

EXCERPT ON BREASTFEEDING FOR CONTRACEPTION AND THE LACTATIONAL AMENORRHEA METHOD (LAM) – *FROM:*

AN ANNOTATED BIBLIOGRAPHY OF POSTPARTUM FAMILY PLANNING LITERATURE

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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.

Updated from an earlier version, the bibliography primarily focuses on published literature, but includes some key gray literature as well (gray literature entries include a URL). The literature has been reorganized for this edition, and over fifty new entries have been incorporated. Separate categories for LAM and birth spacing have been allotted and expanded, and facility- and community-based literature was combined because this distinction was not always made in the literature. Also, the postpartum IUD category is new to this edition.

This excerpt on selected literature related to LAM and breastfeeding for contraception is only one component of the larger FP Bibliography.

Methodology

Initially the review focused primarily on journal articles published in 1996 or later with an emphasis on studies that were undertaken in developing countries. This edition updated the list with similar studies, and expanded the initial list with historically important literature that continues to inform the post-partum contraception discussion today. The literature review was begun with a search on Medline (1996–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. Finally, the search method used by the Cochrane Collaboration for the review *Education for contraceptive use by women after childbirth* was used on Medline (1996–current update), CINAHL and EMBASE.

In an effort to be more inclusive of programmatic gray literature, searches were also conducted in USAID's Development Experience Clearinghouse, the British DFID publications database, AUSAID, JICA, and Popline. The timeframe was extended to include 1993 to the present.

3. BREASTFEEDING FOR CONTRACEPTION & LACTATION AMENORRHEA METHOD

Afifi, M. (2007.) Lactational amenorrhoea method for family planning and women empowerment in Egypt. *Singapore Medical Journal*, 48(8), 758-762.

Introduction: This study aims to assess the potential for the lactational amenorrhoea method (LAM) and passive LAM among women with children below six months of age, and to examine its association with women empowerment in household decisions.

Methods: Data from the Egypt Demographic Health Survey 2000 was downloaded from the Demographic and Health Surveys website. A sub-sample of women fulfilling all four criteria were selected: (1) women whose last birth was less than three years ago; (2) currently married; (3) not sterilized; and (4) currently breastfeeding their children. Accordingly, only 3447 women entered into the statistical analysis, of whom 1141 had children below six months of age.

Results: Passive LAM users constituted 82 percent of the women who met LAM criteria, 57.1 percent of exclusive breastfeeding mothers, and 32.9 percent of all nursing mothers of children below six months of age. 11.8 percent of women who met the LAM criteria were under double coverage of family planning methods. In the logistic regression model where all variables were adjusted, women empowerment in household decisions, significantly and independently, inversely predicted passive LAM along with increase in child age (Odds ratio [OR] of 0.86 and 0.43 respectively). Women with higher birth order children were more likely to use passive LAM (OR 1.11).

Conclusion: Women of low empowerment index in household decisions were more likely to use passive LAM. Passive LAM users could be subjected to discontinuation or double coverage of contraceptives" (Afifi, 2007, abstract).

Becker, S., and Ahmed, S. (2001.) Dynamics of contraceptive use and breastfeeding during the post-partum period in Peru and Indonesia. *Population Studies*, 55 (2), 165-179.

"This paper examines the interaction between contraceptive use and breastfeeding in relation to resumption of intercourse and duration of amenorrhea post-partum. We used data from the month-by-month calendar of reproductive events from Demographic and Health Surveys (DHS) in Peru and Indonesia. The analyses show that breastfeeding women were less likely than non-breastfeeding women to have resumed sexual intercourse in the early months post-partum in both countries. In Peru, but not in Indonesia, breastfeeding women had a significantly lower odds than non-breastfeeding women of adopting contraception. Although the likelihood of contraceptive adoption was highest in the month women resumed menstruation in both countries, about ten per cent of subsequent pregnancies occurred to women before they resumed menses. These results emphasize the importance of integrating breastfeeding counseling and family planning services in programmes serving post-partum women, as a means of enabling those who wish to space their next birth to avoid exposure to the risk of a pregnancy that may precede the return of menses" (Becker & Ahmed, 2001, abstract).

Bongiovanni, A., Samam'h, M.A., Al'Sarabi, R.H., Masri, S.D., Zehner, E.R., and Huffman, S.L. (2005.) Promoting the Lactational Amenorrhea Method (LAM) in Jordan increases modern contraception use in the extended postpartum period. The Linkages Project. Washington, DC: Academy for Educational Development.

www.linkagesproject.org/media/publications/LAM%20Research%20Report,%20Final,%20November%201,%202005.pdf

This document reports on LINKAGE's research in Jordan with LAM. "LINKAGES is USAID's Breastfeeding, LAM, Related Complementary Feeding, and Maternal Nutrition Program managed by the Academy for Educational Development (AED)" (Bongiovanni, et al, 2005., p. ii.). Interventions included service provider training, educational materials for clients, and public media messages, and took place from 1998-2003. Next, information about LAM use was gathered by survey in 2004. Not only was LAM found to be effective, but "increasing the proportion of BFFP [breastfeeding for family planning] users who know and act upon the six month criterion [of LAM] would result in a substantial increase in effective LAM use" in Jordan (Bongiovanni, et al., 2005, p.ii.). In other words, exclusive breastfeeding women who did not know about LAM were at risk for not transitioning to another method of contraception at six months postpartum, while women who were aware of LAM criteria were likely to transition appropriately. The authors included a discussion of child health as a benefit of LAM (Bongiovanni, et al., 2005).

Brown, M. (2007.) When ancient meets modern: The relationship between postpartum non-susceptibility and contraception in sub-Saharan Africa. *Journal of Biosocial Science*, 2007, 39(4), 493-515.

"Extended durations of postpartum non-susceptibility (PPNS) comprising lactational amenorrhoea and associated taboos on sex have been a central component of traditional reproductive regimes in sub-Saharan Africa. In situations of rising contraceptive prevalence this paper draws on data from the Demographic Health Surveys to consider the neglected interface between ancient and modern methods of regulation. The analysis reports striking contrasts between countries. At one extreme a woman's natural susceptibility status appears to have little bearing on the decision to use contraception in Zimbabwe, with widespread 'double-protection.' By contrast, contraceptive use in Kenya and Ghana builds directly onto underlying patterns of PPNS. Possible explanations for the differences and the implications for theory and policy are discussed" (Brown, 2007, abstract).

CDC. (2000.) *Family planning methods and practice: Africa*. 2nd Ed. Atlanta, GA: US Department of Health and Human Services, Centers for Disease Control and Prevention, National Center for Chronic Disease Prevention and Health Promotion, Division of Reproductive Health, 2000.

www.cdc.gov/reproductivehealth/Products&Pubs/Africa/AfricaFP.htm

This book for health care providers working in Africa contains a chapter entitled, "Lactation and Postpartum Contraception" (CDC, 2000). The chapter opens with a short vignette about a physician who "made certain they [postpartum patients] had contraceptive supplies at home well before the baby's 6-month birthday" (CDC, 2000, p. 261). Topics include the characteristics and physiology of lactation in Africa, the benefit of lactation to mother and baby, and information about breastfeeding as it pertains to HIV. Lactational amenorrhea is discussed, and a practical lactation guide to common breastfeeding complications is included. Finally, the chapter concludes with an overview of contraceptive choices and timing for the postpartum woman, and tips for the integration of family planning services with breastfeeding assistance (CDC, 2000.)

Cooney, K. A., Nyirabukeye, T., Labbok, M. H., Hoser, P. H., and Ballard, E. (1996.) An assessment of the nine-month lactational amenorrhea method (MAMA-9) in Rwanda. *Studies in Family Planning*, 27(3), 102–171.

“This report presents a secondary data analysis based on prospectively collected records gathered during a field assessment that was carried out in Rwanda in August 1993. The assessment used service statistics and follow-up interviews to evaluate the efficacy of a modified lactational amenorrhea method (LAM) as a nine-month introductory postpartum natural family planning method. The program, carried out by Action Familiale Rwandaise (AFR), reflects high efficacy of the method in a compliant sample that sought this method followed by another form of family planning. These results are promising and provide guidance for the extended use of LAM past six months. Programmatic findings suggest that studies be conducted of the contribution of extended LAM to improved weaning practices, the high efficacy of continued reliance on substantial lactation and amenorrhea beyond nine months, and male involvement in LAM and breastfeeding” (Cooney et al., 1996, abstract).

Coovadia, H.M., Rollins, N.C., Bland, R.M., Little, K., Coutsooudis, A., Bennish, M.L., et al. (2007.) Mother-to-child transmission of HIV-1 infection during exclusive breastfeeding in the first 6 months of life: An intervention cohort study. *Lancet*, 2007(369), 1107-1116.

“Background: Exclusive breastfeeding, though better than other forms of infant feeding and associated with improved child survival, is uncommon. We assessed the HIV-1 transmission risks and survival associated with exclusive breastfeeding and other types of infant feeding.

Methods: 2722 HIV-infected and uninfected pregnant women attending antenatal clinics in KwaZulu Natal, South Africa (seven rural, one semiurban, and one urban), were enrolled into a non-randomised intervention cohort study. Infant feeding data were obtained every week from mothers, and blood samples from infants were taken monthly at clinics to establish HIV infection status. Kaplan-Meier analyses conditional on exclusive breastfeeding were used to estimate transmission risks at 6 weeks and 22 weeks of age, and Cox’s proportional hazard was used to quantify associations with maternal and infant factors.

Findings: 1132 of 1372 (83%) infants born to HIV-infected mothers initiated exclusive breastfeeding from birth. Of 1276 infants with complete feeding data, median duration of cumulative exclusive breastfeeding was 159 days (first quartile [Q1] to third quartile [Q3], 122–174 days). 14.1% (95% CI 12.0–16.4) of exclusively breastfed infants were infected with HIV-1 by age 6 weeks and 19.5% (17.0–22.4) by 6 months; risk was significantly associated with maternal CD4-cell counts below 200 cells per μL (adjusted hazard ratio [HR] 3.79; 2.35–6.12) and birthweight less than 2500 g (1.81, 1.07–3.06). Kaplan-Meier estimated risk of acquisition of infection at 6 months of age was 4.04% (2.29–5.76). Breastfed infants who also received solids were significantly more likely to acquire infection than were exclusively breastfed children (HR 10.87, 1.51–78.00, $p=0.018$), as were infants who at 12 weeks received both breastmilk and formula milk (1.82, 0.98–3.36, $p=0.057$). Cumulative 3-month mortality in exclusively breastfed infants was 6.1% (4.74–7.92) versus 15.1% (7.63–28.73) in infants given replacement feeds (HR 2.06, 1.00–4.27, $p=0.051$).

Interpretation: The association between mixed breastfeeding and increased HIV transmission risk, together with evidence that exclusive breastfeeding can be successfully supported in HIV-infected women, warrant revision of the present UNICEF, WHO, and UNAIDS infant feeding guidelines” (Coovadia, et al., 2007, abstract).

►► David, S., Abbas-Chorfa, F., Vanhems, P., Vallin, B., Iwaz, J., & Ecochard, R. (2008). Promotion of WHO feeding recommendations: A model evaluating the effects on HIV-free survival in African children. *Journal of Human Lactation*, 24, 140-149.

“In Africa, HIV and feeding practices deeply affect child mortality. To prevent mother-to child transmission, the World Health Organization recommends exclusive breastfeeding for 6 months and replacement feeding when acceptable, feasible, affordable, and sustainable. Determining the proportion and number of children

saved with exclusive breastfeeding and replacement feeding is essential to design and implement crucial nationwide policies. Using data on 31 sub-Saharan countries and a decision tree for risk assessment, the authors estimated the number of children's lives potentially saved according to 6 scenarios that combine exclusive breastfeeding for 6 months or replacement feeding with 3 promotion strategies. Among all HIV-negative children born to HIV-positive mothers who die in sub-Saharan Africa per year, 52 315 (9.6%) would be saved yearly with exclusive breastfeeding versus 21 638 (4.0%) with replacement feeding. Promotion support would double these numbers (110 625 vs 45 330; ie, 20.3% vs 8.3%), and with additional prenatal group education, 132 633 versus 54 192 lives would be saved (24.3% vs 9.9%). Wherever replacement feeding is not possible, exclusive breastfeeding with promotion support and prenatal group education would save 1 of 4 exposed children" (David, et al., 2008, abstract).

Diaz, S., Aravena, R., Cardenas, H., Casado, M.E., Miranda, P., Schiappacasse, V., et al. (1991.) Contraceptive efficacy of lactational amenorrhea in urban Chilean women. *Contraception*, 43(4), 335-352.

"The contraceptive efficacy of breastfeeding was assessed in 236 healthy urban women who were followed at monthly intervals during the first postpartum year. Proportional hazard models were used to evaluate the influence of time postpartum, menstrual status and breastfeeding pattern upon the risk of pregnancy. Time and menstrual status had a highly significant effect on this risk. Those women who remained in amenorrhea had cumulative probabilities of pregnancy of 0.9% and 17% at 6 and 12 months postpartum, respectively. In those who recovered menstrual cycles, the risk rose to 36% and 55% at 6 and 12 months, respectively. Milk supplementation also increased significantly the risk when considered alone but not when time and/or menstrual status were included in the analysis. However, amenorrheic women who introduced bottle feeding, had a higher risk of pregnancy after 6 months postpartum than those who remained fully nursing. The analysis was unable to detect a significant influence of the nursing frequency. The results confirm that lactational amenorrhea is an effective contraceptive during the first six months postpartum. The first postpartum bleeding marks a great increase in the risk of pregnancy. Supplementation also increases the risk, particularly in amenorrheic women" (Diaz et al., 1991, abstract).

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

"The objective of this study was to determine the exclusive breast-feeding practices, return of menstruation, sexual activity and contraceptive practices among breast-feeding mothers in the first six months of lactation. The study was based in Onitsha, South Eastern Nigeria. A structured questionnaire was used to obtain data from breast-feeding mothers on their age, educational attainment, breast-feeding practices, return of menstruation, sexual activity and contraceptive practices within the first six months of lactation at intervals of 6 weeks, 10 weeks 14 weeks and 6 months post delivery. Analysis of the information obtained showed that out of the 178 mothers who participated in the study 81% of the mothers were within the ages of 20–34 years. While all the mothers had formal education, the majority (59%) had secondary education. Seventy-three percent initiated breast-feeding within one hour of delivery. On discharge from hospital, all of them had already established breast-feeding which continued up to six weeks and dropped to 97.8% at six months. Exclusive breast-feeding which was practiced by 100% on discharge dropped to 3.9% at six months. The

feeding regimen was on demand as practiced by 98.9% of the mothers. Menstrual flow had returned in 33.8% of the mothers by 6 weeks of lactation, and had risen to 70.2% at six months. There was more prolonged lactational amenorrhea in exclusively breast-feeding mothers than in those who were not. By 6 weeks post delivery 31.6% of the mothers had resumed sexual activity and this rose to 93.6% at six months. With the resumption of sexual activity only 5% of the mothers resorted to contraceptive practices other than lactational amenorrhea and this increased to 54% at six months. There was no pregnancy in any of these women during the six months period. While appreciating the role of lactational amenorrhea in child spacing and considering the early return of sexual activity among the mothers the practice of introducing contraceptive practices needs to be encouraged especially in women whose menstruation has returned (Egbuono et al., 2005, abstract).

Gray, R.H., Campbell, O.M., Apelo, R., Eslami, S.S., Zacur, H., Ramos, R.M., et al. (1990.) Risk of ovulation during lactation. *The Lancet*, 335(8680): 25-29.

“60 breastfeeding mothers in Baltimore and 41 in Manila recorded their infant feeding patterns daily, and gave additional information at weekly interviews. Ovarian activity was monitored by assays for hormone metabolites in daily urine samples. On average, women in Baltimore breastfed less often but for longer at each feed than women in Manila, and the mean times until ovulation were 27 and 38 weeks post partum. 41% of first ovulations had luteal phase defects. Anovular first menses were common (45.1%) during the first 6 months post partum but the rate fell greatly thereafter. The risk of ovulation was reduced by a higher frequency of breastfeeds, longer duration of each feed, and less supplementary feeding. During the first 6 months post partum, amenorrhoeic women had low risks of ovulation (below 10%) with partial breastfeeding, and exclusive breastfeeding reduced the risk to 1-5% with either frequent short feeds or infrequent longer feeds. However, if the woman started menstruating before 6 months post partum, or if she continued breastfeeding beyond 6 months, the risk of ovulation rose, and contraception would be needed” (Gray et al., 1990, abstract).

Gray, R.H., Campbell, O.M., Zacur, H.A., Labbok, M.H., and MacRae, S.L. (1987.) Postpartum return of ovarian activity in nonbreastfeeding women monitored by urinary assays. *Journal of Clinical Endocrinology and Metabolism*, 64(4), 645-650.

“Assays of first morning urine samples for pregnanediol-3 alpha-glucuronide (PdG), estradiol-17 beta-glucuronide (E2G), and LH were used to monitor endocrine function in 16 regularly cycling women and 22 postpartum nonbreastfeeding women. Twice weekly blood samples were also obtained from the postpartum group. Ovulation was inferred by a significant rise in LH and PdG, and reversal of the E2G to PdG ratio. Luteal phase PdG excretion was measured by the peak of smoothed PdG levels and the area under the smoothed luteal phase PdG curve. The lower limits of normal established in 16 cycling women were a peak luteal phase PdG of 4 micrograms/ml and an area under the PdG curve of 20 micrograms/ml. In the postpartum women, 32% of first cycles were anovulatory, and among ovulatory cycles, 73% had abnormally low luteal phase PdG excretion or short luteal phases. In second and subsequent cycles, 15% were anovulatory and 26% had luteal phase abnormalities. There was a progressive increase in luteal PdG excretion from the first to third cycles. The mean delay before first ovulation was 45.2 days, and no woman ovulated before 25 days after delivery. The correlations between blood and urinary hormone levels were 0.78 for PdG, 0.65 for E2G, and 0.55 for LH. We conclude that assays of daily early morning urine samples provide reliable information on ovulation and luteal phase adequacy, and that there is gradual recovery of pituitary ovarian function after parturition” (Gray, et al., 1987, abstract).

Hardy, E., Santos, L. C., Osis, M. J., Carvalho, G., Cecatti, J. G., and Faundes, A. (1998.) Contraceptive use and pregnancy before and after introducing lactational amenorrhea (LAM) in a postpartum program. *Advances in Contraception*, 14(1), 59–68.

“There is good evidence that lactational amenorrhea (LAM) is an effective method of fertility regulation during the first 6 months postpartum, provided no other food is given to the baby and the mother remains amenorrheic. However, although breast-feeding is strongly promoted in many maternity hospitals that also run postpartum family planning programs, LAM is rarely included among the contraceptive options being offered. This paper presents the results of an operational study which compared the prevalence of contraceptive use and the cumulative pregnancy rate at 12-months postpartum among 350 women observed before and 348 women studied after introducing LAM as an alternative contraceptive option offered to women following delivery at the Instituto Materno Infantil de Pernambuco (IMIP), in Recife, Brazil. The percentage of women not using any contraceptive method was significantly lower ($p < 0.0001$) after the intervention (7.4%) than before (17.7%). This difference remained statistically significant after controlling for age, number of living children, marital status and years of schooling. The proportion pregnant one year postpartum was also significantly lower ($p < 0.0001$) after the introduction of LAM (7.4%) than before (14.3%), but the difference was no longer significant after controlling for the same variables. It is concluded that LAM is a useful addition to family planning postpartum programs” (Hardy et al., 1998, abstract).

Hatcher, R.A., Trussell, J., Stewart, F., Nelson, A.L., Cates, Jr., W.C., Guest, F., et al. (2004.) *Contraceptive Technology*. 18th ed. New York: Ardent Media.

This book is a reference for reproductive health and contraceptive options. Chapter 23, entitled “Postpartum Contraception and Lactation,” is written by experts Kathy Irene Kennedy, DrPH, and James Trussell, PhD. A biology explanation is given for LAM and mechanisms of postpartum infertility, and the explanations are used to support a list of evidence-based guidelines for counsel for postpartum patients about breastfeeding. LAM is presented as an algorithm for the provider and postpartum client to evaluate whether LAM is an appropriate choice for her care. Next, an in-depth description of other forms of postpartum contraception is given, including information on the IUD. The topic of breastfeeding concludes the chapter, and evidence-based breastfeeding information is given and formatted for patient education (Hatcher et al., 2004).

Hight-Laukaran, V., Labbok, M. H., Peterson, A. E., Fletcher, V., von Hertzen, H., and Van Look, P. F. (1997.) Multicenter study of the Lactational Amenorrhea Method (LAM): II. Acceptability, utility, and policy implications. *Contraception*, 55(6), 337–346.

“A multicenter study of the Lactational Amenorrhea Method (LAM) was carried out to determine acceptability, satisfaction, and utilization in 10 different populations, and to confirm the efficacy of the method. Efficacy data are presented in a companion paper. A protocol was designed at the Institute for Reproductive Health (IRH), Department of Obstetrics and Gynecology, Georgetown University Medical Center, and reviewed and modified in collaboration with the co-sponsors, the World Health Organization, the South-to-South Cooperation for Reproductive Health, and the principal investigators from each site. Data were gathered prospectively on LAM users at 11 sites. Data were entered and cleaned on-site, and further cleaned and analyzed at IRH, using country-level and pooled data to produce descriptive statistics. The overall satisfaction with LAM was 83.6%, and continuation with another method of family planning was shown to be 67.6% at 9 months postpartum, in most cases exceeding previous use of contraception prior to use of LAM. Knowledge and understanding of the method at discontinuation were high, ranging from 78.4 to

88.6% for the three criteria. LAM can be used with a high level of satisfaction and success by women in a variety of cultures, health care settings, socio-economic strata, and industrial and developing country settings. The results confirm that LAM is acceptable and ready for widespread use, and should be included in the range of services available in maternal and child health, family planning, and other primary health care settings” (Hight-Laukaran et al., 1997, abstract).

Hight-Laukaran, V., Rutstein, S. O., Labbok, M. H., and Ballard, E. (1996.) Contraceptive use during lactational amenorrhea. *International Journal of Gynaecology and Obstetrics*, 54(2), 101–108.

“Objective: The study uses data from nationally representative sample surveys in developing countries to estimate the overlap between lactational amenorrhea and contraceptive use during the first 6 months postpartum.

Method: Secondary analyses of survey data were used to tabulate the proportion of the population in lactational amenorrhea among contraceptive users for all women, for postpartum women and for the country as a whole.

Results: Among postpartum women, the proportion in lactational amenorrhea was particularly high in Africa and the Near East and lower in Latin America and the Caribbean where breast-feeding practices have declined. The median duration of use for oral contraceptives is also presented as an aid to interpreting the significance of the findings.

Conclusions: The significance of the findings is considered in the context of planning reproductive health services in the postpartum period. Decisions about timing of contraceptive use for postpartum women, while arrived at on an individual basis, also result from program strategies that focus counseling immediately postpartum or at a later interval, such as when menses resume. On a national level the impact of postpartum contraception policies on use of commodities may be substantial” (Hight-Laukaran et al., 1996, abstract).

Huffman, S. L., and Labbok, M. H. (1994.) Breastfeeding in family planning programs: a help or a hindrance? *International Journal of Gynaecology and Obstetrics*, 47 Suppl, S23-31; discussion S31-2.

“Breastfeeding is a major contributor to child spacing and reproductive health, and as such, is a vital women's issue. Further, if breastfeeding levels were to decline, the increase in family planning services that would be required to replace the lost fertility impact would be prohibitive, both in terms of cost and difficulty. This concern places breastfeeding centrally as a family planning policy issues as well. This paper discusses how breastfeeding contributes to child spacing and reduced fertility; the appropriate and timely introduction of complementary family planning methods during breastfeeding; issues and controversies in the support of breastfeeding as a family planning issue in the context of women's concerns, including the concept of exclusive breastfeeding for 6 months, the encouragement and support to maintain breastfeeding after 6 months, and the use of the Lactational Amenorrhea Method (LAM) and other family planning methods in the early postpartum period; and the role of family planning programs in supporting women's informed reproductive health choices” (Huffman & Labbok, 1994, abstract).

Illif, P.J., Piwoz, E.G., Tavengwa, N.V., Zunguza, C.D., Marinda, E.T., Nathoo, K.J., et al. (2005.) Early exclusive breastfeeding reduces the risk of postnatal HIV-1 transmission and increases HIV-free survival. *AIDS*, 19(7), 699-708.

“Objectives: The promotion of exclusive breastfeeding (EBF) to reduce the postnatal transmission (PNT) of HIV is based on limited data. In the context of a trial of postpartum vitamin A supplementation, we provided education and counseling about infant feeding and HIV, prospectively collected information on infant feeding practices, and measured associated infant infections and deaths. **Design and methods:** A total of 14 110 mother-newborn pairs were enrolled, randomly assigned to vitamin A treatment group after delivery, and followed for 2 years. At baseline, 6 weeks and 3 months, mothers were asked whether they were still breastfeeding, and whether any of 22 liquids or foods had been given to the infant. Breastfed infants were classified as exclusive, predominant, or mixed breastfed.

Results: A total of 4495 mothers tested HIV positive at baseline; 2060 of their babies were alive, polymerase chain reaction negative at 6 weeks, and provided complete feeding information. All infants initiated breastfeeding. Overall PNT (defined by a positive HIV test after the 6-week negative test) was 12.1%, 68.2% of which occurred after 6 months. Compared with EBF, early mixed breastfeeding was associated with a 4.03 (95% CI 0.98, 16.61), 3.79 (95% CI 1.40-10.29), and 2.60 (95% CI 1.21-5.55) greater risk of PNT at 6, 12, and 18 months, respectively. Predominant breastfeeding was associated with a 2.63 (95% CI 0.59-11.67), 2.69 (95% CI 0.95-7.63) and 1.61 (95% CI 0.72-3.64) trend towards greater PNT risk at 6, 12, and 18 months, compared with EBF.

Conclusion: EBF may substantially reduce breastfeeding-associated HIV transmission” (Illif et al., 2005, abstract).

Kennedy, K.I., Kotelchuck, M. (1998.) Policy considerations for the introduction and promotion of the lactational amenorrhea method: Advantages and disadvantages of LAM. *Journal of Human Lactation*, 14 (3), 191-203.

US public health researchers consider the evidence of LAM since its inception as a programmatic option ten years previous to this study, and examine “the advantages and disadvantages of LAM, and their implications for policy and use,” especially in consideration of varying world contexts (Kennedy & Kotelchuck, 1998, p. 191). Advantages of LAM are its efficacy, reliability, and it expands the “contraceptive options” for women; and, in addition, potential advantages may be realized if LAM is shown to “be an effective conduit to other modern methods” and if the method is shown to be “cost effective” (Kennedy & Kotelchuck, 1998, p. 201). Disadvantages include that LAM “affords no protection against STDs, it requires counseling from a well-informed provider, and intensive breastfeeding can make heavy demands on the woman’s time” (Kennedy & Kotelchuck, 1998, p. 201). In consideration of these findings, the researchers call for “research designed to determine what factors, if any, will maximize the uptake of a second modern contraceptive method after LAM protection expires..., to compare this with other contraceptive strategies, and to evaluate the cost aspects” (Kennedy & Kotelchuck, 1998, p. 201).

Kennedy, K.I., Kotelchuck, M., Visness, C.M., Kazi, A., & Ramos, R. (1998.) Users’ understanding of the lactational amenorrhea method and the occurrence of pregnancy. *Journal of Human Lactation*, 14 (3), 209-218.

“It is unknown whether a user’s understanding of the Lactational Amenorrhea Method (LAM) is related to its successful use. A study of 876 LAM users in Pakistan and the Philippines collected information about women’s understanding of LAM. The present analysis aims to determine: (1) the proportion of LAM users who understand the method, (2) whether any known factors can distinguish those who understand LAM from those who do not, and (3) whether an understanding of LAM is related to subsequent pregnancy. Over

75% of LAM users could consistently recite the LAM guidelines correctly for a full year postpartum. However, 38% of users failed to display, at least once, an understanding of LAM during the first year postpartum mainly by failing to abstain, to use another method or to explain their nonuse of another method when their LAM protection expired. LAM understanding generally could not be predicted by sociodemographic factors. The occurrence of pregnancy during the first year postpartum was not related to LAM understanding, regardless of how LAM understanding was defined, nor could it be predicted by any other measured characteristic of the users” (Kennedy et al., 1998, abstract).

Kennedy, K., and Visness, C.M. (1992.) Contraceptive efficacy of lactational amenorrhoea. *The Lancet*, 339(8787), 227-230.

“Pregnancy is rare among breastfeeding women with lactational amenorrhoea. The lactational amenorrhoea method (LAM) is the informed use of breastfeeding as a contraceptive method by a woman who is still amenorrhoeic, and who is not feeding her baby with supplements, for up to 6 months after delivery. Under these three conditions, LAM users are thought to have 98% protection from pregnancy. It can be difficult, however, to determine when supplementation of the baby's diet begins. We have analysed data from nine studies of the recovery of fertility in breastfeeding women to assess the effectiveness of lactational amenorrhoea alone, irrespective of whether supplements have been introduced, as a fertility regulation method post partum. Cumulative probabilities of ovulation during lactational amenorrhoea were 30.9 and 67.3 per 100 women at 6 and 12 months, respectively, compared with 27.2 at 6 months when all three criteria of the LAM were met. Cumulative pregnancy rates during lactational amenorrhoea were 2.9 and 5.9 per 100 women at 6 and 12 months, compared with 0.7 at 6 months for the LAM. The probability of pregnancy during lactational amenorrhoea calculated from these studies is similar to that of other modern contraceptive methods, and it seems reasonable for a woman to rely on lactational amenorrhoea without regard to whether she is fully or partly breastfeeding. So that amenorrhoea and fertility suppression can be maintained, counselling about good breastfeeding and weaning practices remains important” (Kennedy & Visness, 1992, abstract).

Khella, A. K., Fahim, H. I., Issa, A. H., Sokal, D. C., and Gadalla, M. A. (2004.) Lactational amenorrhea as a method of family planning in Egypt. *Contraception*, 69(4), 317–222.

“Because of the potential importance of the lactational amenorrhea method (LAM) as a family-planning option in Egypt, we analyzed data from the 1995 Egyptian Demographic and Health Survey (EDHS) to study breastfeeding practices, use of contraception, reproductive history and sociodemographic factors for 5504 mothers with children under 3 years. According to the EDHS data, about 80% of Egyptian women breastfed for at least 6 months, and 40% breastfed for 15–18 months. Over half of breastfeeding mothers used no additional contraception. Thirty-six percent of mothers breastfeeding children younger than 6 months who reported using no additional contraception were exclusively breastfeeding and amenorrheic, but only 4% reported relying on breastfeeding for family planning. We also held eight focus group discussions with breastfeeding mothers from urban and rural Upper and Lower Egypt on their use of contraceptive methods, breastfeeding, lactational amenorrhea and LAM. Participants showed strong recognition of the contraceptive effects of breastfeeding but differed widely in their understanding of lactational infecundability and knowledge of LAM as a method. These results suggest that LAM would be widely acceptable to Egyptian women, but that an educational program about the method is needed” (Khella et al., 2004, abstract).

Kuti, O., Adeyemi, A.B., and Owolabi, A.T. (2007.) Breast-feeding pattern and onset of

menstruation among Yoruba mothers of South-west Nigeria. *The European Journal of Contraception and Reproductive Health Care*, 12 (4), 335-339.

“Objective: To determine the breast-feeding practices and duration of lactational amenorrhoea among women within the first year of delivery in a Nigerian population.

Method: Cross-sectional study carried out between January 2005 and April 2006, among mothers within one year of delivery, who were attending the Infant Welfare Clinic at Wesley Guild Hospital, Ilesa, Nigeria. Using a semi-structured questionnaire, mothers were interviewed to obtain information regarding their socio-demographic characteristics, parity, breast-feeding habits, use of contraception and onset of menstruation after delivery. Information obtained was analysed using the Statistical Package for Social Sciences (SPSS) software version 11.

Results: All 268 (100%) mothers interviewed breast-fed their babies, 261 (97.4%) of which for at least 6 months. Most (71.6%) suckled exclusively for 6 months and more; only 10 (3.7%) never carried out exclusive breast-feeding. Age, parity and educational level did not affect the duration of exclusive breast-feeding. Lactational amenorrhoea lasted 3 months or more in 229 (85.5%) of the mothers. Of the 174 who exclusively breast-fed for 6 months, 109 (62.6%) remained amenorrhoeic during that time and, hence, met the criteria for use of LAM contraception.

Conclusion: Exclusive breast-feeding among nursing mothers is highly prevalent among Yoruba mothers of South-west Nigeria. Since lactational amenorrhoea lasts 6 months in about two-thirds of the women nursing for that period of time, there is a great potential for the application of LAM for contraception” (Kuti, Adeyemi & Owolabi, 2007, abstract).

►► **Labbok, M.H. (2008). Transdisciplinary breastfeeding support: Creating program and policy synergy across the reproductive continuum. *International Breastfeeding Journal*, 3 (16).**

“This paper was presented at the symposium on Breastfeeding and Feminism: A Focus on Reproductive Health, Rights and Justice. It underscores the power and potential of synergy between and among organizations and individuals supporting breastfeeding, the mother-child dyad, and reproductive health to increase sustainable breastfeeding support. These concepts were brought together to lay the groundwork for working group discussions of synergy in program and policy actions” (Labbok, 2008, abstract).

Labbok, M. H., Hight-Laukaran, V., Peterson, A. E., Fletcher, V., von Hertzen, H., and Van Look, P. F. (1997.) Multicenter study of the Lactational Amenorrhea Method (LAM): I. Efficacy, duration, and implications for clinical application. *Contraception*, 55(6), 327–336.

“A multicenter study of the Lactational Amenorrhea Method (LAM) was carried out to test the acceptability and efficacy of the method. Additionally, the data are used to test new constructs for improvement of method criteria. A protocol was designed at the Institute for Reproductive Health (IRH), Department of Obstetrics and Gynecology, Georgetown University Medical Center, a World Health Organization (WHO) Collaborating Center, and was reviewed and modified in collaboration with the co-sponsors, the World Health Organization and the South to South Cooperation for Reproductive Health, and the principal investigators from each site. Data were gathered prospectively on LAM acceptors at 11 sites. Data were entered and cleaned on-site and further cleaned and analyzed at IRH, using country-level and pooled data to produce descriptive statistics and life tables. The 98+% efficacy of LAM is confirmed in a wide variety of settings. In addition, the results yield insight on the possibility of continued use beyond 6 months. LAM is

found to be highly effective as an introductory postpartum method when offered in a variety of cultures, health care settings, socio-economic strata, and industrial and developing country locales. In addition, LAM acceptance complements breastfeeding behaviors without ongoing breastfeeding support services. The parameters studied yield high efficacy and method continuation. Therefore, the basic tenets of the 1995 Bellagio consensus on LAM is reconfirmed and it is recommended that LAM be reconfirmed and it is recommended that LAM be incorporated into hospital, maternity, family planning, maternal and child health, and other primary health care settings” (Labbok et al., 1997, abstract).

Lopez-Martinez, M.G., Romero-Gutierrez, G., Ponce-Ponce De Leon, A.L. (2006.) Acceptance of lactational amenorrhoea for family planning after postpartum counseling. *The European Journal of Contraception and Reproductive Health Care*, 11(4), 297-301.

“**Objective:** To determine the impact of postpartum counseling on the acceptance of lactational amenorrhoea method (LAM) for family planning.

Methods: In a prospective cross-sectional study 1490 postpartum women were included. Women who accepted or refused LAM for family planning were identified by means of a written survey. Twelve socio-demographic and clinical variables were included as predictors in a logistic regression analysis, the acceptance or refusal of LAM was the dependent variable; an Alpha level was set at 0.05.

Results: There were 807 (54.2%) women who accepted LAM as a contraceptive method; 683 (45.8%) refused it. Main reasons for accepting LAM were: conviction following counseling (54.4%) and use of LAM initially before switching to another modality (18.3%). Main reasons for LAM refusal were: belief that the method was unsafe (62.2%) and fear of some undesirable effect on health (15.8%). In the logistic regression analysis the variables *occupation outside the home* ($P=0.01$) and *previous knowledge of LAM* ($P<0.001$) emerged as predictors of LAM acceptance.

Conclusions: Postpartum counseling of LAM had a very positive impact on its acceptance. Although it is recommended that information about LAM be given antenatally, in some settings postpartum counseling could improve its acceptance rate” (Lopez-Martinez, Romero-Gutierrez & Ponce-Ponce de Leon, 2006, abstract).

McNeilly, A.S. (2001.) Lactational control of reproduction. *Reproduction, Fertility and Development*, 13(7-8), 583-590.

“In most mammalian species lactation suppresses fertility. There is no doubt that it is the suckling stimulus that provides the controlling signal, and, in human reproduction, this is the only truly physiological signal that suppresses fertility in normally nourished, healthy women. In breastfeeding women, the return of normal fertility follows a relatively well-defined path progressing through: an almost complete inhibition of gonadotrophin-releasing hormone/luteinizing hormone (GnRH/LH) pulsatile secretion in the early stages of lactation; return of erratic pulsatile secretion with some ovarian follicle development associated with increases in inhibin B and oestradiol; a resumption of apparently normal follicle growth associated with a normal increase in oestradiol, but often an absence of ovulation, or formation of an inadequate corpus luteum; and a return to normal ovulatory menstrual cycles. A key element in controlling the rate of this progression is the impact of the suckling stimulus on the GnRH pulse generator, a common feature of lactation in those species for which there is information. The variability in the duration of lactational amenorrhoea between women is related to the variation in the strength of the suckling stimulus, a unique situation between each mother and baby. Full breastfeeding can provide a reliable contraceptive effect in the first 6 to 9 months, but the precise mechanisms whereby the suckling stimulus affects GnRH pulsatile secretion remain unknown. Many studies

on the hypothalamic pathways that might be involved in the translation of the neural suckling stimulus to suppression of hypothalamic GnRH secretion have been undertaken, principally in rats. In women, suckling increases the sensitivity of the hypothalamus to the negative feedback effect of oestradiol on suppressing the GnRH/LH pulse generator, a mechanism that appears to be common across species. In contrast, the role of prolactin in the control of GnRH appears to be species-dependent, with the importance varying from none to an important role in late or throughout lactation. In women, there is little evidence for a role of leptin, opioids or dopamine, although this may merely reflect the ethical dilemma of being able to give sufficient drug to test the system in the mother since these drugs will pass through the breast milk to the baby. Regardless of mechanism, practical guidelines for using breastfeeding as a natural contraceptive have been developed, which allows mothers to utilize the only natural suppressor of fertility in women as an effective means of spacing births” (McNeilly, 2001, abstract).

Perez, A., Labbok, M.H., & Queenan, J.T. (1992.) Clinical study of the lactational amenorrhoea method for family planning. *Lancet*, 339 (8799), 968-970.

“The effect of breastfeeding on fertility is well known; however, its use as a method of family planning was, until recently, untested. In 1988, the Bellagio Consensus Conference proposed guidelines that became the basis for a method of family planning called the lactational amenorrhoea method (LAM). The principle of LAM is that a woman who continues to fully or nearly fully breastfeed her infant and who remains amenorrhoeic during the first 6 months postpartum is protected from pregnancy during that time. We have assessed this method in the context of a breastfeeding support intervention study of 422 middle-class women in urban Santiago, Chile. The cumulative 6-month life-table pregnancy rate was 0.45% among women who relied on LAM as their only family planning method (1 woman pregnant in month 6). The findings indicate that LAM, with its high acceptance and efficacy, is a viable method of family planning and can safely serve as an introductory method for breastfeeding women” (Perez, Labbok & Queenan, 1992, abstract).

Peterson, et al., (2000.) Multicenter study of the lactational amenorrhea method (LAM) III: Effectiveness, duration, and satisfaction with reduced client-provider contact. *Contraception*, 62(5), 221-230.

“The objective of this effort was to assess the use and efficacy of the Lactational Amenorrhea Method (LAM) with reduced numbers of client–provider contacts. A co-sponsored multicenter study of LAM was performed to test the efficacy and acceptability of the method under “post-marketing” conditions, with investigator-initiated contact occurring only twice: at the time of intake and then again at month 7 of postpartum. These data are assumed to provide an assessment of LAM’s use, efficacy, and performance that more closely reflects the prevailing conditions of these populations during normal use. Three hundred and sixty-two subjects were recruited through centers that had participated in the previous, more contact-intensive studies. Using a cooperatively developed protocol, data were gathered prospectively on at least 10 and up to 50 LAM acceptors at nine sites, and entered and cleaned on site. Data were further cleaned and analyzed at the Georgetown University Institute for Reproductive Health (IRH) and the Department of Nutrition at the University of Connecticut. Using country-level and pooled data, descriptive statistics and life tables were produced. LAM efficacy in this sample is 100% because there were no pregnancies at any of the participating sites. Satisfaction with the method was high, and the rate of continuation on to another method after LAM was 66.7% at 7 months postpartum. Of the women who had never used family planning prior to LAM, 63.0% went on to use another method of family planning in a timely manner. LAM can be highly effective as

an introductory postpartum family planning method when offered in a variety of cultures, health care settings, and industrial and developing country locales. Under conditions of limited client–provider contact, LAM remains effective and leads to acceptance of another method by about two-thirds of the acceptors. Women are able to use LAM effectively without extensive counseling or follow-up, with a high level of user satisfaction” (Peterson et al., 2000, abstract).

►► **Radwan, H., Mussaiger, A.O., & Hachem, F. (2009). Breast-feeding and lactational amenorrhea in the United Arab Emirates. *Journal of Pediatric Nursing, 24*, 62-8.**

“This study was designed to investigate the relation of breast-feeding and weaning practices with the duration of lactational amenorrhea among breast-feeding mothers in the United Arab Emirates. A total of 593 mothers were interviewed in the Maternal and Child Health Centers in three areas: Abu Dhabi, Dubai, and Al Ain. The total mean duration of lactational amenorrhea in this study was 6.1 months, and there was a direct relation with the length of exclusive breast-feeding. The duration of postpartum amenorrhea was the longest in Al Ain (7.2 months), as compared with Dubai (6.9 months) and Abu Dhabi (4.3 months). The age of the infant when formula milk and solid supplements were introduced was significantly related to the duration of lactational amenorrhea. This study confirms the results of other studies concerning the effectiveness of the lactational amenorrhea method as a natural method of contraception for the first 6 months postpartum, especially for mothers who breast-feed exclusively and more frequently and who delay the introduction of food supplements” (Radwan, Mussaiger & Hachem, 2009, abstract).

Ravera, M., Ravera, C., Reggiori, A., Coccozza, E., Cianta, F., Riccioni, G., et al. (1995.) A study of breastfeeding and the return of menses in Hoima District, Uganda. *East African Medical Journal, 72*(3), 147-149.

“The effect of breastfeeding on reestablishment of ovulation and fertility and on birth spacing are now well known. A study was conducted on lactational amenorrhoea (LAM) at 180 days in Hoima District, Uganda in order to understand whether and how LAM could be applied in fertility control and birth spacing. Since the introduction of supplementary food by Ugandan women does not replace or substitute for breastfeeding, a study was designed to determine if LAM was effective irrespective of supplementation of infant's diet. One hundred and fifty four mother/child pairs were entered into the study and 134 women completed the sixth month of the study. At the end of the period, eighty four women (62.7%) were amenorrhoeic of whom only 33 (39.3%) were exclusively breastfeeding and no woman had dropped out of the study because of pregnancy or the use of other family planning methods other than LAM. The study confirmed that LAM could be applicable in Uganda to the majority of the breastfeeding women (62.7%). It is expected that if health workers increase the intensity of breastfeeding support as well as the women's knowledge and motivation to use LAM for family planning, this would contribute to children's health as well as to birth spacing that is one of the major factors related to infant deaths. According to data from this study, the return of menses is irrespective of whether supplements have been introduced and their frequency” (Ravera et al., 1995, abstract).

Romero-Gutierrez, G., Vaca-Ortiz, N., Ponce-Ponce de Leon, A.L., & Guadalupe Lopez-Martinez, M. (2007.) Actual use of the lactational amenorrhoea method. *The European Journal of Contraception and Reproductive Health Care, 12* (4), 340-344.

“**Objective:** The lactational amenorrhoea method (LAM) is an effective contraceptive option in developing countries. Post-partum, of the women who accept to apply LAM, many never do. Our aim was to determine

the actual use of LAM.

Methods: A group of 326 post-partum women who accepted LAM use were recruited. After 6 months, they were asked if they actually had applied the method or not. In a logistic regression analysis, nine socio-demographic and clinical variables were studied as predictors of actual LAM use. An alpha level was set at 0.05.

Results: Overall, of the 326 women, only 61 (18.7%) actually applied LAM. The mean duration of LAM use was 4.3 +/- 0.2 months. The main reason for not applying LAM was that women thought the method was ineffective (66.0%). The variable time of menses resumption emerged as a predictor of LAM use ($p = 0.001$).

Conclusions: Despite post-partum acceptance, most women did not actually apply LAM. In our setting as well as in other developing countries, regular contacts with a health care provider could improve LAM use” (Romero-Gutierrez et al., 2007, abstract).

Shaaban, O.M., and Glasier, A.F. (2008.) Pregnancy during breastfeeding in rural Egypt. *Contraception*, 77(2008), 350-354.

“Background: Breastfeeding does not reliably protect against pregnancy except during the first 6 months postpartum and only then if accompanied by amenorrhea. Reluctance to use other methods of contraception during lactation may result in unplanned pregnancy. The aims of this study were to describe, among women in rural Egypt attending for antenatal care the prevalence of pregnancy during breastfeeding, contraceptive practice and unintended pregnancy. Finally, the study assessed women’s impressions of the effect of conception during breastfeeding on breast milk and on the health of the breastfed infant.

Study design: A descriptive study using an interviewer-administered structured questionnaire for 2617 parous women attending a hospital in Egypt for antenatal care.

Results: More than 95% of women breastfed the child before their current pregnancy; 25.3% conceived while breastfeeding. Conception occurred during the first 6 months postpartum in 4.4%, before resumption of menstruation in 15.1% and while exclusively or almost exclusively breastfeeding in 28.1%. Only 10 pregnancies (1.5%) occurred when all the prerequisites of the lactational amenorrhea method of contraception (LAM) were present. Twenty-nine percent of pregnancies conceived during breastfeeding were unintended, 10% of women had considered terminating their pregnancy while 4.4% of them reported trying to do so.

Conclusions: Pregnancy during breastfeeding is common in Egypt and is often unintended. There is great potential for using LAM, but it must be properly taught, and women should be encouraged to start using effective contraception as soon as any of the prerequisites of LAM expires” (Shaaban & Glasier, 2007, abstract).

►► Subhani, A., Gill, G.K., Islam, A., Maryam, M., & Garzedi, A.A. (2008). Duration of lactational amenorrhoea: A hospital based survey in district Abbottabad. *Journal of Ayub Medical College, Abbottabad: JAMA*, 20, 122-4.

“The study was carried out to investigate the duration of lactational amenorrhoea in women of district Abbottabad. The objective of this survey was to determine the duration of lactational amenorrhoea in female population of district Abbottabad, NWFP, Pakistan. **METHODS:** A survey was conducted at Ayub Teaching Hospital from June to August 2006 by selecting admitted females and their attendants at random and subjecting them to questionnaires and interviews to collect relevant data. Majority of the sampled females belonged to different districts of Hazara division. **RESULTS:** Fifty nine (59) mothers of parity 1-5 were

included in the study. The frequency of breast feeding ranged from 60.0% to 100% (mean 66.1%) in different pregnancies; bottle feeding frequencies ranged from 10-12.5% (mean 6.8%); frequencies of combined breast and bottle feeding ranged from 25-30% (mean 27.1%). The mean duration of lactational amenorrhoea for different pregnancies ranged from 6.0 +/- 0.0 weeks to 22.6 +/- 25.1 weeks (overall mean 15.8 +/- 15.2 weeks). Weaning times ranged from 2 to 12 months, with the mean weaning time ranging from 4.8 +/- 1.5 to 5.1 +/- 1.8 months (overall mean 4.8 +/- 1.1 months). CONCLUSION: Maternal hormonal cycles appear to be more involved in regulating the post partum amenorrhea observed in lactating mothers” (Subhani, et al., 2008, abstract).

Tazhibayev, S. et al. (2004.) Promotion of Lactation Amenorrhea Method Intervention Trial, Kazakhstan. Academy of Preventive Medicine, Republic of Kazakhstan. Study funded by USAID through the Population Council.

www.popcouncil.org/pdfs/frontiers/FR_FinalReports/Kazakhstan_LAM.pdf

In order to expand the benefits of breastfeeding as a birth spacing option for women in the Republic of Kazakhstan, the Kazakh Academy of Nutrition at the Academy of Preventive Medicine in Almaty conducted an operations research study to test the effectiveness of Lactation Amenorrhea Method (LAM) promotion among women in Kazakhstan, as part of the Population Council’s Frontiers in Reproductive Health Small Grants Program. In the Promotion of Lactation Amenorrhea Method Intervention Trial (PLAMIT), researchers trained maternity ward staff in four hospitals to provide patient counseling on the benefits of LAM as a family planning method, while five comparison hospitals received no additional support. After the intervention, they observed the breastfeeding habits of 3,969 women and 4,003 children in all nine hospitals, and conducted a total of eight interviews over 12 months with each mother. Reproductive and child health outcomes were compared according to the status of the hospital as intervention or control, and Baby-Friendly (those that are certified according to UNICEF standards) or ordinary (not Baby-Friendly). This report presents only results related to family planning (Tazhibayev et al., 2004).

►► Tilley, I.B., Shaaban, O.M., Wilson, M., Glasier, A. & Mishell, D.R. (2009). Breastfeeding and contraception use among women with unplanned pregnancies less than 2 years after delivery. *International Journal of Gynaecology and Obstetrics*, doi: 10.1016/j.ijgo.2009.01.007.

Objective: To examine breastfeeding and contraceptive use after the lactational amenorrhea method (LAM) criteria were no longer met.

Methods: Two hundred and thirty-three parous Egyptian women with unplanned pregnancies less than 2 years after delivery completed a questionnaire examining breastfeeding practice and contraceptive use.

Results: The majority of women (81.5%) with unplanned pregnancies within 2 years of delivery were breastfeeding at conception. Of these women, 36.3% had used a method of contraception other than LAM compared with 60.5% of women who had weaned ($P < 0.05$). Among the breastfeeding women, 61.2% failed to use contraception because they believed breastfeeding would prevent pregnancy.

Conclusion: Breastfeeding women with unplanned pregnancies were less likely to have used contraception than women who had weaned, suggesting that prolonged breastfeeding contributes to unmet contraceptive need” (Tilley, et al., 2009, abstract).

Tommaselli G.A., Guida M., Palomba S., Barbato M., and Nappi, C. (2000). Using complete breastfeeding and lactational amenorrhoea as birth spacing methods. *Contraception*, 61(4), 253-257.

“The aim of this study was to evaluate the effectiveness of lactational amenorrhoea and to determine the relationship between extended breastfeeding and the return of fertility. Breastfeeding pattern, basal body temperature, cervical mucus, salivary ferning, vaginal blood discharge, frequency of sexual intercourse, and the presence of ovulation in the first cycle after the resumption of menses with ultrasonography were evaluated in 40 women. All subjects completed the study with only one case of incomplete breastfeeding. No pregnancies were observed. The mean number of feeding sessions and mean interval between sessions decreased significantly ($p < 0.01$) during the first six months postpartum (7.5 +/- 1.3 after 60 days postpartum vs. 5.7 +/- 2.1 after 180 days, and 3.6 +/- 0.8 vs. 5.1 +/- 0.9, respectively). Eight women (20%) menstruated before weaning, but none had an adequate thermal shift, while 32 (80%) had their first vaginal bleeding after weaning with 12 (37.5%) registering an adequate thermal shift. Both basal body temperature and salivary ferning proved to be suggestive of ovarian activity, while mucus characteristics were not reliable in identifying fertile periods. Our study showed that breastfeeding associated with lactational amenorrhoea proved to be a good method of postpartum fertility control. Since the importance of supplementation is still debated, it is recommended that a "complete" breastfeeding program be used” (Tommaselli et al., 2000, abstract).

Valeggia, C., and Ellison, P. (2004.) Lactational amenorrhoea in well-nourished Toba women of Formosa, Argentina. *Journal of Biosocial Science*, 36(5), 573-595.

“The proximate causes of the contraceptive effect of lactation are still a matter of productive debate. This study sought to disentangle the relative impact that intense breast-feeding practices and maternal nutrition have on the regulation of ovarian function in nursing women. A mixed-longitudinal, direct-observational, prospective study was conducted of the return to postpartum fecundity in 113 breast-feeding, well-nourished Toba women. A sub-sample of 70 women provided data on nursing behavior, daily activities, diet quality and urinary levels of oestrone and progesterone metabolites. Well-nourished, intensively breast-feeding Toba women experienced a relatively short period of lactational amenorrhea (10.2 +/- 4.3 months) and a high lifetime fertility (TFR = 6.7 live births/woman). Duration of lactational amenorrhoea was not correlated with any of the nursing parameters under study or with static measures of maternal nutritional status. The results indicated that the pattern of resumption of postpartum fertility could be explained, at least partly, by differences in individual metabolic budgets. Toba women resumed postpartum ovulation after a period of sustained positive energy balance. As the relative metabolic load hypothesis suggests, the variable effect of lactation on postpartum fertility may not depend on the intensity of nursing per se but rather on the energetic stress that lactation represents for the individual mother” (Valeggia & Ellison, 2004, abstract).

Van der Wijden, C., Kleijnen, J., and Van Den Berk, T. (2003.) Lactational amenorrhea for family planning. *Cochrane Database System Review*, Issue 4. Art. No.: CD001329. DOI: 10.1002/14651858.CD001329.

“Background: 50 % of pregnancies are unwanted. For several reasons including difficulty in obtaining contraceptives, no or ineffective contraception is used to prevent these unwanted pregnancies. The Lactational Amenorrhoea Method (LAM) however is a contraceptive method available and accessible for many women.

Objectives: To assess in fully breastfeeding women, staying amenorrheic, the efficacy of the Lactational Amenorrhoea Method as a contraceptive method. The efficacy of LAM, as defined in 1988 in Bellagio, was compared with alternative definitions of LAM; the outcomes were measured using pregnancy and menstruation life tables.

Search strategy: Data sources: MEDLINE searches from 1966 until 2002 and EMBASE from 1988 until

2002; reference lists of studies and review articles; books related to LAM; published abstracts from breastfeeding, reproductive health, contraceptive conferences; and e-mail communication with coordinators of such studies.

Selection criteria: From 454 potentially relevant studies 154 investigated the risk of pregnancy during LAM or lactational amenorrhea. Two reviewers applied the following inclusion criteria: prospective study, cases and -if available- controls had to be sexually active, pregnancy had to be confirmed by physical examination or a pregnancy test. Life table menstruation rates and life table pregnancy rates were taken as endpoints. Thirteen publications, reporting on 9 intervention groups and 2 control groups, met the inclusion criteria and were included in this systematic review. Their quality was assessed.

Data collection and analysis: Two reviewers independently extracted data, disagreements were resolved through discussion. Because of the heterogeneity of the included studies, the studies were analyzed using narrative methods.

Main results: For the outcome two controlled studies of LAM users reported life table pregnancy rates at 6 months of 0.45 and 2.45 percent and 5 uncontrolled studies of LAM users reported 0-7.5 percent. Life table pregnancy rates of women fully breastfeeding and amenorrheic but not using any contraceptive method were 0.88 in one study and 0.9-1.2 percent (95% CI 0. 0-2.4) in a second study, depending on the definition of menstruation used. The life table menstruation rate at 6 months in all studies varied between 11.1-39.4 percent.

Reviewer's conclusions: No clear difference in life table pregnancy rates was found between women using LAM and supported in doing so, and fully breastfeeding, amenorrheic women not using any method. Because the length of lactation amenorrhoea of women using LAM is too different between populations studied, and population specific, it is uncertain whether LAM extends lactational amenorrhoea" (Van der Wijden, et al., 2003, abstract).

Vural, B., Vural, F., Erk, A., and Karabacak, O. (1999.) Knowledge of lactational amenorrhea and contraception in Kocaeli, Turkey. *East African Medical Journal*, 76(7), 385–389.

“Objective: To determine the knowledge of women about lactational amenorrhea and contraceptive properties of breastfeeding.

Design: A prospective, randomized descriptive study.

Setting: Kocaeli University School of Medicine, Department of Obstetrics and Gynecology.

Subjects or participants: Nine hundred and twenty-two women in their reproductive ages.

Intervention: A questionnaire was filled by doctors or nurses during face to face interview.

Main outcome measures: There was significantly less knowledge for the importance of frequency and duration of suckling ($p < 0.0001$). The education increases the knowledge of lactational amenorrhea as a interruptus contraceptive method.

Results: More than fifty-three per cent of women were using one of the modern contraceptive methods, 23.86% were using natural methods and 22.78% not using any family planning method. Intrauterine devices (30.15%), coitus interruptus (21.69%) and condom (16.48%) were the most common contraceptive methods. Nearly fifty-two per cent of women were not aware of the contraceptive property of breastfeeding, 25.68% of women knew lactation had a protective effect from pregnancy, 48.16%, did not know the importance of frequency and duration of suckling on fertility reducing effect of lactation.

Conclusion: The level of knowledge on lactational amenorrhea and frequency of suckling was significantly low in our study, especially in the illiterate group. Since efficacy of natural family planning depends on the

compliance of women, education of women about lactation is very important. Family planning programmes should be focused on breastfeeding and type of breastfeeding practices used, especially where there are no contraceptive alternatives” (Vural et al., 1999, abstract).

Wade, K. B., Sevilla, F., and Labbok, M.H. (1994). Integrating the lactational amenorrhea method into a family planning program in Ecuador. *Studies in Family Planning*, 25 (3), 162-175.

“This paper reports the results of a 12-month implementation study documenting the process of integrating the Lactational Amenorrhea Method (LAM) into a multiple-method family planning service-delivery organization, the Centro Médico de Orientación y Planificación Familiar (CEMOPLAF), in Ecuador. LAM was introduced as a family planning option in four CEMOPLAF clinics. LAM was accepted by 133 breastfeeding women during the program's first five months, representing about one-third of postpartum clients. Seventy-three percent of LAM acceptors were new to any family planning method. Follow-up interviews with a systematic sample of 67 LAM users revealed that the method was generally used correctly. Three pregnancies were reported, none by women who were following LAM as recommended. Service providers' knowledge of LAM resulted in earlier IUD insertions among breastfeeding women. Relationships with other maternal and child health organizations and programs were also established” (Wade, Sevilla & Labbok, 1994, abstract).

Zhang, L. Y., Liu, Y. R., Shah, I. H., Tian, K. W., and Zhang, L. H. (2002.) Breastfeeding, amenorrhea and contraceptive practice among postpartum women in Zibo, China. *European Journal of Contraception and Reproductive Health Care*, 7(3), 121–126.

“This paper reports a hospital-based longitudinal study that was conducted in Zibo, China, in June 1996. The objective was to investigate the existing patterns of breastfeeding, amenorrhea and contraceptive use among postpartum women in urban areas of China. Information was obtained from 492 newly parturient women. Follow-up interviews were done at 42 days, 4 months and 1 year after delivery. The results showed that the full breastfeeding rate (including exclusive and almost exclusive breastfeeding) was 78% and 43% at 42 days and 4 months after delivery, respectively. The mean reported length of abstinence from sexual intercourse after delivery was 71 days. The mean reported time to menses resumption was 184 days. Ninety-three per cent of women had resumed sexual intercourse at 4 months after delivery. Seventy-three per cent of women were using contraceptive methods when they resumed sexual activity after delivery. After childbirth, the majority of the women interviewed used condoms within 3 months. Thereafter, most of them switched to intrauterine device (IUD)). Life table analysis shows that the continuation rates of full breastfeeding and amenorrhea at 4 months after delivery were 35% and 68%, respectively. This implies that if the full breastfeeding rate can be prolonged, it is feasible to use the lactational amenorrhea method (LAM) among Chinese postpartum women. The policy implications of this study are that quality care on contraceptive services and information for postpartum women in urban areas need to be improved further” (Zhang et al., 2002, abstract).

Index by Year, Author, Title

* = updated entries

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