Academy of Breastfeeding Medicine
Annotated Bibliography:
#19 Breastfeeding promotion in the prenatal setting

Reference	Content	Level of Evidence*
LC support		
Martin,J.; MacDonald-Wicks,L.; Hure,A.; Smith,R.; Collins,C.E. Reducing postpartum weight retention and improving breastfeeding outcomes in overweight women: a pilot randomised controlled trial. Nutrients, 2015, 7, 1464-1479.	RCT of obese women with intent to BF, gave group 1. antenatal intervention with dietary counseling, 2. antenatal intervention with dietary counseling and lactation support (Two 30mins antenatal education sessions and one 2 week home visit, FU by phone as needed), 3. control (intervention at 3 mo postpartum). N=36. Secondary outcome found that LC support improved duration of breastfeeding. Not statistically significant.	I
Hartman S, Barnett J, Bonuck K. Implementing international board-certified lactation consultants intervention into routine care: Barriers and recommendations. *Clinical Lactation*. 2012;3-4:131.	Qualitative analysis of intervention that integrated IBCLCs into routine care, prenatal and postnatal. The results indicated that healthcare provider (HCP) support for breastfeeding was undermined by inadequate education and experience, often resulting in support "in name only." In addition, IBCLCs rapport and expertise—with both women and the healthcare team—helped overcome individual- and system-level barriers to breastfeeding. IBCLCs' acceptance and integration into the primary-care team validated their work and increased their effectiveness. IBCLCs comments suggest that mothers cannot rely solely upon their healthcare providers for breastfeeding education and support. IBCLCs integrated into routine antenatal and postpartum care are pivotal to encouraging and reinforcing a woman's choice to breastfeed through education, as well as emotional and skill-based support.	III
Clifford,J.; McIntyre,E. Who supports breastfeeding? Breastfeed.Rev., 2008, 16, 2, 9-19,	Systematic review (no meta-analysis) of socio-cultural supports for breastfeeding women with International focus. Includes both quantitative and qualitative studies.	I
Humenick SS, Hill PD, Spiegelberg PL. Breastfeeding and health professional encouragement. J Hum Lact. 1998 Dec;14(4):305-10.	Longitudinal, cross-sectional survey on nature, source and impact of professional breastfeeding advice for 340 women. Lactation consultants gave significantly more positive encouragement (98%,p=.01) than nurses (75%) or physicians (65%). Primiparae were likely to decrease their level of breastfeeding if encouraged to supplement or wean. Multiparae level of breastfeeding, in general, appeared independent of health provider advice.	II-2
Prenatal counseling/education		

Mekuria,G.; Edris,M. Exclusive breastfeeding and associated factors among mothers in DebreMarkos, Northwest Ethiopia: a cross-sectional study. Int.Breastfeed J., 2015, 10, 1, 1-014-0027-0. eCollection 2015, England	Community-based cross-sectional study with random sampling technique of 423 mothers with infants less than 6 months old in DebreMarkos, Ethiopia. Found that receiving counseling during antenatal care was associated with an AOF=2.44 for exclusive breastfeeding (cross sectional sample included babies 0-179 days).	II-2
J Hum Lact. 2015 Apr 23. pii: 0890334415583294. Group versus Individual Professional Antenatal Breastfeeding Education for Extending Breastfeeding Duration and Exclusivity: A Systematic Review. Wong KL1, Tarrant M2,Lok KY2.	Systematic review of literature comparing group and individual antenatal BF education, found 3935 citations leading to 19 articles reviewed. Found that both education types showed some effect in extending the duration of exclusive and/or any breastfeeding when targeted at vulnerable populations, like minority, low-incomeor low-education participants. Significant effects not found with low-risk, educated women. Also, "due to the limited number of studies examining individual antenatal education and due to the heterogeneity and lower quality of studies examining group antenatal education, no conclusions could be drawn on the effectiveness of either mode of education." May not have long-term effect on breastfeeding rates, such as at 3 and 6 months.	I
Dean,S.V.; Lassi,Z.S.; Imam,A.M.; Bhutta,Z.A. Preconception care: closing the gap in the continuum of care to accelerate improvements in maternal, newborn and child health.Reprod.Health., 2014, 11 Suppl 3, S1-4755-11-S3-S1. Epub 2014 Sep 26, England	Systematic review of evidence on preconception care and its impact. The breastfeeding data were collected from 5 studies, with 17,690 pooled patients. Promoting health before conception can increase antenatal care seeking by 39%, reduce neonatal mortality by 17% (RR 0.83; 95% CI: 0.72 to 0.95) (Figure 2), increase the use of safe delivery kits at home births in developing countries by 1.82 times (RR 1.82; 95% CI: 1.10 to 3.02), and increase the likelihood of breastfeeding by 71% (RR 1.71; 955 CI: 1.13 to 2.58) (figure 3).	I
Gurka,K.K.; Hornsby,P.P.; Drake,E.; Mulvihill,E.M.; Kinsey,E.N.; Yitayew,M.S.; Lauer,C.; Corriveau,S.;Coleman,V.; Gulati,G.; Kellams,A.L.Exploring intended infant feeding decisions among low-income women. Breastfeed Med., 2014, 9, 8, 377-384.	Data from 520 low-income women interviewed at 24-41 weeks' gestation during enrollment in an antenatal breastfeeding education study were analyzed. Most (95%) participants had chosen an infant feeding method at the time of the interview. Women intending artificial feeding were less likely to report receiving information regarding benefits of breastfeeding or how to breastfeed. They were also more likely to choose artificial feeding if they had a previous live birth or had not breastfed a child, including the most recent.	II-2

Jahan,K.; Roy,S.K.; Mihrshahi,S.; Sultana,N.; Khatoon,S.; Roy,H.; Datta,L.R.; Roy,A.; Jahan,S.; Khatun,W.;Nahar,N.; Steele,J.Short-term nutrition education reduces low birthweight and improves pregnancy outcomes among urban poor women in Bangladesh. Food Nutr.Bull., 2014, 35, 4, 414-421, Japan	RCT with 150 women in intervention group, 150 in control in 2 antenatal clinics in urban Dhaka, Bangladesh. Intervention included three 1 hour education sessions on pregnancy and infant feeding (importance of exclusive breastfeeding, awareness of food taboos relating to infant feeding). Found increase in breastfeeding within 1 hour of birth in intervention group (86.0% vs. 56.7%, P=0.001), colostrum feeding (86% vs. 65.3%, p=0.001), and exclusive breastfeeding at 1 month (83% vs. 69.3%, p=0.003).	I
Wong,K.L.; Fong,D.Y.; Lee,I.L.; Chu,S.; Tarrant,M.Antenatal education to increase exclusive breastfeeding: a randomized controlled trial.Obstet.Gynecol., 2014, 124, 5, 961-968.	469 primiparous pregnant women intending to BF were randomized to receive standard care or a 20 to 30 minute one-on-one BF support and education session after 35 weeks of gestation. No significant differences in exclusivity were seen at 6 weeks or 3 and 6 months.	I
Howell EA, Bodnar-Deren S, Balbierz A, et al. An intervention to extend breastfeeding among black and Latina mothers after delivery. *Am J Obstet Gynecol.* 2014; 210(3):239-248.	Controlled trial in which self-identified black and Latina mothers early after delivery were assigned randomly to receive a behavioral educational intervention or enhanced usual care. The 2-step intervention aimed to prepare and educate mothers about postpartum symptoms and experiences and to bolster social support and self-management skills. Enhanced usual care participants received a list of community resources and received a 2-week control call. Intention-to-treat analyses examined breastfeeding duration (measured in weeks) for up to 6 months of observation. Five hundred forty mothers were assigned randomly to the intervention (n = 270) vs control subjects (n = 270). Mean age was 28 years (range, 18–46 years); 62% of the women were Latina, and 38% were black. Baseline sociodemographic, clinical, psychosocial, and breastfeeding characteristics were similar among intervention vs control subjects. Mothers in the intervention arm breastfed for a longer duration than did the control subjects (median, 12.0 vs 6.5 weeks, respectively; P = .02). Mothers in the intervention arm were less likely to quit breastfeeding over the first 6 months after delivery (hazard ratio, 0.79; 95% confidence interval, 0.65–0.97).	I
Martin A, Horowitz C, Balbierz A, et al. Views of women and clinicians on postpartum preparation and recovery. *Matern Child Health J.* 2014; 18(3):707-13.	Qualitative research study was conducted to explore women's and clinicians' perceptions of the postpartum experience. Four focus groups of postpartum women (n = 45) and two focus groups of obstetric clinicians (n = 13) were held at a large urban teaching hospital in New York City. All focus groups were audio recorded, transcribed, and analyzed using grounded theory. Four main themes were identified: lack of women's knowledge about	III

	postpartum health and lack of preparation for the postpartum experience, lack of continuity of care and absence of maternal care during the early postpartum period, disconnect between providers and postpartum mothers, and suggestions for improvement. Mothers did not expect many of the symptoms they experienced after childbirth and were disappointed with the lack of support by providers during this critical time in their recovery. Differences existed in the major postpartum concerns of mothers and clinicians. However, both mothers and clinicians agreed that preparation during the antepartum period could be beneficial for postpartum recovery. Results from this study indicate that many mothers do not feel prepared for the postpartum experience.	
Islam Khan,A.Effects of pre- and postnatal nutrition interventions on child growth and body composition: the MINIMat trial in rural Bangladesh.Glob.Health.Action, 2013, 6, 22476.	In the MINIMat trial in Bangladesh, pregnant women were randomized to early (around 9 weeks) or usual invitation (around 20 weeks) to food supplementation and to one of the three daily micronutrient supplements. Subjects were also randomized to exclusive breastfeeding (EBF) counseling (by "trained counselors," 2 prenatal and 6 postnatal sessions) or to usual health messages. Via Community-health workers/home visits. No differences in background characteristics were observed among the intervention groups. There was also no differential effect of prenatal interventions on birthweight or birth length. Early food supplementation reduced the level of stunting from early infancy up to 54 months of age among boys (average difference – 6.5% units, 95% confidence interval [CI] 1.7–11.3, *p*=0.01) but not among girls (average difference – 2.4% units, 95% CI −2.2–7.0, *p*=0.31). MMS resulted in more stunting compared to standard Fe60F (average difference – 4.8% units, 95% CI 0.8–8.9,*p*=0.02). Breastfeeding counseling prolonged the duration of EBF (difference – 35 days, 95% CI 30.6–39.5, *p*<0.001). Neither pregnancy interventions nor breastfeeding counseling influenced the body composition of children at 54 months of age. The effects of prenatal interventions on postnatal growth suggest programming effects in early fetal life.	I
Pitcock, N. Evaluation of an Initiative to Increase Rates of Exclusive Breastfeeding Among Rural Hispanic Immigrant Women. University of Virginia, 2013.	Retrospective evaluation of spanish language culturally-competent exclusivity-focused prenatal education component of a staged BF promotion intervention. nourish their newborns. Elected to participate in prenatal class. chart review, N=39 in intervention group, had a 53.8% BF intent vs. usual care 37.5% BF intent (n=32). EBF at discharge was 41% for group attendees and 3.1% for non-attendees. 77.1 % of all participants did not receive access to Lactation Consultation services.	II-3

Lumbiganon,P.; Martis,R.; Laopaiboon,M.; Festin,M.R.; Ho,J.J.; Hakimi,M. Antenatal breastfeeding education for increasing breastfeeding duration Cochrane Database Syst.Rev., 2012, 9, CD006425, England	Cochrane review of RCTs of formal antenatal BF education, excluding intrapartum or postpartum intervention pieces. 19 studies with 8506 women were included in the review, no meta-analysis was possible. Findings: 1) Peer counselling significantly increased BF initiation. 2) No intervention was significantly more effective than another intervention in increasing initiation or duration of BF. 3) Combined BF educational interventions were not significantly better than a single intervention in initiating or increasing BF duration. However, in one trial a combined BF education significantly reduced nipple pain and trauma. 4) There was a marginally significant increase in exclusive BF at six months in women receiving a booklet plus video plus lactation consultation (LC) compared with the booklet plus video only. In another group, the combination of BF booklet plus video plus LC was significantly better than routine care for exclusive BF at three months. 5) Significant methodological limitations and observed effect sizes were small, it is not appropriate to recommend any specific antenatal BF education.There is an urgent need to conduct RCTs with adequate power to evaluate the effectiveness of antenatal BF education.	I
Wambach,K.A.; Aaronson,L.; Breedlove,G.; Domian,E.W.; Rojjanasrirat,W.; Yeh,H.W. A randomized controlled trial of breastfeeding support and education for adolescent mothers. West.J.Nurs.Res., 2011, 33, 4, 486-505, United States	RCT with 1 intervention group, 1 control and 1 attention control group enrolling 15-18yo pregnant women in Midwestern US, N=390, N=289 for BF initiation. Intervention's prenatal component included 1-2 RN/IBCLC and teen BF peer counselor run class(es) and 3 phone calls, education informed by developmentally-appropriate behavior and competence theory. Outcome measures attributable to the prenatal intervention piece include the prenatal surveys of knowledge and attitudes and breastfeeding initiation. Higher initiation seen in experimental group, but not after adding covariates. was likely underpowered. "Statistically significant factors predicting breastfeeding initiation included breastfeeding knowledge, prenatal intention to breastfeed, the time when the feeding decision was made, and social and professional support." Decision in 1st trimester was more predictive of BF initiation than deciding later. None of the variables that predicted breastfeeding initiation were significant predictors of exclusive breastfeeding.	I

Sandy,J.M.; Anisfeld,E.; Ramirez,E. Effects of a prenatal intervention on breastfeeding initiation rates in a Latina immigrant sample J.Hum.Lact., 2009, 25, 4, 404-11; quiz 458-9, United States	RCT of mostly Dominican mothers in NYC, Best Beginnings program (developed by Healthy Families) enrolled in pregnancy or infant <3mo + psychosocial risk factors for caregiving difficulties. Family support workers delivered home-based program, breastfeeding support was mostly prenatal. Control group received 2 home visits but no FU or BF support/education. Exposure to the prenatal intervention was not significantly associated with ABF. EBF was significantly positively associated with exposure to the prenatal intervention, with 32% (44/137) of exposed mothers reporting EBF compared to 20% (20/101) of nonexposed mothers (OR 1.92; 95% CI 1.05-3.52). BF significantly positively associated with a measure of household income (ABF and EBF) and significantly negatively associated with maternal acculturation level (ABF). The finding that more acculturated mothers (ie, English-speaking, first generation US-born) were less likely to report ABF suggests that not only recent immigrants, but also more acculturated Latinas should be targets of future interventions aimed at increasing breastfeeding initiation rates in the United States.	I
Wong Cheung, Ka-lun;A randomized controlled trial of an antenatal intervention to increase exclusive breastfeeding; Hong Kong University, 2014. http://hdl.handle.net/10722/208010	RCT of antenatal BF education and support session N=469 primiparous women at antenatal clinics of public hospitals in Hong Kong. No difference in BF exclusivity or duration were seen.	I

Schlickau JM Prenatal breastfeeding education: an intervention for pregnant immigrant Hispanic women University of Nebraska Medical Center, 2005	one-to-one Prenatal Breastfeeding Education (PBE) intervention for primigravid immigrant Hispanic women who received prenatal care at a public health clinic. The study framework was derived from the Health Promotion Model. RCT on breastfeeding initiation and duration Participants (n = 86) were randomly assigned to receive either the PBE teaching session in addition to "standard of care" at the prenatal clinic (intervention group) or to receive "standard of care" only (control group). Breastfeeding initiation rates were not significantly different between intervention and control groups. Estimated mean breastfeeding duration, assessed at 42 days, was significantly higher by 20 days (t [78] = 5.63, p = .00) for those in the intervention group. Mean breastfeeding self-efficacy scores were 6 points higher in the intervention group than in the control (X2 [26] = 38.77, p = .05). By 42 days, an estimated 67% of those in the intervention group continued to breastfeed, while an estimated 13% of those in the control group continued to breastfeed. Results of the Kaplan-Meier Log Rank Test showed the difference between the estimated breastfeeding survival time (20 days) was significant (LR [1, N = 80] = 27.19, p = .00) Hispanic women are at risk for choosing to bottle-feed rather than breastfeed and have not previously been assessed for breastfeeding self-efficacy change. The intervention was qualitatively derived and provides culturally appropriate content. Self-efficacy and commitment to a plan of action were key aspects of the intervention	I
Guise J, Palda V, Westhoff C, Chan B, Helfand M, Lieu T. The Effectiveness of Primary Care-Based Interventions to Promote Breastfeeding: Systematic Evidence Review and Meta-Analysis for the US Preventive Services Task Force. Ann Fam Med 2003; 1(2): 70-78.	Meta-analysis of thirty randomized and nonrandomized controlled trials and 5 systematic review of breastfeeding counseling. Educational programs had the greatest effect on both initiation and short-term duration. Support programs increased both short-term and long-term duration. Written materials did not significantly increase breastfeeding.	I
Duffy EP, Percival P, Kershaw E. Positive effects of an antenatal group teaching session on postnatal nipple pain, nipple trauma and breastfeeding rates. Midwifery. 1997 Dec; 13(4): 189-96.	RCT of 70 primaparas intending to breastfeed to assess whether an antenatal teaching session on position and attachment had an effect on postnatal nipple pain, trauma and breastfeeding duration. Intervention group had better position and attachment, less nipple pain, trauma and higher BF duration at 6 weeks (92% vs. 29%, p<0.001).	I

Hartley BM, O'Connor ME. Evaluation of the 'Best Start' breast-feeding education program. Arch Pediatr Adolesc Med. 1996 Aug; 150(8):868-71.	Pre and post intervention trial with historical controls examining the effect of the "Best Start" breastfeeding educational program. Breastfeeding increased from 15 to 31% after the program was implemented and breastfeeding at 2 weeks increased from 13 to 21%.	II-3
Best Start Social Marketing. Using loving support© to implement best practices in peer counseling. http://www.nal.usda.gov/wicworks/Learning_Center/research_brief.pdf. Updated 2004. Accessed July 3, 2015.	Best Start breastfeeding educational program website.	n/a
Reifsnider E, Eckhart D. Prenatal breastfeeding education: its effect on breastfeeding among WIC participants. J Hum Lact. 1997 Jun;13(2):121-5.	The effect of prenatal breastfeeding education on breastfeeding incidence and duration was determined among 31 prenatal WIC participants in a non-randomized, controlled trial. The intervention group showed an increase in duration of breastfeeding.	II-1
De Oliveira MI, Camacho LA, Tedstone AE. Extending breastfeeding duration through primary care: a systematic review of prenatal and postnatal interventions. J Hum Lact. 2001 Nov;17(4):326-43.	Literature review of strategies and procedures used to extend breastfeeding duration. During prenatal care, group education was effective in increasing breastfeeding rates.	II-3
Issler H, de Sa MB, Senna DM. Knowledge of newborn healthcare among pregnant women: basis for promotional and educational programs on breastfeeding. Sao Paulo Med J. 2001 Jan 4;119(1):7-9.	Cross-sectional study of pregnant women's knowledge of newborn health care and breastfeeding practices which was found to be low.	II-3
Loh NR, Kelleher CC, Long S, Loftus BG. Can we increase breastfeeding rates? Ir Med Jr. 1997 Apr-May;90(3):100-1.	RCT of breastfeeding education initiated at 36 weeks gestation. The test group showed increased rates of breastfeeding (43.9% vs. 31.5%, p=0.07). While not statistically significant, the study only included 190 mothers.	I
Community-based interventions		

Memon,Z.A.; Khan,G.N.; Soofi,S.B.; Baig,I.Y.; Bhutta,Z.A. TitleImpact of a community-based perinatal and newborn preventive care package on perinatal and neonatal mortality in a remote mountainous district in Northern Pakistan BMC Pregnancy Childbirth, 2015, 15, 1, 106-015-0538-8, England	Non-randomized controlled trial including 3,200 pregnant women receiving intervention, and a population of 283,324, which consisted of a community-based intervention package including awareness creation, community mobilization and education, enhanced trainings for community health workers, home visits, counseling sessions with pregnant women, video and education sessions for pregnant women as well as community members. Found increased colostrum administration (83% vs 71%, p<0.001) and initiation of breastfeeding within 1 hour of birth (55% vs. 40%, p<0.001) in intervention vs. control group, in addition to decreased overall neonatal mortality.	II-1
Brunton,G.; O'Mara-Eves,A.; Thomas,J. The 'active ingredients' for successful community engagement with disadvantaged expectant and new mothers: a qualitative comparative analysis J.Adv.Nurs., 2014, 70, 12, 2847-2860, John Wiley & Sons Ltd, England	Qualitative comparative analysis of studies in a systematic review looking at antenatal, immunization, breastfeeding and early professional intervention outcomes. Peer delivery (consistency 083; unique coverage 063); and mother-professional collaboration (consistency 0833; unique coverage 021) were moderately aligned with effective interventions. Community-identified health need plus consultation/collaboration in intervention design and leading on delivery were weakly aligned with 'not effective' interventions (consistency 078; unique coverage 0 29). Conclusions. For disadvantaged new and expectant mothers, peer or collaborative delivery models could be used in interventions.	II-2 or II-3??
Lassi,Z.S.; Das,J.K.; Salam,R.A.; Bhutta,Z.A. Evidence from community level inputs to improve quality of care for maternal and newborn health: interventions and findingsReprod.Health., 2014, 11 Suppl 2, S2-4755-11-S2-S2. Epub 2014 Sep 4, England	POSTNATAL Home visits by CHW to improve neonatal health was associated with improved breast feeding initiation within 1 hour (RR: 3.35, 95% CI: 1.31-8.59). PRENATAL Cochrane:Community based packages with an emphasis on provision of care through trained CHW via home visitation significantly improved early breast feeding initiation (RR: 1.94, 95% CI: 1.56-2.42). PRENATAL Cochrane: Care provided by midwives was found to be associated with significant improvements in initiation of breast feeding (RR: 1.35, 95% CI: 1.03-1.76). Cochrane, mixed PRE AND POSTNATAL: Another review evaluating the effects of CHW interventions reported significant impacts on breast feeding initiation (RR: 1.36, 95% CI: 1.14-1.61).	I
Muhajarine,N.; Ng,J.; Bowen,A.; Cushon,J.; Johnson,S. Understanding the impact of the Canada Prenatal Nutrition Program: a quantitative evaluation Can.J.Public Health, 2012, 103, 7 Suppl 1, eS26-31, Canada	Review of the CPNP, a group of interventions offered in Canada to high-risk pregnant women and newborns. The levels of intervention and intervention types were varied (330 projects in 2000 communities, potentially including 28,415 women for BF initiation and 20,642 for duration). Found improved BF initiation and duration in groups with high exposure to the programs, especially in single/divorced women (22% more likely to initiate BF in high exposure groups).	III

Hoddinott,P.; Britten,J.; Prescott,G.J.; Tappin,D.; Ludbrook,A.; Godden,D.J. Effectiveness of policy to provide breastfeeding groups (BIG) for pregnant and breastfeeding mothers in primary care: cluster randomised controlled trialBMJ, 2009, 338, a3026, England	Cluster RCT of primary care populations in Scotland receiving a policy intervention to increase breastfeeding groups, prenatal and postnatal. Qual and Quant methods. The proportions of women attending only in pregnancy, only after birth, and both before and after birth were 0.21, 0.69, and 0.10. The number of breastfeeding groups increased from 10 to 27 in intervention localities. No significant differences in breastfeeding at birth. Only 229/799 (28.7%) women who initiated breastfeeding reported attending antenatal breastfeeding groups in intervention localities compared with 99/416 (23.8%) respondents in control localities (P=0.093). The costs of running groups would be similar to the costs of visiting women at home. (postnatal outcomes similarly non-significant or negative). Limitations: groups involved women only, few attended, mostly higher income older women attended, few providers/midwives led the groups, significant organizational problems.	I and III
Self-efficacy background		
Otsuka K, Dennis CL, Tatsuoka H, Jimba M. The relationship between breastfeeding self-efficacy and perceived insufficient milk among japanese mothers. *J ObstetGynecol Neonatal Nurs*. 2008;37(5):546-555.	Two hundred and sixty-two in-hospital breastfeeding mothers in Japan. MAIN OUTCOME MEASURE: Breastfeeding self-efficacy was measured in-hospital and perception of insufficient milk was measured at 4 weeks postpartum. RESULTS: Although most mothers intended to exclusively breastfeed, less than 40% were doing so at 4 weeks postpartum. Among the mothers using formula, 73% cited perceived insufficient milk as the primary reason for supplementation or completely discontinuing breastfeeding. Mothers' perception of insufficient milk at 4 weeks postpartum were significantly related to breastfeeding self-efficacy in hospital in the immediate postpartum period (r=.45, p<.001). Hierarchical multiple regression revealed that breastfeeding self-efficacy explained 21% of the variance in maternal perceptions of insufficient milk, and the contribution was independent of sociodemographic variables	II-2

Blyth R, Creedy DK, Dennis CL, Moyle W, Pratt J, De Vries SM. Effect of maternal confidence on breastfeeding duration: An application of breastfeeding self-efficacy theory. *Birth*. 2002;29(4):278-284.	A prospective survey was conducted with 300 women in the last trimester of pregnancy recruited from the antenatal clinic of a large metropolitan hospital in Brisbane, Australia. Telephone interviews were conducted at 1 week and 4 months postpartum to assess infant feeding methods and breastfeeding confidence using the Breastfeeding Self-Efficacy Scale. RESULTS: Although 92 percent of participants initiated breastfeeding, by 4 months postpartum almost 40 percent discontinued and only 28.6 percent were breastfeeding exclusively; the most common reason for discontinuation was insufficient milk supply. Antenatal and 1-week Breastfeeding Self-Efficacy Scale scores were significantly related to breastfeeding outcomes at 1 week and 4 months. Mothers with high breastfeeding self-efficacy were significantly more likely to be breastfeeding, and doing so exclusively, at 1 week and 4 months postpartum than mothers with low breastfeeding self-efficacy.	II-2
Meedya S, Fahy K, Kable A. Factors that positively influence breastfeeding duration to 6 months: A literature review. *Women Birth*. 2010;23(4):135-145.	An online literature search was conducted in Medline, CINAHL, Maternity and Infant Care, and Cochrane Database of systematic reviews. The search strategy included the following keywords: breastfeeding, duration, initiation, cessation, factors, intervention, education, partner, intention, confidence, self-efficacy and support. Additional studies were located and extracted from online publications of New South Wales Department of Health, Australia. Bio-psycho-social factors that are positively associated with breastfeeding duration were identified. Results Modifiable factors that influence women's breastfeeding decisions are: breastfeeding intention, breastfeeding self-efficacy and social support. Existing midwifery breastfeeding promotion strategies often include social support but do not adequately address attempts to modify breastfeeding intention and self-efficacy.	I

Inoue M, Binns CW, Otsuka K, Jimba M, Matsubara M. Infant feeding practices and breastfeeding duration in japan: A review. *Int Breastfeed J*. 2012;7(1):15-4358-7-15.	search of electronic databases in Japanese and English was undertaken up to 2011. The inclusion criteria for this review were studies that focused on infant feeding practices and targeted Japanese mothers, fathers, or health professionals, but excluded mothers' friends and peer groups. In total, 12 articles were selected for the final analysis. Smoking status, low birth weight of infants and maternal perceptions of insufficient breast milk supply were negative influences on breastfeeding duration, while support from husbands/partners is associated with continued breastfeeding. Some factors that have been found to be associated with breastfeeding in other countries, including maternal age, family income, maternal educational levels, and living with grandparents of infants have not been confirmed in Japan. While the national breastfeeding rates were higher than other countries of similar health status, inconsistent knowledge of breastfeeding benefits and inappropriate hospital practices remain in Japan may be associated with increased the use of infant formula and reduced breastfeeding duration. Most of the studies reviewed were cross-sectional in design, with only a limited number of cohort studies. Also many published studies used small sample sizes.	II-2
Hundalani SG, Irigoyen M, Braitman LE, Matam R, Mandakovic-Falconi S. Breastfeeding among inner-city women: From intention before delivery to breastfeeding at hospital discharge. *Breastfeed Med*. 2013;8(1):68-72.	In multivariable analysis, older mothers and those with lower parity were more likely to breastfeed at discharge and also to breastfeed exclusively, controlling for ethnicity, parity, insurance, pregravida body mass index, score on the Edinburgh Postpartum Depression Scale, type of delivery, infant birth weight and gestational age. *Conclusions:* In a minority inner-city population, only three in four women who intended to breastfeed prior to delivery were breastfeeding at hospital discharge. However, one in 10 women previously not intending to breastfeed did so. Strategies are needed to promote and strengthen women's intention to breastfeed and to help women's breastfeeding outcomes meet their intentions.	II-2
Psychoeducational/behavioral approaches		
Sikander,S.; Maselko,J.; Zafar,S.; Haq,Z.; Ahmad,I.; Ahmad,M.; Hafeez,A.; Rahman,A. Cognitive-behavioral counseling for exclusive breastfeeding in rural pediatrics: a cluster RCT. Pediatrics, 2015, 135, 2, e424-31	RCT in Northwest Pakistan including 224 intervention group women who received 7 psychoeducational sessions (1 before birth, second after birth, remiaining 5 sessions given monthly), while control group women received 7 "routine" sessions. Though the study focused mostly on the postnatal period, prelacteal feeding was shown to be reduced (ARR=0.51, 95% CI 0.34-0.78), which is an outcome measure that may be predominantly influenced by prenatal education.	I

Hildebrand,D.A.; McCarthy,P.; Tipton,D.; Merriman,C.; Schrank,M.; Newport,M. Innovative use of influential prenatal counseling may improve breastfeeding initiation rates among WIC participants.J.Nutr.Educ.Behav., 2014, 46, 6, 458-466.	Demonstration project with 456 parents/caregivers, with a behavior change intervention based on Social Cognitive Theory using Caildini's Principles of Influence. Traditional-model groups (control) received services prior to the intervention; influence-model groups (experimental) received services after initiation of the intervention.The demonstration project resulted in 5 improved influence measures (*P*< .02), aligning with the influence principle of "feeling liked." The model had a small effect (ϕ = 0.10) in distinguishing breastfeeding initiation; women in the influence model were 1.5 times more likely (95% CI, 1.19–1.86; *P*< .05) to initiate breastfeeding compared with women in the traditional model, controlling for parity, mother's age, and race.Consistent with Social Cognitive Theory, changing the WIC environment by integrating influence principles may positively affect women's infant feeding decisions and behaviors, specifically breastfeeding initiation rates.	II-1
Otsuka,K.; Taguri,M.; Dennis,C.L.; Wakutani,K.; Awano,M.; Yamaguchi,T.; Jimba,M.Effectiveness of a breastfeeding self-efficacy intervention: do hospital practices make a difference?Matern.Child Health J., 2014, 18, 1, 296-306.	Intervention study with a control group. 781 pregnant women were recruited from 2 "Baby-Friendly"-certified hospitals (BFH) and 2 non-Baby-Friendly Hospitals (nBFH) in Japan, and were allocated to an intervention or control group. Participants in the intervention group were provided with a breastfeeding self-efficacy workbook in their third trimester. In BFHs, the intervention improved both breastfeeding self-efficacy through 4 weeks postpartum (*p* = 0.037) and the exclusive breastfeeding rate at 4 weeks postpartum (AOR 2.32, 95 % CI 1.01–5.33). In nBFHs, however, no positive effect was observed on breastfeeding self-efficacy or on the exclusive breastfeeding rate at 4 weeks postpartum.	II-1
Kronborg,H.; Maimburg,R.D.; Vaeth,M. Antenatal training to improve breast feeding: a randomised trial Midwifery, 2012, 28, 6, 784-790, Elsevier Ltd, Scotland	RCT evaluating an antenatal education program on 603 intervention women (590 controls), providing 3x 3h midwife-delivered group sessions "ready for child" program in Denmark. "The intervention did not lead to a statistically significant improvement of the duration of breast feeding and no difference was seen between groups in relation to self-efficacy or breast-feeding problems. However, we found that the antenatal training course increased the number of women who experienced having sufficient knowledge about breast feeding 6 weeks after birth, and this was reflected in a prolonged self-reported duration of any breast feeding in the intervention group. The antenatal course contributed to maintain confidence in breast feeding during pregnancy but was unable to increase the level of self-efficacy or decrease breast-feeding problems as the reason for having difficulty after birth."	I

Wambach,K.A.; Aaronson,L.; Breedlove,G.; Domian,E.W.; Rojjanasrirat,W.; Yeh,H.W. A randomized controlled trial of breastfeeding support and education for adolescent mothers. West.J.Nurs.Res., 2011, 33, 4, 486-505, United States	RCT with 1 intervention group, 1 control and 1 attention control group enrolling 15-18yo pregnant women in Midwestern US, N=390, N=289 for BF initiation. Intervention's prenatal component included 1-2 RN/IBCLC and teen BF peer counselor run class(es) and 3 phone calls, education informed by developmentally-appropriate behavior and competence theory. Outcome measures attributable to the prenatal intervention piece include the prenatal surveys of knowledge and attitudes and breastfeeding initiation. Higher initiation seen in experimental group, but not after adding covariates. was likely underpowered. "Statistically significant factors predicting breastfeeding initiation included breastfeeding knowledge, prenatal intention to breastfeed, the time when the feeding decision was made, and social and professional support." Decision in 1st trimester was more predictive of BF initiation than deciding later. None of the variables that predicted breastfeeding initiation were significant predictors of exclusive breastfeeding.	I
Nichols,J.; Schutte,N.S.; Brown,R.F.; Dennis,C.L.; Price,I. The impact of a self-efficacy intervention on short-term breast-feeding outcomes Health Educ.Behav., 2009, 36, 2, 250-258, United States	Convenience sample RCT of N=90 in 3 Australian hospital-based prenatal clinics. self-efficacy intervention at 36 weeks included a 9 pg interactive workbook, control had 5 page non-BF related workbook. Intervention gp had significantly greater increases in breast-feeding self- efficacy than did the women in the control group. "trend toward increased duration and exclusivity." (measurement scale for exclusivity and "days BF" for duration, instead of months). Increased self-efficacy correlated with higher level of BF.	II-2
Hannula,L.; Kaunonen,M.; Tarkka,M.T.A systematic review of professional support interventions for breastfeedingJ.Clin.Nurs., 2008, 17, 9, 1132-1143, England	Search of CINAHL, Medline and Cochrane Central Register databases were conducted for data collection. The search was limited to articles published in Finnish, Swedish and English between the year 2000 and March 2006, focusing on breastfeeding and breastfeeding support interventions. Two reviewers independently analysed 36 articles in the final analysis. Interventions expanding from pregnancy to the intrapartum period and throughout the postnatal period were more effective than interventions concentrating on a shorter period. In addition, intervention packages using various methods of education and support from well-trained professionals are more effective than interventions concentrating on a single method. During pregnancy, the effective interventions were interactive, involving mothers in conversation. The Baby Friendly Hospital Initiative (BFHI) as well as practical hands off -teaching, when combined with support and encouragement, were effective approaches. Postnatally effective were home visits, telephone support and breastfeeding centres combined with peer support.	I

Olenick, PL The effect of structured group prenatal education on breastfeeding confidence, duration and exclusivity to twelve weeks postpartum Toronto University International, 2006	RCT N=168 with 2-hour breast-feeding self-efficacy theory based class. Main outcome measures were breastfeeding duration, exclusivity and confidence through twelve weeks. Breastfeeding confidence was associated with higher full rates breastfeeding at weeks one, six and twelve with mean differences of 14.73, 15.70, and 14.14 on the BSES-SF 70 point scale.. Higher breastfeeding confidence was associated with longer mean duration (10 weeks) versus lower scores (5 weeks) (Kaplan Meier L.R. 61.57, p <.0001).The intervention was not associated with significant differences in the full sample using "intent to treat" analysis. Cross-over analysis by class attendance found consistent differences in at-risk subgroups. Class attendance by inexperienced mothers was associated with higher full breastfeeding rates than those without class at one (39% verses12%) (X2 [82] = 6.94, p = .01), six (42% versus 9%) (X2 [85] = 11.35, p < .001), and twelve (35% versus 11%) (X2 [83] = 6.16, p = .02) weeks. Cesarean delivered mothers without class attendance had a full breastfeeding rate of 8% versus those with class having rates of 39% (X2 [49] = 7.99, p < .01), 42% (X2 [50] = 11.08, p = .001), and 35%, at one, six and twelve weeks (X2 [51] = 7.39, p < .01). Confidence consistently predicted breastfeeding exclusivity and duration in multivariate analysis.	I

Schlickau JM Prenatal breastfeeding education: an intervention for pregnant immigrant Hispanic women University of Nebraska Medical Center, 2005	one-to-one Prenatal Breastfeeding Education (PBE) intervention for primigravid immigrant Hispanic women who received prenatal care at a public health clinic. The study framework was derived from the Health Promotion Model. RCT on breastfeeding initiation and duration Participants (n = 86) were randomly assigned to receive either the PBE teaching session in addition to "standard of care" at the prenatal clinic (intervention group) or to receive "standard of care" only (control group). Breastfeeding initiation rates were not significantly different between intervention and control groups. Estimated mean breastfeeding duration, assessed at 42 days, was significantly higher by 20 days (t [78] = 5.63, p = .00) for those in the intervention group. Mean breastfeeding self-efficacy scores were 6 points higher in the intervention group than in the control (X2 [26] = 38.77, p = .05). By 42 days, an estimated 67% of those in the intervention group continued to breastfeed, while an estimated 13% of those in the control group continued to breastfeed. Results of the Kaplan-Meier Log Rank Test showed the difference between the estimated breastfeeding survival time (20 days) was significant (LR [1, N = 80] = 27.19, p = .00) Hispanic women are at risk for choosing to bottle-feed rather than breastfeed and have not previously been assessed for breastfeeding self-efficacy change. The intervention was qualitatively derived and provides culturally appropriate content. Self-efficacy and commitment to a plan of action were key aspects of the intervention	I
Group Prenatal Support/Education		
J Hum Lact. 2015 Apr 23. pii: 0890334415583294. Group versus Individual Professional Antenatal Breastfeeding Education for Extending Breastfeeding Duration and Exclusivity: A Systematic Review. Wong KL1, Tarrant M2,Lok KY2.	Systematic review of literature comparing group and individual antenatal BF education, found 3935 citations leading to 19 articles reviewed. Found that both education types showed some effect in extending the duration of exclusive and/or any breastfeeding when targeted at vulnerable populations, like minority, low-incomeor low-education participants. Significant effects not found with low-risk, educated women. Also, “due to the limited number of studies examining individual antenatal education and due to the heterogeneity and lower quality of studies examining group antenatal education, no conclusions could be drawn on the effectiveness of either mode of education.” May not have long-term effect on breastfeeding rates, such as at 3 and 6 months.	I

Tanner-Smith E, Steinka-Fry K, Lipsey M. (2013) Effects of CenteringPregnancy Group Prenatal Care on Breastfeeding Outcomes. Journal of Midwifery & Women's Health 1526-9523/09.	A quasi-experimental research design was conducted with 794 women receiving prenatal care delivered in a group or individual format at 4 sites in Tennessee. Propensity scores were used to create groups of women statistically matched on background demographics and medical history. Outcomes included breastfeeding at discharge and breastfeeding at postpartum follow-up. Compared with the matched comparison group of women receiving prenatal care in an individual format, women in CenteringPregnancy group prenatal care had significantly higher odds of any breastfeeding at discharge (odds ratio [OR], 2.08; 95% confidence interval [CI], 1.32-3.26; *P*< .001). Across the 4 sites, there were no consistent differences in the odds of any breastfeeding at follow-up or exclusive breastfeeding at discharge or postpartum follow-up. Authors concluded there is not sufficient evidence to conclude that CenteringPregnancy group prenatal care has robust effects on exclusive breastfeeding at discharge or postpartum follow-up.	II-3
Ickovicks JR, Kershaw TS, Westdahl C. Group prenatal care and perinatal outcomes: A randomized, controlled trial. *Obstetrics and Gynecology.* 2007; 110 (2pt1): 330-339.	A multisite randomized controlled trial was conducted at two prenatal clinics. Pregnant women aged 14-25 years (n=1,047) were randomly assigned to either standard or group care. Group participants received care in a group setting with women having the same expected delivery month. Timing and content of visits followed obstetric guidelines from week 18 through delivery. Each 2-hour prenatal care session included physical assessment, education and skills building, and support through facilitated group discussion. Structured interviews were conducted at study entry, during the third trimester, and postpartum. Mean age of participants was 20.4 years; 80% were African American. Using intent-to-treat analyses, women assigned to group care were significantly less likely to have preterm births compared with those in standard care: 9.8% compared with 13.8%, with no differences in age, parity, education, or income between study conditions, equivalent to a risk reduction of 33%. Women in group sessions were less likely to have suboptimal prenatal care (P<.01), had significantly better prenatal knowledge (P<.001), felt more ready for labor and delivery (P<.001), and had greater satisfaction with care (P<.001). Breastfeeding initiation was higher in group care: 66.5% compared with 54.6%, P<.001. There were no differences in birth weight nor in costs associated with prenatal care or delivery.	I
De Oliveira MI, Camacho LA, Tedstone AE. Extending breastfeeding duration through primary care: a systematic review of prenatal and postnatal interventions. J Hum Lact. 2001 Nov;17(4):326-43.	Literature review of strategies and procedures used to extend breastfeeding duration. During prenatal care, group education was effective in increasing breastfeeding rates.	II-3
Breast Crawl		

Henderson A. Understanding the breast crawl: implications for nursing practice. *Nurs Womens Health*. 2001; 15(4):296-307.	Review article summarizing the physiology of newborn behavior in the immediate postpartum period that contributes to the "breast crawl," well described in other nursing articles and textbooks. Summarizes key recommendations for nurses in terms of supporting normal physiologic bonding and early breastfeeding behavior, with an emphasis on initiation and maintenance early skin-to-skin contact and latch within the first hour of life.	III
Klaus M. Mother and infant: early emotional ties. Pediatrics. 1998; Nov:102(5 Supp E):1244-6.	Review article summarizing recent behavioral and physiologic observations of infants and mothers which have shown them ready to begin interacting in the first minutes of life. Included among these findings are the newborn infant's ability to crawl toward the breast to initiate suckling and mother-infant thermoregulation. The attachment felt between mother and infant may be biochemically modulated through oxytocin; encouraging attachment through early contact, suckling, and rooming-in has been shown to reduce abandonment.	III
Position papers		
Position Paper: Breastfeeding, Family Physicians Supporting. American Academy of Family Physicians (AAFP), 2014, May 29, 2015, http://www.aafp.org/about/policies/all/breastfeeding-support.html	AAFP's official position paper on the importance of breastfeeding, impact on public health and recommendations for ways in which family physicians can promote and support breastfeeding. Supports recommendations of the Baby-Friendly Hospital Initiative and Baby-Friendly Office with multiple primary references.	III
The American College of Obstetricians and Gynecologists. Committee Opinion: Breastfeeding in Underserved Women: Increasing Initiation and Continuation of Breastfeeding.Obstet.Gynecol., 2013, 122, 423-8.	Reviews the importance of breastfeeding and summarizes guidelines similar to those of the Surgeon General and the AAP. The College supports efforts to educate patients on the benefits and mechanics of breastfeeding, and encourages health care providers, nursing staff, and government assistance agencies to remain strong advocates for breastfeeding, including lactation programs within hospitals. A multidisciplinary approach that involves community, family, patients, and all involved clinicians is advised in order to achieve Healthy People 2020 breastfeeding goals. The 10 Steps of the Baby Friendly Hospital Initiative are reviewed and endorsed.	III

The American College of Obstetricians and Gynecologists. Committee Opinion: Breastfeeding: Maternal and Infant Aspects. Obstet.Gynecol., 2013, 361, 479-80.	ACOG strongly supports breastfeeding (including exclusive breastfeeding 6 months or more) and calls upon its Fellows, other health care professionals caring for women and their infants, hospitals, and employers to support women in choosing to breastfeed their infants. In addition to providing supportive clinical care for their own patients, obstetrician–gynecologists should be in the forefront of fostering changes in the public environment that will support breastfeeding, whether through change in hospital practices, through community efforts, or through supportive legislation. This guideline details evidence-based practices for obstetrician–gynecologists to support breastfeeding during preconception, prenatal, postpartum, and interconception care. (advice and encouragement, hospital practices, gift packs, breast exams, contraception, maintaining milk supply/life issues, office practices, 24h postpartum resource)	III
Eidelman, A and Schanler, R AAP Executive Summary: Breastfeeding and the Use of Human Milk Pediatrics, 2012, 129, 3, 600-603	Executive report on BF epidemiology, infant outcomes, BF and the premature baby, maternal outcomes, economic benefits, duration, contraindications, maternal diet, maternal medicaitons, hospital routines/10 steps, pacifier use, vitamin D use, management of BF, role of the pediatrician in BF support and management, business case for BF. Part of the role of the pediatrician is to "Collaborate with the obstetric community to develop optimal breastfeeding support programs."	III
Academy of Breastfeeding Medicine. Clinical Protocol #14: Breastfeeding-Friendly Physicians Office Part 1: Optimizing Care for Infants and Children. Breastfeeding Medicine 2006;1(2):115-119. www.bfmed.org (Last accessed June 9, 2008)	Clinical protocol for creating a breastfeeding friendly office. Based on multiple primary resources.	III
AAP, ACOG. Breastfeeding Handbook for Physicians. Breastfeeding: Management Before and After Conception. 55-65	Review of techniques for history, exam and education regarding breastfeeding during office visits with multiple primary references.	III
Section on Breastfeeding. Ten Steps to Support Parents' Choice to Breastfeed Their Baby. Elk Grove Village, IL: American Academy of Pediatrics; 2003.	AAP's 10 Steps to support breastfeeding, based on BFHI.	III

WorldHealth Organization. International Code of Marketing of Breast-milk Substitutes, 1981, Resolution WHA34.22. http://www.who.int/nutrition/publications/code_english.pdf. Accessed: Sept 10, 2015.	World Health Organization set of recommendations for the regulation of marketing of breast-milk substitutes.	III
Support of providers/offices		
Hartman S, Barnett J, Bonuck K. Implementing international board-certified lactation consultants intervention into routine care: Barriers and recommendations. *Clinical Lactation*. 2012;3-4:131.	Qualitative analysis of intervention that integrated IBCLCs into routine care, prenatal and postnatal. The results indicated that healthcare provider (HCP) support for breastfeeding was undermined by inadequate education and experience, often resulting in support "in name only." In addition, IBCLCs rapport and expertise—with both women and the healthcare team—helped overcome individual- and system-level barriers to breastfeeding. IBCLCs' acceptance and integration into the primary-care team validated their work and increased their effectiveness. IBCLCs comments suggest that mothers cannot rely solely upon their healthcare providers for breastfeeding education and support. IBCLCs integrated into routine antenatal and postpartum care are pivotal to encouraging and reinforcing a woman's choice to breastfeed through education, as well as emotional and skill-based support.	III
Bonuck K, Stuebe A, Barnett J, Labbok M, Fletcher J, Bernstein P. Effect of primary care intervention on breastfeeding duration and intensity.Am J Public Health, 2014, 104, S1, S119-127. Andaya,E.; Bonuck,K.; Barnett,J.; Lischewski-Goel,J. Perceptions of primary care-based breastfeeding promotion interventions: qualitative analysis of randomized controlled trial participant interviews Breastfeed Med., 2012, 7, 6, 417-422, United States	Results of 2 RCTs (275 women and 666 women) are presented comparing usual care vs. prenatal LC education or electronically-prompted (EP) education from prenatal providers. At 3 months postpartum, high-intensity or exclusive breastfeeding was greater for the LC+EP groups vs. usual care, but not for the EP group alone. Authors concluded that LC integration into routine prenatal care, with or without EPs, increased breastfeeding intensity at 3 months. #2: Qualitative analysis of 6 month exit interviews of a subsample (67) of participants (nearly 1000) in an RCT comparing routine pre/postnatal LC support (LC), electronic prompts (EP) to providers to discuss BF in prenatal care visits, a combined intervention of both (LC+EP), and controls. Qualitative analysis found that 1) exit interviews focused attention on feeding practices and promoted BF when coupled w/ the intervention, 2) the EP and LC interventions were complementary, EP influenced initiation while LCs helped overcome barriers and sustain BF, 3)prenatal intent to feed both formula and BF was associated with greated receptivity to study messages.	I, III
Technology and Internet		

Giglia,R.; Binns,C. The effectiveness of the internet in improving breastfeeding outcomes: a systematic review J.Hum.Lact., 2014, 30, 2, 156-160, United States	Poor study design, numerous study limitations, and a lack of scientific rigor make it difficult to determine what role the Internet can play in breastfeeding support. At this point in time it would be unethical to recommend the Internet as the sole source of breastfeeding support and education in the antenatal or postnatal period.	I or II-2
Bonuck K, Stuebe A, Barnett J, Labbok M, Fletcher J, Bernstein P. Effect of primary care intervention on breastfeeding duration and intensity.Am J Public Health, 2014, 104, S1, S119-127. Andaya,E.; Bonuck,K.; Barnett,J.; Lischewski-Goel,J. Perceptions of primary care-based breastfeeding promotion interventions: qualitative analysis of randomized controlled trial participant interviews Breastfeed Med., 2012, 7, 6, 417-422, United States	Results of 2 RCTs (275 women and 666 women) are presented comparing usual care vs. prenatal LC education or electronically-prompted (EP) education from prenatal providers. At 3 months postpartum, high-intensity or exclusive breastfeeding was greater for the LC+EP groups vs. usual care, but not for the EP group alone. Authors concluded that LC integration into routine prenatal care, with or without EPs, increased breastfeeding intensity at 3 months. #2: Qualitative analysis of 6 month exit interviews of a subsample (67) of participants (nearly 1000) in an RCT comparing routine pre/postnatal LC support (LC), electronic prompts (EP) to providers to discuss BF in prenatal care visits, a combined intervention of both (LC+EP), and controls. Qualitative analysis found that 1) exit interviews focused attention on feeding practices and promoted BF when coupled w/ the intervention, 2) the EP and LC interventions were complementary, EP influenced initiation while LCs helped overcome barriers and sustain BF, 3)prenatal intent to feed both formula and BF was associated with greated receptivity to study messages.	I, III
Gallegos D, Russell-Bennett R, Previte J, et al. Can a text message a week improve breastfeeding? *BMC Pregnancy Childbirth.* 2014; 14(374):1-11.	Randomized controlled trial of a simple intervention: women in the intervention group received MumBubConnect, a text messaging service with automated responses delivered once a week for 8 weeks. Women in the comparison group received their usual care and were sampled two years after the intervention group. Data collection included online surveys at two time points, week zero and week nine, to measure breastfeeding exclusivity and duration, coping, emotions, accountability and self-efficacy. A range of statistical analyses were used to test for differences between groups. Hierarchical regression was used to investigate change in breastfeeding outcome, between groups, adjusting for co-variates. The intervention group had 120 participants at commencement and 114 at completion, the comparison group had 114 participants at commencement and 86 at completion. MumBubConnect had a positive impact on the primary outcome of breastfeeding behaviors with women receiving the intervention more likely to continue exclusive breastfeeding; with a 6% decrease in exclusive breastfeeding in the intervention group, compared to a 14%	I

	decrease in the comparison group ($p<0.001$). This remained significant after controlling for infant age, mother's income, education and delivery type ($p=0.04$). Women in the intervention group demonstrated active coping and were less likely to display emotions-focussed coping ($p<.001$). There was no discernible statistical effect on self-efficacy or accountability.	
Flax VL, Negerie M, Ibrahim AU, et al. Integrating group counseling, cell phone messaging, and participant-generated songs and dramas into a microcredit program increases Nigerian women's adherence to international breastfeeding recommendations. *J Nutr.* 2014;144(7):1120-4.	Cluster-randomized controlled trial in Bauchi State, Nigeria, with the aim of increasing early breastfeeding initiation and exclusive breastfeeding among female microcredit clients. The intervention had 3 components. Trained credit officers led monthly breastfeeding learning sessions during regularly scheduled microcredit meetings for 10 months. Text and voice messages were sent out weekly to a cell phone provided to small groups of microcredit clients (5-7women). The small groups prepared songs or dramas about the messages and presented them at the monthly microcredit meetings. The control arm continued with the regular microcredit program. Randomization occurred at the level of the monthly meeting groups. Pregnant clients were recruited at baseline and interviewed again when their infants were aged $6 mo. Logistic regression models accounting for clustering were used to estimate the odds of performing recommended behaviors. Among the clients who completed the final survey (n = 390), the odds of exclusive breastfeeding to 6 mo (OR: 2.4; 95% CI: 1.4, 4.0) and timely breastfeeding initiation (OR: 2.6; 95% CI: 1.6, 4.1) were increased in the intervention vs. control arm. Delayed introduction of water explained most of the increase in exclusive breastfeeding among clients receiving the intervention.	I
Peer Support		
Brunton,G.; O'Mara-Eves,A.; Thomas,J. The 'active ingredients' for successful community engagement with disadvantaged expectant and new mothers: a qualitative comparative analysis J.Adv.Nurs., 2014, 70, 12, 2847-2860, John Wiley & Sons Ltd, England	Qualitative comparative analysis of studies in a systematic review looking at antenatal, immunization, breastfeeding and early professional intervention outcomes. Peer delivery (consistency 083; unique coverage 063); and mother-professional collaboration (consistency 0833; unique coverage 021) were moderately aligned with effective interventions. Community-identified health need plus consultation/collaboration in intervention design and leading on delivery were weakly aligned with 'not effective' interventions (consistency 078; unique coverage 0 29). Conclusions. For disadvantaged new and expectant mothers, peer or collaborative delivery models could be used in interventions.	II-2
Bevan,G.; Brown,M. Interventions in exclusive breastfeeding: a systematic review. Br.J.Nurs., 2014, 23, 2, 86-89, England	Review of the evidence for interventions in exclusive breastfeeding. Support mechanisms, peer support and cultural factors are discussed.	II-1

Chapman,D.J.; Morel,K.; Bermudez-Millan,A.; Young,S.; Damio,G.; Perez-Escamilla,R. Breastfeeding education and support trial for overweight and obese women: a randomized trial.Pediatrics, 2013, 131, 1, e162-70.	Recruited 206 pregnant, overweight/obese, low-income women and randomly assigned them to receive specialized breastfeeding peer counseling (SBFPC) or standard care (controls) at a Baby-Friendly hospital. SBFPC included 3 prenatal visits, daily in-hospital support, and up to 11 postpartum home visits promoting EBF and addressing potential obesity-related breastfeeding barriers. The intervention had no impact on EBF or breastfeeding continuation at 1, 3, or 6 months postpartum. In adjusted posthoc analyses, at 2 weeks postpartum the intervention group had significantly greater odds of continuing any breastfeeding (adjusted odds ratio [aOR]: 3.76 [95% confidence interval (CI): 1.07–13.22]), and giving at least 50% of feedings as breast milk (aOR: 4.47 [95% CI: 1.38–14.5]), compared with controls. Infants in the intervention group had significantly lower odds of hospitalization during the first 6 months after birth (aOR: 0.24 [95% CI: 0.07–0.86]).	I
Wambach,K.A.; Aaronson,L.; Breedlove,G.; Domian,E.W.; Rojjanasrirat,W.; Yeh,H.W. A randomized controlled trial of breastfeeding support and education for adolescent mothers. West.J.Nurs.Res., 2011, 33, 4, 486-505, United States	RCT with 1 intervention group, 1 control and 1 attention control group enrolling 15-18yo pregnant women in Midwestern US, N=390, N=289 for BF initiation. Intervention's prenatal component included 1-2 RN/IBCLC and teen BF peer counselor run class(es) and 3 phone calls, education informed by developmentally-appropriate behavior and competence theory. Outcome measures attributable to the prenatal intervention piece include the prenatal surveys of knowledge and attitudes and breastfeeding initiation. Higher initiation seen in experimental group, but not after adding covariates. was likely underpowered. "Statistically significant factors predicting breastfeeding initiation included breastfeeding knowledge, prenatal intention to breastfeed, the time when the feeding decision was made, and social and professional support." Decision in 1st trimester was more predictive of BF initiation than deciding later. None of the variables that predicted breastfeeding initiation were significant predictors of exclusive breastfeeding.	I

Chung,M.; Ip,S.; Yu,W.; Raman,G.; Trikalinos,T.; DeVine,D.; Lau,J. Interventions in Primary Care to Promote Breastfeeding, AHRQ, 2008, Rockville (MD)	Systematic review of evidence for the effectiveness of primary care–initiated interventions to promote breastfeeding - included randomized, controlled trials of primary care–initiated interventions, mainly in developed countries. Thirty-eight randomized, controlled trials met eligibility criteria. Breastfeeding promotion interventions in developed countries resulted in significantly increased rates of short- (1 to 3 months) and long-term (6 to 8 months) exclusive breastfeeding (rate ratios, 1.28 [95% CI, 1.11 to 1.48] and 1.44 [CI, 1.13 to 1.84], respectively). In subgroup analyses, combining pre- and postnatal breastfeeding interventions had a larger effect on increasing breastfeeding durations than either pre- or postnatal interventions alone. Interventions with a component of lay support (such as peer support or peer counseling) were more effective than usual care in increasing the short-term breastfeeding rate.	I
Chapman DJ, Damio G, Perez-Escamilla R. Differential response to breastfeeding peer counseling within a low-income, predominantly Latina population. J Hum Lact 2004 Nov; 20(4): 389-96.	Logistic regression models based upon a randomized control trial to identify those most responsive to peer counseling. Multiparae (OR=6.4) and women with uncertain breastfeeding intentions (OR=7.4) were found to benefit the most from a prenatal visit.	I
Chapman DJ, Damio G, Young S, Perez-Escamilla R. Effectiveness of breastfeeding peer counseling in a low-income, predominantly Latina population: a randomized controlled trial. Arch Pediatr Adolesc Med. 2004 Sep; 158(9): 897-902	RCT of a breastfeeding peer-counseling program for low-income population. The intervention group showed increased initiation rates and duration (91% vs. 77%).	I
Clifford,J.; McIntyre,E. Who supports breastfeeding? Breastfeed.Rev., 2008, 16, 2, 9-19,	Systematic review (no meta-analysis) of socio-cultural supports for breastfeeding women with International focus. Includes both quantitative and qualitative studies.	I
In-home interventions		

Memon,Z.A.; Khan,G.N.; Soofi,S.B.; Baig,I.Y.; Bhutta,Z.A. TitleImpact of a community-based perinatal and newborn preventive care package on perinatal and neonatal mortality in a remote mountainous district in Northern Pakistan BMC Pregnancy Childbirth, 2015, 15, 1, 106-015-0538-8, England	Non-randomized controlled trial including 3,200 pregnant women receiving intervention, and a population of 283,324, which consisted of a community-based intervention package including awareness creation, community mobilization and education, enhanced trainings for community health workers, home visits, counseling sessions with pregnant women, video and education sessions for pregnant women as well as community members. Found increased colostrum administration (83% vs 71%, p<0.001) and initiation of breastfeeding within 1 hour of birth (55% vs. 40%, p<0.001) in intervention vs. control group, in addition to decreased overall neonatal mortality.	II-1
Martin,J.; MacDonald-Wicks,L.; Hure,A.; Smith,R.; Collins,C.E. Title:Reducing postpartum weight retention and improving breastfeeding outcomes in overweight women: a pilot randomised controlled trial. Nutrients, 2015, 7, 1464-1479.	RCT of obese women with intent to BF, gave group 1. antenatal intervention with dietary counseling, 2. antenatal intervention with dietary counseling and lactation support (Two 30mins antenatal education sessions and one 2 week home visit, FU by phone as needed), 3. control (intervention at 3 mo postpartum). N=36. Secondary outcome found that LC support improved duration of breastfeeding. Not statistically significant.	I
Lassi,Z.S.; Das,J.K.; Salam,R.A.; Bhutta,Z.A. Evidence from community level inputs to improve quality of care for maternal and newborn health: interventions and findingsReprod.Health., 2014, 11 Suppl 2, S2-4755-11-S2-S2. Epub 2014 Sep 4, England	POSTNATAL Home visits by CHW to improve neonatal health was associated with improved breast feeding initiation within 1 hour (RR: 3.35, 95% CI: 1.31-8.59). PRENATAL Cochrane:Community based packages with an emphasis on provision of care through trained CHW via home visitation significantly improved early breast feeding initiation (RR: 1.94, 95% CI: 1.56-2.42). PRENATAL Cochrane: Care provided by midwives was found to be associated with significant improvements in initiation of breast feeding (RR: 1.35, 95% CI: 1.03-1.76). Cochrane, mixed PRE AND POSTNATAL: Another review evaluating the effects of CHW interventions reported significant impacts on breast feeding initiation (RR: 1.36, 95% CI: 1.14-1.61).	I

Chapman,D.J.; Morel,K.; Bermudez-Millan,A.; Young,S.; Damio,G.; Perez-Escamilla,R. Breastfeeding education and support trial for overweight and obese women: a randomized trial.Pediatrics, 2013, 131, 1, e162-70.	Recruited 206 pregnant, overweight/obese, low-income women and randomly assigned them to receive specialized breastfeeding peer counseling (SBFPC) or standard care (controls) at a Baby-Friendly hospital. SBFPC included 3 prenatal visits, daily in-hospital support, and up to 11 postpartum home visits promoting EBF and addressing potential obesity-related breastfeeding barriers. The intervention had no impact on EBF or breastfeeding continuation at 1, 3, or 6 months postpartum. In adjusted posthoc analyses, at 2 weeks postpartum the intervention group had significantly greater odds of continuing any breastfeeding (adjusted odds ratio [aOR]: 3.76 [95% confidence interval (CI): 1.07–13.22]), and giving at least 50% of feedings as breast milk (aOR: 4.47 [95% CI: 1.38–14.5]), compared with controls. Infants in the intervention group had significantly lower odds of hospitalization during the first 6 months after birth (aOR: 0.24 [95% CI: 0.07–0.86]).	I
Edwards,R.C.; Thullen,M.J.; Korfmacher,J.; Lantos,J.D.; Henson,L.G.; Hans,S.L. Breastfeeding and complementary food: randomized trial of community doula home visiting. Pediatrics, 2013, 132 Suppl 2, S160-6.	Low-income, African American mothers (*n* = 248) under age 22 years participated in a randomized trial of a community doula intervention. Doulas provided home visits from pregnancy through 3 months postpartum, and support during childbirth. Control-group mothers received usual prenatal care. Intent-to-treat analyses showed that doula-group mothers attempted breastfeeding at a higher rate than control-group mothers (64% vs 50%; *P* = .02) and were more likely to breastfeed longer than 6 weeks (29% vs 17%; *P* = .04), although few mothers still breastfed at 4 months. The intervention also impacted mothers' cereal/solid food introduction (*P* = .008): fewer doula-group mothers introduced complementary foods before 6 weeks of age (6% vs 18%), while more waited until at least 4 months (21% vs 13%) compared with control-group mothers.	I

Islam Khan,A.Effects of pre- and postnatal nutrition interventions on child growth and body composition: the MINIMat trial in rural Bangladesh.Glob.Health.Action, 2013, 6, 22476. Khan,A.I.; Hawkesworth,S.; Ekstrom,E.C.; Arifeen,S.; Moore,S.E.; Frongillo,E.A.; Yunus,M.; Persson,L.A.;Kabir,I.Effects of exclusive breastfeeding intervention on child growth and body composition: the MINIMat trial, Bangladesh.ActaPaediatr., 2013, 102, 8, 815-823.	In the MINIMat trial in Bangladesh, pregnant women were randomized to early (around 9 weeks) or usual invitation (around 20 weeks) to food supplementation and to one of the three daily micronutrient supplements. Subjects were also randomized to exclusive breastfeeding (EBF) counseling (by "trained counselors," 2 prenatal and 6 postnatal sessions) or to usual health messages. Via Community-health workers/home visits. No differences in background characteristics were observed among the intervention groups. There was also no differential effect of prenatal interventions on birthweight or birth length. Early food supplementation reduced the level of stunting from early infancy up to 54 months of age among boys (average difference – 6.5% units, 95% confidence interval [CI] 1.7–11.3, *p*=0.01) but not among girls (average difference – 2.4% units, 95% CI −2.2–7.0, *p*=0.31). MMS resulted in more stunting compared to standard Fe60F (average difference – 4.8% units, 95% CI 0.8–8.9,*p*=0.02). Breastfeeding counseling prolonged the duration of EBF (difference – 35 days, 95% CI 30.6–39.5, *p*<0.001). Neither pregnancy interventions nor breastfeeding counseling influenced the body composition of children at 54 months of age. The effects of prenatal interventions on postnatal growth suggest programming effects in early fetal life. Same trial as above, with just the breastfeeding intervention discussed. Subjects were also randomized to exclusive breastfeeding (EBF) counseling (by "trained counselors," 2 prenatal and 6 postnatal sessions) or to usual health messages. Breastfeeding counseling prolonged the duration of EBF (difference – 35 days, 95% CI 30.6–39.5, *p*<0.001).	I
Karp,S.M.; Howe-Heyman,A.; Dietrich,M.S.; Lutenbacher,M.Breastfeeding initiation in the context of a home intervention to promote better birth outcomes. Breastfeed Med., 2013, 8, 4, 381-387.	Data for a subsample of women (*n*=130) were derived from a randomized clinical trial testing a home visit intervention to improve birth outcomes. The subsample included women who gave birth to an infant greater than 35 weeks of gestation. Intervention participants (*n*=73) also received a series of 4 home visits by nurse-midwives. Descriptive and logistic regression analyses were used, controlling for factors previously associated with breastfeeding. Although 85% of women reported an intention to breastfeed, only 65% reported initiating breastfeeding at 48 hours postpartum. After controlling for race, income, marital status, smoking, and age, higher maternal education and lower pregravid body mass index were associated with higher rates of initiation (odds ratio [OR]=1.30, *p*=0.010 and OR=0.94, *p*=0.007, respectively). Lower levels of depressive symptoms (OR=0.95,*p*=0.039) and higher levels of prenatal stress (OR=1.11, *p*=0.042) increased the likelihood of initiating breastfeeding. Women in the intervention group were more likely to report breastfeeding (*p*=0.007).	I

Kirkwood,B.R.; Manu,A.; ten Asbroek,A.H.; Soremekun,S.; Weobong,B.; Gyan,T.; Danso,S.; Amenga-Etego,S.; Tawiah-Agyemang,C.; Owusu-Agyei,S.; Hill,Z. Effect of the Newhints home-visits intervention on neonatal mortality rate and care practices in Ghana: a cluster randomised controlled trial. Lancet, 2013, 381, 9884, 2184-2192.	Cluster randomised trial was undertaken in 98 zones in seven districts in Ghana. Community-based surveillance volunteers (CBSVs) in Newhints zones were trained to identify pregnant women in their community and to make two home visits during pregnancy and three in the first week of life to promote essential newborn-care practices, weigh and assess babies for danger signs, and refer as necessary. Initiation of breastfeeding in less than 1 h of birth was improved for intervention vs. control (3743 [49%] of 7673 *vs* 3280 [41%] of 7921, respectively; 1·22, 1·07–1·40; p=0·004). Skin to skin contact postdelivery also improved (3355 [44%] *vs* 1931 [24%], respectively; 2·30, 1·85–2·87; p=0·0002), as well as exclusive breastfeeding for 26–32 days (1217 [86%] of 1414 *vs* 1091 [80%] of 1371; 1·10, 1·04–1·16; p=0·001).	I
AuthorsOchola,S.A.; Labadarios,D.; Nduati,R.W. Impact of counselling on exclusive breast-feeding practices in a poor urban setting in Kenya: a randomized controlled trial.public health nutrition	Randomized Controlled trial in which 9 villages were assigned to 1 of 3 groups: control group, a home-based intervention group, and a facility-based intervention group. The home-based group received 1 prenatal and 6 postnatal education sessions, the facility-based group received only 1 prenatal one-on-one BF education session. Significant improvements were seen in BF rates for both intervention groups at 1 month (84.3% for facility-based and 87% for home-based vs. 72% for the Control group), but only for the home-based group beyond 1 month.	I
Gogia,S.; Sachdev,H.S. Home visits by community health workers to prevent neonatal deaths in developing countries: a systematic review. Bull.World Health Organ., 2010, 88, 9, 658-666B, Switzerland	Systematic review and meta-analysis of 5 programs (13 articles) of home-based interventions delivered by community health workers in perinatal period. Trials were in India, Pakistan or Bangladesh.. All trials included antenatal components. Data on 17 675 and 14 251 live births (I+C), and on 746 and 779 neonatal deaths. Saw improved BF by 1h of birth in all trials and pooled analysis (pooled RR = 3.35, CI 1.31-8.59)	I
Ingram,J.; Johnson,D. Using community maternity care assistants to facilitate family-focused breastfeeding support Matern.Child.Nutr., 2009, 5, 3, 276-281, England	11 women received 1 home visit with 40 mins breastfeeding counseling for fathers/partners and pregnant women from "Maternity Care Assistants" in the UK. Qualitative methods found that mothers and other family members valued the sessions, the MCAs found giving such breastfeeding support both enjoyable and fulfilling, while involving fathers and family members proved a practical way of encouraging them to be more supportive. Midwives and midwifery managers were positive about involving MCAs in giving the antenatal intervention, but did not see the routine introduction of this type of session for couples being possible at present due to current staffing problems.	III

Sandy,J.M.; Anisfeld,E.; Ramirez,E. Effects of a prenatal intervention on breastfeeding initiation rates in a Latina immigrant sample J.Hum.Lact., 2009, 25, 4, 404-11; quiz 458-9, United States	RCT of mostly Dominican mothers in NYC, Best Beginnings program (developed by Healthy Families) enrolled in pregnancy or infant <3mo + psychosocial risk factors for caregiving difficulties. Family support workers delivered home-based program, breastfeeding support was mostly prenatal. Control group received 2 home visits but no FU or BF support/education. Exposure to the prenatal intervention was not significantly associated with ABF. EBF was significantly positively associated with exposure to the prenatal intervention, with 32% (44/137) of exposed mothers reporting EBF compared to 20% (20/101) of nonexposed mothers (OR 1.92; 95% CI 1.05-3.52). BF significantly positively associated with a measure of household income (ABF and EBF) and significantly negatively associated with maternal acculturation level (ABF). The finding that more acculturated mothers (ie, English-speaking, first generation US-born) were less likely to report ABF suggests that not only recent immigrants, but also more acculturated Latinas should be targets of future interventions aimed at increasing breastfeeding initiation rates in the United States.	I
Adolescent mothers		
Apostolakis-Kyrus,K.; Valentine,C.; DeFranco,E. Factors associated with breastfeeding initiation in adolescent mothersJ.Pediatr., 2013, 163, 5, 1489-1494.	Retrospective population-based cohort study of all non-anomalous live births in Ohio (2006-2007). Breastfeeding initiation rates were compared between adolescent mothers age ≤19 years and a reference group age >19 years. A multivariate logistic regression model assessed the association between breastfeeding initiation in adolescent mothers while adjusting for important concomitant risk factors including race, socioeconomic, demographic, prenatal, and delivery factors.Of adolescent mothers, 44% initiated breastfeeding compared with 65% of older mothers, *P*< .001. Adolescents were 33% less likely to breastfeed after adjusting for important coexisting factors, adjusted relative risk 0.77 (95% CI 0.75-0.80). Socioeconomic factors and lack of social support had the most significant influence on breastfeeding initiation in adolescent mothers.	II-2

Wambach,K.A.; Aaronson,L.; Breedlove,G.; Domian,E.W.; Rojjanasrirat,W.; Yeh,H.W. A randomized controlled trial of breastfeeding support and education for adolescent mothers. West.J.Nurs.Res., 2011, 33, 4, 486-505, United States	RCT with 1 intervention group, 1 control and 1 attention control group enrolling 15-18yo pregnant women in Midwestern US, N=390, N=289 for BF initiation. Intervention's prenatal component included 1-2 RN/IBCLC and teen BF peer counselor run class(es) and 3 phone calls, education informed by developmentally-appropriate behavior and competence theory. Outcome measures attributable to the prenatal intervention piece include the prenatal surveys of knowledge and attitudes and breastfeeding initiation. Higher initiation seen in experimental group, but not after adding covariates. was likely underpowered. "Statistically significant factors predicting breastfeeding initiation included breastfeeding knowledge, prenatal intention to breastfeed, the time when the feeding decision was made, and social and professional support." Decision in 1st trimester was more predictive of BF initiation than deciding later. None of the variables that predicted breastfeeding initiation were significant predictors of exclusive breastfeeding.	I
Obese mothers		
Martin,J.; MacDonald-Wicks,L.; Hure,A.; Smith,R.; Collins,C.E. Title:Reducing postpartum weight retention and improving breastfeeding outcomes in overweight women: a pilot randomised controlled trial. Nutrients, 2015, 7, 1464-1479.	RCT of obese women with intent to BF, gave group 1. antenatal intervention with dietary counseling, 2. antenatal intervention with dietary counseling and lactation support (Two 30mins antenatal education sessions and one 2 week home visit, FU by phone as needed), 3. control (intervention at 3 mo postpartum). N=36. Secondary outcome found that LC support improved duration of breastfeeding. Not statistically significant.	I
Chapman,D.J.; Morel,K.; Bermudez-Millan,A.; Young,S.; Damio,G.; Perez-Escamilla,R. Breastfeeding education and support trial for overweight and obese women: a randomized trial.Pediatrics, 2013, 131, 1, e162-70.	Recruited 206 pregnant, overweight/obese, low-income women and randomly assigned them to receive specialized breastfeeding peer counseling (SBFPC) or standard care (controls) at a Baby-Friendly hospital. SBFPC included 3 prenatal visits, daily in-hospital support, and up to 11 postpartum home visits promoting EBF and addressing potential obesity-related breastfeeding barriers. The intervention had no impact on EBF or breastfeeding continuation at 1, 3, or 6 months postpartum. In adjusted posthoc analyses, at 2 weeks postpartum the intervention group had significantly greater odds of continuing any breastfeeding (adjusted odds ratio [aOR]: 3.76 [95% confidence interval (CI): 1.07–13.22]), and giving at least 50% of feedings as breast milk (aOR: 4.47 [95% CI: 1.38–14.5]), compared with controls. Infants in the intervention group had significantly lower odds of hospitalization during the first 6 months after birth (aOR: 0.24 [95% CI: 0.07–0.86]).	I
Minority women in US, UK		

J Hum Lact. 2015 Apr 23. pii: 0890334415583294. Group versus Individual Professional Antenatal Breastfeeding Education for Extending Breastfeeding Duration and Exclusivity: A Systematic Review. Wong KL1, Tarrant M2,Lok KY2.	Systematic review of literature comparing group and individual antenatal BF education, found 3935 citations leading to 19 articles reviewed. Found that both education types showed some effect in extending the duration of exclusive and/or any breastfeeding when targeted at vulnerable populations, like minority, low-incomeor low-education participants. Significant effects not found with low-risk, educated women. Also, "due to the limited number of studies examining individual antenatal education and due to the heterogeneity and lower quality of studies examining group antenatal education, no conclusions could be drawn on the effectiveness of either mode of education." May not have long-term effect on breastfeeding rates, such as at 3 and 6 months.	I
Edwards,R.C.; Thullen,M.J.; Korfmacher,J.; Lantos,J.D.; Henson,L.G.; Hans,S.L. Breastfeeding and complementary food: randomized trial of community doula home visiting. Pediatrics, 2013, 132 Suppl 2, S160-6. LEVEL: I.	Low-income, African American mothers (*n* = 248) under age 22 years participated in a randomized trial of a community doula intervention. Doulas provided home visits from pregnancy through 3 months postpartum, and support during childbirth. Control-group mothers received usual prenatal care. Intent-to-treat analyses showed that doula-group mothers attempted breastfeeding at a higher rate than control-group mothers (64% vs 50%; *P* = .02) and were more likely to breastfeed longer than 6 weeks (29% vs 17%; *P* = .04), although few mothers still breastfed at 4 months. The intervention also impacted mothers' cereal/solid food introduction (*P* = .008): fewer doula-group mothers introduced complementary foods before 6 weeks of age (6% vs 18%), while more waited until at least 4 months (21% vs 13%) compared with control-group mothers.	I
Pitcock, N. Evaluation of an Initiative to Increase Rates of Exclusive Breastfeeding Among Rural Hispanic Immigrant Women. University of Virginia, 2013.	Retrospective evaluation of spanish language culturally-competent exclusivity-focused prenatal education component of a staged BF promotion intervention. nourish their newborns. Elected to participate in prenatal class. chart review, N=39 in intervention group, had a 53.8% BF intent vs. usual care 37.5% BF intent (n=32). EBF at discharge was 41% for group attendees and 3.1% for non-attendees. 77.1 % of all participants did not receive access to Lactation Consultation services.	II-3
Chapman,D.J.; Perez-Escamilla,R. Breastfeeding among minority women: moving from risk factors to interventions Adv.Nutr., 2012, 3, 1, 95-104, United States	Review of the evidence for BF interventions in minority women. Of the prenatal interventions, group prenatal care and group prenatal BF classes improved breastfeeding initiation. Duration was improved by 1 study (group BF class vs. individual class). 1 group "targeted male partners of pregnant, predominantly black women" and was "taught by a black father." Prenatal Peer Counseling also improved BF initiation and duration, though some studies had a postpartum component, so impact of prenatal component on duration is hard to evaluate.	I

Sandy,J.M.; Anisfeld,E.; Ramirez,E. Effects of a prenatal intervention on breastfeeding initiation rates in a Latina immigrant sample J.Hum.Lact., 2009, 25, 4, 404-11; quiz 458-9, United States	RCT of mostly Dominican mothers in NYC, Best Beginnings program (developed by Healthy Families) enrolled in pregnancy or infant <3mo + psychosocial risk factors for caregiving difficulties. Family support workers delivered home-based program, breastfeeding support was mostly prenatal. Control group received 2 home visits but no FU or BF support/education. Exposure to the prenatal intervention was not significantly associated with ABF. EBF was significantly positively associated with exposure to the prenatal intervention, with 32% (44/137) of exposed mothers reporting EBF compared to 20% (20/101) of nonexposed mothers (OR 1.92; 95% CI 1.05-3.52). BF significantly positively associated with a measure of household income (ABF and EBF) and significantly negatively associated with maternal acculturation level (ABF). The finding that more acculturated mothers (ie, English-speaking, first generation US-born) were less likely to report ABF suggests that not only recent immigrants, but also more acculturated Latinas should be targets of future interventions aimed at increasing breastfeeding initiation rates in the United States.	I
Other reports of interest		
Issler H, de Sa MB, Senna DM. Knowledge of newborn healthcare among pregnant women: basis for promotional and educational programs on breastfeeding. Sao Paulo Med J. 2001 Jan 4;119(1):7-9.	Cross-sectional study of pregnant women's knowledge of newborn health care and breastfeeding practices which was found to be low.	II-3
Fathers/Partners		

Kraft,J.M.; Wilkins,K.G.; Morales,G.J.; Widyono,M.; Middlestadt,S.E.An evidence review of gender-integrated interventions in reproductive and maternal-child healthJ.HealthCommun., 2014, 19 Suppl 1, 122-141, United States	Review of gender-integrated interventions in maternal-child health outcomes. One study exclusively on breastfeeding, provided education and counseling (in-person and video), and encouraged men to help their wives with chores during the breastfeeding period. Although intervening with couples was associated with more exclusive breastfeeding for up to 6 months (relative to standard of care), the protective effect of the father's involvement was stronger among fathers with higher levels of education who may have been more open to messages concerning shared domestic responsibilities (Susin et al., 2008). 3 of 5 antenatal care interventions targeted multiple behaviors (e.g., making birth plans, using recommended supplements and services, breastfeeding and/or immunizing children). One intervention in both India and South Africa included educational materials and individual, couple and group counseling on pregnancy care, breastfeeding and postpartum family planning, no effect on breastfeeding. Evidence points to the indirect, but important, role of addressing gender dynamics on select child health related-behaviors. The lack of clear patterns, which could be due to differences in community context, how gender dynamics influence the particular behavioral outcome or aspects of the intervention, make it difficult to make recommendations about implementing these types of interventions.	I
Bevan,G.; Brown,M. Interventions in exclusive breastfeeding: a systematic review. Br.J.Nurs., 2014, 23, 2, 86-89, England	Review of the evidence for interventions in exclusive breastfeeding. Support mechanisms, peer support and cultural factors are discussed.	II-1
Chapman,D.J.; Perez-Escamilla,R. Breastfeeding among minority women: moving from risk factors to interventions Adv.Nutr., 2012, 3, 1, 95-104, United States	Review of the evidence for BF interventions in minority women. Of the prenatal interventions, group prenatal care and group prenatal BF classes improved breastfeeding initiation. Duration was improved by 1 study (group BF class vs. individual class). 1 group "targeted male partners of pregnant, predominantly black women" and was "taught by a black father." Prenatal Peer Counseling also improved BF initiation and duration, though some studies had a postpartum component, so impact of prenatal component on duration is hard to evaluate.	I

Ingram,J.; Johnson,D. Using community maternity care assistants to facilitate family-focused breastfeeding support Matern.Child.Nutr., 2009, 5, 3, 276-281, England	11 women received 1 home visit with 40 mins breastfeeding counseling for fathers/partners and pregnant women from "Maternity Care Assistants" in the UK. Qualitative methods found that mothers and other family members valued the sessions, the MCAs found giving such breastfeeding support both enjoyable and fulfilling, while involving fathers and family members proved a practical way of encouraging them to be more supportive. Midwives and midwifery managers were positive about involving MCAs in giving the antenatal intervention, but did not see the routine introduction of this type of session for couples being possible at present due to current staffing problems.	III
Ingram J, Johnson D. A feasibility study of an intervention to enhance family support for breastfeeding in a deprived area in Bristol, UK. Midwifery. 2004 Dec;20(4):367-79	Qualitative focus groups and interviews to evaluate an antenatal intervention for fathers and grandmothers to support breastfeeding mothers. Breastfeeding rates were increased at 8 weeks in intervention group (38% vs. 14%).	II-2
Clifford,J.; McIntyre,E. Who supports breastfeeding? Breastfeed.Rev., 2008, 16, 2, 9-19,	Systematic review (no meta-analysis) of socio-cultural supports for breastfeeding women with International focus. Includes both quantitative and qualitative studies.	I
Provider Recommendation		
Cross-Barnet,C.; Augustyn,M.; Gross,S.; Resnik,A.; Paige,D. Long-term breastfeeding support: failing mothers in need Matern.Child Health J., 2012, 16, 9, 1926-1932, United States	Qualitative analysis of convenience sample of 75 black and white WIC participants at 3 Maryland WIC agencies covering BF education and support from pregnancy through to interview date. Most mothers reported receiving no education or support at 1 or more stage (prenatal, hospital or infancy). Mothers often felt education/support was cursory and inadequate and some received misinformation, had providers who were hostile or indifferent to BF, not referred to available resources, got inconsistent messages.	III

Lu,M.C.; Lange,L.; Slusser,W.; Hamilton,J.; Halfon,N. Provider encouragement of breast-feeding: evidence from a national survey.Obstet.Gynecol., 2001, 97, 2, 290-295, United States	Tel survey of 1229 women with children <3y. Respondents were asked to recall whether their physicians or nurses had encouraged or discouraged them from breast-feeding. (The survey question did not specify the timing or the content of provider encouragement. Because the question followed several questions on newborn care in the hospital or birthing center, it was probably interpreted by most respondents to mean in-hospital, peripartum encouragement.) Three-fourths (73.2%) of women reported having been encouraged by their physicians or nurses to breast-feed; 74.6% of women who were encouraged initiated breast-feeding, compared with only 43.2% of those who were not encouraged (*P*< 0.001). Women who were encouraged to breast-feed were more than four times (relative risk 4.39; 95% confidence interval 2.96, 6.49) as likely to initiate breast-feeding as women who did not receive encouragement. The influence of provider encouragement was significant across all strata of the sample. In populations traditionally less likely to breast-feed, provider encouragement significantly increased breast-feeding initiation, by more than threefold among low-income, young, and less-educated women; by nearly fivefold among black women; and by nearly 11-fold among single women.	II-2
Humenick SS, Hill PD, Spiegelberg PL. Breastfeeding and health professional encouragement. J Hum Lact. 1998 Dec;14(4):305-10.	Longitudinal, cross-sectional survey on nature, source and impact of professional breastfeeding advice for 340 women. Lactation consultants gave significantly more positive encouragement (98%,p=.01) than nurses (75%) or physicians (65%). Primiparae were likely to decrease their level of breastfeeding if encouraged to supplement or wean. Multiparae level of breastfeeding, in general, appeared independent of health provider advice.	II-2
Mansbach IK, Palti H, Pevsner B, Pridan H, Palti Z. Advice from the obstetrician and other sources: do they affect women's breast-feeding practices? A study among different Jewish groups in Jerusalem. Soc Sci Med. 1984; 19 (2):157-62.	Breastfeeding practices and the sources of advice that influenced them were studied in a sample of 276 women from North East Jerusalem. Obstetrician's advice given at the 6 weeks postpartum examination was significantly associated with duration of breastfeeding (p=0.001). Country of origin and social class affected patterns as well.	II-2
Clifford,J.; McIntyre,E. Who supports breastfeeding? Breastfeed.Rev., 2008, 16, 2, 9-19,	Systematic review (no meta-analysis) of socio-cultural supports for breastfeeding women with International focus. Includes both quantitative and qualitative studies.	I
BF outcomes		

Ip S, Chung M, Raman G, et al. Breastfeeding and maternal and infant health outcomes in developed countries. Evid Rep Technol Assess (Full Rep). 2007;(153)(153):1-186.	Systematic Review of health outcomes for breastfeeding mothers and breastfed babies.	I
Horta, B. and Victora C. Long-term effects of breastfeeding: A systematic review. . 2013;ISBN 978 92 4 150530 7.	Systematic Review of health outcomes for breastfeeding mothers and breastfed babies.	I
Bag distribution		
Hurwitz AG, Farrow PR, Preer G, Philipp BL. Bag free in the bay state. Breastfeed Med. 2014;9(5):257-260.	Massachussets as 2nd "bag-free" state in the United States. Maternity facilities in Massachusetts were surveyed regarding discharge gift practices. Results: The response rate was 100%. Fifty-nine percent of the facilities replaced the formula company–sponsored bag with their own gift bag carrying the hospital's logo. Bags were either given empty or contained educational materials and/or a gift such as a T-shirt, hat, or baby book. Fourteen percent of the facilities gave a gift that did not include a bag. Twenty-seven percent of facilities gave no gift. Cost of the gifts ranged from $1 to $35, with a mean cost of $10.67. The hospital budget was used to partially or fully fund 58% of gifts; 22% were covered in part by donations. Conclusions: Although most maternity facilities surveyed replaced the formula company–sponsored discharge bag with a different gift, one-quarter gave no replacement. These data indicate that discontinuing discharge gifts can be a readily accepted, cost-neutral step toward evidence-based breastfeeding best practice.	II-2
Formula advertising		

Feldman-Winter L, Grossman X, Palaniappan A, et al. Removal of industry-sponsored formula sample packs from the hospital: Does it make a difference? J Hum Lact. 2012;28(3):380-388.	Methods: We enrolled mothers postpartum at Cooper University Hospital, an urban New Jersey hospital, in 2009-2010. For the first 6 months, all women received industry-sponsored formula samples packs (control group); for the next 6 months, all postpartum women received hospital-sponsored bags with no formula at source (intervention group). Research assistants blinded to the design called subjects weekly for 10 weeks to determine feeding practices. Results: We enrolled 527 breastfeeding women (284 control; 243 intervention). At 10 weeks postpartum, 82% of control and 36% of intervention women (P< .001) reported receiving formula in the "diaper discharge bag." Kaplan-Meyer curves for any breastfeeding showed the intervention was associated with increased breastfeeding (P = .03); however, exclusive breastfeeding was not significantly different between intervention and controls (P = .46). In post hoc analysis, receiving no take-home formula in bottles from the hospital was associated with increased exclusive breastfeeding in control (P = .02) and intervention (P = .03) groups at 10 weeks. Conclusion: Although the hospital-branded replacement contained no formula at source, many women reported receiving bottles of formula from the hospital. Change in practice to remove industry-sponsored formula sample packs was associated with increased breastfeeding over 10 weeks, but the intervention may have had a greater impact had it not been contaminated.	II-3
Rosenberg KD, Eastham CA, Kasehagen LJ, Sandoval AP. Marketing infant formula through hospitals: The impact of commercial hospital discharge packs on breastfeeding. Am J Public Health. 2008;98(2):290-295.	We analyzed data from the 2000 and 2001 Oregon Pregnancy Risk Assessment Monitoring System (PRAMS), a population-based survey of postpartum women (n=3895; unweighted response rate=71.6%). Results. Among women who had initiated breastfeeding, 66.8% reported having received commercial hospital discharge packs. We found that women who received these packs were more likely to exclusively breastfeed for fewer than 10 weeks than were women who had not received the packs (multivariate adjusted odds ratio=1.39; 95% confidence interval=1.05, 1.84).	II-2

Donnelly A, Snowden HM, Renfrew MJ, Woolridge MW. Commercial hospital discharge packs for breastfeeding women. Cochrane Database Syst Rev. 2000;(2)(2):CD002075.	Nine randomised controlled trials involving a total of 3730 women were analysed. The studies only included women from North America. The meta-analysis showed that when comparing commercial discharge packs with any of the controls (no intervention, non-commercial pack and combinations of these), exclusive breastfeeding was reduced at all time points in the presence of commercial hospital discharge packs. There was no evidence to support the conjecture that use of hospital discharge packs causes the early termination of non-exclusive breastfeeding. Where the introduction of solid food was measured, giving a commercial pack (with or without formula) reduced the time before solid food was introduced.	I
Howard CR, Howard FM, Lawrence RA, Andresen E, deBliek EA, Weitzman M. The effect on breastfeeding of physicians' office-based prenatal formula advertising. Obstet Gynecol 95 (2): 296-303, 2000.	RCT to compare the effect of formula company-produced materials about infant feeding to breastfeeding promotion materials without formula advertising on breastfeeding initiation and duration. Short term outcomes were not affected however women in the commercial group were more likely to cease breastfeeding before hospital discharge. In addition, women who were uncertain of breastfeeding goals were more likely to shorten duration when exposed to commercial intervention.	I
Provider practices and education		
Pound,C.M.; Williams,K.; Grenon,R.; Aglipay,M.; Plint,A.C. Breastfeeding Knowledge, Confidence, Beliefs, and Attitudes of Canadian Physicians J.Hum.Lact., 2014, 30, 3, 298-309	Methods: A breastfeeding questionnaire was developed and piloted prior to study enrollment. These questionnaires were sent to 1429 pediatricians (PED), 1329 family physicians (FP), and final-year pediatric and final-year family medicine residents (PR and FMR). Results: The analysis included 397 PED, 322 FP, 17 PR, and 44 FMR who completed the questionnaire. Mean overall correct knowledge score was 67.8% for PED, 64.3% for FP, 72.7% for PR, and 66.8% for FMR. Two hundred eighty-five PED (74.2%), 228 FP (73.1%), 7 PR (41.2%), and 21 FMR (53.8%) felt confident with their breastfeeding counseling skills. Less than half (49.6% of PED and 45.4% of FP) believed that evaluating breastfeeding was a primary care physician's responsibility, and few PED or FP (5.1% and 11.3%) routinely observed breastfeeding in mother-infant pairs. Conclusion: Several areas of potential deficits were identified in Canadian physicians' breastfeeding knowledge. Physicians would benefit from greater education and support, to optimize care of infants and their mothers.	II-2

Demirci,J.R.; Bogen,D.L.; Holland,C.; Tarr,J.A.; Rubio,D.; Li,J.; Nemecek,M.; Chang,J.C. Characteristics of breastfeeding discussions at the initial prenatal visitObstet.Gynecol., 2013, 122, 6, 1263-1270, United States	METHODS: This analysis was part of a larger study involving 69 health care providers and 377 patients attending their initial prenatal visits at a single clinic. Audio recordings and transcripts from the first 172 visits (including 36 obstetric–gynecology residents, six nurse midwives, and five nurse practitioners) were reviewed for breastfeeding discussion occurrence, timing and initiator of discussions, and adherence to American College of Obstetricians and Gynecologists (College) prenatal breastfeeding guidelines. Descriptive statistics were used to characterize the sample and frequency of breastfeeding discussions. Logistic regression and $[chi]^2$ tests were used to examine patterns in women's breastfeeding discussion preferences and discussion occurrence. Conversations were qualitatively analyzed for breastfeeding content. RESULTS: Breastfeeding discussions were infrequent (29% of visits), brief (mean 39 seconds), and most often initiated by clinicians in an ambivalent manner. Sixty-nine percent of breastfeeding discussions incorporated any College breastfeeding recommendations. Breastfeeding was significantly more likely to be discussed by certified nurse midwives than residents (odds ratio 24.54, 95% confidence interval 3.78–159.06; *P*<.01), and certified nurse midwives tended to engage patients in more open discussions. Women indicating a preference for breastfeeding discussions at the first visit (n=19) were more likely to actually have the discussion (*P*<.001).	II-2
Cross-Barnet,C.; Augustyn,M.; Gross,S.; Resnik,A.; Paige,D. Long-term breastfeeding support: failing mothers in need Matern.Child Health J., 2012, 16, 9, 1926-1932, United States	Qualitative analysis of convenience sample of 75 black and white WIC participants at 3 Maryland WIC agencies covering BF education and support from pregnancy through to interview date. Most mothers reported receiving no education or support at 1 or more stage (prenatal, hospital or infancy). Mothers often felt education/support was cursory and inadequate and some received misinformation, had providers who were hostile or indifferent to BF, not referred to available resources, got inconsistent messages.	III

Archabald,K.; Lundsberg,L.; Triche,E.; Norwitz,E.; Illuzzi,J. Women's prenatal concerns regarding breastfeeding: are they being addressed?J.MidwiferyWomens Health, 2011, 56, 1, 2-7, by the American College of Nurse-Midwives, United States	Qual and quant analysis of interview of 130 English and Spanish speaking women at Yale New Haven Hospital RESULTS: When asked an open-ended question regarding whether they had concerns about breastfeeding while making their decisions about feeding their infants, 81.5% of women identified at least 1 concern. Of these women, only 25.4% reported that this concern was addressed by the provider during prenatal care. When prompted with 8 common concerns regarding breastfeeding during the prenatal period, 95.4% of women identified at least 1 of these preidentified concerns. Only 17.4% of women who identified any of these 8 concerns reported that the concerns had been discussed with a provider.	III
Szucs,K.A.; Miracle,D.J.; Rosenman,M.B. Breastfeeding knowledge, attitudes, and practices among providers in a medical homeBreastfeed Med., 2009, 4, 1, 31-42, United States	We conducted eight focus groups using semistructured interviews: (1) pediatricians; (2) obstetricians; (3) pediatric nurses and allied health professionals; (4) obstetric nurses and allied health professionals; (5) 24-hour telephone triage answering service nurses; (6) public health nurses; (7) Special Supplemental Nutrition Program for Women, Infants, and Children (WIC) personnel; and (8) lactation consultants and peer counselors. Results: We identified gaps in providers' breastfeeding knowledge, counseling skills, and professional education and training. Providers' cultures and attitudes affect breastfeeding promotion and support. Providers used their own breastfeeding experiences to replace evidence-based knowledge and AAP policy statement recommendations for breastfeeding dyads. There were communication disconnects between provider groups. Providers underestimated their own, and overestimated others', influence on breastfeeding. The system lacked a coordinated breastfeeding mission. Conclusions: This study illuminated key disconnectedness challenges (and, hence, opportunities) for a model medical home in fostering continuous, comprehensive, coordinated, culturally effective, and evidence-based breastfeeding promotion and support.	III

Miracle,D.J.; Fredland,V. Provider encouragement of breastfeeding: efficacy and ethics J.MidwiferyWomens Health, 2007, 52, 6, 545-548, United States	Given this evidence, health care providers should take an assertive stance in promoting, protecting, and recommending breastfeeding to expectant and new mothers. This is consistent with current professional policy statements1, 2, 3 and 4 on breastfeeding and the use of human milk. This commentary discusses the ethical obligation for provider encouragement of breastfeeding, given the state of the science regarding the health benefits of breastfeeding.	III
Dusdieker,L.B.; Dungy,C.I.; Losch,M.E. Prenatal office practices regarding infant feeding choices Clin.Pediatr.(Phila), 2006, 45, 9, 841-845, United States	A questionnaire addressing breast-feeding issues was sent to family practitioners (FP), obstetric-gynecologists (OB/GYN), and nurse midwives (NM) in Iowa, USA. All NM, 97% of FP, and 85% of OB/GYN reported asking infant feeding preference—usually only at the first prenatal visit. NM (73%) were most likely to provide extensive breast-feeding counseling. OB/GYN (68%) and FP physicians (90%) reported doing their own breast-feeding counseling. Breast examinations targeting future breast-feeding problems were done in 82% to 84% of patients. NM practices shared more information supportive of breast-feeding. Nearly all providers offered prenatal classes, but only 41% of FP offered breast-feeding classes. Free formula samples were available in 73% of FP, 54% of OB/GYN, and 36% NM offices. Pamphlets on formula feeding and also breast-feeding were readily available. Overall NM (64%) reported being strong breast-feeding advocates compared to only 13% of FP and 7% of OB/GYN. In conclusion, little promotion of breast-feeding occurs in most prenatal practice settings.	II-2

Taveras,E.M.; Li,R.; Grummer-Strawn,L.; Richardson,M.; Marshall,R.; Rego,V.H.; Miroshnik,I.; Lieu,T.A. Mothers' and clinicians' perspectives on breastfeeding counseling during routine preventive visitsPediatrics, 2004, 113, 5, e405-11, United States	prospective cohort study of low-risk mother-newborn pairs and their clinicians in a large multispecialty group practice. The participating mothers completed telephone interviews at 4 and 12 weeks postpartum, and their data were linked with their obstetric and pediatric clinicians' responses to a cross-sectional mailed survey conducted during the same time period. Overall, response rates were 63% for mothers(n = 429) and 82% for clinicians (obstetric clinicians: n = 54; pediatric clinicians: n = 67). Results. Of the 429 low-risk mother-newborn pairs in the study, 61% were white, 16% were black, 10% were Hispanic, and 8% were Asian, with a mean (SD) age of 32.7 (5.1) years. At 4 weeks postpartum, 319 mothers (74%) were either exclusively or mixed breastfeeding. According to the interviews, few mothers discussed breastfeeding duration with their obstetric clinicians during their prenatal visits (15%) or with their pediatric clinicians during their infants' 2-week preventive visit (24%). Among 164 mothers whose obstetric providers said they usually or always discuss breastfeeding duration during prenatal visits, only 26 (16%) of the mothers reported that the topic was discussed with them (22% agreement; κ = −.004). Among those mothers whose pediatric clinicians said they usually or always discuss breastfeeding duration during the 2-week preventive visit, only 25% of the mothers reported that the topic was discussed (32% agreement; κ = .05). Many of the mothers had either returned to work by 12 weeks (29%) or planned to return to work within the next few months (43%). Although nearly all the obstetric (91%) and pediatric (97%) clinicians reported that they usually or always discuss whether a mother plans to continue breastfeeding after returning to work, only approximately half (55%) of the mothers seen by the clinicians reported that the topic was discussed. Overall, few mothers reported discussing with their clinicians specific ways to continue breastfeeding after returning to work. Conclusion. Mothers' reports of breastfeeding advice given during routine preventive visits identified several areas in which unintentional communication gaps may occur, including specifics about breastfeeding duration and methods of breastfeeding after returning to work. Developing approaches to enhance communication with mothers during routine preventive visits could improve the support of breastfeeding.	II-2

Taveras,E.M.; Li,R.; Grummer-Strawn,L.; Richardson,M.; Marshall,R.; Rego,V.H.; Miroshnik,I.; Lieu,T.A. Opinions and practices of clinicians associated with continuation of exclusive breastfeedingPediatrics, 2004, 113, 4, e283-90, United States	We conducted a prospective cohort study of low-risk mother-newborn pairs in a large, multispecialty group practice in which the mother was breastfeeding at 4 weeks. Mothers completed telephone interviews at 4 and 12 weeks postpartum, and their data were linked with their obstetric and pediatric clinicians' responses to a cross-sectional mailed survey conducted during the same time period. Obstetric and pediatric cliniciansincluded medical doctors, nurse practitioners, and nurse midwives. Overall response rates were 63% for mothers and 82% for clinicians (54 obstetric and 67 pediatric clinicians). Bivariate and multivariate analyses were conducted to identify the characteristics of clinicians and mothers that predicted exclusive breastfeeding at 12 weeks. Results. Of the 288 mothers who were breastfeeding at 4 weeks and had a complete 12-week interview, 152 (53%) were exclusively breastfeedingtheir infants at 12 weeks. Mothers who discontinued exclusivebreastfeeding were more likely to have experienced problems with their infant latching on or sucking (odds ratio [OR]: 3.8; 95% confidence interval [CI]: 1.5–9.7) or report that a health care provider recommended formula supplementation (OR: 2.3; 95% CI: 1.1–5.0). Clinicians reported limited time during preventive visits to address breastfeeding problems as a very important barrier to promoting breastfeeding. Obstetric providers were least confident in resolving problems with mothers not producing enough breast milk. Pediatric providers were least confident in resolving problems with breast pain or tenderness or cracked or painful nipples. In the final multivariate model, mothers whose pediatric providers recommended formula supplementation if an infant was not gaining enough weight (OR: 3.2; 95% CI: 1.04, 9.7) or who considered their advice to mothers on breastfeeding duration to be not very important (OR: 2.2; 95% CI: 1.2–3.9) were more likely to have discontinued exclusive breastfeeding by 12 weeks postpartum. Black mothers were significantly more likely to discontinue exclusive breastfeeding by 12 weeks. Conclusions. Clinicians' practices regarding formula supplementation ofhealthy infants and their opinions about the importance of their breastfeeding advice are associated with the likelihood that mothers will continue exclusive breastfeeding. Policies to enhance clinicians' abilities to address breastfeeding problems within the constraints of busy practices could improve their ability to support exclusive breastfeeding	II-2

Taveras,E.M.; Capra,A.M.; Braveman,P.A.; Jensvold,N.G.; Escobar,G.J.; Lieu,T.A. Clinician support and psychosocial risk factors associated with breastfeeding discontinuationPediatrics, 2003, 112, 1 Pt 1, 108-115, United States	Methods. A prospective cohort study was conducted of low-risk mothers andinfants who were in a health maintenance organization and enrolled in a randomized, controlled trial of home visits. Mothers were interviewed in person at 1 to 2 days postpartum and by telephone at 2 and 12 weeks. Logistic regression modeling was performed to assess the independent effects of the predictors of interest, adjusting for sociodemographic and other confounding variables. Results. Of the 1163 mother-newborn pairs in the cohort, 1007 (87%) initiated breastfeeding, 872 (75%) were breastfeeding at the 2-week interview, and646 (55%) were breastfeeding at the 12-week interview. In the final multivariate models, breastfeeding discontinuation at 2 weeks was associated with lack of confidence in ability to breastfeed at the 1- to 2-day interview (odds ratio [OR]: 2.8; 95% confidence interval [CI]: 1.02–7.6), early breastfeeding problems (OR: 1.5; 95% CI: 1.1–1.97), Asian race/ethnicity (OR: 2.6; 95% CI: 1.1–5.7), and lower maternal education (OR: 1.5; 95% CI: 1.2–1.9). Mothers were much less likely to discontinue breastfeeding at 12 weeks postpartum if they reported (during the 12-week interview) having received encouragement from their clinician to breastfeed (OR: 0.6; 95% CI: 0.4–0.8). Breastfeeding discontinuation at 12 weeks was also associatedwith demographic factors and maternal depressive symptoms (OR: 1.18; 95% CI: 1.01–1.37) and returning to work or school by 12 weeks postpartum (OR: 2.4; 95% CI: 1.8–3.3). Conclusions. Our results indicate that support from clinicians and maternal depressive symptoms are associated with breastfeeding duration. Attention to these issues may help to promote breastfeeding continuation among mothers who initiate. Policies to enhance scheduling flexibility andprivacy for breastfeeding mothers at work or school may also be important, given the elevated risk of discontinuation associated with return to work or school.	II-2

Bentley,M.E.; Caulfield,L.E.; Gross,S.M.; Bronner,Y.; Jensen,J.; Kessler,L.A.; Paige,D.M. Sources of influence on intention to breastfeed among African-American women at entry to WICJ.Hum.Lact., 1999, 15, 1, 27-34, UNITED STATES	To examine how individuals within a woman's life influence her infant feeding intention, we interviewed 441 African-American women on the breastfeeding attitudes and experiences of their friends, relatives, mother, and the baby's father. Women were interviewed at entry into prenatal care at clinics associated with one of four Baltimore WIC clinics chosen for a breastfeeding promotion project. Qualitative data were also collected among 80 women. Friends and "other" relatives were not influential. Grandmothers' opinions and experiences were important, but their influence was reduced after considering the opinion of the baby's father. The opinion of the woman's doctor was an independent predictor of infant feeding intention. Breastfeeding promotion programs should recognize the separate influence of fathers, health providers, and grandmothers in women's infant feeding decisions	III
Izatt SD. Breastfeeding counseling by healthcare providers. J Hum Lact. 1997 Jun;13(2):109-13.	Cross-sectional study of sources of breastfeeding information. 23% received counsel from their obstetrician, 47% from books and 21% from classes.	II-2
Doulas		
Hodnett E, Gates S, Hofmeyr G, et al. Continuous support for women during childbirth. Cochrane Database Syst Rev 2013;7:CD003766.	Meta-analysis of RCTs related to continuous labor support in childbirth and postpartum care. In addition to multiple other benefits related to birth outcomes, continuous labor support with a trained doula was found to increase breastfeeding initiation and to a lesser extent exclusivity.	I
Labor & Delivery		
Holmes A, McLeod A, Bunik M; Academy of Breastfeeding Medicine. ABM clinical protocol #5: Peripartum breastfeeding management for the healthy mother and infant at term, revised 2013. Breastfeed Med 2013;8:469-473.	Evidence review of current literature related to intrapartum care for women and its impact on breastfeeding outcomes. Discusses pain medications and continuous labor support in terms of their impact on breastfeeding, prenatal preparation for the breastfeeding women and the importance of early skin-to-skin contact in relation to breastfeeding.	
Montgomery A, Hale TW; Academy of Breastfeeding Medicine. ABM clinical protocol #15: Analgesia and anesthesia for the breastfeeding mother, revised 2012. Breastfeed Med 2012;7:547-553.	Evidence review of current literature related to intrapartum care for women and its impact on breastfeeding outcomes. Discusses pain medications in terms of their impact on breastfeeding.	

Thukral A, Sankar MJ, Agarwal R, et al. Early skin-to-skin contact and breastfeeding behavior in term neonates: A randomized controlled trial. Neonatology 2012;102:114-119.	Term infants born by normal delivery were randomized at birth to either early skin-to-skin contact (SSC) (n = 20) or conventional care (controls; n = 21). SSC was continued for at least 2 h after birth. Subsequently, one BF session of the infants was video recorded at about 48 h of life. The primary outcome, infants' BF behavior at 48 h of life, was assessed using the modified infant Breast-Feeding Assessment Tool (BAT; a score consisting of infant's readiness to feed, sucking, rooting and latching, each item scored from 0 to 3) by three independent masked observers. The secondary outcomes were EBF rates at 48 h and 6 weeks of age and salivary cortisol level of infants at 6 h of age. Baseline characteristics including birth weight and gestation were comparable between the two groups. There was no significant difference in the BAT scores between the groups [median: 8, interquartile range (IQR) 5-10 vs. median 9, IQR 5-10; p = 0.6]. EBF rates at 48 h and at 6 weeks were, however, significantly higher in the early-SSC group than in the control group [95.0 vs. 38.1%; relative risk (RR): 2.5, 95% confidence interval (95% CI): 1.4-4.3 and 90 vs. 28.6%; RR: 3.2, 95% CI: 1.6-6.3].	I
Hung KJ, Berg O. Early skin-to-skin after cesarean to improve breastfeeding. Am J Matern Child Nurs 2011;36:318-324.	This article describes a quality improvement project in which early skin-to-skin (STS) contact, in the operating room (OR) and during recovery, was used as an intervention to increase the success of breastfeeding initiation among healthy infants after cesarean, at a large, urban, acute care teaching hospital. The nursing role is key for the intervention, but the program involves the entire perinatal team, including the obstetricians, pediatricians, and anesthesiologists. During the first 3 months of our intervention, the rate of early STS among healthy babies born by cesarean increased from 20% to 68%. The rate of infants who did not get STS contact within 4 hours of birth decreased from 40% to 9%. Nine months after the initiation of the intervention, 60% of healthy cesarean births utilized STS in the OR, and 70% involved STS within 90 minutes of birth. Healthy infants born by cesarean who experienced STS in the OR had lower rates of formula supplementation in the hospital (33%), compared to infants who experienced STS within 90 minutes but not in the OR (42%), and those who did not experience STS in the first 90 minutes of life (74%).	II-3

Mahmood J, Jamal M, Khan J. Effect of mother-infant early skin-to-skin contact on breastfeeding status: A randomized controlled trial. J Coll Physicians Surgeons Pakistan 2011;21:601-605.	Eligible mothers were assessed for the successful breastfeeding by using IBFAT tool. The time to initiate the first feed, time to effective breastfeeding, maternal satisfaction with the care provided, preference for the same care in future and level of exclusive breastfeeding at the age of one month were also noted. The data was compared by using X2 and t-test. Significant p-value was taken as < 0.05. A total of 183 mother-infant pairs (92 in skin-to-skin care [SSC] group and 91 in conventional care [CC] group) were analyzed for breastfeeding behavior of the infants. The first breastfeed was 26.25% more successful in SSC group (58.8% in SSC group as compared to 32.5% in CC group with p-value of 0.001). In SSC group, the mean time to initiate first breastfeed was 61.6 minutes shorter than CC group (40.62 vs. 101.88; $p < 0.001$). Mean time to achieve effective breastfeeding was 207 minutes earlier in SSC group (149.69 vs. 357.50; $p < 0.001$). The level of satisfaction in the mothers of SSC group was significantly high as compared to controls (56% vs. 6.2%). Similarly, 53.8% mothers of SSC group showed preference for similar care in future as compared to 5% in CC group. In SSC group 85.3% infants were exclusively breastfed at one month as compared to 65.7% in CC group (p=0.025). The authors concluded that maternal-infant early skin-to-skin contact significantly enhanced the success of first breastfeed and continuation of exclusive breastfeeding till one month of age. It also reduced the time to initiate first feed and time to effective breastfeeding.	I

***US Preventive Services Task Force Ranking of Evidence from Scientific Studies**

I Evidence obtained from at least one properly randomized controlled trial

II-1 Evidence obtained from well-designed controlled trials without randomization.

II-2 Evidence obtained from well-designed cohort or case-control analytic studies, preferable from more than one center or research group

II-3 Evidence obtained from multiple time series with or without the intervention. Dramatic results in uncontrolled experiments (such as the results of the introduction of penicillin treatment in the 1940(s)) could be regarded as this type of evidence.

III Opinions of respected authorities, based on clinical experience, descriptive studies and case reports; or reports of expert committees.

SEARCH METHODOLOGY:

Searched PubMed, Cochrane, CINAHL, AAP, AAFP, ACOG, reference lists of identified articles from May 2015-Sept 2015.

1.PubMedsearch terms: ("prenatal care"[MeSH Terms] OR ("prenatal"[All Fields] AND "care"[All Fields]) OR "prenatal care"[All Fields] OR "prenatal"[All Fields]) AND ("Intervention (Amstelveen)"[Journal] OR "intervention"[All Fields] OR "IntervSchClin"[Journal] OR "intervention"[All Fields]) AND ("breast feeding"[MeSH Terms] OR ("breast"[All Fields] AND "feeding"[All Fields]) OR "breast feeding"[All Fields] OR "breastfeeding"[All Fields])
From: Jan 2008-present
Original results: 231
Identified relevant abstracts: 55
Articles reviewed: 55
2.pubmed search: antenatal [All Fields] AND ("Intervention (Amstelveen)"[Journal] OR "intervention"[All Fields] OR "IntervSchClin"[Journal] OR "intervention"[All Fields]) AND ("breast feeding"[MeSH Terms] OR ("breast"[All Fields] AND "feeding"[All Fields]) OR "breast feeding"[All Fields] OR "breastfeeding"[All Fields])
From: Jan 2008-present
original results: 128
identified relevant abstracts that were additional to the ones above: 19
articles reviewed: 12
3. CINAHL Search terms: “prenatal care” OR “breastfeeding support” AND breastfeeding AND intervention: 3
4. Additional articles reviewed: 5(AAPx1, ACOG x2, AAFPx1, Cochrane x1) + 15 identified in reference lists, recommendations = 20

TOTAL Articles reviewed: 100
Excluded: 23
Exclusion criteria: not done yet, poor scholarship, postnatal only, combined intervention that had no measures related to prenatal intervention piece, not relevant.