BREASTFEEDING SERVICES AND SUPPLIES
WOMEN'S PREVENTIVE SERVICES INITIATIVE EVIDENCE UPDATE

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CURRENT WPSI RECOMMENDATIONS

Clinical Recommendations (2016)[1]

The Women's Preventive Services Initiative (WPSI) recommends comprehensive lactation support services (including counseling, education, and breastfeeding equipment and supplies) during pregnancy and the postpartum period to ensure the successful initiation and maintenance of breastfeeding.

Implementation Considerations

Lactation support services include counseling, education, and breastfeeding equipment and supplies. A lactation care provider should deliver lactation support and provide services across the antenatal, perinatal, and postpartum periods to ensure successful preparation, initiation, and continuation of breastfeeding. Lactation care providers include, but are not limited to, lactation consultants, breastfeeding counselors, certified midwives, certified nurse-midwives, certified professional midwives, nurses, advanced practice providers (e.g., physician assistants and nurse practitioners), and physicians. Breastfeeding equipment and supplies, as agreed upon by the woman and her lactation care provider, include, but are not limited to, double electric breast pumps (including pump parts and maintenance) and breast milk storage supplies. Access to double electric pumps should be based on optimization of breastfeeding, and not predicated on prior failure of a manual pump.

EVIDENCE SUMMARY

New Evidence

New evidence published since the previous WPSI recommendation is summarized in **Table 1**.

Table 1. New Evidence Since the 2016 WPSI Recommendation

Comprehensive lactation support services, including counseling, education, and breastfeeding equipment and supplies.	
Systematic Reviews	**Additional Studies**
A 2019 systematic review of 63 RCTs reported breastfeeding counseling is an effective intervention to increase rates of any and exclusive breastfeeding. Breastfeeding counseling can be provided face-to-face or by telephone.	Two trials reported breastfeeding support and education interventions resulted in statistically significantly higher rates of any breastfeeding at 6 months and exclusive breastfeeding at 3 and 6 months. A third trial of women with gestational diabetes compared a combination intervention of breastfeeding group support, text message support, and breastfeeding classes with a waitlist control group and reported statistically significantly lower rates of breastfeeding cessation at 10 months.
A lactation care provider should deliver lactation support and provide services across the antenatal, perinatal, and postpartum periods to ensure successful preparation, initiation, and continuation of breastfeeding.	
Systematic Reviews	**Additional Studies**
The same 2019 systematic review evaluated the effects of counseling interventions provided antenatally, postnatally, or both and reported those that included both time periods were more effective in reducing the risk of women stopping any breastfeeding before 6 months, while postnatal interventions were more effective at reducing the risk of stopping exclusive breastfeeding before 6 months.	Three trials conducted interventions across antenatal and postnatal periods but did not report outcomes stratified by time period.
Efficiency of double electric pumps.	
Systematic Reviews	**Additional Studies**
None	None

Abbreviations: RCT=randomized controlled trials; WPSI=Women's Preventive Services Initiative

Introduction

Breastfeeding is the process of feeding infants with human milk from a woman's breast, either directly from the breast or by expressing (pumping) the milk from the breast and bottle-feeding.[2] Breastfeeding counseling and support includes maternity care practices, such as discussions with healthcare professionals about breastfeeding; structured breastfeeding education, such as information and resources provided during the prenatal and intrapartum periods; employee

benefits and services, such as designated private space and time for breastfeeding or expressing milk; peer support, such as individual counseling and mother-to-mother support groups; professional support, such as lactation consultations; and marketing initiatives.[3]

Current Recommendations and Coverage of Service

In 2016, the WPSI recommended comprehensive lactation support services (including counseling, education, and breastfeeding equipment and supplies) during pregnancy and the postpartum period to ensure the successful initiation and maintenance of breastfeeding. Health insurance plans are now required to provide breastfeeding support, counseling, and equipment for the duration of breastfeeding including the purchase or rental cost of breast pumps (**Table 2**). The WPSI recommendation includes an explicit description of a more comprehensive set of services than the U.S. Preventive Services Task Force (USPSTF).

Table 2. Summary of Recommendations Currently Covered by the Affordable Care Act

WPSI[1]	Comprehensive lactation support services (including counseling, education, and breastfeeding equipment and supplies) during pregnancy and the postpartum period to ensure the successful initiation and maintenance of breastfeeding.
USPSTF[4]	Provide interventions during pregnancy and after birth to support breastfeeding (B-level recommendation). Interventions may include more than one component and be delivered over prenatal, perinatal, and postpartum periods.

Abbreviations: USPSTF=U.S. Preventive Services Task Force; WPSI=Women's Preventive Services Initiative

Several professional organizations recommend exclusive breastfeeding for the first 6 months, with continued breastfeeding along with appropriate complementary foods up to age 2 years or beyond. Most groups emphasize breastfeeding through the first year of life and then continuing as long as mutually desired (**Table 3**).

Table 3. Recommendations of Professional Organizations

Organization	Recommendation
American Academy of Family Physicians (AAFP)[5,6]	All babies, with rare exceptions, be breastfed and/or receive expressed human milk exclusively for the first 6 months of life. Breastfeeding should continue with the addition of complementary foods throughout the second half of the first year.
American Academy of Pediatricians (AAP)[7]	Exclusive breastfeeding for about 6 months, followed by continued breastfeeding as complementary foods are introduced, with continuation of breastfeeding for 1 year or longer as mutually desired by mother and infant. Medical contraindications to breastfeeding are rare.

Organization	Recommendation
American College of Nurse-Midwives (ACNM)[8]	Comprehensive health education marketing efforts, including through social media, to inform and educate the public, health care providers, and clients about breastfeeding as a normal process and the preferred method of infant feeding. Health care systems that provide evidence-based, timely, and ongoing counseling and support for breastfeeding and maternity-newborn facilities that follow lactation friendly policies. Limiting separation of mother and infant through paid parental leave and flexible work schedules. Workplace compliance with federal laws that require appropriate facilities and supportive policies to enable lactating women to pump and store breast milk.
WHO/UNICEF[9]	Early initiation of breastfeeding within 1 hour of birth; exclusive breastfeeding for the first 6 months of age, and introduction of nutritionally-adequate complementary (solid) foods at 6 months together with continued breastfeeding up to 2 years of age or beyond.

Abbreviations: WHO = World Health Organization; UNICEF = United Nations Children's Emergency Fund

Recommendations provide additional guidance on how to promote and support breastfeeding. Several recommendations suggest the adoption of the The World Health Organization (WHO) and The United Nations Children's Emergency Fund (UNICEF) Ten Steps to Successful Breastfeeding (**Table 4**).[10]

Table 4. The 10 Steps to Successful Breastfeeding[10]

1a. Comply fully with the *International Code of Marketing of Breast-milk Substitutes* and relevant World Health Assembly resolutions
1b. Have a written infant feeding policy that is routinely communicated to all staff and parents.
2. Ensure that staff have sufficient knowledge, competence, and skills to support breastfeeding.
3. Discuss the importance and management of breastfeeding with pregnant women and their families.
4. Facilitate immediate and uninterrupted skin-to-skin contact and support mothers to initiate breastfeeding as soon as possible after birth.
5. Support mothers to initiate and maintain breastfeeding and manage common difficulties.
6. Do not provide breastfed newborns any food or fluids other than breast milk, unless medically indicated.
7. Enable mothers and their infants to remain together and to practice rooming-in 24 hours a day.
8. Support mothers to recognize and respond to their infants' cues for feeding.
9. Counsel mothers on the use and risks of feeding bottles, teats and pacifiers.

10. Coordinate discharge so that parents and their infants have timely access to ongoing support and care.

Background

Breastfeeding is associated with several health benefits for infants including reduced risk of acute otitis media, non-specific gastroenteritis, severe lower respiratory tract infections, atopic dermatitis, asthma (young children), obesity, type 1 and 2 diabetes, childhood leukemia, sudden infant death syndrome (SIDS), and necrotizing enterocolitis.[11] Breastfeeding is not recommended in specific situations involving mothers who have been infected with human immunodeficiency virus (HIV) or human T-cell lymphotropic virus type I or type II; who are prescribed cancer chemotherapy agents, taking antiretroviral therapy or drugs, undergoing radiation therapies; using or dependent upon illicit drugs; or have untreated, active tuberculosis.[12]

The Surgeon General's call to action to support breastfeeding identified several barriers to breastfeeding in the United States.[13] These include lack of knowledge, social norms, poor family and social support, embarrassment, lactation problems, employment and child care issues, and lack of access to health services.

The Centers for Disease Control and Prevention (CDC) reported in 2018 that 83.9% of newborn infants started breastfeeding at birth, 56.7% were still breastfeeding at 6 months, and 35.0% at 12 months; 46.3% were exclusively breastfeeding at 3 months and 25.8% exclusively breastfeeding at 6 months.[14] These rates are close to the goals set by Healthy People 2030[15] (**Table 5**).

Breastfeeding rates vary greatly and are higher with increasing maternal age, education, and income, and among mothers who do not receive supplemental nutrition assistance (WIC).[16] Rates differ across racial/ethnic groups, with 92.4% of Asian reporting initiating breastfeeding in 2018, 85.3% of whites, 85.0% of Hispanics, and 75.5% of blacks.

Table 5. Rates and Goals of Breastfeeding Practices in the United States

Breastfeeding practice	Prevalence in 2017[14]	Healthy People 2030 goals[17]
Initiation	83.9%	--
At 6 months	56.7%	--
At 12 months	35.0%	54.1%
Exclusively at 3 months	46.3%	--
Exclusively at 6 months	25.8%	42.4%

Update of Evidence

USPSTF Systematic Review

Interventions to Support Breastfeeding Initiation and Duration

A systematic review[18] published to support the 2016 USPSTF recommendation[19] on breastfeeding, included 52 studies assessing the effectiveness of breastfeeding support interventions in increasing initiation of breastfeeding and prolonging breastfeeding, either exclusively or with supplementation.

Of these, 43 studies provided data about individual level interventions,[20-67] while the other nine studies provided data on system level interventions.[68-76] Individual-level interventions showed statistically significantly higher rates of any breastfeeding at less than 3 months (relative risk [RR] 1.07; 95% confidence interval [CI], 1.03 to 1.11; 26 trials) and at 3 to 6 months (RR 1.11; 95% CI, 1.04 to 1.18; 23 trials), but not on initiation of breastfeeding or breastfeeding at 6 months.[18] The review also reported statistically significantly higher rates of exclusive breastfeeding at less than 3 months (RR 1.21; 95% CI, 1.11 to 1.33; 22 trials), 3 to 6 months (RR 1.20; 95% CI, 1.05 to 1.38; 18 trials), and at 6 months (RR 1.20; 95% CI, 1.05 to 1.38; 17 trials). System-level interventions showed mixed results.

Number of Individual-level Intervention Sessions. The USPSTF review did not specifically assess the optimal number of sessions required for successful breastfeeding.[18]

Subgroup Differences. Seven trials provided direct comparisons of the effect of the intervention based on characteristics of the mother (age, education, insurance status, country of origin, primary language spoken, delivery type, parity, prior breastfeeding experience, and breastfeeding intentions). Maternal country of origin and language spoken were the only significant findings. Breastfeeding rates were lower among women in the U.S.-born control groups than in the U.S.-born intervention group and all foreign-born participants[24] at 13 and 52 weeks; and Spanish-speaking women at 4, 12, and 26 weeks, but not English-speaking women at 4 weeks.[64]

Adolescents and Young Adults. Four trials[27,40,45,65] were limited to adolescents or young adults. The three U.S. trials reported statistically significant differences between intervention and usual care groups, while the trial conducted in Australia showed no effect.[45]

Efficiency of Different Breast Pumps

Over 80% of mothers need to express breast milk during the first 4 months postpartum.[77] Breast milk can be expressed by hand or with a breast pump. Breast pumps fall into three general categories: manual, battery-operated, and electric. In addition, breast pumps can be single (expressing milk from one breast at a time) or double (expressing milk from both breasts simultaneously) action pumps. Manual and battery-operated breast pumps tend to be single action while electric pumps can be either single or double action.[78]

Reviews of breast milk expression methods have found little direct evidence on which type of breast pump is ideal and have concluded that the best method of milk expression is likely dependent on individual factors.

Related to breast pump volume and efficiency, is the mother's level of dependence on milk expression. For women who are completely dependent on a breast pump to regulate their lactation level, the review concluded that hospital-grade electric pumps are the best choice because of their efficiency and convenience.[79]

For mothers unable to breastfeed during the first days postpartum, electric breast pumps are also important in order to achieve lactation success, and their use remains important once lactation has been established.[79] For mothers of healthy breastfeeding infants with established lactation,

who are partially or minimally dependent on breast pumps, convenience may be the most important factor in pump choice. Electric pumps may be the best choice for these women.

Harms of Interventions to Promote or Support Breastfeeding

Two trials[25,29] reported harms related to breastfeeding. In one trial,[25] mothers in the intervention group expressed feelings of anxiety, decreased confidence, or concerns about confidentiality, while the other trial[29] reported no statistically significant differences between the intervention and usual care groups on the State-Trait Anxiety Inventory at 2 weeks.

WPSI Update

A literature search to identify relevant studies published since the 2016 USPSTF systematic review was conducted in October 2021. The literature search from the 2016 WPSI review was updated using Ovid® MEDLINE®, Cochrane CENTRAL, and Cochrane Database of Systematic Reviews libraries, through October 26, 2021. Search terms included "breastfeeding" and "counseling" and yielded a total of 1064 citations. Seventeen papers were pulled for further review; and one systematic review and three RCTs were included. Ten trials were identified in the previous review as ongoing, three of those trials have subsequently been published and were also included.

Systematic Reviews

A recent systematic review included 63 trials of counseling interventions to improve any breastfeeding and exclusive breastfeeding and reported similar pooled results as the USPSTF report (**Table 6**).[80]

Table 6. Meta-analysis of Trials and Observational Studies[80]

Breastfeeding outcome	Studies (n)	RR (95% CI)	Absolute risk per 1000 (95% CI)
Did not initiate within first hour	7 (3731)	0.74 (0.53 to 1.02)	170 fewer (13 more to 307 fewer)
Stopped exclusive breastfeeding before 6 months	33 (10,586)	0.84 (0.78 to 0.91)	138 fewer (78 to 190 fewer)
Stopped any breastfeeding before 12 months	2 (965)	0.88 (0.69 to 1.12)	113 fewer (113 more to 291 fewer)

Abbreviations: CI=confidence interval; RR=relative risk

New Studies

Three new trials (N=654) identified from the update search and three trials (N=1856) identified previously as ongoing that have subsequently published results were included (**Table 7**). The studies evaluated the effect of a prenatal education video,[81] a lactation texting program,[82] tailored breastfeeding support for women with gestational diabetes,[83] different follow-up intervals for the

first postpartum appointment,[84] peer-to-peer support,[85] and proactive telephone support and written materials,[86] on breastfeeding outcomes.

Two trials compared interventions of breastfeeding telephone support, one used peer-to-peer communication,[85] and the other enlisted a registered nurse in the telephone support calls in addition to providing women with written educational materials.[86] Both trials reported the intervention groups had statistically significantly higher rates of any breastfeeding at 6 months (RR 1.10; 95% CI, 1.02 to 1.18)[85] and exclusive breastfeeding at 3 and 6 months (odds ratio [OR] 4.6; 95% CI 2.7 to 8.1 and OR 15.7; 95% CI, 9.1 to 27.1, respectively).[86]

A third trial of women with gestational diabetes compared a combination intervention of breastfeeding group support, text message support, and breastfeeding classes with a waitlist control and reported statistically significantly lower rates of breastfeeding cessation at 10 months (hazard ratio [HR] 0.40; 95% CI, 0.21 to 0.74) in the intervention group.[83]

Three trials reported no significant differences in breastfeeding outcomes between intervention and control groups. These included a trial of a breastfeeding education video provided in the third trimester compared with a control group receiving a prenatal nutrition video,[81] a trial of lactation advice through texting compared with usual care,[82] and a trial comparing the first postpartum follow-up appointment at 2 to 3 weeks with one at 6 to 8 weeks.[84]

Table 7. New Trials of Breastfeeding Interventions

Author, year trial	Timing	Type	Sample size	Outcome	Results (95% CI) intervention vs. control
Kellams, 2018[81]	Prenatal	Video education	431	Stopped breastfeeding by 6 months 1. Any 2. Exclusive	1. HR 1.00 (0.81 to 1.24) 2. HR 0.93 (0.76 to 1.14)
Martinez-Brockman, 2018[82] LATCH	Prenatal and postpartum	Text messages	129	Exclusive breastfeeding at 2 weeks	OR 1.26 (0.54 to 2.66)
Stuebe, 2016[83]	Prenatal and postpartum	Education and support	94	Stopped breastfeeding by 10 months	HR 0.40 (0.21 to 0.74)
Abbott, 2019[84]	Postpartum	Follow-up intervals	344	Breastfeeding at 6 months	Unadjusted: RR 0.97 (0.79 to 1.19) Adjusted: RR 1.45 (0.71 to 2.95)
Forster, 2019[85] RUBY	Postpartum	Peer-to-peer support	1157	Breastfeeding at 6 months	RR 1.10 (1.02 to 1.18)

Author, year trial	Timing	Type	Sample size	Outcome	Results (95% CI) intervention vs. control
Puharić, 2020[86]	Antenatal/ postpartum	Proactive telephone support and written materials	355	Exclusive breastfeeding at: 1. 3 months 2. 6 months	1. OR 4.6 (2.7 to 8.1) 2. OR 15.7 (9.1 to 27.1)

Ongoing Studies

Seven randomized controlled trials of interventions to promote or support breastfeeding initiation and prolong breastfeeding are currently in progress (**Table 8**).

Table 8. Ongoing Trials of Breastfeeding Interventions

Trial registration	Intervention	Outcomes	Status - Date
NCT04478682	Support via WhatsApp Messaging	Exclusive breastfeeding at 6 months	Recruiting – March 22, 2021
NCT04692480	Breastfeeding education video prior to giving birth	Exclusive breastfeeding at 6 months	Pilot study, not yet recruiting – December, 31, 2020
NCT04128202	Online intervention to better manage mood and promote and support breastfeeding during and after pregnancy	Breastfeeding initiation, exclusivity, and duration through 12 weeks postpartum	Recruiting –July 2, 2020
NCT04258709	Live video-based education provided by a lactation consultant starting in third trimester	Exclusive breastfeeding and duration up to 12 months postpartum	Recruiting – May 14, 2021
NCT04549129	Breastfeeding education video and website during 36 week visit	Exclusive and any breastfeeding at 2 months	Not yet recruiting – June 3, 2021
NCT04752787	Online breastfeeding training for expectant twin moms	Exclusive and any breastfeeding at 6 months	Not yet recruiting – February 16, 2021
NCT04741425	Real-time online theory-based education and support plus telephone follow-ups program	Breastfeeding initiation, exclusivity, and duration through 6 months	Recruiting – April 21, 2021

Conclusions

Breastfeeding is associated with health benefits, and clinical guidelines encourage women to breastfeed exclusively for 6 months and breastfeed with solid food supplementation up to 1 year. However, multiple barriers discourage breastfeeding including lack of knowledge, inadequate support, lactation problems, constraints of employment, and limited access to appropriate health services and lactation supplies. Randomized controlled trials of individual-level interventions administered by professionals, peers, or lay persons, provided during prenatal, peripartum, or postpartum phases indicate higher rates of breastfeeding initiation and duration than women not receiving interventions. This includes increased rates of any and exclusive breastfeeding at less than 3 months and at 3 to 6 months, and exclusive breastfeeding at 6 months. In newer trials, support and education increase rates of breastfeeding initiation and exclusivity through 6 months compared with usual care, while passive text messages and video education did not have an effect.

A review of breast pump methods indicates that double electric breast pumps more closely mimic the sucking actions of an infant, result in a greater volume of expressed milk, and come the closest to matching the milk removal efficiency of a healthy infant.

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