. PROGESTIN-ONLY CONTRACEPTION

Brito, M. B., Ferriani, R. A., Quintana, S. M., Yazlle, M. E., Silva de Sa, M. F., & Vieira, C. S. (2009). Safety of the etonogestrel-releasing implant during the immediate postpartum period: A pilot study. *Contraception, 80*(6), 519-526.

Background: The effects of etonogestrel (ETG)-releasing contraceptive implant during the immediate postpartum period on maternal safety are unknown.

Study Design: Forty healthy women exclusively breastfeeding were randomized to receive either ETG-releasing implant 24-48 h after delivery (n=20) or depot medroxyprogesterone acetate (DMPA group; n=20) at the sixth week postpartum. We measured blood pressure, maternal and neonatal weight, body mass index (BMI; kg/m²), waist circumference (WC), complete blood count, C-reactive protein, interleukin-6, tumor necrosis factor (TNF-alpha), lipid profile, fasting serum glucose and maintenance of exclusive lactation up to the 12th week postpartum.

Results: Decreases in mean maternal weight, BMI (kg/m²) and WC were significantly greater in the ETG-releasing implant group than in the DMPA group during the first 6 weeks postpartum (-4.64+/-2.71 kg vs. -2.6+/-2.45 kg mean+/-SD, p=.017; -1.77+/-1.06 kg/m² vs. -0.97+/-0.95 kg/m², p=.026; -15.3+/-6.72 cm vs. -9.05+/-5.84 cm, p=.003, respectively). In addition, total cholesterol and HDL, were lower in DMPA users, and TNF-alpha and leukocytes were higher in DMPA users compared to in the implant group, between 6 and 12 weeks after delivery. The newborns of implant users showed a trend towards gaining more weight, as compared with the infants of the DMPA mothers during the first 6 weeks of life (implant group: +1460.50+/-621.34 g vs. DMPA group: +1035.0+/-562.43 g, p=.05). The remaining variables, including the duration of exclusive breastfeeding, were similar between the groups.

Conclusion: The insertion of ETG-releasing contraceptive implant during the immediate postpartum period was not associated with deleterious maternal clinical effects or with significant maternal metabolic alterations or decreased infant weight gain (Brito et al., 2009, abstract).

Grimes, D. A., Lopez, L. M., O'Brien, P., & Raymond, E. G. (2009). Progestin-only pills for contraception. *Cochrane Database of Systematic Reviews, (1)*

Progestin-only pills, as their name implies, contain just one hormone; in contrast, the more common combined birth control pills contain two hormones. How these one-hormone pills compare to each other or to two-hormone pills is not clear. Hence, we did this review to compare progestin-only pills to other similar pills or to combined (two-hormone) pills. We did a computer search and literature search to find randomized trials of progestin-only pills. We found six trials, some of which were several decades old and thus have limited relevance to pills available today. A newer pill containing the progestin desogestrel may be better at preventing pregnancy than an older pill with levonorgestrel, but the newer pill caused more bleeding problems. Pills with levonorgestrel may be more effective than pills with other progestins no longer used. These studies are not adequate to tell how progestin-only pills compare to each other or to combined (two-hormone) pills. Bigger studies with currently used pills will be needed to answer these questions (Grimes et al., 2009, abstract).

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Lewis, L. N., Doherty, D. A., Hickey, M., & Skinner, S. R. (2010). Implanon as a contraceptive choice for teenage mothers: A comparison of contraceptive choices, acceptability and repeat pregnancy. *Contraception*, 81(5), 421-426.

Background: This study was conducted to compare the incidence of repeat teenage pregnancy over a 24-month period postpartum among users of Implanon, the combined oral contraceptive pill (COCP) or depot medroxyprogesterone acetate (DMPA) and barrier methods or nothing (barrier/none). Contraceptive continuation rates 24 months postpartum for Implanon and COCP/DMPA were also compared.

Study Design: A prospective cohort study was conducted. Comparison groups were postpartum teenagers (12-18 years old) who self-selected Implanon (n=73), COCP/DMPA (n=40) and barrier/none (n=24). Questionnaires were used to gather data at recruitment and postpartum at 6 weeks and then 3 monthly intervals for 2 years.

Results: At 24 months postpartum, 48 (35%) teenagers had conceived. Implanon users became pregnant later than other contraceptive groups ($p=.022$), with mean time to first repeat pregnancy of 23.8 months [95% confidence interval (CI), 22.2-25.5], compared to 18.1 months (95% CI, 15.1-20.7) for COCP/DMPA and 17.6 months (95% CI, 14.0-21.3) for barrier/none. Implanon users were more likely to continue their use at 24 months than COCP/DMPA ($p<.001$) users. The mean duration for Implanon users was 18.7 months (95% CI, 17.0-20.3) compared to 11.9 months (95% CI, 9.5-14.3) for COCP/DMPA.

Conclusion: Teenagers who choose Implanon are significantly less likely to become pregnant and were found to continue with this method of contraception 24 months postpartum compared to those who choose COCP or DMPA and barrier methods or nothing (Lewis et al., 2010, abstract).

Madelenat, P., & Koskas, M. (2008). Update on the progestin-only contraception. *Journal De Gynecologie Obstetrique Et Biologie De La Reproduction*, 37(7), 637-660.

Despite the lack of complete data concerning their effects, the use of progestin-only contraception is increasing in France (particularly the intra-uterine device, the subdermal implantation, and microprogestins). These prescriptions include a broad range of molecules and administration of doses. In some cases, prescriptions of progestogens are made out of the marketing authorisation indications (especially for macroprogestins). For all of these reasons, an Expert Advisory Board has been set up in order to answer the 35 questions addressed by an Expert Organization Board. The choice of these questions was based on controversial or nonconsensual points usually encountered in everyday clinical practice. When possible, answers given were strongly supported by data issued from medical literature. In situations where clinical studies were lacking, the Expert Advisory Board answered in the most consensual way. All answers given by the Expert Advisory Board were subsequently submitted to the Expert Assessment Board before the latest validation of this document. The progestogen only contraception has different levels of action (local and/or central) which may vary from one drug to another. Its prescription is granted satisfactory efficacy (the macroprogestins' efficacy has never been evaluated) but requires a strict pill-taking routine (especially for the microprogestin contraception). It has never been demonstrated that the use of progestogen is associated with an increased risk of breast cancer. Nevertheless, analysis of breast cancer and progestogen studies should be carried out carefully. Even though the effects, often misunderstood, of the different progestogens on mineral bone density are likely to vary according to the molecules, in particular due to the plasma estradiol level, there is no direct argument for considering the progestin only contraception as a fracture risk factor. As for the venous thromboembolism risk, progestogens are not considered to be risk factors. The progestogen only

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contraception is advised in the following cases: bad tolerance of exogenous oestrogens; in order to counteract an endogenous hyperoestrogenesis; metabolic or cardiovascular contraindications to estroprogestin; hormonal fluctuations generating premenstrual dysphoria or catamenial headaches. Lastly, the progestin-only contraception should be used as a prime contraception in some particular situations (breast feeding, adenomyosis...) (Madelenat & Koskas, 2008, abstract).

Rodriguez, M. I., & Kaunitz, A. M. (2009). An evidence-based approach to postpartum use of depot medroxyprogesterone acetate in breastfeeding women. *Contraception*, 80(1), 4-6.

This article addresses the controversy surrounding and current guidelines for the use of depot medroxyprogesterone (DMPA) in postpartum, breastfeeding women. The authors acknowledge that “the use of DMPA immediately postpartum in breastfeeding women has remained controversial due to theoretical concerns over the potential impact of DMPA on milk supply and quality, the possibility of transference to the neonate with adverse outcomes, and maternal safety risks. These concerns have been potentiated by the World Health Organization’s (WHO) classification of DMPA use postpartum in breastfeeding women as Class 3, a condition where the theoretical or proven risks usually outweigh the advantages of using the method” (Rodriguez & Kaunitz, 2009, p. 4). A review of the evidence leads to the following conclusion: “Existing data are not sufficient to limit DMPA use postpartum in women at high risk for unintended pregnancy. To minimize the maternal and neonatal risks of unintended pregnancy, DMPA should be administered prior to hospital discharge and no later than the third postpartum week in well-counseled women choosing to use DMPA as their contraceptive, regardless of lactation status” (Rodriguez & Kaunitz, 2009, p. 6).

11. POSTPARTUM CONTRACEPTION IN SPECIAL POPULATIONS

Beydoun, H. A., Beydoun, M. A., & Tamim, H. (2009). How does gestational diabetes affect postpartum contraception in nondiabetic primiparous women? *Contraception, 79*(4), 290-296.

Background: The aim of the study is to explore the effect of gestational diabetes mellitus (GDM) on postpartum contraception among nondiabetic primiparous women.

Study Design: Secondary analyses of 2004-2005 Pregnancy Risk Assessment Monitoring System data from Michigan and Oregon.

Methods: Analyses were performed on 2332 women, taking complex survey design into consideration. Crude and adjusted odds ratios (cOR; aOR) and their 95% confidence intervals (CI) were obtained using logistic regression analyses.

Results: Postpartum use of hormonal (aOR=1.12, 95% CI: 0.68-1.83) and nonhormonal (aOR=1.18, 95% CI: 0.73-1.92) contraception were not influenced by GDM after controlling for confounders. Female sterilization was more frequently adopted (cOR=4.99, 95% CI: 1.13-22.17) and depomedroxyprogesterone acetate (DMPA) (cOR=0.53, 95% CI: 0.23-1.18), diaphragm/cervical cap/sponge (cOR=0.13, 95% CI: 0.016-0.95) and cervical ring (cOR=0.13, 95% CI: 0.017-0.98) were less frequently adopted by women reporting GDM diagnosis.

Conclusion: With few exceptions, GDM does not appear to affect postpartum hormonal and nonhormonal contraception (Beydoun, Beydoun & Tamim, 2009, abstract).

Chin, J. R., Swamy, G. K., Ostbye, T., & Bastian, L. A. (2009). Contraceptive use by obese women 1 year postpartum. *Contraception, 80*(5), 463-468.

Background: Obese women have higher rates of pregnancy complications, making the prevention of unintended pregnancies in this group of particular importance.

Study Design: We performed a secondary analysis of data from Active Mothers Postpartum (AMP), a randomized controlled trial aimed at postpartum weight reduction. We assessed contraceptive use among 361 overweight/obese women 12 months postpartum. Logistic regression was used to model the effect of body mass index (BMI) categories on effective contraceptive use (intrauterine, hormonal or sterilization methods) while adjusting for potential confounders including age, race, parity, breastfeeding, education and chronic illness.

Results: Effective contraceptive use was reported by 45% of women. In the multivariable model, women with a BMI ≥ 35 kg/m² were less likely to use effective contraception than women with a BMI < 30 kg/m² (OR 0.5, 95% CI 0.3-0.8). There was a trend towards less use of effective contraception among women with a BMI 30-34.9 kg/m² as compared to women with a BMI < 30 kg/m².

Conclusion: At 12 months postpartum, obese women were less likely to use effective contraceptive methods than overweight women. Although certain contraceptive methods may be preferred over others in this population, providers should reinforce the importance of effective contraception to avoid unintended pregnancies in obese women (Chin et al., 2009, abstract).

Gutierrez, G. R., Villanueva, S. O., & de Leon, A. L. (2009). Acceptance of contraceptives in the postpartum period in unplanned pregnancies. [Aceptacion de anticonceptivos durante el puerperio en embarazos no planeados] *Ginecologia y Obstetricia De Mexico*, 77(11), 499-503.

Background: In spite the high rate of contraceptives use, the unplanned pregnancies still frequently occur. It is unknown the amount of women with unplanned pregnancies who accept contraceptive methods at immediate postpartum.

Objective: To determine the frequency of women with unplanned pregnancies who accept contraceptives at immediate postpartum and the associated factors with its acceptance.

Material and Method: In a cross-sectional study, women at immediate postpartum were recruited. They were asked if their pregnancy was planned or unplanned; if at postpartum accepted some contraceptive method and reasons for acceptance or not. The statistical analysis included arithmetic mean, standard error, percentages, chi2, Student t test; and logistic analysis regression for determining the associated factors with the acceptance of contraceptives. An alpha value was set at 0.05.

Results: Of 1,024 women 566 (55.3%) had a planned pregnancy and 457 of them (80.7%) accepted contraceptives. The remaining 458 women (44.7%) had an unplanned pregnancy and 402 (87.8%) accepted contraceptives, $p = 0.003$. The significant factor associated with the acceptance of contraceptives was the multiparity, $p = 0.034$.

Conclusion: There is more acceptance of contraception in women with unplanned pregnancy. In these women the multiparity is associated with higher acceptance of contraceptive methods. It is recommended to reinforce the contraceptive counselling in this group of women (Gutierrez, Villanueva & Leon, 2009, abstract).

Nelson, A. L., Le, M. H., Musherraf, Z., & Vanberckelaer, A. (2008). Intermediate-term glucose tolerance in women with a history of gestational diabetes: Natural history and potential associations with breastfeeding and contraception. *American Journal of Obstetrics and Gynecology*, 198(6), 699.e1-7; discussion 699.e7-8.

Objective: This study investigated the natural history of glucose tolerance by using modern definitions in women after delivery of a pregnancy complicated by gestational diabetes. The association between deterioration of glucose metabolism and contraceptive methods was also studied.

Study Design: Retrospective chart review of 592 indigent, primarily Latina women who had been diagnosed with gestational diabetes, monitored for up to 24 months' postpartum.

Results: At the first postpartum visit, 230 women (40.2%) had prediabetes or diabetes. Within the first 12 months, 26.4% experienced deterioration. Of the 89 women monitored for 12-24 months, another 38.5% had prediabetes ($n = 13$) or diabetes ($n = 11$) develop. About 22% of women by using only nonhormonal contraception experienced worsening of their glucose status, whereas 35% of combined hormonal contraceptive users and 34% of progestin-only users worsened.

Conclusion: Gestational diabetes is a sentinel event signaling the need for frequent testing postpartum (Nelson et al., 2008, abstract).