Project DULCE:
Developmental Understanding & Legal Collaboration for Everyone
Boston Medical Center (BMC) Department of Pediatrics

Final Report
September 2010 – December 2013

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Report Submitted to: Charlyn Harper Browne, QIC-EC Project Director
Center for the Study of Social Policy
I. Executive Summary

1. Provide a brief, general overview of the project.

Project DULCE introduces a Strengthening Families intervention model into the pediatric primary care setting at Boston Medical Center through the Patient Centered Medical Home. The DULCE intervention partners with parents to learn about and adapt to their newborns with the dual goals of improving child development and reducing maltreatment. Caretakers and parents of newborns are recruited in the primary care pediatric clinic at Boston Medical Center when they come for one of their new baby’s first visits. As soon as the consent process is completed, the family is randomly assigned to either the intervention or control group. Families in the control group receive an informational session on safe sleep and safe transportation, with an option of receiving either a portable crib or car seat. Families in the intervention group are assigned a DULCE Family Specialist who works and partners with the family during the first six months of the baby’s life. The DULCE Family Specialist provides families with support for unmet legal needs and provides information on child development and family support.

Recruitment was universal – offered to all families with newborns – so there was no stigma attached to participating. Families meet with the DULCE Family Specialist at all routine visits, and for home visits and telephone check-ins depending on the needs of the family – working with families to empower them to solve their own problems. At six months, the DULCE Family Specialist transitions care to the primary care team of pediatrician and nurse and any other ongoing services at Boston Medical Center or in the family’s neighborhood, as necessary.

The intervention component adapts and combines elements of two existing programs: Healthy Steps and Medical-Legal Partnership | Boston (MLP | Boston). The evidence-based Healthy Steps program adds a professional with knowledge of child development to a child's pediatric primary care team to support optimal parenting through knowledge, modeling, ongoing support, referrals (when needed), optional home visits and a telephone phone line. MLP | Boston supports families by providing legal advice, consultations, and representation to address their civil legal needs. The DULCE Family Specialist is trained by MLP | Boston to identify legal and social needs that may affect a child's health and development and to take action either by helping the family advocate for themselves, or by referring them to an appropriate public health, legal, or social service agency or resource (including MLP | Boston).

A community component is added through the active participation of a number of programs: Boston’s Thrive in Five (school readiness initiative), the Massachusetts Children’s Trust Fund, the Massachusetts Department of Children and Families, the Massachusetts Department of Public Health and the Boston Public Health Commission, all of whom collaborate with DULCE formally and informally.
2. Summarize evaluation findings.

1. A Strengthening Families–based intervention can be implemented in pediatric primary care. We were able to implement DULCE in the context of a busy primary care environment. Based on the report of the cross-site evaluation team, as well as our own experience in discussions with providers, it appears that the healthcare provider team overwhelmingly supported the introduction of the DULCE intervention.

Our own research data shows that 92% of families received some intervention, while half (52.5%) of them accepted the offer of a home visit. Families received a median of 14 contacts with the Family Specialist, for a total of five hours of contact time. The length of the doctor’s office portion of the intervention (one hour per visit) was slightly below the average visit length (one hour seven minutes), demonstrating that the presence of the Family Specialist did not disturb the practice.

2. Compared to controls, research subjects had significantly more success in obtaining concrete supports. On both baseline and it’s month surveys, there were no differences in awareness of the types of assistance available. However, at six months, participants in the intervention group received assistance with food, housing, and utilities at significantly higher rates than the controls, demonstrating that it was the effectiveness of the Family Specialist intervention that directly led to improved access to concrete supports.

3. Compared to controls, research subjects engaged in the patient centered medical home at a higher rate. We used receipt of six-month immunizations as an indicator of primary care engagement; research subjects were less likely to be delinquent with immunizations.

4. The common evaluation measures designed to demonstrate increased parent knowledge of child development did not show any significant results. This may been due to measurement challenges. However, our research subjects appeared to have trend towards fewer emergency department visits for issues related to misunderstandings of child development – particularly infant crying.

5. Project DULCE Family Specialists successfully identified high risk outliers who received more intensive support and linkage with outside agencies.

6. Finally, the study design used an active control. Control group families were exposed to an intervention designed by a public health commission to improve safe sleep practices. Our results demonstrate that this was effective, an important result on its own.

3. Highlight key lessons learned regarding:

1. Supporting the building of protective factors at the individual and relationship (family) domains of the social ecology
Individual: As discussed above, the DULCE intervention had significant and promising effects on: concrete supports, parent knowledge of child development and parenting, and on parental resilience (high-need families). Because of the young age of the patients, the family domain was viewed as the basic or individual domain in this project.

Systems: DULCE was directly designed to demonstrate an impact on the delivery of healthcare. We demonstrated the feasibility of incorporating DULCE in one primary care practice; suggesting that systems change within the healthcare system is possible. Future efforts will be needed to explore this in multiple settings.

2. The role of the collaborative partnerships in supporting the building of protective factors at the community, city, county, state, regional, or national domain (i.e., geographic community, provider community, and/or special caregiver community).

Through an Advisory Committee, which included representatives from the city and state public health and healthcare agencies, we informed policymakers about the broad range of services available through an enhanced vision of healthcare delivery. This vision includes specific focus on the Strengthening Families Promotive Factors®.

3. The role of the collaborative partnerships in supporting the building of protective factors at the societal domain (i.e., city, county, state, regional or national) of the social ecology: See above.

4. The use of common instruments/measures [Feedback from the Final Report Draft submission requested this information be added to the lessons learned section for this project.]  

The final review, selection, and agreement on common instruments took longer than anticipated. The resulting protocol took an extremely long time to administer with parents of newborns, which effectively precluded the use of the instruments below that may have been more appropriate for our single project but which would have presented challenges to the overall effort.

<table>
<thead>
<tr>
<th>Measure</th>
<th>Topic</th>
<th>Brief Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Parenting Sense of Competence (PSOC)</td>
<td>Parenting Sense of Competence</td>
<td>• 17 items scored on 6 point scale (strongly agree to strongly disagree)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Parenting self-esteem; perceived efficacy and satisfaction</td>
</tr>
<tr>
<td>Parent Behavior Checklist (PBC)</td>
<td>Parenting Behavior of Parents with children 1-4 years old</td>
<td>• 100 items</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• 3 sub-scales: Expectations (50 items), Discipline (30 items), Nurturing (20 items)</td>
</tr>
<tr>
<td>Parent Response to Child Misbehavior (PRCM)</td>
<td>Frequency of disciplinary practices used by parents in response to child misbehavior</td>
<td>• 9 items scored on 7-point Likert-type scale (never to 9 or more times/week)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Measures frequency of the following parent responses: reasoning, diverting to another behavior, negotiating, threatening, use of time-out, spanking, ignoring, withdrawing privileges, yelling in anger, and slapping (face or hand)</td>
</tr>
</tbody>
</table>
II. Introduction and Overview

A. Introduction and Project Administration

1. The National Quality Improvement Center on Early Childhood (QIC-EC) was established in 2008 as a 5-year cooperative agreement between the Children’s Bureau and three partner organizations: Center for the Study of Social Policy (lead agency); National Alliance of Children’s Trust and Prevention Funds; and ZERO TO THREE: National Center for Infants, Toddlers, and Families.

The QIC-EC was established to test evidence-based and evidence-informed approaches that build protective factors and reduce risk factors in order to promote optimal child development, increase family strengths, and decrease the likelihood of abuse and neglect among infants and young children. To this end, the QIC-EC funded four research and demonstration projects. In addition, funding was provided for five doctoral students whose dissertation research was related to the focus of the QIC-EC. Through its Learning Network, the QIC-EC engaged a multidisciplinary group of professionals in dialogue and information exchange on key policy, research, and practice issues related to the prevention of child maltreatment.

The QIC-EC is funded by the United States Department of Health and Human Services, Administration for Children, Youth and Families, Office on Child Abuse and Neglect, and is supported by matching funds from the Doris Duke Charitable Foundation.

2. Rationale for applying for funding (include needs, resources and strengths):
Child maltreatment disproportionately affects infants and very young children, particularly those who live in poverty. Prior broad-based prevention efforts have taught specific skills to parents (e.g., how to respond to a crying baby). More intensive approaches (e.g. the Nurse-Family Partnership) have shown success with high risk families. Project DULCE combines the best practices from two existing programs: developmental understanding from Healthy Steps and legal collaboration from Medical-Legal Partnership | Boston. The DULCE Family Specialist worked in a primary care setting using the Patient Centered Medical Home model. The DULCE Family Specialist worked with infants and families through their regularly
scheduled routine health care visits, providing them with support for basic needs, screened infants for developmental problems, screened families for mental health problems, and improved families’ knowledge of child development. Besides the core collaboration between Healthy Steps and MLP | Boston, an essential community context was added through the active participation of the following agencies: Boston’s Thrive in Five school readiness initiative, the Massachusetts Children’s Trust Fund, Department of Children and Families, and Department of Public Health. The intent of Project DULCE is to reduce family risk factors and, in so doing, increase resilience, resulting in more optimal child development and reduced maltreatment. Infants and families were recruited at routine visits between birth and ten-weeks-old and randomized into intervention and control groups. Intervention families were assessed and supported for six months by a DULCE Family Specialist. The Specialist was trained and supervised by the Healthy Steps and MLP | Boston. Control families received safety-related counseling.

3. Funders

Project DULCE was developed at Boston Medical Center and funded as a research and demonstration project by the National Quality Improvement Center on Early Childhood (QIC-EC) which is funded by the U.S. Department of Health and Human Services, Administration for Children, Youth and Families, Office on Child Abuse and Neglect, under Cooperative Agreement 90CA1763.

Matching funding was provided by the Child Health Foundation at Boston University, and generous donations to the Boston Medical Center Child Protection Team.
4. Overall organizational/management structure of project

NOTE: Over the course of the project, due to turnover, there were a total of four Family Specialists. At no point during the project were there more than two Family Specialists working at the same time.
NOTE: Over the course of the project, there were a number of part-time research assistants working on different aspects of the project: 1) the Safety Control Group RAs presented safety information to parents; 2) the Interviewing/Data Entry RAs administered the surveys to both the intervention and control groups as well as entered all data.
5. Describe the lead organization of the project in terms of its mission, key staff, and other work:

Boston Medical Center (BMC) is a 496-bed academic medical center located in Boston’s historic South End. The hospital is the primary teaching affiliate for Boston University School of Medicine.

BMC provides a full range of pediatric and adult care services, from primary to family medicine to advanced specialty care. It is the largest and busiest provider of trauma and emergency services in New England. Emphasizing community-based care, BMC is committed to providing consistently excellent and accessible health services to all—and is the largest safety-net hospital in New England.

6. Describe the local evaluation of the project in terms of its:
   - general approach to project evaluation
   - fit with the needs of the project

Overview of Evaluation Design

<table>
<thead>
<tr>
<th>Socio-ecologic Level</th>
<th>Study Design</th>
<th>Data Analysis</th>
</tr>
</thead>
<tbody>
<tr>
<td>Individual / Family level outcomes</td>
<td>RCT</td>
<td>Statistical analysis of short- and medium-term outcomes</td>
</tr>
<tr>
<td>Healthcare system process outcomes</td>
<td>Process data</td>
<td>Implementation data</td>
</tr>
<tr>
<td>Community Level Aggregate Outcomes</td>
<td>Data from ER and DCF</td>
<td>Population rates</td>
</tr>
</tbody>
</table>

Evaluation

PHASE 1: Data Collection

There were 402 research subjects assigned to intervention and control groups. The data collection schedule was at baseline, at post-intervention (6-months), and follow-up (12-months). The Data Coordinating Center at Boston University’s School of Public Health (DCC) provided an experienced team of data managers, statistical consultation and statistical programmers. The QIC-EC common measures were supplemented locally with:

- Resource Questionnaire – a questionnaire that assesses whether subject has heard about, tried to get, or currently gets help from a list of 13 government resources
- Safety Questionnaire – assessing subject’s safe sleep practices with infant
- Ages & Stages Questionnaire
• A capstone question that asks intervention families about any differences that having a DULCE Family Specialist made in the first 6-months of the infant’s life

**Process evaluation data** was based on activity logs maintained by the DULCE Family Specialists. Every interaction by, or on behalf of, intervention families were recorded in an Access database. The DULCE Activity Log documented all direct service time and collateral advocacy activities.

**Cost data** was based on grant expenditures and included DULCE charges, along with support and materials costs.

**Healthcare specific data** was based on examination of the electronic health record (EHR). Queries of the EHR could be based on direct billing codes, services (including immunizations), and free text searches. Once extracted from the data warehouse into an Excel spreadsheet, the data were reviewed for accuracy and analyzed. Maltreatment rates among the intervention and control families was assessed based on medical record review of visit notes and of requests for health information from DCF.

**Population-level** community data concerning instances of child maltreatment in the BMC catchment area will be collected in cooperation with DCF, the state agency charged with response to child maltreatment reports. Both allegations and substantiated cases will be documented for the local area office and statewide. To provide a frame of reference, data will also be compiled reflecting the two years prior to introduction of the program. This analysis is still pending at the time of this report.

**PHASE 2: Make Meaning from Data**

**What statistical analyses were done?** Primary analyses compared outcomes between intervention and control subjects. For normally distributed interval/ratio-level outcomes, the primary analytic tool will be a repeated measures design.

• **Method 1.** Preliminary analyses explored the efficacy of random assignment. We made covariate adjustment for those variables that discriminate between the treatment and control groups and which appear related to the outcomes of interest. We stratified our sample by looking at parents of one child v. many, maternal age, and insurance status. None of these stratifications provided meaningful subgroup differences.

In addition to the interval-level outcomes, the study yielded categorical outcome variables as well; for these variables, the primary analytic model will rely on logistic regression. Again, we will explore the possibility of covariate adjustment for any observed discrepancies between the two treatment arms. Finally, to enhance the validity of the analyses and to control for possible bias associated with differential attrition between the two groups, all analyses were performed primarily with as
intention-to-treat; in missing data were imputed and all cases are analyzed, not just those who remained in the study sample through all three waves of data collection. However, participants who consented but did not complete baseline surveys were not included in any analyses; they were treated as non-participants. Details of data completeness are provided in the results section of this report.

- **Method 2.** Process and qualitative data were collected. Process data was used to generate descriptive statistics and trend data. More qualitative data, was content analyzed for key themes using standard qualitative techniques. Qualitative data will be used both to inform program operations as well as to provide narrative to better understand the quantitative picture of the intervention.

- **Method 3.** Aggregate data will be compared before and after Project DULCE implementation. We will use McNemar’s test of proportions to determine whether a significant change in the rate of maltreatment reports or ED visits for children less than one year old has occurred during the implementation of Project DULCE. At the time of this writing, we are still awaiting data from the Department of Children and Families.

**PHASE 3: Shape Practice**

The final phase of the evaluation process, shaping practice, is among the most exciting and challenging. While not an evaluation activity *per se*, the DULCE intervention has been carefully documented and manualized. Wherever possible, we drew distinctions between core elements of the implementation and those which may represent adjustments necessitated by local circumstances. The implementation manual identifies resource needs (human as well as material); job descriptions including necessary qualifications; training materials; intake, case tracking/monitoring, and case closing procedures including forms and questionnaires used to support those procedures. These data combined with outcome effectiveness results provide critical information for would-be adopters/adapters if they are considering replicating the approach for their own practice settings and for their own target population(s).

7. List essential project implementers/staff and their roles; include staff credentials and experience; full- or part-time; indicate professional, parent leader, volunteer, or intern (could be presented as a table)

<table>
<thead>
<tr>
<th>Project Implementers</th>
<th>Role</th>
<th>Experience</th>
<th>FT/PT</th>
</tr>
</thead>
<tbody>
<tr>
<td>Robert Sege, MD, PhD</td>
<td>Principal Investigator</td>
<td>Pediatrician</td>
<td>PT</td>
</tr>
<tr>
<td>Ed De Vos, EdD</td>
<td>Lead Evaluator</td>
<td>AVP for Research MA School of Professional Psychology</td>
<td>PT</td>
</tr>
<tr>
<td>Genevieve Preer, MD</td>
<td>Pediatric Representative</td>
<td>Pediatrician</td>
<td>PT</td>
</tr>
<tr>
<td>Margot Kaplan-Sanoff, EdD</td>
<td>Developmental Team Leader</td>
<td>Director, Healthy Steps</td>
<td>PT</td>
</tr>
<tr>
<td>Samantha Morgan, JD</td>
<td>Legal Team Leader</td>
<td>Executive Director, MLP</td>
<td>Boston</td>
</tr>
</tbody>
</table>
8. Describe workforce recruitment, training, supervision, retention, and project staff

- Describe the procedures for recruiting project staff
  We were looking for unique individuals with a critical skill set for Project DULCE; specifically, we were recruiting professionals with training in infant development, family support, and infant mental health. We recruited for Project DULCE by advertising at local universities and, more importantly, using our diverse contacts to find the right combination of skills for the Family Specialist.

- Describe the initial training and orientation of staff, particularly about the protective factors framework
  Training for the Family Specialist included extensive training in both models upon which the intervention was based.

**Healthy Steps** training was delivered by the Director and model developer for Healthy Steps. The four Healthy Steps trainings which address major behavioral and developmental issues focusing on a whole baby/whole family brand of primary care included:

- Child & Family Development: Relationship-based Practice
- Developmental Screening
- Home Visiting
- Clinical Interviewing

**Medical-Legal Partnership | Boston** training was delivered through their “bootcamp” model of training. The three MLP | Boston trainings emphasize: 1) how professionals from differing backgrounds can partner with each other to advocate for patients and 2) building skills and strategies for accessing vital resources. The trainings focus on specific concrete needs:
• Securing Nutrition and Income Supports, Stabilizing Housing, and Protecting Utilities for Families
• Hunger Prevention
• Income Supports

The **protective factors** were layered on to these training agendas so that the Family Specialists infused the protective factors throughout their work with families.

NOTE: The complete PowerPoint presentations for the above trainings are located in Sections 8A, Parenting/Child Development, and 8B, Concrete Supports, of the Project DULCE Implementation Manual.

- **Describe staff supervision procedures and opportunities**
  Supervision was provided primarily through weekly case review meetings attended by: Family Specialist, the Project’s PI pediatrician, a second primary care pediatrician, Healthy Steps Director/Developmental Team Leader and a staff attorney or paralegal from Medical-Legal Partnership | Boston. As needed Family Specialists had access to the medical, legal and child development team members through email, pagers and phone calls throughout the work week.

- **Describe the staff retention plan.**
  Retention of staff was facilitated by weekly staff meetings and case review and supervision from various team members, particularly the Developmental Team Leader. Access to high quality training was offered by all DULCE team members. Working as a Family Specialist in primary care pediatrics represents a unique opportunity for child development specialists and the DULCE Family Specialists were highly motivated to learn all that they could from the experts on the pediatric and legal staff.

- **Describe opportunities for staff professional development.**
  Staff development was initially offered through an intensive three day Healthy Steps Training Institute and Medical-Legal Partnership | Boston boot camp. In addition, training was offered in the NBO (Neonatal Behavioral Observation Scale) by The Brazelton Institute, Fussy Baby training was offered by the Director of Fussy Baby at Erikson Institute in Chicago, and other local training such as those sponsored by the Children’s Trust Fund were provided. Staff attended the Strengthening Families Annual conference as well.

- **Describe technical assistance accessed.**
  Project DULCE had the unique opportunity to access technical assistance directly from the model developers of the two models utilized by the project: Healthy Steps and Medical-Legal Partnership | Boston. Technical assistance was provided at weekly staff
and case review meetings as well as through personal contact between the Family Specialists and the model developers.

- Describe any staff turnover that occurred during the project and how staff turnover was handled.

**Staff Turnover • Intervention:** All Family Specialist turnover was due to outside factors. Because we had time to plan carefully, all new Family Specialists had the opportunity to shadow the departing Specialists. The new hires attended well child visits, went on home visits to meet the families, and accompanied the departing Family Specialists to referral programs in the community. This allowed for a very smooth transition for both staff and families. Carolina Velasco, hired as the first Family Specialist, completed her fellowship and returned to Chile. However, Ms. Velasco’s background in psychology, social work and experience working within the Boston Medical Center community helped to shape the intervention; she also played a key role in creating developmentally appropriate and relevant outreach materials. When Family Specialist, Julie Safran, moved to California after she became engaged, Genevieve Birkner was hired to fill the position; her background in child development along with her experience working in a hospital setting with children and families made for an easy transition. The third turnover was also anticipated when Kena Mena graduated from her Master’s program in Child Development at Tufts University in January 2013, but given that the project was winding down, Ms. Birker took on Ms. Mena’s remaining families; Ms. Birkner resigned her position in July 2013. Ms. Birkner did receive funding to serve as a Family Specialist to support families seen in the resident’s Continuity Clinic to help promote the Protective Factors. While all intervention families in the research study graduated, her departure in July suspended a pilot project in the Pediatrics department which was an extension of Project DULCE. Despite good results, we elected to terminate the Continuity Clinic pilot due to uncertainty about sustained hospital support.

**Staff Turnover • Control:** Boston Medical Center’s partnership with Boston University allowed the research team to hire Public Health students to conduct safety training to control group participants. The ability to connect with qualified students and the fact that students’ schedules allow for hourly work during key clinic hours has been a benefit. But, this translates into more time spent in the hiring and training process. However, the benefits outweigh the challenges so the research team adjusted accordingly and became proactive in the hiring process so that we are able to continue reaching all families in the control group.
9. Describe any challenges and how they were handled in the following areas:

- **Management**

**Administrative Changes with the IRB:** Boston University Medical School Institutional Review Board was undergoing internal administrative changes at the start of this project and these changes had some impact on the study. Getting approval on requests to make protocol changes such as “adding 12-month data collection” or “adding new staff” was difficult.

The research environment in which this was conducted is dynamic in many ways. Prior to beginning this research study, we changed the venue from East Boston Neighborhood Health Center to Boston Medical Center. This change was required when East Boston received funds under the federal Recovery Act which helped to build a completely new physical space.

**Venue Changed from East Boston Neighborhood Health Clinic to BMC:** Prior to beginning this research study, we changed the venue from East Boston Neighborhood Health Center to Boston Medical Center. This change was required when East Boston received funds under the federal Recovery Act which helped to build a completely new physical space; East Boston Health Clinic staff determined that they could not be the implementation site for the intervention. This led to an opportunity to integrate the intervention in our own clinic at Boston Medical Center.

**Medical Legal Partnership | Boston Changes:** MLP | Boston became a fiscal sponsee of Third Sector New England, Inc., an interim corporate umbrella for MLP | Boston while it pursues independent 501(c)(3) status. This transition process was thoughtfully executed and resulted in no significant interruption of services provided by MLP | Boston to Project DULCE.

**Data Cleaning:** A considerable amount of time was spent on cleaning baseline and 6-month data received from Wellsys after discrepancies were found. For example, several missing data were not truly missing - a random sampling of affected records revealed that participants had responded to many of these questions. It is possible that machine-error was a factor. Additional cleaning was performed on ambiguous questions as well. For example, one question combines race/ethnicity and allows multiple choices by the participant; this made analysis difficult. This resulted in extra financial cost to the project and ultimately caused some delays in submitting our site’s datasets in a timely fashion.
• Garnering support for the project
  None

• Implementing aspects of the project across the domains of the social ecology
  Our natural partners in this endeavor were the Boston Public Health Commission and
  MA Department of Public Health. However these agencies were simultaneously
  awarded early child mental health grants from SAMHSA: LAUNCH and MYCHILD. This
  led to additional challenges as BMC’s pediatric clinic had several programs all being
  integrated simultaneously. The two public health projects were also in a startup phase
  and had evolving needs and structures. But in the end, the multi-disciplinary
  leadership team and Advisory Board were effective in joint priority setting; and with
  the cooperation of the city and state agencies, all three projects proceeded without
  interference with each other, and provided complimentary clinical services.

• Any other challenges deemed important
  The revised common evaluation plan entailed a lengthy period of data gathering. In
  our original proposal, we had envisioned that data gathering could be accomplished
  following the child’s healthcare visit. Instead we developed a plan to conduct data
  gathering in the University’s general clinical research center and scheduled data
  collection at a separate date and time.

  Loss to Follow-up: Keeping attrition rates lower was a challenge. Most of this attrition
  was due to families deciding to receive their primary health care services closer to
  home (many times at a community health center) and others moved out of the Boston
  Metropolitan Area. Another reason is the difficulty of reaching participants by phone
  due to the lack of an active or stable cell-phone number for our families. The majority
  of families are low income, and many parents qualify for the federal/state telephone
  assistance program called Lifeline based on their eligibility for certain other programs
  like Medicaid, Food Stamps, LIHEAP, etc. The Lifeline provides free phones, 250 free
  minutes and 250 free texts each month. This is hardly enough for families depending
  on this phone as a way to reach their baby’s medical home during the critical first
  months of life. Because families also rely on this mobile device as a method of
  reaching their social connections and communities, their minutes run out quickly, and
  ultimately this causes difficulty in reaching out to families concerning research. The
  number lost to follow-up was similar between the intervention and control groups.
  Incidentally, the hospital administration has been meeting to determine why patients
  decide to leave Boston Medical Center during their children’s first six months of life.

  Brevity of Intervention: Project DULCE was designed to cover just the first six months
  of an infant’s life, based on both practical reasons and the observation that lethal child
  maltreatment peaks during this period. However, in practice the Family Specialists
found that many families continue to need services after a child is six-months-old. For the families in the intervention group, the Family Specialists ensured a smooth transfer to other services available at Boston Medical Center.

B. Overview of the Community, Population, and Problem

1. Describe how “community” is defined in the project (there may be multiple definitions). The project’s definition of community includes at-risk families of young children in the Boston Metro area receiving care at Boston Medical Center. It also includes our collaborators, local child welfare agencies, and our study’s advisory board committee. Our advisory board committee consists of individuals from local child welfare agencies i.e. the Department of Children and Families, Department of Public Health, Children’s Trust Fund, and parent representatives. Periodic board meetings serve as a forum to inform members about progress on the project, information-sharing about inter-agency training opportunities and discussions around improving how agencies work together, for example the use of common language across agencies was discussed.

2. Describe the geographic region(s) in which the project provides services in terms of:
   - scope (e.g., one county, multiple counties).
   - type (e.g., urban, rural).
   - demographic characteristics (e.g., income level, ethnic distribution, etc.).

Boston is a racially and ethnically diverse urban community with 36.1% households speaking a language other than English at home. Population estimates were 636,479 in 2012 and persons under 5 years make 5.1% of the population. At Boston Medical Center, approximately 70 percent of patients come from underserved populations, including low-income families, elders, people with disabilities, and immigrants. Seventy percent of all patients are from racial and ethnic minority populations, and 30 percent do not speak English as a primary language.

3. Describe the demographic characteristics, needs, and size of the target population of children and/or families served by the project.
   - If applicable, discuss in what ways and why the target population shifted over the course of the project and any subsequent impact/implications.
   - If applicable, discuss in what ways and why the target population’s needs shifted over the course of your project and any subsequent impact/implications.

The project recruited families with healthy newborns who received primary care at Boston Medical Center, Boston, MA, a safety net hospital. The baseline data assessment demonstrated that families with newborns at this urban health center faced significant hardship. For example, although the median maternal age was 29 years and median educational attainment was high school graduation or GED, the median annual household income was in the $10,000-$30,000 range which resulted
in significant hardship in all measured domains. More than half (61%) reported some sort of food insecurity. Many reported having received free food or meals from a food pantry, food bank, or meal program (38%), or from family members (32%), with nearly one in twenty (4.9%) reporting having gone hungry. Housing needs were frequent in this population, reported by 45% of participants. Many suffered severe housing insecurity (17%), of which 13% had stayed in a shelter or a place unfit for human habitation and 6% had been evicted. Among those who had not experienced severe housing hardship, 52% had either fallen behind on the rent or moved in with others. In total 402 families agreed to participate in the study and signed consent forms; baseline data was obtained from 330 of these families.

The Appendix to this report is a draft paper summarizing the economic hardships of families seeking primary care at Boston Medical Center. This paper (No Silver Spoon: Prevalence of Economic Hardships in Families of Newborns at an Urban Teaching Hospital) is based on the baseline data assessments.

There were no significant changes in this population over the course of the study.

4. Describe the purpose, specific research question(s), and overview/summary of the project, and:
   - how the project responds to the overarching QIC-EC research question.
   - how the project responds to the needs of the target population.
   - what the project is trying to accomplish to address its specific outcomes.
   - what the project is trying to accomplish to address the QIC-EC’s common outcomes.

Project DULCE was designed to address the problem of maltreatment that begins during infancy from the family perspective: The birth of a child is tremendously disruptive. In good circumstances, parents, supported by the extended family and community, thrive and find joy in the new family, despite the sleepless nights, disruption in prior routines and the investable changes in relationships. So supported, they establish safe, stable, nurturing relationships with and for their new child. For some families, however, the overwhelming responsibility of caring for a helpless crying infant, combined with the daily struggle for food and shelter, results in less than optimal parenting and, sometimes, in child maltreatment.

Project DULCE was designed to help answer a key question in child maltreatment prevention: How do we support high-risk families during the critical first six months of life? What sorts of interventions will be welcome and effective? Shaken baby prevention programs and physician counseling (anticipatory guidance) employ a psycho-educational approach, based on the relationships between health care providers and families. Healthy Steps provides evidence-based developmental guidance, and has been shown to improve parental self-confidence and reduced stress. The Medical-Legal Partnership
model focuses on providing families with access to food, shelter, and food. The missing piece has been the development of a collaborative model, with the family at the center that places these disparate programs into a seamless whole. Project DULCE was evaluated as a sustainable approach, by integrating successful programs into the medical home, and assessing their ability to improve resilience, and to reduce risk and maltreatment.

The theoretical framework of Project DULCE can be simply expressed. Numerous descriptive studies have established links between poverty and maltreatment, especially when parents who do not understand their infants’ behavioral cues. Serious maltreatment has its highest prevalence during the first few months of life, when, coincidentally, families have the most contact with the health care system. An intervention that is integrated into the evolving health care environment, addresses the basic needs of families, provides support and referrals for infants and families with complex needs, and effectively teaches them about normal infant development would be expected to increase resilience, decrease risk, and reduce maltreatment. Project DULCE was intended to work by integrating widely replicated approaches into the patient-centered medical home. The evaluation was designed to demonstrate whether these theoretical goals were met.

5. Describe any significant contextual conditions, events, or community changes or characteristics not previously described that occurred during the grant period which impacted the families served, the project or the outcomes measured.

- In 2012, the PI of this study stepped down from the leadership of the Division of Ambulatory Pediatrics and started a new Division of Family and Child Advocacy, and the Chair of the Advisory Board stepped down as Department Chair. The new leadership continued support the implementation of Project DULCE in the clinic, but has not been in a position to ensure its transition from funded research and development project to routine clinical practice.

C. Overview of the Collaborative Partnership

1. Describe the collaborative partnership:
   - The lead organization’s role in forming or supporting the collaborative partnership.
   - History of collaboration between the lead organization and collaborative partners.
   - How the collaborative partnership may have evolved or changed over the course of the project.
   - Any new partners that emerged since the original application.
   - Any partners who left the partnership.
   - The implementation roles/responsibilities of partners and how they may have changed as result of working together.
• The collaborative partners’ linkages with child welfare, CBCAP, ECCS leaders, parent organizations, community organizations.

Project DULCE evolved from a long series of innovative primary care interventions at Boston Medical Center, which has been a pioneer in the development of holistic healthcare for children in urban settings living in poverty, specifically: Healthy Steps and the Medical Legal Partnership.

The Healthy Steps intervention places a specially trained child development expert in the pediatrician’s office. The developmental expert sits in with the family at all routine checkups, makes home visits, and is available by phone. In the original Healthy Steps model, the Healthy Steps Specialist was assigned the family as soon as possible after birth and continued to work with the family until the child was two-years-old. The evaluation of Healthy Steps, by researchers from Johns Hopkins University, demonstrated an improvement of child health. Healthy Steps is recognized as an evidence-based home visiting program by the United States Department of Health and Human Services. Currently, there are over 80 Healthy Steps sites in the United States.

Medical Legal Partnership, originally founded in 1993 as the Medical Legal Partnership for Children at Boston Medical Center, incorporates legal support for the social determinants of health into primary care. In the original Medical Legal Partnership model that was in operation when Project DULCE was initiated, a lawyer or paralegal was available via pager at the time of a well child visit. When clinicians identified a patient with a potential legal need (e.g., difficulty in obtaining needed services at school, landlord/tenant issues, questions involving income support), they were able to receive timely advice for the family. In some cases, families were referred to MLP for a legal intake and more in-depth legal support. Now, an email system with a same-day response is in place. Currently, there are over 250 Medical Legal Partnership sites in the United States.

While these two projects were either in development or already started at Boston Medical Center, the medical landscape was undergoing a revolutionary change during the early 21st century. Healthcare centers were no longer responsible for just the episodic care of patients, but patients were now looking to them for primary care. This model, called a “patient centered medical home,” is part of a new entity known as an “accountable care organization,” where all the medical costs (for the entire patient panel) are assigned to the identified health care organization. These changes – in order to be sustainable – have made coordination of care of paramount importance.

The DULCE model integrates lessons learned from Healthy Steps and the Medical Legal Partnership with the tremendous opportunities presented by changes in healthcare. Thus, Project DULCE integrates support for the social determinants of health and child development into the care management model that is based in the patient-centered
medical home. Using the Strengthening Families approach, it becomes apparent that concrete support for families at times of need and an increased knowledge of parenting and child development will have important implications for subsequent child maltreatment reduction. In fact, current literature on early brain development suggests that these same approaches may help optimize child development in other ways, beyond simply the prevention of child maltreatment.

The Project DULCE team sought to incorporate input from the community. This was accomplished by creating an Advisory Board. A number of local programs actively participated on this Advisory Board, they include: Boston Public Health Commission, Massachusetts Children’s Trust Fund, Massachusetts Department of Children and Families, Massachusetts Department of Public Health, Smart From the Start, and Thrive in 5 Boston.

2. Describe what was required to support and sustain the collaborative partnership, including:
   - The opportunities and strengths provided by the collaborative partnership.
   - The challenges resulting from the collaborative partnership.
   - Any unexpected events that developed in the collaborative partnership (e.g., positive surprises, difficulties).
   - The resources needed to support the partnership.

   This is addressed in other sections of this report which pertain to our partnerships; see in particular Section II, A numbers 8 and 9.

3. Describe the roles of parents as partners in the collaboration
   - How parents were recruited and supported in their work.
   - Any specific contributions that were made by parents.
   - Any roles or contributions from parent partners in designing, conducting, and interpreting the local evaluation.
   - Challenges, opportunities, and any lessons learned regarding building and sustaining strong partnerships with parents as part of the collaborative effort.

While a number of the Advisory Board members representing city and state programs are themselves parents, two positions on the Board were specifically for parents to ensure the parent perspective was well represented; they are Karen Craddock and Veola Green.

More importantly, the relationship established between the Family Specialist and parents is dynamic. DULCE family specialists, trained in the Strengthening Families approach, formed relationships with new parents and utilized this trusted relationship to link families with a wide variety of a community-based programs and service agencies, ranging from early intervention and family resource centers to specialized
services for maternal mental health and domestic violence. Specifically, among the 30 families with the most contact with the Family Specialists (high utilizers) we identified cases of maternal depression with suicidal ideation, domestic violence with resulting homelessness, and concrete supports.

4. Discuss the partnership’s role in impacting any larger systems issues (program and/or policy), including any changes in practices that have been or may be adopted by the larger systems in the region or state.

The primary care clinic at Boston Medical Center is one of the largest service providers for healthcare to poor children in the Commonwealth of Massachusetts.

D. Overview of Project Model
1. Describe the theoretical foundation and guiding principles of the project.

2. Describe the project’s specific goals and objectives, activities/interventions, and outcomes being measured at each domain of the social ecology.

3. Describe how the project supports the building of protective factors.

DULCE focuses on supporting six family protective factors: 1) Parental Resilience: a parent’s ability to bounce back from difficulties; 2) Social Connections: a network of informal or formal supports (e.g., friends, family, faith group); 3) Concrete Supports: knowing where to turn for help and how to navigate these systems (e.g., identifying and accessing programs to help with food, housing, utilities, child care, etc.); 4) Knowledge of Parenting and Child Development: parents know what to expect as their children grow and what behaviors are appropriate at for a given age; 5) Social and Emotional Competence of Children: children learn to talk about and handle feelings; and 6) Attachment: understanding appropriate emotional and behavioral relationships between children and familiar adults.

The intervention model, based on the relationship between the DULCE Family Specialist and the family, builds upon the known trajectory of child and family development. The DULCE Family Specialists provide: 1) information on healthy child development, 2) parenting support, and 3) advocacy by connecting families to existing community resources available to them.

Once a baby is born, there is tremendous change in the family structure, and often the need for family support peaks at this time. By one month of age, most families have begun to settle into new routines that set the tone for coping strategies for months, and even years, to follow. It is also at this time that infant crying – and lethal maltreatment – peaks. The Healthy Steps program provides the framework for the child development component of what a Family Specialist does during the well child and home visits.
This model also recognizes that helping families to access resources that meet concrete needs – food, income, housing and utilities – may reduce maltreatment. Simultaneously, meeting basic needs may enhance a family’s capacity to meet future needs that may arise, which is a protective factor that strengthens the family. Medical-Legal Partnership | Boston provides on-site training and ongoing consultation and support services to DULCE Family Specialists about these concrete needs. MLP | Boston also is available to work directly with families when needed.

The first four visits focus on concrete needs, child care, and the baby’s developing temperament and personality. The six-month visit is used as a wrap-up to the intervention and transferring any ongoing support to the family-centered medical home. The goal is to inform and empower families to become independent with the skills needed to advocate for themselves.
Similar to Russian Nesting Dolls, the social ecological model for Project DULCE is built upon concentric circles:

- **NEWBORN**: The focus of Project DULCE is to maximize child development and minimize maltreatment for all newborns.
- **PARENTS**: Project DULCE provides parental support and information on child development which gives parents an opportunity to develop confidence in their capacity to parent and be attuned to their child’s needs.
- **“Plus” DULCE**: The DULCE Family Specialist adds to the support network of the newborn’s extended family and friends. If this network does not exist, the Family Specialist can assist in establishing one.
- **COMMUNITY**: With knowledge about many of the local resources for families, the Family Specialist helps to connect new families to these established programs.
- **PUBLIC SUPPORTS**: If needed, Project DULCE connects families to public supports providing the basic needs upon which families can grow strong.
4. Provide a copy of the project’s final logic model with any revisions from the original included in the grant application.
1. Describe the evaluation (research) design, data collection procedures, and the data analysis plan:
    Evaluation question(s) for both project implementation and outcomes evaluation.
    Detailed description of the local evaluation design and its implementation.
    Detailed description of local measures and instruments.
    Random assignment (or other assignment) plan.
    Plan for identifying and ensuring integrity of comparison group(s).
    Sample size(s) and estimated power to detect impacts.
    Data sources, data collection process, and data timetable.
    Data analysis plan.

Research Focus, Goals and Objectives
Project DULCE focused on the crucial first six months of life, when family stress is high, and, rates of serious child maltreatment peak. During this high risk period, the mother and child each have multiple health care visits, providing an opportunity to reach nearly all infants and their families. Project DULCE examined if these interactions increase child and family protective factors, reduced risk factors, and decreased child maltreatment.

The specific research question addressed by this project was: Does a universal collaborative intervention designed to address the concrete supports (social determinants of health), improve parents’ knowledge of child development and parenting, and social connection (by linking families to community resources) lead to improved child development, increase family strengths, and decrease risk factors, and reduce child maltreatment? In answering this question, the project focused on three ecological levels.

The project’s evaluation goals included the following:
    Assess whether the highly-structured DULCE intervention resulted in improvements in individual and family strengths, reduced risks, and decreased the likelihood of child maltreatment.
    Provide system-level information needed to assess the costs, resource needs, barriers, and benefits from implementing the DULCE model within a patient-centered medical home.
    Determine whether Project DULCE results in measurable community-wide decreases in maltreatment reports and injury-related urgent and emergent medical visits.

The overall evaluation design was led by Dr. Edward De Vos, who at the time of original funding, was director of the Pediatric Program Evaluation and Development Group (PPEDG) at Boston Medical Center’s Department of Pediatrics. While Project DULCE’s original proposal included an evaluation design which we believed well matched our Boston-based project, the overall QIC-EC four-project effort was designed to permit comparison and synthesis across very diverse project sites.
From its inception, Project DULCE was an active collaborating partner in the design and realization of the common evaluation in which the overall QIC-EC was engaged. As such, the selection of primary data collection instruments was undertaken through a group process. At its heart was recognition that the overall family strengths model which guided all four projects that comprised the grantees for this round of the QIC-EC R&D grants, was to be tested across all four project sites, regardless of their different approaches, different target populations, different demographics, intervention settings, and timelines. Needless to say, the challenge was great, and the collaborative process leading up to the eventual design took considerable time to unfold. The resulting data collection model included a number of compromises, which reflected a supportive and collaborative group process, but which gave rise to some decisions which, in hindsight, may not have been ideal. For example, the four QIC-EC research and demonstration sites had populations of children of different ages, with DULCE serving the youngest population of the sites. This and other differences in populations served complicated the task of choosing relevant common measures.

Final review, selection, and agreement on the common instrumentation package took considerably longer than anticipated. The resulting protocol took an extremely long time to administer with parents of newborns, which effectively precluded the use of instruments that may have been more appropriate for our single project but which would have presented an insurmountable challenge to the common work that guided the overall effort. (The list of these instruments is in Section I, C, 4 of this report.) Collaboration takes time, and once a final common package was finalized, subsequent refinement and local IRB review and approval extended the amount of time needed before the program could begin to recruit participants, implementation, and data collection.

From the beginning, the Boston-based Project DULCE was committed to using a randomized control or clinical trial (RCT). In addition, the project collected detailed process data both to describe as well provide guidance for replication. Cost and resource data were also collected and summarized. The RCT was used to evaluate the individual-level outcomes of the intervention, and can be described with the often used acronym PICO – population, intervention, control, and outcome:

**Population:** As described elsewhere, subjects were newborn infants born at, and who were to receive primary care at, BMC. Newborn families were recruited as early as possible subject to family, medical and institutional considerations. From successive blocks of ten cases each, half of the subjects were randomly assigned to the treatment condition (Project DULCE) and the other to the control condition.

**Intervention:** The intervention has been described in more detail elsewhere. The brief description: Collaborative care based on the DULCE model of integrated medical, developmental, and legal support for families, based on evidence-informed and evidence-based models of care.

**Control:** The primary comparison group consisted of families randomly selected to receive advice and support designed to promote infant safety. This control group
received informational and tangible advice, following the AAP The Injury Prevention Program® and Bright Futures guidelines at each routine visit. They also received incentives to participate in data collection identical to the intervention group.

**Outcomes:** Measures of optimal child development, parenting factors, strengths, risks, social networks, and child maltreatment as measured by the collaboratively generated common instrumentation package. To minimize potential bias, research assistants were blinded to treatment arm. Intervention components are categorized according to the Continuum of Evidence – Informed to Evidence-Based Practice.

Sample size and Power: Project DULCE’s original design called for approximately 480 research subjects to be assigned in equal measure to the two study arms. The sample size determination was based on a power analysis with the following parameters: power to detect a moderate effect size (Cohen’s d=.30), using a two-tailed alpha=.05, with power at least equal to .80 (Power = .70 for a similar effect size but using a more stringent two-tailed alpha=.01). The sample size of 240 per treatment arm allowed for attrition of 10-20% over time.

As shown in the DULCE Consort Diagram that follows, nearly 1,400 newborn families were assessed for eligibility (n=1,378), resulting in 402 eligible for randomization: 204 DULCE intervention families and 198 Safety control families.

Reasons for study exclusion were collected at the time of assessment and recruitment. Language and birth complications accounted for the majority of study exclusions, as shown in this table:

<table>
<thead>
<tr>
<th>Reasons for Not Meeting Inclusion Criteria</th>
<th>Number</th>
<th>% of Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Does not speak English or Spanish</td>
<td>149</td>
<td>33.8</td>
</tr>
<tr>
<td>In hospital more than seven days</td>
<td>102</td>
<td>23.1</td>
</tr>
<tr>
<td>Seeking primary care provider outside of BMC</td>
<td>50</td>
<td>11.3</td>
</tr>
<tr>
<td>DCF involvement (e.g., intrauterine drug exposure)</td>
<td>50</td>
<td>11.3</td>
</tr>
<tr>
<td>Receives other Family Specialist services</td>
<td>35</td>
<td>8.0</td>
</tr>
<tr>
<td>Moving out of state or country</td>
<td>26</td>
<td>5.9</td>
</tr>
<tr>
<td>Parent/guardian under 18</td>
<td>19</td>
<td>4.3</td>
</tr>
<tr>
<td>Twin</td>
<td>4</td>
<td>1.0</td>
</tr>
<tr>
<td>DULCE graduate with a second child</td>
<td>4</td>
<td>1.0</td>
</tr>
<tr>
<td>Other (one PCP exemption and one without legal custody)</td>
<td>2</td>
<td>0.5</td>
</tr>
<tr>
<td>Total (difference in total % due to rounding)</td>
<td>441</td>
<td>100</td>
</tr>
</tbody>
</table>
Assessed for Eligibility (N = 1378)

Excluded (n = 976)
- Not meeting inclusion criteria (n = 441)
- Declined to participate (n = 368)
- Other reasons (n = 167)

Randomized (n = 402)

Safety Control (n = 198)
- Received safety intervention (n = 145)
- Did not receive safety intervention (n = 53)

DULCE Intervention (n = 204)
- Received DULCE intervention (n = 158)
- Did not receive intervention (n = 46)

Breakdown of Interview Completion
- Baseline interview only (n = 21)
- Baseline & 6-month interviews only (n = 23)
- Baseline & 12-month interviews only (n = 6)
- Baseline, 6-month & 12-month interviews (n = 113)

Loss to follow-up — no interview (n = 27)
Withdraw from study — no interview (n = 8)

Breakdown of Interview Completion
- Baseline interview only (n = 14)
- Baseline & 6-month interviews only (n = 32)
- Baseline & 12-month interviews only (n = 8)
- Baseline, 6-month & 12-month interviews (n = 113)

Loss to follow-up — no interview (n = 26)
Withdraw from study — no interview (n = 11)
Data Completeness:

Survey data were collected at baseline, 6- and 12-months. Loss to follow up was equivalent in both groups, and within our anticipated rates, although a late start on 12-month data collection affected our completion rates for follow-up surveys:

<table>
<thead>
<tr>
<th>Data Point</th>
<th>Data Collected</th>
<th>Total Receiving Healthcare at BMC</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>BASELINE</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>DULCE Intervention</td>
<td>166</td>
<td>204</td>
<td>81.4</td>
</tr>
<tr>
<td>Safety</td>
<td>162</td>
<td>198</td>
<td>81.8</td>
</tr>
<tr>
<td>Total</td>
<td>328</td>
<td>402</td>
<td>81.6</td>
</tr>
<tr>
<td>POST-ASSESSMENT</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>DULCE Intervention</td>
<td>145</td>
<td>192</td>
<td>75.5</td>
</tr>
<tr>
<td>Safety</td>
<td>135</td>
<td>182</td>
<td>74.2</td>
</tr>
<tr>
<td>Total</td>
<td>280</td>
<td>374</td>
<td>74.9</td>
</tr>
<tr>
<td>FOLLOW-UP</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>DULCE Intervention</td>
<td>109</td>
<td>183</td>
<td>59.6</td>
</tr>
<tr>
<td>Safety</td>
<td>107</td>
<td>169</td>
<td>63.3</td>
</tr>
<tr>
<td>Total</td>
<td>216</td>
<td>352</td>
<td>61.4</td>
</tr>
</tbody>
</table>
Medical Record data was available for all participants.

<table>
<thead>
<tr>
<th>Demographics</th>
<th>Total (n=330)</th>
<th>Intervention</th>
<th>Control</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>n</td>
<td>%</td>
<td>n</td>
</tr>
<tr>
<td><strong>Parent gender</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Female</td>
<td>307</td>
<td>93.0</td>
<td>155</td>
</tr>
<tr>
<td><strong>Parent Race/Ethnicity</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>African American/Black</td>
<td>209</td>
<td>63.3</td>
<td>103</td>
</tr>
<tr>
<td>Caucasian, White, or European White</td>
<td>35</td>
<td>10.6</td>
<td>16</td>
</tr>
<tr>
<td>Hispanic or Latino</td>
<td>45</td>
<td>13.6</td>
<td>28</td>
</tr>
<tr>
<td>Other (includes multi-racial, biracial, Caribbean islander or African national)</td>
<td>41</td>
<td>12.4</td>
<td>20</td>
</tr>
<tr>
<td><strong>Parent Age (years)</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>18-24</td>
<td>89</td>
<td>27.0</td>
<td>42</td>
</tr>
<tr>
<td>25-29</td>
<td>92</td>
<td>27.9</td>
<td>47</td>
</tr>
<tr>
<td>30-34</td>
<td>92</td>
<td>27.9</td>
<td>54</td>
</tr>
<tr>
<td>&gt;34</td>
<td>57</td>
<td>17.3</td>
<td>24</td>
</tr>
<tr>
<td><strong>Marital Status</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Never Married</td>
<td>144</td>
<td>43.6</td>
<td>69</td>
</tr>
<tr>
<td>Married to father or mother of child in project</td>
<td>104</td>
<td>31.5</td>
<td>58</td>
</tr>
<tr>
<td>Not married but living with the father or mother of child in project</td>
<td>41</td>
<td>12.4</td>
<td>22</td>
</tr>
<tr>
<td>Other (includes divorced, separated, married but not to father/mother of child, not married but living with boyfriend, girlfriend, partner who is NOT the parent of the child in the project)</td>
<td>41</td>
<td>12.4</td>
<td>18</td>
</tr>
<tr>
<td><strong>Education</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>&lt; HS graduation</td>
<td>31</td>
<td>9.4</td>
<td>16</td>
</tr>
<tr>
<td>Completed high school or earned GED</td>
<td>160</td>
<td>48.5</td>
<td>84</td>
</tr>
<tr>
<td>Completed trade/technical school; Received 2-year college degree (Associate's)</td>
<td>76</td>
<td>23.0</td>
<td>41</td>
</tr>
<tr>
<td>Received 4-year college degree (Bachelor's); Received a graduate degree</td>
<td>63</td>
<td>19.1</td>
<td>26</td>
</tr>
<tr>
<td><strong>Employment status</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Unemployed</td>
<td>195</td>
<td>59.8</td>
<td>104</td>
</tr>
<tr>
<td>Employed</td>
<td>135</td>
<td>40.9</td>
<td>63</td>
</tr>
<tr>
<td><strong>Household Income</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>$0 - $10,000</td>
<td>114</td>
<td>34.6</td>
<td>65</td>
</tr>
<tr>
<td>$10,000 - $30,000</td>
<td>95</td>
<td>28.8</td>
<td>45</td>
</tr>
<tr>
<td>$30,000 - $50,000</td>
<td>54</td>
<td>16.3</td>
<td>27</td>
</tr>
</tbody>
</table>
Data Analysis Plan
Considerable time was spent cleaning the data, even after receiving results from the data management group contracted for the common data entry work. Some issues lay with the completed forms, others were quality control issues related to limited range and logic checks. Ultimately, through the work of our local contractor (Boston University School of Public Health’s Data Coordinating Center, DCC), we were able to assemble a clean analysis file. We needed to refine the data scales since some of the scales selected for common work included items that were developmentally inappropriate for the age of our newborn infants. While preliminary work reviewed descriptive summaries to get a feel for overall results, more refined analytical models were eventually tested to tease apart the potential confounders, mediators and moderators that might otherwise have obscured treatment effects. As we prepare to analyze the 12-month data (as noted earlier, collected through a supplementary grant), we are further refining these analytical models, mostly using Generalized Estimating Equations (GEE).

2. Discuss any problems encountered in the implementation of the evaluation plan.

The greatest challenge to the overall evaluation plan was trying to balance the potentially divergent needs of the common evaluation with the project-specific needs of the local evaluation. De facto, primacy was given to the common work, which was understandable given the emphasis on the social ecology and the need to demonstrate impact across sites with varying ecological contexts. Local sites were free and encouraged to undertake their own local evaluation activities. However, the amount of time required to collect individual-level data from research subjects proved to be prohibitively long and burdensome for our families, effectively pre-empting any but the most basic additions. The situation was exacerbated by the number of cases involved in the Boston site. With over 400 research subjects and data to be collected on three occasions (baseline, 6-, and 12-month interviews), a 90-minute interview (face-time, not logistics) consumed an estimated 1,800 hours of subject-interview contact; 4-1/2 hours per participating family. This is a substantial time commitment for any family, let alone a family with a newborn infant.

Collaboration, as noted earlier, is a lengthy process, especially when it seeks to find commonalities across an intentionally varied group of local projects. Not only did the resulting design represent a compromise in itself, but the time it took to reach that compromise delayed the IRB submission, review and approval of the final research protocol. These delays affected the amount of time available for recruitment, and in an overall sample size somewhat smaller than we might have been able to achieve.
3. Describe any changes in the evaluation plan.

There were no significant changes to the evaluation plan, only minor adjustments as noted in other sections of this report.

F. Common Evaluation

1. Description of participation in common evaluation.

As noted above, Project DULCE actively collaborated in the common evaluation. Participation included active involvement in regular evaluator conference calls and grantee meetings, as well as submitting all required data to the QIC-EC database contractor. In addition, the research staff responded to queries submitted by the contractor, to check and where necessary, correct data entry errors or omissions. The Boston site also provided thoughtful feedback regarding proposed measures, including concerns over the developmental appropriateness of some items for our site, as well as the reference timing window proposed for collecting longitudinal data (for example, asking about incidents that would have occurred during the preceding 12-month interval for data to be collected only 6 months after the last data collection point).

2. Allocation of roles and responsibilities.

The local evaluation team was clearly responsible for the implementation of all locally driven evaluation activities. As noted earlier, in large part this was to implement the agreed upon protocol to be used across all four sites. We were responsible for obtaining our IRB review and approval, all recruitment and informed consent, administering all instruments (and stipends/incentives), entering and transmitting all data to the QIC-EC database contractors and responding to queries. We were also responsible for all data analysis and subsequent interpretation and reporting.

3. Alignment between local and common evaluations including research questions, methods, data collection, and timing.

Alignment between local and common evaluations was an issue. As already stated, the diversity of the four participating QIC-EC grantee efforts was both desirable and a challenge. It has been our contention since the beginning, however, that the quantitative analyses of common data would be of limited utility since the de facto sample size was only n=4. Only one or two sites, notably, Boston and Oregon, were the primary contributors of individual-level data, yet the variability in the social ecology, as well as target populations, intervention type and duration, and the nature of the control/comparison condition, renders meta-analyses of limited value. Use of a common protocol package sought to ensure we were measuring common outcomes; however, the specifics of the logic model that connected inputs, processes and outcomes across all sites was a challenge. Further, as the data collection unfolded and as preliminary analyses revealed, there appeared to be some serious measurement issues that may have affected
the psychometric utility of the data collected. For example, baseline measures on some items and constructed scales seemed to be quite high, suggesting a potential ceiling effect which would limit our ability to demonstrate meaningful improvement over an already high functioning pre-intervention level. And, as noted earlier, targeting families with children of various ages presents a real dilemma to identifying common items that span all participants’ age ranges. Some of the most clinically significant and meaningful items are those very items that are likely to change with time, and yet these may be the items most sensitive to age differences. In choosing items that are robust across child age, we may be foregoing the use of more sensitive but difficult to synthesize items. Yet another common issue which may be a plague to all such strength-based approaches is the reliance on measures that typically have their roots in deficit-based models. It may be somewhat easier to demonstrate a decrease in negative outcomes than it is to demonstrate an increase in presumptively positive outcomes.

4. Approach for collecting/providing data for the common evaluation.

This issue has also been noted already. The Boston Project DULCE site is committed to excellence in research, through all aspects of the design, implementation, and analysis phases of the effort. As we have done on numerous other projects, we work closely with the BU School of Public Health’s Data Coordinating Center (DCC) and the school’s Biostatistics department. Through our work with the DCC, we became increasingly concerned that the quality of the analysis files we were receiving from the QIC-EC database contractor were of lesser quality than those we were achieving through our local work. As these concerns emerged near the end of the project’s funding period, we shared our concerns with the common team and other local evaluators. We relied on our local analysis file and shared that file with the cross-site evaluators so they would have the benefit of what we considered to be the best quality data file available. How this potential discrepancy was resolved for other sites, either individually or in the common analyses is not clear.

III. Project Implementation/Program Strategies

   A. Project Eligibility, Recruitment, Screening, Intake, Retention, and Termination

1. Describe the following for both the treatment and comparison groups:

   ▪ The eligibility criteria for families served by the project including risk criteria/characteristics of the families.
   ▪ Specific criteria for parents, caregivers, and children to be served by the project.
   ▪ The recruitment plan.
   ▪ The referral process for the program; identify agencies and other organizations that were asked to make referrals.
   ▪ How families who were eligible for services learned about the program.
   ▪ Participation incentives provided to caregivers.
The intake procedures for the program, including a description of the screening process to ensure eligibility for the program and the process for conducting the initial family assessment, including identifying the needs of the families/primary caregivers.

Screening or assessment instruments used or developed.

The procedure for determining which protective factors were of priority for each family/caregiver.

The process for obtaining the informed consent of families.

The retention plan; indicate retention target and actual retention.

The process of seeking, obtaining, and using caregiver or community input regarding recruitment and retention.

Challenges in recruiting, intake, and maintaining families in the project and responses to the challenges.

The process for termination of services to project participants and providing them with linkages to community resources at termination.

Study subjects include adult parents or guardians and their index infant child. Parents or guardians are healthy, non-patient subjects who participated in the primary data collection. Eligibility criteria were similar for both treatment and control groups. To be considered for recruitment, a family must include an infant born ten weeks or less prior to recruitment. Families with multiple infants had only one child enrolled.

The following eligibility criteria applied to families in both intervention and control group:

- The patient family must include an infant, having been born within/less than two-months.
- The newborn(s) must be healthy, having been born without known defects or complications that would require early hospitalization.
- The infant must have been discharged from the hospital within a week.
- At the time of recruitment, the parent/guardian must have communicated their intent to obtain newborn infant's pediatric care at Boston Medical Center.
- The child’s parent/guardian must be able to engage in an informed consent process conducted in English or Spanish.
- The child’s parent must be able to complete a questionnaire and/or interview (with or without) assistance in English or Spanish.

Families with any one of the following characteristic were ineligible to participate in the project:

- Parent/guardian under 18 years of age. As standard of care at BMC, mothers under the age of 18 are seen in the Teen and Tot Program (TTP), a specialized program located within BMC's Adolescent Center.
- Parent/guardian unable to participate in required data collection activities in the study languages, even with assistance.
- The child/family's physician believes that participation in the evaluation would adversely affect the child/family's health or well-being or the ongoing delivery of healthcare.
services. Decision will be made based on the physician's clinical judgment. All physicians have the opportunity to opt their patients out

- The family is already receiving services from another family partner program such as Project RISE, Healthy Steps etc. through the BMC primary care center.
- Child's parent/guardian does not speak English or Spanish during routine healthcare maintenance visits

Recruitment occurred in the Pediatric Primary Care Clinic (PPCC) at Boston Medical Center. Prior to the start of recruitment activities, the Principal Investigator facilitated meetings with leaders within the department to implement approved protocol in a manner acceptable to local conditions and practice. Healthcare providers were informed about the study and were asked to notify study staff about those whom participation in the research was considered inappropriate. The project coordinator assisted in developing an approach to recruitment that maximizes the likelihood of recruiting participants and also keeps the level of burden and disruption to a minimum. It was agreed that research staff would approach potential participant after the visit.

Study flyers and brochures were created to promote awareness about the study. Flyers were posted in patient rooms and brochures distributed to parents of newborns. Although healthcare providers were not required to refer potential participants to study staff, a few referred newborn families to study staff.

Research staff reviewed PPCC’s appointment system on a daily basis to identify newborn appointments and screen potentially eligible families who meet any of the project’s inclusion criteria. These individuals were approached in person during routine clinic hours by bi-cultural/bi-lingual research staff members certified in NIH’s Human Subjects program. Once a family agrees to participate in the study, consent process occurred in a private area and randomization followed immediately after the individual consents. Following is the list of eligibility questions:

- How old are you?
- How old is your baby?
- How long did your child stay in the hospital after you had him/her?
- At what hospital will your child get his/her primary care services over the next 7 months?
- What is your primary language?
- What language do you prefer to use during your child's appointment?
- Are you able to complete a questionnaire in English or Spanish?
- Are you currently receiving the services of a family partner through Project Rise, Healthy Steps, Baby Steps, or project LAUNCH?

Subjects randomized into the intervention group were immediately connected with a Family Specialist (FS) by the recruiting staff member. Relationship-building between the family and
interventionist began at this point. After initial introductions, contact information was exchanged. The family specialist then proceeded to describe elements of the intervention program in detail and the nature of her work with them over the course of their infant’s first six months of life. The family specialist also conducted needs assessment, offered a home visit and planned subsequent meetings with family at the infant’s next routine health care maintenance visits. Conducting needs assessment at this point generates a needs profile that enables the family specialist to direct efforts into connecting families to their most critical needs. The relationship-based nature of our intervention also means that the extent to which a family divulges information about their needs depends on the quality of the relationship.

Enrolled subjects participated in three data collection sessions: baseline, six-month and 12-month data collection. Baseline was conducted a few days after enrollment; the remaining two data collection sessions corresponded with the infant’s six- and twelve-months of life respectively. Interviews usually lasted between two to three hours. Subjects received $100 gift card for each interview session completed. The study provided transportation vouchers to minimize travel difficulty as a barrier, and also provided food to replenish our subjects, who at times were breastfeeding. A mother’s helper was also provided whenever possible to assist in caring for the newborn, and watching older children who accompany subjects to their interview, thus minimizing distractions during interview sessions. BMC volunteers filled-in as mother’s helper, and underwent training on newborn-soothing techniques by an on-site child-life specialist.

Staff turnover: with the recruitment of students from Boston University School of Public Health as part time staff on the project, the students graduated and moved on requiring new students to be recruited and trained for tasks such as recruitment, data collection, and maintaining regular contact with subjects as prescribed in the protocol. This transition period is marked by intensive training of the new students, which naturally slows down research activities to allow new staff to learn their new role.

Reaching study subjects also was a challenge. Many subjects had significant hardships, one of which was the difficulty paying utility bills. Many subjects only had a cell phone as contact means, many times with limited minutes. When disconnected by the carrier, it becomes nearly impossible to reach these families. The project’s administrative policy of calling out-of-service phone number yielded positive results, where research staff was eventually able to connect with some families.

Drop out: BMC is a birth hospital; many families who give birth at BMC at first intend to obtain primary care for their infants at BMC as well. However, many families subsequently decide to obtain primary care elsewhere. These families are lost to intervention, and, in most cases lost to follow-up as well. Overall, dropout from primary care at BMC was lower in the intervention group than in the control group.
Termination of program: Participants in the intervention group are reminded that the program would be ending a few visits before the final visit. At the final visit, the Family Specialist assesses the need for referral to intensive programs or Early Intervention, checks the status of referrals made to resources needed by the family, addresses any safety concerns, and provides additional resources for the family. (A more detailed description of this process can be found in the Project DULCE Implementation Manual, Section 4D, Families Next Steps.) At the end of the third and final interview session, participants are compensated for their time. They are also thanked for having participated in the project for one year. Prior to this final interview, participants in the intervention group complete the program and are informed by the Family Specialist that the program has ended.

B. Provide a detailed description of all the major strategies implemented/services provided as part of the intervention. For each major strategy/service provided, indicate: (could be presented as a table)

1. If it is a new or changed strategy/service that was added to or revised from the original plan, and the rationale for making this change.

There were no changes made to Project DULCE’s original two strategies:
- Support parental resilience and knowledge based upon the Healthy Steps model
- Support access to concrete supports through highly integrated Medical-Legal Partnership
2. Outputs (number served or other project results).

Dosage and duration of Project DULCE strategy/service provided in tables below:

<table>
<thead>
<tr>
<th>Activity (n=143)</th>
<th>Mean Per Subject</th>
<th>Median Per Subject</th>
<th>SD</th>
<th>Max</th>
<th>% with No Activity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Clinic/Well Child Visit</td>
<td>3.2</td>
<td>3</td>
<td>2.1</td>
<td>11</td>
<td>8.4</td>
</tr>
<tr>
<td>Home Visit</td>
<td>0.7</td>
<td>1</td>
<td>0.87</td>
<td>4</td>
<td>47.6</td>
</tr>
<tr>
<td><strong>SUMMARY: Protocol-required contacts</strong></td>
<td>3.9</td>
<td>4</td>
<td>2.4</td>
<td>15</td>
<td>0.7</td>
</tr>
<tr>
<td>Phone Call</td>
<td>11.9</td>
<td>9</td>
<td>11.0</td>
<td>75</td>
<td>2.8</td>
</tr>
<tr>
<td>Meeting with FS (not associated w/ clinic visit)</td>
<td>0.7</td>
<td>0</td>
<td>1.3</td>
<td>9</td>
<td>61.5</td>
</tr>
<tr>
<td>Community Agency Visit</td>
<td>0.1</td>
<td>0</td>
<td>0.5</td>
<td>4</td>
<td>91.6</td>
</tr>
<tr>
<td>E-mail</td>
<td>0.9</td>
<td>0</td>
<td>2.8</td>
<td>25</td>
<td>71.3</td>
</tr>
<tr>
<td>Other</td>
<td>0.4</td>
<td>0</td>
<td>0.8</td>
<td>5</td>
<td>69.2</td>
</tr>
<tr>
<td><strong>SUMMARY: Other Contacts</strong></td>
<td>14.1</td>
<td>10</td>
<td>12.5</td>
<td>77</td>
<td>2.1</td>
</tr>
<tr>
<td><strong>OVERALL SUMMARY</strong></td>
<td>17.0</td>
<td>14</td>
<td>14.0</td>
<td>90</td>
<td>0.0</td>
</tr>
</tbody>
</table>

** n=145 completed 6-month survey; 2 with NO treatment excluded
### Intervention Time per Subject by Activity Type

<table>
<thead>
<tr>
<th>Activity (n=143)</th>
<th>Number of Subjects</th>
<th>Avg. # Mins</th>
<th>SD</th>
<th>Median # Mins</th>
<th>Min</th>
<th>Max</th>
</tr>
</thead>
<tbody>
<tr>
<td>Clinic/Well Child Visit</td>
<td>131</td>
<td>215.5</td>
<td>176.7</td>
<td>180</td>
<td>15</td>
<td>1160</td>
</tr>
<tr>
<td>Home Visit</td>
<td>75</td>
<td>134.2</td>
<td>109.2</td>
<td>100</td>
<td>15</td>
<td>590</td>
</tr>
<tr>
<td><strong>SUMMARY: Protocol-required contacts</strong></td>
<td>142</td>
<td>269.7</td>
<td>240.5</td>
<td>212.5</td>
<td>15</td>
<td>1750</td>
</tr>
<tr>
<td>Phone Call</td>
<td>139</td>
<td>118.5</td>
<td>163.3</td>
<td>58</td>
<td>4</td>
<td>1025</td>
</tr>
<tr>
<td>Meeting with FS (not associated w/ clinic visit)</td>
<td>55</td>
<td>54.5</td>
<td>144.1</td>
<td>15</td>
<td>5</td>
<td>1030</td>
</tr>
<tr>
<td>Community Agency Visit</td>
<td>12</td>
<td>153.3</td>
<td>319.7</td>
<td>60</td>
<td>15</td>
<td>1160</td>
</tr>
<tr>
<td>E-mail</td>
<td>41</td>
<td>20.5</td>
<td>24.2</td>
<td>10</td>
<td>2</td>
<td>112</td>
</tr>
<tr>
<td>Other</td>
<td>44</td>
<td>26.6</td>
<td>55.6</td>
<td>10</td>
<td>2</td>
<td>285</td>
</tr>
<tr>
<td><strong>SUMMARY: Other Contacts</strong></td>
<td>140</td>
<td>166.5</td>
<td>325.1</td>
<td>73</td>
<td>4</td>
<td>3460</td>
</tr>
<tr>
<td><strong>OVERALL SUMMARY</strong></td>
<td>143</td>
<td>430.8</td>
<td>503.3</td>
<td>293</td>
<td>32</td>
<td>4750</td>
</tr>
</tbody>
</table>

### Duration of Each Intervention Activity

<table>
<thead>
<tr>
<th>Activity (n=143)</th>
<th>Total Number of Activities</th>
<th>Mean</th>
<th>SD</th>
<th>Median</th>
<th>Min</th>
<th>Max</th>
</tr>
</thead>
<tbody>
<tr>
<td>Phone Call</td>
<td>1703</td>
<td>9.7</td>
<td>11.4</td>
<td>5</td>
<td>1</td>
<td>210</td>
</tr>
<tr>
<td>Meeting with FS (not associated w/ clinic visit)</td>
<td>96</td>
<td>31.2</td>
<td>41.6</td>
<td>15</td>
<td>5</td>
<td>180</td>
</tr>
<tr>
<td>Clinic/Well Child Visit</td>
<td>454</td>
<td>62.2</td>
<td>28.8</td>
<td>60</td>
<td>5</td>
<td>180</td>
</tr>
<tr>
<td>Community Agency Visit</td>
<td>16</td>
<td>114.9</td>
<td>141.4</td>
<td>60</td>
<td>15</td>
<td>460</td>
</tr>
<tr>
<td>Home Visit</td>
<td>104</td>
<td>96.8</td>
<td>54.2</td>
<td>90</td>
<td>10</td>
<td>360</td>
</tr>
<tr>
<td>Other</td>
<td>63</td>
<td>18.6</td>
<td>33.8</td>
<td>10</td>
<td>1</td>
<td>240</td>
</tr>
<tr>
<td>E-mail</td>
<td>135</td>
<td>6.2</td>
<td>4.9</td>
<td>5</td>
<td>1</td>
<td>45</td>
</tr>
</tbody>
</table>
NOTE: Numbers 4 through 8 have been combined and addressed based on the intervention’s two models within the context of the primary care: Healthy Steps and the Medical-Legal Partnership / Boston

4. Contextual events or community changes influencing the strategy/service.
5. Facilitators to implementing the strategy/service.
6. Challenges/barriers regarding the strategy/service.
7. Lessons learned about addressing challenges regarding the strategy/service.
8. Which protective factor(s) the strategy/service was originally designed to address and any changes in the thinking about the relationship between the strategy/service and protective factors.

Strategy: Support parental resilience and knowledge based upon the Healthy Steps model

Provide age-specific child development information and appropriate family support at all enhanced well child visits co-facilitate by the DULCE Family Specialist (FS) and the pediatrician; including provision of written materials, developmental screening for children and behavioral screening for families, facilitated referrals, child development telephone information line.

Note: The one change for this strategy was due to staffing changes for DULCE Family Specialists, the new FS required additional training.

Protective Factors for Healthy Steps strategy (See D below for specific strategies used to promote protective factors)

- Concrete supports: FS ask pertinent questions re concrete supports such as food insecurity, housing conditions, fuel assistance, etc., and provided follow-up with Medical-Legal Partnership (MLP) team
- Parental resilience: HS is a relationship-based practice which supports resilience in families by acknowledging parents as the child’s most important teacher and by supporting the parents problem-solving strategies
- Knowledge of child development: FS tied child development information and anticipatory guidance (what to expect before the next pediatric visit) to what the child actually demonstrated during the visit by narrating the child’s responses to the visit; indicating behaviors observed during the visit, etc.
- Child’s social-emotional competence: FS use a variety of strategies to promote secure attachment between infant and parents such as: trigger questions; creating and responding to teachable moments; narrating observed interactions between parent and child; identification of emotional states in pre-verbal infants; assessment using the Ages & Stages Social-Emotional tool and the temperament scale to help parents better understand their child’s emotional development
- Social connections: Parents were referred to community resources for social support, parenting groups, etc.
<table>
<thead>
<tr>
<th>Facilitators</th>
<th>Challenges</th>
<th>Lessons Learned</th>
</tr>
</thead>
<tbody>
<tr>
<td>The pediatric clinical staff at BMC was already trained in Healthy Steps and supported the approach of co-managing families with the DULCE FS</td>
<td>Office visits are extremely time limited and we did not want to interrupt the flow of the overall pediatric clinic</td>
<td>Time to talk with parents could be accommodated before the visit while parents were waiting to see the pediatrician or after the visit in the private consult room; in other words, make the most of every opportunity during the family’s time in the clinic</td>
</tr>
<tr>
<td>The FS’s were exemplary, each bringing unique skills to DULCE, i.e. Bi-lingual, bi-cultural Spanish FS; expert knowledge of infant development; child life skills of working with parents to support their concerns, i.e., medical procedures such as immunizations</td>
<td>Scheduling appointments for both the pediatrician and FS was challenging for the booking staff and this was made more difficult when parents cancelled or changed appointments</td>
<td>Working closely with the booking staff, explaining the benefits of the program to the staff, and making relationships with them helped make this less of a challenge</td>
</tr>
<tr>
<td>Parents were open to the help; DULCE offers them a window of opportunity to learn and change on behalf of their new baby</td>
<td>The 6-month time frame of the project felt limited to many parents who were just getting to know their FS when it was time to terminate the FS during office visits</td>
<td>Scheduling home visits at the same time every week helped to block out FS schedules for booking staff</td>
</tr>
<tr>
<td></td>
<td>FS asked difficult and challenging questions about family strengths and risks to assure successful referrals for additional services</td>
<td>Some families need time to develop trusting relationships in order to ask for help; others ask right away. Families needing additional services were transitioned to other appropriate hospital programs such as LAUNCH or social work, or referrals were facilitated to community resources</td>
</tr>
<tr>
<td></td>
<td></td>
<td>FS’s had specific training on how to ask challenging questions about depression, substance abuse, intimate partner violence and FS’s had supervision when they had cases requiring additional support and services</td>
</tr>
</tbody>
</table>
Strategy: Support access to concrete supports through highly integrated Medical-Legal Partnership

Legal advocates were integrated into Project DULCE and into the Family Specialists experience in a range of ways:

- MLP | Boston advocates trained FS on how best to support patient-families in securing housing and income supports; this curriculum encouraged early screening, detection, and addressing of barriers to concrete supports.
- MLP | Boston helped to design the questions included in the DULCE screening tool that relate to concrete supports.
- An MLP | Boston paralegal participated in a live, weekly Case Review with the FS for the duration of the study.
- The FS had real-time/near-time access to the MLP | Boston paralegal (and the rest of the MLP team) through telephonic and email-based consultations on behalf of a DULCE patient-family.
- MLP | Boston actively engaged with the FS for as long as necessary to resolve the barriers to concrete supports; in a majority of instances this involved consultation; in a small number of instances, this involved legal intake interviews and referrals to pro bono counsel for ongoing representation.

This was not merely a referral relationship; MLP | Boston was deeply and meaningfully embedded in the FS assessment of and responses to patient-families’ presenting needs. Although MLP | Boston experienced a major organizational transition and staff reduction during the life of the study, the program maintained this critical “tether” to the FS and subject patient-families as contemplated in the study design.

<table>
<thead>
<tr>
<th>Facilitators</th>
<th>Challenges</th>
<th>Lessons Learned</th>
</tr>
</thead>
<tbody>
<tr>
<td>MLP</td>
<td>Boston leadership and staff: training, design of screening questions, consultation, intake and pro bono referral and ongoing quality assessment</td>
<td>Housing and income supports represent only two types of concrete supports in times of need (albeit particularly critical ones); a number of families confronted barriers outside those domains (school districts, criminal justice system, etc.)</td>
</tr>
<tr>
<td>FS supervisor; attended weekly, live Case Review meetings</td>
<td>Discrete advocacy successes for individual families re: housing subsidies are wonderful, but do not address the fundamental, health-harming shortage of affordable housing in Massachusetts and beyond.</td>
<td></td>
</tr>
<tr>
<td>PI; attended weekly, live Case Review meetings</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Family Specialist</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Parents</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pro Bono Attorney Volunteers</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

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9. How the strategy/service was similar to/different from related strategies that the comparison group experienced.

All activities discussed above are in addition to usual routine healthcare.

C. Describe the approach to program (model) fidelity, including fidelity criteria and method for assessing fidelity. Describe any challenges in maintaining quality and fidelity.

Project DULCE was in a unique position to insure model fidelity as the two model programs being implemented have national and state offices at Boston Medical Center. The National Healthy Steps office monitors program development and provides supervision to the Family Specialists thereby guaranteeing model fidelity.

Specifically, we had weekly group meetings to discuss the progress of the intervention. At the conclusion of each large group meeting, the clinical team met and reviewed every case. During these case reviews, we discussed the intervention provided for each family. In addition, each Family Specialist maintains the log that recorded her activities with each family. Elements of this report, including the dosage tables above, are based on these logs.

However, it should be noted that Project DULCE is a relationship-based practice. While the Family Specialists had a set of tools available to each family, it was the family’s needs and interests that dictated the precise interventions delivered at each contact. For example, in the case of a mother was severe depression, the Family Specialist would necessarily focus on helping the mother with mental health services. This family may not have received all of the interventions related to concrete supports that have been intended to be delivered at that time. In short, fidelity to this model required respect and support for each research participant family, rather than fidelity to the delivery of specific content at each visit.

D. Describe how use of a protective factors approach changed the way services were provided and the workforce’s relationship with families or way of working to support families.

<table>
<thead>
<tr>
<th>Protective Factor</th>
<th>Home visit support from DULCE Family Specialist</th>
</tr>
</thead>
<tbody>
<tr>
<td>Parental Resilience</td>
<td>Tell them when they are doing a good job; provide words of encouragement</td>
</tr>
<tr>
<td></td>
<td>Acknowledge parents’ efforts, positive qualities and changes</td>
</tr>
<tr>
<td></td>
<td>Use strategies to elicit “good stuff” from parents about their child</td>
</tr>
<tr>
<td></td>
<td>Help parents recognize their own strengths and improve their weaknesses</td>
</tr>
<tr>
<td></td>
<td>Screen for and address maternal depression</td>
</tr>
<tr>
<td></td>
<td>Screen for and validate the existence of a legal problem</td>
</tr>
<tr>
<td></td>
<td>Inform families of legal rights/responsibilities and legal options</td>
</tr>
<tr>
<td></td>
<td>Help parents set realistic limits on their own abilities</td>
</tr>
<tr>
<td></td>
<td>Acknowledge what the solution might be</td>
</tr>
</tbody>
</table>
- Lower stress, even a little, to build resilience; “the magnitude of the intervention does not have to match the magnitude of the stress”
- DULCE staff consider the question of learned helplessness vs. raising hopes
- Guiding Principle: Parents don’t care what you know until they know that you care

| Social Connections | • Team @ BMC  
|                   | “When I come to BMC I feel like I am walking on my father’s land in Nigeria.”  
|                   | Provide appointment reminders for child’s healthcare visits  
|                   | Level the legal “playing field” by connecting parents to lawyers  
|                   | Asking “Who helps you with your baby?”  
|                   | “Who can you call if you need to leave the baby while you run an errand?”  
|                   | “Have you met other parents with babies the same age as yours?”  
|                   | “Would you like me to connect you to some families in your neighborhood?”  
|                   | Connect parents to community playgroups  
|                   | Handouts provide information on community resources for parents and infants  
|                   | Inform policy debates with a child/family health perspective |

| Concrete Supports | • Observe a need and ask “How can I help?”  
|                   | Medical/Legal Partnership (MLP) trains FS on parents’ legal rights  
|                   | Screen for concerns re: nutrition, income, housing  
|                   | Inform parents of their legal rights  
|                   | FS and MLP assist parents to obtain income benefits and other services to support the child’s healthy development  
|                   | Optimize health coverage, nutrition and disability benefits  
|                   | Work to eliminate unhealthy housing conditions such as heating, mold, infestation  
|                   | Provide parents with BMC food pantry referral, social work referral, WIC forms, etc. |

| Knowledge of Parenting and Child Development | • Developmental teaching about child’s current and future development  
|                                              | Help parents learn to read their child’s behavioral cues and signals  
|                                              | Help parents understand their child’s development and behavior  
|                                              | Encourage parents to report (and brag on) their child’s development; “So what has she been up to since our last visit?”  
|                                              | Using developmental screening (NBO; temperament scale; ASQ3; ASQ5-E) as a teachable moment to share information with parents  
|                                              | Anticipatory guidance for families re: child behavior & development  
|                                              | “Oh, that’s exactly what he is supposed to be doing at this age”  
|                                              | Use “brain messages” to support parental awareness of importance of supporting brain development by talking, playing, and responding reciprocally with infants  
|                                              | Giving and reviewing DULCE handouts with parents |

| Social and Emotional Competence of Children | • Early screening for health, developmental and communication needs through newborn screening, physical exams  
|                                           | Anticipatory guidance  
|                                           | Point out baby’s bids for social interaction and social referencing of parents  
|                                           | Model/demonstrate baby’s developing skills and ways to interact with the baby through reciprocal smiles & “conversations”  
|                                           | Guiding Principle: How you are is more important than what you do |
Attachment

- Gain knowledge about family’s cultural understanding and beliefs about parenting
- Provide information to change family’s misconceptions, i.e. responding to crying; “spoiling”
- Responding to the child in a sensitive way promotes trust building in the parents
- Supporting & acknowledging their parenting efforts & skills
- Provide strategies for parents on how to have supportive interactions with their child through play, talking, singing
- “Tell me what you and ______ (baby’s name) have been doing this last week?
- Immediate availability of Family Specialist to answer questions, offer support
- Using the evocative object - the rubber ducky - to support the child’s interest in the parent and the world around her
- Clinical supervision of Family Specialist and MLP cases

E. Describe any other factors related to the differences between the treatment and comparison groups that may be relevant in interpreting the outcomes of the project.

The comparison group also received the attention of the research intervention. In this case, the comparison group family members received instruction in safe sleep and the safe transport of infants using a program developed by the Boston Public Health Commission. These families were also offered their choice of an infant car seat or a port-a-crib. We used this both as an active intervention of its own, and as a retention control for our main study.

IV. Project Outcome Evaluation (Include the cross-site outcomes as well as any additional local evaluation outcomes; include both quantitative and qualitative data)

Lessons from Project DULCE demonstrate some of the potential impact and policy opportunities using a medical home as the hub of more comprehensive services and supports for families aligned with the protective factors approach.

These findings underscore the potential that better coordination of services with aligned goals and metrics using the patient-centered medical home as an entry point may have for reaching a significant proportion of the MCH population.

A. Increased Likelihood of Optimal Child Development (a caregiver’s knowledge, skills, attitudes, and sense of competence that contribute to a trajectory of growth and development that promotes the best possible social, emotional, cognitive, and physical outcomes given the unique characteristics and circumstances of the child and family)
1. Present Findings from Evaluation of this Outcome

Child development outcomes were assessed using the common measures. No significant change was seen across time in either treatment or control groups.

<table>
<thead>
<tr>
<th></th>
<th>Sample size</th>
<th>Mean, Baseline</th>
<th>Mean, 6 months</th>
<th>Mean, 12 months</th>
<th>P-value, group-by-time interaction</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Optimal Child Development (OCD) Outcomes</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PSI Competence</td>
<td>223</td>
<td>25.5</td>
<td>24.7</td>
<td>24.5</td>
<td>0.7</td>
</tr>
<tr>
<td>AAPI Construct A</td>
<td>209</td>
<td>4.1</td>
<td>4.2</td>
<td>4.7</td>
<td>0.7</td>
</tr>
<tr>
<td>AAPI Construct B</td>
<td>209</td>
<td>3.9</td>
<td>4.3</td>
<td>4.5</td>
<td>0.9</td>
</tr>
<tr>
<td>AAPI Construct C</td>
<td>209</td>
<td>5.1</td>
<td>4.8</td>
<td>5.0</td>
<td>0.6</td>
</tr>
<tr>
<td>AAPI Construct D</td>
<td>209</td>
<td>4.0</td>
<td>3.9</td>
<td>4.0</td>
<td>0.6</td>
</tr>
<tr>
<td>AAPI Construct E</td>
<td>209</td>
<td>4.7</td>
<td>4.8</td>
<td>4.8</td>
<td>0.5</td>
</tr>
<tr>
<td>AAPI Average Construct A-D</td>
<td>209</td>
<td>4.3</td>
<td>4.5</td>
<td>4.6</td>
<td>4.6</td>
</tr>
</tbody>
</table>

| **Increased Family Strength (IFS) Outcomes** |             |                |                |                 |                                   |
| SRFI Health/ Competence | 166         | 72.6           | 70.4           | 71.9            | 71.9                              | 71.5 | 70.6 | 0.6 |
| SRFI Cohesion          | 166         | 18.5           | 18.2           | 18.2            | 18.4                              | 18.5 | 17.9 | 0.4 |
| SRFI Conflict          | 166         | 49.2           | 48.6           | 48.2            | 48.6                              | 48.6 | 48.2 | 0.7 |
| SRFI Expressive        | 166         | 20.7           | 20.4           | 20.6            | 20.9                              | 20.5 | 20.1 | 0.5 |
| BIF Housing Security*  | 166         | 35.5%          | 39.8%          | 36.8%           | 39.8%                             | 38.8% | 39.4% | 0.7 |
| BIF Food Security      | 166         | 6.4            | 6.0            | 6.8             | 6.5                               | 6.4  | 6.3  | 0.9 |
| BIF Home Safety        | 166         | 1.2            | 1.3            | 1.2             | 1.2                               | 1.2  | 1.3  | 0.048 |

| **Decreased Likelihood of Child Maltreatment (DLCM)–Increased Protective Factors (IPF) Outcomes** |             |                |                |                 |                                   |
| CAPF Nurturing Children’s Social & Emotional Competence | 165         | 62.2           | 59.6           | 61.9            | 61.5                              | 61.1 | 60.5 | 0.2 |
| CAPF Social Connections | 165         | 26.7           | 25.6           | 26.5            | 25.6                              | 25.6 | 25.1 | 0.8 |
| CAPF Concrete Support in Times of Need | 165         | 10.6           | 10.4           | 11.3            | 10.6                              | 10.8 | 10.8 | 0.4 |
| CAPF General Life Stress | 165         | 25.5           | 26.0           | 25.5            | 26.6                              | 26.6 | 26.2 | 0.6 |
| CAPF Parental Life Stress | 165         | 25.2           | 25.9           | 25.4            | 25.9                              | 25.2 | 24.9 | 0.4 |
| CAPF Total Composite   | 165         | 29.8           | 29.5           | 30.1            | 30.0                              | 29.7 | 29.5 | 0.9 |

| **Decreased Likelihood of Child Maltreatment (DLCM)–Decreased Risk Factors (DRF) Outcomes** |             |                |                |                 |                                   |
| PSI Total Parent Domain | 223         | 116.3          | 117.8          | 117.2           | 115.3                             | 117.8 | 116.0 | 0.4 |
| PSI Life Stress        | 223         | 13.7           | 13.8           | 13.0            | 12.3                              | 12.9  | 11.8  | 0.7 |
| PSI Isolation          | 223         | 13.0           | 13.8           | 13.4            | 13.5                              | 13.6  | 13.7  | 0.4 |
| AAPI Total Composite (raw) | 209       | 29.5           | 30.0           | 30.4            | 31.0                              | 30.3  | 31.2  | 0.7 |

2. Interpret Findings

- What do the findings mean? How do they relate to the support for the building of protective factors addressed in the intervention?
- What factors not included in the evaluation design may have influenced findings (e.g., contextual events, community changes, staff or caregivers’ perceptions, instrumentation, challenges or barriers to specific intervention, etc.)?
- What are the implications of findings?
Issues involved in the common measures have been discussed in Section II, F. For example, many measures were not normed for this very young age group. While we find it disappointing that we were not able to detect improvement, our other data described in this report suggest that families were substantially strengthened by Project DULCE.

B. **Increased Family Strengths** (competencies and qualities that facilitate the ability of the family to meet the needs of its members and to effectively and non-violently manage the demands made upon the family system)

1. Present Findings from Evaluation of this Outcome

2. Interpret Findings
   - What do the findings mean? How do they relate to the support for the building of protective factors addressed in the intervention?
   - What factors not included in the evaluation design may have influenced findings (e.g., contextual events, community changes, staff or caregivers’ perceptions, instrumentation, challenges or barriers to specific intervention, etc.)?
   - What are the implications of findings?
Concrete Supports in Times of Need: Participants were asked about their receipt of public assistance at baseline, post-intervention, and follow-up. The table below shows mixed logistic model analyses of these data; models with group, time, group-by-time interaction. *Restricted to those who complete follow-up through 12 months*

<table>
<thead>
<tr>
<th>Resource Checklist: complete follow-up (N=223)*</th>
<th>Baseline (N=330) (%)</th>
<th>6-month (N=281) (%)</th>
<th>12-month (N=237) (%)</th>
<th>P-value, group-by-time interaction</th>
</tr>
</thead>
<tbody>
<tr>
<td>Food Assistance</td>
<td>43.0</td>
<td>44.8</td>
<td>43.5</td>
<td>0.179</td>
</tr>
<tr>
<td>Food Stamps #</td>
<td>24.9</td>
<td>32.7</td>
<td>32.9</td>
<td>0.326</td>
</tr>
<tr>
<td>WIC#</td>
<td>39.7</td>
<td>42.7</td>
<td>38.4</td>
<td>0.085</td>
</tr>
<tr>
<td>Utility &amp; Telephone Assistance</td>
<td>4.2</td>
<td>9.3</td>
<td>12.7</td>
<td>0.006</td>
</tr>
<tr>
<td>Telephone#</td>
<td>2.0</td>
<td>3.9</td>
<td>5.9</td>
<td>0.117</td>
</tr>
<tr>
<td>Utility #</td>
<td>3.0</td>
<td>7.1</td>
<td>8.4</td>
<td>0.216</td>
</tr>
<tr>
<td>Housing Assistance</td>
<td>9.4</td>
<td>11.0</td>
<td>13.9</td>
<td>0.285</td>
</tr>
<tr>
<td>HUD $</td>
<td>5.5</td>
<td>6.1</td>
<td>9.3</td>
<td>0.202</td>
</tr>
<tr>
<td>Rental Vouchers $</td>
<td>4.9</td>
<td>5.7</td>
<td>7.2</td>
<td>0.28</td>
</tr>
<tr>
<td>Food Pantry #</td>
<td>10.3</td>
<td>12.8</td>
<td>14.4</td>
<td>0.771</td>
</tr>
<tr>
<td>Unemployment &amp;</td>
<td>3.3</td>
<td>2.9</td>
<td>1.3</td>
<td>0.6</td>
</tr>
<tr>
<td>Child Support $</td>
<td>3.3</td>
<td>4.6</td>
<td>6.3</td>
<td>0.872</td>
</tr>
<tr>
<td>SSI/SSDI &amp;</td>
<td>2.4</td>
<td>3.6</td>
<td>5.5</td>
<td>0.244</td>
</tr>
<tr>
<td>Welfare &amp;</td>
<td>11.8</td>
<td>15.3</td>
<td>12.2</td>
<td>0.389</td>
</tr>
<tr>
<td>EAEDC #</td>
<td>0.0</td>
<td>0.0</td>
<td>0.0</td>
<td>NA</td>
</tr>
<tr>
<td>Total resources received</td>
<td>2.8</td>
<td>3.2</td>
<td>3.7</td>
<td>0.029</td>
</tr>
<tr>
<td>Amenable to change (#)</td>
<td>1.7</td>
<td>2.1</td>
<td>2.0</td>
<td>0.0072</td>
</tr>
<tr>
<td>Possible (#)</td>
<td>0.3</td>
<td>0.4</td>
<td>0.4</td>
<td>0.1916</td>
</tr>
<tr>
<td>Unlikely ($)</td>
<td>0.3</td>
<td>0.4</td>
<td>0.4</td>
<td>0.3199</td>
</tr>
</tbody>
</table>

*The p-values are based on the number of participants who had complete follow-up through 12 months. The percentages refer to the time point listed in the column heading.

In summary, change in favor of the intervention group was noted in 10 of 13 categories, including all categories pre-identified as amenable to change in 6 months except for food pantry access, which showed increases in both groups. Control group families generally caught up by 12 months of age, with persistent difference still apparent in utilities assistance, rental vouchers, SSI/SSDI, and total resources available.
Social Connection & Parental Resilience: Our intervention also focused on two closely related promotive factors: social connection and parental resilience. None of the common measures or the local measures adequately addressed the measurement of these factors. Instead, this analysis relies on a review of the summaries of twenty individual participants who had the most intense interactions with the DULCE Family Specialists. Based on reviewing the summaries, the following themes emerged:

- Many mothers had recent experience with intimate partner violence. Family Specialists supported mothers in a variety of ways, including improving access to concrete supports, improving connections to advocates and community members, and discussing the relationship between infant crying and the family stress.

- Many families faced challenges due to concerns about immigration status of one or more members. In one particular situation, the mother’s immigration issues made her despondent to the point that she told the Family Specialist that she was considering suicide. The Family Specialist intervened by both linking her with legal support for immigration issues and personally accompanying her to a mental health intake. During the emergency intake, the Family Specialist held the infant in the waiting room. Fortunately, by the end of the study, the situation had resolved to the point where the mother was feeling emotionally stable and moved to another area where she had more family support. Other situations were less dramatic; however Family Specialists were able to successfully help mothers understand which concrete supports they could obtain for themselves and their families without endangering immigration status, and in many cases linking families with legal assistance for their immigration concerns. Another mother qualified for refugee status and was supported in linking with specific supports for individuals seeking asylum in the United States.

- Many mothers lacked adequate education. In the high-intensity cases, Family Specialists linked mothers to GED programs, English as second language programs, and helped them obtain childcare to allow them to continue their own education. Furthermore, these cases often involved the use of other formal and informal supports. In one case, for example, the Family Specialist reported that the mother wanted to return to a GED program. The Family Specialist, in concert with the child’s grandmother, provided assistance with obtaining childcare. An older sibling with language delay was referred to an Early Intervention program, and the family was offered utility assistance and support for food insecurity. Once these issues were taken care of the Family Specialist further help the mother by linking her with a Massachusetts adult hotline to identify appropriate next steps for her education. In another case, the Family Specialist helped the grandmother enroll in English as second language program in order to be able to provide more support for the family.
C. **Decreased Likelihood of Child Maltreatment** (an increase in protective factors and a decrease in risk factors)

1. **Present Findings from Evaluation of this Outcome**

   We are currently in the process of analyzing the child maltreatment outcomes from this study. Based on review of medical records beginning at one month of age, we found that there was DCF involvement for eight intervention infants and eleven control infants. We are waiting for DCF to search their records for a more complete assessment of reports that were screened in or substantiated.

   **Interpret Findings**
   - What do the findings mean? How do they relate to the support for the building of protective factors addressed in the intervention?
   - What factors not included in the evaluation design may have influenced findings (e.g., contextual events, community changes, staff or caregivers’ perceptions, instrumentation, challenges or barriers to specific intervention, etc.)?
   - What are the implications of findings?

   This study was not powered to detect changes in maltreatment rates and no change was seen.

2. **Describe changes in child maltreatment administrative data over the course of the project in the communities of focus, such as:**
   - Reports of child abuse and neglect for children ages birth–5 years
   - Disposition of child abuse and neglect reports (percentage substantiated and unsubstantiated)
   - Emergency room visits for children birth–5, disaggregated by causes for the visit

   **NOTE:** Data from Massachusetts Department of Children and Families is still pending.
D. Additional Local Outcomes (if relevant)

Families were more engaged in the patient-centered medical home and received timely services.

1. Present Findings from Evaluation of this Outcome

**Improved Retention of Families in Primary Care at Boston Medical Center:** As described above, BMC is a birth hospital. Many families choose to find care at other locations, or drop out of primary care entirely. An unexpected finding was that intervention families were more likely to continue to receive care at BMC throughout the first year of life, compared to control families. The figure below shows the age at last visit at BMC for infants enrolled in the study. By 12 months of age, 93% of intervention families continued to receive primary care at BMC, compared to 86% of control families (P= 0.056).

**Better Adherence to Routine Healthcare Visit Schedule:** BMC primary care recommends up to eight routine health care maintenance (RHCM) visits during the first year of life (2 days post–newborn discharge, 2 weeks, 1 month, 2 months, 4 months, 6 months, 9 months and 12 months). Compared to control group infants, DULCE intervention infants were more likely to have five or more RHCM visits (P<0.01), as shown in the table below and the distribution curve showing cumulative proportion of RHCM visits by group.

<table>
<thead>
<tr>
<th></th>
<th>Less than 5 RHCM visits</th>
<th>At least 5 RHCM visits</th>
</tr>
</thead>
<tbody>
<tr>
<td>DULCE Intervention</td>
<td>44</td>
<td>159</td>
</tr>
<tr>
<td>Control</td>
<td>62</td>
<td>136</td>
</tr>
</tbody>
</table>
**Improved Immunization Rates:** These findings translate into improvements in medical care. We found that immunization rates, measured as on-time (or nearly on-time) receipt of infant immunizations, was significantly improved in the DULCE group versus the control group. This has additional applications, because immunization rates are a quality marker for pediatric primary care. In many states, high immunization rates will be tied to practice reimbursement as part of payment reform in the Affordable Care Act. The following table shows immunization rates across time.

<table>
<thead>
<tr>
<th>Age at “6-month” shots</th>
<th>DULCE Intervention (N = 165)</th>
<th>Control (N = 161)</th>
<th>P Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt; 7 months (211d)</td>
<td>78%</td>
<td>63%</td>
<td>p&lt;.005</td>
</tr>
<tr>
<td>&lt; 8 months (241d)</td>
<td>89%</td>
<td>78%</td>
<td>p&lt;.01</td>
</tr>
<tr>
<td>Ever</td>
<td>94.6%</td>
<td>88.8%</td>
<td>p&lt;.10</td>
</tr>
</tbody>
</table>

This table shows the age at which children receive their third DTaP shot; immunizations are given at the 2-month, 4-month, and 6-month RHCM visits. As can be seen, intervention infants were significantly more likely to have received the shots within the allotted time (prior to the 7-months of age), one month late (by age 8-months), or ever (not significant, p < .1).

Although the difference in immunization rates was not significant for one-year immunizations, the trend continued into this follow-up period. The proportion of intervention children who received their 12-month shots by age 13-months was higher than control (59% v. 52%). This result includes infants who were no longer being seen at BMC; actual immunization rates may be higher than recorded here.
2. Interpret Findings

- What do the findings mean? How do they relate to the support for the building of protective factors addressed in the intervention?

Our findings demonstrate that families find value in the DULCE intervention. They are more likely to stay at the pediatric practice, more likely to bring their children in for healthcare visits, and more likely to have on-time immunizations. Although the results at 12-months are not significant, the trend continues six months after the end of the intervention.

We also evaluated the age distribution of receipt of immunizations in both intervention and control groups (data not shown). The change in median dates appears to be driven by a decrease in the number of outliers (children who are very late in receiving their immunizations). This finding may be interpreted as the success of the BMC pediatric practice and eventually contacting difficult to reach families. One implication of this result is that our intervention is especially important for families who are marginally connected to their medical care.

These findings are important for the potential implementation of our approach in other patient-centered medical homes. The Affordable Care Act will bring a large number of poor children into care, particularly in areas of the country with lower health insurance rates. One of the challenges that practices will face will be recruiting, retaining and immunizing children who have traditionally not received primary health care. Our results clearly demonstrate that by providing additional value to families, through the relationship with a Family Specialist and the information provided, these families are better linked to the patient-centered medical home. These results will help develop an economic analysis of the effectiveness of implementing a family strengthening approach in caring for poor children. We intend to publish these results in a pediatric journal to improve the likelihood of uptake.

- What factors not included in the evaluation design may have influenced findings (e.g., contextual events, community changes, staff or caregivers’ perceptions, instrumentation, challenges or barriers to specific intervention, etc.)?

This study was performed at a single site, one which is dedicated to innovation in primary care. Uptake of the DULCE intervention may have been more widespread at this site and it made be in future sites. On the other hand, the extra availability of resources may have tended to reduce the apparent effectiveness of the addition of the DULCE intervention.
What are the implications of findings?

Patient to receive home visiting at the doctor’s office, through models like DULCE, are likely to stay at the pediatric office and receive recommended routine healthcare maintenance, and immunizations. These results are statistically significant during the study (up to six months of age), and the trend continues through the follow-up one year time period.

E. Relationship Among Outcomes

1. Present findings from evaluation of the relationships among the three outcomes (increased likelihood of optimal child development; increased family strength, and decreased likelihood of child maltreatment)

2. Interpret findings

- What do the findings mean? How do they relate to the support for the building of protective factors addressed in the intervention?
- What factors not included in the evaluation design may have influenced findings (e.g., contextual events, community changes, staff or caregivers’ perceptions, instrumentation, challenges or barriers to specific intervention, etc.)?
- What are the implications of findings?

The data described above provides some data regarding the relationships among outcomes. Qualitative data, again taken from high-touch families, best illustrates these strong connections.

When mothers reported housing insecurity, many other related factors were often involved as well. The Family Specialists supported these situations using a multifaceted stepwise approach. In one case, over the course of the intervention, the Family Specialist linked the family to the Medical Legal Partnership, the state Division of Transitional Assistance, the Department of Early Education and Care, the Agency for Boston Community Development, and the Irish Immigration Society. In another case, the infant and mother were homeless and living in a shelter at the beginning of the study; the Family Specialist, in addition to assisting in obtaining a housing voucher, provided basic knowledge of child development that the mother could apply within the challenging environment of an emergency shelter setting.

In other situations, the mother’s mental health was threatened due to the lack of concrete supports. For example, soon after the infant’s birth, the family’s emergency housing situation was threatened when the state received notice that she had outstanding criminal warrants dating over a decade prior. Eventually, the Family Specialist discovered that the mother’s situation arose from intimate partner violence, and was able to find her placement in a domestic violence shelter while she worked.
with an attorney to clear her outstanding legal issues. The Family Specialist worked with this mother to address multiple concrete needs, her own resilience in the face of domestic violence, and helped connect her to social supports; these in turn allowed the mother to focus on the infant’s development.

F. Community and Societal Domain Outcomes

1. Present Findings from evaluation of these outcomes.

The findings above that represent engagement in routine medical care and improved receipt of concrete supports were presented at the individual level. However, these may also be interpreted as results at the community and society level. Both the Boston Public Health Commission and the Massachusetts Department of Public Health recognize engagement in primary care and receiving all required immunizations as important public health markers. In addition, developmental screening and screening for maternal depression occurs within the context of routine healthcare maintenance. At the community and societal level, early identification of infant and parental mental health issues has become a priority. The city and state health commissions have identified this as a priority and devote substantial resources to improvement in these services. The results presented above, as individual family results, also meet these community and social markers.

2. Interpret Findings

The randomized, controlled, clinical trial of Project DULCE demonstrated that the Strengthening Families approach can be adopted and implemented within a primary healthcare setting and that the approach:

- Was accepted by both patients and providers
- Improved patient engagement with primary care as evidenced by significantly decreased delays in immunizations in the intervention group compared to the control group
- Improved access to concrete supports, including support for food, housing, and utilities
- Enhanced ability to identify and serve families with significant unmet needs, including maternal depression with suicidal ideation, domestic violence, homelessness, and poor understanding of infant behavior.

These results are now being prepared for publication in 2014.
V. Sustainability/Integration

A. Describe the parts of the project that have been most effective in obtaining support in moving toward sustainability. Describe the parts of the project that you plan to sustain and how they will be sustained. What agencies or funders have been most responsive to this project?

Despite positive interest from a number of local regional and national funders, Project DULCE is currently not providing clinical services since the expiration of the research grant. Our goal is to publish the results of our study, while pursuing local, regional, and national resources to further develop and implement this project:

- We were able to sustain the family level intervention for six months after completion of the project, using donor funds from Boston Medical Center. This pilot extension offered DULCE services to families of all of the patients seen in a Resident Continuity Clinic. Residents are medical doctors who have completed medical school, and are in training to become pediatric specialists. They see patients in the outpatient setting one afternoon a week for their three-year residency. It was decided to offer DULCE services to the Resident Continuity Clinic for a number of reasons: the residents own inexperience, the lack of continuity due to the residents being present only once a week, issues related to adverse patient selection, the feeling on the residents’ part that these patients are at high risk. The pilot study in a Resident Clinic was quite successful. However, there are no clear funding pathways that the hospital’s Residency Program has found to continue this intervention absent private donations.

- The findings related to the patient-centered medical home (PCMH) – reduced immunization delays and better use of emergency department – may make it easier for us to obtain funding in a future PCMH environment. These discussions are ongoing.

- Because DULCE is based on Healthy Steps there may be availability of funds through the Affordable Care Act and Maternal Infant Early Childhood Visiting Programs. The Massachusetts Children’s Trust Fund Executive Director is on our Advisory Board and we are consulting with her on efforts to obtain resources for Project DULCE.

B. Describe the role, if any, collaboration has played in moving toward sustainability. Indicate whether collaboration will continue and how it will be sustained.

Project DULCE demonstrated the ability to intervene with families, the high risk families in primary care. On the basis of these results, we have designed and received funding for a new program that will reach children of mothers being treated for opiate addiction. Many of the collaborators on Project DULCE will continue to collaborate on the implementation of this new effort.
C. Describe any practice, program, administrative (e.g., hiring practices, budgeting changes), or policy changes that will be sustained after the project ends.

Not applicable.

D. How has the use of a strengths-based, protective factors approach been integrated into policy, norms, and practice/service delivery at different levels of the social ecology?

Not applicable

E. Describe the products (e.g., practice protocols, data sharing agreements, DVDs, web sites, etc.) that have been developed as a result of the project. Include copies of products or links where they can be accessed.

A number of Project DULCE products have been developed for both parents and providers.

**Parent Handouts:** A series of five brochures, available in English and Spanish, were developed for parents and they correspond to the baby's age at the time of the Family Specialist’s visit with the family. Each brochure contains a variety of information: what parents can expect at this age, tips on how to respond to developmentally appropriate behaviors of babies, tips on self-care for parents, questions to reflect on a parent’s individual child, concrete support fact and referrals, and what behaviors to expect at the next developmental milestone.

- English: First Weeks, One Month, Two Months, Four Months, Six Months
- En Español: Las Primeras Semanas, Un Mes de Edad, Los Dos Meses de Edad, Los Cuatro Meses de Edad, Los Seis Meses de Edad

The PDFs for the above parent handouts can be found at:

[http://bmc.org/Project-DULCE/parent-handouts.htm](http://bmc.org/Project-DULCE/parent-handouts.htm)

**Provider Materials:** All aspects of Project DULCE have been well documented and are available in print and on-line.

- **Implementation Manual:** [http://bmc.org/Project-DULCE/manual.htm](http://bmc.org/Project-DULCE/manual.htm) (Note: the copy currently on the Website is an earlier version which is now being updated for the close-out of the grant.)

- **Strategies for Supporting Early Brain Development:** This document was developed as part of the Implementation Manual (Section 3-A). Project DULCE’s Developmental Team Leader and two Family Specialists developed a detailed guidance on two practices that were particularly effective when working with families: 1) the use of an evocative object, and 2) discussing with parents how babies learn and grow using “brain messages.”
• Logs/checklists for the Family Specialist’s documentation of families/visits:
  ▪ DULCE Activity Log
  ▪ DULCE Family Profile
  ▪ DULCE Checklists

F. Cost Tracking

1. Summarize the actual costs to implement the project based on the categories below.
   To the extent that projects are able to summarize the costs using a “per family” or
   “per child” metric, whichever is most appropriate based upon the intervention design,
   this would be helpful, but is not required.

   ▪ Aggregate Costs for Delivering the Project
     a. Salaries and Fringe Benefits: $995,014
     b. Volunteer/In-Kind Labor** (if can be determined): $185,709
     c. Contracted Services (including staff training): $24,973
     d. Incentives for Participants: $76,657
     e. Office Space: $0
     f. Supplies and Materials: $6,411
     g. Travel: $31,567
     h. Indirect Costs: $353,150
     i. Developing Collaborative Relationships and Working through Existing Relationships
        to Align Goals and Strategies with Partners** (if can be determined)

        These costs could not be easily computed separately, as the collaboration was
        integrated into various other cost categories.
     j. Local Evaluation and Quality Improvement Activities (e.g., supervision; data
        systems; formal fidelity assessment, performance monitoring—these may be in
        indirect costs): $17,206

2. Indicate the amount of matching funds received to implement the project. Describe
   any barriers to securing matching funds. $185,709
3. Describe any funds received beyond the federal grant and matching funds. Our match and in-kind dollars totaled: $185,709

4. Describe any cost-savings realized or recommended.

   Not applicable.

5. Describe the level of volunteerism or in-kind service needed to fully implement this project. We supplied a total match/in-kind amount of $185,709, this was vital to our project completion.

**Project Maintenance Costs**

The above costs included the development evaluation and collaboration costs involved in this project. Now that DULCE has been developed, we can begin to estimate the true costs of maintaining the program within a primary care center. This section provides a rough estimate of these costs, which hover around $400 per infant.

In order to estimate costs on a per subject basis, we estimated that each Family Specialist’s case load could be 100 families, and the duration for each family would be six months. Thus, the Family Specialist salary would be apportioned over 200 families per year. This estimate is reasonable, since our families received a median of five hours of service, translating into 1,000 hours of direct service per year, including both office visits and home visits.

Cost breakdown, on a per family basis, can thus be estimated as follows:

- Recruitment of families: $0 (intervention would become a part of routine care for infants)

- Delivery of services per family is equal to approximately $400:
  - DULCE Family Specialist: $300 per family. ($60,000 for fully loaded annual salary plus fringe)
  - Training: $15 per family (includes travel to one national conference for the per year, plus incidental local training)
  - Local travel: $10 per family (home visit travel plus parking at $20; 50% of families have a home visit)
VI. Conclusions

A. Respond to the QIC-EC’s overarching research question:
“How and to what extent do collaborative interventions that increase protective factors and decrease risk factors in core areas of the social ecology result in increased likelihood of optimal child development, increased family strengths, and decreased likelihood of child maltreatment within families of young children at high-risk for child maltreatment?”

In Project DULCE, we found that collaborative relationships to increase protective factors resulted in several gains in family strengths that were useful in identifying families in need of services, and linking them to collaborative services our community. Based on these findings, we believe that we may have been effective using the likelihood of child maltreatment within families of young children who grow up in poverty.

Collaboration on this project occurred at two different levels. On one level, the project itself was a collaboration between the Medical-Legal Partnership, Healthy Steps, and the primary care patient-centered medical home. In this context, the DULCE Family Specialists met with families at the time of their visits in primary care, and brought to bear the training experience of the Medical-Legal Partnership and Healthy Steps. This partnership allowed significant, low-cost, access to families during the critical first six months of life. For those families who continue to need services after the project ended at six months, the location of Project DULCE within the patient-centered medical home offered a natural link to further support.

The second level of collaboration was with our community partners, exemplified by the members of the Advisory Board. The DULCE board included the city and state departments of public health, the Massachusetts Department of Children and Families, and many community-based organizations and agencies that serve families in Boston. This collaboration allowed us to gain valuable insight and support from our partners on the Advisory Board level. At the individual family level, we were able to make connections to a large number of community services. In addition, our Family Specialists helped families identify informal supports.

B. Describe and interpret the overall impact in helping families to build protective factors, using observations and case examples, as well as evaluation data. Describe and interpret the overall impact of the project on the children, adults, and families served.

Our primary result was quite practical. We demonstrated that it is possible to adapt the Healthy Steps evidence-based home visiting model to focus on the critical first six months of life, and to include new in-depth attention at concrete supports in times of need. We
demonstrated that we can do this in the patient-centered medical home without disrupting patient flow, and with widespread acceptance by providers and staff. Virtually all of our families had at least one checkup with the Family Specialist in addition to phone consults. Overall, Family Specialists had a median of 14 contacts and five hours of direct patient contact during the first six months of life.

Additionally, while many home visiting programs have difficulties with recruitment and retention of families, we found that not only was retention in Project DULCE very high, but enrollment in the active intervention arm improved the retention of families at Boston Medical Center Primary Care.

Two types of outcome data inform our view that there was excellent overall impact in helping families to build protective factors. First, quantitative data described above demonstrated that our families were successful at attaining concrete supports and successfully engaging with the patient-centered medical home. Second, we have multiple stories of families who required more intense services, and clearly developed the support they needed.

Our patients were highly linked to the patient-centered medical home. We showed significant increase in on-time immunizations, and a trend towards more appropriate emergency department utilization. The motivation for this may be the increased value the families found in the patient-centered medical home. One parent commented “It’s amazing the services you get just by coming to your daughter’s physician. First he referred me to you (Family Specialist). Then you have connected my family to several services we needed . . . But everything started just by going to an appointment with my daughter’s physician.”

C. Describe and interpret the overall impact of the project on the individual agencies and organizations involved.

Each of the three major collaborators experienced changes in organizational outlook based on this project. The Boston Medical Center Primary Care Clinic recognized the importance of reaching out to families with new infants. Although the current economic climate prevents the continuation of Project DULCE, there continues to be an active interest in the Department in obtaining new funding to support an extension DULCE.

The Medical Legal Partnership | Boston has realized how successful they can be leveraging legal expertise by training and supporting patient navigators and social workers. To some extent, they changed their service delivery model at Boston Medical Center and elsewhere to recognize this finding. They are part of a PCORI grant in adult women’s health where they provide support to patient navigators, modeled in part on their experience with Project DULCE.

Healthy Steps is an evidence-based home visiting model, and implemented in many states through maternal infant early childhood home visiting programs. Healthy Steps continues to
explore modifications of the program based on the experience of DULCE, particularly the addition of attention and expertise to the family strength of concrete support.

D. Describe any impact in the community/communities where your program operated.

The major agency affected by this project is the Massachusetts Children’s Trust Fund. The PI, Dr. Sege, has recently been invited to join the board of this organization and the agency has set as a priority improved involvement with the healthcare setting as part of the early childhood services sector. Together, Dr. Sege and the Massachusetts Children’s Trust Fund will be pursuing further opportunities to explore this interface at the state level.

VII. Key Recommendations

NOTE: In preparing this section, please provide 3-5 priority recommendations for each item below, along with reflections on why these recommendations emerged from the work on this project.

A. Recommendations to administrators of future, similar projects.

**Encourage cross-sector collaboration.**

One of the key elements of success of this project was not only concrete financial resource support, but also the development of the community of the four intervention sites around the country. Each site served different populations, and used different methods, but overall they were able to provide a great deal of technical and theoretical support to each other and the funder. We recommend future administrators further enhance this collaboration by conducting meetings at the sites of performance.

In addition, the use of the cross-site evaluator was both necessary and helpful. However, overall responsibilities and monitoring of the data group (Wellsys) could have been better described and/or improved.

B. Recommendations to current project funders as well as potential funders.

- Testing of the underlying model in a wide variety of settings was very innovative and CSSP appears to have the organizational capacity to conduct this type of work. This approach should be continued.

- The original FOA helped guide the work and led projects into full tests of the approach.

- Using common evaluation measures is complex. Common measures need to be improved and better aligned to the populations and interventions under study.
C. Recommendations to agencies or collaborative partnerships about developing or implementing similar projects.

- Collaboration requires close communication. Our weekly project meetings allowed us to work together, gradually building understanding and trust.
- A Project Advisory Board can add a layer of community support and guidance; this was a useful aspect of this project.
- Build in technical and logistic support for sustainability.

D. Recommendations to the general field about supporting the building of protective factors at the individual and relationship (family) domains of the social ecology and what services or interventions seem to be the most effective in doing so.

Using a protective factor frameworks allows a natural bridge to community engagement and support. Specifically, issues of stigma and judgment can be major barriers to engagement; the protective factors approach facilitates universal engagement for all families in the community.

Relationship-based practice forms the center of this intervention. Training and written support materials should explicitly focus on this aspect. The trade-off is that not all topics in the designed intervention will be delivered exactly as envisioned, as family priorities may focus on specific needs and opportunities. The project needs to allow families to ask for and receive additional support services; those families may benefit the most from services.

Services may best be layered onto existing family services. In this case, the addition of services to primary health care allowed for the delivery of a high volume of content at modest cost.

E. Recommendations to the general field about supporting the building of protective factors at the community domain (i.e., geographic community, provider community, and/or special caregiver community) and societal domain (i.e., city, county, state, regional, or national) of the social ecology?

Families with young children are likely to:

- Suffer from food, housing, and income insecurity.
- Be open to assistance to help with the infant.
- Become socially isolated due to the demands of the infant.
Thoughtful systems design may begin to address these issues. Project DULCE helped families who already qualify for Medicaid or state insurance subsidies to obtain additional public assistance in a timely manner.

Parents bring their infants to healthcare providers for advice concerning their health and development. Additional child- and family-centered support was well accepted by both healthcare providers and parents.

There are further opportunities to explore in terms of leveraging the emerging focus within healthcare on population health. However, there are a number of policy barriers in place that make it challenging to more fully exploit these opportunities.

F. Recommendations to the general field about forging partnerships with parents.

Based on our experience, it is quite easy to engage parents in one location where they seek support for child-rearing: the healthcare setting. In a broader scope, it would be worth thinking through the resources parents already use: healthcare, childcare (for some), parks, WIC offices, etc. and seek to systematically enrich these environments so that they support family strengths. For example, partnerships with parents and childcare providers may reinforce knowledge of child development and parenting, and enhance the connections among the parents whose children attend.

A large minority of American infants and young children are poor. Parents who receive any sort of assistance (Medicaid, SNAP, WIC, etc.) should be systematically helped to apply for and receive any other form of assistance. Hunger and homelessness – or even fears and memories of hunger and homelessness – vastly complicate attempts to engage parents in meaningful partnerships.

G. Recommendations to the general field and funders about addressing multiple domains of the social ecology in a research study.

Children and families cannot be reached without a deep appreciation of the social environment in which they live. Funders should expect studies to address multiple domains and offer technical assistance to otherwise promising applicant organizations.

VIII. Dissemination

A. Describe the ways in which information about the project has already been disseminated within your state and the impact of these dissemination efforts.

DULCE has been presented at regional child maltreatment prevention workshops in Maine Connecticut and Massachusetts. The principal investigator participated in an Early Childhood Summit in Massachusetts that was held at the Federal Reserve Board. In addition, project results have been communicated to and will continue to be communicated to the
Massachusetts Children’s Trust Fund, the state young children’s counsel, and other state organizations.

B. Describe the ways in which information about the project has already been disseminated beyond your state and the impact of these dissemination efforts. Please see below.

C. List research publications completed or in progress.

<table>
<thead>
<tr>
<th>Paper</th>
<th>1st Author</th>
<th>Target Journal</th>
<th>Current Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Economic Hardship (baseline data)</td>
<td>Preer</td>
<td>Academic Pediatrics</td>
</tr>
<tr>
<td>2</td>
<td>Overview (process paper)</td>
<td>Sege</td>
<td>Zero To Three</td>
</tr>
<tr>
<td>3</td>
<td>Home Visiting in PCMH</td>
<td>Sege</td>
<td>Pediatrics</td>
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<tr>
<td>4</td>
<td>Resource Data / Leveraging MLP</td>
<td>Morton</td>
<td>Journal of Health Care for the Poor and Underserved</td>
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<tr>
<td>5</td>
<td>Case Report</td>
<td>Velasco-Hodgson</td>
<td>Zero To Three</td>
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<td>6</td>
<td>PCMH – Health Policy</td>
<td>Zuckerman</td>
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<tr>
<td>7</td>
<td>Safety</td>
<td>Friedman</td>
<td>JAMA Peds</td>
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</table>

D. List in a table any presentations about the project at local, regional, national, and international meetings or conferences.

<table>
<thead>
<tr>
<th>Project Team Presenter(s)</th>
<th>Convening Organization</th>
<th>Location</th>
<th>Date</th>
<th>Brief Description / Other</th>
</tr>
</thead>
<tbody>
<tr>
<td>R. Sege</td>
<td>Department of Pediatrics</td>
<td>Boston Medical Center, Boston, MA</td>
<td>November 2010</td>
<td>Grand Rounds</td>
</tr>
<tr>
<td>R. Sege</td>
<td>Thrive in 5</td>
<td>Boston, MA</td>
<td>2011</td>
<td>Conference</td>
</tr>
<tr>
<td>R. Sege</td>
<td>Helfer Society</td>
<td>Annual Meeting</td>
<td>2011</td>
<td>Poster presented</td>
</tr>
<tr>
<td>R. Sege</td>
<td>Strengthening Families Summit</td>
<td>Washington, DC</td>
<td>June 2011</td>
<td>Policy-Oriented Evaluation</td>
</tr>
<tr>
<td>R. Sege</td>
<td>Medical-Legal Partnership Annual Meeting</td>
<td>San Antonio, Texas</td>
<td>2011</td>
<td>Poster presented: A New Standard of Care</td>
</tr>
<tr>
<td>R. Sege</td>
<td>New Jersey CARES Institute</td>
<td>Annual Child Abuse Summit</td>
<td>2011</td>
<td>Keynote Address</td>
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<tr>
<td>R. Sege</td>
<td>Baystate Medical Center</td>
<td>Springfield, MA</td>
<td>2012</td>
<td>Grand Rounds</td>
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<tr>
<td>R. Sege</td>
<td>Friends Action Network</td>
<td>National Meeting</td>
<td>April 2012</td>
<td>Keynote Address</td>
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<tr>
<td>R. Sege</td>
<td>Oregon Psychiatric Meeting</td>
<td>Portland, OR</td>
<td>March 2012</td>
<td>Regional Conference</td>
</tr>
</tbody>
</table>
E. Describe plans to disseminate information about the project when the project period ends.

- We have applied for an R40 grant from HRSA to spread DULCE within our own BMC Healthnet network of community health centers.
- The PI has been to Los Angeles, CA and intends to continue to work with CSSP to find partners in Los Angeles for replication.
- The MA Children’s Trust Fund has expressed an interest in exploring the implications of our work for universal home visiting agencies.
- NICHQ has been engaged, and will work with us to identify fundable projects and funding sources.
- Together with CSSP, we are looking at identifying policy levers that would support incorporation of Family Specialists into routine healthcare for children.
APPENDIX