Building Perinatal Case Manager Capacity Using Quality Improvement

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ABSTRACT

Improving breastfeeding rates among Black women is a potential strategy to address disparities in health outcomes that disproportionately impact Black women and children. This quality improvement (QI) initiative aimed to improve perinatal case manager knowledge and self-efficacy to promote breastfeeding among Black, low-income women who use services through Boston Healthy Start Initiative. QI methodology was used to develop and test a two-part strategy for perinatal case managers to promote and support breastfeeding. A positive change was observed in infant feeding knowledge and case manager self-efficacy to promote breastfeeding. Among the 24 mothers participating in this QI initiative, 100% initiated and continued breastfeeding at 1 week postpartum, and 92% were breastfeeding at 2 weeks postpartum.

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Breastfeeding has proven benefits across the life span for both mother and child (Gartner et al., 2005; Horta, Bahl, Martínés, & Victora, 2007; Ip, Chung, Raman, Trikalinos, & Lau, 2009). Several approaches have been identified as effective in improving breastfeeding rates, such as the Baby-Friendly Hospital Initiative (BFHI), peer counselors, and nurse home visitors. As a result, some progress has been made in recent years to improve breastfeeding practices in the United States. However, significant disparities in breastfeeding rates persist among Black mothers and children compared to White mothers and children (Centers for Disease Control and Prevention, 2010; Ahluwalia, Morrow, Hsia, & Grummer-Strawn, 2003; Ahluwalia, Morrow, & Hsia, 2005; Chatterji & Brooks-Gunn, 2004). According to the National

Immunization Survey (NIS) for 2004–2008, White mothers initiate breastfeeding at a rate of 74% compared to 54% among Black mothers. Likewise, exclusive breastfeeding at 3 and 6 months was 43% and 21% for White mothers and 26% and 12% for Black mothers (Centers for Disease Control and Prevention, 2011). This disparity in breastfeeding rates illustrates that Black infants are not benefiting equally early in life from breastmilk and that Black mothers are not fully experiencing the benefits of having breastfed.

These data indicate that the current approaches to promote and support breastfeeding among Black mothers are not sufficient and that additional targeted efforts are required for more Black infants and mothers to experience the full benefits of early

The Healthy Start Initiative, initiated by the Health Resource and Services Administration, aims to support communities in developing community-based approaches to improve maternal, infant, and early childhood health.

and exclusive breastfeeding (McCarter-Spaulling & Dennis, 2010).

The Centers for Disease Control and Prevention recommends that breastfeeding be promoted through comprehensive clinical and social supports starting in pregnancy and continuing through birth and the postpartum period (Kelly, Watt, & Nazroo, 2006). This recommendation, in concert with the Patient Protection and Affordable Care Act (PPACA) 2010 Section 2951 Maternal, Infant, and Early Childhood Home Visiting Programs, reinforces the importance of early life interventions and home-based supports during the sensitive developmental periods of pregnancy and infancy. Perinatal case managers, as well as other providers who deliver in-home and community-based services from pregnancy through the postpartum period, have the potential to provide such support (Heinig et al., 2006; McLeod, Pullon, & Cookson, 2002; Rose, Warrington, Linder, & Williams, 2004). The Healthy Start Initiative, initiated by the Health Resource and Services Administration, aims to support communities in developing community-based approaches to improve maternal, infant, and early childhood health. The funding and the mission have since expanded to include 104 Healthy Start projects nationwide.

Boston Healthy Start Initiative (BHSI), established in 1991, developed a targeted, case management approach to improve perinatal outcomes among Black self-identified women and children. BHSI case managers provide community-based home visitation services and supports from early pregnancy and continue up through 2 years postpartum. BHSI includes 13 clinical and nonclinical sites throughout the greater Boston area. According to BHSI data from July 1, 2010 to June 30, 2011, BHSI case managers delivered care to nearly 2,000 clients including women and children. Women actively involved in BHSI during this period ranged in age from 15 to 45 years old. The majority of BHSI women self-identified as unmarried, low-income, unemployed, and educated with less than a high school diploma.

BHSI case managers are experts in the complex home-visiting case management systems in which they operate daily. As such, focus groups were held with case managers to better understand the practices, policies, and training available to support them in promoting breastfeeding among their clients. The barriers case managers identified to delivering consistent and reliable breastfeeding supports included limited time, minimal and inconsistent training, and misinformation about resources to support breastfeeding. Case managers shared lack of confidence and comfort in promoting breastfeeding because of factors including personal experience, confusion about the benefits of breastfeeding, and competing work demands. This highlights an opportunity for improvement in the quality of breastfeeding services available through home-visiting case management programs and an opportunity of growth for case managers delivering the services.

A FRAMEWORK TO BUILD CASE MANAGER CAPACITY

The interdependence model of social influence and interpersonal communication examines how influence and communication affect behaviors in a dyadic relationship (Glanz, Rimer, & Viswanath, 2008). This model was used as a framework to understand how effective communication can positively influence a dyadic relationship, such as that between a case manager and client. This framework also informed what ideas can be tested on a small scale to build knowledge and increase the degree of belief that the changes tested will result in an improvement in breastfeeding services and outcomes.

Studies have shown that effective communication is associated with improved physical health, effective disease management, and improved health-related quality of life (Glanz et al., 2008). Glanz et al. (2008) define effective communication in the interdependence model as functions that include information exchange, responding to emotions, managing uncertainty, fostering relationships, making decisions, and enabling self-management.

Building a case manager's ability to communicate effectively relative to these functions can positively influence a client's breastfeeding decisions and ultimately the health outcomes for both mother and baby. More specifically, *exchanging and managing information* can be defined as a process that focuses on reciprocal efforts between partners (case manager and client) to manage information, negotiate, and

share an understanding of particular issues. Case managers play an integral part in a pregnant and postpartum woman's infant feeding decisions and activities. Because of the nature and duration of this relationship, case managers have the opportunity to impart breastfeeding information and supports on an ongoing basis in multiple settings (clinic, hospital, and home visits) to clients interested in breastfeeding. This exchange of information can encourage a client to remain engaged and active through the continuum of prenatal and postpartum care. Likewise, imparting relevant and accurate information to a client who has limited resources or capacity to understand the latest health information available on breastfeeding may support her in making an informed decision about her infant feeding options. *Fostering relationships* addresses the mutually trusting relationship between the case manager and her client. Case managers serve as critical liaisons between clients and other providers and community resources, such as lactation consultants, breastfeeding peer counselors, and nursing support groups. *Enabling client self-management* refers to a case manager's ability to enable her client to seek appropriate care when necessary, follow through with recommendations, and effectively navigate the health-care system including accessing specialists and support groups. These self-management activities are critical in supporting a client's sense of autonomy, self-confidence, and self-efficacy. Specifically, a case manager can practice with her client how to ask her obstetrician questions about breastfeeding, how to self-advocate to hold her baby skin to skin after birth, and how to communicate with providers and her family her preference to give her baby only breastmilk. A case manager who has the confidence and competency to effectively communicate about breastfeeding with her client can support her in countless ways.

METHODS

The intended outcome of quality improvement (QI) efforts is to close the gap between research and practice through a process that includes rapid cycles of testing and implementing changes across multiple settings (Kilo, 1998; Øvretveit et al., 2002; Schouten, Hulscher, van Everdingen, Huijsman, & Grol, 2008). The model for improvement (MFI) and change concepts, as developed by Langley et al. (2009), represent a general approach to making a change for improvement driven by three fundamental questions detailed in Figure 1 (Langley et al.,

2009). Figure 1 also depicts the link between the interdependence model and the MFI to reach the goal of building case manager capacity to communicate and influence clients to breastfeed as recommended. Change concepts inform specific actionable ideas that can be adjusted to meet programmatic needs while taking into consideration the interdependence of system components, available resources, existing culture, institutional policies, and overall goals. Multiple change concepts taken together are referred to as a *change package*. Change packages inform the development and execution of rapidly tested QI cycles that include four stages: plan (P), do (D), study (S), and act (A). Although beyond the focus of this article, readers are referred to Langley et al. for more information on developing and testing changes.

The change package developed to improve the quality of BHSI breastfeeding promotion and support services included the following change concepts: (a) changing the work environment, (b) enhancing client relations, and (c) managing variation. *Changes to the work environment* focused on addressing the knowledge gap faced by training case managers on recommended infant feeding practices and basic counseling skills and by providing case managers with a structured and interactive toolkit that includes references to accurate and consistent breastfeeding information. Considering the dyadic nature of the case manager–client relationship, specific changes to *enhance the case manager–client relationship* emphasized strengthening case manager listening skills, coaching clients on how to be their own advocates to achieve their breastfeeding goals, and fostering relationships to enhance the client's natural support system. The toolkit supported this change concept by providing case managers with prompts to encourage use of effective listening skills, activities to engage conversation, and brainstorming sessions to build client support systems. *Managing variation* focused on reducing inconsistencies and inaccuracies in breastfeeding information provided to clients through the development and testing of a standardized training and toolkit. Table 1 outlines the change concepts with summarized objectives. The change package informed the development and testing of five QI activities detailed in a later section.

A brief note on sampling in QI: Given that the aim of improvement projects is to gain knowledge about systems or processes including the multiple variables that are likely to change over time, judgment sampling versus probability sampling is used. Judgment

Figure 1. Improving perinatal case management services to promote and support breastfeeding: a link between theoretical framework and methodology. BHSI = Boston Healthy Start Initiative.

sampling, guided by process and subject matter experts, informs the selection of samples across a wide range of conditions (sites, type of client, time period, etc.), which provides more important information to drive system changes than the number of samples collected under one specific condition (Perla & Provost, 2012; Perla, Provost, & Murray, 2013).

Setting

Based on the expert guidance of BHSI administrators, four BHSI sites were selected to participate in this QI initiative and included two located within

community health centers and two located in community-based nonprofit organizations. The Boston University Medical Campus Institutional Review Board determined that QI activities conducted for this project were exempt and met the criteria for not human subjects research (H-31526).

The Boston Healthy Start Initiative Infant Feeding Learning Collaborative (BHSI-IFLC) was established in May 2011. A learning collaborative is a QI approach that uses a structured process to bring together a diversity of stakeholders to improve the quality of a specific aspect of their service

TABLE 1
Boston Healthy Start Initiative Infant Feeding Strategy:
Quality Improvement Change Concepts

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- 1) Change the work environment.
 - a. Train perinatal case managers on recommended infant feeding practices and basic counseling skills.
 - b. Implement use of appropriate measurements to evaluate process and outcomes measures.
 - c. Develop cooperative relationships with key community partners.
 - 2) Enhance customer relations.
 - a. Improve case managers' capacity to effectively listen to clients.
 - b. Enable case managers to support clients to develop self-advocating skills.
 - c. Support clients to meet individual breastfeeding goals.
 - d. Establish case manager–client agreement.
 - e. Foster external relationships to enhance client support system.
 - 3) Manage variation.
 - a. Develop standardized infant feeding training for perinatal case managers and site supervisors.
 - b. Develop infant feeding toolkit for case managers to guide interactions between case managers and clients in support of breastfeeding goals.
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or program (Horbar et al., 2001; Øvretveit et al., 2002). Stakeholders involved in learning collaboratives represent process and subject matter experts. BHSI-IFLC included the following process and subject matter experts: BHSI case managers (six) and site supervisors (three); an evaluator from the Boston Public Health Commission (BPHC); representatives from the Massachusetts Department of Public Health (DPH) Women, Infants, and Children (WIC) program including the director of nutrition services, the state breastfeeding coordinator, and a nutritionist; the associate director/quality assurance of BHSI; a representative of the Healthy Baby Healthy Child program; and myself as the team leader representing BPHC and Boston University School of Public Health. As team leader, I facilitated the BHSI-IFLC meetings, synthesized feedback, managed engagement of team members as well as external and internal stakeholders, and ensured the aim and objectives of this QI initiative maintained forward momentum. Input from partnering obstetricians, lactation consultants, and Healthy Start clients was solicited and integrated throughout this iterative process.

BHSI-IFLC met weekly and used QI tools to organize information and facilitate dialogue. For example, brainstorming was used to generate ideas on

how to support case managers in addressing various concerns hindering a pregnant client to commit to breastfeeding; a Gantt chart was developed to track progress on QI activities; meeting records were maintained to use as reference to track progress and note ensuing action steps; and flow charts were created to better understand how clients accessed breastfeeding services and supports.

Intervention

BHSI-IFLC focused on where case managers and administrators felt there was a gap in knowledge and capacity to promote breastfeeding. The collaborative had a high degree of belief that providing training and tools to narrow this gap was critical to improve the capacity and the quality of Healthy Start services. Given that case managers often have caseloads of up to 45 pregnant or postpartum clients, further discussions clarified the need to balance resources, expectations, and time with existing demands on case managers. As a result of these discussions, BHSI-IFLC developed and tested a two-part strategy aimed to build case manager knowledge and confidence to promote breastfeeding among pregnant and postpartum clients. The strategy included (a) standardizing breastfeeding training for case managers and (b) developing and testing an infant feeding toolkit to guide case manager interactions with their clients. Both the training and the toolkit were designed using rapid, small tests of change and implemented with case managers located at four BHSI sites. The following details five activities BHSI-IFLC engaged in to execute this strategy.

Activity 1: Standardize Infant Feeding Training for Healthy Start. The BHSI Infant Feeding Training was adapted from material developed by the Massachusetts DPH-WIC program to maximize existing resources while strengthening community partnerships. The learning objectives for the curriculum included a didactic on infant feeding, basic counseling skills, community resources, and tools to promote breastfeeding (Refer to Table 2 for an overview). Activities included role-playing and case studies. A participant survey measured satisfaction and usefulness of the training with a quantitative component that assessed organization, content appropriateness, and participant engagement on a 5-point Likert scale.

Activity 2: Develop and Test an Infant Feeding Knowledge Self-Assessment Tool. An Infant Feeding Knowledge Self-Assessment Tool was developed

TABLE 2
Boston Healthy Start Infant Feeding Training
Learning Objectives

Day 1	<ul style="list-style-type: none"> • Providers reflect on personal attitudes and beliefs regarding breastfeeding. • Providers communicate key breastfeeding messages. • Providers describe various barriers to breastfeeding. • Providers differentiate between early and exclusive breastfeeding. • Providers identify key community supports for new breastfeeding mothers. • Providers identify solutions for common breastfeeding problems.
Day 2	<ul style="list-style-type: none"> • Providers summarize key stages in infant development. • Providers describe infant feeding recommendations for children 0–6 months old. • Providers describe infant feeding recommendations for children 6–12 months old. • Providers explain the basics of bottle feeding. • Providers describe key components of complementary feeding. • Providers outline nationally recommended infant feeding practices.
Day 3	<ul style="list-style-type: none"> • Providers demonstrate use of the infant feeding toolkit. • Providers demonstrate proficiency in the use of the observation tool. • Providers identify the key components of quality improvement methods including the plan, do, study, and act (PDSA) cycle and continuous feedback.

to measure case manager knowledge change and retention. The final version of the assessment included 30 items that covered seven topic areas: infant feeding guidelines and benefits, preparing for breastfeeding, breastfeeding challenges, supports, storage, weaning and introduction of solids, counseling techniques, and strategies. The knowledge self-assessment tool was administered at three time points: pretest (prior to the infant feeding training), posttest 1 (immediately following training), and posttest 2 (3 months posttraining).

Activity 3: Adapt and Test Self-Efficacy Scale for Case Managers to Promote Breastfeeding. Breastfeeding researchers have consistently determined the Breastfeeding Self-Efficacy Scale-Short Form (BSES-SF) as a valid and reliable predictor of a mother's confidence to initiate and continue breastfeeding in a diversity of samples. BSES-SF is a 14-item self-report instrument used to (a) identify women at risk of prematurely discontinuing breastfeeding, (b) assess how providers can help build client confidence, and

TABLE 3
The Self-Efficacy Scale for Case Managers to
Promote Breastfeeding

On a scale of 1–5, I think I can support my client to . . .
1. Know when her baby is getting enough milk
2. Successfully breastfeed
3. Breastfeed her baby without using breastmilk substitutes
4. Ensure her baby is properly latched
5. Manage her breastfeeding situation
6. Manage breastfeeding even if her baby is crying
7. Continue breastfeeding
8. Comfortably breastfeed with her family members present
9. Have a satisfying breastfeeding experience
10. Deal with the fact that breastfeeding can be time-consuming
11. Finish feeding her baby on one breast before switching
12. Breastfeed her baby for every feeding
13. Keep up with her baby's breastfeeding demands
14. Tell when her baby is finished breastfeeding

(c) evaluate the effectiveness of breastfeeding interventions with a Cronbach's alpha coefficient of 0.94 (Dennis, 2003; Dennis, Heaman, & Mossman, 2011). BHSI-IFLC identified the BSES-SF as an appropriate instrument to measure case managers' self-efficacy because the behaviors measured using the BSES-SF are the same behaviors a case manager needs to feel confident in supporting her client to engage in. Subject matter experts within the collaborative adapted the BSES-SF by changing the stem from "I can always . . ." to "I think I can support my client to . . . [know when her baby is getting enough milk, for example]." The instrument uses a 5-point Likert scale where 1 indicates *not at all confident* and 5 indicates *always confident*. The Self-Efficacy Scale for Case Managers to Promote Breastfeeding (summarized in Table 3) was finalized and administered to case managers at three time points: pretest (prior to training), posttest 1 (immediately after training), and posttest 2 (3 months posttraining).

Activity 4: Develop and Test an Infant Feeding Toolkit for Case Managers. BHSI-IFLC developed an infant feeding toolkit through the iterative PDSA process. The toolkit was designed to include evidence-based breastfeeding information strategically delivered during critical periods to maximize breastfeeding success in a culturally and linguistically appropriate manner. Table 4 provides an overview of the toolkit including session number, purpose, and content as well as recommended delivery timeframe. The toolkit is divided into five sessions, each designed with a specific focus. Session 1, delivered as

TABLE 4
Overview of Infant Feeding Toolkit for Case Managers

Timeframe	Purpose	Description
Session 1 Prenatal (prior to 30 weeks gestation)	Confirm intention to breastfeed; readiness to address breast-feeding concerns	HE: Benefits of breastfeeding, awareness of body changes and milk production, finding supports D: Address individual concerns regarding breastfeeding A: Assess readiness to develop individualized infant feeding plan S: Confirm intent to breastfeed
Session 2 Prenatal (third trimester prior to birth)	Complete individualized infant feeding plan	HE: Milk supply, UNICEF key steps to successful breastfeeding, skin to skin, infant states D: Feelings regarding skin to skin, rooming-in, and feeding supplements, experience with WIC A: Individualized infant feeding plan S: Assess referrals and supports, confidence level
Session 3 Within 48 hr after birth	Initiate breastfeeding	D: Assess experience, pain, need for supports HE: Importance of colostrum, exclusive breastfeeding, reading baby cues A: Reading baby cues, reviewing support plan, reviewing infant feeding and diaper log S: Assess BFHI 10 Steps, initiate breastfeeding, supports, and effectiveness of infant feeding plan
Session 4 Within 1 week after birth	Exclusive breastfeeding	D: Assess experience, pain, need for supports HE: Breastfeeding frequency, breastfeeding on cue, milk supply, baby's weight and checkups A: Review infant feeding and diaper log, review support plan, self-care activity S: Exclusive breastfeeding, supports, infant feeding plan effectiveness

Note. D = discussion; HE = health education; A = activity; UNICEF = United Nations Children's Fund; WIC = Women, Infants, and Children program; S = survey; BFHI = Baby-Friendly Hospital Initiative.

early in the pregnancy as possible, confirms intention to breastfeed and readiness to address breastfeeding concerns. The following session, held prior to birth, includes the completion of an individualized infant feeding plan (IFP) detailed in Activity 5. Session 3 is held within 48 hr after birth, in person and typically at the hospital. This session focuses on supporting the mother to initiate breastfeeding and reinforcing the importance of colostrum, exclusive breastfeeding, and reading infant feeding cues. The fourth session, held in person during a home visit within 1 week postpartum, ensures mothers feel supported to continue breastfeeding upon transitioning home. Case managers conduct a final session 2 weeks postpartum over the phone to assess the client's self-efficacy to continue breastfeeding and address any new questions or concerns.

Each session is divided into four parts: health education, discussion, activity, and survey questions. The toolkit was designed to guide case manager interaction with clients by ensuring case managers

delivered accurate and consistent health education information with references to *Your Guide to Breastfeeding for African American Women* (Office on Women's Health, U.S. Department of Health and Human Services, 2014). Discussion questions included in the toolkit provided case managers an opportunity to exchange information with clients in a supportive manner that would further foster client relations.

Activities focused on building client self-management skills with guided role-plays and listing breastfeeding questions for upcoming prenatal visits. Brief surveys, administered at the end of each session, helped case managers identify requests for referrals, such as breastfeeding classes and WIC support, confirmed intentions to breastfeed, and identified breastfeeding concerns. Case managers also administered the BSES-SF during Sessions 2 and 5. Information gathered from the surveys informed next steps and guided discussions for follow-up sessions.

Case managers at each of the sites were trained on how to use the toolkit to guide breastfeeding discussions with clients. BHSI clients invited to participate in this QI project reported an intention to breastfeed at intake and were at a gestational stage of 30–34 weeks for the first session of the toolkit. Two client cohorts received the infant feeding toolkit, the first cohort to test Version 1 (v.1; from October to December 2011) and the second cohort to test Version 2 (v.2; from February to April 2012). Case managers and site supervisors provided continuous feedback on the usability, content, and experience with the toolkit.

Activity 5: Empower Boston Healthy Start Initiative Clients With Knowledge and Tools to Self-Manage Breastfeeding. An individualized IFP was developed and tested as part of the infant feeding toolkit and designed to help clients identify both breastfeeding goals and formal and informal supports. Clients were encouraged to use their individualized plan to communicate breastfeeding goals to their partner, family members, and clinical team (physician, lactation consultant, hospital staff). Clients were also informed of the World Health Organization/United Nations Children's Fund's Ten Steps to Successful Breastfeeding employed by Baby-Friendly Hospital Initiative. The IFP endorses a client's interest to engage in these same strategies and therefore serves as a client-driven approach to efforts set forth in the Baby-Friendly Hospital Initiative.

RESULTS

Measuring Case Manager Infant Feeding Knowledge

The Infant Feeding Knowledge Self-Assessment Tool was developed and administered to training participants. Results from the 30-item multiple-choice questionnaire showed an improvement in knowledge from pretest (81%) to posttest (90%). Changes in knowledge within all content areas were also observed with the largest change in the area of *supporting nursing mothers*. Posttest 2 was administered 3 months after the training, and the average score of 90% indicates that the training and application of support using the toolkit helped providers to retain knowledge on recommended infant feeding practices.

Measuring Case Manager Self-Efficacy to Promote Breastfeeding

The Case Manager Self-Efficacy to Promote Breastfeeding Scale measured an improvement in case

managers' self-efficacy to promote and support clients to breastfeed. On a scale of 14–70, the average score for the pretest was 57 with a range of 40–70 and increased to 64 on posttest 1 with a smaller range of 52–70. Posttest 2 resulted in a higher average of 66. The increase in averages across three time points indicated an improved sense of self-efficacy to promote breastfeeding. Item scores were reviewed to identify which breastfeeding issues case managers felt the most and least confident addressing. Items with the highest average scores included “supporting my client to continue breastfeeding,” and “supporting my client to have a satisfying breastfeeding experience.” The scale identified supporting clients to breastfeed in the presence of family members as the area they felt less confident in.

Measuring Impact of the Infant Feeding Toolkit

As mentioned in the “Methods” section, judgment sampling was used to inform the selection of samples across a wide range of conditions. Data used for improvement does not seek to achieve statistical significance but is instead used as a signal as to whether the change tested results in an improvement. Therefore, measuring the impact of the infant feeding toolkit was completed with the support of 24 BHSI volunteer clients. Participants ranged in age from 18 to 42 years old, all self-identified their race as Black with 50% also identifying themselves as Latina or Hispanic. The majority reported being single (79%), unemployed (83%), having an annual income less than \$15,000 (83%), and having a high school degree or less (63%). Birth outcomes for 22 of the 24 babies were available at the time of this analysis. The majority of infants were delivered full term (91%) and weighing greater than 2,500 g (91%).

Process Measures

Nearly all participating clients (92%) completed the four in-person sessions that specifically focused on breastfeeding plus one follow-up call 2 weeks postpartum. The majority of clients (96%) completed an IFP, as well as shared their IFP with family supports (61%) and the hospital staff (65%). Eighty-seven percent of clients reported that their individualized IFP helped them to meet their breastfeeding goals, especially with setting goals, having supports available, and having helpful information.

Outcome Measures

Among the 24 clients, 100% reported initiating breastfeeding within 24–48 hr postpartum; of those,

58% initiated breastfeeding within 1 hr after delivery. At 1 week postpartum, 100% of the clients continued to breastfeed, with 54% breastfeeding exclusively. At 2 weeks postpartum, 92% were still breastfeeding and 42% reported breastfeeding exclusively. The majority of clients (92%) indicated on their IFP an interest to hold their baby skin-to-skin after birth. Of those clients, 100% reported experiencing skin-to-skin time with their babies in the hospital.

Clients had an average score of 58 when completing the BSES-SF prenatally. A modest increase in self-efficacy to breastfeed was observed 2 weeks postpartum (61). In all, clients reported higher self-efficacy for each of the items prenatally to postnatally, with the exception of a slight decline in breastfeeding without breastmilk substitutes.

DISCUSSION

Implementing a QI learning collaborative to improve the quality of case management services and build perinatal case management capacity was a novel approach for BHSI and produced promising results. Improvements to case manager infant feeding knowledge and self-efficacy were observed from pretest to posttest using an Infant Feeding Knowledge Self-Assessment Tool and a Self-Efficacy Scale for Case Managers to Promote Breastfeeding. In turn, building case manager capacity to promote and support breastfeeding contributed to 100% of the participating clients initiating and continuing to breastfeeding at 1 week postpartum, with 54% breastfeeding exclusively; and 92% were breastfeeding at 2 weeks postpartum, with 42% breastfeeding exclusively. These results are promising given that only 72% of BHSI clients report ever breastfeeding, and only 36% report breastfeeding exclusively (Table 5).

Applying QI methods to build case manager capacity has several implications on multiple levels. Perinatal case managers, such as those within Healthy Start, are hired from the community, reflecting the culture and language essential for developing trusting relationships with community members. Perinatal case managers work with high-risk women and children from early pregnancy up through 2 years postpartum and have the potential to fill an important role providing supports and critical health information during these significant developmental stages in women's and infants' lives. Building case manager capacity to use QI within the

Building case manager capacity to use QI within the systems in which they operate in generates a sense of ownership, pride, and excitement for the changes being developed and tested.

systems in which they operate in generates a sense of ownership, pride, and excitement for the changes being developed and tested. Empowering case managers to be part of the process to improve their organization contributes to sustainable improvements that have increased potential for spread. As such, based on improvements in case manager knowledge and self-efficacy, as well as improvements in breastfeeding outcomes experienced at four BHSI sites, this approach can be spread to the remaining BHSI sites as well as serve as a model for other Healthy Start communities across the nation. Funding available through the PPACA 2010 § 2951 Maternal, Infant, and Early Childhood Home Visiting Programs yields an opportunity for other perinatal home visiting programs to promote breastfeeding using this two-part strategy.

QI methods offer a practical approach to addressing the challenge of implementing research or policy recommendations into real-life settings. QI is a systematic and iterative process that is grounded in a collaborative approach to identifying improvement strategies, which is inclusive and available to a diversity of stakeholders. Proposed QI changes are locally developed and tested in a measureable and expedient manner. Results guide ensuing action steps, all of which are aimed toward producing changes that not only meet collaborative goals but are also feasible to implement and practical to sustain.

TABLE 5
Boston Healthy Start Initiative Breastfeeding Data
(July 1, 2010 to June 30, 2011)

Has the Child Ever Been Breastfed? (N = 782)	Percentage
Yes (n = 564)	72%
Breastfed exclusively (n = 202)	36%
Mixed feeding: breastmilk and breastmilk substitutes (n = 201)	36%
Switched exclusively to breastmilk substitutes (n = 161)	29%
No (n = 124)	16%
Missing data (n = 75)	10%
Declined to answer (n = 19)	2%

CONCLUSION

The BHSI-IFLC was an effective QI approach to develop and test a comprehensive infant feeding strategy for perinatal case managers. The QI process was an efficient method for integrating new ideas and input across a decentralized program and varying levels of providers and community partners. This approach resulted in the development of a standardized training program and toolkit, including accompanying measures that also strengthened staff buy-in and commitment. Results from implementing the infant feeding strategy with four Healthy Start sites demonstrates its feasibility with high participant satisfaction levels, highlights moderate improvements and retention of case manager knowledge and self-efficacy to promote breastfeeding, and improved breastfeeding outcomes among participating clients.

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