Healthy People 2020 and The Surgeon General's Call to Action

1. Healthy People 2020 Breastfeeding Goals

2. Executive Summary: The Surgeon General's Call to Action to Support Breastfeeding

3. The Surgeon General's Call to Action to Support Breastfeeding Fact Sheet

4. Hisgen, Stephanie, et al. Improving Maternity Care Practices in New York: Answering the Surgeon General's Call to Action.

HEALTHY PEOPLE 2020 BREASTFEEDING GOALS

MICH-21 Increase the proportion of infants who are breastfed

MICH-21.1 Ever

Baseline:	74.0 percent of infants born in 2006 were ever breastfed as reported in 2007–09
Target:	81.9 percent
Target-Setting Method:	Modeling/projection
Data Source:	National Immunization Survey (NIS), CDC, NCIRD, and NCHS

MICH-21.2 At 6 months

Baseline:	43.5 percent of infants born in 2006 were breastfed at 6 months as reported in 2007-09
Target:	60.6 percent
Target-Setting Method:	Modeling/projection
Data Source:	National Immunization Survey (NIS), CDC, NCIRD, and NCHS

MICH-21.3 At 1 year

Baseline:	22.7 percent of infants born in 2006 were breastfed at 1 year as reported in 2007–09
Target:	34.1 percent
Target-Setting Method:	Modeling/projection
Data Source:	National Immunization Survey (NIS), CDC, NCIRD, and NCHS

MICH-21.4 Exclusively through 3 months

Baseline:	33.6 percent of infants born in 2006 were breastfed exclusively through 3 months as reported in 2007–09
Target:	46.2 percent
Target-Setting Method:	Modeling/projection
Data Source:	National Immunization Survey (NIS), CDC, NCIRD, and NCHS

MICH-21.5 Exclusively through 6 months

Baseline:	14.1 percent of infants born in 2006 were breastfed exclusively through 6 months as reported in 2007–09
Target:	25.5 percent
Target-Setting Method:	Modeling/projection
Data Source:	National Immunization Survey (NIS), CDC, NCIRD, and NCHS

MICH-22 Increase the proportion of employers that have worksite lactation support programs

Baseline:	25 percent of employers reported providing an on-site lactation/mother's room in 2009
Target:	38 percent
Target-Setting Method:	Modeling/projection
Data Source:	Employee Benefits Survey, Society for Human Resource Management (SHRM)

MICH-23 Reduce the proportion of breastfed newborns who receive formula supplementation within the first 2 days of life

Baseline:	24.2 percent of breastfed newborns born in 2006 received formula supplementation within the first 2 days of life as reported in 2007–09
Target:	14.2 percent
Target-Setting Method:	10 percentage point improvement
Data Source:	National Immunization Survey (NIS), CDC, NCIRD, and NCHS

MICH-24 **Increase the proportion of live births that occur in facilities that provide recommended care for lactating mothers and their babies**

Baseline:	2.9 percent of 2007 live births occurred in facilities that provide recommended care for lactating mothers and their babies as reported in 2009
Target:	8.1 percent
Target-Setting Method:	Modeling/projection
Data Source:	Breastfeeding Report Card, CDC, NCCDPHP

Executive Summary

The Surgeon General's Call to Action to Support Breastfeeding

One of the most highly effective preventive measures a mother can take to protect the health of her infant and herself is to breastfeed. However, in the U.S., while 75 percent of mothers start out breastfeeding, only 13 percent of babies are exclusively breastfed at the end of six months. Additionally, rates are significantly lower for African-American infants.

The decision to breastfeed is a personal one, and a mother should not be made to feel guilty if she cannot or chooses not to breastfeed. The success rate among mothers who want to breastfeed can be greatly improved through active support from their families, friends, communities, clinicians, health care leaders, employers and policymakers.

Given the importance of breastfeeding for the health and well-being of mothers and children, it is critical that we take action across the country to support breastfeeding.

Everyone can help make breastfeeding easier.

Mothers and Their Families

Actions for Mothers and Their Families:

1. Give mothers the support they need to breastfeed their babies.
2. Develop programs to educate fathers and grandmothers about breastfeeding.

Encouraging women to discuss their desire and plans to breastfeed with their clinicians, family and friends, employers, and child care providers is key. When a woman has decided she wants to breastfeed, discussing her plans with her clinician during prenatal care and again when she is in the hospital or birth center will enable her clinician to give her the type of information and assistance she needs to be successful. Family members – including spouses, partners and the baby's grandmothers – can play critical support roles, both with regard to assisting in decision-making about how the baby is fed and in providing support for breastfeeding after the baby is born.

Communities

Actions for Communities:

3. Strengthen programs that provide mother-to-mother support and peer counseling.
4. Use community-based organizations to promote and support breastfeeding.
5. Create a national campaign to promote breastfeeding.
6. Ensure that the marketing of infant formula is conducted in a way that minimizes its negative impacts on exclusive breastfeeding.

A mother's ability to begin and to continue breastfeeding can be influenced by a host of community factors. The communities where we live, work, and play: urban, rural, neighborhoods, and apartment buildings are where we feel most comfortable. Mothers can learn about breastfeeding in prenatal classes and by discussing their interest in breastfeeding with a variety of people. In addition, women can turn to other mothers in their community, whether they are family, friends, or women they have met through mother-to-mother support groups, as well as women who are knowledgeable and have previous experience with breastfeeding. Community-based groups should include family members such as fathers and grandmothers in education and support programs for breastfeeding. Community-based support groups such as La Leche League and programs such as the U.S. Department of Agriculture's WIC program can expand the support that women ideally have received in the hospital and help extend the duration of breastfeeding.

Marketing of infant formula within communities is another influence on breastfeeding. Research indicates that advertising infant formula can deter exclusive breastfeeding and the effect may be stronger among women who do not have well-defined goals for breastfeeding.

Health Care

Actions for Health Care:

7. Ensure that maternity care practices around the United States are fully supportive of breastfeeding.
8. Develop systems to guarantee continuity of skilled support for lactation between hospitals and health care settings in the community.
9. Provide education and training in breastfeeding for all health professionals who care for women and children.
10. Include basic support for breastfeeding as a standard of care for midwives, obstetricians, family physicians, nurse practitioners, and pediatricians.
11. Ensure access to services provided by International Board Certified Lactation Consultants.
12. Identify and address obstacles to greater availability of safe banked donor milk for fragile infants.

Nearly all births in the United States occur in hospital settings, but hospital practices and policies in maternity settings can create barriers to supporting a mother's decision to breastfeed.

National data from the Centers for Disease Control and Prevention's (CDC) ongoing survey of Maternity Practices in Infant Nutrition and Care (mPINC) indicate that hospitals have opportunities to implement practices in labor, delivery, and postpartum care, as well as in hospital discharge planning, that support mothers who want to breastfeed.

Once home from the hospital, mothers need support to continue breastfeeding. Support from health care professionals is particularly important at this time; however, many health professionals need more breastfeeding education and training themselves and often have time constraints that can present barriers. One way this issue is addressed is through coordinated health care systems that partner with community networks to provide breastfeeding support so mothers have access to breastfeeding assistance after they return home. New mothers need access to trained individuals with established relationships in the health care community who are flexible enough to meet mothers' needs outside of traditional work hours and locations, and provide consistent information.

International Board Certified Lactation Consultants (IBCLCs) are an excellent source of assistance for breastfeeding mothers. IBCLCs are health care professionals certified in lactation management. They work with mothers to solve breastfeeding problems and educate families and health care professionals about the benefits of breastfeeding. Research shows that rates of exclusive breastfeeding and of any breastfeeding are higher among women who have had babies in hospitals with IBCLCs on staff than in those without these professionals.

Employment

Actions for Employment:

13. Work toward establishing paid maternity leave for all employed mothers.
14. Ensure that employers establish and maintain comprehensive, high-quality lactation support programs for their employees.
15. Expand the use of programs in the workplace that allow lactating mothers to have direct access to their babies.
16. Ensure that all child care providers accommodate the needs of breastfeeding mothers and infants.

Employment is now the norm for U.S. women of childbearing age (20–44 years). In 2009, half of all mothers with children younger than 12 months were employed, and more than two-thirds of those employed worked full-time (35 or more hours per week).

Employed women have been less likely to initiate breastfeeding, and they tend to breastfeed for a shorter length of time than women who are not employed. Most employed mothers who are lactating have to pump milk at work for their children and need to be provided with accommodations to do so.

In 2010, the Affordable Care Act (ACA) included a provision for employers to provide workplace accommodations that enable employees who are breastfeeding to express their milk. Specifically, the ACA amends the Fair Labor Standards Act of 1938 by having employers provide reasonable, though unpaid, break time for a mother to express milk and a place, other than a restroom, that is private and clean where she can express her milk.

Given that 26 percent of mothers employed full-time in 2003 were breastfeeding when their infant was aged six months, it is clear that a substantial percentage of U.S. mothers manage to combine breastfeeding and paid work. However, U.S. mothers overall have less support for continuing to breastfeed after returning to work than is recommended by the International Labor Organization. In 2009, 15 U.S. states required that employers support breastfeeding employees when they return to work.

Research and Surveillance

Although there is a body of research on breastfeeding, significant knowledge gaps are evident. These gaps must be filled to ensure that accurate, evidence-based information is available to parents, clinicians, public health programs, and policymakers. For example, more research is needed on the barriers to breastfeeding among populations with low rates of breastfeeding. Economic research is also needed on how breastfeeding affects mothers and employers, as is research on best practices for management and support of lactation and breastfeeding. Building capacity for research on breastfeeding should be a priority by strengthening surveillance at state and local levels.

Actions for Research and Surveillance:

17. Increase funding of high-quality research on breastfeeding.
18. Strengthen existing capacity and develop future capacity for conducting research on breastfeeding.
19. Develop a national monitoring system to improve the tracking of breastfeeding rates as well as the policies and environmental factors that affect breastfeeding.

Public Health Infrastructure

An effective national public health program requires the basic coordination and monitoring of services. Within the federal government, numerous agencies have developed programs on breastfeeding, and others have programs that affect breastfeeding indirectly. Although the work of each of these agencies is valuable, the creation of a federal interagency work group on breastfeeding could enhance coordination and collaboration across agencies to improve support for breastfeeding.

Through the technical assistance of the U.S. Breastfeeding Committee (USBC), all 50 states have now formed breastfeeding coalitions, and there are many local, tribal, and territorial coalitions as well. These coalitions mobilize local and state efforts to promote and support breastfeeding. The USBC supports state coalitions with technical assistance, web-based communications, and a biannual conference. However, most of these coalitions are small and unfunded. Additionally, except within the WIC program, most state health departments do not have staff responsible for breastfeeding activities, making it a challenge to carry out new breastfeeding programs at the state level.

Action for Public Health Infrastructure:

20. Improve national leadership on the promotion and support of breastfeeding.

The Landscape of Breastfeeding

Mothers face a variety of issues in starting and continuing to breastfeed. With better understanding of these issues, everyone can make breastfeeding easier.

Key barriers to breastfeeding:

Lack of Knowledge
While breastfeeding is considered a natural skill, some mothers may need education and guidance. Providing accurate information can help prepare mothers for breastfeeding.

Lactation Problems
Without good support, many women have problems with breastfeeding. Most of these are avoidable if identified and treated early, and need not pose a threat to continued breastfeeding.

Poor Family and Social Support
Fathers, grandmothers, and other family members strongly influence mothers' decisions about starting, continuing, and accommodating breastfeeding.

Social Norms
Many people see breastfeeding as an alternative rather the routine way to feed infants.

Embarrassment
The popular culture's sexualization of breasts compels some women to conceal breastfeeding. Improving support for women to breastfeed can help them better accommodate the demands of everyday life while protecting their infants' health.

Employment and Child Care
Employed mothers typically find that (1) returning to work and (2) lack of maternity leave are significant barriers to breastfeeding.

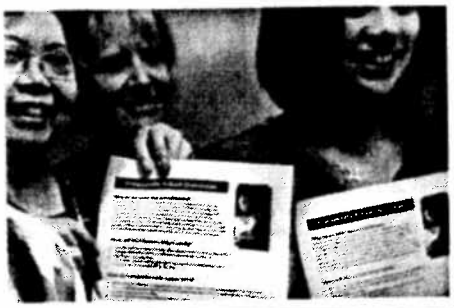
Health Services
Health care systems and health care providers can improve mothers' breastfeeding experiences by pursuing and obtaining the training and education opportunities they need in order to fully support their patients.

The Surgeon General has identified 20 key actions to improve support for breastfeeding.

Make a commitment to ensure that breastfeeding support is consistently available for every mom and baby.

You can lead the way to improve the health of millions of mothers and babies nationwide.

A number of factors may influence or lead new mothers who want to breastfeed to give up such efforts.



These factors must be addressed in order for mothers to be able to achieve their own breastfeeding goals.

Active involvement and support from family members, friends, communities, clinicians, health care systems, and employers can help make breastfeeding easier.

Visit www.surgeongeneral.gov for more information and how you can help.

U.S. Department of Health and Human Services. *Executive Summary: The Surgeon General's Call to Action to Support Breastfeeding.* Washington, DC: U.S. Department of Health and Human Services, Office of the Surgeon General; January 20, 2011.

The Surgeon General's

Call to Action to Support Breastfeeding

FACT SHEET

The Surgeon General's Call to Action to Support Breastfeeding outlines steps that can be taken to remove some of the obstacles faced by women who want to breastfeed their babies.

How many American women breastfeed their babies?

- Three out of four mothers (75%) in the U.S. start out breastfeeding, according to the Centers for Disease Control and Prevention's 2010 Breastfeeding Report Card.
- At the end of six months, breastfeeding rates fall to 43%, and only 13% of babies are exclusively breastfed.
- Among African-American babies, the rates are significantly lower, 58% start out breastfeeding, and 28% breastfeed at six months, with 8% exclusively breastfed at six months.
- The Healthy People 2020 objectives for breastfeeding are: 82% ever breastfed, 61% at 6 months, and 34% at 1 year.

What are the health benefits of breastfeeding?

- Breastfeeding protects babies from infections and illnesses that include diarrhea, ear infections and pneumonia.
- Breastfed babies are less likely to develop asthma.
- Children who are breastfed for six months are less likely to become obese.
- Breastfeeding also reduces the risk of sudden infant death syndrome (SIDS).
- Mothers who breastfeed have a decreased risk of breast and ovarian cancers.

What are the economic benefits of breastfeeding?

- Families who follow optimal breastfeeding practices can save between $1,200–$1,500 in expenditures on infant formula in the first year alone.
- A study published last year in the journal *Pediatrics* estimated that if 90% of U.S. families followed guidelines to breastfeed exclusively for six months, the U.S. would annually save $13 billion from reduced medical and other costs.
- For both employers and employees, better infant health means fewer health insurance claims, less employee time off to care for sick children, and higher productivity.
- Mutual of Omaha found that health care costs for newborns are three times lower for babies whose mothers participate in the company's employee maternity and lactation program.

What obstacles do mothers encounter when they attempt to breastfeed?

- Lack of experience or understanding among family members of how best to support mothers and babies.
- Not enough opportunities to communicate with other breastfeeding mothers.
- Lack of up-to-date instruction and information from health care professionals.
- Hospital practices that make it hard to get started with successful breastfeeding.
- Lack of accommodation to breastfeed or express milk at the workplace.

What can the health care community do?

- More hospitals can incorporate the recommendations of UNICEF/WHO's Baby-Friendly Hospital Initiative.
- Provide breastfeeding education for health clinicians who care for women and children.
- Ensure access to International Board Certified Lactation Consultants.

What can employers do?

- Start and maintain high-quality lactation support programs for employees.
- Provide clean places for mothers to breastfeed.
- Work toward establishing paid maternity leave for employed mothers.

What can community leaders do?

- Strengthen programs that provide mother-to-mother support and peer counseling.
- Use community organizations to promote and support breastfeeding.

What can families and friends of mothers do?

- Give mothers the support and encouragement they need to breastfeed.
- Take advantage of programs to educate fathers and grandmothers about breastfeeding.

What can policymakers do?

- Support small nonprofit organizations that promote breastfeeding in African-American communities.
- Support compliance with the *International Code of Marketing of Breast-milk Substitutes*.
- Increase funding of high-quality research on breastfeeding.
- Support better tracking of breastfeeding rates as well as factors that affect breastfeeding.

To order a printed copy of *The Surgeon General's Call to Action to Support Breastfeeding*, call 1-800-CDC-INFO or email cdcinfo@cdc.gov and reference the publication title. For a downloadable copy, visit www.surgeongeneral.gov.

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Improving Maternity Care Practices in New York: Answering the Surgeon General's Call to Action

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Abstract

Hospitals providing maternity care influence breastfeeding mothers and infants during the critical, early postnatal period. Despite concerted public health efforts, there are persistent, large variations across New York State (NYS) hospitals in breastfeeding policies, maternity care, and infant feeding practices and in rates of breastfeeding initiation and exclusivity. An initiative addressing this issue is the Breastfeeding Quality Improvement in Hospitals (BQIH) Learning Collaborative, which was designed and implemented by the NYS Department of Health (NYSDOH). The BQIH Learning Collaborative, adapted from the Institute for Healthcare Improvement Breakthrough Series, embedded evidence-based maternity care best practices in a learning and quality improvement model. The *Ten Steps to Successful Breastfeeding* served as the backbone for improvement with the aims of increasing the percentages of infants fed any breastmilk and exclusively fed breastmilk while decreasing the percentage of breastfed infants supplemented with formula. Twelve hospitals were selected to participate based on their breastfeeding metrics: 10 of the hospitals were low performing, and two were high performing on these breastfeeding measures. During the 18-month BQIH Learning Collaborative, process improvement occurred for several measures, including breastfeeding within the first hour after birth, breastfeeding mother/infant rooming-in, and receipt of formula samples/discharge bags. NYSDOH plans to spread this Collaborative to all hospitals providing maternity care in NYS. Comprehensive breastfeeding initiatives will continue in NYS in the effort to ensure that all breastfeeding mothers receive optimal support from healthcare providers and hospitals with the goal of making breastfeeding the norm for infant nutrition during the first year of life.

Introduction

INCREASING BREASTFEEDING INITIATION, exclusivity, and duration are public health priorities.[1,2] Breastfeeding improves the health of infants and mothers.[3] For more than 30 years, New York State (NYS) has worked to institute state regulations and legislation to protect and support a woman's right to breastfeed in public, in the hospital, and at work.[4] A performance monitoring system has been instituted to increase transparency and public reporting of hospital-specific breastfeeding measures.

The *Ten Steps to Successful Breastfeeding*[5] are evidence-based hospital practices that lead to increased breastfeeding initiation and exclusivity and to longer breastfeeding duration. Although initiation of breastfeeding by new mothers in NYS (82.7% in 2011) exceeds the Healthy People 2020[1] goal of 81.9%, only 39.7% of healthy newborns are exclusively breastfed (2011 unpublished electronic birth certificate data from the Bureau of Biometrics and Statistics, New York State Department of Health). This means that more than half (52.1%) of breastfed babies also receive formula during the birth hospitalization. In fact, in a national, annual survey of all states, for the past 5 years NYS has had the second highest (worst) percentage of breastfed babies being supplemented with formula during the first 2 days of life.[6] The majority of mothers decide to breastfeed or not before they are admitted for delivery. Whether women exclusively breastfeed or not is highly dependent on the hospital's maternity care practices. Formula supplementation of breastfed infants, which is shown to adversely affect exclusive breastfeeding and reduce breastfeeding duration,[7] is largely

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under the control/influence of hospital practices, staff, culture, and environment. Nationally, two-thirds of women who report prenatally that they intend to exclusively breastfeed are not meeting their goals.[8] In NYS, it appears that supplementation happens early and often in the hospital.

There are large disparities among NYS hospitals in breastfeeding policies, maternity care, and infant feeding practices and rates of breastfeeding initiation and exclusivity.[9,10] The challenge in NYS and elsewhere is to engage, activate, and motivate decision-makers to prioritize breastfeeding and make policy changes that can then be translated into systems and environmental supports and practices. One needs to change the hospital culture to make exclusive breastfeeding the norm. The barriers experienced by hospitals in instituting recommended breastfeeding practices range from lack of staff knowledge or skills to teach and support new mothers and babies to breastfeed successfully to more extensive systems and physical space constraints. Some NYS hospitals have taken on the challenge of changing their hospital's culture to support the new social norm of exclusive breastfeeding. To facilitate, structure, and guide hospital maternity care practice change, an 18-month Breastfeeding Quality Improvement in Hospitals (BQIH) Learning Collaborative was developed.[11] This article describes the implementation of the BQIH Learning Collaborative in 12 NYS hospitals and the resulting practice changes.

Materials and Methods

Breastfeeding measures

Hospitals are required to report infant feeding on the birth certificate as a categorical variable: breastmilk only; formula only; breastmilk plus formula, sugar water, or anything else; and no formula AND no breastmilk. To approximate a population of healthy infants, infants who were admitted to the Neonatal Intensive Care Unit for any reason or infants who were either transferred into or out of the hospital are excluded from annually aggregated hospital-specific infant feeding measures. These measures include percentage who receive any breastfeeding (includes infants who were fed breastmilk only OR breastmilk plus formula), exclusive breastfeeding (includes infants fed breastmilk only), and formula supplementation of breastfed infants (among infants who receive any breastmilk, the percentage who received breastmilk plus formula). Hospitals were divided into tertiles based on the aggregated yearly percentages of "any breastfeeding": low (40–60%), middle (61–74%), and high (>74%); and among breastfed infants, the tertiles were based on the percentage who were supplemented with formula: high (>45%), middle (19–45%), and low (<18%).

Hospital selection

In 2008, 140 hospitals in NYS provided maternity care services; there were 245,741 live births. The BQIH Learning Collaborative was limited to hospitals outside New York City (NYC) because the NYC Department of Health and Mental Hygiene was conducting a separate but complementary initiative to improve hospital maternity care and increase breastfeeding initiation and exclusivity. In 2008 (unpublished electronic birth certificate data from the Bureau of Biometrics and Statistics, New York State Department of Health), of the 140 hospitals in NYS providing maternity care services, 40 were located in NYC; these were excluded, leaving 100 hospitals. In an attempt to potentially reach as many infants as possible through this initiative, smaller hospitals were excluded. Hospitals with fewer than 400 births annually ($n=25$) were excluded, leaving 75 hospitals. Learning Collaboratives have traditionally been undertaken with high-performing organizations. For this Learning Collaborative, however, hospitals were selected based on low performance related to formula supplementation of breastfed infants (i.e., high rate of formula supplementation) and breastfeeding initiation (i.e., low rate of any breastfeeding). In selecting hospitals geographic diversity was considered.

Data measurement plan

Each hospital selected a random sample of 50 charts from "healthy" infants (as defined above) and reported type of birth (vaginal or cesarean section) and required process and outcome measures. Data were downloaded monthly to a secure Web site. Measures were reported separately by type of birth: among vaginal births, the percentage of infants fed breastmilk within 1 hour of birth; and among cesarean section births, the percentage of infants fed breastmilk within 2 hours. Measures reported for breastfeeding infants/mothers included: percentages of mothers who received breastfeeding instruction, were directly observed breastfeeding and assessed every shift, were offered breastfeeding support upon discharge, and provided formula samples upon discharge; and percentages of infants receiving breastmilk at eight or more feedings per 24 hours, rooming-in at least 18 hours/day (≥6 hours per 8-hour shift), and given pacifiers. The percentage of hospital staff who had received training on breastfeeding and lactation support was also reported.

Infant feeding measures included the percentages of infants fed only breastmilk (exclusive breastfeeding), fed only formula, and fed breastmilk plus formula.

Development of the BQIH Learning Collaborative

The BQIH Learning Collaborative utilized widely recommended evidence-based maternity care practices[2,3,12] and a modified version of the Institute for Healthcare Improvement Breakthrough Series Learning Collaborative Model.[13] The BQIH Collaborative was a short-term (18-month) learning system and structure that brought the selected NYS hospitals' staff together to learn how to implement recommended hospital maternity care practices. This included the application of quality improvement tools and techniques to change care systems and close the gap between current and recommended practices. The development and design of the BQIH Learning Collaborative are described in depth elsewhere.[11]

Implementation of the BQIH Learning Collaborative

Hospitals selected to participate formed teams with five core members, including the Director of Women's Services or Nurse Manager from Maternity, a physician lead from both the Departments of Pediatrics and Obstetrics, a Lactation Consultant, and a senior hospital administrator. Teams committed to have regular internal meetings and participate in all BQIH Collaborative improvement activities.

Components of the Learning Model include Learning Sessions and Action Periods.[14] Learning Sessions, either in

person or virtual, are an opportunity to learn from expert faculty and each other, share experiences, and plan for changes to be tested during subsequent Action Periods. Each of the five Learning Sessions was followed by an Action Period, during which the hospital teams apply the Model for Improvement[13] to rapidly test key changes to the hospital system, on a small scale, and evaluate the effect of the changes prior to full implementation and spread. Hospital improvement teams participated in group and individual consultation with expert faculty during the Action Period. Improvement advisors from the National Initiative for Children's Healthcare Quality partnered with NYSDOH for this effort.

In order to test and implement changes in hospital processes and systems the Model for Improvement[13] was applied. The basics are as follows: (1) what are we trying to accomplish?; (2) how will we know that a change is an improvement?; and (3) what changes can we make that will result in improvement? The Plan-Do-Study-Act cycle was used for conducting the rapid, small-scale tests of change to implement the desired changes in the system.

The aim of the BQIH Learning Collaborative, specific to the participating hospitals, was to increase breastfeeding, especially exclusive breastfeeding, among mothers/infants by improving hospital breastfeeding policies and practices to be consistent with NYS hospital regulations, state legislation, and recommended best practices such that between birth and hospital discharge there would be an increased percentage of infants fed any breastmilk, increased percentage of infants exclusively fed breastmilk, and decreased percentage of breastfed infants (i.e., fed breastmilk) supplemented with formula. These outcome measures were documented in the medical record and reported on the electronic birth certificate.

Results

Hospital selection

Review of aggregated, hospital-specific breastfeeding metrics revealed a wide range (1–99%) for the measure of formula supplementation of breastfed infants (Fig. 1). Hospitals in the highest two tertiles for formula supplementation of breastfed infants (>45% or 19–45%) and the lowest two tertiles of any breastfeeding (40–60% or 61–74%) were identified as low performing for breastfeeding metrics. Hospitals with low formula supplementation of breastfed infants (<18%) and with high any breastfeeding (>74%) were identified as high performing for breastfeeding metrics. This identified 23 low-performing and five high-performing hospitals, which were invited to apply to participate. Seventeen hospitals applied, and 12 hospitals were chosen to participate; 10 low-performing and two high-performing were enrolled, one of which was Baby Friendly.

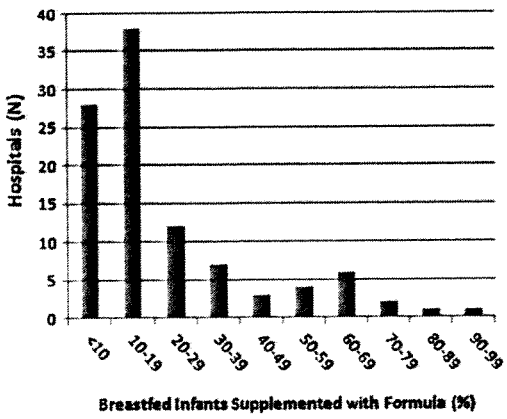

FIG. 1. Distribution of NY hospitals (outside NYC) by percentage formula supplementation of healthy breastfed infants (2008 Electronic Birth Certificate data, Bureau of Biometrics and Statistics, New York State Department of Health).

The much lower breastfeeding metrics for the 10 participating, low-performing hospitals versus nonparticipating hospitals confirm that the selection criteria were met (Table 1). The maternal demographic measures for race/ethnicity, insurance, and marital status are similar between participating low-performing and nonparticipating hospitals.

BQIH Learning Collaborative

The BQIH Learning Collaborative was 18 months in length, conducted from June 2010 to November 2011. Breastfeeding within the first hour, for infants born by vaginal delivery, was one of the most common changes selected by hospitals to test. Some of the strategies associated with the change concept breastfeeding within the first hour include documentation of infant feeding method in the medical record upon admission, initiation of skin-to-skin contact by placing the infant naked, prone against the mother's chest, delaying routine procedures, and encouraging mothers to breastfeed for their infant's first feeding after birth. Figure 2A is the run chart of monthly data for this measure for Hospital A. At the start of the Learning Collaborative, 33% of healthy infants born vaginally at Hospital A were breastfed within the first hour of birth. After testing increasing skin-to-skin contact immediately after birth, it became evident that there was unclear documentation of breastfeeding initiation. As part of the improvement work, the team from Hospital A developed new documentation to include height, weight, Apgar score, duration of mother/infant skin-to-skin time, and breastfeeding and incorporated these measures into the electronic medical record. By the end of 2010 staff had been educated on the benefits and process of facilitating early and more prolonged skin-to-skin contact, which resulted in a consistent level of care being delivered by nurses in labor and delivery. By March 2011, prenatal classes were highlighting the importance of skin-to-skin contact, and parental requests increased for mother/infant skin-to-skin in the delivery room.

Mother/infant rooming-in was also a change that was commonly chosen by hospitals. Rooming-in is challenging due to new mothers' expectation, systems of care, and physical layout of hospital rooms and floors. Some of the strategies to achieve the change concept for rooming-in include practice rooming-in throughout the facility unless medically contraindicated, do not routinely separate healthy mothers and infants, and care for the infant at the mother's bedside by using portable scales and bath equipment. It is evident in Figure 2B that in June and July 2010, rooming-in was not practiced by Hospital B. In the fall of 2010, staff initiated small tests of change by discontinuing routine collection of infants for return to the nursery at 10 p.m. each night. As a result, infants

TABLE 1. FEEDING OF HEALTHY INFANTS AND DEMOGRAPHICS OF MOTHERS AT PARTICIPATING VERSUS NONPARTICIPATING HOSPITALS

	Hospitals *n* (%)		
		Participating	
Measure	*Nonparticipating* (n=63)	*High performing* (n=2)[a]	*Low performing* (n=10)[b]
Total births	80,345 (100)	4688 (100)	20,412 (100)
Any breastmilk	59,831 (74)	3414 (73)	14,932 (37)
Only breastmilk	46,573 (58)	3187 (68)	6,480 (32)
Both breastmilk and formula	13,258 (17)	227 (5)	8452 (41)
Formula supplementation	13,258 (22)	227 (7)	8452 (57)
Non-white and mixed race	18,540 (23)	893 (19)	5,867 (29)
Hispanic	12,998 (16)	347 (7)	3,951 (19)
Medicaid and Family Health Plus	25,602 (32)	801 (17)	6,268 (31)
Mother unmarried	30,994 (39)	1371 (29)	6,852 (34)

Data are from electronic birth certificate data, Bureau of Biometrics and Statistics, New York State Department of Health, 2008, hospitals with >400 births, excluding New York City.
[a]High performing, hospitals with low formula supplementation of breastfed infants and high percentage of any breastfeeding.
[b]Low performing, hospitals with high formula supplementation of breastfed infants and low percentage of any breastfeeding.

were staying with their mothers later and even all night. The number of nursing/breastfeedings that occurred during the night increased. Coinciding with this, administration granted the staff permission to make rooms "private" if census allowed by utilizing only one of the two beds. In addition, over the next year through multiple tests of change at Hospital B, practices changed such that infant admissions and assessments began taking place in the delivery room, and the culture shifted to support nonseparation of the mother and infant.

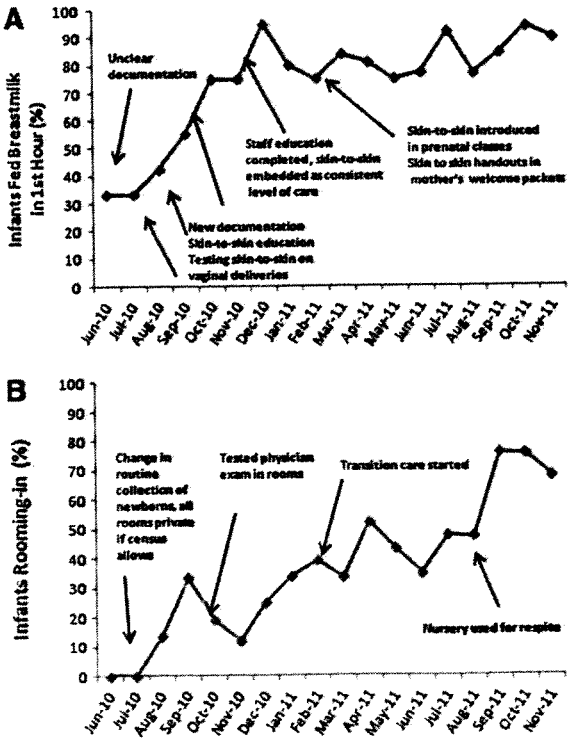

FIG. 2. Data run charts for Breastfeeding Quality Improvement in Hospitals Learning Collaborative, Hospitals A and B: **(A)** infants fed breastmilk in the first hour (among vaginal deliveries) and **(B)** infants rooming-in (among breastfed infants).

Elimination of formula samples and bags at discharge was another change pursued by many hospitals. Prior to the start of the Collaborative, three hospitals had already eliminated distributing formula samples/bags at time of discharge. After the first Learning Session in July 2010, two additional hospitals eliminated the bags. As more of the hospital teams began working with their administrations to eliminate the formula bags a competitive spirit surfaced, motivating other teams to work on the same change and leading to three additional hospitals eliminating bags during January–March 2010 (Fig. 3).

In August 2011, a letter from the NYSDOH Commissioner was sent to all hospitals calling on them to examine their practices of formula supplementation of breastfed infants and calling attention to the NYS Hospital Codes Rules and Regulations,[14] which has guidelines regarding provision of discharge formula samples and bags. At about the same time, hospitals were also receiving results of the Maternity Practices in Infant Care and Nutrition survey,[15] which also measures the provision of discharge formula samples and bags. Consequently, two additional hospitals eliminated distribution of formula bags. In October 2011, one additional hospital eliminated distributing the formula bags at time of discharge. It should be noted that although the collaborative officially ended in November 2011, the final hospital (which did not distribute bags to exclusively breastfeeding mothers) has moved forward and is in the process of eliminating distribution of formula bags at discharge.

Process improvement for breastfeeding within the first hour of birth for vaginally delivered infants and within 2 hours of birth for cesarean section-delivered infants, for mother/infant rooming-in, and for distribution of formula discharge samples and bags was documented for the entire BQIH Learning Collaborative over the 18-month time period (Fig. 4).

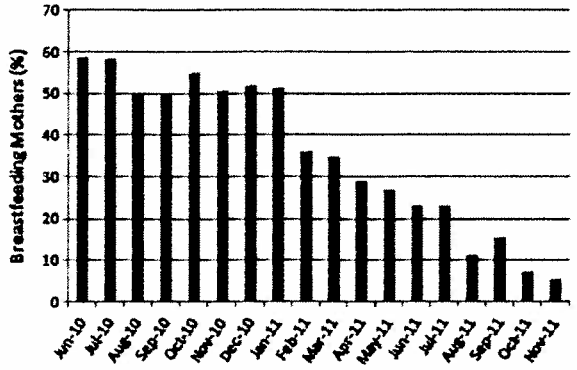

FIG. 3. Percentage of breastfeeding mothers at 12 participating NY hospitals who received free formula at hospital discharge.

Discussion

Hospital maternity care practices impact breastfeeding exclusivity and duration during a critical period. NYS has been at the forefront in the efforts to improve maternity care practices in hospitals during the last 5 years. The BQIH Learning Collaborative model is a novel example of an effective approach to address this problem. It is the first state health department-sponsored collaborative using the Institute for Healthcare Improvement methodology, to focus on increasing exclusive breastfeeding. NYSDOH developed and implemented, in partnership with the National Initiative for Children's Healthcare Quality, the BQIH Learning Collaborative and the associated improvement tools. The Collaborative involved routine sharing of results among teams through Learning Sessions in which teams learn from each other about which changes and supporting implementation strategies have been successful and which have not. This results in a dynamic improvement strategy in which many teams working on related problem areas can learn from each other in a way that facilitates rapid dissemination of successful practices.

Twelve NYS hospitals, 10 with low performance on breastfeeding metrics, participated in the BQIH Learning Collaborative. There were demonstrated improvements in multiple process measures, including breastfeeding within the first hour

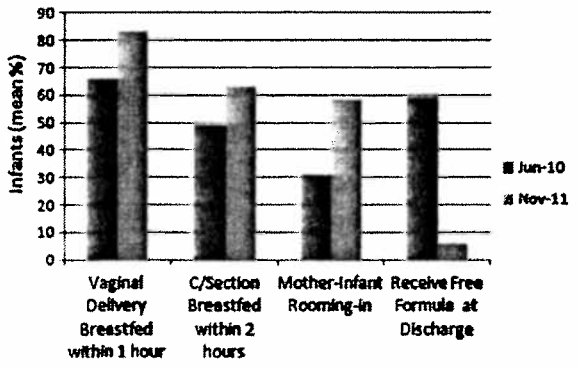

FIG. 4. Change in process measures at 12 participating NY hospitals over time. C/Section, cesarean.

of birth, mother/infant rooming-in, and distribution of formula sample bags. Although many hospitals made improvements, there is still significant work to do. Policy and systems changes were required to achieve the documented improvements. The goal of the NYSDOH is to devise a comprehensive guide for implementation of hospital maternity care best practices. The BQIH Collaborative pilot is being used to evaluate strategies for change to determine if there is an importance ranking or sequence for implementing changes that will lead to greater improvement in breastfeeding support and care in hospitals. Further analysis of the BQIH Collaborative is currently ongoing. NYSDOH plans to scale up this initiative and, in cooperation with NYC Department of Health and Mental Hygiene, spread the BQIH Collaborative over the next 5 years to reach remaining NYS hospitals that provide maternity care and support those hospitals that pursue "Baby-Friendly" designation. The success of the BQIH Collaborative has also served as a foundation for the work by the National Initiative for Children's Healthcare Quality and the Centers for Disease Control and Prevention for the "Best Fed Beginnings"—to work with 90 U.S. hospitals to become Baby-Friendly.

Strengths of the BQIH Learning Collaborative include the structure and design. It was adapted from the Institute for Healthcare Improvement model to meet NYS's specific needs. Because the target in NYS was low-performing hospitals, it was necessary to increase the length of the typical learning collaborative and provide hospital staff with additional technical assistance. The limitations to this Collaborative model include the resource requirements of both money and staff to support activities and the potential for sustaining improvements beyond the BQIH Learning Collaborative implementation period.

Promotion, protection, and support of breastfeeding, especially exclusive breastfeeding, is an ongoing effort in NYS. Despite the success of the BQIH Learning Collaborative, additional efforts beyond the hospital are needed to fully transform maternity care practices to support breastfeeding through evidence-based care. Both the prenatal and postnatal periods are important. In NYS, enhancing community resources that support breastfeeding is a priority. Increasing the availability of lactation consultants within the community will ensure women have access to professional resources and ongoing lactation support prenatally, as well as during the postdischarge period. Provision of tools to support breastfeeding women when they return to work is paramount. NYS continues to encourage certified childcare centers and homes to become breastfeeding friendly. Additionally, efforts at both the state and national level need to include implementation of policies and practices that are consistent with the "International Code of Marketing of Breastmilk Substitutes," which restricts the marketing of breastmilk substitutes (i.e., infant formula), to ensure that mothers are not discouraged from breastfeeding. The ultimate goal in NYS is to make breastfeeding the norm for infant nutrition.

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