

Breastfeeding

*Investing in
California's
Future*



Breastfeeding Promotion
Committee Report
to the California Department
of Health Services
Primary Care and Family
Health Division

January~2007

*The Breastfeeding
Promotion Advisory
Committee has developed
new recommendations
and strategies to increase
exclusive breastfeeding rates
throughout the state.*



Breastfeeding

INVESTING IN CALIFORNIA'S FUTURE



Breastfeeding Promotion Advisory Committee Report
to the California Department of Health Services,
Primary Care and Family Health Division

Dedication



*Dedicated to
the children of California,
so that more families will experience
the many benefits of
breastfeeding.*

*Mission & Vision
of the Breastfeeding Promotion
Advisory Committee*



The Breastfeeding Promotion Advisory Committee's mission is to develop strategies, recommendations, and implementation guidelines to promote, support, and protect breastfeeding in California.

Our vision is that breastfeeding will be the norm in California for at least the first year of life and preferably longer.

TABLE OF CONTENTS

Dedication	iii
Mission & Vision	iv
Executive Summary	1
Introduction	17
Breastfeeding Promotion and Support Has Been Recognized as a Health Care Priority	18
Role of the California Department of Health Services' Breastfeeding Promotion Advisory Committee	18
The Infant-Feeding Decision	19
Consequences of Infant Feeding	21
Why Is Breastfeeding Good for Infants?	21
Why Is Breastfeeding Good for Mothers?	25
Why Is Breastfeeding Good for Families, Communities, and Society?	28
Breastfeeding Trends in California	29
Progress Made Since 1994	35
Barriers to Breastfeeding	37
What Can Be Done to Help California Mothers Breastfeed Successfully?	39
Recommendations of the Breastfeeding Promotion Advisory Committee	41
Fundamental Recommendations	41
I. Professional Education	43
II. Health Care Systems	47
III. Public Education	56
IV. Mother-to-Mother, Family, and Community Support	63
V. Workplace and Educational Centers	67
VI. Assessment and Research	71
Conclusion	77
References	78
Appendices	93
Appendix A: Roster of Participants	93
Appendix B: Glossary/Acronyms	96
Appendix C: California In-Hospital Breastfeeding Initiation by County/Facility	97
Appendix D: Summary of Model Hospital Policy Recommendations	108
Appendix E: WHO/UNICEF's Ten Steps to Successful Breastfeeding	109
Appendix F: Breastfeeding Trends and Data Sources	110
Appendix G: California Exclusive In-Hospital Breastfeeding by County	112
Appendix H: Breastfeeding Data for California WIC Programs	114
Appendix I: Legislation	118

EXECUTIVE SUMMARY



*There is a reason
for everything in nature.*

Aristotle

HUMAN MILK is one of nature's most extraordinary fluids, perfectly balanced to meet all of the developmental and nutritional needs of the newborn infant. In the decade that has passed since the first edition of this report, our understanding of the importance of breastfeeding, particularly exclusive breastfeeding, has grown along with the number of California mothers who have made the decision to breastfeed. Progress has been made toward the goals and recommendations originally set forth in the first edition of this report. However, there is still work to be done. While more than 86% of California mothers start breastfeeding in the hospital, many stop within the first few days or weeks. Further, exclusive breastfeeding has remained relatively unchanged in California for more than a decade, and regional and cultural disparities in infant-feeding practices continue despite efforts to eliminate them.

EXECUTIVE SUMMARY



The successes highlighted in this report provide evidence that collaboration can be a powerful tool in bringing about needed change.

GIVEN THE IMPORTANCE OF BREASTFEEDING to the health of mothers and infants, the California Department of Public Health (CDPH) lists promotion and support of breastfeeding among their Title V Maternal and Child Health Bureau Block Grant priority issues. Breastfeeding promotion is also a priority activity for the Women, Infants, and Children (WIC) Supplemental Nutrition Program and listed as an important part of the governor's obesity prevention plan. To provide guidance in this effort, CDPH convened the Breastfeeding Promotion Advisory Committee, a committee of experts from throughout the state. Members represent a wide variety of practice settings, including academia, hospitals, medical practice, managed care organizations, public agencies, foundations, community organizations, and local WIC agencies. In this report, the committee presents a review of the science behind this important effort, highlights the progress made toward previous objectives, and offers updated recommendations for increasing the incidence and duration of breastfeeding in California. The successes highlighted in this report provide evidence that collaboration can be a powerful tool in bringing about needed change. Rather than be content with this progress, however, committee members believe we must use these accomplishments to fuel future efforts.

Breastfeeding Promotion and Support Is a Health Care Priority

- As part of the US Healthy People 2010 Objectives, the national health objectives for breastfeeding are to increase the percentage of women who breastfeed to at least 75% at birth, 50% at six months, and 25% at 12 months postpartum. The 2010 Objectives for exclusive breastfeeding are currently 40% through three months and 17% through six months.
- The American Academy of Pediatrics (AAP), the American Academy of Family Physicians (AAFP), the American College of Obstetricians and Gynecologists (ACOG), the International Lactation Consultant Association (ILCA), and the American Dietetic Association (ADA) all recommend that infants be exclusively breastfed (meaning they receive no other food or fluid other than breastmilk) for about six months. Breastfeeding complemented by appropriate introduction of other foods is recommended for the remainder of the first year and longer.
- The Centers for Disease Control and Prevention (CDC) include breastfeeding promotion as a primary component of their obesity prevention initiatives.
- The World Health Organization (WHO) recommends that children should continue to be breastfed for up to two years of age or beyond, while receiving nutritionally adequate and safe complementary foods. In a recent effort to support this recommendation, the WHO released new growth standards based on the breastfed child as the norm. The new standards are the result of an intensive WHO study assessing the physical growth, nutritional status and motor development in more than 8,000 children from six countries, including the United States.

Why Is the Infant-Feeding Decision So Important?

The Infant-Feeding Decision

As a mother prepares for the birth of her child, she must make many important health decisions, including how she will feed her baby. For most mothers, the feeding decision is not made just once, but many times, as mothers face challenges and barriers to exclusive and continued breastfeeding. It is the position of the Breastfeeding Promotion Advisory Committee that every mother has the right to make informed decisions about infant feeding and that her decisions, whatever they may be, should be supported. In order to make an informed decision, women need objective, accurate information. Unfortunately, misinformation about breastfeeding is common, and mothers may receive mixed messages from their health care providers. Further, some providers may be reticent to provide objective information about breastfeeding because they are concerned about provoking “guilt” in women who do not choose to breastfeed. However, in every other aspect of women’s health, standards of care require that patients be given facts about the consequences of their decisions. Therefore, all women should have similar access to the latest evidence related to infant feeding.

Although *any*^a breastfeeding for a brief period has advantages over none at all, four to 12 months of breastfeeding is needed for many of the longer-term advantages to be realized. The most recent scientific evidence indicates that *exclusive*^b breastfeeding for the first six months, followed by continued breastfeeding plus solid foods, is associated with the greatest protection against major health problems for both mothers and infants. It is important to note that infant-feeding methods may differ from one day to the next. Medical circumstances, separation of mother and infant, and availability of support all affect infant-feeding decisions. Infants who are not exclusively breastfed in the hospital may become exclusively breastfed after discharge. Similarly, an infant can be exclusively breastfed for the first two months of life, then receive one supplemental feeding, and return to exclusive breastfeeding until reaching six months of age.

From a nutritional and developmental perspective, experts agree that mothers should, whenever possible, breastfeed their children. If breastfeeding is not possible, then the mother should pump her milk and provide it to the baby. Infants whose mothers are not able to supply their own milk should be fed banked human milk whenever possible. Formula^c should be given to infants only after all safe and affordable sources of human milk are unavailable.



a “Any” breastfeeding refers to infants who are fed either only breastmilk or breastmilk and formula.

b “Exclusive” breastfeeding refers to infants who are fed only breastmilk, no other foods or fluids.

c “Formula” will be used to refer to the wide range of human milk substitutes manufactured for artificial feeding.

Why Is Breastfeeding Good for Infants?

Human milk is uniquely suited for human infants

- Human milk is easy to digest and contains all the nutrients that babies need in the early months of life.
- Evidence suggests that the quantity and duration of breastfeeding are directly related to the degree of protection provided. Exclusive breastfeeding for six months, followed by continued breastfeeding plus solid foods, provides the greatest benefit.
- Breastmilk contains hormones and other factors that help infants grow and mature.
- Immune factors in human milk protect the infant from a wide variety of illnesses including diarrhea, ear infections, neonatal sepsis, and pneumonia.
- The composition of breastmilk is unique for each mother and baby. When a mother is exposed to an illness, the specific antibodies she makes against it are passed to her baby through her milk.
- In several large studies, children who had been breastfed for at least six months scored statistically significantly higher on tests of intelligence than those who had not.

Children who are not breastfed are at greater risk for a variety of diseases

- Formula-fed infants are more likely to suffer from diarrhea in the first 12 months.
- Infants who are not breastfed for at least four months are twice as likely as those who are breastfed for four months or more to suffer from ear infections in the first year of life. Infants who are not breastfed for at least six months are at greater risk for *recurrent* ear infections.
- Formula-fed infants are at greater risk for dangerous infections such as lower respiratory illness.
- Children who are not breastfed are at greater risk for Type 1 and Type 2 diabetes.
- Children who are not breastfed are at greater risk for early childhood dental caries.
- Children who are not exclusively breastfed for the first few months are at greater risk for childhood overweight and subsequent obesity.

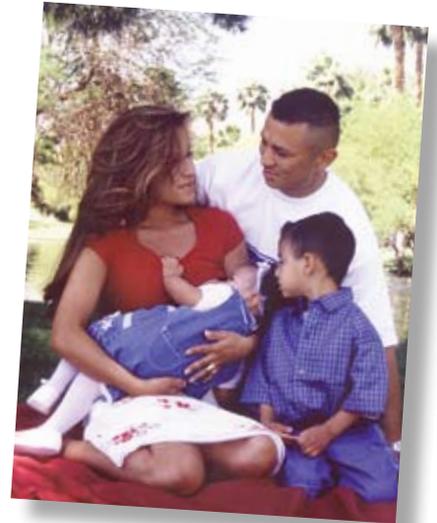


Children who are not exclusively breastfed for the first few months are at greater risk for childhood overweight and subsequent obesity.

EXECUTIVE SUMMARY

Breastfeeding protects infants from life-threatening illnesses

- Premature infants who do not receive human milk are at greater risk for life-threatening gastrointestinal disease.
- Some studies indicate that lack of breastfeeding is a risk factor for sudden infant death syndrome (SIDS) and overall infant mortality.
- Breastfeeding is protective against life-threatening respiratory illnesses such as those caused by respiratory syncytial virus.
- Breastfeeding is protective against infant botulism, a rare but deadly disease.
- Formula-fed infants are at greater risk for dangerous infections such as meningitis and bacteremia.
- Children who are not breastfed may be at greater risk for some childhood cancers, including leukemia.



Why Is Breastfeeding Good for Mothers?

Breastfeeding helps mothers recover from childbirth

- Breastfeeding helps the uterus to shrink to its pre-pregnancy state and reduces the amount of blood lost after delivery.
- Breastfeeding mothers usually resume their menstrual cycles 20 to 30 weeks later than formula-feeding mothers, which may be protective against iron deficiency.

Breastfeeding keeps women healthier throughout their lives

- Mothers who breastfeed are at reduced risk for breast, endometrial, and ovarian cancers.
- Mothers who breastfeed for at least three months are more likely to return to their pre-pregnancy weight than those who do not.
- Breastfeeding mothers who do not have a history of gestational diabetes are at reduced risk for type 2 diabetes.
- During lactation, total cholesterol, LDL cholesterol, and triglyceride levels decline while the beneficial HDL cholesterol level remains high.
- Breastfeeding can be an important factor contributing to child spacing among women who do not use contraceptives. Greater intervals between children are associated with better health outcomes among mothers and their infants.
- Breastfeeding reduces maternal stress, promotes confidence, encourages bonding with the newborn, and may reduce risk of postpartum depression.
- Mothers who breastfeed may be protected against rheumatoid arthritis.

Why Is Breastfeeding Good for Families, Communities, and Society?

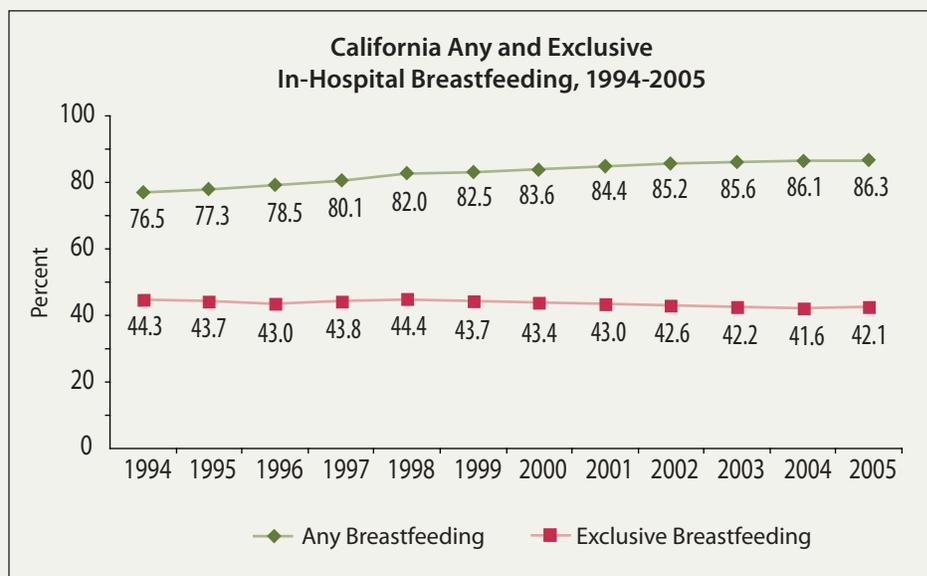
Formula-feeding is expensive

- The cost of formula has increased more than 200% since the 1990s. Total costs for formula-feeding now exceed \$1,900 per year.
- If all California infants were formula-fed, the cost of formula alone would exceed \$930 million per year.
- Formula-feeding increases health care costs to individuals, businesses, and government.
- Formula-feeding results in increased absenteeism among working mothers who must stay home with their sick infants.
- Supporting mother's choice to breastfeed increases job satisfaction and reduces employee turnover and costs related to training new staff.

Formula-feeding has an impact on the environment

- Formula-feeding requires energy and natural resources for manufacturing and preparing formula, as well as for the manufacture of bottles.
- Breastfeeding reduces pollutants that are created as by-products during the manufacture of plastic bottles and formula.
- Breastfeeding needs no packaging or containers that will end up in landfills.

Figure 1



Data source: California Department of Health Services, Genetic Disease Branch, Newborn Screening Database
Prepared by: California Department of Health Services, Maternal, Child and Adolescent Health/Office of Family Planning Branch
Excludes records with feeding "Unknown/Not Reported," "TPN," or "Other"

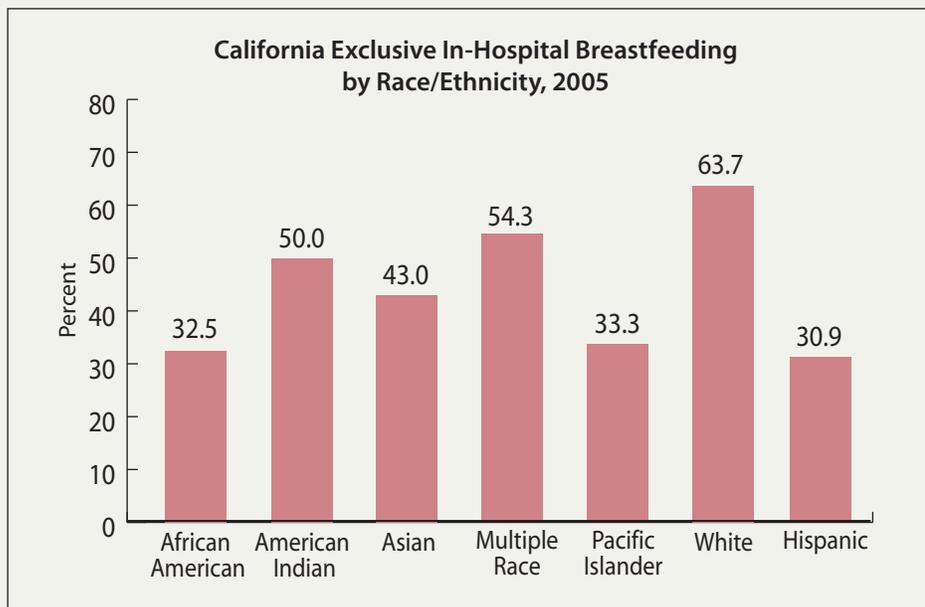
What Is the Status of Breastfeeding in California?

Since 1994, in-hospital *any* breastfeeding rates have increased among all groups in California. However, *exclusive* breastfeeding rates have remained unchanged (**Figure 1**). According to the most recent data, 86.3% of women in California provide any breastmilk to their infants in the hospital but only 42.1% give breastmilk exclusively.^d Given the importance of exclusive breastfeeding to the health of mothers and infants, the promotion of exclusive breastfeeding is the focus of many of the recommendations and strategies in this report.

Breastfeeding Rates among California’s Ethnic Groups

Among certain demographic groups, the in-hospital exclusive breastfeeding rate is far below the Healthy People 2010 Health Objective of 40% through three months (**Figure 2**). Rates of exclusive breastfeeding are lowest among women who are of Pacific Islander, Hispanic, or African American ethnicity. Less than 35% of these women breastfeed exclusively during their hospital stay, yet more than 60% of non-Hispanic white women do so. This disparity in exclusive breastfeeding by certain demographic groups may occur because of a lack of culturally and linguistically appropriate support for some mothers and may result in health disparities from the earliest days of life.

Figure 2



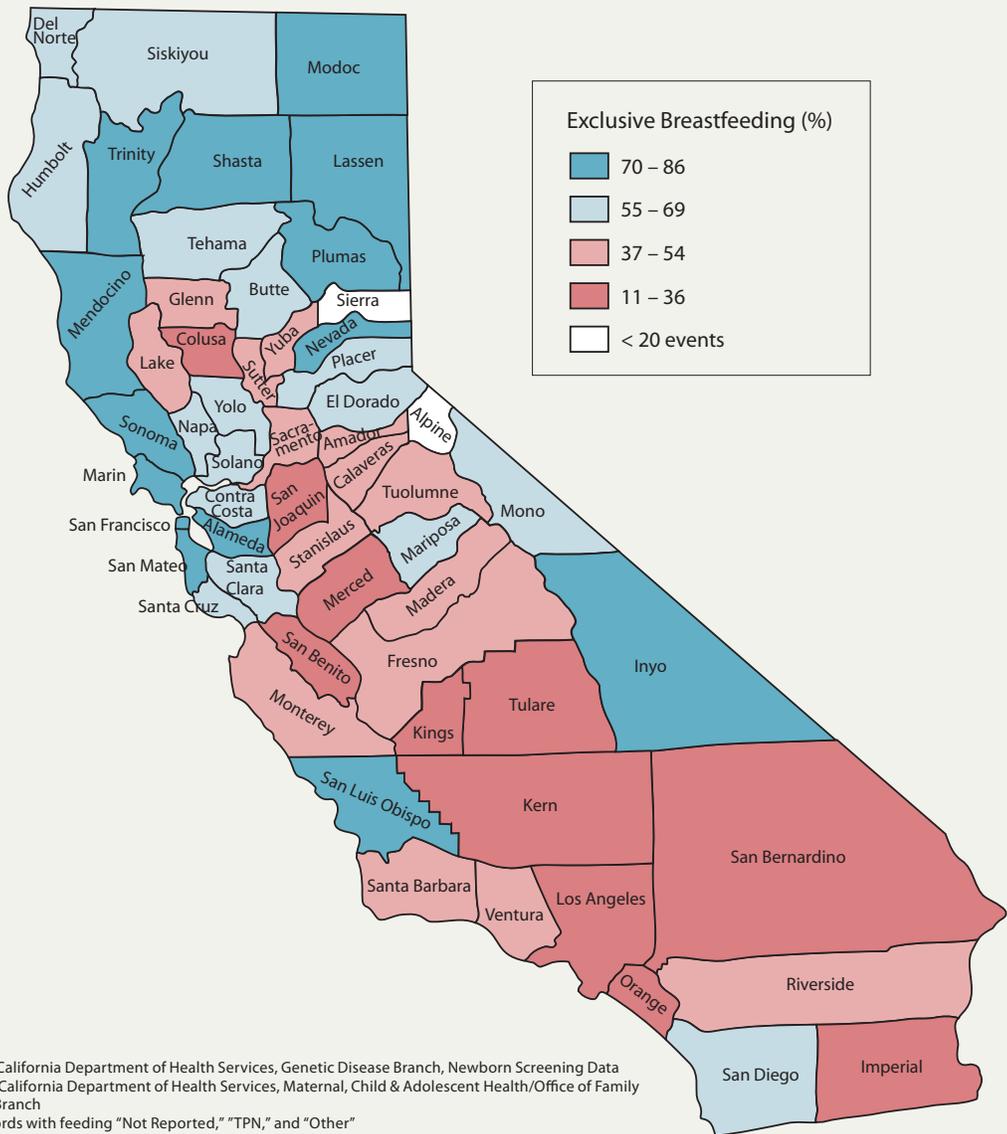
Data source: California Department of Health Services, Genetic Disease Branch, Newborn Screening Database
Prepared by: California Department of Health Services, Maternal, Child and Adolescent Health/Office of Family Planning Branch
Excludes records with feeding "Not Reported," "TPN," or "Other"

^d Data source: California Department of Health Services, Genetic Disease Branch, Newborn Screening Data, 2005.

Regional Differences in California Exclusive Breastfeeding Rates

Within the state, breastfeeding rates vary widely by region. The percentage of newborns exclusively breastfed ranges from a low of 10.7% in Imperial County to 85.8% in Shasta County. The lowest breastfeeding rates occur in the counties of the Central Valley, Los Angeles, and southeastern California. The counties with the highest exclusive breastfeeding rates tend to be in the coastal and mountain regions of California, regions with a low population density and a predominantly white, non-Hispanic population (Figure 3).

Figure 3 In-Hospital Exclusive Breastfeeding Initiation by County of Residence, 2005



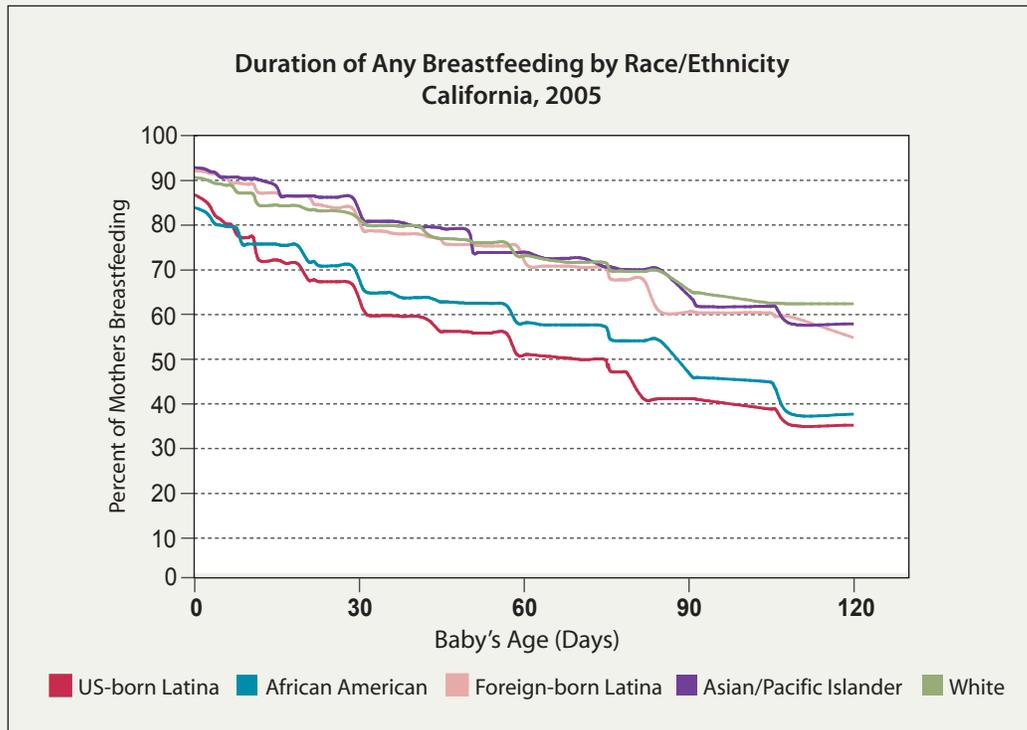
Data source: California Department of Health Services, Genetic Disease Branch, Newborn Screening Data
 Prepared by: California Department of Health Services, Maternal, Child & Adolescent Health/Office of Family Planning Branch
 Excludes records with feeding "Not Reported," "TPN," and "Other"

Breastfeeding Duration

Despite California's high breastfeeding initiation rate, many California mothers stop breastfeeding much earlier than is currently recommended. According to the 2005 National Immunization Survey, just over 50% of California women breastfeed their infants for six months, and only 17.5% do so exclusively. Further, less than 30% of California women breastfeed their infants for at least 12 months. According to the California Maternal and Infant Health Assessment (MIHA), breastfeeding rates drop in the first few months of life among all ethnic groups, with the most rapid decline occurring among US-born Latina and African American women; less than 40% of women in these populations are still breastfeeding at four months (Figure 4).



Figure 4



Data source: California Department of Health Services, Maternal, Child and Adolescent Health/Office of Family Planning Branch, Maternal and Infant Health Assessment, 2005. Data are weighted to be representative of *delivering* mothers in the survey year. Excludes mothers reporting "Native American" or "Other" race/ethnicity or missing race/ethnicity due to small numbers.

Our Progress Since 1994

- *Any* breastfeeding initiation rates among all ethnicities are at an all time high.
- Laws have been passed to guarantee a woman's right to breastfeed in public, postpone jury service while she is breastfeeding, and to express (pump) her milk at work.
- CDPH hospital-level breastfeeding data, which highlight the disparity between any and exclusive breastfeeding, are available to the public.
- A web-based tool-kit has been created to assist hospitals in implementing breastfeeding supportive policies.
- The number of Baby-Friendly Hospitals^e in California has increased from 7 to 13.
- Hospitals that receive Medi-Cal funds are required to provide lactation services or referrals to families of newborns after delivery.
- CDPH has implemented a system-wide lactation accommodation policy, including lactation rooms in each new building.
- CDPH has increased the numbers of international board-certified lactation consultants (IBCLCs) and peer counselors throughout the state.
- The California Breastfeeding Coalition (CBC) was formed, a network of the more than 40 local breastfeeding coalitions.
- The California WIC program has established model policies to support breastfeeding participants.
- The National Breastfeeding Awareness Campaign was released and tested in several states, including California. The campaign raised awareness, particularly among men, about the importance of breastfeeding.
- Extensive collaborative research has been conducted to identify and address barriers to breastfeeding in California.
- Breastfeeding measures are being incorporated in hospital quality improvement assessments.

^e Hospitals that implement specific policies shown to be supportive of breastfeeding may apply to be designated as "Baby-Friendly." For further information, go to <http://www.babyfriendlyusa.org>.

What Are the Barriers to Breastfeeding?

Despite the relatively high breastfeeding initiation rate among California mothers, relatively few women avoid supplementation or breastfeed for more than a few weeks. Most women in California decide to breastfeed, but barriers exist that prevent them from following their plans to initiate and continue *exclusive* breastfeeding.

What Are the Barriers to Breastfeeding Initiation?

- Low-income women, those who smoke during pregnancy, and those who deliver their infants by caesarean section are less likely to initiate breastfeeding.
- The need to return to an unsupportive work or school environment prevents mothers from being able to breastfeed their infants.
- Some mothers believe that breastfeeding would be too embarrassing.
- Mothers report that they lack support for breastfeeding from their partner or other family members.
- Some mothers report that other family responsibilities prevent them from having the time to breastfeed their infants.
- Exposure to infant formula marketing, prenatally or in the hospital, is associated with lower rates of initiation and shorter duration of exclusive breastfeeding.

What Are the Barriers to Continued Breastfeeding?

- Younger mothers, mothers with lower incomes, lower education, mothers who are overweight and obese, and those who smoke during pregnancy breastfeed for a shorter time as compared to other mothers.
- Lack of access to culturally and linguistically appropriate help to overcome initial difficulties can shorten breastfeeding duration.
- Return to work or school also may prevent continued breastfeeding. Short or unpaid maternity leave results in many women needing to return to work very soon after the birth. Many women and employers do not know about the law in California that supports women who wish to express their milk. Fear of reprisals from employers or co-workers prevents some women from asking for such accommodation.
- Some mothers fear embarrassment, societal disapproval, and discomfort about breastfeeding in public.
- Many new mothers need assistance with breastfeeding in the hospital and in the early postpartum period from their health care providers. Insufficient support in health care environments can contribute to early breastfeeding cessation.



Most women in California decide to breastfeed, but barriers exist that prevent them from following their plans to initiate and continue exclusive breastfeeding.

EXECUTIVE SUMMARY

- Limited availability of support from lactation consultants or other experts also can contribute to mothers' decisions to stop breastfeeding.
- Some mothers report lack of social support prevents them from continuing to breastfeed their infants.
- Complimentary samples of infant formula and a lack of supportive hospital policies and practices may convince a mother that her health care providers are not supportive of breastfeeding.
- Some mothers whose infants were supplemented in the early postpartum period quit breastfeeding because they believed that early supplementation with formula results in the infants preferring formula over breastfeeding or that they cannot provide adequate amounts of breastmilk for their infants.
- Some mothers who have stopped breastfeeding believed it to be inconvenient and too restrictive.

What Can Be Done to Help California Mothers Breastfeed Successfully?

The pattern of infant feeding observed in California, many women initiating breastfeeding but few continuing beyond a few weeks, suggests that while most California women recognize that “breastfeeding is best,” they are not receiving adequate support to continue exclusive breastfeeding. Still, the State of California possesses many assets that will continue to facilitate breastfeeding promotion efforts. There are increasing opportunities for creating a supportive environment for breastfeeding through the media, the health care system, the workplace, our community support systems, and all levels of our educational system. By investing in efforts to eliminate barriers, we can ensure that all children will have the very best start in life. This report is intended as a blueprint for the expansion and coordination of these efforts.



Fundamental Recommendations

Coordination of Efforts

Leadership is needed to coordinate programs at all levels of government, develop legislation, support and coordinate local breastfeeding efforts, and provide editorial oversight for all breastfeeding-related materials developed or disseminated by government agencies in California. The recommendations put forth by this report are intended to provide a framework for this effort. Working with local community groups and breastfeeding coalitions to implement and evaluate these recommendations is an integral part of this process.

Cultural Competency

It is essential that breastfeeding promotion activities at every level be culturally relevant to the diverse populations in California and that they be implemented by individuals who are culturally sensitive and competent.

Funding Concerns

Many of the recommendations and strategies offered in this report will require financial resources to accomplish. This committee recommends that no money be accepted for the implementation of the recommendations in this report from organizations in violation of the WHO Code for Marketing of Breast Milk Substitutes.^f While organizations in violation of the WHO code should be specifically excluded from supporting CDPH efforts to implement these recommendations, funding, and gifts from manufacturers of other infant feeding and lactation products must be accepted only with great caution and should be progressively eliminated.

Recommendations

The following recommendations for the promotion of breastfeeding in California are grouped into six areas of focus: Professional Education; Health Care Systems; Public Education; Mother-to-Mother, Family, and Community Support; and Assessment and Research. The order of presentation of these recommendations is not of special significance.

I. Professional Education

- Facilitate integration of breastfeeding training into the curriculum at health-related professional schools throughout the state to ensure that health professionals are technically and culturally competent in delivering breastfeeding services and making appropriate referrals.
- Facilitate the availability of continuing education opportunities for all health related professionals in practice to assure that they achieve and maintain minimum competencies and skills in lactation management.

^f The WHO code prohibits specific industry marketing practices that have been shown to negatively affect breastfeeding practices. For details and the full text of the WHO code see, http://www.who.int/nutrition/publications/code_english.pdf.

EXECUTIVE SUMMARY

- Promote adoption of legislation requiring a standard minimum breastfeeding competency for all practicing health care and allied health care professionals.

II. Health Care Systems

- Facilitate the implementation of a culturally competent and sensitive system of health care to ensure that all California women have the education, opportunity, and support needed to develop and reach evidence-based, optimal breastfeeding goals.
- Facilitate the implementation of a culturally competent and sensitive system of evidence-based care to ensure that all California hospitals and clinics promote *exclusive* breastfeeding for six months and support *any* breastfeeding as part of their general health promotion strategies.
- Ensure that outpatient facilities in California provide continuing integrated, culturally sensitive breastfeeding support and care for all women and infants. Assessment and intervention should begin in the first week postpartum, ideally when the infant is three to five days of age, with follow-up as needed. These visits would be in addition to the traditional two week visit.
- Ensure that all California public health programs and services support a woman's decision to breastfeed. Ensure that public health programs working with perinatal women provide culturally sensitive and linguistically effective breastfeeding support.
- Work with all health care systems, such as Medi-Cal, Healthy Families, managed care plans, and insurance companies, to develop model policies that provide quality breastfeeding support and ensure adequate reimbursement for breastfeeding services.

III. Public Education

- Incorporate infant feeding education into the science and health curricula at preschool, primary, secondary, university, continuation, technical, adult, job training, and professional education levels.
- Promote positive breastfeeding images throughout society and work to eliminate the use of the bottle as an icon representing infants.
- Develop and implement an ongoing social marketing campaign to promote breastfeeding in California's diverse populations, with emphasis on increasing breastfeeding duration and exclusivity.
- Develop and disseminate a consumer's guide that rates hospitals according to their breastfeeding policies and breastfeeding outcomes. Physician/medical practices should be listed according to criteria indicating their breastfeeding-friendly status.
- Support breastfeeding promotion through local breastfeeding coalitions, existing support groups and religious and community organizations, in order to reach local communities in a culturally sensitive and accessible manner.

EXECUTIVE SUMMARY

IV. Mother-to-Mother, Family, and Community Support

- Identify, promote, and fund effective, culturally sensitive and linguistically effective models of mother-to-mother, family, and community support.
- Ensure that those who provide mother-to-mother, family, and community support receive culturally and linguistically sensitive breastfeeding training.
- Ensure community awareness regarding availability of existing mother-to-mother, family, and community support services.
- Establish and maintain effective communication among state and local stakeholders to strengthen mother-to-mother, family, and community support.
- Provide official recognition of outstanding mother-to-mother, family, and community support providers and organizations.

V. Workplace and Educational Centers

- Recommend legislation and state regulations that strengthen breastfeeding support and minimize existing barriers for all breastfeeding mothers.
- Encourage all businesses, educational sites, and others to promote a breastfeeding-friendly environment for their employees. The State of California, as a major employer, should take the lead in providing a breastfeeding-friendly environment.
- Encourage all businesses and educational sites, including preschools, K-12 schools, technical schools, community colleges, and universities, to provide lactation accommodation to students, customers, and clients.
- Recommend that, as part of the licensure process, child care providers be required to support breastfeeding mothers.

VI. Assessment and Research

- Support assessment of the potential impact of the Institute of Medicine's (IOM) recommendations for changes to the WIC food packages, particularly the recommendation to withhold formula for breastfeeding mothers for the first month.
- Study barriers to behavioral change in infant feeding practices and ways of overcoming these barriers.
- Collect data related to the Communities of Excellence indicators for breastfeeding, through statewide programs or by supporting local and regional efforts.
- Support research on the effect the health care system has in deterring women from exclusively breastfeeding their infants. Research is particularly needed among vulnerable groups, including low income, disadvantaged, and ethnically diverse groups.

EXECUTIVE SUMMARY

- Develop tools that may be used by professionals and paraprofessionals both pre- and post-natally to identify who is at greatest risk for non-exclusive breastfeeding or early supplementation and to determine how these tools can be implemented most effectively to facilitate breastfeeding.
- Evaluate the cost-effectiveness of various strategies to promote breastfeeding.
- Evaluate the cost savings and other benefits to different sectors associated with increased exclusive breastfeeding rates, and use the information to help convince policy makers to implement programs to promote breastfeeding.
- Develop and implement mechanisms for ongoing monitoring of breastfeeding incidence, exclusivity, and duration in California.

Conclusion

Californians have long led the nation in efforts to improve the health and well-being of our citizens. It is not a surprise then that our breastfeeding rates are among the highest in the nation. However, California's diverse families face many cultural, linguistic, and social barriers to exclusive breastfeeding and relatively few women breastfeed their infants without supplementation or for more than the first few weeks. Over the last decade, the scientific evidence supporting both immediate and long-term consequences related to infant feeding practices has grown substantially. Health organizations throughout the world recognize breastfeeding as a vital contributor to the health and welfare of women and their children. The information presented in this report confirms that increasing exclusive breastfeeding will positively impact our state. The vision of the Breastfeeding Promotion Advisory Committee is that breastfeeding be the norm in California for at least the first year of life and preferably longer. While significant progress has been made in the last 10 years toward this important goal, far more work is needed. These recommendations provide a framework for the steps that the CDPH must take to improve exclusive breastfeeding rates and eliminate health disparities in California. Today's investment in efforts to promote and support breastfeeding will deliver a brighter future for us all.

INTRODUCTION

IN THE DECADE THAT HAS PASSED since the first edition of this report, public understanding of the importance of breastfeeding, particularly *exclusive* breastfeeding, has grown along with the number of California mothers who have made the decision to breastfeed. Progress has been made toward the goals and recommendations originally set forth in the first edition of this report. However, there still is work to be done. While the majority of California mothers start breastfeeding in the hospital, many stop within the first few days or weeks. Further, exclusive breastfeeding has remained relatively unchanged in California for more than a decade and regional, and cultural disparities in infant-feeding practices continue to exist despite efforts to eliminate them.

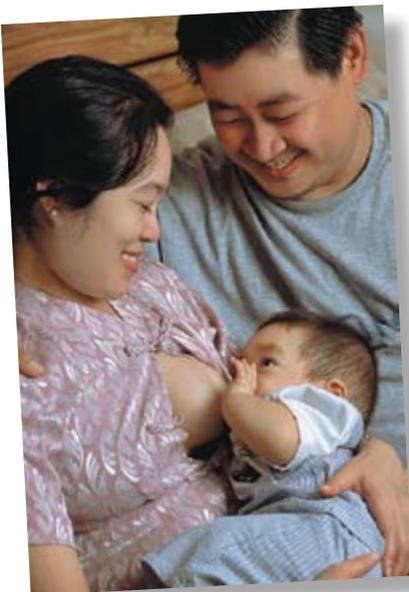
Given the importance of breastfeeding to the health of mothers and infants, the California Department of Health Services (CDHS)^g lists promotion and support of breastfeeding among their Title V Maternal and Child Health Bureau Block Grant priority issues. Breastfeeding promotion also is a priority activity for the Women, Infants, and Children (WIC) Supplemental Nutrition Program and is listed as an important part of the governor's obesity prevention plan. To provide guidance in this effort, CDHS requested that the Breastfeeding Promotion Advisory Committee, a committee of experts from throughout the state, review the latest scientific evidence as well as progress made toward previous objectives in order to update their report, "Breastfeeding: Investing in California's Future." The committee has developed new recommendations and strategies to increase exclusive breastfeeding rates throughout the state.

^g For a listing of all the abbreviations used in this report, see **Appendix B**.

Breastfeeding Promotion and Support Has Been Recognized as a Health Care Priority

Breastfeeding is recognized worldwide by scientific and medical organizations as a means to improve infant nutrition and maternal health, promote child development, and reduce health disparities. The American Academy of Pediatrics (AAP),¹ the American Academy of Family Physicians (AAFP),² the American College of Obstetricians and Gynecologists (ACOG),³ the International Lactation Consultant Association (ILCA),⁴ and the American Dietetic Association (ADA)⁵ all recommend that infants be *exclusively* breastfed (meaning they receive no other food or fluid other than breastmilk) for about six months. Breastfeeding complemented by appropriate introduction of other foods is recommended for the remainder of the first year and longer. As part of the US Healthy People 2010 Objectives, the national health objectives for breastfeeding are to increase the percentage of women who breastfeed to at least 75% at birth, 50% at six months, and 25% at 12 months postpartum. The 2010 Objectives for *exclusive* breastfeeding are currently 40% through three months and 17% through six months. The Centers for Disease Control and Prevention (CDC) include breastfeeding promotion as a main component of their obesity prevention initiatives.⁶ The World Health Organization (WHO) recommends that children should continue to be breastfed for up to two years of age or beyond, while receiving nutritionally adequate and safe complementary foods.⁷ In a recent effort to support this recommendation, the WHO released new growth standards based on the breastfed child as the norm. The new standards are the result of an intensive WHO study assessing the physical growth, nutritional status, and motor development in more than 8,000 children from Brazil, Ghana, India, Norway, Oman, and the US.⁸

Role of the California Department of Health Services' Breastfeeding Promotion Advisory Committee



Guiding the Department in its Breastfeeding Promotion Efforts

Incorporating strategies to increase breastfeeding rates is consistent with the focus on preventive health maintained by CDHS. To provide direction and priority to its breastfeeding promotion effort, the CDHS has convened a committee of experts from throughout the state for more than a decade. The committee was formed as a collaborative effort among three branches within CDHS: WIC Supplemental Nutrition Program (WIC), Maternal, Child, and Adolescent Health/Office of Family Planning (MCAH/OFP), and Children's Medical Services (CMS). Breastfeeding is an important element in maximizing infant health, which is central to the mission of all three branches.

Representing a Broad Range of Experiences

The Breastfeeding Promotion Advisory Committee consists of approximately 25 members. **(Appendix A)** Member selection was designed to create a multi-disciplinary, multicultural committee representing a broad range of experience related to breastfeeding promotion throughout the State of California. Committee members represent a wide variety of practice settings, including academia, hospitals, medical practice, managed care organizations, public agencies, foundations, community organizations, and local WIC agencies.

The committee provides recommendations and strategies to increase incidence and duration of breastfeeding in California. While the recommendations and strategies in this report are intended to reduce barriers to breastfeeding for all women, emphasis has been on strategies most needed for populations with a very low incidence of breastfeeding, particularly low-income women.

Objectives of this Report

- Review the documented consequences of infant-feeding practices for infants and their mothers.
- Evaluate available data on breastfeeding rates in California.
- Assess barriers to breastfeeding for California mothers.
- Identify and prioritize breastfeeding support needs.
- Recommend breastfeeding intervention strategies for specific programs within the Department of Public Health such as WIC, Child Health and Disability Prevention, Comprehensive Perinatal Services, and Medi-Cal Managed Care.

The Infant-Feeding Decision

As a mother prepares for the birth of her child, she must make many important health decisions, including how she will feed her baby. For most mothers, the feeding decision is not made just once, but many times, as mothers face challenges and barriers to exclusive and continued breastfeeding. It is the position of the Breastfeeding Promotion Advisory Committee that every mother has the right to make informed decisions about infant feeding and that her decisions, whatever they may be, should be supported. In order to make an informed decision, women need objective, accurate information. Unfortunately, misinformation about breastfeeding is common, and mothers may receive mixed messages from their health care providers. Further, some providers may be reticent to provide objective information about breastfeeding because they are concerned about provoking “guilt” in women who do not choose to breastfeed. However, in every other aspect of women’s health, standards of care require that patients be given facts about the consequences of their decisions. Therefore, all women should have similar access to the latest evidence related to infant feeding.



For most mothers, the feeding decision is not made just once, but many times, as mothers face challenges and barriers to exclusive and continued breastfeeding.

INTRODUCTION

Although any^h breastfeeding for a brief period has advantages over none at all, four to 12 months of breastfeeding is needed for many of the longer-term advantages to be realized. The most recent scientific evidence indicates that *exclusive*ⁱ breastfeeding for the first six months is associated with the greatest protection against major health problems for both mothers and infants.^{9,10} It is important to note that infant-feeding methods may differ from one day to the next. Medical circumstances, separation of mother and infant, and availability of support all affect infant feeding decisions. Infants who are not exclusively breastfed in the hospital may become exclusively breastfed after discharge. Similarly, an infant can be exclusively breastfed for the first two months of life, then receive one supplemental feeding, and return to exclusive breastfeeding until reaching six months of age.

From a nutritional and developmental perspective, experts agree that mothers should, whenever possible, breastfeed their children. If breastfeeding is not possible, then the mother should pump her milk and provide it to the baby. Infants whose mothers are not able to supply their own milk should be fed banked human milk whenever possible. Formula^j should be given to infants only after all safe and affordable sources of human milk are unavailable.



h “Any” breastfeeding refers to infants who are fed either only breastmilk or breastmilk and formula.

i “Exclusive” breastfeeding refers to infants who are fed only breastmilk, no other foods or fluids.

j “Formula” will be used to refer to the wide range of human milk substitutes manufactured for artificial feeding.

CONSEQUENCES OF INFANT FEEDING

Why Is Breastfeeding Good for Infants?

Human milk is nutritionally complete

Health professionals and public health organizations throughout the world recommend that infants be *exclusively* breastfed for the first six months and continue to be breastfed, after the introduction of complementary foods, for the entire first year of life and longer, if desired. Not only does human milk provide the proportions of protein, carbohydrate, fat, vitamins, and minerals necessary for survival, it also contains over 200 components that enhance immune function and support optimal growth and development.

Breastmilk is the ideal source of nutrients for infants

The composition of human breastmilk is specifically designed to be the *sole* source of nutrition during the first six months of life. In the first few days and weeks of life, infants have different nutritional needs and, unlike artificial infant formulas, human milk components change to meet these needs. For instance, colostrum, which is produced immediately after birth, is low in fat and carbohydrate and high in protein, vitamins A and E, and factors that enhance immunity.¹¹ This composition is ideal for newborn infants because it is easy to digest and provides all the nutrients necessary during the first few days of life. Over time, the milk composition transforms, supplying more energy from fat and carbohydrates to support growth.

Breastmilk contains unique factors that help infants grow and develop

Breastmilk contains a variety of components that contribute to optimal growth and development and are not found in formula. These bioactive factors, which include hormones and growth factors, promote intestinal maturation and brain development.¹²⁻¹⁷

Fatty acids in breastmilk may also play a role in infant development. More than 150 fatty acids, particularly long-chain polyunsaturated fatty acids (LC-PUFAs), contribute to growth as well as to immune, visual, cognitive, and motor development. Studies have found that breastfeeding is associated with statistically significantly higher intelligence scores in children at one year of age,¹⁸ four years of age,¹⁹ and 15 years of age.²⁰

Infant feeding choices affect risk for infectious illnesses

Breastfeeding protects infants from illnesses in two ways, indirectly and directly. Indirectly, breastfeeding reduces the risk of illnesses by limiting exposure to harmful pathogens. Formula-fed infants are more likely to suffer from bacterial and viral infections. Breastmilk



Human milk... contains over 200 components that enhance immune function and support optimal growth and development.

CONSEQUENCES OF INFANT FEEDING

provides direct protection against illness by supplying numerous factors that strengthen the immune system and are not available in infant formula. Breastfed infants get sick less often, experience milder symptoms, and recover more quickly than artificially-fed infants. Some of this protection is thought to extend into childhood, reducing illness even after breastfeeding has ended.

Diarrheal disease

Breastfeeding protects against diarrheal disease.²¹⁻²⁸ Formula-fed infants are more likely to be exposed to pathogens, which may contaminate bottles, formula, and food given to the infants.²¹ Despite the reduced risk of exposure, some breastfed infants may be introduced to pathogens that can cause illness. Breastmilk, however, contains anti-inflammatory agents, oligosaccharides, antioxidants, enzymes, and white blood cells, such as neutrophils and macrophages, that are produced throughout lactation and work alone or in combination to inhibit or kill microbial pathogens. For example, oligosaccharides, which are found only in breastmilk, can bind to certain pathogens, blocking their ability to cause illness.^{22,25,29,30} Antibodies, abundant in breastmilk, are directed against certain pathogens such as rotavirus,³¹⁻³⁶ *Giardia lamblia*,^{12,37,38} and *Shigella*.^{12,39,40} These immune factors are not found in formula.

Respiratory illness and ear infections

Breastfed infants are less likely to suffer from lower respiratory illness^{24,41-45} in the first year of life. When data from several studies were compiled, the results indicated that infants who were never breastfed were three times more likely to be hospitalized with respiratory tract infections than infants who were exclusively breastfed for four months or more.⁴¹ Breastfeeding reduces the risk of both acute and recurrent otitis media (infection of the middle ear) during the first year of life.^{26,27,46-53} One study reported that artificial feeding was the most significant predictor of moderate to severe ear infections.⁵³ Another study, involving more than 1000 infants, found that infants who were never breastfed had twice the number of episodes of ear infections than those who were exclusively breastfed for at least four months.⁴⁹ These studies emphasize the importance of *exclusive* breastfeeding in the early months of life.

Bacterial infections

Exclusive breastfeeding is protective against diverse illnesses, including bacteremia,⁵⁴ meningitis, and urinary tract infections.⁵⁵⁻⁵⁹

Early childhood caries

Early childhood caries (ECC) (formerly known as baby-bottle tooth decay) are dental caries that appear on the upper front primary teeth in early childhood.^{60,61} Prolonged exposure to liquids containing sugar (such as milk, formula, juice, and soda) can lead to decay when bacteria found in the mouth consume the sugar and form acid. Frequent or prolonged exposure to sugary liquids can cause cavities on the upper front teeth. The problems do not disappear once the primary teeth are lost, as permanent teeth can also be affected by ECC.⁶¹ Artificially-fed infants are at a higher risk for ECC than those who are breastfed because they are more likely to have prolonged exposure to sugary liquids.^{60,61}

CONSEQUENCES OF INFANT FEEDING

Infant botulism

According to the CDC, infant botulism is the most common form of botulism in the United States. Although infant botulism is extremely rare, 47.2% of all reported cases since 1976 have been in California.⁶² Infants can contract infant botulism by swallowing *Clostridium botulinum* spores that produce a toxin in the large intestine. Because the intestine is still immature, infants younger than one year of age are the most susceptible to the spores, which are found in dust, dirt, and honey. Because of differences in gastrointestinal development and function, artificially-fed infants tend to be younger at onset of infant botulism and experience more severe illness than breastfed infants.⁶³

Infant-feeding decisions can increase children's risk for chronic diseases

Diabetes

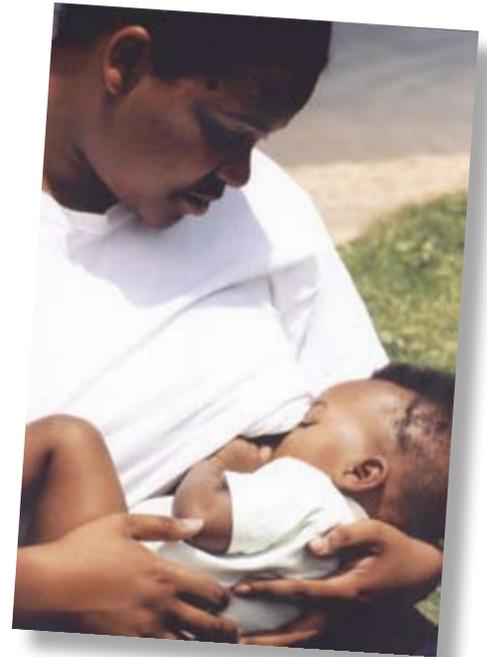
According to the California Diabetes Program, the economic cost of diabetes in 2002 was \$12 billion in California and \$132 billion nationwide. By the year 2020, it is estimated that 4 million people in California will suffer from diabetes.⁶⁴ Breastfeeding, particularly *exclusive* breastfeeding, has been shown to protect against both type 1⁶⁵⁻⁷² and type 2 diabetes mellitus.⁷³⁻⁷⁶ A recent study, involving more than 2300 children, found an association between a lack of breastfeeding and development of type 1 diabetes mellitus, and a protective effect of breastfeeding for 12 months.⁷² As the prevalence of obesity has increased, so has the prevalence of type 2 diabetes. Originally seen only in adults, children and adolescents are now being diagnosed with this disease. In the Pima Indian population, which has a very high rate of type 2 diabetes, exclusive breastfeeding for at least two months was associated with decreased risk.⁷⁴

Other chronic diseases

Lack of breastfeeding has been associated with an increased risk of Crohn's disease,⁷⁷⁻⁸¹ ulcerative colitis,^{77-79,82,83} and childhood cancer.⁸⁴⁻⁹⁰ It has been estimated that increasing breastfeeding initiation (any breastfeeding) from 50% to 100% would prevent five percent of cases of childhood acute leukemia or lymphoma.⁸⁶ Breastfeeding also protects against food allergies. Exclusively breastfed infants are not exposed to factors in formula and other food that can cause allergies. Some studies indicate that *exclusive* breastfeeding for four months or more may reduce the risk of asthma⁹¹ and childhood eczema.⁹²

Sudden Infant Death Syndrome

Sudden Infant Death Syndrome (SIDS) rates have drastically decreased since the early 1990s. In 1991, 724 SIDS deaths were recorded in the State of California, compared with 175 deaths in 2003.^{93,94} Despite this dramatic reduction, SIDS was still the second leading cause of infant death in 2003, increasing by two percent from 2002.⁹³ Lack of breastfeeding has been a significant risk factor for SIDS in several studies,⁹⁵ but not significant in others.⁹⁶⁻⁹⁸



CONSEQUENCES OF INFANT FEEDING



A meta-analysis, including 23 studies, found that the risk of SIDS was twice as high for bottle-fed infants as for breastfed infants.⁹⁵ Although the exact protective mechanism is not known, studies have suggested that breastfed infants are more easily aroused from sleep⁹⁹ and have less exposure to pathogens that may be associated with SIDS than do artificially-fed infants.¹⁰⁰

Childhood overweight

Obesity is a major health problem in the United States. Poor diet and inactivity are responsible for an estimated 400,000 deaths per year, quickly approaching tobacco as the leading modifiable behavioral cause of death.¹⁰¹ Not only are more people becoming obese, but overweight and obesity are appearing at younger ages, even among young children.

In 2004, 28.1% of California children in grades five, seven, and nine were overweight, a six percent increase from 2001.¹⁰² In the same year, it is estimated that among children two to five years old, 33.6% were at risk for overweight and 17.1% were overweight nationally.¹⁰³ This is particularly alarming because only five percent of children in this age group were considered overweight in 1976-1980, showing that the prevalence has more than tripled over the last 30 years.¹⁰⁴

Research has shown that breastfeeding may be an early intervention for obesity prevention.¹⁰⁴⁻¹⁰⁸ The results suggest that greater protection is conferred when breastfeeding is exclusive and of more than a few weeks duration.¹⁰⁵⁻¹⁰⁸ Although the mechanism for this effect is still unclear, it is possible that individuals who were breastfed may be better able to self-regulate their intake than those who were formula-fed.^{104,107,108} Metabolic differences between formula-fed and breastfed infants may also be responsible. Bioactive factors and nutrients present in breastmilk, but not in formula, can affect the way the body metabolizes and stores nutrients.^{104,105,107,108}

Human breastmilk is especially important for premature infants

In 2004, 54,158 infants, 10.7% of all live births, were born prematurely in California.¹⁰⁹ Metabolic, respiratory, gastrointestinal, immunologic, and neurodevelopmental immaturities cause such infants to be vulnerable to numerous complications, both in and out of the hospital.^{110,111} Human milk, which provides substances not present in formula, meets most of the special needs of premature infants.^{111,112} Fortifiers (vitamins, minerals, and other nutrients) may be added to provide optimum nutrition to those with additional needs.^{111,113}

Human milk contains whey proteins, carbohydrates, fats, and fatty acids that premature infants need for proper growth and development. It also contains hormones, insulin, growth factors, and other components that promote gastrointestinal maturation and protect the infant from infection.¹¹² One study found that the more human milk premature infants consumed, the lower their rates of sepsis and necrotizing enterocolitis.¹¹⁴ More recently, in a randomized, blinded trial of extremely premature infants, researchers found that a diet of only mother's

CONSEQUENCES OF INFANT FEEDING

milk resulted in fewer infection-related complications and shorter hospital stays.¹¹⁵ Another recent study found incremental increases in cognitive, psychomotor, and behavior scores for every 10 mL/kg per day of human milk ingested.¹¹⁶ The AAP twice published position papers (in 1997¹¹⁷ and 2005¹) recommending that human milk be given to premature and other high-risk infants due to its beneficial properties.

Why Is Breastfeeding Good for Mothers?

Breastfeeding promotes rapid recovery after childbirth

Mothers who breastfeed immediately after delivery recover more quickly from childbirth than mothers who do not.¹¹ These mothers lose less blood than mothers who do not immediately breastfeed, because infant suckling triggers the release of a hormone that stimulates uterine contractions, thereby minimizing maternal blood loss. Furthermore, among mothers who *continue* to breastfeed, the uterus returns to its pre-pregnant state more rapidly than among mothers who do not continue to breastfeed.^{118,119}

Breastfeeding can help mothers return to their pre-pregnant weight more rapidly

Often, new mothers are concerned about losing the weight they gained during their pregnancy. Not all studies have shown a relationship between infant feeding method and weight loss. However, few studies have included women who breastfeed beyond the first few weeks, and most failed to exclude women who were dieting to lose weight. In studies that meet these criteria, researchers have reported that breastfeeding women have more rapid weight loss after three months postpartum than bottle-feeding mothers.^{120,121} In a study comparing women who breastfed versus those who bottle-fed their infants throughout the first year of life, breastfeeding mothers were more likely to return to their pre-pregnancy weight by 12 months. In comparison, bottle-feeding mothers were, on average, four to five pounds above their pre-pregnancy weight at 24 months postpartum.¹²⁰ Women who fail to lose weight in the first six months after pregnancy are at risk for becoming more overweight with each subsequent pregnancy.¹²²⁻¹²⁶

Breastfeeding can be an important factor in child spacing

Breastfeeding women experience a delayed return to postpartum ovulation compared with women who artificially feed their infants. Among non-lactating women, ovulation returns on average by six to seven weeks postpartum and menstruation returns by eight to nine weeks postpartum. Among breastfeeding women menstruation begins much later, around 34 to 65 weeks postpartum.¹²⁷ Exclusive breastfeeding in the absence of menstruation within the first six months postpartum can be considered to be 98% protective against pregnancy and is used as an important method of birth control in some countries.¹²⁸ However, when the child is six months old, the mother must use other forms of contraception to prevent pregnancy.



Breastfeeding women experience a delayed return to postpartum ovulation compared with women who artificially feed their infants.

CONSEQUENCES OF INFANT FEEDING

A birth control method also must be used to avoid pregnancy (1) if menstruation begins earlier, (2) when frequency or duration of breastfeeding is reduced, or (3) when bottle-feeding or other supplementation is introduced.¹²⁹ A longer period of time without menstruation may also be beneficial to women by reducing the risk of iron deficiency anemia.¹³⁰

Breastfeeding reduces the risk of certain forms of cancer

Breast cancer

Breast cancer is the most common cancer among women in the United States and in California, representing nearly one-third of cancers diagnosed. Furthermore, breast cancer is the second leading cause of death by cancer among women in the United States and in California.^{131,132} While numerous studies have shown a protective effect of breastfeeding against developing premenopausal breast cancer,¹³³⁻¹³⁶ a more recent, multinational analysis has shown that a longer lifetime duration of breastfeeding is protective against postmenopausal breast cancer as well.¹³⁷ The Collaborative Group on Hormonal Factors in Breast Cancer reanalyzed breast cancer data from 30 countries, representing 80% of all epidemiological data on breast cancer worldwide. Their findings demonstrated that, regardless of age, parity, menopausal status, ethnicity, and other characteristics, women from developed and developing countries experienced a protective effect of breastfeeding that increased by 4.3% with every 12 months of breastfeeding.¹³⁷

Epithelial endometrial cancer

An estimated 41,200 new cases of endometrial cancer were expected to be diagnosed in the United States in 2006, 4,360 of which were expected to be in California.¹³¹ Endometrial cancer is the fourth most common cancer in the United States.¹³¹ While a small number of early studies^{138,139} found no relationship between breastfeeding and endometrial cancer, several more recent studies have found a protective effect.¹⁴⁰⁻¹⁴⁴

Ovarian cancer

Although it is the second most common gynecologic cancer, ovarian cancer causes more deaths than any other gynecologic cancer.¹³¹ Epithelial ovarian cancer (EOC) is the most common type of ovarian cancer.¹⁴⁵ Most studies suggest that breastfeeding lowers the risk of developing EOC,¹⁴⁵⁻¹⁵² although some studies find only a slightly lowered risk while others find a risk reduction of up to 50%. Further research is needed to determine the amount of breastfeeding needed to decrease a woman's risk of developing ovarian cancer and to identify the exact mechanism by which breastfeeding offers protection.

Breastfeeding improves a woman's levels of cholesterol

Lactating mothers secrete large amounts of cholesterol into their milk, averaging 15 to 20 milligrams cholesterol per 100 milliliters of milk.¹⁵³ This results in an output that roughly equals the amount of cholesterol lost by the use of cholesterol-lowering medications.¹⁵⁴ In a study of cholesterol metabolism in women who exclusively breastfed their infants for up to 12 months,¹⁵⁴ total cholesterol, low-density lipoprotein cholesterol (LDL), and

CONSEQUENCES OF INFANT FEEDING

triglycerides declined significantly during lactation and returned to their normal levels after the end of lactation. High-density lipoprotein (HDL) cholesterol levels remain high during lactation.¹⁵⁴⁻¹⁵⁶

Breastfeeding reduces a woman's risk for developing type 2 diabetes

In a study of women with recent gestational diabetes, researchers reported improved lipid and carbohydrate metabolism in lactating women versus non-lactating women.^{157,158} In a more recent study of two large cohorts, researchers found that for every additional year of breastfeeding, women who had given birth in the previous 15 years had a 14%-15% decrease in risk of developing type 2 diabetes.¹⁵⁹

Breastfeeding may protect mothers from developing rheumatoid arthritis

Women who develop rheumatoid arthritis (RA) tend to do so when their sex steroid hormones change, such as during the postpartum period. Several studies have investigated the association of reproductive history, including breastfeeding, with a woman's risk of developing RA, with mixed results.¹⁶⁰⁻¹⁶⁴ However, only two studies (both large cohort studies)^{165,166} considered duration of breastfeeding, as opposed to any breastfeeding, in their analyses. In these two studies, a dose-response relationship was found, with longer breastfeeding being associated with a lower risk for development of RA.¹⁶⁶

Breastfeeding reduces maternal negative mood and stress response

There is an increasing body of research regarding the psychological impact of breastfeeding on mothers. Evidence suggests that the act of breastfeeding buffers negative mood and reduces stress response in mothers.¹⁶⁷⁻¹⁷² In a study of first-time mothers in California, women who breastfed their infants were found to have less anxiety and more mother-infant harmony at one month postpartum than those who bottle-fed.¹⁷³ In another study, mothers who exclusively breastfed their children experienced less "fight or flight" responses and enjoyed lower blood pressure, a slower heart beat, and other calming physical effects, compared with bottle-feeding mothers.¹⁶⁷

Breastfeeding promotes maternal confidence

Evidence suggests that breastfeeding boosts confidence among new mothers.^{173,174} Among young women enrolled in WIC in Kentucky, those who breastfed became more outgoing when compared with those who formula-fed their infants. The breastfeeding women also developed greater assertiveness and self-esteem.¹⁷⁵ Additional research shows that, among women with negative birth experiences, successful breastfeeding boosts confidence and facilitates the acquisition of the maternal role.¹⁷⁶

Breastfeeding helps mothers bond with their babies

Breastfeeding provides greater opportunities for bonding during feeding than does bottle-feeding: greater mutual touch, mutual gaze, and maternal and infant responsiveness among breastfeeding dyads have been found.¹⁷⁷⁻¹⁷⁹ Mutual interest and interaction are essential for

CONSEQUENCES OF INFANT FEEDING

increased bonding and affiliative behavior that lasts even outside of the feeding relationship.¹⁸⁰ Studies have found that when compared to bottle-feeding mothers, breastfeeding mothers were more engrossed in the interaction during feeding, patterned their touch and talking to their infants' activity more often,¹⁷³ and touched their infants more frequently.^{177,181} Furthermore, studies have shown that breastfeeding mother-infant pairs engaged in more mutual touch not only during feeding but also during subsequent play,¹⁸¹ and that they scored higher on various measures of mother-infant relational qualities than did bottle-feeding mother-infant pairs (although the scores for the bottle-feeding mother-infant pairs were not indicative of poor or harmful relationships).¹⁸²

Physiological changes associated with increased bonding and affiliative behavior among breastfeeding mothers, such as increased oxytocin levels, are being studied as potential mechanisms for these findings.¹⁸³⁻¹⁸⁷

Why Is Breastfeeding Good for Families, Communities, and Society?

Breastfeeding costs less than formula-feeding in many ways

Important for many families, businesses, schools, health care providers, and health care companies are the clear economic benefits of breastfeeding. Breastfed children have fewer visits to the doctor's office, fewer days of hospitalization, and fewer prescriptions than formula-fed children.¹⁸⁸ Fewer illnesses among breastfed infants translate into lower health care costs for families, businesses, health care providers, and health care companies, and lower absenteeism in businesses and schools.¹⁸⁹ In addition, families spend less on illness-related supplies, such as over-the-counter medicine and extra diapers, and transportation. They also spend less on traveling to and from the doctor's office, hospital, and/or pharmacy than families who formula-feed.

Families who purchase formula and related equipment can expect to spend approximately \$1,962 in the first year of their child's life.¹⁹⁰ Many women who breastfeed need no additional food, due to extra weight gain during pregnancy. Those who do require additional food need only a moderate amount.¹⁹¹ Therefore, the cost of purchasing formula alone is about twice as much as the cost of additional food that some breastfeeding mothers might need.¹⁸⁹ If no California infants were breastfed, the cost of artificial feeding would exceed \$930 million per year. Heating and water costs bring the price of bottle-feeding even higher.

Breastfeeding is beneficial for the environment

At no time in history have the environmental benefits of breastfeeding been more important. Breastfeeding produces no solid waste, such as packaging materials, and thus reduces the load on overburdened landfills. Breastfeeding also reduces pollutants produced as by-products during the manufacture of plastics and formula. Unlike artificial feeds, breastfeeding requires no energy or environmental resources to manufacture or prepare.¹⁹²

BREASTFEEDING TRENDS IN CALIFORNIA

SINCE 1994, IN-HOSPITAL *ANY* BREASTFEEDING RATES have increased among all groups in California. However, *exclusive* breastfeeding rates have remained virtually unchanged. According to the most recent data from California’s Newborn Screening Program, 86.3% of women in California provide *any* breastmilk to their infants in the hospital but only 42.1% give breastmilk exclusively^k (Figure 1). This relatively low rate of exclusive breastfeeding in the hospital may be associated with a high prevalence of maternity ward routines in California hospitals that discourage *exclusive* breastfeeding, such as routine feeding of formula or glucose water, separation of mothers and babies, and distribution of free formula. Each year, breastfeeding rates for individual hospitals participating in the CDHS Genetic Disease Branch (GDB) Newborn Screening Program are made available on the CDHS MCAH/OFP website. In-hospital breastfeeding rates in 2005 for participating hospitals are listed alphabetically by county in Appendix C. *Exclusive* breastfeeding rates vary widely, from less than five percent to more than 90% of newborns.

There is also a wide variation among hospitals in the difference between *any* and *exclusive* breastfeeding rates. This difference is an indicator of how many mothers who made the decision to breastfeed their infants do so exclusively during their hospital stay. While 5-15% of breastfed newborns may need supplementation for medical reasons, large gaps between rates of *any* and *exclusive* breastfeeding may result from excessive or routine supplementation practices. Excessive supplementation of breastfed newborns may undermine mothers’ confidence in their

Figure 1



Data source: California Department of Health Services, Genetic Disease Branch, Newborn Screening Database
 Prepared by: California Department of Health Services, Maternal, Child and Adolescent Health/Office of Family Planning Branch
 Excludes records with feeding "Not Reported," "TPN," or "Other"

^k Data source: CDHS Genetic Disease Branch, Newborn Screening Data, 2005. For more information about the data sources available in California, see Appendix F.

BREASTFEEDING TRENDS IN CALIFORNIA

ability to continue breastfeeding and result in premature weaning. In California hospitals, the difference between *any* and *exclusive* breastfeeding varied from a low of 1.4% to a high of 98.1%.

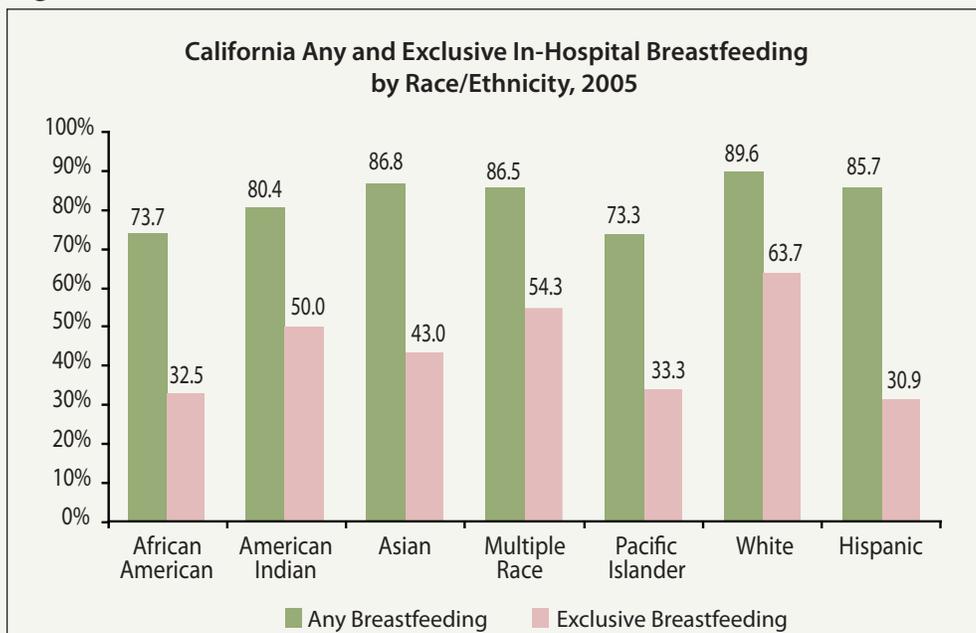
In order to assist hospitals with improving *exclusive* breastfeeding rates, the CDHS has disseminated Model Hospital Policies (**Appendix D**) based on the WHO/UNICEF “Ten Steps to Successful Breastfeeding” (**Appendix E**) to all maternity hospitals in the state. CDHS has also developed an online tool-kit to provide technical support to hospitals interested in improving their rates. Given the importance of *exclusive* breastfeeding to the health of mothers and infants, the promotion of *exclusive* breastfeeding is the focus of many of the recommendations and strategies in this report.

Breastfeeding Rates among California’s Ethnic Groups

Among certain demographic groups in California, breastfeeding initiation rates remain below the Healthy People 2010 Health Objective of 75% for *any* (**Figure 2**). Rates of *any* and *exclusive* breastfeeding are lowest among African American women and Pacific Islanders. Only 73.3% of mothers of Pacific Islander ethnicity breastfeed in the hospital, and less than 35% do so exclusively. Fewer than 74% of African American women breastfeed in the hospital, and 32.5% do so exclusively. While nearly 86% of Hispanic women breastfeed their infants, they also have the highest in-hospital supplementation rates. Nearly 55% of women

of Hispanic ethnicity give their infants both breastmilk and formula during the hospital stay. Differences in breastfeeding rates among ethnic groups may occur because of a lack of culturally and linguistically appropriate breastfeeding support and result in health disparities from the earliest days of life.¹⁹³

Figure 2



Data source: California Department of Health Services, Genetic Disease Branch, Newborn Screening Database
Prepared by: California Department of Health Services, Maternal, Child and Adolescent Health/Office of Family Planning Branch
Excludes records with feeding “Unknown/Not Reported,” “TPN,” or “Other”

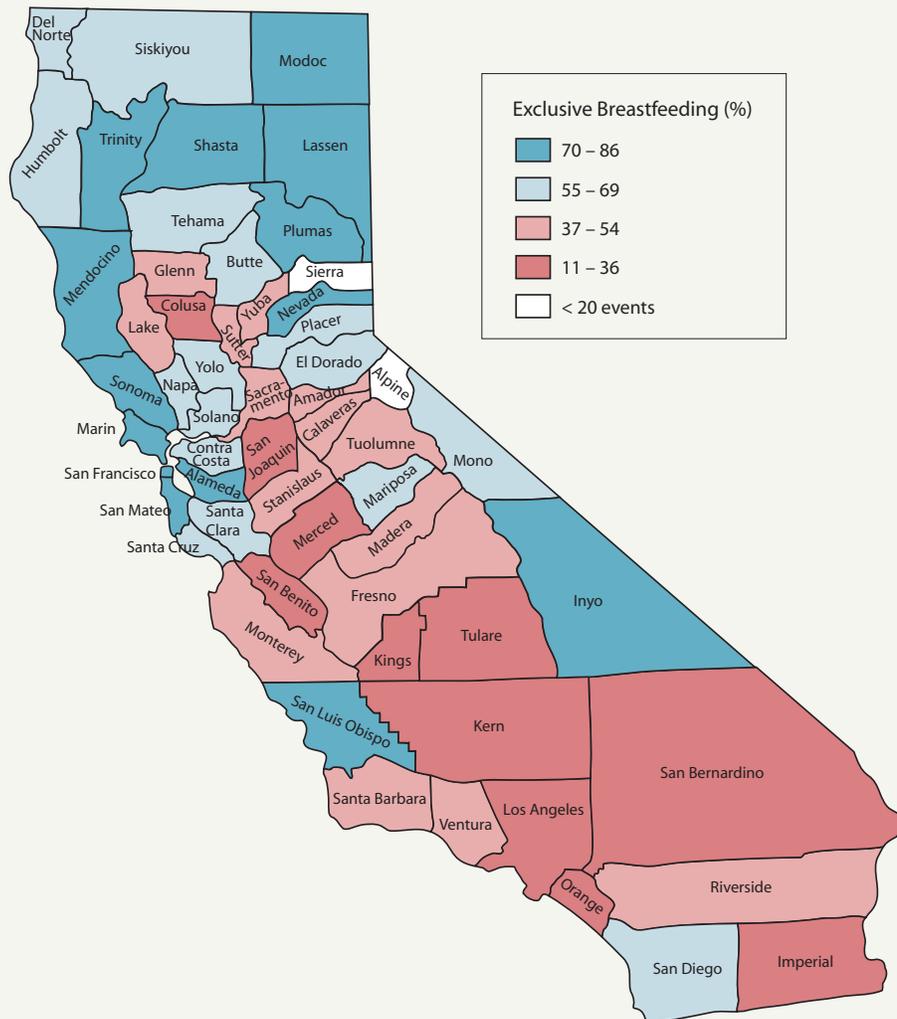
BREASTFEEDING TRENDS IN CALIFORNIA

Regional Differences in California Exclusive Breastfeeding Rates

Within the state, *exclusive* breastfeeding rates vary widely by region. The percentage of newborns exclusively breastfed ranges from a low of 10.7% in Imperial County to a high of 85.8% in Shasta County (**Appendix G**). The lowest breastfeeding rates occur in the counties of the Central Valley, Los Angeles, and southeastern California. The counties with the highest *exclusive* breastfeeding rates tend to be in the coastal and mountain regions of California, regions with a low population density and a predominantly white, non-Hispanic population (**Figure 3**).

Figure 3

In-Hospital Exclusive Breastfeeding Initiation
by County of Residence, 2005



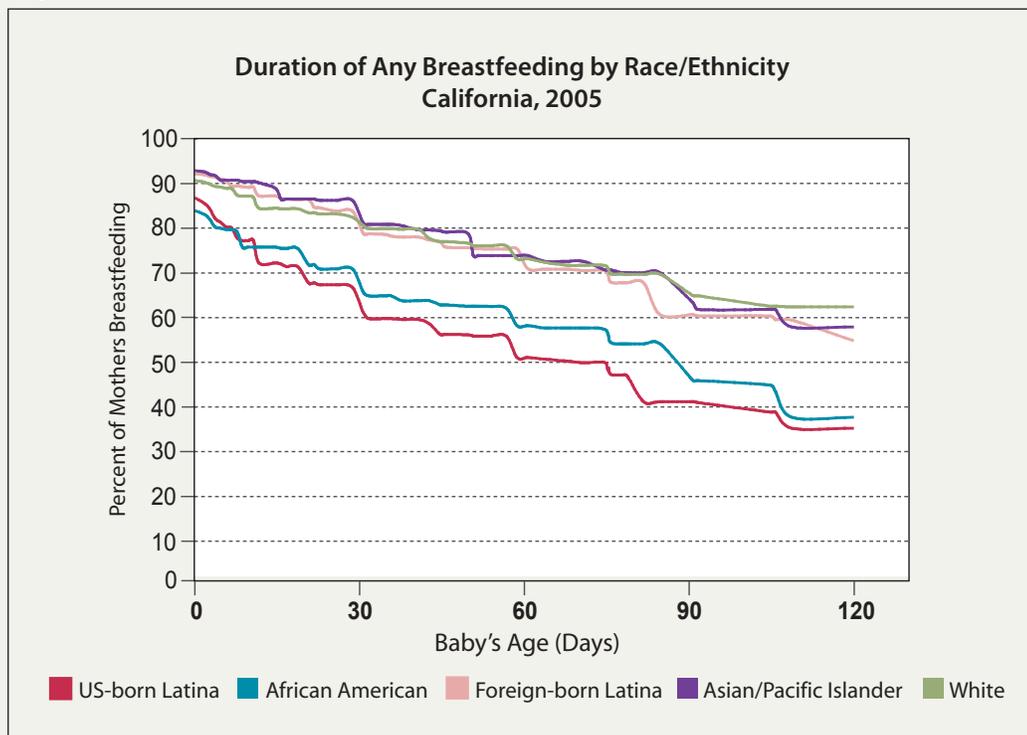
Data source: California Department of Health Services, Genetic Disease Branch, Newborn Screening Data
Prepared by: California Department of Health Services, Maternal, Child & Adolescent Health/Office of Family Planning Branch
Excludes records with feeding "Not Reported," "TPN," and "Other"

BREASTFEEDING TRENDS IN CALIFORNIA

Breastfeeding Duration

Data on breastfeeding duration are limited in California. Currently, the Maternal and Infant Health Assessment (MIHA) is used to survey health behaviors in a sample of California mothers at 10 to 14 weeks postpartum.¹ **Figure 4** illustrates the results from MIHA for 2005 related to the duration of *any* breastfeeding. Despite California's high initiation rate, *any* breastfeeding declines rapidly among all ethnicities, with the greatest decline among US-born Latina and African American women. Less than 40% of women in these groups are still breastfeeding their infants at four months. Asian, white, and foreign-born Hispanic women maintain breastfeeding for a longer period of time than women of other races. Over 50% of women in these groups are breastfeeding at four months postpartum. These findings are similar to results from earlier studies including California women.^{194,195}

Figure 4



Data source: California Department of Health Services, Maternal, Child and Adolescent Health/Office of Family Planning Branch, Maternal and Infant Health Assessment, 2005. Data are weighted to be representative of *delivering* mothers in the survey year. Excludes mothers reporting "Native American" or "Other" race/ethnicity or missing race/ethnicity due to small numbers.

1 For more information about MIHA and other data sources in California, see **Appendix F**.

BREASTFEEDING TRENDS IN CALIFORNIA

Regional *exclusive* breastfeeding rates at two months postpartum are presented in **Figure 5**. Similar to breastfeeding initiation rates, *exclusive* breastfeeding at two months is more common in communities in northern California and in the coastal regions. *Exclusive* breastfeeding is lowest in central and southeastern California.

Figure 5 Exclusive Breastfeeding at Two Months Postpartum by Region, 2005



Data Source: California Department of Health Services, Maternal, Child and Adolescent Health/Office of Family Planning Branch, Maternal and Infant Health Assessment, 2005.
 Prepared by: California Department of Health Services, Maternal, Child and Adolescent Health/Office of Family Planning Branch

BREASTFEEDING TRENDS IN CALIFORNIA

Infant-Feeding Data from the WIC Program

The WIC program provides supplemental food, nutrition, and breastfeeding education, as well as referrals to other health and social services to low-income women during the perinatal period, and their infants and children (up to age 5). California is the nation's largest WIC program, with 82 local agencies serving approximately 1.38 million participants. Over 60% of infants born in the state participate in WIC and more than 250,000 pregnant or breastfeeding women are served each month.¹⁹⁶ In 2005, the amount of WIC funds allotted to breastfeeding promotion in California exceeded 21 million dollars.¹⁹⁷

California's WIC program collects infant feeding data as part of its Integrated Statewide Information System (ISIS), a system of automated enrollment, recertification, and voucher distribution. The ISIS database includes data on the percentage of infants (zero to 12 months of age) whose mothers receive the "exclusively breastfeeding" package and therefore, no infant formula. The percentage of enrolled infants being exclusively breastfed during the 2005 fiscal year is listed for each WIC agency in **Appendix H**. Breastfeeding patterns among WIC participants in the state reflect the regional differences observed among California women overall: WIC agencies in the northern, mountain, and coastal regions have the highest *exclusive* breastfeeding rates, and those in Los Angeles county, the Central Valley region, and the southeastern portion of California have the lowest. Statewide, 11.0% of all infants zero to 12 months of age enrolled in the WIC program are solely breastfed and receive no formula vouchers.



PROGRESS MADE SINCE 1994

SINCE 1994, BREASTFEEDING INITIATION RATES have increased nearly 10% overall, and increases are evident among all ethnicities. However, similar increases have not been seen in *exclusive* breastfeeding rates. In fact, the *exclusive* breastfeeding rate among Hispanic women has declined slightly since 1994.^m

Legislation

California has more breastfeeding laws than any other state. Laws have been passed to guarantee a woman's right to breastfeed in public, postpone jury service while she is breastfeeding, and to express her milk at work. Moreover, California is one of only four states supporting a breastfeeding awareness education program.

Appendix I contains a full list of breastfeeding legislation in California.

Peer Counseling Programs

CDHS has implemented a number of initiatives to increase access to breastfeeding support and to reduce workplace barriers for women. CDHS has increased the numbers of international board-certified lactation consultants (IBCLCs) and peer counselors throughout the state. In 2004-2005, California WIC received \$2.15 million from USDA to fund breastfeeding peer counselor programs. The programs funded included nine peer counselor programs, staffed by current or previous WIC participants who breastfed at least one baby and received at least 20 hours of training in lactation management and counseling skills; and 11 planning grants. Funding continued for the 2005-2006 year, with an additional \$2.11 million provided to fund breastfeeding peer counselor programs in California.



Breastfeeding Coalitions

The California Breastfeeding Coalition (CBC), a network of the more than 40 local breastfeeding coalitions, was formed in May of 2003. Members include mothers, lactation consultants and educators, physicians, nurses, researchers, peer counselors, social workers, nutritionists, outreach experts, and other professionals who work together to promote and support breastfeeding in the home and workplace for the health and wellness of communities statewide.

^m Data source: California Department of Health Services, Genetic Disease Branch, Newborn Screening Data, 2005.

Hospital Policies

Model Hospital Policy Recommendations (**Appendix D**) were developed to provide basic information and guidance to perinatal professionals who wish to revise policies that affect the breastfeeding mother. The policies were distributed throughout the state, and in 2006, a web-based toolkit was created to assist hospitals with implementation (available at <http://www.mch.dhs.ca.gov/programs/bfp/toolkit/default.htm>).

The number of Baby-Friendly Hospitals in California has increased from 7 to 13. For a complete list of Baby-Friendly Hospitals in California, as of September 2006, please refer to **Table 1**.

Table 1
Baby-Friendly Hospitals in California, September 2006

Hospital	County
Community Hospital of Monterey Peninsula	Monterey
Corona Regional Medical Center	Riverside
Glendale Memorial Hospital and Health Center	Los Angeles
Goleta Valley Cottage Hospital	Santa Barbara
Inland Midwife Services – The Birth Center	San Bernardino
Kaiser Permanente Hayward	Alameda
Kaiser Permanente Riverside	Riverside
Robert E. Bush Naval Hospital	San Bernardino
Scripps Memorial Encinitas	San Diego
UCSD Medical Center	San Diego
Ventura County Medical Center	Ventura
Weed Army Community Hospital	San Bernardino
Women’s Health and Birth Center	Santa Rosa



BARRIERS TO BREASTFEEDING

DESPITE BREASTFEEDING INITIATION RATES (for *any* breastfeeding) that exceed the Healthy People 2010 goals of 75%, relatively few women in California follow optimal infant feeding practices and *exclusively* breastfeed for six months. Many California women stop breastfeeding altogether within the first two months postpartum.¹⁹⁸ Clearly most women in California make the decision to breastfeed their infants, but barriers exist that prevent them from following their plans.⁵

Barriers to Breastfeeding Initiation

- Studies have shown that low-income women,^{199,200} those who smoke during pregnancy,^{199,200} and those who deliver their infants by caesarean section²⁰¹ are less likely to initiate breastfeeding.
- The need to return, in the first few weeks postpartum, to an unsupportive work or school environment prevents some mothers from being able to breastfeed their infants.^{199,202-204}
- Some mothers believe that breastfeeding would be too embarrassing.¹⁹⁹
- Exposure to infant formula marketing, prenatally or in the hospital, is associated with lower rates and shorter duration of exclusive breastfeeding.²⁰⁶⁻²¹⁰



Barriers to Continued Breastfeeding

- Mothers who stop breastfeeding report that they lack support for breastfeeding from their partner or other family members.²⁰⁵
- Studies have shown that younger mothers,²⁰⁰ mothers with lower incomes,^{199,200} mothers with lower education,^{211,212} mothers who are overweight and obese,^{200,213} and those who smoke during pregnancy^{199,200} breastfeed for a shorter time as compared to other mothers.
- Lack of access to culturally and linguistically appropriate help to overcome initial difficulties can shorten breastfeeding duration.¹⁹³
- Return to unsupportive work or school environments may also prevent continued breastfeeding. Short or unpaid maternity leave results in many women needing to return to work very soon after the birth and in shorter breastfeeding duration.^{199,202-204} Many women and employers do not know about the law in California that supports women who wish to

PROGRESS MADE SINCE 1994

express their milk. Fear of reprisals from employers or co-workers prevents some women from asking for such accommodation.²¹⁴

- Some mothers fear embarrassment,¹⁹⁹ societal disapproval,²¹⁵ and discomfort about breastfeeding in public.^{216,217}
- Many new mothers need assistance with breastfeeding in the hospital and in the early postpartum period from their health care providers. Insufficient support in health care environments can contribute to early breastfeeding cessation.²⁰⁰
- Limited availability of support from lactation consultants or other experts can also contribute to mothers' decisions to stop breastfeeding.^{200,218}
- Some mothers report that a lack of social support prevents them from continuing to breastfeed their infants.²¹⁹
- Lack of supportive hospital policies and practices may convince a mother that her health care providers are not supportive of breastfeeding.²²⁰⁻²²²
- Some studies have shown that mothers given complimentary samples of infant formula or coupons have a shorter duration of exclusive breastfeeding than those who are not given samples or coupons.^{223,224}
- Some mothers whose infants were supplemented in the early postpartum period quit breastfeeding because they believed that early supplementation with formula results in the infant preferring formula over breastfeeding or that they could not provide adequate amounts of breastmilk for their infants.^{221,222,225,226}
- Some mothers who have stopped breastfeeding believe it to be inconvenient and too restrictive.^{216,217,227}



WHAT CAN BE DONE TO HELP CALIFORNIA MOTHERS BREASTFEED SUCCESSFULLY?

THE PATTERN OF INFANT FEEDING observed in California, with many women initiating breastfeeding but few continuing beyond a few weeks, suggests that while most California women recognize that “breastfeeding is best,” they are not receiving adequate support to continue exclusive breastfeeding. Still, the State of California possesses many assets that will continue to facilitate breastfeeding promotion efforts. There are increasing opportunities for creating a supportive environment for breastfeeding through the media, the health care system, the workplace, our community support systems, and all levels of our educational system. By investing in efforts to eliminate barriers, we can ensure that all children will have the very best start in life. This report is intended as a blue-print for the expansion and coordination of these efforts.

The recommendations in this report include direct and specific actions that can be taken to improve breastfeeding rates and, thus, the health of our future generations. For each recommendation that appears in the following section, the supporting rationale, strategies, and selected measurable indicators, which may be used to assess progress toward the achievement of the recommendation, have been provided.



RECOMMENDATIONS OF THE BREASTFEEDING PROMOTION ADVISORY COMMITTEE

Fundamental Recommendations

Coordination of Efforts

Since the publication of the first edition of this report, extensive efforts, both at the state and local level, have led to increased cooperation between community groups and relevant state and county agencies to coordinate efforts and to share information and resources. It is vital that these efforts continue. There is still a need for a clear voice to provide leadership at high levels of government to ensure sustained, culturally competent, and cost-effective breastfeeding promotion programs are developed and enhanced. Leadership is needed to coordinate programs at all levels of government, develop legislation, support and coordinate local breastfeeding efforts, and provide editorial oversight for all breastfeeding-related materials developed or disseminated by government agencies in California. The recommendations put forth in this report are intended to provide a framework for this effort. Working with local community groups and breastfeeding coalitions to implement and evaluate these recommendations is seen as an integral part of this process.

Cultural Competency

It is essential that breastfeeding promotion activities at every level be culturally relevant to the diverse populations in California and that they be implemented by individuals who are culturally sensitive and competent. In this report, *cultural relevancy* is defined as “the use of acceptable cultural practices that will avoid major taboos and offenses to the members of a defined culture, and will address issues of common concern in a way that will be viewed as respectful by members of that culture.” In their quest to promote breastfeeding, advocates need to be accepting of others’ cultural traditions and belief systems and strive to incorporate them into interventions targeted to the diverse populations of California. *Cultural competency* is defined as “a set of academic and interpersonal skills that allows individuals to increase their understanding and appreciation of cultural differences and similarities within and among groups.” These skills include but are not limited to expanding awareness, acceptance, valuing and utilization of, and an openness to learn from general and health-related beliefs, practices, traditions, languages, religions, histories, and current needs of individuals and the cultural groups to which they belong. To be culturally competent requires, but is not limited to, a willingness to accept the person and draw on community-based values, traditions, languages, and religions. Essential to cultural competency is the ability to listen to, learn from, and work with knowledgeable community members when developing targeted interventions.

RECOMMENDATIONS

Funding Concerns

This committee recommends that no money be accepted from organizations in violation of the WHO Code for Marketing of Breastmilk Substitutes²²⁸ for the implementation of the recommendations in this report. Health care providers interact at multiple levels and in complex ways with the manufacturers and suppliers of pharmaceuticals and medical products, including artificial baby milk and lactation products. The ultimate intent of the multiple gifts supplied by these manufacturers is the increased sale of their products, and the receipt of such gifts has been shown to modify the behavior of the recipients in favor of the donors. To avoid conflict of interest, the health care community would ideally cease to receive gifts from all commercial concerns with vested interests. While organizations in violation of the WHO code should be specifically excluded from supporting the implementation of these recommendations, educational materials and gifts from manufacturers of other infant feeding and lactation products must be accepted only with great caution and should be progressively eliminated.

Recommendations

The following recommendations for the promotion of breastfeeding in California are grouped in six areas of focus: Professional Education; Health Care Systems; Public Education; Mother-to-Mother, Family, and Community Support; and Assessment and Research. The order of presentation of these groups is not of special significance. Suggested implementation strategies and selected measurable indicators are listed beneath the recommendations. These strategies are not exhaustive and have not been prioritized.



RECOMMENDATIONS

I. PROFESSIONAL EDUCATION

Background

Encouragement and support from a skilled health professional can play an important role in determining whether or not a woman initiates breastfeeding and how long she will continue.²²⁹⁻²³¹ However, many women, particularly low-income women, do not have access to culturally and linguistically appropriate professional support.²³²⁻²³⁴ Breastfeeding failure is often the result of a combination of inaccurate information, delayed and/or inappropriate intervention, and insufficient support from the health care provider. In order to improve breastfeeding rates, information provided by professionals to breastfeeding mothers needs to be consistent and evidence-based. Basic breastfeeding education is needed so all health care providers can educate, support, and appropriately refer their patients.^{235,236} Since there are many health professions that may influence a breastfeeding dyad, it is appropriate that all such professions receive training. Providers also need to know why and when to refer to lactation consultants or breastfeeding medicine specialists so the mother-baby dyad has the support of a well-integrated synergistic team.²³⁷

Recommendation 1

Facilitate integration of breastfeeding training into the curriculum at health-related professional schools throughout the state to ensure that health professionals are technically and culturally competent in delivering breastfeeding services and making appropriate referrals.

Rationale

Currently, medical and other health professional schools offer little evidence-based breastfeeding education.²³⁸⁻²⁴¹ Systems for licensure and certification of health professionals, other than lactation consultants, do not require acquisition and maintenance of specific breastfeeding competencies. Competency-based training has been shown to improve provider confidence and practice.²⁴² Cultural competency also is an essential part of successful health provider interventions.^{236,243}

Strategies

- A. Identify representatives at each health professional school in California, including those with breastfeeding expertise and those in positions to influence curricula, to discuss and develop a plan to strengthen breastfeeding content of their curricula.
 1. Encourage participation of breastfeeding experts in curriculum review committees at each health professional school to review, establish, and guide the integration of lactation education into the curriculum.
 2. Assure participation of the University of California and State University systems.
- B. Conduct and publish an assessment of the breastfeeding content of curricula offered at medical, nursing, physical therapy, occupational therapy, pharmacology, psychology, social work, speech pathology, dental, and nutrition programs throughout the state.

RECOMMENDATIONS

- C. Establish an awards process to recognize those schools that have made significant improvements and those that have successfully integrated lactation education into their curricula, so that they may serve as role models.
- D. Facilitate access to educational opportunities, materials, websites, and incentives for faculty who teach lactation-related subjects.
- E. Partner with organizations, such as the ABM and the AAP, to prepare a specialty-specific lactation education guide and distribute to identified educators of health professionals who teach lactation-critical elements of the curriculum.
- F. Establish minimum competencies in lactation management in collaboration with professional boards and licensing and certification bodies. Ensure appropriate questions and assessment of skills are included as part of the existing licensing, registration, and certification procedures.
- G. Implement programs to increase the number of competent lactation specialists, including IBCLCs, from diverse cultural groups.
- H. Provide professional schools with data regarding accuracy of breastfeeding information in textbooks for health care professionals.

Selected Measurable Indicators

- Percentage of professional schools that have breastfeeding curricula.
- Percentage of residency programs with identified representatives.
- Published assessment of breastfeeding curricula.
- Establishment and implementation of an award process.
- Establishment of minimum competencies in lactation management.

Recommendation 2

Facilitate the availability and appeal of continuing education opportunities for all health-related professionals in practice to assure that they achieve and maintain minimum competencies and skills in lactation management.

Rationale

In recent years, opportunities in California for continuing education conferences on lactation related topics have increased, but these trainings are not always well attended. Health care providers are more willing to utilize trainings that are convenient, conducted by their peers, evidence-based, free or at low-cost, easy to access, and have been shown to help the breastfeeding dyad. Recognizing the need for effective and convenient continuing education, organizations and agencies have developed trainings using a wide variety of methods, including in-office training kits (see AAP training kit), interactive multimedia,²⁴² onsite

RECOMMENDATIONS

workshops,²⁴⁴ and web-based training (see Case Western University offering at <http://www.cwru.edu/>). Internet-based training recently has become popular with many professional groups.^{245,246}

Strategies

- A. Utilize data from needs assessments, including local breastfeeding rates and policies, to determine where continuing education programs are most needed and how these programs may be best designed in terms of faculty, targeted participants, number of days, and format.
- B. Examine, modify, and disseminate profession-specific standards and measures for competencies in each profession in breastfeeding management and support.
- C. Develop funding strategies to subsidize continuing breastfeeding education for health professionals.
- D. Establish and support a network of educators who could travel to each institution to provide education and training appropriate to the needs of the various health care providers.
- E. Establish and support strategically located centers for advanced education and training. Recognize these centers as “Centers of Excellence.” Consider collaborating with the NIH Centers of Excellence Program.
- F. In conjunction with health professional associations, provide resources, including video/self study modules, web-based education on breastfeeding and a bibliography/key article set of breastfeeding research for health professionals. Increase the availability of electronic versions of lectures from current and past breastfeeding conferences.
- G. Promote breastfeeding awareness among health care professionals by publicizing committees, individuals, events, and educational opportunities. Utilize mass communication, including e-mail lists, to target specific health professionals, including occupational therapists, speech therapists, respiratory therapists, and others.
- H. Encourage the development of a breastfeeding-related list-serve for each professional association to facilitate and enhance breastfeeding education.
- I. Link with presentations offered by a wide spectrum of professional groups on diverse topics such as obesity, diabetes, and dental caries.

Selected Measurable Indicators

- Number of continuing education programs developed based on data from the needs assessment.
- Number of professions with specific standards for breastfeeding management and support.

RECOMMENDATIONS

- Percentage of continuing breastfeeding education programs subsidized.
- Number of centers of excellence established and recognized.
- Number of presentations on related health topics (for example, obesity, diabetes) that include breastfeeding information.

Recommendation 3

Promote adoption of legislation requiring standard minimum breastfeeding competencies for all practicing health care and allied health care professionals.

Rationale

Minimum standards are needed for all health care and allied health care professionals to ensure a competent continuum of care for breastfeeding women. Legislation is needed to establish minimum standards and to ensure accountability. With minimum standards in place, professional schools will be required to include breastfeeding education and support within their curricula.

Strategies

- A. Work with California Medical Association and other societies to implement legislation requiring minimum breastfeeding competency for all practicing health care and allied health care professionals.

Selected Measurable Indicator

- Number of health care and allied health care professionals with minimum breastfeeding competencies.

II. HEALTH CARE SYSTEMS

Background

Health care systems play a central role in the promotion and support of breastfeeding. A mother's experiences during preconception and prenatal visits, the hospital stay, postpartum and pediatric visits, and through public health programs, such as WIC and community-based clinics, can potentially contribute to her infant feeding decisions and, ultimately, to her breastfeeding success.^{218,229,247-249} However, health care systems, institutions, policies, and personnel, such as physicians and nurses, may inadvertently interfere with the initiation and continuation of breastfeeding.^{205,250,251} For many, especially those from low-income populations, the public health care system is the only form of support available.^{211,232,252} Despite numerous opportunities to influence breastfeeding practices, many providers lack the knowledge, training,²³⁹⁻²⁴¹ and resources to provide optimal care. In addition, reimbursement for the comprehensive services required is either inadequate or absent.^{253,254} Optimal breastfeeding support through health care systems is essential to the improvement of exclusive breastfeeding initiation and duration in California. All mothers should have access to accurate and culturally appropriate breastfeeding information and professional lactation services, especially in communities with high birth rates and/or low prevalence of breastfeeding.

Recommendation 1

Facilitate the implementation of a culturally competent and sensitive system of women's health care to ensure that all California women have the education, opportunity, and support needed to develop and reach evidence-based optimal breastfeeding goals.

Rationale

A mother's interactions with health care providers may strongly influence her breastfeeding decision.^{231,255} Because most women make their breastfeeding decision before or at the beginning stages of pregnancy,²⁵⁶⁻²⁵⁸ early interventions are needed to identify risk factors for not breastfeeding, mitigate the effects of formula industry marketing, and address breastfeeding-related misinformation.²⁵⁹⁻²⁶³ The development of a culturally competent and sensitive system of care is essential so that all women have access to accurate, evidence-based information needed to make informed decisions about infant feeding.

RECOMMENDATIONS

Strategies

- A. Adopt and disseminate evidence-based guides for women’s health care facilities that promote breastfeeding education, support, and care.
- B. Provide lactation professionalsⁿ and breastfeeding peer counselors in women’s health care facilities, as needed and appropriate.
- C. Ensure that women of child bearing age have their breasts assessed and are screened for risk factors related to lactation problems, and are educated and referred as necessary. At this time women should receive encouragement to breastfeed.
- D. Provide education regarding the importance of breastfeeding to women as appropriate to their stage in life and medical/health status.
- E. When a breastfeeding mother is trying to prevent pregnancy, health care providers should promote the use of recognized family planning methods by breastfeeding mothers that do not interfere with lactation.
- F. Assess the health and nutritional status of women of reproductive age.
- G. All women’s health care environments will follow the WHO Code for Marketing of Breast Milk Substitutes.

Selected Measurable Indicators

- Percentage of women’s health care facilities with non-commercial, evidence-based guides for women’s health care that promote breastfeeding education, support, and care.
- Percentage of women’s health care facilities utilizing lactation professionals and breastfeeding peer counselors.
- Percentage of women with breast assessments documented in the medical record.
- Percentage of women receiving documented education regarding the importance of breastfeeding appropriate to their stage in life.
- Percentage/number of women’s health care environments that follow WHO guidelines.

ⁿ “Lactation professional” refers to those who have received extensive training to provide breastfeeding support, including but not limited to international board-certified lactation consultants (IBCLCs), fellows of the Academy of Breastfeeding Medicine (FABMs), and certified lactation educators (CLEs).

RECOMMENDATIONS

Recommendation 2

Facilitate the implementation of a culturally competent and sensitive system of evidence-based care to ensure that all California hospitals and clinics promote *exclusive* breastfeeding for six months and support any breastfeeding as part of their general health promotion strategies.

Rationale

In the early hours postpartum, the breastfeeding relationship is most vulnerable.²⁵⁰ Supportive hospital policies, such as those outlined in the Baby-Friendly Hospital Initiative (BFHI) (**Appendix E**), have been shown to be associated with higher breastfeeding rates,²⁶⁴⁻²⁶⁹ which are, in turn, associated with lower rates of readmission²⁷⁰ and shorter hospital stays.¹¹⁵ Although the California Health and Safety Code requires that all hospitals provide a breastfeeding consultant or information on where to find one,²⁷¹ early postpartum breastfeeding support is highly variable.²⁷² Given the importance of early intervention, the hospital setting plays a key role in breastfeeding promotion, protection, and support.

Strategies

- A. Maintain and disseminate the Model Hospital Policy Recommendations (**Appendix D**) and Toolkit for all labor and delivery facilities to promote model hospital policies that have been demonstrated to be associated with increased breastfeeding rates (such as the *Ten Steps to Successful Breastfeeding*, as outlined in the WHO/UNICEF BFHI).
- B. Communicate to decision makers in hospitals the availability of technical support and resources to protect, support, and promote breastfeeding.
- C. Train staff completing the Newborn Screening forms to fill out the infant feeding portion of the form in a consistent and meaningful manner.
- D. Provide technical support for hospitals' and clinics' efforts to achieve the standard outlined in the Model Hospital Policy Recommendations, particularly in areas with high birth rate and/or low breastfeeding rates.
- E. Encourage the utilization of measurable breastfeeding-related outcomes for facilities providing maternity services and encourage health care accreditation agencies to include these outcomes in their evaluation. Include breastfeeding in the state hospital quality improvement indicators.
- F. Require supportive breastfeeding policies in hospitals and clinics, such as the Model Hospital Policy Recommendations, that can be enforced by entities such as the CDHS, the Department of Corporations, and/or the Department of Managed Health Care.
- G. Facilitate official recognition for hospitals and clinics achieving BFHI certification and/or full implementation of the Model Hospital Policy Recommendations.

RECOMMENDATIONS

- H. Develop strategies to ensure existence of adequate numbers of culturally sensitive and linguistically effective lactation professionals and peer counselors to provide inpatient and clinic services.
- I. Encourage the utilization of appropriate levels of breastfeeding-related competencies to evaluate all staff in health care facilities.
- J. Facilitate the establishment of peer counseling programs and breastfeeding support efforts by community health workers within the hospital setting.
- K. Develop and disseminate a pharmacy/clinic/emergency room guide for the treatment of common breastfeeding problems and the appropriate use of medications for the breastfeeding mother/infant to ensure that accurate information is available to health care providers in all settings.
- L. Improve standardization of procedures for milk handling in the neonatal intensive care unit (NICU). Resources include those published by Human Milk Banking Association of North America (HMBANA)^o or the California Perinatal Quality Care Collaborative (CPQCC).^p
- M. Provide appropriate level of lactation care and support for women and infants with special medical needs.

Selected Measureable Indicators

- Percentage of California hospitals that have written policies consistent with the BFHI or the Model Hospital Policy Recommendations.
- Percentage of California hospitals reporting accurate infant feeding data on the Newborn Screening form.
- Percentage of NICUs with written policies related to procedures for handling human milk.
- Percentage of infants receiving any human milk during hospitalization and at NICU discharge.
- Percentage of hospital/clinic staff that have completed breastfeeding education relative to their position in the last three years.

^o <http://www.hmbana.org/>

^p <http://www.cpqcc.org/>

Recommendation 3

Outpatient facilities in California will provide continuing integrated, culturally appropriate breastfeeding support and care for all women and infants. Assessment and intervention should begin in the first week postpartum, ideally when the infant is three to five days of age, with follow-up as needed. These visits would be in addition to the previously traditional two-week visit.

Rationale

Exclusive breastfeeding rates in California have changed little in the last 10 years. Although the *any* breastfeeding initiation rate in California in 2004 is high (83.9%), only 40.5% of California infants are receiving *only* breastmilk at birth.²⁷³ By six months of age, 45.1% of infants are receiving *any* breastmilk, but only 17.8% are exclusively breastfed.²⁷³ This sharp decrease is largely attributed to the lack of breastfeeding support after hospital discharge. One study found that, although 92% of women reported receiving breastfeeding support in the hospital, only 54.8% received assistance post-discharge.²¹⁸ Postnatal and pediatric visits give health care professionals an opportunity to provide needed breastfeeding support and thereby increase the duration of breastfeeding.^{229,274} The AAP currently recommends that early assessment begin when the infant is three to five days old.¹

Strategies

- A. Promote the current medical recommendation that infants be evaluated at three to five days of age, at two weeks, more frequently as needed, and at timely intervals thereafter.
- B. Promote inclusion of breastfeeding support in the National Council for Quality Assurance guidelines for outpatient treatment.
- C. Develop or adapt and disseminate guides for all outpatient health care facilities to promote breastfeeding support and care.
- D. Develop strategies to provide adequate numbers of culturally sensitive and linguistically effective lactation professionals, peer counselors, and community health workers in outpatient settings. This includes initial training and maintenance of evidence-based practice.
- E. Facilitate establishment and recognition of regional breastfeeding centers of excellence. Centers of Excellence should include those that provide research, education, coordination, advocacy, clinical care, milk banks, and technical support.
- F. Provide appropriate levels of lactation care and support for women and infants with special medical needs.
- G. Adopt and disseminate the WHO growth reference standards, with a CDHS position letter of support, for use in outpatient facilities.
- H. Develop official recognition of breastfeeding-friendly clinics and pharmacies.

RECOMMENDATIONS

Selected Measureable Indicators

- Percentage of newborns receiving a post-discharge assessment in the first two-three days of life and at two weeks of age.
- Percentage of breastfeeding families in a given practice at three months, six months, 12 months, and 24 months.
- Percent of California outpatient facilities with active peer counseling/community health worker programs with breastfeeding training.
- Percentage of clinical staff providing perinatal care and education who have received advanced training in lactation.
- Percentage of outpatient facilities utilizing the WHO growth reference standards.

Recommendation 4

All California public health programs and services will support a woman's decision to breastfeed. Public health programs working with perinatal women will provide culturally sensitive and linguistically effective breastfeeding support.

Rationale

Public health programs are a major source of breastfeeding support for mothers in California. These peer counseling, pump-loan, and home visitation programs provide assistance that mothers may not be able to get anywhere else. Peer-counseling programs offer culturally sensitive support that has been shown to increase breastfeeding initiation and exclusivity.^{247,275,276} Pump-loan programs supply breast pumps for medically necessary situations, and when available, for working mothers as well. Home visitation programs also have been successful. For example, a home visitation program for first-time parents in southern California increased the rate of any breastfeeding at six months from nine percent to 52%.²⁷⁷

Strategies

- A. Programs that provide services to perinatal women and infants that are funded or regulated by CDHS should include a breastfeeding component. The breastfeeding component, including education, support, and data gathering, should be periodically reviewed and reinforced.
- B. Assure that applications for state funding for programs and materials created by and for these programs that involve or have an impact on breastfeeding are reviewed by persons knowledgeable in breastfeeding.
- C. Recommend that all staff at appropriate CDHS-funded sites/programs be trained and meet appropriate breastfeeding competencies.

RECOMMENDATIONS

- D. Develop and disseminate in association with the existing emergency network, an emergency preparedness training program that will protect, promote, and support breastfeeding in emergency situations.
- E. All Children’s Medical Services (CMS) and MCAH/OFP perinatal case management programs should have a goal of increasing breastfeeding rates and include breastfeeding as a component of their data systems when appropriate. They should promote appropriate, timely, adequate, and safe complementary feeding.
- F. All CMS and MCAH/OFP programs should have policies that support women’s decision to breastfeed.
- G. WIC, CMS, and MCAH/OFP should adopt model standards of breastfeeding promotion and support based on best practices, and ensure that these standards are implemented uniformly throughout the state.

Selected Measureable Indicators

- Percentage of CDHS programs that provide services to perinatal women and infants that include a breastfeeding measurement component.
- Percentage of staff at appropriate CDHS-funded sites/programs that are trained and meet appropriate breastfeeding competencies.
- Percentage of emergency workers trained to support breastfeeding in emergency situations.
- Percentage of MCAH/OFP and CMS perinatal case management programs that have a written goal of increasing breastfeeding rates and include breastfeeding as a component of their data systems when appropriate.
- Percentage of WIC agencies and MCAH/OFP programs that have adopted model standards of breastfeeding promotion and support based on best practices.

Recommendation 5

Work with all health care reimbursement systems, such as Medi-Cal, managed care plans, and insurance companies, to develop model policies that provide quality breastfeeding support and ensure adequate reimbursement for breastfeeding services.

Rationale

Insurance coverage and reimbursement for perinatal health services often are limited.^{278,279} Employers frequently are unaware that supporting breastfeeding through their benefits plans will reduce their overall health care costs. The California Statewide Needs Assessment, conducted by UC Davis from 2001 to 2002, identified lack of funding for lactation services as one of the biggest barriers to breastfeeding. Of the 35 breastfeeding coalitions surveyed, 85% reported lack of adequate insurance coverage as a barrier to support.²³³ Insurance coverage is

RECOMMENDATIONS

particularly needed by low-income women, who may not be able to afford the support that may be needed to breastfeed successfully.

Strategies

- A. Breastfeeding support and services should be an essential component of any statewide health benefit package.
- B. Advocate for health care discounts for both mothers and infants who breastfeed similar to the non-smoker discount.
- C. Advocate for a Health Plan Employer Data and Information Set (HEDIS) requirement that measures prenatal and postpartum lactation care.
- D. Provide existing data regarding costs and benefits of insurance coverage of breastfeeding services and supplies to health plans.
- E. Provide annual updates about covered benefits for breastfeeding for all Medi-Cal Treatment Authorization Request (TAR) nurse evaluators who review and adjudicate the TAR.
- F. Educate Medi-Cal fee-for-service perinatal providers regarding billing for breastfeeding-related services including the instructions to request TARs.
- G. Collaborate with Medi-Cal managed care insurance programs to educate their providers about their breastfeeding benefits and the ways to access them.
- H. Educate health plan administrators, insurance companies, and human resource specialists about the potential costs savings of breastfeeding support services.
- I. Develop a tool to measure quality of breastfeeding services provided.
- J. Advocate for licensing IBCLCs, thus qualifying them for reimbursement as Medi-Cal providers.
- K. Facilitate access to breast pumps and banked human milk for all families who need them.
- L. Improve coordination between hospital NICUs and programs, such as WIC, that loan electric breast pumps to parents of premature infants so that pumps are provided in a timely manner.

RECOMMENDATIONS

Selected Measureable Indicators

- Percentage of health plans that give discounts for both mothers and infants who breastfeed similar to the non-smoker discount.
- Percentage of breastfeeding services covered by each individual health plan.
- Percentage of nurse evaluators who receive annual updates about covered benefits for breastfeeding.
- Number of breastfeeding TARs adjudicated correctly.
- Percentage of business benefits managers and consumers utilizing a tool to measure quality of breastfeeding services offered by individual health plans.

III. PUBLIC EDUCATION

Background

In the last decade, California has passed legislation or created policy to ensure that 1) hospitals have resources available for mothers who wish to breastfeed, 2) women may breastfeed in any public place where the mother and child are authorized to be present, 3) breastfeeding women can defer jury duty, and 4) employers must accommodate breastfeeding women by providing time and space for milk expression.^q While these steps illustrate general support for breastfeeding women in California, many women face personal pressures that discourage them from breastfeeding their infants.²⁸⁰ Women may be embarrassed to breastfeed in public, to breastfeed for longer than a year, or to teach children about breastfeeding.^{281,282} Men and other family members have an important influence on women's choice to breastfeed, and it is imperative that they be educated about the importance of breastfeeding for their families.^{280,283,284} Breastfeeding can be established as the norm, through continued efforts to increase public awareness of the personal and societal consequences of infant feeding choices.

Recommendation 1

Incorporate infant feeding education into the science and health curricula at preschool, primary, secondary, university, continuation, technical, adult, job training, and professional education (for example, teacher) levels.

Rationale

Incorporation of breastfeeding messages into all levels of public education and vocational training is needed to develop public understanding and acceptance of breastfeeding.²³⁶ This process can start with age-appropriate breastfeeding images for pre- and primary school-age children and continue through the integration of information and visuals on breastfeeding into curricula, textbooks, and printed materials for a variety of ages and professions.

Strategies

- A. Establish a committee to review education materials that are currently available from government and private sources and make recommendations for inclusion of appropriate breastfeeding information.
- B. Facilitate the integration of breastfeeding content suitable for the preschool population into their education materials.
- C. Coordinate with the licensing agency for child care providers to develop and disseminate standards for breastfeeding education and promotion in child care settings. Collaborate with the California Department of Education (CDE) to develop a breastfeeding module for the University of California, San Francisco website for child care providers.

q <http://www.wicworks.gov>

RECOMMENDATIONS

- D. Survey curriculum planners, teachers, parents, and school officials regarding their attitudes towards breastfeeding-inclusive education and develop future education strategies based on the results.
- E. Encourage the CDE and other education organizations to integrate breastfeeding materials and education into curricula and into school-based comprehensive health curricula.
- F. Promote adoption of legislation delineating that breastfeeding and lactation education materials should be routinely taught in science and health classes and does not require prior parental notification.
- G. Promote adoption of legislation stating that breastfeeding education cannot be considered sexual education.
- H. Develop breastfeeding education materials to assist teachers to meet the needs specific to California's diverse populations. For example, consider developing tools, such as photo novellas and comic books, for specific populations.

Selected Measurable Indicators

- Number of times the breastfeeding educational materials committee meets and/or number of materials reviewed.
- Percentage/Number of preschools with breastfeeding integrated into curricula.
- Number of breastfeeding education strategies developed by CDE.
- Development of legislation ensuring breastfeeding education in science and health classes.
- Development of legislation stating that breastfeeding is not considered sexual education.

Recommendation 2

Promote positive breastfeeding images throughout society and work to eliminate the use of the bottle as an icon representing infants.

Rationale

In a national survey, nearly 30% of US adults considered breastfeeding in public embarrassing.²¹⁶ It is essential for the general population to become accustomed to seeing a mother breastfeeding her child in public. Positive breastfeeding images targeting diverse communities in California are needed. A more positive image is needed to replace the bottle as the symbol of normal infant nutrition. The presence of positive images and/or role models has been shown to increase breastfeeding rates.²⁸⁵⁻²⁸⁷

RECOMMENDATIONS

Strategies

- A. Develop and promote a new icon to replace the bottle as the international symbol for infant.
- B. Encourage the entertainment industry to portray breastfeeding positively in television programs and movies for children and adults.
- C. Encourage sponsorship of an annual award for positive breastfeeding images within the media, and arrange media coverage for the awards.
- D. Coordinate media-watch efforts with existing programs or initiate a program, should none exist, to serve California. Use Texas “MediaWatch” and Breastfeeding Task Force of Greater Los Angeles^r as models.
- E. Collaborate with the CDE and Department of Social Services to review and monitor positive breastfeeding images and to eliminate bottle-feeding images on items such as posters, toys, visual aids, and textbooks in schools and child care settings.

Selected Measureable Indicators

- Number of television programs and movies containing positive breastfeeding images.
- Development and distribution of an annual award for positive breastfeeding images in the media.
- Establishment of media-watch efforts.
- Number of schools, textbooks, and child care settings reviewed and monitored by the CDE and Department of Social Services.

Recommendation 3

Develop and implement an ongoing social marketing campaign to promote breastfeeding in California’s diverse populations, with emphasis on increasing breastfeeding duration and exclusivity.

Rationale

Social marketing campaigns are used to promote breastfeeding.²⁸⁸ Recent efforts funded by the Office of Women’s Health (“Babies were Born to be Breastfed”) have successfully increased the public awareness of the importance of breastfeeding.^s However, additional efforts are needed in California to promote exclusive and continued breastfeeding among our many diverse populations.¹⁹⁴

r <http://www.breastfeedingtaskforla.org/PR/county-lactation-room.htm>

s <http://www.4woman.gov>

RECOMMENDATIONS

Strategies

- A. Prepare and distribute appropriate press releases to support media events related to breastfeeding support, education, and promotion activities. Link with relevant nonprofit groups who can help organize media appearances. Target media efforts based on ethnic demographics.
- B. Participate and encourage others to participate in appropriate media events such as World Breastfeeding Week, Public Health Week, National Nutrition Month, and IBCLC Day.
- C. Prepare and distribute breastfeeding information regularly in health officer publications and meetings.
- D. Review promotional materials that currently are available from government and private sources.
- E. Monitor public perceptions about breastfeeding and what factors may influence those feelings. Employ a professional marketing agency to use the results to design culturally appropriate, effective messages that target barriers to successful breastfeeding.
 - 1. Analyze marketing strategies of the infant food industry and identify aspects that may be useful in efforts to promote breastfeeding.
 - 2. Utilize male and female athletes and public figures to be involved in public education and media campaigns that promote breastfeeding.
- F. Develop messages that target barriers to acceptance and support of breastfeeding perceived by men.
- G. Seize opportunities to include breastfeeding promotion as part of other media events.
- H. Explore options for funding an ongoing media campaign for breastfeeding promotion. Options may include pro bono time from an ad agency, contributions from foundations and corporations like the California Wellness Foundation or March of Dimes, hiring of fundraising staff, or soliciting special or general tax revenues.
- I. Identify media groups and capitalize on existing national or international breastfeeding promotion campaigns or those that focus on reduction of breast cancer, obesity, and diabetes, all of which are breastfeeding-related health issues. These campaigns may be used to promote breastfeeding in California. Consider using available materials such as those from Best Start.
- J. Conduct wide-scale public education that emphasizes the consequences of feeding choices and promotes the message that breastfeeding is acceptable anywhere. Develop print materials, such as posters, bumper stickers, billboards, grocery bag ads, bus billboards, and breastfeeding-friendly business signs, that can be used in a variety of settings, such as grocery stores, doctors offices, restaurants, health clubs, amusement parks, and laundry facilities.

RECOMMENDATIONS

- K. Facilitate outreach to the public about current laws in California to increase awareness of mothers' rights, such as breastfeeding in public and lactation accommodation in the workplace.

Selected Measureable Indicators

- Establishment of an annual award for the promotion of positive breastfeeding images.
- Number of culturally appropriate messages developed to target barriers to successful breastfeeding.
- Amount of funding obtained to support ongoing media campaign promoting breastfeeding.
- Number of media campaigns that include breastfeeding promotion.
- Percent of public aware of current breastfeeding laws in California.

Recommendation 4

Develop and disseminate a consumer's guide that rates hospitals according to their breastfeeding policies and breastfeeding outcomes. Physician/Medical practices should be listed according to criteria indicating their breastfeeding-friendly status.

Rationale

Consumer guides have been used to provide information about the quality of services offered in hospitals. Quality and reputation are important considerations for consumers choosing a hospital,²⁸⁹⁻²⁹¹ and studies have shown that these reports have an impact on consumers' opinions.²⁹² There also is evidence that consumer guides lead to improvements in the number and quality of services hospitals provide. One study found that 33% of hospitals included in a "hospital report card" improved their performance within two years of the report's release and that all but one of the hospitals rated "worse than expected" had dramatically improved.²⁹³ Breastfeeding specific consumer guides, which do not currently exist for California, will be valuable tools, not only to educate the public, but also to motivate hospitals to improve breastfeeding services.

Strategies

- A. Facilitate the compilation and review of existing data for a consumer guide that rates hospitals according to breastfeeding policy implementation and breastfeeding outcomes. Update at least every two years. Place on a state-sponsored website. The hospital portion of this guide should be based on adherence to the 10 steps outlined in the BFHI and Model Hospital Policy Recommendations, breastfeeding rates by birth weight categories (i.e., >2500g, 1500-2499g, <1500g) and the percent of budget for breastfeeding education and support.

RECOMMENDATIONS

- B. Collaborate with AAP, ACOG, AAFP, and local breastfeeding coalitions to develop criteria for breastfeeding-friendly status of medical practices.
- C. Access CPQCC data for NICU breastfeeding rates (at discharge and any).

Selected Measurable Indicators

- Number of hospitals rated in consumer guide.
- Percentage/Number of medical practices that qualify as baby-friendly based on criteria established.
- Percentage/Number of hospitals adhering to the 10 steps as outlined in the BFHI and Model Hospital Policy Recommendations.

Recommendation 5

Support breastfeeding promotion through local breastfeeding coalitions, including existing support groups and religious and community organizations, in order to reach local communities in a culturally competent and accessible manner.

Rationale

Social networking can strongly influence whether or not and how long a woman breastfeeds her infant.^{205,294} Partnerships with faith-based organizations are an important resource to promote health messages to community members.^{295,296} Accessible, evidenced-based information and resources can enhance efforts by local organizations to support breastfeeding in their communities.

Strategies

- A. Encourage coalitions to identify and recruit community organizations, leaders, and role models to participate in promotion and education activities. For example, local speakers' bureaus could be formed to inform community members about the benefits of breastfeeding and the availability of breastfeeding services.
- B. Assist local organizations to develop, adapt, and implement strategies on a local level to increase rates and duration of exclusive breastfeeding.
- C. Facilitate collaboration among businesses, health care professionals, lactation consultants, community health workers, lay breastfeeding experts, child care providers, educators, clergy, government, breastfeeding families, and other interested parties.
- D. Assist communities with their projects that strengthen mother-to-mother and/or professional breastfeeding support by providing information on breastfeeding education resources and funding opportunities.

RECOMMENDATIONS

- E. Provide a state-sponsored breastfeeding web page with links for appropriate breastfeeding information to the lay community with general information about breastfeeding, laws, and referrals.
- F. Facilitate collaboration of breastfeeding coalitions statewide to optimize resources and idea sharing.

Selected Measureable Indicators

- Number of local organizations, by county, that develop, adapt, and implement strategies to increase rates and duration of exclusive breastfeeding at the local level.
- Number of local speakers' bureaus established to provide the community with breastfeeding information.
- Number of mother-to-mother and/or professional breastfeeding support programs providing breastfeeding education.
- Development and promotion of a state-sponsored breastfeeding web page.

IV. MOTHER-TO-MOTHER, FAMILY, AND COMMUNITY SUPPORT

Background

Women have been forming informal networks of support for centuries, providing each other with information, advice, and assistance in many forms. The most effective networks include both lay and professional support.^{297,298} Mother-to-mother, family, and community support is needed, especially in low-income populations,²⁹⁹ to give mothers the help they need to breastfeed successfully.^{220,298} Recent research provides evidence for the effectiveness of lay support in increasing^{300,301} and maintaining exclusive breastfeeding rates,^{220,298} and increasing overall breastfeeding duration.^{299,302-304} Since women naturally turn to those in their community who speak their own language and share their own culture, successful breastfeeding interventions must be culturally and linguistically appropriate.³⁰⁵ All pregnant and breastfeeding women in California should have access to effective, culturally appropriate breastfeeding support from mothers, who are their peers, families, and communities.

Recommendation 1

Identify, promote, and fund effective, culturally and linguistically competent models of mother-to-mother, family, and community support.

Rationale

Most women in California wish to breastfeed their babies, but many do not achieve their goals with respect to breastfeeding duration.³⁰⁶ Although breastfeeding is a natural process, it is also a learned behavior.³⁰⁷ Women who observe and interact with friends or family members who breastfeed are more likely to decide to breastfeed than women who do not interact with peers who breastfeed.³⁰⁸ Mother-to-mother, family, and community support have been shown to be critical factors for breastfeeding success.^{276,301,309-312} Funding and other promotional efforts are needed to increase awareness of and expand access to such support.

Strategies

- A. Identify critical components and successful strategies among existing mother-to-mother, family, and community support models.
- B. Develop effective, culturally and linguistically appropriate models of breastfeeding support, if none exist.
- C. Disseminate information about successful community interventions (such as home visitation programs) to local organizations, health care workers, faith-based organizations, and community leaders.
- D. Fund new and ongoing effective, culturally and linguistically appropriate activities as well as mother-to-mother and community programs and groups that support families such as:

RECOMMENDATIONS

1. An ongoing media campaign to promote mother-to-mother, family, and community support and highlight their role in supporting breastfeeding.
2. Support groups and classes for mothers, fathers, and other family members.
3. Career development/partnership programs for peer counselors that include culturally and linguistically competent trainers, job opportunities, and incentives for employee retention.
4. Distribution of culturally and linguistically appropriate information packets for professionals, clients, and the media regarding the role of mother-to-mother, family, and community support.
5. Local coalition activities that encourage the participation of those directly affected by policy, including mothers, families, and community members.

Selected Measurable Indicators

- Number of culturally sensitive models of breastfeeding support available.
- Number of career development and/or partnership programs available for peer counselors.
- Percentage of coalition activities that encourage the participation of mothers, families, and community members.

Recommendation 2

Ensure that those who provide mother-to-mother, family, and community support, such as Black Infant Health community health outreach workers, home visitation workers, faith-based workers, promotoras, and community leaders, receive culturally and linguistically competent breastfeeding training.

Rationale

Cultural and linguistic competency is necessary for adequate health care delivery and acceptance. Health care professionals, paraprofessionals, and others in the position of assisting with health care delivery must be able to provide such culturally and linguistically appropriate care.³¹³⁻³¹⁶

Strategies

- A. Develop effective, culturally, and linguistically competent breastfeeding training through collaboration with local organizations, community health care workers, faith-based organizations, community leaders, and breastfeeding coalitions.
- B. Provide effective, culturally, and linguistically competent breastfeeding training both to those who provide mother-to-mother, family, and community support and to those who train them.

RECOMMENDATIONS

Selected Measurable Indicators

- Number of breastfeeding training programs developed and provided.
- Number of qualified trainers available.

Recommendation 3

Ensure community awareness regarding availability of existing mother-to-mother, family, and community support services.

Rationale

Without accurate knowledge being transmitted to families in their own language, many mothers and families will not take advantage of the useful services within their own community.

Strategies

- A. Encourage local organizations to develop and distribute lists of community resources to mothers, families, health care providers, and other community organizations that serve mothers and families. These include child care providers, schools, and faith-based organizations.
- B. Promote the development of community calendars, in print and on the Web, that list breastfeeding-specific programs, groups, activities, and events.

Selected Measurable Indicators

- Number of local organizations distributing lists of community resources.
- Number of community calendars developed.

Recommendation 4

Establish and maintain effective communication among state and local stakeholders to strengthen mother-to-mother, family, and community support.

Rationale

Effective communication among legislators, researchers, care institutions, health plans, providers, purchasers, and other stakeholders is needed to reduce racial and ethnic disparities in the receipt of high quality care.³¹³⁻³¹⁶

Strategies

- A. State and local stakeholders attend regional breastfeeding coalition meetings.
- B. Develop a Web-based communication tool for state and local stakeholders.

RECOMMENDATIONS

Selected Measurable Indicators

- Number of state and local stakeholders attending regional breastfeeding coalition meetings.
- Development of a Web-based communication tool for state and local stakeholders.

Recommendation 5

Provide official recognition of outstanding mother-to-mother, family, and community support providers and organizations.

Rationale

Providing recognition and/or rewards is a powerful motivator for individuals and organizations to continue offering outstanding programs, products, and services.

Strategies

- A. Collaborate with regional breastfeeding coalitions to develop an awards program to recognize outstanding mother-to-mother, family, and community support providers and organizations for their efforts.

Selected Measurable Indicators

- Number of coalitions participating in an award program to recognize outstanding sources of support.
- Number of awards presented.

V. WORKPLACE AND EDUCATIONAL CENTERS

Background

Over 80% of women in California initiate breastfeeding in the hospital, yet only 48% are exclusively breastfeeding their infants at three months of age.³¹⁷ Mothers clearly choose to breastfeed exclusively but face barriers that keep them from doing so. One of the primary barriers to exclusive breastfeeding is maternal employment.^{199,203,318-322} However, with relatively simple accommodations (some of which have been mandated by law³²³), breastfeeding can be compatible with working outside the home.^{202,324-327} With nearly 60% of women with children under the age of three being market employed,³²⁸ there is considerable need to create workplace environments strongly supportive of breastfeeding. All businesses and educational centers must create an environment that fully supports breastfeeding mothers.

Recommendation 1

Recommend legislation and state regulations that strengthen breastfeeding support and minimize existing barriers for all breastfeeding mothers.

Rationale

Although research shows that breastfeeding and employment outside the home can be compatible, barriers to continued breastfeeding exist, such as short maternity leaves, inflexible workday schedules, and lack of refrigeration for breastmilk.³²⁹ California law requires employers to strive to find a private place, and provide a reasonable amount of break time, for mothers to express milk. However, additional labor policies and practices are necessary to accommodate the needs of working breastfeeding women.³²⁹⁻³³² Government policy, in addition to workplace and educational center policy, is essential to creating an environment fully supportive of breastfeeding.³³³ Supportive environments should be available for women at all levels of the workforce.

Strategies

- A. Review and make recommendations for state regulations regarding the workplace:
 1. Recommend and support legislation to require on-site child care at all corporations with more than 200 employees.
 2. Recommend legislation to provide tax incentives for businesses with fewer than 200 employees that provide on-site child care.
 3. Recommend that lactation rooms be made available in appropriate public areas, such as all government buildings, and businesses for those women who choose to breastfeed in a private area.
 4. Recommend and support legislation to extend and improve parental leave benefits.
- B. Sponsor legislation for tax incentives for employers that develop worksites supportive of breastfeeding.

RECOMMENDATIONS

Selected Measurable Indicator

- Number of recommendations for state regulations made to support women in the workplace.

Recommendation 2

Encourage all businesses, educational sites, and others to promote a breastfeeding-friendly environment for their employees. The State of California, as a major employer, should take the lead in providing a breastfeeding-friendly environment.

Rationale

In 2005, there were a record 66 million women in the workforce, 75% of whom were working full-time.³³⁴ Research shows that mothers who work outside the home breastfeed for a shorter period to time than those who do not. And mothers who *intend* to return to work full-time have lower rates of breastfeeding initiation in addition to shorter breastfeeding duration. Yet, for mothers who desire to breastfeed but also return to work, their needs are relatively few. And employers benefit from accommodating these mothers. Employers that offer a variety of family-friendly benefits are better able to recruit and retain employees than other companies.³³⁵ Their employees are more productive, miss less work, have lower health care costs, and experience less stress than employees at other companies.^{335,336}

Strategies

- A. Ensure all state agencies adhere to lactation accommodation laws at all worksites.
- B. Use survey information to formulate strategies that support breastfeeding mothers.
- C. Develop effective strategies to disseminate information regarding the cost savings of employer breastfeeding support programs and how costs may be related to changes in productivity, turnover rate, and absenteeism.
- D. Develop or utilize an existing tool kit containing sample policies, benefit packages, and program specifications for the support of breastfeeding/optimal infant and young child feeding.
- E. Develop a task force to modify existing parental leave policies and to develop worksite breastfeeding programs for all employees, including part-time, full-time, and temporary, benefited and non-benefited. The task force members should include the business community representatives and breastfeeding experts.
- F. Encourage businesses and labor unions to work together to adopt breastfeeding-friendly policies and practices.
- G. Encourage businesses to negotiate with health plans for the provision of enhanced maternity and lactation benefits.

RECOMMENDATIONS

- H. Provide technical support to businesses to establish worksite breastfeeding support programs or integrate breastfeeding support into existing workplace wellness programs.
- I. Provide incentives and state awards to employers for forming breastfeeding-friendly/family-friendly work sites.

Selected Measurable Indicators

- Number of state agencies adhering to the lactation accommodation law.
- Development and dissemination of information about the benefits of employer breastfeeding support programs.
- Number of labor unions working to promote breastfeeding-friendly policies and practices.
- Number of health plans with enhanced maternity and lactation benefits.
- Number of worksite programs that include breastfeeding support.

Recommendation 3

Encourage all businesses and educational sites, including preschools, K-12 schools, technical schools, community colleges, and universities, to provide lactation accommodation to customers, clients, and students.

Rationale

Some lactation accommodations needed by market-employed women are also needed by customers and clients. Whether attending classes full-time or part-time, students have the same breastfeeding accommodation needs as market-employed women.

Strategies

- A. Convene a task force to identify and implement successful strategies to increase the number of businesses and schools that provide lactation accommodation to customers, clients, and students.
- B. Encourage all state agencies that routinely provide services to the public to offer lactation accommodation for the breastfeeding public for the purpose of breastfeeding or pumping milk.
- C. Encourage all businesses and education sites to adopt breastfeeding-friendly policies and practices for their clients and students.
- D. Develop relationships with the CDE and with Chambers of Commerce to deliver education, resources, and technical support to businesses and educational sites for providing lactation accommodation and education to owners and educators.

RECOMMENDATIONS

Selected Measurable Indicators

- Number of state agencies offering lactation education for the breastfeeding public.
- Number of businesses receiving awards for breastfeeding-friendly policies and practices for their clients and students.
- Number of corporations that provide onsite childcare.

Recommendation 4

Recommend that, as part of the licensure process, child care providers be required to promote and support breastfeeding.

Rationale

Given the increasing number of working mothers who are breastfeeding, child care providers play a correspondingly key role in supporting the mother and in effectively increasing breastfeeding duration rates. However, in most counties in California, the supply of licensed child care does not meet the demand.³³⁷ Finding licensed care for infants is especially difficult. Although infant/toddler care requests comprise 35% of all requests for licensed child care, only nine percent of child care slots are available for children under the age of two.³³⁷ In addition, mothers are concerned that child care providers will view their breastfed infant as less desirable due to the perceived effort needed in handling breastmilk and the breastfed baby. Finally, child care providers who accept breastfed children often lack adequate education and training to support breastfeeding successfully.

Strategies

- A. Require that child care providers have adequate education and training to support breastfeeding.
- B. Collaborate with the CDE and obesity prevention organizations to ensure equal access to child care services for breastfed infants/children.
- C. Recommend fiscal incentives for child care providers to care for breastfed infants/children.

Selected Measurable Indicator

- Percentage of child care providers receiving education and training to support breastfeeding.

VI. ASSESSMENT AND RESEARCH^t

Background

Data documenting the cost savings resulting from increased breastfeeding are needed to convince policy makers of the importance of promotion and support of breastfeeding. For many of the strategies that might be used to promote breastfeeding, information is lacking regarding the best way to target vulnerable groups and design the most cost-effective programs. Further, the implementation and impact of laws intended to support breastfeeding women in California have not been evaluated. It is important that evaluations of breastfeeding programs consider the perspective of those who will be directly affected by the interventions.

Recommendation 1

Support assessment of the potential impact of the Institute of Medicine's (IOM) recommendations for changes to the WIC food packages, particularly the recommendation to withhold formula for breastfeeding mothers for the first month.

Rationale

Recently, the IOM reviewed the food packages provided by the WIC program and made recommendations for revisions.³³⁸ Among the recommended changes is a new policy of not routinely providing infant formula to breastfeeding newborns in the first month of life. Essentially, this policy aims to remove a disincentive, free infant formula, to exclusive breastfeeding. However, qualitative and quantitative research is needed to evaluate the potential impact of this new policy. Before any such changes are made to the food packages, it is essential that the acceptability and feasibility of these changes are carefully examined. It is of particular importance to understand the perspective of those WIC participants who will be affected by these changes.

Strategies

- A. Determine what policies local and state WIC agencies have implemented to encourage exclusive breastfeeding, especially during the first weeks of life. What impact have these policies had on breastfeeding rates? What problems arose in implementing these policies and how were these problems resolved?
- B. Evaluate what current WIC participants think and feel about the proposed changes in the WIC food packages for women and infants. How would these changes influence their infant feeding decisions? Would women be more or less inclined to try breastfeeding when offered the revised WIC food packages?

^t Selected measurable indicators were intentionally omitted from this section.

RECOMMENDATIONS

- C. Evaluate how much formula and support would be needed for “exceptions” to the new policy, such as need for formula for those having difficulty with breastfeeding, and determine how common these exceptions will be, such as those with medical concerns.

Recommendation 2

Study barriers to behavioral change in infant feeding practices and ways of overcoming these barriers.

Rationale

Personal, familial, environmental, and societal factors all play a role in a woman’s infant-feeding choices.^{280,339-342} Women from diverse cultural and ethnic backgrounds are influenced differently by such factors.^{280,339,343} Gaining understanding of these differences through research will allow policy makers and advocates to develop effective targeted interventions needed to reduce barriers and increase breastfeeding rates.

Strategies

- A. Identify barriers to exclusive breastfeeding that women of diverse cultures face and determine where they go for help. Determine how women network to support themselves. Evaluate the extent of community breastfeeding support that is available for the most vulnerable populations and the degree to which it is being utilized.
- B. Evaluate effectiveness of interventions that are used to overcome barriers to breastfeeding in the workplace.
- C. Conduct a survey to determine if the public, particularly subgroups with lower rates of breastfeeding, has negative feelings about breastfeeding and what factors may influence those feelings.
- D. Investigate the effect of parental perceptions of ideal infant body weight, as well as overall attitudes towards obesity, on infant feeding practices and subsequent risk for overweight.
- E. Evaluate implementation of laws intending to support breastfeeding among California women. Current laws address breastfeeding in public, jury duty, and workplace accommodation.

Recommendation 3

Collect data related to the Communities of Excellence indicators for breastfeeding through statewide programs or by supporting local and regional efforts.

Rationale

CDHS Cancer Prevention & Nutrition Section is leading the effort to adapt and apply the Communities of Excellence planning model, which was created several years ago by the

RECOMMENDATIONS

CDHS Tobacco Control Section. Using this model, local and regional stakeholders were asked to identify and evaluate community level indicators that may be used to assess the effectiveness of local interventions. In cooperation with the Breastfeeding Promotion Advisory Committee, the Cancer Prevention and Nutrition Section has included breastfeeding indicators in this effort. These indicators are needed because the state obesity prevention strategies have been expanded to include breastfeeding as one of the priority areas.³⁴⁴

Strategies

- A. Create a strategic plan for the use of the Communities of Excellence indicators for breastfeeding, including division of responsibility for data collection and reporting.
- B. Disseminate the Community of Excellence indicators for breastfeeding to appropriate California programs and groups and provide technical assistance as needed.

Recommendation 4

Support research on the effect the health care system has in deterring women from exclusively breastfeeding their infants. Research is particularly needed among vulnerable groups, including low-income, disadvantaged, and diverse groups.

Rationale

The health system is an ideal setting for breastfeeding support, because nearly all mothers and infants receive medical care. However, certain policies and practices within the health care system, such as lack of early mother-infant contact (including rooming-in),³⁴⁵⁻³⁴⁷ and offering of free formula,^{206,207} can interfere with exclusive breastfeeding. Further research is needed to determine how health care policies and practices may result in unnecessary supplementation of newborns.

Strategies

- A. Examine the impact of the hospital environment on breastfeeding rates and behaviors. Evaluate the impact of implementation of the Model Hospital Policy Recommendations on breastfeeding rates.
- B. Survey doctors, residents, and medical students about their attitudes and beliefs about breastfeeding, in order to target information to them most effectively. Determine if doctors routinely talk with their patients about breastfeeding, and if not, identify the barriers to doing so.
- C. Support assessments of the current availability and quality of culturally and ethnically appropriate lactation services in the community, using data from health plans, coalitions, CPSP, and RPPC. Evaluate how these entities communicate and coordinate with hospitals and with each other to provide continuity of care for breastfeeding families.

RECOMMENDATIONS

- D. Conduct a survey to determine the extent of coverage that medical insurance companies provide for breastfeeding-related services.
- E. Investigate the consequences of using the new WHO growth standards, which may identify more formula-fed infants as overweight.

Recommendation 5

Develop tools that may be used by professionals and paraprofessionals both pre- and postnatally to identify who is at greatest risk for non-exclusive breastfeeding or early supplementation and to determine how these tools can be implemented most effectively to facilitate breastfeeding.

Rationale

Breastfeeding initiation in California exceeds the Healthy People 2010 objective.^{348,349} However, many women supplement their infants prior to leaving the hospital or wean their infants in the first few weeks.^{350,351} Early identification and support of those at risk for early supplementation and weaning is essential to breastfeeding success.¹ Existing screening tools have been focused on infant latch or maternal self-efficacy.³⁵²⁻³⁵⁴ A comprehensive assessment tool that includes a woman's circumstances and experience as well as her clinical history is needed.

Strategies

- A. Conduct a needs assessment among professionals and paraprofessionals in order to determine the optimal structure, length, and format of a perinatal risk screening tool.
- B. Develop the screening tool and evaluate implementation strategies.
- C. Identify the best organizations and methods to disseminate the tool.

Recommendation 6

Evaluate the cost-effectiveness of various strategies to promote breastfeeding.

Rationale

Although studies have been published evaluating the costs and outcomes related to breastfeeding interventions, few of these studies are of good quality and even fewer include diverse populations.^{260,355}

RECOMMENDATIONS

Strategies

- A. Determine the number, type, and timing of contacts with professionals, paraprofessionals, and lay health workers that are optimal for the promotion of six months of exclusive breastfeeding.
- B. Determine the selection criteria and training necessary to ensure cultural competency of breastfeeding support personnel.
- C. Identify and publicize the most cost-effective and sustainable models.
- D. Create a resource guide to assist groups to duplicate the best programs or to modify and improve existing programs.

Recommendation 7

Evaluate the cost savings and other benefits to different sectors associated with increased exclusive breastfeeding rates, and use the information to help convince policy makers to implement programs to promote breastfeeding.

Rationale

Studies evaluating the cost savings and other societal benefits of breastfeeding are a valuable tool for broad-scale breastfeeding promotion. Although some studies have been conducted in the past,^{189,304,356} up-to-date California-specific data are not currently available, and the limitations of previous studies make it difficult to generalize to other situations.

Strategies

- A. Facilitate a cost-benefit analysis of hospitals that have implemented the Ten Steps of the BFHI or the Model Hospital Policy Recommendations.
- B. Facilitate a study of the costs and benefits to insurance companies for coverage of breastfeeding-related services. Include data on the health care utilization rates of breastfeeding and bottle-feeding mothers and children.
- C. Facilitate research on costs associated with mixed feeding of young infants.

Recommendation 8

Develop and implement mechanisms for ongoing monitoring of breastfeeding incidence, exclusivity, and duration in California.

Rationale

Currently, California in-hospital breastfeeding initiation rates are available through the Genetic Disease Branch Newborn Screening Program.³⁴⁸ However, breastfeeding duration data are limited. The National Immunization Survey (NIS),¹⁶ the Maternal and Infant Health Assessment (MIHA),³⁵¹ and the WIC program currently report breastfeeding duration data. However these programs do not provide adequate surveillance of exclusive breastfeeding among California's diverse populations.

Strategies

- A. Collect surveillance data, including exclusivity, initiation, and duration, using meaningful cultural subgroups and vulnerable populations in California.
- B. Collaborate with and link to national programs and organizations collecting breastfeeding initiation and duration data.
- C. Support hospitals in their efforts to collect accurate breastfeeding initiation data.

CONCLUSION

CALIFORNIANS HAVE LONG LED THE NATION in efforts to improve the health and well-being of our citizens. It is not a surprise then that our breastfeeding rates are among the highest in the nation. However, California's diverse families face many cultural, linguistic, and social barriers to exclusive breastfeeding, and relatively few women breastfeed their infants without supplementation for more than the first few weeks. Over the last decade, the scientific evidence supporting both immediate and long-term consequences related to infant-feeding practices has grown substantially. Health organizations throughout the world recognize breastfeeding as a vital contributor to the health and welfare of women and their children. The information presented in this report confirms that increasing exclusive breastfeeding will have a positive impact on our state. The vision of the Breastfeeding Promotion Advisory Committee is that breastfeeding be the norm in California for at least the first year of life and preferably longer. While significant progress has been made in the last 10 years toward this important goal, far more work is needed. These recommendations provide a framework for the steps that the CDHS must take to improve exclusive breastfeeding rates and eliminate health disparities in California. Today's investment in efforts to promote and support breastfeeding will deliver a brighter future for us all.

REFERENCES

1. Gartner LM, Morton J, Lawrence RA, et al. Breastfeeding and the use of human milk. *Pediatrics* 2005;115:496-506.
2. American Academy of Family Physicians. Breastfeeding (Position Paper), 2001. Available from URL: <http://www.aafp.org/online/en/home/policy/policies/b/breastfeedingpositionpaper.html> (accessed March 9, 2007).
3. American College of Obstetricians and Gynecologists (ACOG). Executive Board Statement on Breastfeeding 2003. Available at URL: <http://www.aafp.org/online/en/home/policy/policies/b/breastfeedingpositionpaper.html> (accessed March 9, 2007).
4. ILCA. Position Paper on Infant Feeding, 1991. Available at URL: www.ilca.org/pubs/InfantFeedingPP.pdf (accessed March 9, 2007).
5. James DC, Dobson B. Position of the American Dietetic Association: promoting and supporting breastfeeding. *J Am Diet Assoc* 2005;105:810-8.
6. US Department of Health and Human Services (DHHS). Centers for Disease Control and Prevention. *Preventing Chronic Disease: Investing Wisely in Health. Preventing Obesity and Chronic Diseases Through Good Nutrition and Physical Activity*. Atlanta, GA: Centers for Disease Control and Prevention, 2005.
7. World Health Organization. Global Strategy for Infant and Young Child Feeding. Geneva: World Health Organization, 2003.
8. de Onis M, de Onis M, Onyango AW, Borghi E, Garza C, Yang H. Comparison of the World Health Organization (WHO) Child Growth Standards and the National Center for Health Statistics/WHO international growth reference: implications for child health programmes. *Public Health Nutr* 2006;9:942-7.
9. Heinig MJ. Host defense benefits of breastfeeding for the infant. Effect of breastfeeding duration and exclusivity. *Pediatr Clin North Am* 2001;48:105-23, ix.
10. Kramer MS, Kakuma R. The optimal duration of exclusive breastfeeding: a systematic review. *Adv Exp Med Biol* 2004;554:63-77.
11. Lawrence RA, Lawrence RM. *Breastfeeding: a guide for the medical profession*, 6th ed. St. Louis: Elsevier/C.V. Mosby, 2005.
12. Hanson LA, Korotkova M. The role of breastfeeding in prevention of neonatal infection. *Semin Neonatol* 2002;7:275-81.
13. Hanson LA, Korotkova M, Haversen L, et al. Breast-feeding, a complex support system for the offspring. *Pediatr Int* 2002;44:347-52.
14. Lonnerdal B. Nutritional and physiologic significance of human milk proteins. *Am J Clin Nutr* 2003;77:1537S-1543S.
15. Grosvenor CE, Picciano MF, Baumrucker CR. Hormones and growth factors in milk. *Endocr Rev* 1993;14:710-28.
16. Polk DH. Do breast milk derived hormones play a role in neonatal development? *Early Hum Dev* 1992;29:329-31.
17. Yellis MB. Human breast milk and facilitation of gastrointestinal development and maturation. *Gastroenterol Nurs* 1995;18:11-5.
18. Morrow-Tlucak M, Haude RH, Ernhart CB. Breastfeeding and cognitive development in the first 2 years of life. *Soc Sci Med* 1988;26:635-9.
19. Helland IB, Smith L, Saarem K, Saugstad OD, Drevon CA. Maternal supplementation with very-long-chain n-3 fatty acids during pregnancy and lactation augments children's IQ at 4 years of age. *Pediatrics* 2003;111:e39-44.
20. Rodgers B. Feeding in infancy and later ability and attainment: a longitudinal study. *Dev Med Child Neurol* 1978;20:421-6.
21. Golding J, Emmett PM, Rogers IS. Gastroenteritis, diarrhoea and breast feeding. *Early Hum Dev* 1997;49 Suppl:S83-S103.
22. Hanson LA, Korotkova M, Lundin S, et al. The transfer of immunity from mother to child. *Ann NY Acad Sci* 2003;987:199-206.
23. Howie PW, Forsyth JS, Ogston SA, Clark A, Florey CD. Protective effect of breast feeding against infection. *BMJ* 1990;300:11-6.
24. Isaacs CE. Human milk inactivates pathogens individually, additively, and synergistically. *J Nutr* 2005;135:1286-8.

REFERENCES

25. Newburg DS. Human milk glycoconjugates that inhibit pathogens. *Curr Med Chem* 1999;6:117-27.
26. Scariati PD, Grummer-Strawn LM, Fein SB. A longitudinal analysis of infant morbidity and the extent of breastfeeding in the United States. *Pediatrics* 1997;99:E5.
27. Raisler J, Alexander C, O'Campo P. Breast-feeding and infant illness: a dose-response relationship? *Am J Public Health* 1999;89:25-30.
28. Wold AE, Adlerberth I. Breast feeding and the intestinal microflora of the infant—implications for protection against infectious diseases. *Adv Exp Med Biol* 2000;478:77-93.
29. Morrow AL, Ruiz-Palacios GM, Altaye M, et al. Human milk oligosaccharides are associated with protection against diarrhea in breast-fed infants. *J Pediatr* 2004;145:297-303.
30. Klein N, Schwertmann A, Peters M, Kunz C, Strobel S. Immunomodulatory effects of breast milk oligosaccharides. *Adv Exp Med Biol* 2000;478:251-9.
31. Clemens J, Rao M, Ahmed F, et al. Breast-feeding and the risk of life-threatening rotavirus diarrhea: prevention or postponement? *Pediatrics* 1993;92:680-5.
32. Espinoza F, Paniagua M, Hallander H, Svensson L, Strannegard O. Rotavirus infections in young Nicaraguan children. *Pediatr Infect Dis J* 1997;16:564-71.
33. Gurwith M, Wenman W, Hinde D, Feltham S, Greenberg H. A prospective study of rotavirus infection in infants and young children. *J Infect Dis* 1981;144:218-24.
34. Naficy AB, Abu-Elyazeed R, Holmes JL, et al. Epidemiology of rotavirus diarrhea in Egyptian children and implications for disease control. *Am J Epidemiol* 1999;150:770-7.
35. Weinberg RJ, Tipton G, Klish WJ, Brown MR. Effect of breast-feeding on morbidity in rotavirus gastroenteritis. *Pediatrics* 1984;74:250-3.
36. Yolken RH, Peterson JA, Vonderfecht SL, Fouts ET, Midthun K, Newburg DS. Human milk mucin inhibits rotavirus replication and prevents experimental gastroenteritis. *J Clin Invest* 1992;90:1984-91.
37. Morrow AL, Reves RR, West MS, Guerrero ML, Ruiz-Palacios GM, Pickering LK. Protection against infection with *Giardia lamblia* by breast-feeding in a cohort of Mexican infants. *J Pediatr* 1992;121:363-70.
38. Walterspiel JN, Morrow AL, Guerrero ML, Ruiz-Palacios GM, Pickering LK. Secretory anti-*Giardia lamblia* antibodies in human milk: protective effect against diarrhea. *Pediatrics* 1994;93:28-31.
39. Ahmed F, Clemens JD, Rao MR, Ansaruzzaman M, Haque E. Epidemiology of shigellosis among children exposed to cases of *Shigella* dysentery: a multivariate assessment. *Am J Trop Med Hyg* 1997;56:258-64.
40. Clemens JD, Stanton B, Stoll B, Shahid NS, Banu H, Chowdhury AK. Breast feeding as a determinant of severity in shigellosis: evidence for protection throughout the first three years of life in Bangladeshi children. *Am J Epidemiol* 1986;123:710-20.
41. Bachrach VR, Schwarz E, Bachrach LR. Breastfeeding and the risk of hospitalization for respiratory disease in infancy: a meta-analysis. *Arch Pediatr Adolesc Med* 2003;157:237-43.
42. Chantry CJ, Howard CR, Auinger P. Full breastfeeding duration and associated decrease in respiratory tract infection in US children. *Pediatrics* 2006;117:425-32.
43. Cushing AH, Samet JM, Lambert WE, et al. Breastfeeding reduces risk of respiratory illness in infants. *Am J Epidemiol* 1998;147:863-70.
44. Oddy WH, Sly PD, de Klerk NH, et al. Breast feeding and respiratory morbidity in infancy: a birth cohort study. *Arch Dis Child* 2003;88:224-8.
45. Wright AL, Holberg CJ, Martinez FD, Morgan WJ, Taussig LM. Breast feeding and lower respiratory tract illness in the first year of life. Group Health Medical Associates. *BMJ* 1989;299:946-9.
46. Aniansson G, Alm B, Andersson B, et al. A prospective cohort study on breast-feeding and otitis media in Swedish infants. *Pediatr Infect Dis J* 1994;13:183-8.
47. Bowd AD. Otitis media: health and social consequences for aboriginal youth in Canada's north. *Int J Circumpolar Health* 2005;64:5-15.
48. Duffy LC, Faden H, Wasielewski R, Wolf J, Krystofik D. Exclusive breastfeeding protects against bacterial colonization and day care exposure to otitis media. *Pediatrics* 1997;100:E7.
49. Duncan B, Ey J, Holberg CJ, Wright AL, Martinez FD, Taussig LM. Exclusive breast-feeding for at least four months protects against otitis media. *Pediatrics* 1993;91:867-72.
50. Paradise JL, Rockette HE, Colborn DK, et al. Otitis media in 2253 Pittsburgh-area infants: prevalence and risk factors during the first two years of life. *Pediatrics* 1997;99:318-33.

REFERENCES

51. Shaaban KM, Hamadnalla I. The effect of duration of breast feeding on the occurrence of acute otitis media in children under three years. *East Afr Med J* 1993;70:632-4.
52. Sheard NF. Breast-feeding protects against otitis media. *Nutr Rev* 1993;51:275-7.
53. Uhari M, Mantysaari K, Niemela M. A meta-analytic review of the risk factors for acute otitis media. *Clin Infect Dis* 1996;22:1079-83.
54. Gessner BD, Ussery XT, Parkinson AJ, Breiman RF. Risk factors for invasive disease caused by *Streptococcus pneumoniae* among Alaska native children younger than two years of age. *Pediatr Infect Dis J* 1995;14:123-8.
55. Hanson LA. Protective effects of breastfeeding against urinary tract infection. *Acta Paediatr* 2004;93:154-6.
56. Mansour L, Mansour A. Breast feeding protects infants against urinary tract infection. *New Egypt J Med* 1993;8:463-4.
57. Marild S, Hansson S, Jodal U, Oden A, Svedberg K. Protective effect of breastfeeding against urinary tract infection. *Acta Paediatr* 2004;93:164-8.
58. Pisacane A, Graziano L, Mazzarella G, Scarpellino B, Zona G. Breastfeeding and urinary tract infection. *J Pediatr* 1992;120:87-9.
59. Riccabona M. Urinary tract infections in children. *Curr Opin Urol* 2003;13:59-62.
60. Hallett KB, O'Rourke PK. Early childhood caries and infant feeding practice. *Community Dent Health* 2002;19:237-42.
61. American Academy of Pediatric Dentistry. *2005-2006 Oral Health Policies and Clinical Guidelines*. Chicago, IL: American Academy of Pediatric Dentistry, 2005.
62. Centers for Disease Control and Prevention. *Botulism in the United States, 1899-1996. Handbook for Epidemiologists, Clinicians, and Laboratory Workers*. Atlanta, GA: Centers for Disease Control and Prevention, 1998.
63. Arnon SS, Damus K, Thompson B, Midura TF, Chin J. Protective role of human milk against sudden death from infant botulism. *J Pediatr* 1982;100:568-73.
64. *Diabetes in California Counties: Prevalence, Risk Factors and Resources: California Diabetes Program*, California Department of Health Services, 2005.
65. Bognetti E, Meschi F, Malavasi C, et al. HLA-antigens in Italian type 1 diabetic patients: role of DR3/DR4 antigens and breast feeding in the onset of the disease. *Acta Diabetol* 1992;28:229-32.
66. Borch-Johnsen K, Joner G, Mandrup-Poulsen T, Christy M, Zachau-Christiansen B, Kastrup K, Nerup J. Relation between breast-feeding and incidence rates of insulin-dependent diabetes mellitus: a hypothesis. *Lancet* 1984;2:1083-6.
67. Gimeno SG, de Souza JM. IDDM and milk consumption. A case-control study in Sao Paulo, Brazil. *Diabetes Care* 1997;20:1256-60.
68. Kostraba JN, Dorman JS, LaPorte RE, et al. Early infant diet and risk of IDDM in blacks and whites. A matched case-control study. *Diabetes Care* 1992;15:626-31.
69. Mayer EJ, Hamman RF, Gay EC, Lezotte DC, Savitz DA, Klingensmith GJ. Reduced risk of IDDM among breast-fed children. The Colorado IDDM Registry. *Diabetes* 1988;37:1625-32.
70. Virtanen SM, Rasanen L, Aro A, et al. Infant feeding in Finnish children less than 7 yr of age with newly diagnosed IDDM. Childhood Diabetes in Finland Study Group. *Diabetes Care* 1991;14:415-7.
71. Gerstein HC. Cow's milk exposure and type I diabetes mellitus. A critical overview of the clinical literature. *Diabetes Care* 1994;17:13-9.
72. Malcova H, Sumnik Z, Drevinek P, Venhacova J, Lebl J, Cinek O. Absence of breast-feeding is associated with the risk of type 1 diabetes: a case-control study in a population with rapidly increasing incidence. *Eur J Pediatr* 2006;165:114-9.
73. Knip M, Akerblom HK. Early nutrition and later diabetes risk. *Adv Exp Med Biol* 2005;569:142-50.
74. Pettitt DJ, Forman MR, Hanson RL, Knowler WC, Bennett PH. Breastfeeding and incidence of non-insulin-dependent diabetes mellitus in Pima Indians. *Lancet* 1997;350:166-8.
75. Taylor JS, Kacmar JE, Nothnagle M, Lawrence RA. A systematic review of the literature associating breastfeeding with type 2 diabetes and gestational diabetes. *J Am Coll Nutr* 2005;24:320-6.
76. Young TK, Martens PJ, Taback SP, et al. Type 2 diabetes mellitus in children: prenatal and early infancy risk factors among native Canadians. *Arch Pediatr Adolesc Med* 2002;156:651-5.

REFERENCES

77. Klement E, Cohen RV, Boxman J, Joseph A, Reif S. Breastfeeding and risk of inflammatory bowel disease: a systematic review with meta-analysis. *Am J Clin Nutr* 2004;80:1342-52.
78. Rigas A, Rigas B, Glassman M, et al. Breast-feeding and maternal smoking in the etiology of Crohn's disease and ulcerative colitis in childhood. *Ann Epidemiol* 1993;3:387-92.
79. Corrao G, Tragnone A, Caprilli R, et al. Risk of inflammatory bowel disease attributable to smoking, oral contraception and breastfeeding in Italy: a nationwide case-control study. Cooperative Investigators of the Italian Group for the Study of the Colon and the Rectum (GISC). *Int J Epidemiol* 1998;27:397-404.
80. Koletzko S, Sherman P, Corey M, Griffiths A, Smith C. Role of infant feeding practices in development of Crohn's disease in childhood. *BMJ* 1989;298:1617-8.
81. Nash S. Does exclusive breast-feeding reduce the risk of coeliac disease in children? *Br J Community Nurs* 2003;8:127-32.
82. Acheson ED, True Love SC. Early weaning in the aetiology of ulcerative colitis: a study of feeding in infancy in cases and controls. *BMJ* 1961;5257:929-33.
83. Whorwell PJ, Holdstock G, Whorwell GM, Wright R. Bottle feeding, early gastroenteritis, and inflammatory bowel disease. *BMJ* 1979;1:382.
84. Guise JM, Austin D, Morris CD. Review of case-control studies related to breastfeeding and reduced risk of childhood leukemia. *Pediatrics* 2005;116:e724-31.
85. Kwan ML, Buffer PA, Abrams B, Kiley VA. Breastfeeding and the risk of childhood leukemia: a meta-analysis. *Public Health Rep* 2004;119:521-35.
86. Martin RM, Gunnell D, Owen CG, Smith GD. Breast-feeding and childhood cancer: a systematic review with meta-analysis. *Int J Cancer* 2005;117:1020-31.
87. Saddlemire S, Olshan AF, Daniels JL, Breslow NE, Bunin GR, Ross JA. Breast-feeding and Wilms Tumor: a Report from the Children's Oncology Group. *Cancer Causes Control* 2006;17:687-93.
88. Davis MK, Savitz DA, Graubard BI. Infant feeding and childhood cancer. *Lancet* 1988;2:365-8.
89. Mathur GP, Gupta N, Mathur S, et al. Breastfeeding and childhood cancer. *Indian Pediatr* 1993;30:651-7.
90. Shu XO, Clemens J, Zheng W, Ying DM, Ji BT, Jin F. Infant breastfeeding and the risk of childhood lymphoma and leukaemia. *Int J Epidemiol* 1995;24:27-32.
91. Kull I, Almqvist C, Lilja G, Pershagen G, Wickman M. Breast-feeding reduces the risk of asthma during the first 4 years of life. *J Allergy Clin Immunol* 2004;114:755-60.
92. Kull I, Bohme M, Wahlgren CF, Nordvall L, Pershagen G, Wickman M. Breast-feeding reduces the risk for childhood eczema. *J Allergy Clin Immunol* 2005;116:657-61.
93. California Department of Health Services. *Facts about sudden infant death syndrome (SIDS) deaths in California*. Sacramento, CA: Department of Health Services, 2003, 2005.
94. Riedmiller K FS, Godfrey D. *Vital Statistics of California, 1991*. Sacramento, CA: Department of Health Services, 1993.
95. McVea KL, Turner PD, Pepler DK. The role of breastfeeding in sudden infant death syndrome. *J Hum Lact* 2000;16:13-20.
96. Chen A, Rogan WJ. Breastfeeding and the risk of postneonatal death in the United States. *Pediatrics* 2004;113:e435-9.
97. Mitchell EA, Tuohy PG, Brunt JM, et al. Risk factors for sudden infant death syndrome following the prevention campaign in New Zealand: a prospective study. *Pediatrics* 1997;100:835-40.
98. Hauck FR, Herman SM, Donovan M, et al. Sleep environment and the risk of sudden infant death syndrome in an urban population: the Chicago Infant Mortality Study. *Pediatrics* 2003;111:1207-14.
99. Horne RS, Parslow PM, Ferens D, Watts AM, Adamson TM. Comparison of evoked arousability in breast and formula fed infants. *Arch Dis Child* 2004;89:22-5.
100. Gordon AE, Saadi AT, MacKenzie DA, et al. The protective effect of breast feeding in relation to sudden infant death syndrome (SIDS): II. The effect of human milk and infant formula preparations on binding of *Clostridium perfringens* to epithelial cells. *FEMS Immunol Med Microbiol* 1999;25:167-73.
101. Mokdad AH, Marks JS, Stroup DF, Gerberding JL. Actual causes of death in the United States, 2000. *JAMA* 2004;291:1238-45.
102. McCusker M. *The Growing Epidemic: Child Overweight Rates on the Rise in California Assembly Districts*. Davis, CA: California Center for Public Health Advocacy, 2005. Available from URL: <http://www.publichealthadvocacy.org/growingepidemic.html> (accessed March 14, 2007).

REFERENCES

103. Ogden CL, Carroll MD, Curtin LR, McDowell MA, Tabak CJ, Flegal KM. Prevalence of overweight and obesity in the United States, 1999-2004. *JAMA* 2006;295:1549-55.
104. Grummer-Strawn LM, Mei Z. Does breastfeeding protect against pediatric overweight? Analysis of longitudinal data from the Centers for Disease Control and Prevention Pediatric Nutrition Surveillance System. *Pediatrics* 2004;113:e81-6.
105. Arenz S, Ruckerl R, Koletzko B, von Kries R. Breast-feeding and childhood obesity—a systematic review. *Int J Obes Relat Metab Disord* 2004;28:1247-56.
106. Harder T, Bergmann R, Kallischnigg G, Plagemann A. Duration of breastfeeding and risk of overweight: a meta-analysis. *Am J Epidemiol* 2005;162:397-403.
107. Dewey KG. Is breastfeeding protective against child obesity? *J Hum Lact* 2003;19:9-18.
108. Owen CG, Martin RM, Whincup PH, Smith GD, Cook DG. Effect of infant feeding on the risk of obesity across the life course: a quantitative review of published evidence. *Pediatrics* 2005;115:1367-77.
109. National Center for Health Statistics, final natality data (2003). *Born Too Small and Too Soon in California*. Retrieved March 15, 2007, from <http://www.marchofdimes.com/peristats>.
110. Institute of Medicine of the National Academies. *Report Brief: Preterm Birth: Causes, Consequences, and Prevention*. Washington, DC: IOM, 2006.
111. Schanler RJ. The use of human milk for premature infants. *Pediatr Clin North Am* 2001;48:207-19.
112. Callen J, Pinelli J. A review of the literature examining the benefits and challenges, incidence and duration, and barriers to breastfeeding in preterm infants. *Adv Neonatal Care* 2005;5:72-88; quiz 89-92.
113. Schanler RJ. Human milk supplementation for preterm infants. *Acta Paediatr Suppl* 2005;94:64-7.
114. Schanler RJ, Shulman RJ, Lau C. Feeding strategies for premature infants: beneficial outcomes of feeding fortified human milk versus preterm formula. *Pediatrics* 1999;103:1150-7.
115. Schanler RJ, Lau C, Hurst NM, Smith EO. Randomized trial of donor human milk versus preterm formula as substitutes for mothers' own milk in the feeding of extremely premature infants. *Pediatrics* 2005;116:400-6.
116. Vohr BR, Poindexter BB, Dusick AM, et al. Beneficial effects of breast milk in the neonatal intensive care unit on the developmental outcome of extremely low birth weight infants at 18 months of age. *Pediatrics* 2006;118:e115-23.
117. American Academy of Pediatrics. Breastfeeding and the use of human milk. *Pediatrics* 1997;100:1035-39.
118. Riordan J. *Anatomy and Psychophysiology of Lactation*. Boston: Jones and Bartlett, 1993:81-104.
119. Subcommittee on Nutrition during Lactation Food and Nutrition Board, Institute of Medicine, National Academy of Sciences. *Nutrition during Lactation*. Washington, DC: National Academy Press, 1991.
120. Dewey KG, Heinig MJ, Nommsen LA. Maternal weight-loss patterns during prolonged lactation. *Am J Clin Nutr* 1993;58:162-6.
121. Ohlin A, Rossner S. Maternal body weight development after pregnancy. *Int J Obes* 1990;14:159-73.
122. US Department of Health and Human Services, National Institutes of Health, National Heart, Lung and Blood Institute. *Clinical guidelines on the identification, evaluation, and treatment of overweight and obesity in adults: the evidence report*. McLean, VA: International Medical Publishing, Inc., 1998. Available at URL: http://www.nhlbi.nih.gov/guidelines/obesity/ob_home.htm (accessed March 14, 2007).
123. Keppel KG, Taffel SM. Pregnancy-related weight gain and retention: implications of the 1990 Institute of Medicine guidelines. *Am J Public Health* 1993;83:1100-3.
124. Harris HE, Ellison GT, Holliday M, Lucassen E. The impact of pregnancy on the long-term weight gain of primiparous women in England. *Int J Obes Relat Metab Disord* 1997;21:747-55.
125. Beazley JM, Swinhoe JR. Body weight in parous women: is there any alteration between successive pregnancies? *Acta Obstet Gynecol Scand* 1979;58:45-7.
126. Rooney BL, Schauburger CW. Excess pregnancy weight gain and long-term obesity: one decade later. *Obstet Gynecol* 2002;100:245-52.
127. McNeilly AS, Tay CC, Glasier A. Physiological mechanisms underlying lactational amenorrhea. *Ann NY Acad Sci* 1994;709:145-55.
128. Kennedy KI, Rivera R, McNeilly AS. Consensus statement on the use of breastfeeding as a family planning method. *Contraception* 1989;39:477-96.
129. Hatcher R. *Contraceptive Technology*. New York: Irvington Publishers, Inc., 1994.

REFERENCES

130. Bodnar LM, Scanlon KS, Freedman DS, Siega-Riz AM, Cogswell ME. High prevalence of postpartum anemia among low-income women in the United States. *Am J Obstet Gynecol* 2001;185:438-43.
131. *Cancer Facts and Figures 2006*. Atlanta, GA: American Cancer Society, 2006.
132. *California Cancer Facts and Figures 2004*. Oakland, CA: American Cancer Society, California Division and Public Health Institute, California Cancer Registry, 2003.
133. Brinton LA, Potischman NA, Swanson CA, et al. Breastfeeding and breast cancer risk. *Cancer Causes Control* 1995;6:199-208.
134. McTiernan A, Thomas DB. Evidence for a protective effect of lactation on risk of breast cancer in young women. Results from a case-control study. *Am J Epidemiol* 1986;124:353-8.
135. Newcomb PA, Storer BE, Longnecker MP, et al. Lactation and a reduced risk of premenopausal breast cancer. *N Engl J Med* 1994;330:81-7.
136. Thomas DB, Noonan EA. Breast cancer and prolonged lactation. The WHO Collaborative Study of Neoplasia and Steroid Contraceptives. *Int J Epidemiol* 1993;22:619-26.
137. Collaborative Group on Hormonal Factors in Breast Cancer. Breast cancer and breastfeeding: collaborative reanalysis of individual data from 47 epidemiological studies in 30 countries, including 50302 women with breast cancer and 96973 women without the disease. *Lancet* 2002;360:187-95.
138. Brinton LA, Berman ML, Mortel R, et al. Reproductive, menstrual, and medical risk factors for endometrial cancer: results from a case-control study. *Am J Obstet Gynecol* 1992;167:1317-25.
139. Kelsey JL, LiVolsi VA, Holford TR, et al. A case-control study of cancer of the endometrium. *Am J Epidemiol* 1982;116:333-42.
140. Hou Q, Wang QS, Wang JF. [A case control study on risk factors of endometrial carcinoma in Tianjin]. *Zhonghua Fu Chan Ke Za Zhi* 1994;29:30-2, 61.
141. Newcomb PA, Trentham-Dietz A. Breast feeding practices in relation to endometrial cancer risk, USA. *Cancer Causes Control* 2000;11:663-7.
142. Okamura C, Tsubono Y, Ito K, et al. Lactation and risk of endometrial cancer in Japan: a case-control study. *Tohoku J Exp Med* 2006;208:109-15.
143. Rosenblatt KA, Thomas DB. Prolonged lactation and endometrial cancer. WHO Collaborative Study of Neoplasia and Steroid Contraceptives. *Int J Epidemiol* 1995;24:499-503.
144. Salazar-Martinez E, Lazcano-Ponce EC, Gonzalez Lira-Lira G, et al. Reproductive factors of ovarian and endometrial cancer risk in a high fertility population in Mexico. *Cancer Res* 1999;59:3658-62.
145. Whittemore AS. Characteristics relating to ovarian cancer risk: implications for prevention and detection. *Gynecol Oncol* 1994;55:S15-9.
146. Gwinn ML, Lee NC, Rhodes PH, Layde PM, Rubin GL. Pregnancy, breast feeding, and oral contraceptives and the risk of epithelial ovarian cancer. *J Clin Epidemiol* 1990;43:559-68.
147. John EM, Whittemore AS, Harris R, Itnyre J. Characteristics relating to ovarian cancer risk: collaborative analysis of seven U.S. case-control studies. Epithelial ovarian cancer in black women. Collaborative Ovarian Cancer Group. *J Natl Cancer Inst* 1993;85:142-7.
148. Risch HA, Marrett LD, Howe GR. Parity, contraception, infertility, and the risk of epithelial ovarian cancer. *Am J Epidemiol* 1994;140:585-97.
149. Rosenblatt KA, Thomas DB. Lactation and the risk of epithelial ovarian cancer. The WHO Collaborative Study of Neoplasia and Steroid Contraceptives. *Int J Epidemiol* 1993;22:192-7.
150. Siskind V, Green A, Bain C, Purdie D. Breastfeeding, menopause, and epithelial ovarian cancer. *Epidemiology* 1997;8:188-91.
151. Tung KH, Goodman MT, Wu AH, et al. Reproductive factors and epithelial ovarian cancer risk by histologic type: a multiethnic case-control study. *Am J Epidemiol* 2003;158:629-38.
152. Whittemore AS, Harris R, Itnyre J. Characteristics relating to ovarian cancer risk: collaborative analysis of 12 US case-control studies. II. Invasive epithelial ovarian cancers in white women. Collaborative Ovarian Cancer Group. *Am J Epidemiol* 1992;136:1184-203.
153. Kallio MJ, Siimes MA, Perheentupa J, Salmenpera L, Miettinen TA. Cholesterol and its precursors in human milk during prolonged exclusive breast-feeding. *Am J Clin Nutr* 1989;50:782-5.
154. Kallio MJ, Siimes MA, Perheentupa J, Salmenpera L, Miettinen TA. Serum cholesterol and lipoprotein concentrations in mothers during and after prolonged exclusive lactation. *Metabolism* 1992;41:1327-30.

REFERENCES

155. Knopp RH, Bergelin RO, Wahl PW, Walden CE, Chapman M, Irvine S. Population-based lipoprotein lipid reference values for pregnant women compared to nonpregnant women classified by sex hormone usage. *Am J Obstet Gynecol* 1982;143:626-37.
156. Knopp RH, Bergelin RO, Wahl PW, Walden CE. Effects of pregnancy, postpartum lactation, and oral contraceptive use on the lipoprotein cholesterol/triglyceride ratio. *Metabolism* 1985;34:893-9.
157. Kjos SL, Henry O, Lee RM, Buchanan TA, Mishell DR, Jr. The effect of lactation on glucose and lipid metabolism in women with recent gestational diabetes. *Obstet Gynecol* 1993;82:451-5.
158. Lenz S, Kuhl C, Hornnes PJ, Hagen C. Influence of lactation on oral glucose tolerance in the puerperium. *Acta Endocrinol (Copenh)* 1981;98:428-31.
159. Stuebe AM, Rich-Edwards JW, Willett WC, Manson JE, Michels KB. Duration of lactation and incidence of type 2 diabetes. *JAMA* 2005;294:2601-10.
160. Merlino LA, Cerhan JR, Criswell LA, Mikuls TR, Saag KG. Estrogen and other female reproductive risk factors are not strongly associated with the development of rheumatoid arthritis in elderly women. *Semin Arthritis Rheum* 2003;33:72-82.
161. Jacobsson LT, Jacobsson ME, Askling J, Knowler WC. Perinatal characteristics and risk of rheumatoid arthritis. *BMJ* 2003;326:1068-9.
162. Jorgensen C, Picot MC, Bologna C, Sany J. Oral contraception, parity, breast feeding, and severity of rheumatoid arthritis. *Ann Rheum Dis* 1996;55:94-8.
163. Brennan P, Silman A. Breast-feeding and the onset of rheumatoid arthritis. *Arthritis Rheum* 1994;37:808-13.
164. Brennan P, Silman AJ. An investigation of gene-environment interaction in the etiology of rheumatoid arthritis. *Am J Epidemiol* 1994;140:453-60.
165. Brun JG, Nilssen S, Kvale G. Breast feeding, other reproductive factors and rheumatoid arthritis. A prospective study. *Br J Rheumatol* 1995;34:542-6.
166. Karlson EW, Mandl LA, Hankinson SE, Grodstein F. Do breast-feeding and other reproductive factors influence future risk of rheumatoid arthritis? Results from the Nurses' Health Study. *Arthritis Rheum* 2004;50:3458-67.
167. Mezzacappa ES, Kelsey RM, Katkin ES. Breast feeding, bottle feeding, and maternal autonomic responses to stress. *J Psychosom Res* 2005;58:351-65.
168. Heinrichs M, Neumann I, Ehler U. Lactation and stress: protective effects of breast-feeding in humans. *Stress* 2002;5:195-203.
169. Groer MW, Davis MW, Hemphill J. Postpartum stress: current concepts and the possible protective role of breastfeeding. *J Obstet Gynecol Neonatal Nurs* 2002;31:411-7.
170. Mezzacappa ES, Katlin ES. Breast-feeding is associated with reduced perceived stress and negative mood in mothers. *Health Psychol* 2002;21:187-93.
171. Heinrichs M, Meinschmidt G, Neumann I, et al. Effects of suckling on hypothalamic-pituitary-adrenal axis responses to psychosocial stress in postpartum lactating women. *J Clin Endocrinol Metab* 2001;86:4798-804.
172. Altemus M, Deuster PA, Galliven E, Carter CS, Gold PW. Suppression of hypothalamic-pituitary-adrenal axis responses to stress in lactating women. *J Clin Endocrinol Metab* 1995;80:2954-9.
173. Virden SF. The relationship between infant feeding method and maternal role adjustment. *J Nurse Midwifery* 1988;33:31-5.
174. Weisenfeld AR, Malatesta CZ, Whitman PB, Grannose C, Vile R. Psychophysiological response of breast and bottle-feeding mothers to their infants' signals. *Psychophysiology* 1985;22:79-86.
175. Lawrence RA. *A Review of the Medical Benefits and Contraindications of Breastfeeding in the United States* (Maternal and Child Health Technical Information Bulletin). Arlington, VA: National Center for Education in Maternal and Child Health, 1997:5.
176. Laufer AB. Breastfeeding. Toward resolution of the unsatisfying birth experience. *J Nurse Midwifery* 1990;35:42-5.
177. Bernal J, Richards MP. The effects of bottle and breast feeding on infant development. *J Psychosom Res* 1970;14:247-52.
178. Dunn J, Richards M. Observations on the developing relationship between mother and baby in the neonatal period. *Studies in Mother-Infant Interaction*, ed. R. Schaffer. New York: Academic Press, 1977.

REFERENCES

179. Lavelli M, Poli M. Early mother-infant interaction during breast- and bottle-feeding. *Infant Beh Dev* 1998;21:667-684.
180. De Wolff MS, van Ijzendoorn MH. Sensitivity and attachment: a meta-analysis on parental antecedents of infant attachment. *Child Dev* 1997;68:571-91.
181. Kuzela AL, Stifter CA, Worobey J. Breastfeeding and mother-infant interactions. *J Reprod Infant Psychol* 1990;8:185-194.
182. Else-Quest NM, Hyde JS, Clark R. Breastfeeding, bonding, and the mother-infant relationship. *Merrill-Palmer Quarterly* 2003;49:495-517.
183. Carter CS. Neuroendocrine perspectives on social attachment and love. *Psychoneuroendocrinology* 1998;23:779-818.
184. Klaus M. Mother and infant: early emotional ties. *Pediatrics* 1998;102:1244-6.
185. Kennell JH, Klaus MH. Bonding: recent observations that alter perinatal care. *Pediatr Rev* 1998;19:4-12.
186. Uvnas-Moberg K. Role of efferent and afferent vagal nerve activity during reproduction: integrating function of oxytocin on metabolism and behaviour. *Psychoneuroendocrinology* 1994;19:687-95.
187. Uvnas-Moberg K, Wisstrom AM, Nissen E, Bjorvell H. Personality traits in women 4 days postpartum and their correlation with plasma levels of oxytocin and prolactin. *J Psychosom Obstet Gynecol.* 1990; 11:261-273.
188. Ball TM, Wright AL. Health care costs of formula-feeding in the first year of life. *Pediatrics* 1999;103:870-6.
189. Ball TM, Bennett DM. The economic impact of breastfeeding. *Pediatr Clin North Am* 2001;48:253-62.
190. Retail prices, Sacramento area, May 2006.
191. Butte NF, King JC. Energy requirements during pregnancy and lactation. *Public Health Nutr* 2005;8:1010-27.
192. Labbok MH. Breastfeeding as a women's issue: conclusions and consensus, complementary concerns, and next actions. *Int J Gynaecol Obstet* 1994;47 Suppl:S55-61.
193. Riordan J, Gill-Hopple K. Breastfeeding care in multicultural populations. *J Obstet Gynecol Neonatal Nurs* 2001;30:216-23.
194. Gibson-Davis CM, Brooks-Gunn J. Couples' immigration status and ethnicity as determinants of breastfeeding. *Am J Public Health* 2006;96:641-6.
195. Heck KE, Braveman P, Cubbin C, Chavez GF, Kiely JL. Socioeconomic status and breastfeeding initiation among California mothers. *Public Health Rep* 2006;121:51-9.
196. California Department of Health Services, Women, Infants, and Children Program. About WIC: 2006. Available at URL: <http://www.wicworks.gov> (accessed March 14, 2007).
197. United States Department of Agriculture, Food and Nutrition Service. WIC Funding and Program Data, FY 2006 Program Grant Levels by State Agency, 2006. Available at URL: <http://www.fns.usda.gov/wic/fundingandprogramdata/grants2006.htm> (accessed March 14, 2007).
198. US Department of Health and Human Services (DHHS). National Center for Health Statistics. The 2005 National Immunization Survey. Hyattsville, MD: Centers for Disease Control and Prevention, 2006. Available at URL: <http://www.cdc.gov/nis/datafiles.htm> (accessed March 14, 2007).
199. Fein SB, Roe B. The effect of work status on initiation and duration of breast-feeding. *Am J Public Health* 1998;88:1042-6.
200. Ahluwalia IB, Morrow B, Hsia J. Why do women stop breastfeeding? Findings from the Pregnancy Risk Assessment and Monitoring System. *Pediatrics* 2005;116:1408-12.
201. Leung GM, Lam TH, Ho LM. Breast-feeding and its relation to smoking and mode of delivery. *Obstet Gynecol* 2002;99:785-94.
202. Roe B, Whittington LA, Fein SB, Teisl MF. Is there competition between breast-feeding and maternal employment? *Demography* 1999;36:157-71.
203. Kimbro RT. On-the-job moms: work and breastfeeding initiation and duration for a sample of low-income women. *Matern Child Health J* 2006;10:19-26.
204. United States Breastfeeding Committee. Workplace Breastfeeding Support [issue paper]. Raleigh, NC: United States Breastfeeding Committee; 2002.
205. Khoury AJ, Moazzem SW, Jarjoura CM, Carothers C, Hinton A. Breast-feeding initiation in low-income women: Role of attitudes, support, and perceived control. *Womens Health Issues* 2005;15:64-72.

REFERENCES

206. Donnelly A, Snowden HM, Renfrew MJ, Woolridge MW. Commercial hospital discharge packs for breastfeeding women. *Cochrane Database Syst Rev* 2000;CD002075.
207. Howard C, Howard F, Lawrence R, Andresen E, DeBlicke E, Weitzman M. Office prenatal formula advertising and its effect on breast-feeding patterns. *Obstet Gynecol* 2000;95:296-303.
208. Perez-Escamilla R, Pollitt E, Lonnerdal B, Dewey KG. Infant feeding policies in maternity wards and their effect on breast-feeding success: an analytical overview. *Am J Public Health* 1994;84:89-97.
209. Dungy CI, Christensen-Szalanski J, Losch M, Russell D. Effect of discharge samples on duration of breast-feeding. *Pediatrics* 1992;90:233-7.
210. Frank DA, Wirtz SJ, Sorenson JR, Heeren T. Commercial discharge packs and breast-feeding counseling: effects on infant-feeding practices in a randomized trial. *Pediatrics* 1987;80:845-54.
211. Bauman LJ, Silver EJ, Stein RE. Cumulative social disadvantage and child health. *Pediatrics* 2006;117:1321-8.
212. Taveras EM, Capra AM, Braveman PA, Jensvold NG, Escobar GJ, Lieu TA. Clinician support and psychosocial risk factors associated with breastfeeding discontinuation. *Pediatrics* 2003;112:108-15.
213. Oddy WH, Li J, Landsborough L, Kendall GE, Henderson S, Downie J. The association of maternal overweight and obesity with breastfeeding duration. *J Pediatr* 2006;149:185-91.
214. Galtry J. Lactation and the labor market: breastfeeding, labor market changes, and public policy in the United States. *Health Care Women Int* 1997;18:467-80.
215. Hannan A, Li R, Benton-Davis S, Grummer-Strawn L. Regional variation in public opinion about breastfeeding in the United States. *J Hum Lact* 2005;21:284-8.
216. Li R, Fridinger F, Grummer-Strawn L. Public perceptions on breastfeeding constraints. *J Hum Lact* 2002;18:227-35.
217. Li R, Hsia J, Fridinger F, Hussain A, Benton-Davis S, Grummer-Strawn L. Public beliefs about breastfeeding policies in various settings. *J Am Diet Assoc* 2004;104:1162-8.
218. Lewallen LP, Dick MJ, Flowers J, et al. Breastfeeding support and early cessation. *J Obstet Gynecol Neonatal Nurs* 2006;35:166-72.
219. Kools EJ, Thijs C, Kester AD, de Vries H. The motivational determinants of breast-feeding: predictors for the continuation of breast-feeding. *Prev Med* 2006;43:394-401.
220. Sikorski J, Renfrew MJ, Pindoria S, Wade A. Support for breastfeeding mothers: a systematic review. *Paediatr Perinat Epidemiol* 2003;17:407-17.
221. Kurinij N, Shiono PH. Early formula supplementation of breast-feeding. *Pediatrics* 1991;88:745-50.
222. Howard CR, Howard FM, Lanphear B, et al. Randomized clinical trial of pacifier use and bottle-feeding or cupfeeding and their effect on breastfeeding. *Pediatrics* 2003;111:511-8.
223. Bliss MC, Wilkie J, Acredolo C, Berman S, Tebb KP. The effect of discharge pack formula and breast pumps on breastfeeding duration and choice of infant feeding method. *Birth* 1997;24:90-7.
224. Snell BJ, Krantz M, Keeton R, Delgado K, Peckham C. The association of formula samples given at hospital discharge with the early duration of breastfeeding. *J Hum Lact* 1992;8:67-72.
225. Blomquist HK, Jonsbo F, Serenius F, Persson LA. Supplementary feeding in the maternity ward shortens the duration of breast feeding. *Acta Paediatr* 1994;83:1122-6.
226. Schwartz K, D'Arcy HJ, Gillespie B, Bobo J, Longeway M, Foxman B. Factors associated with weaning in the first three months postpartum. *J Fam Pract* 2002;51:439-44.
227. Wambach KA, Koehn M. Experiences of infant-feeding decision-making among urban economically disadvantaged pregnant adolescents. *J Adv Nurs* 2004;48:361-70.
228. World Health Organization. *Protecting, Promoting, and Supporting Breastfeeding: The Special Role of Maternity Services. A Joint WHO/UNICEF Statement*. Geneva: World Health Organization, 1989.
229. Labarere J, Gelbert-Baudino N, Ayral AS, et al. Efficacy of breastfeeding support provided by trained clinicians during an early, routine, preventive visit: a prospective, randomized, open trial of 226 mother-infant pairs. *Pediatrics* 2005;115:e139-46.
230. Wagner CL, Eicher DJ, Cahill JB. Breastfeeding: what the primary care provider should know. *J S C Med Assoc* 2002;98:122-8.
231. Lu MC, Lange L, Slusser W, Hamilton J, Halfon N. Provider encouragement of breast-feeding: evidence from a national survey. *Obstet Gynecol* 2001;97:290-5.

REFERENCES

232. Cricco-Lizza R. Black non-Hispanic mothers' perceptions about the promotion of infant-feeding methods by nurses and physicians. *J Obstet Gynecol Neonatal Nurs* 2006;35:173-80.
233. Heinig MJ, Kavanagh-Prochaska K. *Results of the 2001-2002 California Statewide Breastfeeding Needs Assessment*. Davis, CA: University of California, Davis, 2002:1-36. Available at URL: <http://lactation.ucdavis.edu> (accessed March 14, 2007).
234. Beal AC, Kuhlthau K, Perrin JM. Breastfeeding advice given to African American and white women by physicians and WIC counselors. *Public Health Rep* 2003;118:368-76.
235. Naylor AJ, Creer AE, Woodward-Lopez G, Dixon S. Lactation management education for physicians. *Semin Perinatol* 1994;18:525-31.
236. Satcher DS. DHHS blueprint for action on breastfeeding. *Public Health Rep* 2001;116:72-3.
237. Krogstrand KS, Parr K. Physicians ask for more problem-solving information to promote and support breastfeeding. *J Am Diet Assoc* 2005;105:1943-7.
238. Schanler RJ, O'Connor KG, Lawrence RA. Pediatricians' practices and attitudes regarding breastfeeding promotion. *Pediatrics* 1999;103:E35.
239. Guise JM, Freed G. Resident physicians' knowledge of breastfeeding and infant growth. *Birth* 2000;27:49-53.
240. Howard CR, Schaffer SJ, Lawrence RA. Attitudes, practices, and recommendations by obstetricians about infant feeding. *Birth* 1997;24:240-6.
241. Saenz RB. A lactation management rotation for family medicine residents. *J Hum Lact* 2000;16:342-5.
242. Hillenbrand KM, Larsen PG. Effect of an educational intervention about breastfeeding on the knowledge, confidence, and behaviors of pediatric resident physicians. *Pediatrics* 2002;110:e59.
243. Callister LC. What has the literature taught us about culturally competent care of women and children. *MCN Am J Matern Child Nurs* 2005;30:380-8.
244. Haughwout JC, Eglash AR, Plane MB, Mundt MP, Fleming MF. Improving residents' breastfeeding assessment skills: a problem-based workshop. *Fam Pract* 2000;17:541-6.
245. Bennett NL, Casebeer LL, Kristofco R, Collins BC. Family physicians' information seeking behaviors: a survey comparison with other specialties. *BMC Med Inform Decis Mak* 2005;5:9.
246. Casebeer L, Bennett N, Kristofco R, Carillo A, Centor R. Physician Internet medical information seeking and on-line continuing education use patterns. *J Contin Educ Health Prof* 2002;22:33-42.
247. 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;158:897-902.
248. Coutinho SB, de Lira PI, de Carvalho Lima M, Ashworth A. Comparison of the effect of two systems for the promotion of exclusive breastfeeding. *Lancet* 2005;366:1094-100.
249. Bonuck KA, Trombley M, Freeman K, McKee D. Randomized, controlled trial of a prenatal and postnatal lactation consultant intervention on duration and intensity of breastfeeding up to 12 months. *Pediatrics* 2005;116:1413-26.
250. Kruse L, Denk CE, Feldman-Winter L, Rotondo FM. Comparing sociodemographic and hospital influences on breastfeeding initiation. *Birth* 2005;32:81-5.
251. Bruce NG, Khan Z, Olsen ND. Hospital and other influences on the uptake and maintenance of breast feeding: the development of infant feeding policy in a district. *Public Health* 1991;105:357-68.
252. Chamberlain LB, McMahan M, Philipp BL, Merewood A. Breast pump access in the inner city: a hospital-based initiative to provide breast pumps for low-income women. *J Hum Lact* 2006;22:94-8.
253. Johnson P. Medicaid issue brief: Medicaid: benefits and services: year end report-2005. *Issue Brief Health Policy Track Serv* 2005:1-21.
254. Alexander GR, Hulsey TC, Foley K, Keller E, Cairns K. An assessment of the use and impact of ancillary prenatal care services to Medicaid women in managed care. *Matern Child Health J* 1997;1:139-49.
255. DiGirolamo AM, Grummer-Strawn LM, Fein SB. Do perceived attitudes of physicians and hospital staff affect breastfeeding decisions? *Birth* 2003;30:94-100.
256. DiGirolamo A, Thompson N, Martorell R, Fein S, Grummer-Strawn L. Intention or experience? Predictors of continued breastfeeding. *Health Educ Behav* 2005;32:208-26.
257. Lee HJ, Rubio MR, Elo IT, McCollum KF, Chung EK, Culhane JF. Factors associated with intention to breastfeed among low-income, inner-city pregnant women. *Matern Child Health J* 2005;9:253-61.

REFERENCES

258. Donath SM, Amir LH. Relationship between prenatal infant feeding intention and initiation and duration of breastfeeding: a cohort study. *Acta Paediatr* 2003;92:352-6.
259. Dyson L, McCormick F, Renfrew MJ. Interventions for promoting the initiation of breastfeeding. *Cochrane Database Syst Rev* 2005:CD001688.
260. Shealy K. *The CDC Guide to Breastfeeding Interventions*. Atlanta, GA: Centers for Disease Control, 2005.
261. Wambach K, Campbell SH, Gill SL, Dodgson JE, Abiona TC, Heinig MJ. Clinical lactation practice: 20 years of evidence. *J Hum Lact* 2005;21:245-258.
262. Dunn S, Davies B, McCleary L, Edwards N, Gaboury I. The relationship between vulnerability factors and breastfeeding outcome. *J Obstet Gynecol Neonatal Nurs* 2006;35:87-97.
263. Noel-Weiss J, Bassett V, Cragg B. Developing a prenatal breastfeeding workshop to support maternal breastfeeding self-efficacy. *J Obstet Gynecol Neonatal Nurs* 2006;35:349-57.
264. Merewood A, Mehta SD, Chamberlain LB, Philipp BL, Bauchner H. Breastfeeding rates in US Baby-Friendly hospitals: results of a national survey. *Pediatrics* 2005;116:628-34.
265. Kramer MS, Chalmers B, Hodnett ED, et al. Promotion of Breastfeeding Intervention Trial (PROBIT): a randomized trial in the Republic of Belarus. *JAMA* 2001;285:413-20.
266. Merten S, Dratva J, Ackermann-Liebrich U. Do baby-friendly hospitals influence breastfeeding duration on a national level? *Pediatrics* 2005;116:e702-8.
267. DiGirolamo AM, Grummer-Strawn LM, Fein S. Maternity care practices: implications for breastfeeding. *Birth* 2001;28:94-100.
268. Merewood A, Philipp BL, Chawla N, Cimo S. The baby-friendly hospital initiative increases breastfeeding rates in a US neonatal intensive care unit. *J Hum Lact* 2003;19:166-71.
269. Naylor AJ. Baby-Friendly Hospital Initiative. Protecting, promoting, and supporting breastfeeding in the twenty-first century. *Pediatr Clin North Am* 2001;48:475-83.
270. Martens PJ, Derksen S, Gupta S. Predictors of hospital readmission of Manitoba newborns within six weeks postbirth discharge: a population-based study. *Pediatrics* 2004;114:708-13.
271. California Health and Safety Code, Section 123360-123365.
272. Heinig MJ, Bañuelos J, Tiffin L, et al. Maternity and Infant Care Policies and Practices Are Related to In-Hospital Exclusive Breastfeeding Rates in California. Sacramento, CA: University of California, Davis, 2006.
273. California Department of Health Services and California Conference of Local Health Officers. County Health Status Profiles 2005. Sacramento, CA: Newborn Screening Program, Genetic Disease Branch, California Department of Health Services, 2005.
274. Kuan LW, Britto M, Decolongon J, Schoettker PJ, Atherton HD, Kotagal UR. Health system factors contributing to breastfeeding success. *Pediatrics* 1999;104:e28.
275. Anderson AK, Damio G, Young S, Chapman DJ, Perez-Escamilla R. A randomized trial assessing the efficacy of peer counseling on exclusive breastfeeding in a predominantly Latina low-income community. *Arch Pediatr Adolesc Med* 2005;159:836-41.
276. Stremler J, Lovera D. Insight from a breastfeeding peer support pilot program for husbands and fathers of Texas WIC participants. *J Hum Lact* 2004;20:417-22.
277. Hedges S, Simmes D, Martinez A, Linder C, Brown S. A home visitation program welcomes home first-time moms and their infants. *Home Healthc Nurse* 2005;23:286-9.
278. Hangsleben K, Jones M, Lia-Hoagberg B, Skovholt C, Wingeier R. Medicaid and non-Medicaid prenatal care by nurse-midwives. Comparison of risk, time, care coordination, and reimbursement. *J Nurse-Midwifery* 1995;40:320-7.
279. Oberg CN, Lia-Hoagberg B, Hodkinson E, Skovholt C, Vanman R. Prenatal care comparisons among privately insured, uninsured, and Medicaid-enrolled women. *Public Health Rep* 1990;105:533-5.
280. Heinig MJ, Follett JR, Ishii KD, Kavanagh-Prochaska K, Cohen R, Panchula J. Barriers to compliance with infant-feeding recommendations among low-income women. *J Hum Lact* 2006;22:27-38.
281. Khoury AJ, Mitra AK, Hinton A, Carothers C, Sheil H. An innovative video succeeds in addressing barriers to breastfeeding among low-income women. *J Hum Lact* 2002;18:125-31.
282. Stein MT, Boies EG, Snyder D. Parental concerns about extended breastfeeding in a toddler. *J Dev Behav Pediatr* 2004;25:S107-11.

REFERENCES

283. Earle S. Why some women do not breast feed: bottle feeding and fathers' role. *Midwifery* 2000;16:323-30.
284. Pisacane A, Continisio GI, Aldinucci M, D'Amora S, Continisio P. A controlled trial of the father's role in breastfeeding promotion. *Pediatrics* 2005;116:e494-8.
285. Meier PP, Engstrom JL, Mingolelli SS, Miracle DJ, Kiesling S. The Rush Mothers' Milk Club: breastfeeding interventions for mothers with very-low-birth-weight infants. *J Obstet Gynecol Neonatal Nurs* 2004;33:164-74.
286. Sciacca JP, Phipps BL, Dube DA, Ratliff MI. Influences on breast-feeding by lower-income women: an incentive-based, partner-supported educational program. *J Am Diet Assoc* 1995;95:323-8.
287. Gross SM, Caulfield LE, Bentley ME, et al. Counseling and motivational videotapes increase duration of breast-feeding in African-American WIC participants who initiate breast-feeding. *J Am Diet Assoc* 1998;98:143-8.
288. Wolf JH. Low breastfeeding rates and public health in the United States. *Am J Public Health* 2003;93:2000-10.
289. Munstedt K, von Georgi R, Eichel V, Kullmer U, Zygmunt M. Wishes and expectations of pregnant women and their partners concerning delivery. *J Perinat Med* 2000;28:482-90.
290. Sofaer S, Crofton C, Goldstein E, Hoy E, Crabb J. What do consumers want to know about the quality of care in hospitals? *Health Serv Res* 2005;40:2018-36.
291. Combier E, Zeitlin J, de Courcel N, et al. Choosing where to deliver: decision criteria among women with low-risk pregnancies in France. *Soc Sci Med* 2004;58:2279-89.
292. Hibbard JH, Stockard J, Tusler M. It isn't just about choice: the potential of a public performance report to affect the public image of hospitals. *Med Care Res Rev* 2005;62:358-71.
293. Hibbard JH, Stockard J, Tusler M. Hospital performance reports: impact on quality, market share, and reputation. *Health Aff (Millwood)* 2005;24:1150-60.
294. Anderson AK, Damio G, Himmelgreen DA, Peng YK, Segura-Perez S, Perez-Escamilla R. Social capital, acculturation, and breastfeeding initiation among Puerto Rican women in the United States. *J Hum Lact* 2004;20:39-45.
295. Zahner SJ, Corrado SM. Local health department partnerships with faith-based organizations. *J Public Health Manag Pract* 2004;10:258-65.
296. DeHaven MJ, Hunter IB, Wilder L, Walton JW, Berry J. Health programs in faith-based organizations: are they effective? *Am J Public Health* 2004;94:1030-6.
297. Humphreys AS, Thompson NJ, Miner KR. Intention to breastfeed in low-income pregnant women: the role of social support and previous experience. *Birth* 1998;25:169-74.
298. Dennis CL, Hodnett E, Gallop R, Chalmers B. The effect of peer support on breast-feeding duration among primiparous women: a randomized controlled trial. *Cmaj* 2002;166:21-8.
299. Dennis CL. Breastfeeding peer support: maternal and volunteer perceptions from a randomized controlled trial. *Birth* 2002;29:169-76.
300. McInnes RJ, Love JG, Stone DH. Evaluation of a community-based intervention to increase breastfeeding prevalence. *J Public Health Med* 2000;22:138-45.
301. Martens PJ. Increasing breastfeeding initiation and duration at a community level: an evaluation of Sagkeeng First Nation's community health nurse and peer counselor programs. *J Hum Lact* 2002;18:236-46.
302. Schafer E, Vogel MK, Viegas S, Hausafus C. Volunteer peer counselors increase breastfeeding duration among rural low-income women. *Birth* 1998;25:101-6.
303. Morrow AL, Guerrero ML, Shults J, et al. Efficacy of home-based peer counseling to promote exclusive breastfeeding: a randomised controlled trial. *Lancet* 1999;353:1226-31.
304. Pugh LC, Milligan RA, Frick KD, Spatz D, Bronner Y. Breastfeeding duration, costs, and benefits of a support program for low-income breastfeeding women. *Birth* 2002;29:95-100.
305. Ingram J, Johnson D, Hamid N. South Asian grandmothers' influence on breast feeding in Bristol. *Midwifery* 2003;19:318-27.
306. Li R, Darling N, Maurice E, Barker L, Grummer-Strawn LM. Breastfeeding rates in the United States by characteristics of the child, mother, or family: the 2002 National Immunization Survey. *Pediatrics* 2005;115:e31-7.
307. Holman DJ, Grimes MA. Patterns for the initiation of breastfeeding in humans. *Am J Hum Biol* 2003;15:765-80.

REFERENCES

308. Hoddinott P, Pill R. Qualitative study of decisions about infant feeding among women in east end of London. *BMJ* 1999;318:30-4.
309. Porteous R, Kaufman K, Rush J. The effect of individualized professional support on duration of breastfeeding: a randomized controlled trial. *J Hum Lact* 2000;16:303-8.
310. Bronner Y, Barber T, Vogelhut J, Resnik AK. Breastfeeding peer counseling: results from the National WIC Survey. *J Hum Lact* 2001;17:119-25; quiz 132-4, 168.
311. Merewood A, Philipp BL. Peer counselors for breastfeeding mothers in the hospital setting: trials, training, tributes, and tribulations. *J Hum Lact* 2003;19:72-6.
312. Sullivan ML, Leathers SJ, Kelley MA. Family characteristics associated with duration of breastfeeding during early infancy among primiparas. *J Hum Lact* 2004;20:196-205.
313. Brach C, Fraser I. Can cultural competency reduce racial and ethnic health disparities? A review and conceptual model. *Med Care Res Rev* 2000;57 Suppl 1:181-217.
314. Betancourt JR, Green AR, Carrillo JE, Park ER. Cultural competence and health care disparities: key perspectives and trends. *Health Aff (Millwood)* 2005;24:499-505.
315. Taylor SL, Lurie N. The role of culturally competent communication in reducing ethnic and racial healthcare disparities. *Am J Manag Care* 2004;10 Spec No:sp1-4.
316. Dougherty RH. Reducing disparity in behavioral health services: a report from the American College of Mental Health Administration. *Adm Policy Mental Health* 2004;31:253-63.
317. US Department of Health and Human Services (DHHS). National Center for Health Statistics. The 2005 National Immunization Survey, Table 2: Geographic-specific Breastfeeding Rates. Hyattsville, MD: Centers for Disease Control and Prevention, 2006. Available at URL: <http://www.cdc.gov/nis/datafiles.htm> (accessed March 14, 2007).
318. Piper S, Parks PL. Predicting the duration of lactation: evidence from a national survey. *Birth* 1996;23:7-12.
319. Visness CM, Kennedy KI. Maternal employment and breast-feeding: findings from the 1988 National Maternal and Infant Health Survey. *Am J Public Health* 1997;87:945-50.
320. Noble S. Maternal employment and the initiation of breastfeeding. *Acta Paediatr* 2001;90:423-8.
321. Hanson MB, Hellerstedt WL, Desvarieux M, Duval SJ. Correlates of breast-feeding in a rural population. *Am J Health Behav* 2003;27:432-44.
322. Scott JA, Binns CW, Oddy WH, Graham KI. Predictors of breastfeeding duration: evidence from a cohort study. *Pediatrics* 2006;117:e646-55.
323. California Labor Code, Sections 1030-1033, 2001.
324. Cohen R, Mrtek MB. The impact of two corporate lactation programs on the incidence and duration of breast-feeding by employed mothers. *Am J Health Promot* 1994;8:436-41.
325. Thompson PE, Bell P. Breast-feeding in the workplace: how to succeed. *Issues Compr Pediatr Nurs* 1997;20:1-9.
326. Whaley SE, Meehan K, Lange L, Slusser W, Jenks E. Predictors of breastfeeding duration for employees of the Special Supplemental Nutrition Program for Women, Infants, and Children (WIC). *J Am Diet Assoc* 2002;102:1290-3.
327. Ortiz J, McGilligan K, Kelly P. Duration of breast milk expression among working mothers enrolled in an employer-sponsored lactation program. *Pediatr Nurs* 2004;30:111-9.
328. US Department of Labor, Bureau of Labor Statistics. Table 7. Employment status of women by presence and age of youngest child, 1975-2004. Available at URL: <http://www.bls.gov/cps/wlf-databook2005.htm> (accessed March 21, 2007).
329. Slusser WM, Lange L, Dickson V, Hawkes C, Cohen R. Breast milk expression in the workplace: a look at frequency and time. *J Hum Lact* 2004;20:164-9.
330. Hills-Bonczyk SG, Avery MD, Savik K, Potter S, Duckett LJ. Women's experiences with combining breast-feeding and employment. *J Nurse Midwifery* 1993;38:257-66.
331. Rea MF, Venancio SI, Batista LE, dos Santos RG, Greiner T. [Possibilities and limitations of breast-feeding among formally employed women]. *Rev Saude Publica* 1997;31:149-56.
332. Osis MJ, Duarte GA, Padua KS, Hardy E, Sandoval LE, Bento SF. [Exclusive breastfeeding among working women with free daycare available at workplace]. *Rev Saude Publica* 2004;38:172-9.

REFERENCES

333. Dodgson JE, Chee YO, Yap TS. Workplace breastfeeding support for hospital employees. *J Adv Nurs* 2004;47:91-100.
334. US Department of Labor, Bureau of Labor Statistics. *Women in the Labor Force in 2005*. Washington, DC: US Department of Labor, 2006.
335. Cohen R, Lange L, Slusser W. A description of a male-focused breastfeeding promotion corporate lactation program. *J Hum Lact* 2002;18:61-5.
336. Cohen R, Mrtek MB, Mrtek RG. Comparison of maternal absenteeism and infant illness rates among breast-feeding and formula-feeding women in two corporations. *Am J Health Promot* 1995;10:148-53.
337. California Child Care Resource & Referral Network. *The 2005 California Child Care Portfolio*. San Francisco, CA: California Child Care Resource & Referral Network, 2005.
338. Institute of Medicine. *WIC Food Packages: Time for a Change*. Washington, DC: IOM, 2004.
339. Swanson V, Power KG. Initiation and continuation of breastfeeding: theory of planned behaviour. *J Adv Nurs* 2005;50:272-82.
340. Shepherd CK, Power KG, Carter H. Examining the correspondence of breastfeeding and bottle-feeding couples' infant feeding attitudes. *J Adv Nurs* 2000;31:651-60.
341. Wambach KA. Breastfeeding intention and outcome: a test of the theory of planned behavior. *Res Nurs Health* 1997;20:51-9.
342. Freed GL, Fraley JK. Effect of expectant mothers' feeding plan on prediction of fathers' attitudes regarding breast-feeding. *Am J Perinatol* 1993;10:300-3.
343. Kong SK, Lee DT. Factors influencing decision to breastfeed. *J Adv Nurs* 2004;46:369-79.
344. California Department of Health Services, Division of Chronic Disease and Injury Control, Cancer Prevention and Nutrition Section. Available at URL: <http://www.dhs.ca.gov/> (accessed June 14, 2006).
345. Vaidya K, Sharma A, Dhungel S. Effect of early mother-baby close contact over the duration of exclusive breastfeeding. *Nepal Med Coll J* 2005;7:138-40.
346. Mizuno K, Mizuno N, Shinohara T, Noda M. Mother-infant skin-to-skin contact after delivery results in early recognition of own mother's milk odor. *Acta Paediatr* 2004;93:1640-5.
347. Mikiel-Kostyra K, Mazur J, Boltruszko I. Effect of early skin-to-skin contact after delivery on duration of breastfeeding: a prospective cohort study. *Acta Paediatr* 2002;91:1301-6.
348. California Department of Health Services and California Conference of Local Health Officers. *County Health Status Profiles 2005*. Table 24: Breastfeeding Initiation during Early Postpartum, 2001-2003. Sacramento: Newborn Screening Program, Genetic Disease Branch, California Department of Health Services, 2005.
349. US Department of Health and Human Services (DHHS). *Healthy People 2010 Objectives* (Conference Edition, in Two Volumes). Washington, DC: US Department of Health and Human Services, 2000.
350. US Department of Health and Human Services (DHHS). National Center for Health Statistics. *The 2004 National Immunization Survey*. Atlanta, GA: Centers for Disease Control and Prevention, 2005. Available at URL: http://www.cdc.gov/breastfeeding/data/NIS_data/data_2004.htm
351. California Department of Health Services, Maternal Child, and Adolescent Health, Office of Family Planning Branch. *California Maternal and Infant Health Assessment Survey*. Sacramento, CA: California Department of Health Services, 2004.
352. Riordan J, Bibb D, Miller M, Rawlins T. Predicting breastfeeding duration using the LATCH breastfeeding assessment tool. *J Hum Lact* 2001;17:20-3.
353. Riordan J, Gill-Hopple K, Angeron J. Indicators of effective breastfeeding and estimates of breast milk intake. *J Hum Lact* 2005;21:406-12.
354. Dennis CL. The breastfeeding self-efficacy scale: psychometric assessment of the short form. *J Obstet Gynecol Neonatal Nurs* 2003;32:734-44.
355. Bonuck KA, Freeman K, Trombley M. Country of origin and race/ethnicity: impact on breastfeeding intentions. *J Hum Lact* 2005;21:320-6.
356. Tuttle CR, Dewey KG. Potential cost savings for Medi-Cal, AFDC, food stamps, and WIC programs associated with increasing breast-feeding among low-income Hmong women in California. *J Am Diet Assoc* 1996;96:885-90.

APPENDIX A

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APPENDIX B

GLOSSARY/ACRONYMS

AAFP	American Academy of Family Practice	IOM	Institute of Medicine
AAP	American Academy of Pediatrics	ISIS	Integrated Statewide Information System
ABM	Academy of Breastfeeding Medicine	LC-PUFA	Long-chain polyunsaturated fatty acids
ACOG	American College of Obstetrics and Gynecology	LDL	Low-density lipoprotein
ADA	American Dietetic Association	LLLI	La Leche League International
BFHI	Baby-Friendly Hospital Initiative	MCAH/OFP	Maternal, Child and Adolescent Health/Office of Family Planning Branch, California Department of Health Services (DHS)
BIH	Black Infant Health	MIHA	Maternal and Infant Health Assessment
BMD	Bone mineral density	NICU	Neonatal Intensive Care Unit
CBC	California Breastfeeding Coalition	NIH	National Institutes of Health
CDC	Centers for Disease Control	NIS	National Immunization Survey
CDE	California Department of Education	NSFG	National Survey of Family Growth
CDHS	California Department of Health Services	NSP	Newborn Screening Program, Genetic Disease Branch, California DHS
CHDP	Child Health and Disability Prevention Program	OB/GYN	Obstetrics/Gynecology
CLE	Certified lactation educator	PNSS	Pediatric Nutrition Surveillance System
CMA	California Medical Association	PRAMS	Pregnancy Risk Assessment Monitoring System, Centers for Disease Control and Prevention
CMS	Children's Medical Services Branch, California Department of Health Services	RA	Rheumatoid arthritis
CPQCC	California Perinatal Quality Care Collaborative	RLMS	Ross Laboratories Mothers Survey
CPSP	Comprehensive Perinatal Services Program	RPPC	Regional Perinatal Programs of California
ECC	Early childhood caries	SIDS	Sudden Infant Death Syndrome
EOC	Epithelial ovarian cancer	TAR	Treatment authorization request
GDB	Genetic Disease Branch, California Department of Health Services	USBC	United States Breastfeeding Committee
HEDIS	Health Plan Employer Data and Information Set	USDA	United States Department of Agriculture
HDL	High-density lipoprotein	WHO	World Health Organization
HMBANA	Human Milk Banking Association of North America	WIC	Women, Infants and Children Supplemental Nutrition Program
IBCLC	International board-certified lactation consultant		
ILCA	International Lactation Consultant Association		

APPENDIX C

CALIFORNIA IN-HOSPITAL BREASTFEEDING INITIATION, 2005 BY COUNTY OF OCCURRENCE AND FACILITY

County/ Facility Name	Births with Known Method of Feeding	Percent Any Breastfeeding	Percent Exclusive Breastfeeding	Difference Between Any and Exclusive Rates
California	508,219	86.3	42.1	44.2
Alameda	18,899	93.1	74.1	19.0
Alta Bates Community Hospital	6,755	94.0	85.4	8.7
Children's Hospital Medical Center	153	71.2	34.6	36.6
Eden Medical Center	1,020	88.4	64.4	24.0
Hayward Kaiser Hospital	2,879	95.9	91.0	4.9
Highland General Hospital	1,121	85.6	38.3	47.4
Oakland Kaiser Hospital	2,220	96.5	64.1	32.4
St. Rose Hospital	1,076	86.5	77.1	9.4
Valley Care Medical Center	1,252	90.8	60.4	30.4
Washington Hospital	2,353	94.8	59.7	35.1
Amador	201	90.5	53.7	36.8
Sutter Amador Hospital	201	90.5	53.7	36.8
Butte	2,740	87.9	67.1	20.8
Enloe Memorial Hospital	1,609	90.1	65.0	25.1
Feather River Hospital	589	93.9	90.7	3.2
Oroville Hospital	532	74.2	46.8	27.4
Calaveras	126	92.9	20.6	72.2
Mark Twain St. Joseph's Hospital	126	92.9	20.6	72.2
Colusa	223	87.4	13.0	74.4
Colusa Regional Medical Center	223	87.4	13.0	74.4
Contra Costa	11,222	92.5	60.8	31.7
Contra Costa Regional Medical Center	1,878	90.1	52.6	37.5
Doctors Medical Center-San Pablo	660	84.8	37.6	47.3
John Muir Memorial Hospital	2,659	92.9	54.4	38.5
San Ramon Regional Medical Center	786	93.4	56.5	36.9
Sutter Delta Medical Center	980	85.5	48.7	36.8
Walnut Creek Kaiser Hospital	4,212	95.8	75.6	20.3
Del Norte	289	90.7	62.6	28.0
Sutter Coast Hospital	287	90.6	62.4	28.2
El Dorado	989	92.3	65.1	27.2
Barton Memorial Hospital	422	90.3	37.7	52.6
Marshall Hospital	567	93.8	85.5	8.3

APPENDIX C

County/ Facility Name	Births with Known Method of Feeding	Percent Any Breastfeeding	Percent Exclusive Breastfeeding	Difference Between Any and Exclusive Rates
Fresno	15,363	85.7	40.5	45.2
Clovis Community Hospital	2,378	90.2	76.7	13.5
Fresno Community Hospital and Medical Center	6,831	81.2	16.0	65.2
Fresno Kaiser Permanente Medical Center	1,156	92.0	58.2	33.7
Selma District Hospital	774	88.2	22.5	65.8
Sierra Kings Hospital	1,477	86.7	14.3	72.4
St. Agnes Medical Center	2,741	89.1	81.9	7.2
Humboldt	1,497	90.9	66.2	24.7
Mad River Community Hospital	500	94.2	67.0	27.2
Redwood Memorial Hospital	348	90.2	72.7	17.5
St. Joseph Hospital	643	88.6	61.7	26.9
Imperial	2,729	83.2	7.4	75.8
El Centro Regional Medical Center	1,246	75.8	9.4	66.4
Pioneers Memorial Hospital	1,483	89.4	5.7	83.7
Inyo	148	92.6	76.4	16.2
Northern Inyo Hospital	148	92.6	76.4	16.2
Kern	12,381	80.8	20.7	60.1
Bakersfield Memorial Hospital	2,152	69.5	17.3	52.2
Delano Regional Medical Center	838	89.4	*	*
Kaiser Mercy Southwest Hospital	899	80.6	39.6	41.1
Kern Medical Center	4,157	90.4	5.6	84.9
Mercy Southwest Hospital	2,078	83.0	44.9	38.2
Ridgecrest Regional Hospital	425	96.5	95.1	1.4
San Joaquin Community Hospital	1,824	61.8	14.1	47.7
Kings	1,651	70.1	28.4	41.7
Central Valley General Hospital	1,651	70.1	28.4	41.7
Lake	486	87.2	42.2	45.1
Redbud Community Hospital	166	88.6	47.0	41.6
Sutter Lakeside Hospital	320	86.6	39.7	46.9
Lassen	114	90.4	75.4	14.9
Banner Lassen Medical Center	114	90.4	75.4	14.9
Los Angeles	146,648	82.9	24.9	57.9
Antelope Valley Medical	4,555	87.5	40.9	46.6

APPENDIX C

County/ Facility Name	Births with Known Method of Feeding	Percent Any Breastfeeding	Percent Exclusive Breastfeeding	Difference Between Any and Exclusive Rates
Bellflower Medical Center	1,109	89.1	*	*
Beverly Hospital	1,906	77.5	4.4	73.1
California Hospital Medical Center	4,028	83.1	2.6	80.5
Cedars-Sinai Medical Center	6,516	91.7	48.6	43.2
Centinela Hospital	2,109	67.0	5.2	61.8
Children's Hospital Los Angeles	41	53.7	*	*
Citrus Valley-Queen of the Valley	5,211	75.2	11.8	63.4
Daniel Freeman Memorial Hospital	1,609	76.3	10.4	65.9
Downey Community Hospital	1,297	72.2	11.8	60.4
East Los Angeles Doctors	948	93.0	*	*
East Valley Hospital Medical Center	449	68.4	*	*
Foothill Presbyterian Hospital	629	83.5	50.7	32.8
Garfield Medical Center	3,939	89.0	16.2	72.8
Glendale Adventist Medical Center	2,021	92.8	37.8	55.0
Glendale Memorial Hospital and Health Center	1,724	91.7	68.5	23.2
Good Samaritan Hospital	4,418	85.4	14.9	70.5
Greater El Monte Hospital	824	91.3	*	*
Henry Mayo Newhall Memorial Hospital	1,198	90.9	50.0	40.9
Holy Cross Medical Center	2,694	91.1	61.8	29.3
Huntington Memorial Hospital	3,171	88.5	34.6	53.9
Kaiser Antelope Valley	79	93.7	60.8	32.9
Kaiser Baldwin Park	3,066	82.7	34.3	48.5
Kaiser Bellflower	3,263	86.0	29.9	56.1
Kaiser Harbor City	1,692	80.3	24.0	56.3
Kaiser Panorama City	1,556	85.5	31.8	53.7
Kaiser Sunset	2,087	90.4	33.7	56.6
Kaiser West Los Angeles	1,373	81.2	27.7	53.5
Kaiser Woodland Hills	1,637	88.7	30.5	58.2
LAC Harbor-UCLA Medical Center	795	79.9	25.8	54.1
LAC+USC Medical Center	1,193	75.5	30.6	44.9

APPENDIX C

County/ Facility Name	Births with Known Method of Feeding	Percent Any Breastfeeding	Percent Exclusive Breastfeeding	Difference Between Any and Exclusive Rates
Little Company of Mary Hospital	2,507	87.7	44.8	42.8
Long Beach Memorial Medical Center	5,866	80.2	38.0	42.1
Los Angeles Community Hospital	419	70.9	*	*
Los Angeles Metropolitan Medical Center	971	84.7	*	*
Martin Luther King Jr. Medical Center	477	23.7	4.2	19.5
Medical Center Tarzana	3,222	85.8	20.5	65.3
Memorial Hospital of Gardena	1,302	44.7	2.0	42.7
Methodist Hospital of Southern California	2,129	86.3	32.1	54.2
Mission Hospital	1,728	73.7	1.3	72.4
Monterey Park Hospital	1,820	59.2	1.7	57.5
Northridge Hospital Medical Center	2,417	85.4	16.2	69.2
Olive View Medical Center	856	86.0	3.4	82.6
Pacific Alliance Medical Center, Inc.	1,951	99.3	1.2	98.1
Pacific Hospital	985	69.5	*	*
Pacifica Hospital of the Valley	997	95.2	*	*
Pomona Valley Hospital Medical Center	6,694	70.0	16.1	53.8
Presbyterian Intercommunity Hospital	3,576	81.3	40.4	40.9
Providence St. Joseph Medical Center	2,680	88.7	41.0	47.7
Queen of Angels-Hollywood Presbyterian	3,888	68.6	5.8	62.8
Saint John's Hospital	1,712	96.7	73.6	23.1
San Dimas Community Hospital	696	87.1	54.3	32.8
San Gabriel Valley Medical Center	1,822	63.3	8.4	54.9
San Pedro Peninsula Hospital	727	73.0	12.9	60.1
Santa Monica Hospital	1,504	92.4	74.8	17.6
St. Francis Hospital Lynwood	6,634	94.3	7.4	86.9
St. Mary Medical Center	2,464	86.3	7.8	78.6
Suburban Medical Center	1,770	57.2	2.0	55.1

APPENDIX C

County/ Facility Name	Births with Known Method of Feeding	Percent Any Breastfeeding	Percent Exclusive Breastfeeding	Difference Between Any and Exclusive Rates
Torrance Memorial Hospital	3,760	82.3	44.7	37.7
UCLA Medical Center, CHS	1,818	92.7	73.4	19.3
Valley Presbyterian Hospital	4,450	78.9	4.2	74.8
Verdugo Hills Hospital	865	90.1	43.6	46.5
West Hills Hospital and Medical Center	1,222	89.4	51.6	37.9
White Memorial Medical Center	3,557	89.4	20.2	69.2
Whittier Hospital	1,820	89.9	13.3	76.6
Madera	2,046	75.0	26.7	48.3
Children's Hospital Central California	514	58.8	9.9	48.8
Madera Community Hospital	1,527	80.4	32.2	48.3
Marin	1,665	98.6	89.5	9.1
Marin General Hospital	1,630	98.5	89.4	9.1
Mendocino	984	92.1	73.9	18.2
Mendocino Coast Hospital	170	96.5	85.9	10.6
Ukiah Valley Medical Center	796	91.0	70.7	20.2
Merced	3,042	85.0	26.6	58.3
Memorial Hospital Los Banos	621	95.3	5.3	90.0
Mercy Community Medical Center	2,416	82.3	32.1	50.2
Mono	128	95.3	68.0	27.3
Mammoth Hospital	128	95.3	68.0	27.3
Monterey	6,111	93.9	53.1	40.8
George L. Mee Memorial Hospital	562	91.1	6.0	85.1
Monterey Peninsula Community Hospital	1,170	96.2	92.5	3.7
Natividad Medical Center	2,227	94.6	25.3	69.3
Salinas Valley Memorial Hospital	2,152	92.6	72.6	20.0
Napa	1,083	94.3	68.0	26.3
Queen of the Valley	823	94.2	73.1	21.0
St. Helena Hospital and Health Center	259	94.6	51.4	43.2
Nevada	906	96.8	77.6	19.2
Sierra Nevada Memorial Hospital	436	94.5	90.4	4.1
Tahoe Forest Hospital	412	98.8	60.9	37.9

APPENDIX C

County/ Facility Name	Births with Known Method of Feeding	Percent Any Breastfeeding	Percent Exclusive Breastfeeding	Difference Between Any and Exclusive Rates
Orange	43,133	84.6	29.7	54.9
Anaheim General Hospital	438	91.1	*	*
Anaheim Memorial Medical Center	1,716	80.4	12.0	68.4
Children's Hospital Orange County	253	68.8	27.3	41.5
Children's Hospital Orange County at Mission	141	69.5	*	*
Coastal Communities Hospital	2,096	97.8	*	*
Fountain Valley Regional Medical Center	3,075	66.0	8.3	57.7
Garden Grove Hospital	2,519	75.9	4.8	71.1
Hoag Memorial-Presbyterian Hospital	4,426	89.9	42.6	47.3
Irvine Medical Center	1,163	89.5	34.0	55.5
Kaiser Irvine Medical Center	742	87.6	38.0	49.6
Kaiser Anaheim	2,988	87.1	42.0	45.1
La Palma Intercommunity Hospital	636	84.1	*	*
Los Alamitos Medical Center	1,545	88.0	31.6	56.4
Mission Hospital Regional Medical Center	2,574	90.8	34.0	56.8
Orange Coast Memorial Hospital	1,500	84.6	30.2	54.4
Placentia Linda Hospital	770	88.6	30.5	58.1
Saddleback Memorial Medical Center	2,927	89.8	59.7	30.0
South Coast Medical Center	726	90.4	50.0	40.4
St. Joseph's Hospital	4,437	89.1	57.5	31.6
St. Jude's Medical Center	1,723	85.3	52.1	33.3
UC Irvine Medical Center	1,230	75.8	25.7	50.1
Western Medical Center	3,047	75.9	6.0	69.9
Western Medical Center Anaheim	2,390	82.5	4.9	77.6
Placer	1,866	92.7	51.2	41.5
Sutter Auburn Faith Hospital	436	91.3	52.3	39.0
Sutter Roseville Medical Center	1,418	93.2	50.8	42.4
Plumas	78	89.7	87.2	2.6
Plumas District Hospital	77	89.6	87.0	2.6

APPENDIX C

County/ Facility Name	Births with Known Method of Feeding	Percent Any Breastfeeding	Percent Exclusive Breastfeeding	Difference Between Any and Exclusive Rates
Riverside	24,792	84.0	48.2	35.8
Corona Regional Medical Center	1,919	89.2	63.2	26.0
Desert Regional Medical Center	3,193	85.8	40.5	45.3
Hemet Valley Medical Center	973	81.1	42.3	38.7
Inland Valley Regional Medical Center	1,493	87.7	77.0	10.7
John F. Kennedy Memorial Hospital	3,011	79.9	39.9	40.0
Kaiser Riverside	3,281	90.7	71.7	19.0
Moreno Valley Community Hospital	1,424	82.2	34.6	47.5
Palo Verde Hospital	152	51.3	15.8	35.5
Parkview Community Medical Center	1,744	83.0	44.4	38.6
Rancho Springs Medical Center/Tenet	1,704	89.2	74.6	14.6
Riverside Community Hospital	2,794	84.5	51.1	33.4
Riverside County Regional Medical Center	2,799	74.7	10.3	64.4
San Geronio Memorial Hospital	296	75.7	14.5	61.1
Sacramento	22,399	85.1	56.8	28.4
Mercy General Hospital of Sacramento	2,543	76.6	25.9	50.7
Mercy Hospital of Folsom	1,131	92.9	61.5	31.5
Mercy San Juan Hospital	3,102	82.9	39.3	43.7
Methodist Hospital of Sacramento	1,202	84.1	39.3	44.8
Sacramento Kaiser Hospital	3,762	89.6	69.2	20.3
South Sacramento Kaiser Hospital	3,329	91.1	76.9	14.3
Sutter Memorial Hospital	4,950	82.2	61.6	20.6
UC Davis Medical Center	2,347	84.4	60.9	23.5
San Benito	571	92.1	17.2	75.0
Hazel Hawkins Memorial Hospital	571	92.1	17.2	75.0
San Bernardino	25,193	82.6	30.4	52.2
Arrowhead Regional Medical Center	3,583	95.3	3.8	91.5
Barstow Community Hospital	248	64.5	48.4	16.1

APPENDIX C

County/ Facility Name	Births with Known Method of Feeding	Percent Any Breastfeeding	Percent Exclusive Breastfeeding	Difference Between Any and Exclusive Rates
Chino Valley Medical Center	491	79.8	9.8	70.1
Colorado River Medical Center	150	76.0	31.3	44.7
Desert Valley Hospital	350	80.9	49.7	31.1
Doctors Hospital Medical Center of Montclair	1,145	80.5	7.8	72.8
Hi-Desert Medical Center	346	74.6	47.4	27.2
Kaiser Fontana	3,876	81.0	33.3	47.7
Loma Linda University Hospital	2,472	84.9	32.0	52.9
Mountains Community Hospital	143	90.9	67.8	23.1
Redlands Community Hospital	2,076	84.0	41.5	42.5
San Antonio Community Hospital	2,074	84.0	55.9	28.2
San Bernardino Community Hospital	2,383	75.9	19.4	56.5
St. Bernardine Medical Center	2,336	76.4	24.7	51.6
St. Mary Medical Center	2,150	83.8	55.3	28.5
Victor Valley Community Hospital	1,315	72.4	30.3	42.1
San Diego	39,236	90.0	58.9	31.2
Children's Hospital and Health Center	528	78.0	11.9	66.1
Fallbrook Hospital	401	91.5	49.4	42.1
Grossmont Hospital	3,367	87.2	57.1	30.1
Kaiser Palomar Medical Center	709	94.6	78.7	15.9
Kaiser San Diego	3,672	91.6	63.2	28.4
Palomar Medical Center	3,055	91.4	64.3	27.1
Paradise Valley Hospital	2,031	93.4	57.7	35.7
Pomerado Hospital	999	93.5	83.5	10.0
Scripps Memorial Hospital Chula Vista	1,731	89.8	45.1	44.7
Scripps Memorial Hospital La Jolla	2,867	96.8	89.2	7.6
Scripps Memorial Hospital Encinitas	1,388	97.4	85.8	11.6
Scripps Mercy Hospital	2,018	91.1	35.6	55.5
Sharp Chula Vista Medical Center	2,738	85.8	40.8	45.0
Sharp Mary Birch Hospital	7,632	86.7	54.8	31.9
Tri-City Medical Center	3,283	88.6	50.7	37.8
UC San Diego Medical Center	2,636	90.3	64.0	26.3

APPENDIX C

County/ Facility Name	Births with Known Method of Feeding	Percent Any Breastfeeding	Percent Exclusive Breastfeeding	Difference Between Any and Exclusive Rates
San Francisco	11,538	93.8	73.9	19.9
California Pacific Medical Center	5,566	94.3	74.4	19.9
San Francisco General Hospital	886	92.7	85.2	7.4
San Francisco Kaiser Hospital	2,391	94.3	74.4	19.8
St. Luke's Hospital	1,045	92.2	58.1	34.1
UCSF Hospital/Moffitt	1,569	93.0	74.4	18.6
San Joaquin	9,724	82.3	33.1	49.2
Dameron Hospital	1,196	65.9	50.1	15.8
Dameron Kaiser	1,334	85.2	73.8	11.4
Doctors Hospital of Manteca	756	80.3	37.2	43.1
Lodi Memorial Hospital	1,224	85.6	11.9	73.7
San Joaquin General Hospital	2,435	91.3	8.0	83.3
St. Joseph's Medical Center	2,097	76.4	31.7	44.7
Sutter Tracy Community Hospital	674	87.4	50.3	37.1
San Luis Obispo	2,462	94.2	72.8	21.3
French Hospital Medical Center	742	96.5	86.7	9.8
Sierra Vista Regional Medical Center	1,198	92.8	62.4	30.5
Twin Cities Community Hospital	498	93.6	76.3	17.3
San Mateo	5,099	95.5	67.1	28.4
Mills Peninsula Hospitals	2,113	95.7	75.5	20.2
Redwood City Kaiser Hospital	1,287	94.9	60.7	34.2
Sequoia Hospital	1,073	96.6	50.2	46.4
Seton Medical Center	604	93.9	80.3	13.6
Santa Barbara	5,748	92.7	50.8	41.9
Goleta Valley Cottage Hospital	339	96.5	78.8	17.7
Lompoc District Hospital	429	88.1	14.7	73.4
Marian Medical Center	2,674	91.4	31.3	60.1
Santa Barbara Cottage Hospital	2,300	94.5	76.0	18.5
Santa Clara	27,169	93.9	65.4	28.5
Columbia Good Samaritan Hospital	2,512	94.6	65.4	29.2
El Camino Hospital	4,056	98.0	91.7	6.2
Los Gatos Community Hospital	579	96.7	57.3	39.4
O'Connor Hospital	3,143	89.1	38.7	50.3
Regional Medical Center of San Jose	1,337	86.5	18.2	68.3

APPENDIX C

County/ Facility Name	Births with Known Method of Feeding	Percent Any Breastfeeding	Percent Exclusive Breastfeeding	Difference Between Any and Exclusive Rates
Saint Louise Regional Hospital	576	87.8	48.3	39.6
San Jose Kaiser Hospital	2,495	92.1	67.0	25.1
Santa Clara Kaiser Hospital	2,976	93.8	59.0	34.7
Santa Clara Valley Medical Center	4,254	95.4	59.3	36.1
Stanford/Lucile S. Packard	5,207	95.0	83.6	11.4
Santa Cruz	3,447	96.4	66.3	30.1
Dominican Santa Cruz Hospital	981	96.4	71.3	25.2
Sutter Maternity and Surgery Center	808	97.4	86.9	10.5
Watsonville Community Hospital	1,606	95.8	51.7	44.0
Shasta	2,009	93.1	86.4	6.7
Mayers Memorial Hospital	90	83.3	72.2	11.1
Mercy Medical Center Redding	1,909	93.5	87.1	6.4
Siskiyou	284	87.3	63.7	23.6
Fairchild Medical Center	168	89.3	51.2	38.1
Mercy Medical Center of Mt. Shasta	116	84.5	81.9	2.6
Solano	4,904	86.1	57.9	28.2
David Grant Medical Center/ Travis AFB	365	89.3	72.1	17.2
Northbay Medical Center	1,463	85.3	63.6	21.7
Sutter Solano Medical Center	934	84.4	37.5	46.9
Vallejo Kaiser Hospital	2,137	86.8	60.5	26.3
Sonoma	5,240	95.1	72.0	23.1
Petaluma Valley Hospital	494	97.4	84.6	12.8
Santa Rosa Kaiser	1,508	95.9	66.2	29.6
Santa Rosa Memorial Hospital	1,200	93.1	66.9	26.2
Sonoma Valley District Hospital	228	97.8	54.4	43.4
Sutter Medical Center of Santa Rosa	1,767	94.8	78.7	16.1
Stanislaus	9,038	82.9	39.4	43.5
Doctors Medical Center	4,298	82.0	42.3	39.6
Emanuel Medical Center	1,550	83.7	16.3	67.4
Kaiser Emanuel Medical Center	959	84.6	24.8	59.7
Memorial Hospital Association	1,902	83.1	59.7	23.3
Oak Valley District Hospital	325	84.6	34.8	49.8

APPENDIX C

County/ Facility Name	Births with Known Method of Feeding	Percent Any Breastfeeding	Percent Exclusive Breastfeeding	Difference Between Any and Exclusive Rates
Sutter	2,114	78.7	43.4	35.3
Fremont Medical Center	2,114	78.7	43.4	35.3
Tehama	695	87.8	61.0	26.8
St. Elizabeth Community Hospital	695	87.8	61.0	26.8
Tulare	6,713	79.3	20.7	58.7
Kaweah Delta District Hospital	3,842	75.1	22.5	52.7
Sierra View District Hospital	1,916	88.5	17.3	71.2
Tulare District Hospital	954	77.7	20.0	57.7
Tuolumne	467	91.4	54.6	36.8
Sonora Community Hospital	451	91.1	53.2	37.9
Ventura	10,283	90.4	43.3	47.1
Community Memorial Hospital	2,952	89.7	57.0	32.7
Los Robles Regional Medical Center	1,895	93.0	52.2	40.7
Simi Valley Adventist Hospital	554	89.9	43.5	46.4
St. John's Pleasant Valley Hospital	460	93.9	76.7	17.2
St. John's Regional Medical Center	1,767	88.5	21.8	66.7
Ventura County Medical Center	2,630	90.0	29.7	60.3
Yolo	1,992	93.9	72.4	21.5
Sutter Davis Hospital	1,253	97.1	87.2	10.0
Woodland Memorial Hospital	678	87.5	43.1	44.4

Data source: California Department of Health Services, Genetic Disease Branch, Newborn Screening Data, 2005

Prepared by: California Department of Health Services, Maternal, Child and Adolescent Health/Office of Family Planning Branch, Epidemiology and Evaluation Section.

Note 1: The data used to develop these tables are from the Newborn Screening Program database of the Genetic Disease Branch. All nonmilitary hospitals are required to complete the Newborn Screening Test Form prior to an infant's discharge. Upon completing the form, staff must select one of the following five categories to describe "all feedings since birth" (not including water feedings): (1) Breast only; (2) Formula only; (3) Breast and Formula; (4) TPN/Hyperal; and (5) Other.

Note 2: The numerator for "Exclusive Breastfeeding" includes records marked "Breast only". The numerator for "Any Breastfeeding" includes records marked as either "Breast only" or "Breast and Formula". The denominator excludes cases with unknown method of feeding ("Not Reported") and cases marked as "TPN/Hyperal" or "Other". Statewide approximately 3.9% of cases have missing feeding information, 0.9% are coded as "TPN/Hyperal"; and 1.5% are coded as "Other."

Note 3: Data shown for facilities listed as "Kaiser", "Military", "Pediatric", and "Regular Maternity" in the newborn screening database.

Note 4: Data for counties and facilities with fewer than 25 total births with known type of feeding are not shown. Data for all counties shown in this table include information for all births occurring in that county.

Note 5: Percent of any and exclusive breastfeeding are not shown for fewer than 20 events.

Note 6: Difference between any and exclusive rates are computed with rates before rounding.

Note 7: Facility and county of occurrence data are missing for 2% of cases but are included in the state total.

APPENDIX D

SUMMARY OF MODEL HOSPITAL POLICY RECOMMENDATIONS

PURPOSE: These policy recommendations are designed to give basic information and guidance to perinatal professionals who wish to revise policies that affect the breastfeeding mother. Rationale and references are included as education for those unfamiliar with current breastfeeding recommendations. When no reference is available, the interventions recommended are considered to be best practice as determined by consensus of the Inland Empire Breastfeeding Coalition.

- Policy #1:** Hospitals should promote and support breastfeeding.
- Policy #2:** Nurses, certified nurse midwives, physicians and other health professionals with expertise regarding the benefits and management of breastfeeding should educate pregnant and postpartum women when the opportunity for education exists, for example, during prenatal classes, in clinical settings, and at discharge teaching.
- Policy #3:** The hospital will encourage medical staff to perform a breast exam on all pregnant women and provide anticipatory guidance for conditions that could affect breastfeeding. Breastfeeding mothers will have an assessment of the breast prior to discharge and will receive anticipatory guidance regarding conditions that might affect breastfeeding.
- Policy #4:** Hospital perinatal staff should support the mother's choice to breastfeed and encourage exclusive breastfeeding for the first 6 months.
- Policy #5:** Nurses, certified nurse midwives, and physicians should encourage new mothers to hold their newborns skin to skin during the first two hours following birth and as much as possible thereafter, unless contraindicated.
- Policy #6:** Mothers and infants should be assessed for effective breastfeeding. Mothers should be offered instruction in breastfeeding as indicated.
- Policy #7:** Use of artificial nipples and pacifiers should be discouraged for healthy, breastfeeding infants.
- Policy #8:** Sterile water, glucose water, and artificial milk should not be given to a breastfeeding infant without the mother's informed consent and/or physician's specific order.
- Policy #9:** Mothers and infants should be encouraged to remain together during the hospital stay.
- Policy #10:** At discharge, mothers should be given information regarding community resources for breastfeeding support.

The full document and toolkit are available at
<http://www.mch.dhs.ca.gov/programs/bfp/toolkit/default.htm>.

APPENDIX E

WHO/UNICEF'S TEN STEPS TO SUCCESSFUL BREASTFEEDING

The Baby-Friendly Hospital Initiative (BFHI) promotes, protects, and supports breastfeeding through “The Ten Steps to Successful Breastfeeding for Hospitals,” as outlined by UNICEF/WHO. The steps for the United States are:

1. Maintain a written breastfeeding policy that is routinely communicated to all health care staff.
2. Train all health care staff in skills necessary to implement this policy.
3. Inform all pregnant women about the benefits and management of breastfeeding.
4. Help mothers initiate breastfeeding within one hour of birth.
5. Show mothers how to breastfeed and how to maintain lactation, even if they are separated from their infants.
6. Give infants no food or drink other than breastmilk, unless medically indicated.
7. Practice “rooming in”—allow mothers and infants to remain together 24 hours a day.
8. Encourage unrestricted breastfeeding.
9. Give no pacifiers or artificial nipples to breastfeeding infants.
10. Foster the establishment of breastfeeding support groups and refer mothers to them on discharge from the hospital or clinic.

More information about the BFHI can be found at <http://www.babyfriendlyusa.org>.

APPENDIX F

BREASTFEEDING TRENDS AND DATA SOURCES

Data collection is an important part of any monitoring system. Data are necessary to evaluate the effectiveness of promotion and education efforts. Ideally, a single data source would be available to provide information on both initiation and duration of breastfeeding and to differentiate between exclusive and supplemented breastfeeding. The ideal data source would be representative of California's diverse population and include key demographic information such as maternal age, education level, income, parity, and place of residence. Unfortunately, no such data source is currently available for the State of California. Therefore, several data sources must be used to describe breastfeeding rates in California, specifically, the CDHS Genetic Disease Branch Newborn Screening Program, the CDHS MCAH/OFP Branch Maternal and Infant Health Assessment (MIHA), the National Immunization Program, and the California WIC Supplementation Nutrition Program. These sources differ in sampling frames, assessment methods, and timing of data collection, thus, their results often differ.

Genetic Disease Branch Newborn Screening Program

This mandated statewide program is centrally managed by the CDHS Genetic Disease Branch (GDB). The State of California began its Newborn Screening Program in 1966. In addition to laboratory tests, infant feeding during the hospital stay is also monitored through this program. A form is filled out at the time when the blood sample is taken. The individual who fills out the form is instructed to include all feedings from birth, not including water feedings, and to check a box with one of the following choices: breast only, breast and formula, formula only, TPN/Hyperal, or other. If the "other" box is checked, space is provided for further detail. The data represent 99% of infants born in California and are made available (at the county and hospital level) each year on the MCAH/OFP website. GDB newborn screening data are featured in **Figures 1, 2, and 3** as well as **Appendices C and G**. These data are available online at <http://www.mch.dhs.ca.gov>.

The California Maternal and Infant Health Assessment

The MIHA, an annual California survey begun in 1999, is a collaboration between the CDHS MCAH/OFP Branch and the Department of Family and Community Medicine at the University of California, San Francisco. The sampling frame for the survey is women who delivered a live birth in California from February through May of the survey year. Women are excluded from the sampling frame in cases of maternal death, multiple births greater than triplets, maternal age less than age 15, adoption, missing name or address, or non-resident of California. The sampling is stratified by region of the state, education, and race/ethnicity (African American women are over-sampled to ensure a sufficient sample size for analysis), and respondents are selected at random within strata.

The self-administered survey is mailed out in English and Spanish approximately 10-14 weeks postpartum, following an initial contact letter informing them of the survey. Several follow-up attempts are made for non-respondents and a small monetary incentive is provided for participation. Approximately 5,000 women are sampled each year. Response rates for MIHA have ranged from 70.1 to 73.7% each year, yielding approximately 3,500 respondents annually.

APPENDIX F

Respondents' data are weighted to be representative of the population of delivering mothers for the survey calendar year. MIHA data from 2005 are featured in **Figures 4 and 5**. MIHA data are not currently available online.

National Immunization Survey

Regional breastfeeding rates are also available from the CDC National Immunization Program. The program, in partnership with CDC's National Center for Health Statistics, conducts the National Immunization Survey (NIS), sampling households in all 50 states, the District of Columbia, and selected geographic areas within the states. The NIS uses random-digit dialing to survey households with age-eligible children, followed by a mail survey to the eligible children's vaccination providers to validate the vaccination information. Approximately 35,600 phone interviews are completed each year; about 1,500 families participate in California. Beginning January 2003, all respondents to the household telephone survey were asked questions about breastfeeding. NIS data are available at http://www.cdc.gov/breast-feeding/data/NIS_data/data_2004.htm.

California WIC (ISIS) Data

California's WIC Supplemental Nutrition Program collects infant feeding data as part of its Integrated Statewide Information System (ISIS), a system of automated enrollment, recertification, and voucher distribution. The ISIS database includes infant feeding information such as duration of exclusive breastfeeding and timing of introduction of supplemental foods and fluids. With the ISIS system in place, local WIC agencies can monitor the success of breastfeeding promotion programs specific to their region and agency. The exclusive breastfeeding rate represents the number of mothers receiving the fully breastfeeding package and the any breastfeeding rate includes mothers receiving either the partially breastfeeding or fully breastfeeding packages. Voucher data are reported monthly, by site, agency, infant age and ethnicity. Included in this report (**Appendix H**) are data on the percentage of infants (0 to 12 months of age) whose mothers receive the fully breastfeeding package and, therefore, no infant formula. California WIC data are not currently available online.

APPENDIX G

CALIFORNIA EXCLUSIVE IN-HOSPITAL BREASTFEEDING, 2005 BY COUNTY OF RESIDENCE (Ranked high to low)

County	Births with Known Method of Feeding	Exclusive Breastfeeding	Percent Exclusive Breastfeeding
Shasta	1,934	1,660	85.8
Marin	2,606	2,231	85.6
Trinity	99	80	80.8
Nevada	700	560	80.0
Plumas	128	100	78.1
Modoc	59	46	78.0
Lassen	228	175	76.8
San Mateo	9,438	6,997	74.1
San Francisco	7,860	5,805	73.9
Alameda	19,034	13,794	72.5
Sonoma	5,094	3,685	72.3
Mendocino	1,049	755	72.0
Inyo	203	146	71.9
San Luis Obispo	2,459	1,743	70.9
Yolo	2,347	1,612	68.7
El Dorado	1,691	1,148	67.9
Butte	2,259	1,522	67.4
Napa	1,465	983	67.1
Santa Cruz	3,366	2,249	66.8
Mariposa	112	74	66.1
Siskiyou	300	198	66.0
Humboldt	1,481	976	65.9
Mono	132	85	64.4
Santa Clara	23,640	14,920	63.1
Contra Costa	12,135	7,652	63.1
Placer	2,995	1,862	62.2
Tehama	775	481	62.1
Del Norte	288	175	60.8
San Diego	38,860	22,875	58.9
Solano	5,188	3,050	58.8
Sacramento	19,402	10,518	54.2

APPENDIX G

County	Births with Known Method of Feeding	Exclusive Breastfeeding	Percent Exclusive Breastfeeding
Amador	274	147	53.6
Glenn	411	218	53.0
Monterey	6,461	3,410	52.8
Tuolumne	438	228	52.1
Santa Barbara	5,708	2,923	51.2
Yuba	1,128	553	49.0
Lake	642	304	47.4
Riverside	28,276	13,315	47.1
Sutter	1,386	644	46.5
Madera	2,190	984	44.9
Ventura	11,396	4,941	43.4
California	503,087	211,788	42.1
Calaveras	339	140	41.3
Stanislaus	7,830	3,224	41.2
Fresno	14,337	5,646	39.4
San Joaquin	10,459	3,815	36.5
San Benito	825	256	31.0
San Bernardino	29,713	8,870	29.9
Orange	42,201	12,063	28.6
Kings	1,923	549	28.5
Colusa	353	99	28.0
Merced	4,138	1,086	26.2
Los Angeles	142,061	35,494	25.0
Kern	12,922	2,905	22.5
Tulare	7,492	1,489	19.9
Imperial	2,825	303	10.7
Sierra	21	18	.
Alpine	11	7	.

Records with feeding "Not Reported", "TPN" or "Other" are excluded.

Data source: California Department of Health Services, Genetic Disease Branch, Newborn Screening Data
 Prepared by: California Department of Health Services, Maternal Child and Adolescent Health/Office of Family Planning Branch

APPENDIX H

BREASTFEEDING DATA FOR CALIFORNIA WIC PROGRAMS FEDERAL FISCAL YEAR 2005

Percent of Enrolled Infants Exclusively Breastfed (ranked by breastfeeding rate, 1 = highest)

Agency No.	Agency Name	County	Total Infants	Exclusively Breastfed	Percent Exclusively Breastfed
103	City of Berkeley	Alameda	306	119	38.7%
226	Nevada County Public Health Department	Nevada/Yuba	320	114	35.7%
327	Toiyabe Indian Health Project, Inc.	Inyo/Mono	48	16	33.7%
310	North County Health Services	San Diego	2,132	712	33.4%
231	Plumas Rural Services, Inc.	Plumas	95	31	32.2%
114	Marin County Health and Human Services	Marin	603	184	30.5%
102	Alliance Medical Center, Inc.	Sonoma	296	90	30.5%
129	United Indian Health Services, Inc.	Humboldt/ Del Norte/Trinity	270	76	28.1%
225	Human Resources Council, Inc.	Amador/ Calaveras	255	71	27.8%
223	Tuolumne County Health Department	Tuolumne	236	65	27.7%
224	Siskiyou County Public Health Department	Siskiyou	262	71	27.0%
122	County of San Luis Obispo	San Luis Obispo	1,041	277	26.6%
111	County of Humboldt Department of Public Health	Humboldt/ Del Norte	804	213	26.5%
236	Trinity County Health and Human Services	Trinity	56	14	25.0%
320	Santa Barbara County Public Health Department	Santa Barbara	3,560	873	24.5%
115	County of Mendocino	Mendocino	674	160	23.7%
228	Sierra County Human Services	Sierra	7	2	23.2%
112	Indian Health Center of Santa Clara Valley, Inc.	Santa Clara	727	168	23.2%
126	County of Sonoma Department of Health Services	Sonoma	1,855	425	22.9%
233	El Dorado County Department of Community Services	El Dorado/ Alpine	539	121	22.5%
210	Northeastern Rural Health Clinics, Inc.	Lassen/Modoc/ Plumas/Siskiyou	225	49	21.7%
201	Butte County Department of Public Health	Butte/Glenn/ Colusa	1,390	295	21.2%
209	E-Center	Lake	458	91	19.8%
117	Napa County Health and Human Services Agency	Napa	706	139	19.6%

APPENDIX H

Agency No.	Agency Name	County	Total Infants	Exclusively Breastfed	Percent Exclusively Breastfed
237	Glenn County Health Services	Glenn	285	56	19.6%
212	Placer County Department of Health and Human Services	Placer	759	147	19.3%
215	Shasta County Department of Public Health	Shasta	1,215	217	17.9%
130	Native American Health Center, Inc.	Alameda/ San Francisco	524	92	17.5%
238	Tehama County Health Services	Tehama	530	92	17.3%
307	County of Inyo Department of Health and Human Services	Inyo/Mono	166	29	17.2%
113	La Clinica de la Raza Fruitvale Health Project, Inc.	Alameda	1,032	174	16.8%
202	Madera County Department of Public Health	Madera	1,612	268	16.6%
309	Scripps Mercy Hospital	San Diego	1,759	289	16.4%
318	San Diego State University Foundation WIC Program	San Diego	7,762	1271	16.4%
110	Axis Community Health	Alameda	443	73	16.4%
108	Community Bridges	Santa Cruz/ Monterey	1,727	266	15.4%
107	Gardner Family Care Corporation	Santa Clara	2,603	401	15.4%
101	Alameda County Health Care Services Agency WIC Program	Alameda	4,357	669	15.4%
125	Solano County Health and Social Services Department	Solano	2,468	367	14.9%
123	San Mateo County Health Services Agency	San Mateo	3,038	442	14.5%
315	County of Riverside Health Services Agency, Department of Public Health	Riverside	15,574	2251	14.5%
323	Antelope Valley Hospital WIC Program	Kern/ San Bernardino	3,206	463	14.4%
234	Community Resource Project, Inc.	Sacramento	3,242	464	14.3%
326	Central Valley Indian Health, Inc.	Fresno/Kings/ Madera	341	48	14.2%
105	Contra Costa County Health Services	Contra Costa	4,583	646	14.1%
232	Del Norte Clinics, Inc.	Yuba/Colusa	1,032	143	13.8%
302	American Red Cross, San Diego/Imperial Counties Chapter	San Diego	8,405	1144	13.6%

APPENDIX H

Agency No.	Agency Name	County	Total Infants	Exclusively Breastfed	Percent Exclusively Breastfed
220	Yolo County Department of Public Health	Yolo	1,093	148	13.6%
124	Santa Clara County Department of Public Health	Santa Clara	4,327	585	13.5%
213	Sacramento County Department of Health and Human Services	Sacramento	5,959	795	13.3%
321	Ventura County Health Care Agency	Ventura	5,227	663	12.7%
116	Monterey County	Monterey	4,259	536	12.6%
217	Sutter County Human Services Department-Public Health	Sutter	828	102	12.3%
128	Tiburcio Vasquez Health Center, Inc.	Alameda	1,307	150	11.5%
316	Riverside-San Bernardino County Indian Health, Inc.	Riverside/ San Bernardino	234	27	11.4%
121	City and County of San Francisco Department of Public Health	San Francisco	3,524	398	11.3%
305	Northeast Valley Health Corporation	Los Angeles	14,649	1,649	11.3%
120	San Benito Health Foundation	San Benito	479	52	10.9%
204	Delta Health Care and Management Services Corporation	San Joaquin	2,697	292	10.8%
324	Mission Hospital's Camino Health Center	Orange	1,309	140	10.7%
127	Somona County Indian Health Project	Sonoma	130	13	9.8%
219	United Health Centers of the San Joaquin Valley, Inc.	Fresno/Tulare/ Kings	3,745	351	9.4%
317	San Bernardino County Department of Public Health	San Bernardino	17,541	1,642	9.4%
207	Kings County Health Department	Kings	1,752	164	9.3%
319	San Ysidro Health Center	San Diego	2,846	254	8.9%
235	Community Medical Centers, Inc.	San Joaquin/Yolo	1,527	134	8.8%
229	Stanislaus County Health Services Agency	Stanislaus	4,483	377	8.4%
314	Public Health Foundation Enterprises, Inc.	Los Angeles/ Orange	64,812	5,420	8.4%
312	Pasadena Public Health Department	Los Angeles	1112	90	8.1%
132	West Oakland Health Council, Inc.	Alameda	383	30	7.9%

APPENDIX H

Agency No.	Agency Name	County	Total Infants	Exclusively Breastfed	Percent Exclusively Breastfed
218	County of Tulare Health and Human Services Agency	Tulare	5,958	451	7.6%
311	County of Orange Health Care Agency	Orange	8,434	636	7.5%
208	Merced County Community Action Board	Merced/Mariposa	3,210	234	7.3%
325	Planned Parenthood of Orange and San Bernardino County	Orange/ San Bernardino	3,363	227	6.7%
304	Clinicas de Salud del Pueblo, Inc.	Imperial	1,582	106	6.7%
205	Fresno County Economic Opportunities Commission	Fresno	6,598	432	6.6%
308	City of Long Beach Department of Health and Human Services	Los Angeles	6,439	399	6.2%
313	Los Angeles Biomedical Research Institute at Harbor-UCLA Medical Center	Los Angeles	19,171	1,179	6.2%
203	Clinica Sierra Vista, Inc.	Kern	7,151	420	5.9%
214	San Joaquin County Public Health Services	San Joaquin	2,307	135	5.9%
206	Community Action Partnership of Kern	Kern	3,381	183	5.4%
322	Watts Healthcare Corporation	Los Angeles	4,283	209	4.9%
	Statewide		299,857	33,008	11.0%

APPENDIX I

LEGISLATION

1997—Personal Rights: Breastfeeding (Cal. Civil Code § 43.3) This law provides that a mother may breastfeed her child in any location, public or private, except the private home or residence of another, where the mother and child are authorized to be present.

<http://www.leginfo.ca.gov/cgi-bin/displaycode?section=civ&group=00001-01000&file=43-53>

1998—Breastfeeding at Work (Cal. Assembly Concurrent Resolution 155) The California legislature encourages the State of California and all California employers to strongly support and encourage the practice of breastfeeding by striving to accommodate the needs of employees, and by ensuring that employees are provided with adequate facilities for breastfeeding, or the expressing of milk for their children; and that the governor declare by executive order that all State of California employees shall be provided with adequate facilities for breastfeeding or the expressing of milk.

http://www.leginfo.ca.gov/pub/97-98/bill/asm/ab_0151-0200/acr_155_bill_19980901_chaptered.html

2000—Jury Duty: Breastfeeding (Cal. Civil Code § 210.5) This law exempts breastfeeding mothers from jury duty, and requires the state to take steps to eliminate the need for the mother to appear in court to make this request.

<http://www.leginfo.ca.gov/cgi-bin/displaycode?section=ccp&group=00001-01000&file=190-237>

2002—Lactation Accommodation (Cal. Lab. Code § 1030, 1031, 1032, 1033) This law requires all California employers to provide a reasonable amount of break time and make a reasonable effort to provide a private space, other than a toilet stall, close to the employee's work area, to accommodate an employee desiring to express breastmilk for her baby. The break time shall be unpaid if the break time does not run concurrently with the rest time authorized for the employee. An employer is not required to provide break time for pumping if taking break time beyond the usual time allotted for breaks would seriously disrupt the operations of the employer. Violation of this chapter is subject to a civil penalty of \$100.

<http://www.leginfo.ca.gov/cgi-bin/displaycode?section=lab&group=01001-02000&file=1030-1033>

2005—Health and Safety Codes (Cal. Health and Safety Code § 123360, 123365) The Department of Public Health is required to include in its public service campaign the promotion of mother who breastfeed their infants. The law requires hospitals to make available a breastfeeding consultant or alternatively, provide information to the mother on where to receive breastfeeding information.

<http://www.leginfo.ca.gov/cgi-bin/calawquery?codesection=hsc&codebody=123360-123365>

2006—Human Milk (Cal. Health and Safety Code § 1648) This law provides an exemption for hospitals from requiring a tissue bank license for the collection, processing, storage, or distribution of breastmilk of a mother exclusively for her own infant.

http://info.sen.ca.gov/pub/05-06/bill/sen/sb_0201-0250/sb_246_bill_20060926_chaptered.pdf

This information is also available on the Department of Public Health website at

<http://www.wicworks.ca.gov/breastfeeding/Legislation/BFLaws.html>.