



National Quality Improvement Initiative in Home Visiting Services Improves Breastfeeding Initiation and Duration

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The authors have no conflicts of interest to disclose.

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Received for publication June 6, 2018; accepted November 2, 2018.

ABSTRACT

OBJECTIVE: To improve breastfeeding through home visiting.

METHODS: From 2013 to 2016, the Home Visiting Collaborative Improvement and Innovation Network (HV CoIIN) enrolled 15 home visiting agencies serving 1000 families in 7 states. Using the Breakthrough Series Collaborative model, HV CoIIN faculty taught a theory of change and continuous quality improvement (CQI) skills, as well as facilitating opportunities for networked learning.

RESULTS: HV CoIIN improved home visitors' breastfeeding competencies and use of data to inform practice. Breastfeeding initiation increased from 47% to 61%. Exclusive breastfeeding of 3-month-old babies increased from 10% to 13.5%, and for babies 6 months old it increased from 5% to 8%.

CONCLUSIONS: Home visiting programs can improve breastfeeding among participants with very low baseline breastfeeding rates. Continuous quality improvement and the Breakthrough Series Collaborative model can be used to improve home visiting services in ways that advance national public health priorities.

KEYWORDS: breastfeeding; home visiting; learning collaboratives; quality improvement

ACADEMIC PEDIATRICS 2019;19:236–244

WHAT'S NEW

This article reports results of the first US national quality improvement collaborative to address breastfeeding via home visiting. These findings have important implications for improving population health and advancing national public health priorities through home visiting programs.

BREASTFEEDING CONFERS A multitude of benefits for the health of infants and mothers, and exclusive breastfeeding of longer duration offers cumulative positive effects.^{1–9}

The American Academy of Pediatrics recommends that all infants without a contraindication should be fed breast milk exclusively until 6 months of age.¹⁰ Despite recent increases in national rates of breastfeeding initiation, duration, and exclusivity, in 2013 only 22.3% of infants were breastfed exclusively until 6 months.¹¹

Between 2003 and 2013, breastfeeding rates among all women in the United States increased—initiation increased from 71.4% to 81.1%, infants breastfed exclusively to 3 months from 29.6% to 44.4%, and infants breastfed exclusively to 6 months from 10.3% to 22.3%.^{11,12} Numerous policies and healthcare interventions contributed: the Surgeon General's call to action in 2011; the Affordable Care

Act's requirement that employers provide time and a private place for expressing breast milk and that health insurance plans cover breastfeeding supplies and counseling; the Baby-Friendly Hospital Initiative, which has certified 519 hospitals and birthing centers in all 50 states^{13,14}; the American Academy of Pediatrics's evidence-based guidance for breastfeeding-friendly pediatric practices¹⁴; national and local public health campaigns; and community peer counselors, among others.^{15,16}

Still, national rates of breastfeeding initiation, duration, and exclusivity remain below Healthy People 2020 targets, in large part because rates among low-income and minority women remain low. Breastfeeding initiation and 3- and 6-month exclusivity rates are 66.3%, 28.9%, and 14.6%, respectively, among non-Hispanic black mothers and 83%, 40.4%, and 19.1%, respectively, for Hispanic mothers, as compared to 84.3%, 51.6%, and 26.8%, respectively, for non-Hispanic white mothers.¹¹ Breastfeeding rates among women at disparate socioeconomic and education levels show a similar pattern.¹¹

Home visiting (HV) programs offer a promising approach to closing gaps in breastfeeding initiation and duration.¹⁷ HV programs enroll women during pregnancy or soon after birth and provide frequent services (weekly,

biweekly, monthly) until their children reach 2 to 5 years of age. HV programs engage with families during a critical period when families make important decisions about infant feeding. HV builds a longitudinal, trusting relationship, which is essential for behavioral change.^{18,19} Many HV programs include breastfeeding curricula, and HV programs can improve breastfeeding outcomes.²⁰ Finally, these programs serve a large number of families from vulnerable populations with low rates of breastfeeding. More than 300,000 families received evidence-based HV services through the Maternal, Infant, and Early Childhood Home Visiting program (MIECHV) in 2016, the majority of whom were living below 100% of the federal poverty line and belonged to racial or ethnic minorities.²¹ The breastfeeding initiation rate among MIECHV participants was 71%, compared to 81% nationally.²¹

In response to this opportunity, the Health Resources and Services Administration of the Maternal and Child Health Bureau awarded a 3-year cooperative agreement to Education Development Center to fund the Home Visiting Collaborative Improvement and Innovation Network (HV CoIIN) to improve, among 3 other priorities, breastfeeding initiation and duration using the Institute for Healthcare Improvement's Breakthrough Series (BTS) Collaborative model. This commonly used quality improvement model was designed to facilitate the uptake of innovations to, in the words of its creators, "close the gap between what we know and what we do."²² A BTS Collaborative recruits teams of direct service providers and stakeholders to pursue one shared, specific aim during a defined period of time, typically 9 to 18 months, and creates a structure within which interested organizations can learn from each other and from recognized experts. The BTS model has been used successfully to promote breastfeeding in hospital settings²³ and to improve enrollment and engagement of families in HV.²⁴ HV CoIIN represents the first national test of the BTS model in home visiting and is the first examination of the BTS model to address breastfeeding in HV programs.

Between May 2014 and August 2016, the aims of HV CoIIN for participating MIECHV programs were as follows: 1) 100% of home visitors would be trained in basic competencies in lactation and breastfeeding within 3 months of hire, 2) 80% of mothers would initiate breastfeeding, 3) 80% of mothers with a need for breastfeeding support would receive professional or peer breastfeeding support, 4) 80% of team members would use CQI data in practice each month, and 5) 30% of infants would be fed exclusively breast milk to 3 months and 15% would be fed exclusively breast milk to 6 months.

METHODS

CONTEXT

HV CoIIN adhered to the core components of the BTS model.²² It first convened faculty who set the aims for HV CoIIN, defined a theory of change and measures, and supported participants throughout the HV CoIIN. Faculty

were breastfeeding researchers, HV model developers, and state leaders. HV CoIIN members met face-to-face 3 times over 15 months and participated in monthly webinars that combined data review and teaching about breastfeeding. Federal and state HV leaders and HV model developers joined as sponsors. Local implementing agencies (LIAs) that deliver home visiting services were the primary agents of change. Each month, LIAs tested interventions using plan-do-study-act (PDSA) cycles and reported on the PDSA cycles and common measures. Also each month, HV CoIIN staff reviewed the PDSA cycles and provided feedback via monthly reports. PDSA cycles were successfully developed and implemented, and the HV CoIIN report linked interventions tested with PDSA cycles and progress on measures.

Two important modifications were made to the BTS model. Traditionally, BTS provides group-based support. HV CoIIN added ad hoc, individualized coaching to LIAs and state leaders. Most LIAs and states accessed coaching sessions, primarily to strengthen QI proficiency. The second modification was to extend the duration of the collaborative. As the original 15-month end date approached, HV CoIIN staff observed several factors that required more support to improve outcomes via the BTS model: 1) heterogeneity of HV contexts, 2) the complex and sensitive nature of addressing breastfeeding, and 3) limited QI experience of HV program staff, models, and state leaders.¹⁶ All participants were invited to continue in an optional 9-month extension, which included 2 face-to-face meetings, a virtual meeting, and ongoing virtual supports. Thus, the full HV CoIIN took place over 24 months in 2 phases.

PARTICIPANTS

In January 2014, HV CoIIN invited all MIECHV awardees from 50 states, the District of Columbia, and 5 territories to apply to participate, aiming to select 10 to 15 LIAs. Seven states with 12 LIAs applied. Awardees and LIAs were selected for their capacity and enthusiasm for improvement work. States were required to have an organizational sponsor, staff stability, a QI leader, data management capacity, mission for improvement, and 1 to 5 LIA partners. LIAs were required to have a senior sponsor; a QI team with an agency lead, supervisor, home visitors, and clients; adequate data systems; and willingness to work for 15 months to improve breastfeeding.

In total, HV CoIIN enrolled 16 LIAs in 7 states that used 2 HV models: Nurse-Family Partnership and Healthy Families America. Nurse-Family Partnership uses nurse home visitors, and Healthy Families America uses paraprofessionals. In phase 1, 11 LIAs in 6 states participated; in phase 2, 1 new state with 3 LIAs joined 3 of the original states with 5 continuing LIAs and 3 new LIAs (Table 1). The most common reasons why LIAs did not continue in phase 2 were that they had achieved some of the aims in phase 1 and wanted to join another HV CoIIN topic area (3 of 6 LIAs) or that the state or LIA QI priorities shifted (3 of 6). At any point in time, participating LIAs had a

Table 1. Local Implementing Agencies Participating in the Home Visiting Collaborative Improvement and Innovation Network

Local Implementing Agency	State	Local Implementing Agency Model	Phase 1 Participation	Phase 2 Participation	Average Monthly Enrollment	Target Population
Allegheny County Health Department Maternal and Child Health	Pennsylvania	Healthy Families America		X	168	Pregnant women, birth to 11 mo, 12–23 mo, 24–35 mo, 36–47 mo, 48+ mo
Nurse-Family Partnership of Bradford, Sullivan, and Tioga Counties	Pennsylvania	Nurse-Family Partnership		X	91	Pregnant women, birth to 11 mo, 12–23 mo
Calhoun Country Public Health Department	Michigan	Nurse-Family Partnership	X		73	Pregnant women, birth to 11 mo, 12–23 mo
Children’s Friend	Rhode Island	Nurse-Family Partnership	X		146	Pregnant women, birth to 11 mo, 12–23 mo
Clark County Combined Health District	Ohio	Healthy Families America	X		196	Pregnant women, birth to 11 mo, 12–23 mo, 24–35 mo, 36–47 mo, 48+ mo
Community Care Alliance	Rhode Island	Healthy Families America	X		60	Pregnant women, birth to 11 mo, 12–23 mo, 24–35 mo, 36–47 mo, 48+ mo
Comprehensive Community Action Program	Rhode Island	Healthy Families America		X	49	Pregnant women, birth to 11 mo, 12–23 mo, 24–35 mo, 36–47 mo, 48+ mo
Detroit Wayne County Health Authority	Michigan	Nurse-Family Partnership	X		123	Pregnant women, birth to 11 mo, 12–23 mo
East Bay Community Action Program	Rhode Island	Healthy Families America	X	X	44	Pregnant women, birth to 11 mo, 12–23 mo, 24–35 mo, 36–47 mo, 48+ mo
Erie Family Center	Pennsylvania	Healthy Families America Parents as Teachers		X	129	Pregnant women, birth to 11 mo, 12–23 mo, 24–35 mo, 36–47 mo, 48+ mo
Kenosha County Division of Health	Wisconsin	Nurse-Family Partnership	X	X	108	Pregnant women, birth to 11 mo, 12–23 mo
Meeting Street	Rhode Island	Healthy Families America	X	X	89	Pregnant women, birth to 11 mo, 12–23 mo, 24–35 mo, 36–47 mo, 48+ mo
Northeast Florida Healthy Start Coalition	Florida	Nurse-Family Partnership	X	X	96	Pregnant women, birth to 11 mo, 12–23 mo
Pike County Board of Development Disabilities	Ohio	Healthy Families America	X		92	Pregnant women, birth to 11 mo, 12–23 mo, 24–35 mo, 36–47 mo, 48+ mo
South County Home Health	Rhode Island	Healthy Families America		X	25	Pregnant women, birth to 11 mo, 12–23 mo, 24–35 mo, 36–47 mo, 48+ mo
Western Tidewater Health District	Virginia	Nurse-Family Partnership	X		50	Pregnant women, birth to 11 mo, 12–23 mo

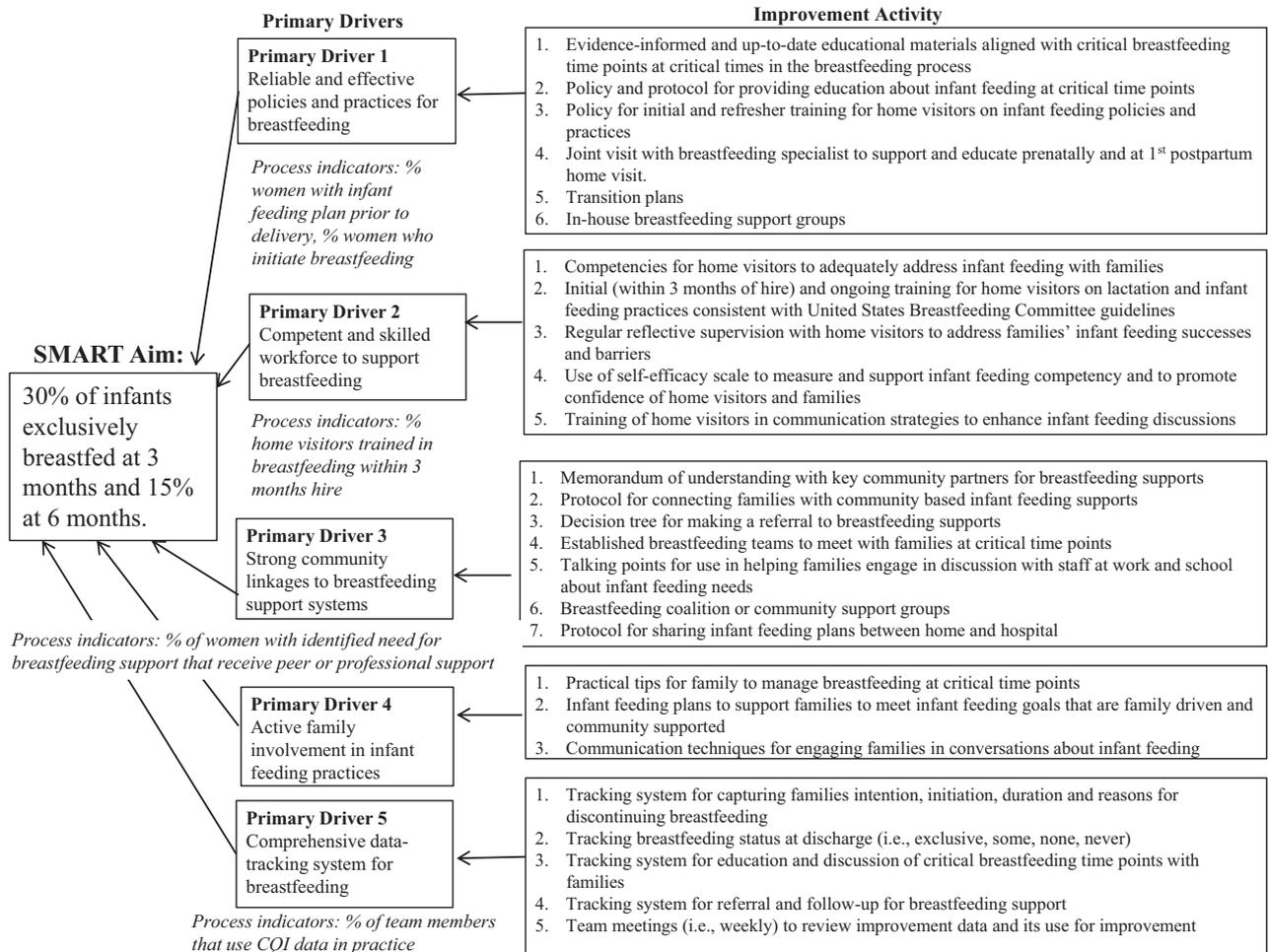


Figure 1. Key driver diagram.

total of approximately 1000 families (pregnant women and women with children newborn to 2 years old) on their caseloads.

INTERVENTION

At the first face-to-face meeting (May 2014), HV CoIH faculty taught the key driver diagram (KDD) (Fig. 1), which illustrates the theory of change defining the 5 key drivers that HV programs would need to reach their aims, as well as the evidence-based strategies associated with each driver. Each LIA decided which driver and interventions to prioritize based on its team's assessment and then began testing interventions and reporting monthly data (May 2014 to August 2016). At subsequent meetings, LIAs used their data to determine which drivers required improvement and selected strategies to address those drivers.

The first driver focused on practices to support breastfeeding: policies for initial and refresher training for home visitors, protocols for providing education about infant feeding at critical time points, evidence-informed educational materials, joint postpartum visits with breastfeeding specialists, transition plans, and in-house breastfeeding support groups.

The second driver concentrated on establishing a competent and skilled workforce to support breastfeeding. Faculty emphasized initial and ongoing training for home visitors consistent with US Breastfeeding Committee guidelines, including engagement of home visitors in certified lactation consultant and international board certified lactation series; training offered through local Women, Infants, and Children departments; evidence-based, nationally recommended online trainings; or partnerships with certified lactation consultants (eg, USDA's Loving Support Through Peer Counseling: A Journey Together, Secrets of Baby Behavior, Best Start Three-Step Counseling).^{18,25–27} In addition, faculty recommended that home visitors obtain training in communication strategies and the use of a self-efficacy scale, in addition to supervisors using regular reflective supervision to support home visitors' efforts.

The third driver emphasized strong community linkages to breastfeeding support systems through memoranda of understanding relationships with breastfeeding coalitions and community support groups, decision trees for referrals, protocols for sharing infant feeding plans with hospitals, breastfeeding teams, and talking points for helping families discuss breastfeeding needs at work and school. The fourth driver prioritized families' engagement in supporting breastfeeding, using practical tips, written

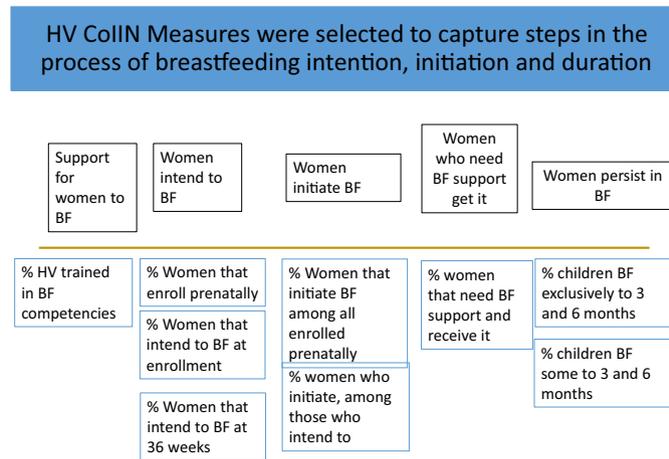


Figure 2. Breastfeeding process map.

infant feeding plans, and communication techniques. The fifth driver emphasized data systems for tracking intention, initiation, duration, and reasons for discontinuing breastfeeding and provided methods for using data in team meetings to drive improvement (Fig. 2).

STUDY OF THE INTERVENTION

LIAs reported program-level data monthly. HV CoIIN calculated weighted averages and presented measures on collaborative-wide and LIA-level run charts. Intervention timing was annotated, allowing teams to draw visual inferences from the temporal relationships of interventions and results. An analytical approach was used for the study.²⁸

MEASURES

HV CoIIN was designed to affect one main outcome: the percent of infants fed exclusively breast milk to 3 and 6 months of age. HV CoIIN used the World Health Organization's definition of "exclusive breastfeeding": The infant receives only breast milk (either expressed or directly). No other liquids or solids are given—even water—with the exception of drops/syrups of vitamins, minerals, or medicines.²⁹

Process outcomes included the percent of 1) home visitors trained in basic competencies in lactation and breastfeeding within 3 months of hire, 2) infants that initiate breastfeeding, 3) mothers with a need for breastfeeding support who receive professional or peer breastfeeding support, and 4) team members that use CQI data in practice each month. Training in lactation competencies included those recommended by the faculty (see Intervention, above) or others consistent with the US Breastfeeding Committee guidelines. Infants initiated breastfeeding if the child was ever fed breast milk. Peer or professional support was defined as support beyond that typically provided by the home visitor. Providing only a list of resources for breastfeeding help or assessment sheets did not qualify as professional or peer support.

ANALYSIS

Data were analyzed using run charts and established methods, taking into account limitations inherent to the HV data. Because no pre-intervention data were available, the first 10 data points generated the baseline mean. Two probability-based criteria were used to identify special cause variation: 6 or more points in a row above or below the mean (shift) and 5 consecutive points increasing or decreasing (trend).²⁸

ETHICAL CONSIDERATIONS

This study was reviewed by the Institutional Review Board of Education Development Center and deemed non-human subject research.

RESULTS

Participation rates in HV CoIIN were high throughout the collaborative. Each month, 87% of LIAs participated on webinars, 97% submitted data, and 91% reported PDSA cycles. Because each of the 16 LIAs submitted a PDSA every month, the LIAs conducted more than 224 PDSA cycles.

Home visiting programs and their clients had low baseline rates of trained home visitors (54%), breastfeeding initiation (47%), and duration of exclusivity to 3 and 6 months (10% and 5%, respectively). Three of 4 process measures improved (Table 2). The percent of home visitors trained in basic competencies in lactation and breastfeeding within 3 months of hire increased from 54% to 100% by the end of phase 1, dropped to 70% at the beginning of phase 2 with the enrollment of new teams, and again reached 100% by the end of HV CoIIN. Improvements were associated with investments in certified lactation counselor training for home visitors and with dissemination of free, high-quality training materials aligned with US Breastfeeding Committee guidelines.

The percent of infants who initiated breastfeeding increased from 47% to 61%, and 83% of infants whose mothers expressed an intention to breastfeed initiated (meeting the HV CoIIN aim of 80%). Increases were

Table 2. Summary of HV CoIIN Results

Outcome	Measure	Baseline	End of HV CoIIN
Training	Percent of home visitors trained in basic competencies in lactation and breastfeeding	54%	100%
Initiation	Percent of infants who initiated breastfeeding	47%	61%
Exclusivity to 3 mo	Percent of infants fed exclusively breast milk until 3 mo of age	10%	13.5%
Exclusivity to 6 mo	Percent of infants fed exclusively breast milk until 6 mo of age	5%	8%

HV CoIIN indicates Home Visiting Collaborative Improvement and Innovation Network.

associated with standardization of processes for conducting breastfeeding education, such as a structured prenatal home visit dedicated completely to infant feeding choices, a checklist for breastfeeding education modules, and adaptation of an infant feeding toolkit that included a breastfeeding self-efficacy assessment.³⁰ There was no improvement in the percent of women with an identified need for breastfeeding support who received peer or professional support. The percentage of team members who reviewed and used CQI data to inform their practice each month increased from 0% to 90%, exceeding the HV CoIIN aim of 80%.

The main outcome—the percent of infants fed exclusively breast milk until 3 and 6 months of age—increased. Among the approximately 600 enrolled infants older than 3 months, at baseline 10% were fed breast milk exclusively

to 3 months, with rates varying from 2.1% to 30.0% across LIAs. By the end of HV CoIIN, 13.5% were fed breast milk exclusively to 3 months. One shift of 12 consecutive points above the baseline mean to 12.6% (Fig. 3) occurred when PDSA testing focused on improving linkage to community breastfeeding supports. A second shift of 8 points occurred as PDSA cycles tested protocols for providing breastfeeding education and connecting families with support at critical times; talking points for families to discuss infant feeding needs with staff at work and school; systems to track data on families’ intention, initiation, duration, and reasons for discontinuing breastfeeding; and data review in team meetings.

Among the approximately 500 enrolled infants older than 6 months, 5% were fed breast milk exclusively to

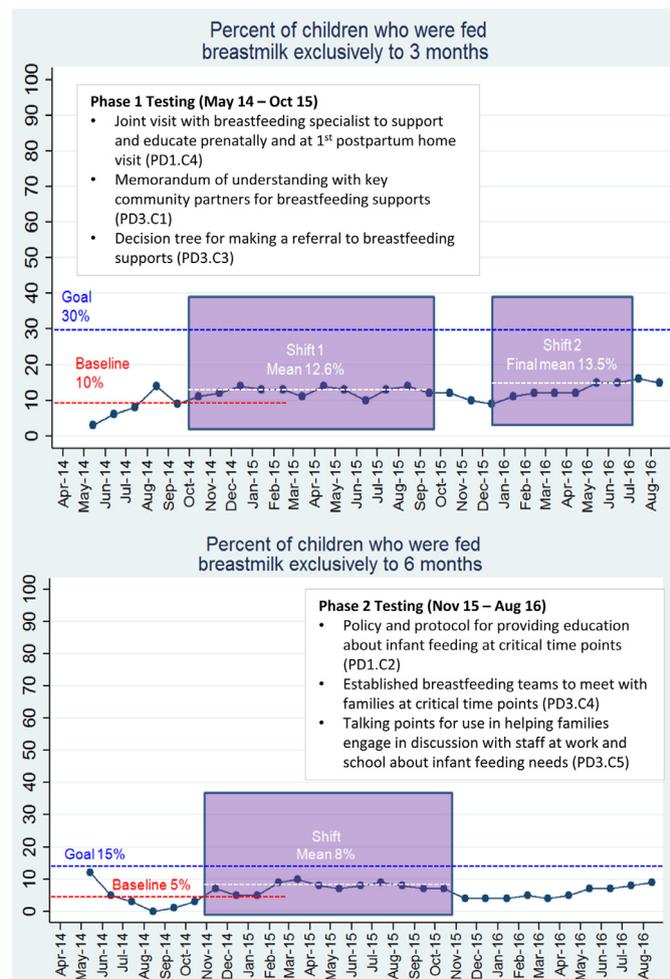


Figure 3. Run charts reflecting Home Visiting Collaborative Improvement and Innovation Network outcomes (percent of children fed breast milk exclusively to 3 and 6 months) and interventions tested.

6 months of age at baseline, with rates varying from 0.1% to 28.5% across LIAs. A shift of 12 points to a new mean of 8% began 6 months after PDSA testing began. Six months into phase 2, a run of 5 consecutive points above the mean occurred and was 1 point shy of a shift when the HV CoIIN concluded.

DISCUSSION

This HV QI collaborative produced large gains in the percent of home visitors trained in breastfeeding competencies, the regular use of CQI data, and the percent of women who initiated breastfeeding, in addition to small but meaningful increases in the duration of exclusive breastfeeding. These results confirm the potential of home visiting programs to improve key breastfeeding outcomes and the promise of CQI methods—especially the BTS Collaborative—to improve home visiting services in ways that advance national public health priorities.

The BTS approach facilitated intentionally building breastfeeding and CQI competencies among home visitors, key activities to close gaps in breastfeeding practices. When HV CoIIN began, only half of its home visitors were trained in basic breastfeeding competencies. Through the collaborative, LIAs trained 100% of their staff via state-sponsored certifications, HV model resources, and an online breastfeeding curriculum. Additionally, they ensured that all new home visitors were trained, a noteworthy achievement, as staff turnover in HV programs is high.

Similarly, at the outset of HV CoIIN, none of the HV programs reported regularly using data to inform program delivery. By the end of the collaborative, 90% of team members (supervisors, home visitors, support staff, and volunteer family members) met regularly to review data and identify clients who could benefit from time-sensitive lactation support. This approach overcame one common public health challenge: the misplaced belief that data are used exclusively by researchers and administrators, not frontline practitioners or clients.³¹ Via these competencies and CQI skills, the collaborative empowered home visitors, who know their clients best, to be agents of change, ultimately improving initiation and duration of exclusive breastfeeding among families.

Although the increase in breastfeeding initiation from 47% to 61% reinforces the important role that HV programs can play in promoting breastfeeding, the failure to reach the ambitious aims for exclusive breastfeeding at 3 and 6 months of age reflects the extreme vulnerability of the population, suggests that HV programs alone cannot overcome all barriers, and reinforces the need for a coordinated, systemwide approach to breastfeeding promotion.^{32,33}

Home visiting clients in programs that participated in HV CoIIN registered baseline breastfeeding rates that were far lower than national averages. At baseline, 10% and 5% of infants in this sample were fed breast milk exclusively to 3 and 6 months, respectively, as compared to 44% and 22% of all infants nationally, 29% and 15% of infants of black women, and 40% and 19% of infants of Hispanic women, respectively.¹¹ Low baseline rates

likely reflect a combination of factors. The influence of peers and community norms around breastfeeding are well established.³³ The populations served by home visitors are less likely to have paid maternity leave or workplace policies that support breastfeeding, benefits associated with longer breastfeeding duration.³³

Our exclusive breastfeeding findings are consistent with prior studies reporting that providing timely postpartum breastfeeding support is a great challenge.³⁴ Home visitors in HV CoIIN struggled to identify women who needed support and preferred to rely on clients to express a desire for support, suggesting a need for a standardized instrument for assessing breastfeeding efficacy.

Persistently low 3- and 6-month exclusive breastfeeding rates necessitated short-term measures. HV CoIIN integrated a measure of the average number of weeks breastfeeding and the concept of critical windows for breastfeeding decision-making into its KDD, targeting supports during the prenatal period, within an hour of birth, 24 to 48 hours after birth, 1 week post-delivery, and 2 weeks post-delivery. Two LIAs standardized when and how supports were provided based on critical windows and strengthened coordination with Women, Infants, and Children services to bolster supports and facilitate an agile response. These LIAs saw an improvement in the average number of weeks of exclusive breastfeeding—one from 7 to 11 weeks and the other from 11 to 14.6 weeks. The frequent contacts and the trusting nature of the home visitor's relationship with her clients during the critical time for breastfeeding intention, initiation, and continuation can give home visitors a central role in delivering and activating supports that mothers need to reach their infant feeding goals. A broad, coordinated, systemwide approach is essential to making this level of support sustainable.³⁵

The success of HV CoIIN reflects several strengths, including effective application of the BTS Collaborative model in home visiting programs across states and home visiting models, a KDD that aligned best practices for breastfeeding with model curricula and state priorities, and a measurement system that collected a common set of process and outcome measures across models and states and generated monthly automated run charts for participants. Future efforts should incorporate a standardized instrument for assessing breastfeeding efficacy, an explicit lens of cultural sensitivity, and stronger links with broader systems of care.

COSTS

Study funds supported the national implementation of HV CoIIN. Participation costs incurred by local teams were minimal (eg, travel to meetings) and were covered by existing program funds.

LIMITATIONS

The selection of early adopter states by HV CoIIN limits its generalizability; however, participants represented an appropriate initial national application of BTS in HV, proving the feasibility of the approach while suggesting

modifications for successful application (eg, coaching, longer timeframe). There was a change in participants between phases 1 and 2 because continued participation was voluntary. We are confident that the results are not attributable to these changes, as 3 of the 6 LIAs that did not continue in phase 2 showed improvement in their outcomes during phase 1, newly enrolled LIAs in phase 2 entered with baseline data similar to the data of the original cohort, and none of the improvements coincided with the transition between phases. Like many QI initiatives, this study lacked a control group; therefore, there could be potential sources for confounding, such as simultaneous initiatives external to the HV CoIIN to improve breastfeeding in home visiting. We believe this potential for confounding is limited, however, as sites were asked to incorporate any concurrent interventions related to breastfeeding into the set of change activities they were testing through the HV CoIIN. Finally, the increased attention to breastfeeding afforded by the HV CoIIN may have influenced outcomes. We believe this effect would be very limited, as home visiting program curricula routinely address breastfeeding. The BTS Collaborative complemented typical home visiting curricula by allowing HV programs to gain expertise in specific content and promoting direct service staff in learning about CQI processes.

CONCLUSIONS

This HV QI collaborative had a demonstrable positive effect on breastfeeding rates, including small but measurable increases in the duration of exclusive breastfeeding. Lessons from the HV CoIIN suggest that future work should fortify and complement HV efforts to improve breastfeeding by integrating into broader breastfeeding promotion strategies to 1) address cultural norms, 2) ensure prompt and agile responses to families in need of breastfeeding support, and 3) champion workplace policies that support breastfeeding. The Breakthrough Series Collaborative model holds promise for realizing the potential of home visiting programs to optimize breastfeeding outcomes of vulnerable populations and for enhancing the implementation of federal public health programs.

ACKNOWLEDGMENTS

Financial disclosure: The Home Visiting Collaborative Improvement and Innovation Network was funded by the US Department of Health and Human Services and Maternal and Child Health Bureau and was executed as a cooperative agreement with Education Development Center, Inc, grant UF4MC26525.

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