Nurturing Families Network
2017 Annual Report

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Nurturing Families Network: 2017 Annual Report

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Executive Summary

NFN home visiting services are provided to high-risk, primarily first time parents throughout the state of Connecticut. Ideally, parents begin receiving home visits prenatally, but may enroll up to 3 months after giving birth, and they may continue receiving home visits through the end of the child's 5th year. The NFN program (initially a Healthy Families program) has expanded the services it offers across the state over the past 22 years (since founding in 1995), increasing from two to forty-two program sites. Due to relatively recent site mergers and closures, there are currently thirty-eight program sites across Connecticut. In 2009, NFN services expanded to include "father home visitors" who directly serve primary father figures, independent of the mother's enrollment.

This report presents evaluation findings based on data collected through the end of the 2016 calendar year, and the findings are comparable to previous years – NFN appears to be identifying, recruiting, engaging, and retaining a high-risk population. Most importantly, the evidence shows that, on average, families who meet high-risk criteria and receive services for at least 6 months are making progress in the areas that program services are attempting to improve. Specifically, evidence suggests that mothers and fathers are making improvements in parenting attitudes and behaviors, that they have become more knowledgeable about community resources that can assist them in managing the day to day struggles faced by many families, and that they themselves are achieving educational and employment goals. Below are highlights from the report divided into the following subsections: 1) screening and enrollment, 2) family characteristics and stress profiles, 3) program participation and retention, 4) outcomes, and 5) father home visiting services.

Screening and Enrollment

- **Screening:** Since 1999, NFN staff have screened over 90,000 families. Thirty-five percent, or 32,037, of these families have screened at high-risk for poor parenting. This figure includes more than 400 fathers who have entered the program since they began serving fathers in 2009.
- **Enrollment:** In the past six years of the program (2011 through 2016), an average of 643 families enrolled in NFN Home Visiting program each year (ranging between 512 and 780), while the program served an average of 2,111 families each year (ranging between 1,979 and 2,275). In 2016, NFN staff screened 4,870 families, of which 45% screened at high-risk for poor parenting. Of these 2,202 high-risk families, 23% (512) enrolled in home visiting in 2016. Comparisons from year to year show that the *overall* conversion rates (i.e., the percentage of families who ultimately enroll out of the total number of families eligible for services in a given year) have decreased steadily from 30% in 2010 to 23% in 2016. Moreover, the availability of federally funded home visiting programs has expanded in Connecticut since 2014, which has resulted in more home visiting options and, at some sites, referrals to programs outside of the traditional, state-funded NFN home visiting program on which this report focuses.
- **Prenatal Enrollment:** In 2016, 11% of all mothers screened were prenatal at the time of screening. Importantly, of all mothers who ultimately enrolled in the program in 2016, 50% were prenatal. This is similar to the patterns we reported for 2014 and 2015, where 8% to 10% of all mothers screened were prenatal while 42% of mothers who enrolled were prenatal. Consistent with prior years, in 2016, prenatally screened mothers were more than 3.5 times

more likely to enroll than mothers screened after giving birth. We find a similar pattern for New Haven and Hartford regions when considered separately, although even more pronounced in New Haven than in Hartford and the rest of the state. These findings provide strong evidence that programmatic efforts to target prenatal mothers should increase the efficiency of recruitment efforts. Moreover, prenatal enrollment provides an opportunity for the program to affect birth outcomes.

Family Characteristics and Stress Profiles

- **Description of incoming cohort for 2016:** Collecting family demographic information and histories serves a dual purpose. First, the information provides insight on the needs and challenges of the family. Second, the information provides a baseline for evaluating change during the course of participation.
    - Approximately 26% of mothers who enrolled in 2016 were in their teens.
    - The majority of mothers (78%) who enrolled were single and never married.
    - 32% of mothers had not yet received a high school diploma or GED, and approximately 21% of mothers were currently enrolled in school.
    - With regard to employment, only 37% of mothers were employed at the time of program entry, and just 11% of mothers were employed full-time.
    - The home visitors reported that 52% of enrollees were experiencing financial challenges.
    - In terms of government assistance, over 73% of mothers were participating in WIC and 30% of mothers were participating in SNAP (i.e., food stamp support). Another 4% were receiving TANF, which is lower than in recent years.
    - Maternal grandmothers lived in only 13% of the households (much lower than in prior years) and 35% of biological fathers lived in the household with the child's mother.
    - 20% of mothers experienced social isolation as documented by home visitors, and in 8% of cases, home visitors reported that the fathers never saw their baby at all.
    - Approximately 48% of mothers live with other family members, while 33% rent a home and 6% of mothers own their home. Two percent live in either a homeless shelter or group home.
- **Stress profiles predictive of risk:** Over 78% of mothers participating between 2010 and 2016 experienced at least two risk factors (at moderate to severe levels), with an average of four risk factors across all families. The most frequently reported risk factors include having a history of maltreatment as a child; a history of crime, substance abuse, and/or mental health issues; low self-esteem, social isolation, and/or depression; and multiple stressors (e.g., multiple financial problems). These findings reinforce the conclusion that the program is successfully reaching its target population of high-risk parents.
    - **Regional differences:** Comparing stress profiles across regions shows that nearly half (48% to 52%) of mothers experienced maltreatment as a child, regardless of region. However, we see regional differences in the prevalence of some of the other key risk factors. For instance, 39% of New Haven mothers and 45% of Hartford mothers have a History of Crime, Substance Abuse, and/or Mental Illness, which is significantly *lower* than the 60% of mothers in Western/Central/Eastern regions. In another example, a substantial percentage of mothers from Western/Central/Eastern regions (86%)

experienced Low Self-Esteem, Social Isolation, and/or Depression when they enrolled, while the rates, although still high, were 74% for New Haven mothers and 69% for Hartford. Lastly, the percentage of mothers who were experiencing multiple stressors at enrollment ranges from 57% in New Haven to 74% in the Western/ Central/ Eastern regions to 77% in Hartford, generating a statewide rate of approximately 70%. These findings suggest that, while the program is reaching a high-risk population in all regions of the Connecticut, the specific risk factors, and thus the needs and responsiveness of the mothers, may vary somewhat by region.

    - **Acute stress:** In 2016, 9% of entering families were experiencing acute stress (i.e., a family member experiencing current substance abuse, domestic violence, or mental illness), and this is very similar to rates for the past five years. At program entry, acute mental health problems were noted most often, followed by substance abuse, and finally interpersonal violence. The percentage of mothers experiencing acute stress *at program entry* was lower in New Haven (4%) than in Hartford (10%) and in all other sites (11%). However, the percentage of all mothers who received home visits, which includes those who continued services from prior years as well as new enrollees, who experienced acute stress at some point during 2016 is similar across regions – 6% (n=31) in Hartford, 6 % (n=31) in New Haven, and 8% (n=158) statewide.
- **Birth outcomes:** Thirteen percent of births to enrolled mothers were premature in 2016, which is above the rate of 9.3% for the state of CT (Connecticut Vital Statistics Report, 2015) and is consistent with rates for mothers enrolled in prior years. In addition, 10% had low birth weight, which is slightly higher than the state rate of 7.9% (Connecticut Office of Vital Statistics, 2015). This rate is consistent with the 10% rate for 2015 NFN enrollees, which are both lower than rates reported in 2012 and 2013 (14% and 16% respectively). Additionally 14% of children were born with serious medical problems in 2016, which is slightly higher than in prior years. Note that prematurity, low birthweight, and medical complications are not mutually exclusive categories (i.e., there is an overlap in these data), although any one of these outcomes presents a significant challenge for parents that can be mitigated by home visiting.
    - **Regional differences in birth outcomes:** The percentage of premature births within the NFN program was higher for Hartford families (18%) than families statewide (13%) and families in New Haven (10%). The Hartford rate is also well above the rate in Connecticut's population as a whole (9.3%). The percentage of children born with low birth weight was also higher in Hartford (9%) than in New Haven (5%). These data further indicate areas where screening, enrollment, and the populations served may differ across regions or program sites, as well as where home visitors may be required to adapt or modify support strategies to address the specific needs of the populations they serve.

Program Participation and Retention

- **Home Visiting:** A total of 1,979 families received home visiting services in 2016. The majority of services take place in the home and, on average, families received 2 home visits per month. The rate of completed home visits per family had been somewhat higher prior to 2014 (i.e., averaging just below two-and-a-half visits per month between 2009 and 2013) when policy changes were adopted to align the NFN program with national PAT caseload

standards. As a result, the monthly rate of home visits has declined to closer to the 2 visits per family per month in the past few years.

- **Developmental Screening using the Ages & Stages Questionnaire (ASQ-3):** Home visitors attempt to screen for developmental delays with all household children from 2 months through age five. In a given year, they administer an average of 4,006 screens, including screens administered at regular, prescribed intervals to the same child. Importantly, the percentage of children enrolled in NFN home visiting who received at least one developmental screen (i.e., ASQ) increased from 65% in 2012 to 76% in 2015, but dropped to 68% in 2016. ASQ developmental screens were administered to a total of 1,424 children present in NFN homes (e.g., 2nd or 3rd born). Finally, approximately 7.5% (n=102) were identified with a potential delay in 2016, and 26 were referred to Connecticut Birth to Three services for a follow-up evaluation.
- **Retention Rates:** Overall, retention rates at all three time-points (i.e., after 6 months, 1 year, and 2 years) have fluctuated only slightly over the past five years. Of those families who entered the program in 2015 (and thus have had the opportunity to be enrolled in the program for at least one year), 63% remained in the program for at least six months and 48% remained in the program at least one year. Two-year retention rates increased slightly for the 2014 cohort compared to the decreases the program witnessed beginning in 2011. Of families that have had the opportunity to participate in the program for 5 years, the average length of involvement is 22.3 months and the median is 11.7 months (i.e., 50% stop participating by 11.7 months).
- **Retention rates in Hartford and New Haven regions:** Six-month, one-year, and two-year retention rates for the Hartford region have remained steady over the past 5 years, hovering at about 63% for six months, 48% for one year, and 30% for two years, which is comparable to the statewide rates. For the New Haven region, in contrast, there is much more fluctuation from year to year and the rates are less consistent with statewide rates. Across the cohorts, between 58% and 68% of families remained in the program for at least six months, with 36% to 54% of families involved in the program for at least one year. Since 2011, the two-year retention rate has decreased from to 31% to 21% in the New Haven region.

Outcomes

- **Are mothers better off after a year of home visits?** The percentage of mothers who obtained a high school degree/GED or higher after one year of participation increased by 6 points and the percentage of mothers who were employed after one year increased by 18 points. These increases are similar in Hartford (9% and 14%, respectively). However, for New Haven, there was *no change* in education after one year, though there was a 17-point increase in the percentage of mothers who were employed.
- **Are mothers' parenting attitudes less rigid after receiving home visits?** The Child Abuse Potential Inventory-Rigidity subscale (CAPI-R) is a standardized self-report instrument that measures the rigidity of parents' attitudes regarding their children, and thus indicates their potential for abuse and neglect. We administer the measure at program entry, six months, one-year and each consecutive year during program participation. For each of the cohorts, 2009 through 2015, there was a significant reduction in CAPI-R scores after one year of

participation. The trend shows that each year, mothers are making significant improvements in parenting attitudes (i.e., less rigid).

- **Does it matter how long they are in the program?** Analysis of CAPI-R scores indicates that mothers showed significant reductions in the rigidity of their parenting attitudes after participating in home visiting for as little as 6 months and mothers who remain in the program longer experience greater improvements, although the effect of time in the program appears to be non-linear, such that it additional years of involvement do not add even increments of benefits.
- **Do the effects on parenting attitudes differ by region?** All regions significantly improved in their parenting attitudes as measured by the CAPI-R and the magnitude of these effects does not differ significantly across regions. The regions do differ, however, in their overall rigidity, as mothers in Hartford tend to be most rigid, followed by New Haven mothers and then the rest of the state.

- **Are mothers more knowledgeable about and using community resources more after receiving home visits?** The Community Life Skills Scale (CLS) is an instrument that measures participants' knowledge and use of community resources (transportation, budgeting, support services, social support-involvement, interests-hobbies, regularity-organization-routines). We administer the measure at program entry, six months, one-year and each consecutive year during program participation. For each of the cohorts who began receiving services from 2009 through 2015, there was a significant increase in CLS scores after one year of participation.
  - **Does it matter how long they are in the program?** Analysis of CLS scores indicates that mothers showed significant increases in their knowledge and use of community resources after participating in NFN home visiting for as little as 6 months and mothers who remain in the program longer experience greater improvements, although the effect of time in the program appears to be non-linear.
  - **Do the effects on knowledge and use of community resources differ by region?** All regions significantly improved in their knowledge and use of community resources after one year, and the magnitude of effects did not differ across the regions, although Hartford and New Haven participants ended up having greater connections to community resources than those in other, some very rural, areas of the state.

Fatherhood Home Visiting Services

- **Enrollment:** As of the end of 2016, 443 fathers had received home visits at 12 sites, with 51 fathers entering NFN in 2016. Note that fathers are primarily recruited through mother participants.
- **Stress profiles predictive of risk:** A relatively high percentage of fathers scored in the moderate to severe range for the following items on the Kempe Family Stress Inventory, indicating that the program reached a high-risk population: 68% had a Childhood History of Abuse and Neglect; 65% had a History of Crime, Substance Abuse, and/or Mental Illness; 82% had Multiple Stressors; 61% experienced Low Self-esteem, Social Isolation, and/or Depression; and 27% had a Potential for Violence (which is substantially higher than rates for mothers in the program).
- **Retention:** For all fathers enrolled in the NFN Father home visiting program since inception, 62% remained in the program for at least 6 months, while 41% of fathers remained for at least 1 year,

and 23% participated in the program for at least 2 years. For all fathers who have had the opportunity to be in the program for five years (i.e., who enrolled between 2009-2010), the average length of involvement is approximately 17 months, while the median length of involvement is approximately 8 months. Both are shorter than for mothers, who are involved in the program for 22 months on average, with 11 months as the median length of participation.

- **Entry scores on the Child Abuse Potential Inventory- Rigidity Subscale (CAPI-R).** For fathers entering NFN in 2009-2015 (N=300), the CAPI-R total mean score was 28.9, more than one standard deviation above the general normative population and just under the cut-off score of 30. This entry score is significantly higher than mothers' entry CAPI-R score of 26.1 ($t = 2.85$, $p < .01$), indicating that participants in father home visiting have more rigid parenting attitudes than mother participants, placing them at an even higher risk of maltreatment.
- **Are fathers' parenting attitudes less rigid after receiving home visits? Do they have stronger beliefs in the importance of their role as fathers?** We found evidence that fathers' rigid parenting attitudes and beliefs (CAPI-R scores) significantly improved after participating in the program for at least six months and after one year. We also see small improvements in beliefs about the role of fatherhood (as measured by the Role of Father Questionnaire (ROFQ)), even though average scores at program entry on the ROFQ have been relatively high (higher scores indicate more importance placed on involvement with child), with an average of 62.4 out of a possible 75 points for fathers since the program started.
- **Service delivery for fathers.** Recent program evaluation (Kusotic, 2016), anecdotal information, and concerns related to data collection (i.e., low response rate) combine to indicate that home visitors' understanding of the curriculum, critical concepts of the program model, and the importance of evaluation for program development may be different for fathers as compared with mothers.

Program overview

In this section, we provide a brief overview of the Nurturing Families Network home visiting program, including a description of the goals and types of services offered, the structure and oganization through which program services are delivered, the ongoing interplay between program evaluation and development, and finally the extent of program reach within the state.

Program Goals and Services

The Nurturing Families Network (NFN) is a statewide intensive home visiting program designed to promote positive parenting and reduce incidences of child maltreatment. NFN home visiting services are offered to high-risk, first-time prenatal and postnatal mothers and fathers. Services are initiated at or before the child's birth, and families can continue to receive the services through the first five years of their child's life.

Causes of child abuse and neglect are generally understood within an ecological framework (https://www.childwelfare.gov/topics/preventing/overview/framework/ecological/). Becoming a parent, especially for the first time, is often a pivotal point in an individual's life. For some, this transition can be very difficult, particularly as a parent experiences the new demands of caregiving and related role expectations. Adjusting to becoming a parent is heavily influenced by life circumstances. Parental abuse and neglect has been related to a complex mix of family, child, community, and societal factors. Parent risk factors include being single (without support), low education, young age, depression, substance abuse, and maltreatment as a child. Younger children and children with special needs are more likely to be abused or neglected. Community-level risk factors include neighborhoods with high poverty, violence, and unemployment, and where residents do not feel they have any control or "voice" in what takes place within their communities. At a societal level, factors include norms of familial privacy and non-interference.

Among families who are at high-risk, protective factors related to lower incidences of child abuse and neglect include the following: knowledge of parenting and child development; access to concrete support in times of need; social connections; parental resilience, and social-emotional competence of children (see literature review by Horton, 2003; http://www.cssp.org/reform/strengthening-families/resources/body/LiteratureReview.pdf). Accordingly, the program's mission is to provide parents with information and education on child development and parenting, connect families to services in the community when needed, support parents' development (e.g., education, employment) as well as the child's development (two generation strategy), and build on the family's strengths.

The first step in preventing child abuse and neglect is identifying and recruiting high-risk families. Due to their histories or life circumstances, often including negative or unhelpful experiences with social service systems in the past, targeted families are understandably suspicious of program intervention, feel alienated from mainstream society, and lack trust or hope that anything can make a difference. Home visitors often live in the communities where they work and are familiar with the culture and language of the families in the program. The first objective of the home visitor is to establish a relationship with the family, as this is essential for creating change. The relationship is directed by specific roles (e.g., a combination of baby expert, advocate, and friend). (See process evaluation by Black & Markson, 2001, http://www.ct.gov/oec/lib/oec/familysupport/research/hfc2001.pdf.) The second objective is to develop a plan that draws on the family's strengths, available resources, and the

skills of the home visitor. Importantly, home visitors receive weekly one-to-one clinical supervision. The clinical supervisor helps the home visitor develop a fuller understanding of their work with families, and together they consider approaches for engaging and working with individual families, solving problems, and handling crises as they occur. There are four programmatic areas of focus (also see NFN policy manual http://www.ct.gov/oec/lib/oec/Program_Manual._update.06.2015.pdf) that are targeted in developing plans for working with individual families.

Nurturing Parenting: Improving parenting attitudes and behavior and child development are central focuses of program services, because improvements in these areas are expected to decrease the likelihood of child maltreatment. Using curricula on positive parenting practices, the home visitors bring developmental and educational activities to home visits and provide activities for parents to facilitate learning on their own. The program's "foundational" curriculum, Parents As Teachers, is a nationally recognized, research-based, up-to-date parenting curriculum, found to be predictive of school readiness and third-grade achievement (Zigler, Pfannenstiel, & Seitz, 2008, https://www.ncbi.nlm.nih.gov/pubmed/18404381).

Healthy Families: Home visitors approach families in a holistic manner; the objective is to gain an understanding of family circumstances and help family members connect to community services as needed (i.e., case management support). For example, home visitors work with each family to ensure they are connected to a primary medical care provider and are receiving basic medical care. If needed, home visitors will also help connect families to services to address issues such as domestic violence, substance abuse, or mental illness.

Parent Life Outcomes: Using a two-generational approach, home visitors create opportunities for and address the needs of both the children and their parents together. In many instances, especially in the beginning stages of home visiting services, parents will have immediate and very concrete needs (e.g., food, diapers, transportation). Home visitors also advocate for parents, mediating interactions with social institutions and often help parents negotiate crises, role model assertiveness and persistence, and provide encouragement and ongoing emotional support. Relatedly, home visitors help many mothers and fathers establish and follow through on educational and employment goals.

School Readiness: Home visitors often help parents to understand their role in their child's learning and education (e.g., by helping them to understand the importance of providing a language-rich environment). In addition, because early detection of developmental or behavioral problems have been shown to improve children's long-term outcomes, home visitors use the Ages and Stages Developmental Monitoring Questionnaire (ASQ & ASQ-SE) to screen for developmental or social-emotional delays (http://agesandstages.com/). They not only help families detect developmental difficulties as they emerge, but they also help parents accept these problems and arrange for appropriate treatment and management (e.g., will facilitate a referral for Birth-to-Three assessment services).

Structure and Organization of Program Services

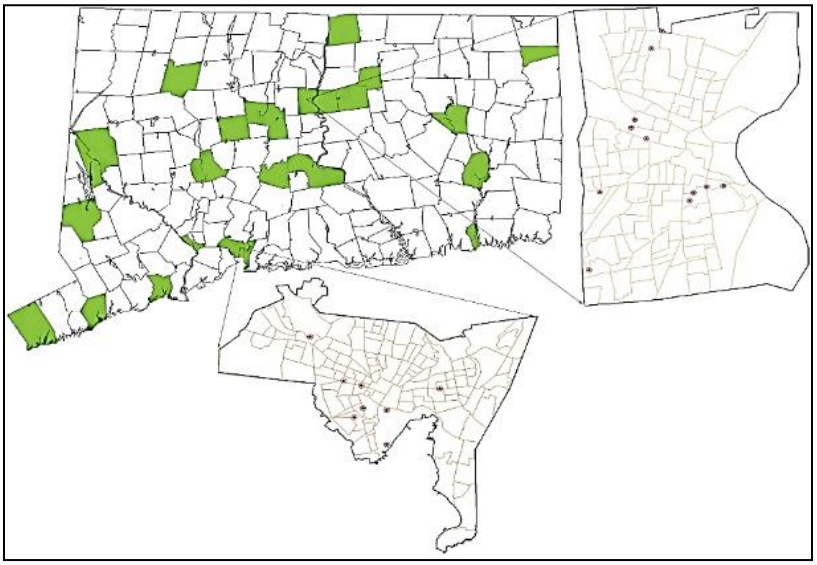
NFN is established statewide with central administration located within Connecticut's Office of Early Childhood (OEC). There are 38 program sites housed within both public and non-profit service centers (from neighborhood-based family resource programs to large hospitals and clinics). In 1999, a program initiative to establish partnerships with all of the state's birthing hospitals was implemented. The purpose of Nurturing Connections (formerly called First Steps) was to create an

infrastructure for screening all first-time mothers. In order to complete screenings, the Nurturing Connections coordinator must have access to medical records and to first-time families while they are receiving prenatal services, staying in the hospital, or upon discharge after the birth of their child. Typically, families screened as high risk are referred to home visiting while families screened as low risk are provided with a packet of parenting information and referred to community services as needed.

Although the home visiting program follows a standardized model, the sites operate in diverse Connecticut communities that are distinctly different in per capita income, poverty level, and population density. In eastern and northwestern towns, many programs operate in rural communities where families face challenges such as lack of public transportation and limited access to resources. Program sites typically have a larger catchment area in these regions spanning across numerous towns. In contrast, in two of the poorest cities in the state, Hartford and New Haven, which are very densely populated, the NFN program expanded the number of sites in an attempt to provide a concentration of services with especially large populations of vulnerable, at-risk families residing in impoverished neighborhoods.

Figure 1 below shows the towns where sites are located (in green). The Hartford and New Haven regions are enlarged to show site locations at the street level. The OEC Family Support Service Division is the lead agency in which program liaisons: 1) Facilitate training on the program model, best practices, and curricula; 2) Provide technical assistance on the day-to-day program operations; and 3) Oversee and monitor program implementation to ensure fidelity to the model. The educational level of home visitors ranges from high school to master's level degree, with the majority holding a bachelor's degree in social services or related fields.

Figure 1. Nurturing Families Network Site locations



**1 site per town, with the exception of Hartford (11), and New Haven (7), and. Waterbury (2).*

Within the first year of hire, home visitors attend 60 hours of hands-on training on the program philosophy, practices, and procedures, 80 hours of training in a Family Development Credentialing program (FDC™), a 16-hour training in anticipatory guidance based on the Touchpoints Model (TouchpointsTM), and three days of training on the prenatal to 3 years Parents as Teachers curriculum. As already noted, home visitors receive weekly clinical supervision.

Clinical supervisors have graduate degrees in the social services field. Reflective supervision addresses issues related to family functioning and dynamics. Clinical supervisors provide feedback to home visitors on what is learned during the initial family assessment, help to identify red flags and adjust strategies as needed, and help home visitor organize thoughts and work with a family over time.

Program Development and Evaluation

Since the model's inception in 1995 as Healthy Families Connecticut, evaluation and research conducted by the Center for Social Research (CSR) have been used to inform and refine program practices. In 2001, when cumulative research identified practice and policy issues, the parenting curricula, training regime, and supervisory model were significantly improved. Eventually, as changes were made, the Connecticut's Healthy Families Initiative became Connecticut's Nurturing Families Network. In 2002, a Continuous Quality Improvement team was implemented and charged with making policy recommendations that govern the services of the model and provide oversight to program practices. In 2005, the PAT curriculum was adopted across all program sites and all NFN home visitors are now mandated to become certified Parents as Teachers (PAT) parent teachers.

NFN received legislative support to "go to scale" in Hartford in 2005 (the number of program sites were expanded from 2 to 10), and in 2007, the program similarly expanded across the city of New Haven (from 3 to 8 program sites). Together, sites in Hartford and New Haven account for 45% of all program sites, and in 2015, 51% of participants who received home visiting services resided in these two cities. Where relevant, data from these two urban areas are compared with statewide data to better understand differences in family participation or outcomes.

In 2008, via the CQI process, traditional NFN home visiting services were redesigned to be more father-focused, and in 2009, a home visiting pilot program for fathers officially began at five NFN sites. Over the course of two years, 2009 through 2011, Father Home Visiting expanded to 11 sites across Connecticut. In addition, between 2008 and 2009 the Center conducted a series of interviews with 35 fathers of participating children. (See NFN Father Involvement study, Black, Walker, & Keyes, 2010, http://www.ct.gov/oec/lib/oec/familysupport/research/fatherhood_final_report.pdf). Qualitative analysis showed that many fathers, similar to mothers, are struggling with a wide range of problems including any combination of income and resource problems, lack of job opportunities and feelings of emasculation, social exclusion, criminal histories, violent dispositions, parental rejection, and an internalized sense of failure.

Based on what was learned from the study, specialized training is provided to father home visitors that focuses on fathers' beliefs, expectations, and challenges related to being "the provider;" issues of masculinity and control; the quality of relationships with their child and with their partner or ex-partner; and navigating neighborhood violence. In this report, we present data on father participants, including enrollment and retention, demographic data and stress indicators predictive of risk, and data on outcome measures.

From 2009 to 2012, the Center conducted a clinical trial of In-Home Cognitive behavior Therapy for first-time mothers who met criteria for major depression. Group comparisons over time were significantly different: for mothers receiving treatment, self-reported ratings on symptoms of depression were significantly lower at post-treatment compared to the control group. Because of the findings, Medicaid recipients in Connecticut are now able to receive in-home therapy and NFN has built statewide capacity for treating maternal mental health among participants.

In 2013, the NFN program was incorporated under the Family Support Services Division within the newly established Connecticut Office of Early Childhood (OEC), and in 2014, the federally funded Maternal, Infant and Early Childhood Home Visiting (MIECHV) Block Grant, using the same

program model, was brought under their central administration. In sum, features of the NFN home visiting program include:

- Targeting a high-risk population and intervening at key points in development (i.e., prenatally or just at or after birth).
- Preventing child abuse and neglect by focusing on strengths-based practice, increasing protective factors (e.g., parenting education, two-generation strategy) and decreasing risk factors (e.g., treatment for mental health, connection to community-based resources).
- A nationally recognized, research-based, up-to-date parenting curriculum, Parents As Teachers, found to be predictive of school readiness and third-grade achievement (Zigler, Pfannenstiel, & Seitz, 2008).
- A home visitor model that emphasizes the central importance of the relationship between the home visitor and the family, as well as the pivotal role of the supervisor in effectively supporting the home visitor.
- Comprehensive training for all program staff and an administrative infrastructure for connecting sites with each other.
- Ongoing evaluation and research since program inception in 1995.
- A Continuous Quality Improvement (CQI) system with a well-developed management information system that provides oversight for programs.

Program Reach

Table 1 presents all active program sites as of 2016 sorted by region and the number of families each has served since program start date. In addition, in order to capture the general size and capacity of each of the sites, this table also presents the average number of families each site has served per year since start year.

Table 1. Number of Families Served at Each Program Site in Connecticut

Program Sites by Region	First Year Services Offered	Total Families Served All Years	Average Number of Families Served per Year Since Start Year
Hartford Region			
Hartford Hospital	1999	Connections & Group services only	
Hartford Healthcare at Home[1]	1995	778	37
Village for Families & Children[2]	2005	289	26
Family Life Education[3]	2005	231	21
Catholic Charities-Asylum Hill	2005	254	23
City of Hartford- MIOP	2005	253	23
Catholic Charities- Southside[2]	2005	256	23
St. Francis Hospital[1]	2000	327	20
Families in Crises	2005	161	14
Catholic Charities- El Centro	2005	199	18
Hispanic Health Council	2005	148	13
New Haven Region			
Yale/New Haven Hospital[1,2]	1998	743	41
So. Central VNA[3]	1996	648	32
Family Centered Services of CT[2]	2006	325	33

Fair Haven[1,2]	2007	320	36
Hill Health (New Haven)/ Cornell Scott[3]	2007 & 2014[4]	188	27
St. Raphael's Hospital (Merged w. Yale 2012)	2008	118	25
City of New Haven Health Department[2]	2007	180	20
Children's Community Programs[2]	2007	192	21

Central Region			
Wellmore (Waterbury)[1]	1995	811	39
Staywell Health Center (Waterbury)	2002	313	22
Community Health Center (Meriden)	2002	231	17
Bristol Hospital (Bristol)	2006	174	17
Hospital of Central Connecticut (New Britain)	2000	255	16
Middlesex Hospital (Middletown)	2002	211	15
UCONN Health Center (Farmington) [6]	2007	-	-
Eastern Region			
ECHN (Manchester)[3]	1996	658	33
Madonna Place (Norwich)[2]	2000	368	23
Generations, Inc. (Willimantic)	1999	341	20
Day Kimball Hospital (Putnam)	2005	202	18
Lawrence & Memorial Hospital (New London)	1998	338	19
Community Health Resources (Enfield, Somers)	2007	154	17
Western Region			
Bridgeport Child Guidance Center (Bridgeport)[3]	1996	711	36
Family Centers (Stamford & Greenwich)	2000 & 2006[5]	416	26
Family Strides (Torrington)[1,2]	1999	438	26
Families Network of Western CT (Danbury)	1998	419	23
Family & Children's Agency (Norwalk)[1]	2000	310	19
New Milford VNA (New Milford)	2007	116	13
TOTAL		12,076	

[1] Have more home visitors than other sites.
[2] Provide Fatherhood home visiting services.
[3] Covers two hospitals/service areas.
[4] Site closed in 2011 and reopened in 2014
[5] Two Family Center sites, Stamford and Greenwich, merged in 2011.
[6] Full data for this site is not available to CSR for all years.

As of the end of 2016, there were 37 program sites across all regions of the state and 12,076 families had received home visiting services since the program started in 1995. Table 1 also shows that there is considerable variation in the average number of families served by the sites across the state, as well as within each of the regions. For example, in the Western Region, New Milford VNA serves an average of 13 families per year while Bridgeport Child Guidance Center serves an average of 36 families. There is similar diversity in program capacity, as the number of home visitors ranges from 2 to 5 per site, which sets an upper limit on the number of families a site can serve.

Although the four home visiting models administered by the OEC are well-researched, evidence-based programs, no single model has been shown to be effective in improving all outcomes (i.e., outcomes related to parent life-course, parenting capacity, child health and development, child

maltreatment). Moreover, research has shown that there is considerable room for improvement across all outcomes (Filene et al., 2013).

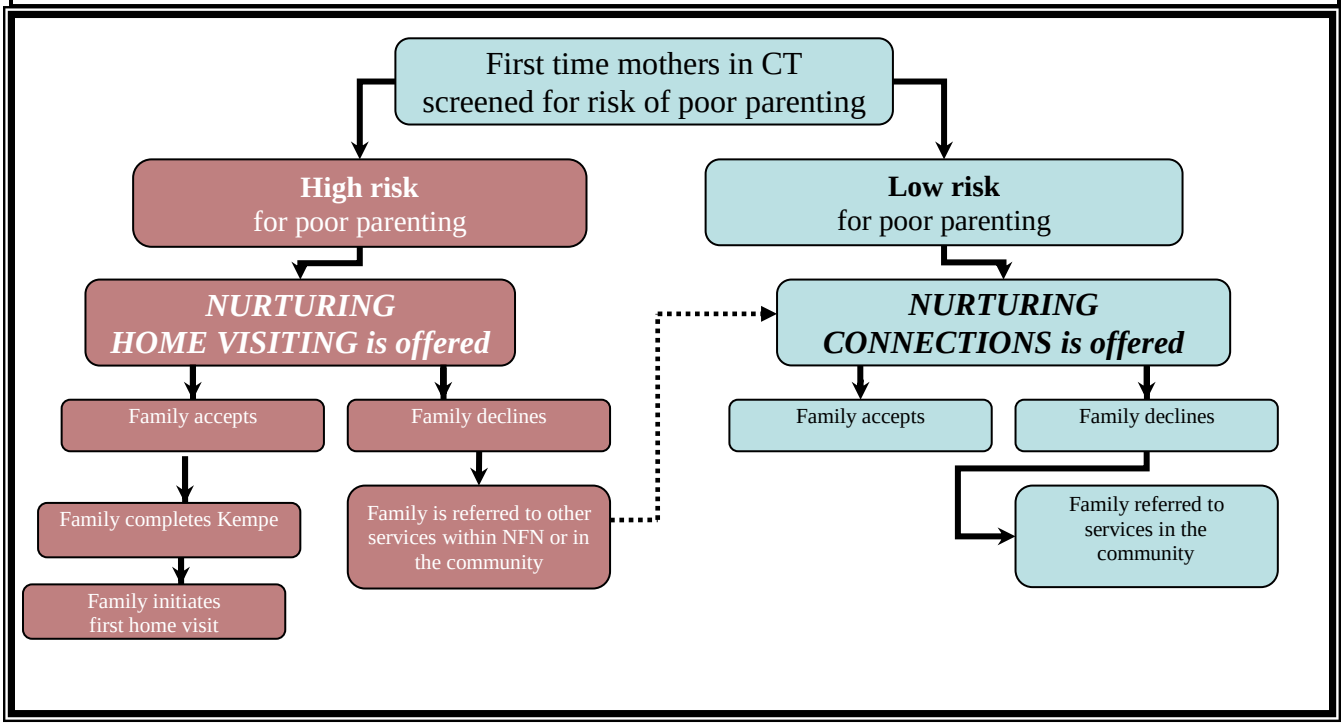
With promotion of home visiting and shift toward multiple models, the scale-up in Connecticut has accelerated over the past four to five years, increasing the complexity of ensuring the right families receive the right services. There is a wide range of implementing agencies, each influenced by administrative and community contexts. Research is needed to assess factors associated with expanding, enhancing, and sustaining the program infrastructure to support distinct sub-populations of families as well as multiple program models and delivery agencies.
Information gathered from program staff at all levels during regional planning meetings in 2015-16 indicated that, in fact, the landscape of home visiting in Connecticut has changed: While many programs have begun to successfully coordinate screening and recruitment of families across program models and sites, there still many communities where agencies (multiple home visiting programs and as well as other providers) often compete and work at cross-purposes in attempting to serve the same families. While some programs are filled to capacity, others are never at capacity. There are some communities that have gaps in services while other communities experience duplication in home visiting services. At the same time, statewide data (i.e., screening and enrollment data) as well as experiences and knowledge of program staff show that we are still not reaching many families who could benefit from home visiting.

Return-on-investment is maximized if services are not only effective but also efficient. In order to increase return-on-investment and reach all families who could benefit from home visiting more systematically, diverse stakeholder groups need a common framework and language for communicating issues and strategies, and a means for aligning their work. Like other states, Connecticut is exploring options to address these issues including the development of uniform data systems, implementation of a *coordinated* screening and referral system, adapting models to include 2nd time mothers, and integrating all models into a single continuum of services (e.g., sequential enrollment and multiple models to fit distinct populations).

Recruitment, Enrollment, and Retention of Families in NFN

The Nurturing Families Network is designed to provide a continuum of services for families. Figure 2 illustrates how families enter NFN and the various paths they may follow. All NFN services are voluntary; thus, there are many steps at which families can refuse services and/or be referred to other community services.

Figure 2. Nurturing Families Network: *A Statewide System of Care*



Screening First-Time Mothers

Each year, there are approximately 36,000 births among Connecticut residents, and of these, approximately 15,000 are to first-time mothers (Connecticut Department of Health, 2016). NFN screens as many first-time mothers as capacity allows.[1] Screening coordinators operate out of all 29 birthing hospitals and several prenatal and community clinics in the state. Other practitioners also make direct referrals (e.g., via Ob-Gyn and WIC offices). Screening coordinators meet with families to introduce the program and related resources. At the same time, families are assessed for program eligibility. The Revised Early Identification (REID) screen is used to determine risk for poor

[1] Since 2014, NFN has screened and recruited a broader population under the Maternal, Infant, and Early Childhood Home Visiting federal grant. In addition to first-time mothers, this grant expands home visiting services to parents of multiple children and parents involved with Department of Children and Families (i.e., child protective services). OEC currently reports on families served under the MIECHV grant separately and, therefore, we do not include data on these families in this report.

parenting. It consists of 17 items (see Table 13 in the Appendix) that have been associated with an increased probablity of child neglect and abuse. A parent who meets at least one of the following three criteria will receive a "positive" score (i.e., indicating they are at high-risk) making them eligible for home visiting services: 1) three or more true items on the screen; 2) a history of substance abuse, history of psychiatric care, marital or family problems, history of/current depression, and at least one other true item; or 3) have at least eight items for which the information is not available or is unknown.

Since 1999, Nurturing Connections has screened over 90,680 families, of which 32,037 (35%) were screened as "high-risk" and therefore eligible for home visiting services. Corresponding to expansion of the program and trends in enrollment described below, there has been an increase in screening from 1999 to 2009, with a peak in 2008 (see Figure 16 in Appendix). In addition, the recruitment process has been refined to ensure face-to-face communication with families, and there has been a steady increase in the percentage of families screened at high-risk since 1999. This is possibly due to 1) increased efficiency and skill at screening, 2) increased awareness of the NFN program across the communities it serves, or 3) changes in the population of screened parents.

Each stage of engagement towards enrolling in NFN programs (see Figure 2) is tracked, including screening for risk/eligibility, offering the service, family accepting the service, completing the "Kempe" Family Stress Checklist (an in-home assessment), and initiating a home visit. Based on this tracking, Table 2 presents the number and percentage of mothers who passed through each stage in 2016 for the state as a whole, as well as for Hartford and New Haven regions separately. Table 15 (in the appendix) presents statewide information for 2016 as well as for the previous five program years (2011-2015), to provide context and to help identify trends in recruitment and enrollment.

Table 2. NFN Screening and Enrollment, 2016

	Statewide	Hartford	New Haven
Number Identified as Low Risk	**2,668**	**1082**	**243**
Offered Nurturing Connections	1503 (56%)	661 (61%)	96 (54%)
Accepted Nurturing Connections	581 (39%)	129 (20%)	31 (30%)
Number Identified as Eligible	**2,202**	**709**	**613**
Offered Home Visiting	1916 (87%)	602 (85%)	570 (93%)
Accepted Home Visiting	991 (52%)	271 (45%)	306 (54%)
Completed Kempe Assessment	546 (55%)	145 (54%)	163 (53%)
Initiated Home Visiting	512 (94%)	138 (95%)	153 (94%)

Recruiting Low-Risk Families into Nurturing Connections

In 2016, 2,668 (55%) of all families who were screened were identified as low risk. In addition to screening first-time mothers, Nurturing Connections offers a telephone support and referral service to the majority of low-risk families. Of those identified as low-risk, 1,503 (56%) were offered Nurturing Connections support, and of those 581 (39%) accepted these "light touch" services. In terms of statewide trends since 2010, there have been noteworthy declines in: 1) the number and percentage of screened families identified as low risk, 2) the number and percentage of low-risk families who were *offered* Nurturing Connections and, 3) in the number and percentage of those

offered Nurturing Connections who *accepted* the service (see Table 15 in the appendix). According to program leaders and staff, these declines have been the result of a 2012 change in policy shifting the focus of Nurturing Connections staff to conducting targeted, face-to-face screening of high-risk mothers rather than providing NC phone support to low-risk families. As discussed below, the reduction in phone support and the conscientious targeting of high-risk mothers (e.g., at "high-risk" prenatal clinics rather than on the hospital birthing floor) not only reduced enrollment in Nurturing Connections, but also increased the proportion of screens that resulted in the identification of a high-risk mother who was eligible for home visiting.

Recruiting High-Risk Families into Home Visiting

In 2016, 2,202 families (45%) across the state were identified as "high-risk" and therefore eligible for home visiting services based on the REID screen.[2] Importantly, data presented in Figure 16 (Appendix) indicate that even though the total number of families who have been screened has declined steadily since 2010 (i.e., the total height of the bars has decreased), the percentage who were identified as high-risk has increased steadily during this same period, from 34% in 2010 to 45% in 2016. This has led to the program identifying a relatively stable *number* of eligible families (i.e., the dark maroon bars in Figure 16 have remained about the same height since 2010), despite declines in the number of screens. Based on discussions with staff, this trend most likely reflects an increase in the efficiency of screening (i.e., staff are better at identifying, and therefore *selecting* for screening, those parents who will score positive), although it may also reflect an increase in the proportion of high-risk parents in the population or changes in the way that staff record or complete the screening tool.

Despite these changing trends, the overall pattern at each stage of enrollment has remained relatively stable over time, with the biggest "drop-off" in the enrollment process occurring at the same two stages every year – (1) accepting home visiting and (2) completing the Kempe. In 2016, of the 2,202 mothers who were identified as high-risk on the REID screen, 1,916 (87%) were offered home visiting services, consistent with rates over the previous five years (see Appendix, Table 15). Of those offered NFN home visiting services, 991 (52%) accepted, which actually represents a rebound from the dip to 46% in 2015 and is generally consistent with acceptance rates in previous years (ranging from 54%-60%, except for in 2015). Similarly, 546 (55%) of mothers who accepted home visiting subsequently completed the *in-home* Kempe Assessment in 2016, and this continued a gradual decline in Kempe completion rates over the previous 5 years, from a high of 68% in 2012.

In contrast to these two stages, once the Kempe is completed (typically in the parents' homes in a one-on-one meeting with a clinical supervisor or home visitor), 512 (94%) of families initiated a home visit in 2016, consistent with the impressive initiation rates for the program, which ranged from 92%-98% over the previous 5 years. The Kempe Assessment covers family history and potentially sensitive topics (described later in this report), which may facilitate a relationship with the family or may serve to select those mothers who are willing to initiate home visits. In all, 512 families were screened *and* initiated home visits in 2016, which represents 23% of those who were eligible based on the REID and the lowest total since 2005. Importantly, families who are identified as high-risk but

[2] While the majority of the families who enroll in home visiting screen at high-risk, there are some cases when the program will enroll a family that does not meet traditional eligibility requirements. Often in these cases, staff obtain special permission from the OEC to allow families who screened negatively (low-risk) into home visiting services. In 2016, a total of 30 families who indicated low-risk on the REID screen enrolled in NFN home visiting.

who do not enroll in home visiting may also be offered Nurturing Connections phone support, and data for these families is presented in Table 15 (Appendix).

As shown in Figure 4, the overall conversion rate (i.e., the percentage of families who ultimately enter NFN out of the total number of eligible families screened) has declined over recent years from 33% in 2012 to 23% in 2016. These conversion rates show the cumulative impact of recruitment at each stage of the process described in Figure 2. Based on the percentages who pass through each of the stages over time presented in Table 15 (Appendix), the decline in overall conversion rates over this period appears to be due to two facts: 1) the pool of eligible families has remained relatively large, while 2) the rates of accepting the program and subsequently completing the Kempe assessment have steadily decreased.

Figure 3. Percentage of Eligible Families who Entered NFN

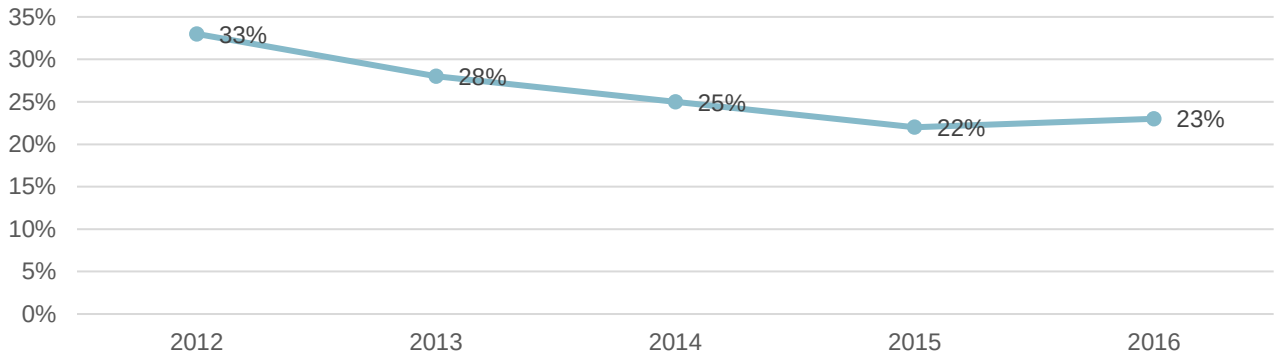


Table 2 also shows recruitment and enrollment rates separately for Hartford and New Haven regions, and these data suggest substantial regional variation in recruitment in 2016. First, a much higher proportion of screened families were identified as high-risk in New Haven (72%) than in Hartford (40%) and statewide (46%). This considerable difference is not unique to 2016, as New Haven has screened higher rates of high-risk families than the other regions since at least 2010, and greater than 50% have been identified as high-risk in New Haven since 2013 (Hartford and statewide rates have never surpassed 50%). In addition, while the program as a whole has seen a noteworthy increase in the proportion of positive screens across the state, the increase has been far more dramatic in New Haven, whereas it has been somewhat erratic in Hartford. Another interesting difference is in the total number of families screened each year – while the overall number of families screened in the state has declined steadily over the past six years, the number of screens conducted in Hartford and New Haven have fluctuated up and down considerably, with both of these regions accounting for over 1,400 screens each in 2015. In 2016, however, while the number of screens in Hartford increased by more than 300 families, the number of screens in New Haven shrank substantially to only 60% of the number of screens in 2015. Information provided by program administrators and staff in New Haven suggest that the overall reduction in screens and tremendous increase in the rate of positive screens are the result of providing "education sessions" rather than administering the REID to families who they believed would screen negative, excluding them from the region's recruitment numbers.

Conversion rates for the other stages of enrollment presented in Table 2 suggest additional, more subtle, but nonetheless interesting, differences between New Haven and Hartford. Compared to

statewide data, where 89% of eligible families were offered home visiting services, 85% were offered services in Hartford and 93% were offered services in New Haven. One possible reason for these differences may be that New Haven has not yet reached capacity as a region, while Hartford sites regularly screen *beyond* capacity in order to overcome low conversion rates. Other reasons may include differences in staffing or coordination between sites and screening hospitals within the regions. While parent acceptance rates are higher in New Haven (54%) than in Hartford (45%), the rates of Kempe completion were similar (54% in Hartford and 53% in New Haven). Consistent with the statewide data, once the home visitors engage families by completing the Kempe assessment, the vast majority initiate home visiting in Hartford (95%) and in New Haven (94%).

Investigation of conversion rates at each stage of the enrollment process begs the question: Why do some high-risk families not end up enrolling in home visiting? In 2016, 285 eligible parents (i.e., high-risk) were not offered services, and we have data regarding the reasons for 244 of those cases (see Table 16, appendix). The primary recorded reason (39%) was that the screening coordinators were unable to meet face-to-face with the family (e.g., family had been discharged from hospital), whereas for 25% of the cases, the program sites had already reached their capacity. An additional 15% of families were involved in a child protective services case (and therefore were not eligible for traditional NFN home visiting), and in 3% of the cases the family resided outside of the catchment area. "Other" reasons families were not offered services (16% of the cases) included such things as infant mortality and families already receiving home visiting or related services, and in the case of prenatal families, delaying visits until the birth of their child.

Moreover, in 2016, 921 families refused NFN services and we have information regarding the reasons for 898 of these cases (see Table 17, appendix). As reported, 38% believed they already had enough support, 35% were unsure they wanted home visiting, 5% reported that another member of the household did not approve of home visits, and 5% reported they did not have time. Another 23% provided "other" reasons for declining services such as involvement with child protective services, already receiving home visiting/other services, language barriers, or experiencing unstable housing.

Recruiting Prenatal Mothers

One of NFN's goals is to enroll as many families as possible at the prenatal stage in order to support mothers' health early in the pregnancy, positively affect birth outcomes, and prepare families for the new child prior to birth. In 2016, 11% of the overall screens were conducted prenatally, slightly higher than the 10% prenatally screened during the previous year. Importantly, data from 2016 (like 2015) suggests that early screening substantially increases the likelihood a mother will enroll in NFN – 50% of those who ultimately enrolled in 2016 were screened prenatally, which is even higher than the rate of 42% for both 2014 and 2015 enrollees. We also see a very similar pattern in the effects of prenatal screening on enrollment for the Hartford and New Haven regions analyzed separately. For Hartford, 6% of all screens were conducted prior to the child's birth, while 57% of all enrollees had been screened prenatally. For New Haven, 38% of screens were prenatal, while 60% of mothers who eventually enrolled had been screened prior to their child's birth.

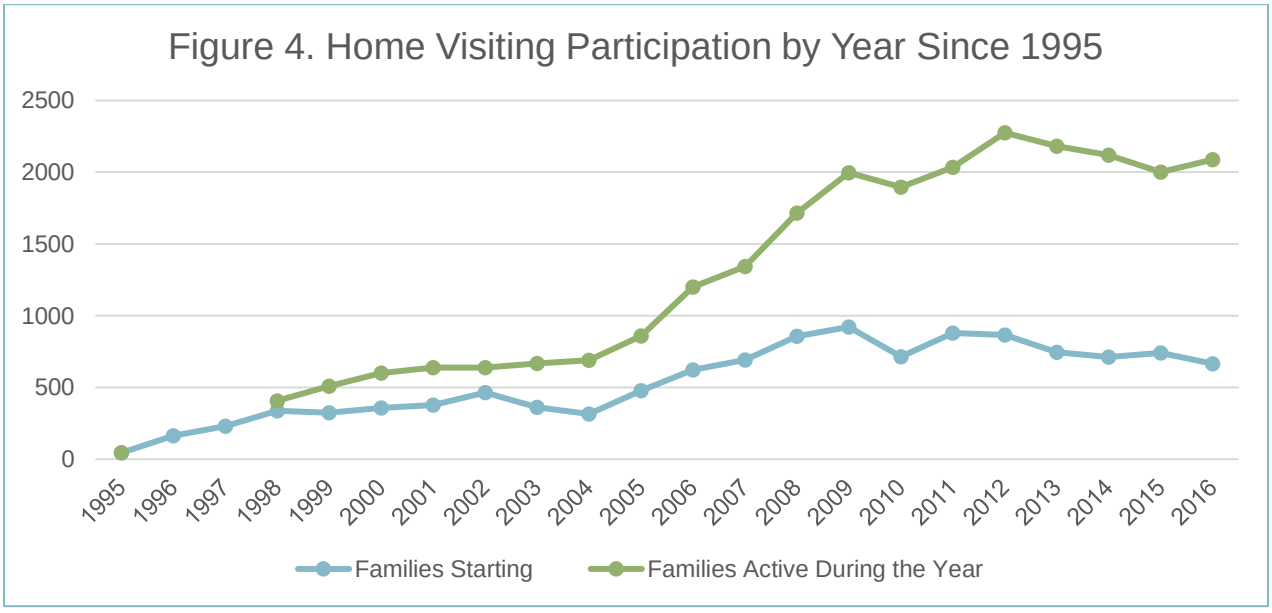
In fact, among those mothers who screened positive on the REID (and were therefore eligible for home visiting) across the entire state in 2016, those who had been screened prenatally were *more than three-and-a-half times more likely* to complete their first home visit than those who were screened following birth. Specifically, 53.7% of all high-risk prenatal mothers enrolled compared with only 14.9% of all high-risk postnatal mothers. Non-parametric tests confirm that being screened

prenatally (versus postnatally) had a significant, moderate effect on whether eligible mothers actually initiated NFN home visiting ($\chi^2 = 313.46$, $\lambda = .07$, Phi = .378; $p \leq .001$). This effect of prenatal screening on enrollment appears to be even stronger for the Hartford region. For those identified as high risk in the Hartford region, prenatally screened mothers were over eight times more likely to enroll than those postnatally screened (79% vs. 9%). However, in the New Haven region, prenatally screened mothers were less than two times more likely to enroll than those postnatally screened (34% vs. 18%), which is also a decline in the effect of prenatal recruitment for New Haven compared to 2015.

These results provide strong evidence that prenatal screening increases the chances that a family will enroll, suggesting that the program may choose to increase prenatal screening in an effort to successfully enroll more parents in home visiting. In addition, reaching parents prior to the child's birth provides home visitors with the opportunity to affect birth outcomes (e.g., prematurity, low birth weight) and to begin to prepare parents prior to the arrival of their child, desirable effects in and of themselves. In 2016, a "prenatal subcommittee" was formed out of the Continuous Quality Improvement process, and efforts began to implement and evaluate strategies to increase prenatal enrollment and retention using the PDSA (Plan-Do-Study-Act) model of quality improvement.

Participation in Home Visiting

Figure 4 presents data on the trends in enrollment and participation in home visiting each year from start-up in 1995 through 2016. The bottom, blue line in Figure 4 depicts the number of families who initiated home visiting services each year (i.e., the path on the far left side of Figure 2), reflecting enrollment trends. The top, green line in Figure 4 depicts the number of families active during each calendar year, which includes a significant number of families who continued receiving services from the previous year(s), and reflects the volume of services provided by the program.



As NFN expanded across the state to a maximum of 42 sites in 2008, with Hartford and New Haven regions going "to scale" in 2005 and in 2007, respectively, there was a corresponding increase in the number of families starting each year until 2009. However, no new sites have opened since 2008 and site closures and mergers have decreased the total number of sites statewide to 37. This contraction has corresponded with a gradual downward trend in the number of families starting, beginning in 2010. Similarly, the number of families active in a given year peaked in 2012, after recovering from a significant dip in 2010. The gap between the two trend lines in Figure 2 has remained relatively constant during this period, reflecting relatively successful and consistent program retention rates, as discussed in more detail below.

Home Visiting Activity

NFN home visitors meet regularly with mothers (roughly two times each month) to provide parenting education using the evidence-based PAT curriculum, social and emotional support, and assistance in connecting to and utilizing resources. Table 6 depicts the number of families that participated in NFN each year from 2012 through 2016, as well as the average number of completed home visits per family and the rates of various activities occurring during those visits.

A total of 1,979 mothers received home visiting services in 2016. The majority of services take place in the home and, on average, mothers received 2 home visits per month. The rate of completed home visits per family had remained stable at around 2.2 visits per month from 2012-2013 (and in years prior), but then it significantly decreased to 2.0 in 2014 and 2015, and rose slightly to 2.1 in 2016. This decline is attributed to policy change: Previously "seasoned" or trained home visitors had been required to complete 12 to 15 visits per week but, in 2014, the required number of weekly visits was reduced to 10 to 12. However, the policy change was not meant to reduce the number of families per home visitor (i.e., caseloads), so while home visitors may have the same number of families on their caseload, they have decreased the number of home visits per week, necessarily adjusting the average frequency of home visits per family. In terms of regional variation, the average number of home visits per family in Hartford and in New Haven in 2016 was 2.1, similar to the statewide average, while Central/Western/ Eastern regions completed an average of 2.2 home visits per family per month (see Table 23 and Table 24 in the appendix).

Table 6. Home Visiting Activity, Statewide 2012 – 2016

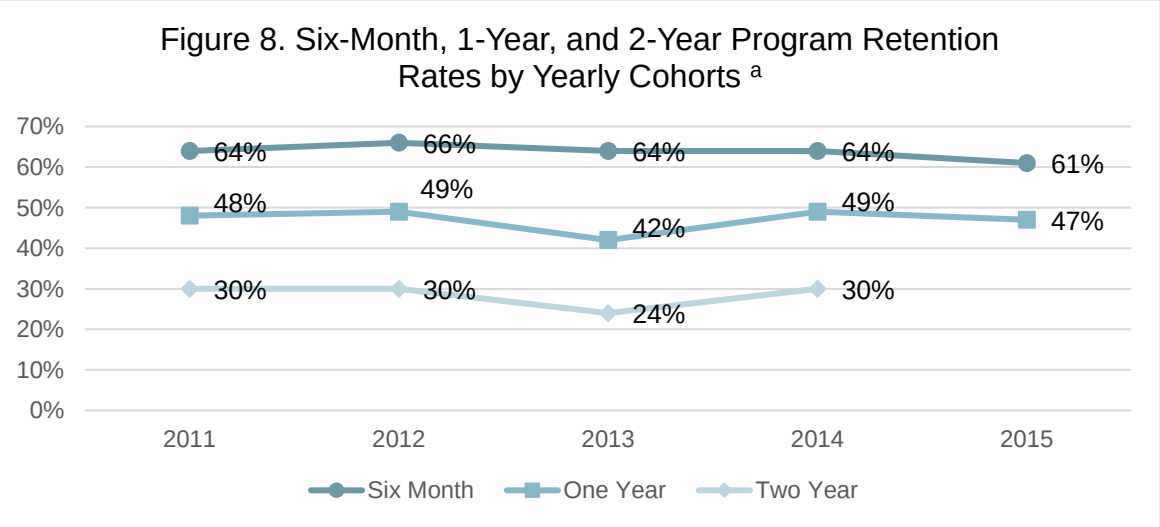
	2012	2013	2014	2015	2016
Number of families served in NFN	2275	2181	2118	2001	1979
Average number of completed home visits per family per month	2.3	2.2	2.0	2.0	2.1
Percentage of ASQ Screens administered to primary child	65%	63%	60%	76%	68%
Percentage with up-to-date well-child visits for primary child	96%	95%	93%	95%	92%
Percentage of parents receiving Shaken Baby Prevention material in home visits	44%	42%	36%	55%	44%
Percentage of families provided education on the hazards of smoking	22%	19%	19%	22%	22%

While meeting with parents in their homes, NFN home visitors attempt to screen all children in the household who are 2 months through five years for developmental delays, using the Ages and Stages Child Development Questionnaire (ASQ). Of the children who were the primary focus of NFN home visiting services in 2016 (i.e., the "target child"), 68% were screened at least once during the year using the ASQ (see Table 25 in the appendix for full details). Of these children, 102 (7.5%) were identified as having a potential delay, and 26 of these children were referred to the Birth-to-Three program for follow up assessment. Furthermore, developmental screens were administered for an additional 138 children present in the home (e.g., 2nd or 3rd born). Overall, an average of 4,006 screens were administered in each of the past five years (i.e., includes repeat screens administered at regularly prescribed intervals). In addition to assisting in the early identification of children with potential developmental challenges, ASQ screening provides home visitors with a means for initiating meaningful discussions with parents about age-specific expectations for the development of their child, which is a beneficial outcome in and of itself.

Home visitors are also responsible for documenting whether children are up-to-date with their immunizations (typically received during well-child visits), and in 2016, 92% of participating children were current with their immunizations. In addition, in 2016 home visitors reported that they provided information on Shaken Baby Syndrome Prevention to 44% and smoking cessation to 22% of families.

Program Retention

Program retention rates describe the length of time mothers are engaged with the program. Figure 8 displays six-month, one-year, and two-year retention rates shown by the year families enrolled in the program (i.e., "cohorts").



[a] Retention is based on time spent in the program from the initial start date. For re-enrollees, the initial start date is still used but the length of involvement is recalculated so that any "inactive" time is not included.

Overall, retention rates at all three time points (6 months, 1 year, and 2 years) have fluctuated only slightly over the past five years. For families who entered the program in 2015 (and thus have had the opportunity to be enrolled in the program for at least one year at the time of this report), 61%

remained in the program for at least six months and 47% remained in the program at least one year. Other than the decrease for the 2013 cohort, the one- and two-year retention rates stayed relatively stable across the cohorts. It is important to keep in mind that the slight changes in retention rates depicted in the graph may reflect random fluctuations, and so we caution against over-interpretation.

Retention rates for Hartford and New Haven regions are presented in the Appendix, Figures 18 and 19. Six-month, one-year, and two-year retention rates for the Hartford region have remained steady over the past 5 years hovering at about 63% for six months, 48% for one year, and 30% for two years, which is comparable to the statewide rates. For the New Haven region, there is much more fluctuation from year to year and the rates are less consistent with statewide rates. Between 58% and 68% of families remained in the program for at least six months with 36% to 54% of families involved in the program for at least one year. Since 2011, the two-year retention rate decreased from 31% to 21% in the New Haven region.

For all families who have had the opportunity to be in the program for five years (those enrolled between 1995-2011), the average length of involvement is approximately 22.3 months, while the median length of involvement is approximately 11.7 months. For families served in Hartford region, the average length of involvement is approximately 24 months, and the median length of involvement is approximately 12 months, which are longer higher than the statewide averages. Finally, in New Haven region, the average length of involvement is approximately 21 months, and the median length of involvement is approximately 10 months, slightly shorter than the statewide averages.

The more time home visitors spend with families, the more opportunities they have to make a positive impact. As a result, when a family misses a scheduled appointment, the home visitor will attempt to re-engage the family. Typically, the home visitor will progressively attempt to contact the family by phone, mail, and unannounced visits to the home. Following the third attempt or after a total of six weeks without a completed home visit, the case is closed and we treat the family as having "exited" home visiting. However, the family may re-enroll in the program at any time until the child is five years of age. As home visitors build relationships with and help families achieve their goals, families will occasionally leave, but return to the program. Since 2010, approximately 7% of families left the program and returned for services at least one time, while 1% of families exited and returned a second or a third time.

Despite efforts to retain families through the child's fifth year, some families leave the program prior to this point after meeting their goals and some drop out and do not return to home visiting. For the past five years, there has been minimal variation in rates at which families exit the program for these and other reasons (see Table 26 in the appendix for full details). From 2012-2016, between 10% and 15% of families graduated from NFN or stopped receiving home visits because they met their personal goals. During this period, 15% to 19% families decided to leave the program for unspecified reasons, while 9% to 14% of families said they had no time for home visits due to work and school commitments. Twelve to 16% moved out of the catchment area, and for another 29% to 32% of the cases home visitors were unable to locate the families, hinting that the population is relatively transitory. Finally, over the course of the past five years, only 1% to 2% of families were withdrawn from NFN services because they became involved in a Child Protective Services investigation.

Family Characteristics and Stressors at Program Entry

Within the first month of participation, home visitors interview parents and collect data on family/household characteristics and pregnancy outcomes, as well as assess the parents' history/current experience of stressors through the Kempe assessment. Obtaining personal information serves a dual purpose: First, it functions as a way of establishing rapport and a working relationship with the family, gaining invaluable insight into their strengths, needs, and challenges. Second, the information serves as a baseline for assessing both programmatic trends and individual change over time. In this section, we summarize the data we have collected on the demographic characteristics of mothers and the households within which they reside, including aspects of their pregnancy and childbirth, and then we provide a more nuanced look at the types of stressors that these mothers and families face on a day-to-day basis. These characteristics provide the backdrop against which home visitors must begin their work with families in the program, and so we discuss regional differences where appropriate.

Demographic Characteristics of Mothers and Households

Table 3 presents demographic characteristics for mothers who enrolled in NFN home visiting in 2016 (including age, marital status, education, and employment), while Table 4 presents information about their households (including financial challenges, use of government assistance, father involvement, and type of housing). In the following paragraphs, we highlight factors that are either potential sources of stress, and therefore may indicate a heightened need for support services and risk for child maltreatment, or protective factors that represent potential sources of strength to help families cope with and manage those stressors.

In terms of the characteristics of these newly enrolled mothers, approximately 26% who enrolled in 2016 were teens, and the median age was 23 years old. In terms of race and ethnicity, compared to the composition of the state in 2016, the population of mothers enrolling in NFN across the state is disproportionately African American and Hispanic/Latina. Specifically, 21% of mothers entering NFN in 2016 were black (compared to just 12% of the state's population), and 46% were Latina (compared to just 16% of the

Table 3. Mother Characteristics 2016[a]

	State NFN N = 629
Mother's Age at Program Entry	**N = 558**
Under 16 years	3%
16 – 19 years	23%
20 – 22 years	20%
23 – 25 years	16%
26 years and older	39%
Median Age	23 years
Mother's Marital Status	**N= 557**
Single, never married	78%
Married	19%
Divorced, separated, widowed	3%
Mother's Race/ Ethnicity	**N = 588**
African American or Black	21%
Hispanic or Latina	46%
Caucasian	23%
More than one race	1%
Other	9%
Mother's Educational Attainment	**N = 555**
Less than high school	27%
High school degree or GED	16%
Vocational training or some college	27%
College degree or graduate work	29%
Mother Currently Enrolled in School	21%
Mother's Employment Status	**N = 558**
Employed prior to pregnancy	63%
Employed at program entry	37%
Full-time	11%
Part-time/ occasional work/ working more than one job	52%

[a] **Differences in N across items are due to missing data for an item**

state) (US Census Bureau, 2017). Furthermore, the majority of mothers (78%) who enrolled were single and never married. Among the enrollees, 27% of mothers had not yet received a high school diploma or GED, and approximately 21% of mothers were currently enrolled in school. With regard to employment, only 37% of mothers were employed at the time of program entry and just 11% of mothers were employed full-time, while 63% were employed prior to their pregnancy.

In terms of family characteristics presented in Table 4, home visitors reported that 52% of new enrollees were experiencing financial challenges and 13% had a known arrest history. In terms of government assistance, over 83% of the mothers were receiving some form of aid – 73% of mothers were participating in WIC and 30% were participating in the Supplemental Nutrition Assistance Program; however, only 4% were receiving Temporary Assistance for Needy Families, which is considerably lower than in prior years (see Table 18, appendix).

Table 4. Household Characteristics 2016[a]

	N = 543
Social Risk Factors	
Financial Difficulties	52%
Arrest History	13%
Receiving Gov. Assistance	83%
Living in Household	**N = 578**
Maternal Grandmother	13%
Father	35%
Type of Housing	**N = 514**
Home owned/ rented by parent	39%
Shared home with other family members	48%
Shared home with friends	3%
Shared home with strangers	2%
Homeless shelter/ Group home/ treatment center	2%
Other	4%
Father's Involvement with Child	**N = 419**
Not applicable (prenatal)	24%
Very involved	57%
Somewhat or occasionally involved	10%
Very rarely Involved	2%
Does not see baby at all	8%

[a] Differences in N across items are due to missing data for an item

With regard to housing, approximately 48% of mothers share housing with other family members, 33% rent their home, 6% of mothers own their own home, and 4% live in either a homeless shelter, group home or share a home with strangers. Data on household makeup shows that the maternal grandmother resided with the mother in only 13% of the households in 2016 (compared to 31% from 2010-2015) and the biological father resides with the mother in 35% of the households (down from 42% from 2010-2015). In addition, the father was reportedly "very involved" in 57% of households (down from 62% from 2010-2015). These findings indicate that at least some mothers do have filial support networks, although this was less true of those enrolling in 2016 than in the previous six years. Some households, unfortunately, evidence the opposite situation, as home visitors reported that 20% of mothers experienced social isolation, and, in 8% of cases, fathers reportedly had no contact with the baby. These data on mother and household characteristics highlight that the program is, in fact, reaching its target population, as well as the reality that home visitors' must balance supporting the basic and social needs of the family while promoting positive parenting and educating parents about child development.

While the statewide 2016 data presented above offers insight on the entire NFN population, Table 18 (Appendix) presents mothers' demographic and household data separately for Hartford and New Haven, illuminating the extent to which these regions are unique. Moreover, Table 18 provides composite demographic and household data for all enrollees from 2010-2015 to provide temporal context for current findings.

On the one hand, the age distribution of participants is similar across the regions, and the proportion of single, never married mothers was nearly identical across the regions of Connecticut.

Interestingly, in comparison to 2010-2015, there were proportionately fewer teen moms and proportionately more mothers who were 26 or older in 2016. This reflects a general trend across all regions of the state towards recruiting older mothers, and as a result, the median age of mothers entering NFN has increased from 21 in 2010 to 23 in 2016. This likely reflects the decreased teen population in Connecticut (US Census Bureau, 2017) and the steady decline in teen pregnancy nationally over the past decade, with Connecticut having one of the lowest rates at 11.5% (see Trends in Teen Pregnancy and Childbearing, Office of Adolescent Health, 2016). Still, teen moms are disproportionately over-represented in the NFN population, which is encouraging given that the program has focused on recruiting young and first-time mothers since its inception.

On the other hand, data on race/ethnicity show some variation between Hartford and New Haven. In general, Latinas make up the largest racial/ethnic group in the statewide NFN population as well as in both regions, with roughly twice as many Latina mothers as African American mothers. More importantly, Latinas are considerably over-represented in both statewide and New Haven populations (compared to their percentage of the general population of the relevant jurisdiction, i.e., state or city), but only slightly over-represented in Hartford, where Latinas make up 43% of the city's population and 50% of the mothers entering NFN in 2016. African American mothers, on the other hand, are over-represented in the statewide NFN population but notably *under*-represented among mothers enrolling in NFN home visiting in both Hartford (29%) and New Haven (26%) relative to their percentage of each city's general population (39% and 35%, respectively). In terms of trends since 2010, while the proportion of Latinas has remained relatively stable *statewide*, the proportion of Latinas enrolling in New Haven has increased from 33% in 2010 to 46% in 2016. In contrast, the proportion of African American mothers entering NFN has decreased during this period in the state as a whole, as well as in both New Haven and Hartford, further contributing to their disproportionate under-representation in these two regions. As a result, the program may want to consider more tailored strategies for identifying and recruiting African American mothers, especially within the urban areas of Hartford and New Haven.

Data on mothers' education and employment at program entry suggest very little systematic difference between regions. However, both education and employment data indicate possible positive trends, with the percentage without a High School diploma dropping from 40% in 2010 to 32% in 2016 and the percentage employed at entry increasing from 19% in 2010 to 37% in 2016.

In terms of household characteristics, home visitors documented that 61% of mothers in Hartford were experiencing financial difficulties at entry, compared to 58% of mothers in New Haven and 52% of mothers statewide. Interestingly, of the mothers entering NFN in Hartford, 85% were already receiving WIC and 50% were receiving Food Stamps, compared to lower rates in New Haven (70% and 21%, respectively) and statewide (73% and 30% respectively). While NFN is clearly enrolling mothers from disadvantaged social groups and social locations across the state, these differences may indicate greater availability, coordination and/or cultural support of government assistance programs in Hartford relative to the rest of the state. The only other clear source of regional variation is that Hartford mothers are more likely to own/rent their own home, whereas New Haven mothers are more likely to share a home with other family members.

Pregnancy and Birth Characteristics

Home visitors also record maternal health behaviors during pregnancy, including cigarette smoking, alcohol use, and other substance use. From 2012 to 2016, the rate of cigarette smoking during pregnancy has ranged from 4% to 8%, the rate of alcohol consumption during pregnancy has

ranged from 2-4%, and illicit drug use only increased one percentage point from 5% to 6% in 2016 (see Table 22 in appendix).

Mothers whose babies are born prematurely, with low-birth weight, or with serious medical concerns face additional challenges and stress, potentially requiring additional support and services (see Table 22 in appendix for detailed birth outcome data from 2012-2016). Table 5 presents data on birth outcomes for mothers who enrolled in 2016 statewide as well as separated for Hartford and New Haven regions. Thirteen percent of births were premature in 2016, which is slightly above the rate of 10.5% for the state of CT (Connecticut Vital Statistics Report, 2007) and is consistent with prior years. In addition, 10% had low birth weight, which is slightly higher than the rate of 8.0% for the general population of the state (Connecticut Office of Vital Statistics, 2008-2010) and is consistent with 2015 rates (10%) in NFN. The 2016 rate is, however, a decrease from the rates reported in 2012 and 2013 (14% and 16%, respectively). Additionally 14% of children were born with serious medical problems in 2016, which is slightly higher than prior years for mothers enrolling in NFN.

In terms of regional variation, there was a much higher percentage of premature births in Hartford NFN (18%) compared to NFN statewide (13%) and in New Haven (10%). The Hartford rate is also well above the rate in the Connecticut population overall (10.5%). There was also a sizable difference between rates of children born with low birth weight statewide and in Hartford (10% and 9%, respectively) compared to New Haven (5%). These data further indicate areas where home visitors are required to adapt or modify support strategies as needed, in particular in Hartford.

Table 5. Mothers' Pregnancy & Birth Information, 2016

	2016 Statewide	Hartford	New Haven
Pregnancy and Birth Outcomes	***N = 488***	***n = 120***	***n = 156***
Mother's Risk behaviors during pregnancy			
Smoked Cigarettes	4%	2%	3%
Drank alcohol	3%	1%	6%
Used illicit drugs	6%	4%	5%
Birth Outcomes	**N = 459**	**n =107**	**n = 135**
Premature Birth (before 37 weeks gestation)	13%	18%	10%
Low Birth Weight (under 5lbs 8oz)	10%	9%	5%
Born with serious medical problems	14%	13%	15%
Child has a Pediatrician	98%	95%	99%

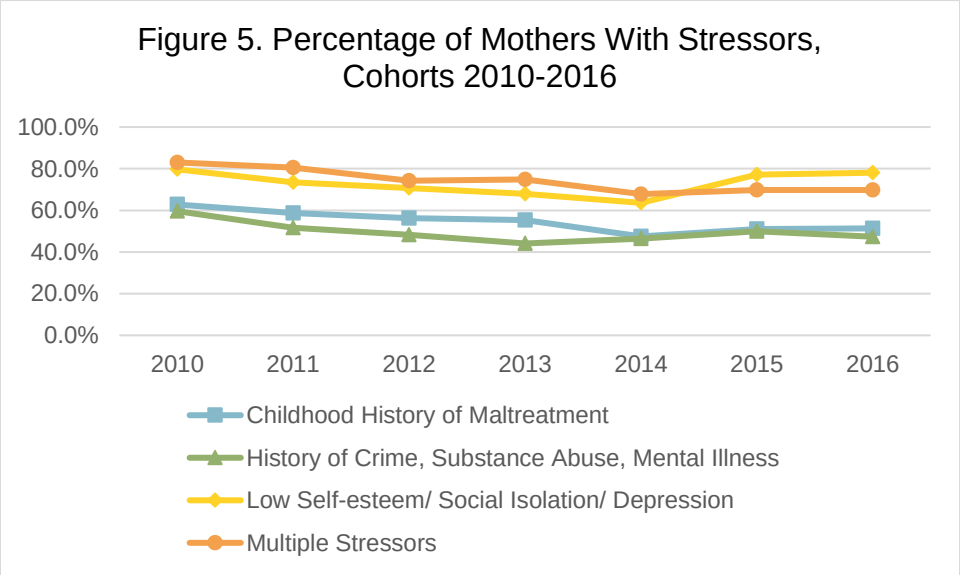
Stress Profiles Predictive of Risk

The Kempe Family Stress Checklist, administered through a semi-structured interview prior to program enrollment, is one of the most widely used assessments for risk of child maltreatment. It covers ten areas:

- Childhood History of Maltreatment;
- History of Crime, Substance Abuse, Mental Illness;
- CPS (Child Protective Services) History;
- Low Self-esteem, Isolation, or Depression;
- Multiple Stresses;
- Potential for Violence;
- Unrealistic Negative Expectation of Child;

- Harsh Punishment (or beliefs in harsh punishment);
- Negative Perception of Child; and
- Child Unwanted or at Risk of Poor Bonding.

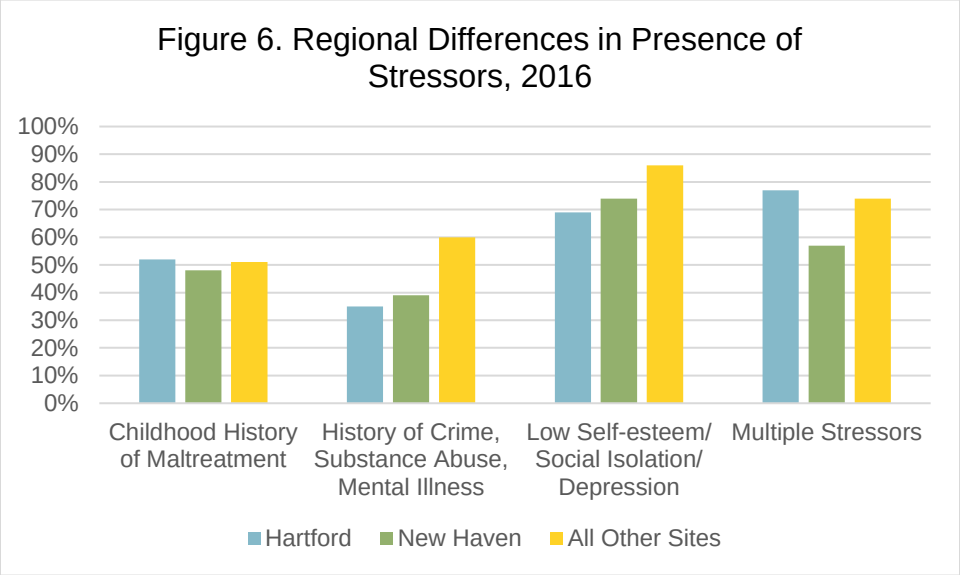
Research has shown that there is a cumulative risk for families who experience two or more factors (Appleyard, Egeland, van Dulmen, & Sroufe, 2005). Over 78.5% of mothers participating in NFN since 2010 had experienced at least two of the above risk factors (at moderate to severe levels), with an average of four risk factors across all families. Figure 5 presents the percentage of families entering NFN each year since 2010 with severe or moderate levels of each of the four most common risks/stressors (see Tables 19-21 in the appendix for full details).



As indicated in Figure 5, there has been a consistently high rate of mothers experiencing overlapping risk factors since 2010. For each of the past seven program years, more than 68% of mothers (and as many as 83%) experienced multiple and significant stressors in their lives, often related to financial challenges. Over 64% of mothers (and as many as 80%) indicated they experience low self-esteem, social isolation and/or depression. At least 48% (and as many as 63%) of mothers had at least some childhood history of abuse or neglect, and over 44% (and as many as 60%) were noted as having a history of crime, substance abuse, or mental illness. The results of the Kempe indicate that the program identifies, recruits, and serves a population of parents who experience a tremendous degree and range of stressors, and therefore who are at risk of maltreatment.

Figure 6 shows the regional findings for each of the four main items associated with risk for child maltreatment, comparing Hartford and New Haven to all other sites. Whereas the percentage of enrolling mothers who had experienced maltreatment as a child is relatively constant across all regions of Connecticut (ranging from 48% to 52%, no significant differences), Figure 6 shows some regional variation in the other stressors. For instance, while 39% of New Haven mothers and 35% of Hartford mothers have a History of Crime, Substance Abuse, and/or Mental Illness, 60% of mothers from Western/ Central/ Eastern regions had such a history, and this difference is statistically

significant (p<.001). Furthermore, 69% of mothers from Hartford and 74% of mothers from New Haven enter the program experiencing Low Self-Esteem, Social Isolation, and/or Depression, which is significantly lower than the 86% of mothers from the Western/ Central/ Eastern regions (p<.05). Lastly, 74% of mothers from the Western/ Central/ Eastern regions and 77% of mothers from Hartford entered the program experiencing multiple stressors, while a significantly lower 57% of mothers from New Haven did (p<.001).



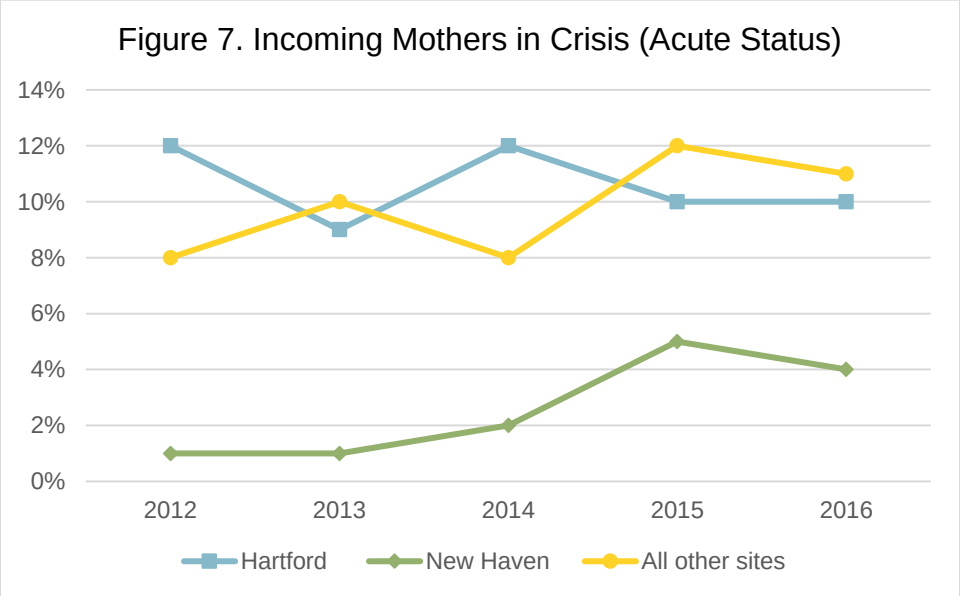
In sum, these data indicate that NFN families confront a multitude of stressors of varying magnitudes that also vary by region of the state, indicating that home visitors are required to adapt or modify support strategies to meet a wide variety of needs unique to the families and communities they serve. In general, mothers from New Haven, while experiencing significant risk factors, are somewhat better off relative to mothers in other parts of the state in terms of experiencing multiple stressors, socio-emotional stressors, and histories of crime, substance abuse and/or mental illness. In contrast, mothers in the more rural Western, Central and Eastern regions of the state tend to be significantly worse off, with higher levels of these major stressors.

Families with Acute Stress

A subgroup of families within the population of high-risk families enter the program experiencing particularly "acute" levels of stress. According to NFN policy, families are documented as acute status when it is determined, through conversation or observation, that one or both parents are experiencing problems related to mental health, substance abuse, or interpersonal violence. When a family is experiencing acute stress, the clinical supervisor and home visitor attempt to link the family to appropriate services (e.g., In-Home Cognitive Behavioral Therapy) and, based on the family's progress over time, determine if the family is still appropriate for home visiting or is in need of more comprehensive or more targeted services.

In 2016, 9% of entering families were experiencing acute stress. This is lower than the 10% of families entering with acute stress in 2015, but higher than the average over the past five years. At program entry, mental health problems were noted most often, followed by substance abuse, and finally interpersonal violence. Figure 7 shows the percentage of families experiencing acute stress when they enter home visiting for the past five years separately for Hartford, New Haven, and Western/ Central/ Eastern regions. Comparing across regions, the percentage of mothers experiencing acute stress (at program entry) in 2016 was lower in New Haven (4%) than in Hartford (10%) and in all other sites (11%). Over the course of five years, Hartford has shown a relatively high percentage of families enrolling with acute stress, ranging between 9% and 12%. New Haven has substantially fewer mothers enrolling with acute stress, ranging between 1% and 5%, while all other sites are somewhere between New Haven and Hartford (ranging between 8% and 12%). On average over the five years, 3% of New Haven mothers enrolled with acute stress, compared to an average of 11% of Hartford mothers and 10% of mothers from all other sites.

However, the percentage of all families who received home visits in 2016 (n=1,979), which includes those who continued services from prior years as well as new enrollees, who experienced acute stress at some point during the 2016 program year is similar across regions – 7.8% (41) in Hartford, 7.0% (36) in New Haven, and 8.3% (78) statewide. The fact that regional differences in acute stress at entry wash out so that the prevalence of acute cases during the year become consistent across regions suggests that there may be regional differences in how staff identify, label, record, or treat these issues, warranting further investigation.



Outcomes

In this section, we present analyses of change in several of the outcomes that the program attempts to affect, capitalizing on the repeated nature of data collection for the majority of measures (i.e., entry, 6 months, 12 months, 24 months, 36 months, 48 months, 60 months). We present the results for outcomes including changes in mothers' life circumstances (e.g., employment, education), changes in mothers' attitudes towards their children and parenting (e.g., appropriate discipline, expectations), and changes in mother's knowledge and use of community resources. For the latter measures, we investigate further whether the changes depend on the amount of time that mother has been receiving home visits and whether there is meaningful variation across regions of the state.

Change in Mothers' Life Circumstances

Home visitors complete a questionnaire measuring the mother's life circumstances at entry, after 6 months, and then on their anniversary every year (up to 5 years). By tracking this data for each mother over the course of participation in the program, we can assess the effects of the program on one of the primary outcomes it attempts to improve – parents' life-outcomes. Importantly, the change in percentage of employed mothers provides an estimate of the impact of the program, as well as the probability of change for an average participant, although the experiences of specific individuals vary.

Have Mothers' Life Circumstances Improved after One Year of Home Visits?

Table 7 presents data regarding changes in education, employment, financial difficulties, and receipt of government assistance for mothers who completed at least one year for all sites statewide and separately for Hartford and New Haven regions. We test change between entry and the one-year time-point using the nonparametric Cochran Q Test.

Analyses show that mothers experienced significant improvements in most aspects of education and employment after 1 year of participation. Specifically, the percentage of mothers who graduated from high school or obtained a GED significantly increased after one year in the program for the Hartford region and for the other regions of the state (9% and 6% respectively), but did not increase for the New Haven region. Additionally, the percentage of mothers who were employed significantly increased after one year in the program for the rest of the state, as well as for both Hartford and New Haven regions.

Table 7. Percentage Point Change in Mother's Life Circumstances after One Year, 2010-2016

Mothers who participated for at least 1 year and were…	**Rest of State (n = 731)**	**Hartford (n = 266)**	**New Haven (n = 285)**
A high school/GED graduate or higher	6%***	9%***	2%
Employed	18%***	14%***	17%***
Employed full-time	6%***	6%**	6%**
Experiencing financial difficulties	-1%	-4%	-5%
Receiving government assistance	4%***	4%**	6%***

While financial difficulties are a source of stress for parents, even those who are somewhat financially stable are economically vulnerable and need some assistance to provide for their families. Therefore, whereas one might expect effective home visiting to correspond to a decrease in

financial difficulties as home visitors educate and support parents in making sound financial decisions and in locating and connecting to community resources, one might also expect the utilization of government assistance programs to increase for these very same reasons. In fact, families learn about available government assistance programs, such as WIC, TANF, and SNAP, at the start of their program involvement, as staff promote health, safety, and stability. Based on the data presented in Table 7, the percentage of mothers who were receiving government assistance increased significantly across all sites statewide. The percentage of those reportedly experiencing financial difficulties was not consistently or significantly lower after a year of home visiting, although clearly many factors affect financial matters of families outside of home visiting's sphere of influence.

These findings are important in documenting the success of the NFN program's two-generation focus, even though there are clearly forces other than participation in home visiting that affect mothers' educational, occupational, and financial outcomes. For instance, it seems only reasonable to expect that, in general, the longer mothers are in the program, the more likely they are to (return to) work or to continue their education, because their child is simultaneously getting older and is more likely to attend daycare. However, given that home visitors often provide intensive support and role-modeling for mothers' own personal development, which recall is one of the main goals targeted by the program model, it is very likely that home visitors' support contributes to these gains. In the least, these indicators reflect how parents' life circumstances change, and therefore how the nature of the support provided by home visitors must also change, during the course of program involvement.

Change in Parenting Attitudes

The Child Abuse Potential Inventory (CAPI) is a standardized self-report instrument that was designed to measure a parent's potential to abuse or neglect a child, and has been used by Child Protective Services agencies to determine if a more intensive (and intrusive) investigation into potential abuse and neglect is warranted (Milner, 1986). We use the Rigidity Subscale of the CAPI (i.e., CAPI-R) to assess changes in rigid parenting attitudes from entry to 6 months, 1 year and each consecutive year of family participation. The subscale is based on the theoretical assumption that rigid attitudes and beliefs lead to a greater probability of child abuse and neglect; mothers who have less rigid expectations of their children are less likely to treat their children forcefully. The average score for a normative population (i.e., parents who have not been investigated for child maltreatment) on the CAPI-R is 10.1, with a standard deviation of 12.5. The cut-off score on the CAPI-R is 30, with higher scores indicating an elevated risk for child maltreatment and poor parenting. For the purposes of this report, we analyze changes in mothers' CAPI-R scores after one year of home visiting in a pre-post design to assess the effects of program participation. A significant decrease on the Rigidity subscale would indicate that mothers are less likely to feel that their children should, for example, *always* be neat, orderly, and obedient. We also use average change in CAPI-R scores to assess the overall impact of the program in terms of meeting the *nurturing parenting* outcomes, and then analyze trends at the program level and potential variation across regions.

In 2016, NFN mothers entered the program with an average score of 24.0 (N=489), more than one standard deviation above the normative mean (10.1). Moreover, while 35.0% of the 2016 NFN cohort were at or above the cut-off of 30 points at program entry, only 5% of the normative population (i.e., those who have never been investigated for abuse or neglect) scores at or above the cut-off. These findings indicate that the mothers who enrolled in NFN in 2016 held very rigid

parenting attitudes and were therefore at an elevated risk for child maltreatment – the program reached its target population.

Have Mothers' Parenting Attitudes become Less Rigid after Receiving Home Visits?

In Table 8, we divide mothers who participated in home visiting between 2010 and 2016 into 6 *independent* "time-point groups" based on the length of their involvement in the program (i.e., those that completed 6 months, 1 year, 2 years, and so forth). For instance, mothers who completed entry, 6 month and 1 year measures but none after 1 year would only be included in the "1 year" time-point group. Table 8 presents the average CAPI-R scores for mothers when they entered the program, at the last time-point for which they completed the measure, the difference between these means, and standard deviation for this difference.

Table 8. Change in Rigid Parenting Attitudes, 2010 – 2016

Time-Point Group	N	Mean at Entry	Mean at Time-Point	Mean Difference	Standard Deviation
6 Month	433	26.8	21.4	5.4***	15.3
1 Year	654	26.3	20.4	5.9***	15.3
2 Year	310	26.5	17.6	8.9***	16.2
3 Year	181	26.3	16.1	10.2***	15.8
4 Year	142	24.6	15.1	9.5***	17.3
5 Year	73	25.5	13.3	12.2***	16.7

* Significant at p<0.05, ** Significant at p<0.01, *** Significant at p<0.001 (pairwise t-test).

[a] Six-month Time-Point collected at Hartford and New Haven sites from 2009-2012 and collected across all sites beginning in 2013.

As shown in Table 8, participants in all five time-point groups showed significant improvements (consistent with past annual reports), demonstrating that the program has the desired effect in terms of fostering nurturing parenting. Moreover, these results demonstrate that even those who only participated for 6 months had significantly less rigid parenting attitudes after receiving home visits, indicating that keeping families in the program for even a modest length of time produces important benefits.

Does Change in Mothers' Parenting Attitudes Depend on How Long They Have Been Receiving Home Visits?

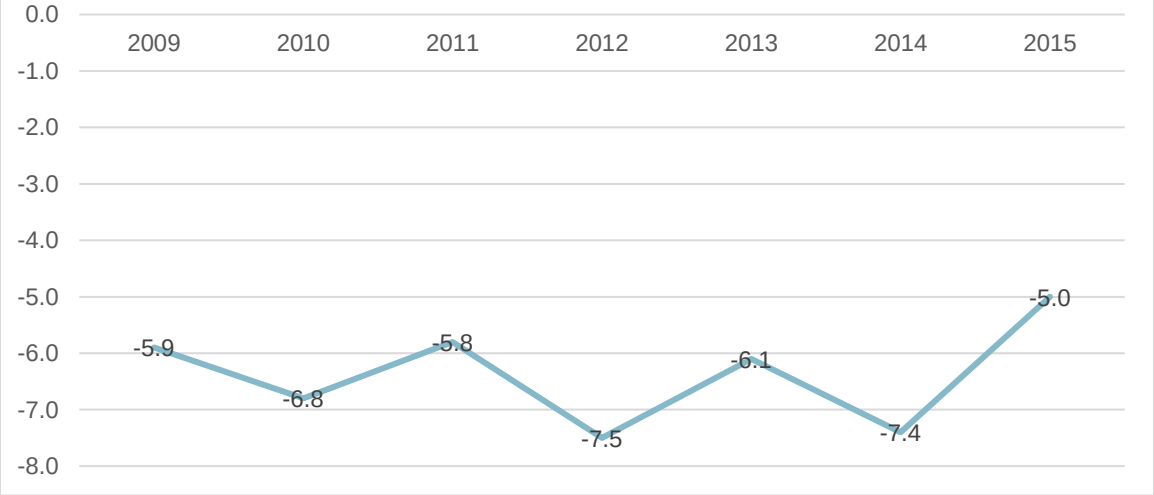
Because Table 8 presents change in CAPI-R scores for independent groups based on the length of their participation in the program, the findings provide insight into the different effects of different lengths of participation. That is, they can address the question – does it matter how long mothers stay in the program? Based on repeated measures analysis of variance for the data in Table 8, there is clear evidence that: 1) participation in the program significantly and moderately reduces rigid parenting attitudes, regardless of the length of time in the program ($F = 330.483$, $p<.001$, $\eta^2 = .156$); and 2) the longer mothers stay in the program, the greater the overall reduction in rigidity ($F = 6.107$, $p<.001$, $\eta^2 = .017$), though the effect of time in the program is *non-linear* ($F = 3.589$, $p<.003$, $\eta^2 = .010$) and relatively small. The fact that the improvement in rigidity is uneven over time suggests that it might be worthwhile for researchers to attempt to determine whether there are points at which the

benefits of continued program involvement begin to taper off. Importantly, unlike for data reported in 2015 (based on 2009-2015), the time-point groups (i.e., participants grouped according to their length of involvement) do not significantly differ in terms of their CAPI-R scores at program entry, suggesting that the five groups in Table 8 start program participation at similar levels of rigidity. Taken together, these results indicate that the program has the intended effect in terms of the nurturing parenting goal and that it has more overall impact the longer mothers stay in the program, but the average rate of change is slower for mothers who stay in the program longer (additional analyses available from the authors upon request). This most likely indicates that the program has a relatively immediate effect on nurturing parenting (e.g., during the first 6 months of participation), perhaps due to the immediate and explicit focus on educating parents on the importance and impact of parenting (especially attachment) on child development, and then has decreasing effects over time, though more research is needed to understand the effects of participation on individuals over time. In summary, this analysis provides evidence that the program has important beneficial effects on nurturing parenting attitudes as an outcome.

Are There Trends in the Program's Effects over Time?

In Figure 10, we present the amount of change on the Child Abuse Potential Inventory-Rigidity subscale (CAPI-R) after 1-year of participation for each cohort of mothers who began receiving home visits each year between 2009 and 2015, and thus have had the chance to be in the program for at least one year. As such, trends in these scores track the *performance of the program over time*, and allows us to use past performance as a baseline by which to interpret current performance. Because one goal of the program is to reduce rigid parenting attitudes, the *more negative* the score from program entry to one year in Figure 10, the more substantial the reduction in rigidity and the more beneficial the program.

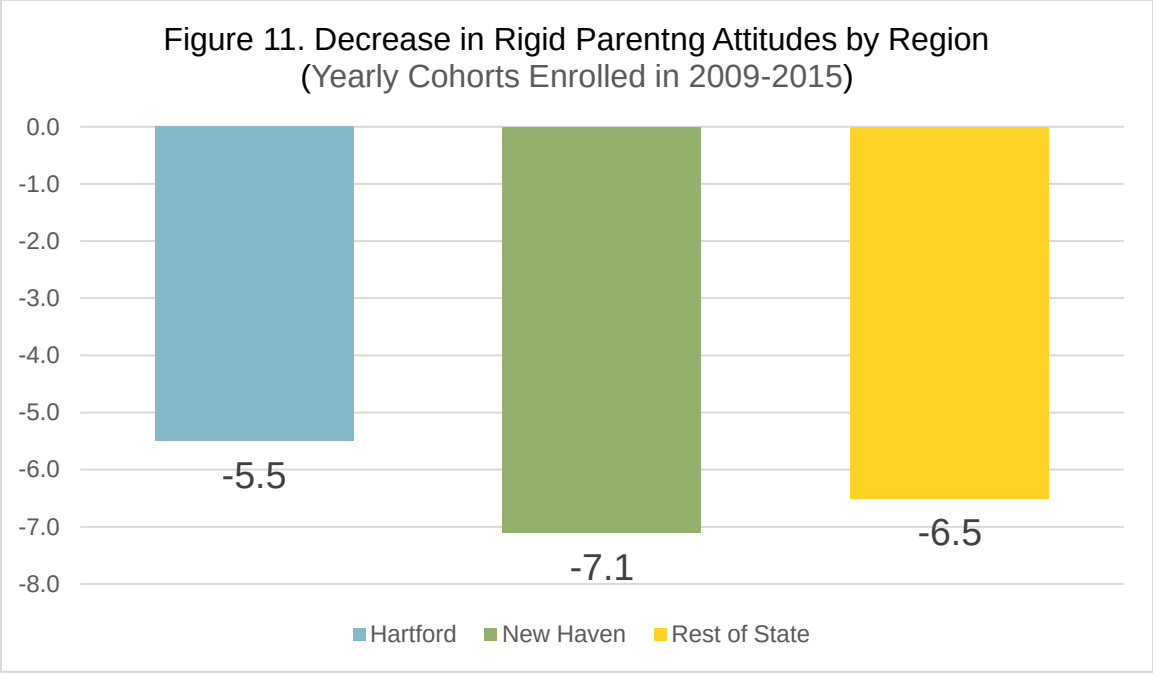
Figure 10. Decrease in Rigid Parenting Attitudes after 1 Year
(Yearly Cohorts Enrolled in 2009-2015)



Over this 7 year span, on average the score significantly decreased from 26.2 at entry to 19.8 after one year (an average decrease of -6.4 points, which is significantly less than 0, $p<.001$). It is noteworthy that mothers' average scores after one year of home visits fall within the normative range for this instrument (i.e., within one standard deviation from the mean of 10.1 for the normative population). Furthermore, the change score for each year in Figure 10 is significant, indicating that the program has continued to have a significant beneficial effect on mothers' parenting attitudes year after year, although the oscillating trend line indicates substantial variation that is random or unaccounted for, which suggests that there are likely other factors at play that determine year-to-year fluctuations in effects.

Do the Effects on Rigid Parenting Attitudes Differ by Region?

In Figure 11, we compare Hartford, New Haven, and Western/ Central/ Eastern regions on the aggregate 1-year change score for the CAPI-R for those who began receiving home visits between 2009-2015, and thus had an opportunity to participate for at least one year. The lower the change score from program entry to one year, the more substantial the change in rigid parenting attitudes (and the lower the bar in the graph).



Visual inspection of the bars in Figure 11 suggests that the regions may differ in terms of the program's impact on rigid parenting attitudes; but are these real differences or simply due to random error? A repeated measures analysis of variance on these data (i.e., comparing entry to 1-year CAPI-R scores across the three regions) provides further clarity regarding regional differences. First, the data again show significant change after one year in terms of rigid parenting attitudes as measured by the CAPI-R ($F=250.21$, $p<.001$, $\eta^2 = .131$), and individual paired t-tests confirm that this is true for each of the regions. Second, there is no significant difference in the *amount of change* in CAPI-R scores across regions, suggesting that the program has the same effect regardless of region ($F=1.137$,

p=.321), despite the apparent differences in the sizes of the bars in Figure 11. Finally, however, there are significant differences across regions in *overall* CAPI-R scores averaged across entry and 1-year time-points (F=29.662, p<.001, η^2 = .034). More specifically, Hartford sites exhibited significantly higher scores at entry than both New Haven (t=3.37, p<.001) and the rest of the state (t=6.21, p<.001), and New Haven mothers started out with significantly higher scores than the rest of the state (t=2.14, p=.03). Similarly, Hartford mothers had higher CAPI-R scores after one year of home visits than New Haven mothers (t=4.88, p<.001) and the rest of the state (t=7.51, p<.001), although New Haven no longer differed from the rest of the state after one year. Based on this data, we can conclude that the program has similar effects on this dimension of nurturing parenting regardless of region, but that the mothers participating in Hartford tend to be the most rigid in their parenting attitudes, followed by New Haven and the rest of the state. Most importantly, however, the *effects* of the program do not differ by region in terms of this outcome.

Change in Utilization of Community Resources

The Community Life Skills (CLS) scale is a standardized self-report instrument that measures knowledge and use of resources in the community. We administer the measure at program entry, and then after six months, one-year and each consecutive year during program participation. The CLS produces an overall score as well as scores on six subscales: Transportation, Budgeting, Support Services, Support Involvement, Interests/Hobbies, and Regularity/Organization/Routines. The overall (total) score on the CLS ranges from 0-33, with higher scores indicating more knowledge and effective use of community resources. This measure provides an outcome relevant to the goal of promoting healthy families, and research shows that greater knowledge and use of community resources results in a reduction personal/ familial stress, and therefore reduces the likelihood of child maltreatment.

Are Mothers More Knowledgeable about and Using Community Resources More after Receiving Home Visits?

In Table 9, we again divide mothers who participated in home visiting between 2010 and 2016 into 6 independent "time-point groups" based on the length of their involvement in the program (i.e., those that completed 6 months, 1 year, 2 years, and so forth). The table presents the average Total CLS scores for mothers when they entered the program, at the last time-point for which they completed the measure, the difference between these means, and the standard deviation for this difference. As a whole, the results for the CLS are remarkably similar to those obtained for the CAPI-R. Based on Table 9, participants in all five time-point groups showed significant improvements (consistent with past annual reports), demonstrating that the program has the desired effect in terms of fostering healthy families. Moreover, these results demonstrate that even those who only participated for 6 months had significantly greater knowledge and utilization of community resources after receiving home visits, indicating that keeping families in the program for even a modest amount of time produces important benefits.

Table 9. Change in Utilization of Community Resources, 2010 – 2016

Time-Point Group	N	Mean at Entry	Mean at Time-Point	Mean Difference	Standard Deviation
6 Month[a]	438	25.1	26.4	1.3***	4.2
1 Year	676	24.9	26.5	1.6***	4.4
2 Year	316	25.1	27.6	2.5***	4.3
3 Year	183	24.3	27.3	3.1***	4.8
4 Year	149	25.0	28.1	3.0***	5.0
5 Year	74	24.4	28.5	4.1***	5.3

* Significant at p<0.05, ** Significant at p<0.01, *** Significant at p<0.001 (pairwise t-test).

[a] Six-month Time-Point collected only at Hartford and New Haven sites from 2009-2012 and collected across all sites beginning in 2013.

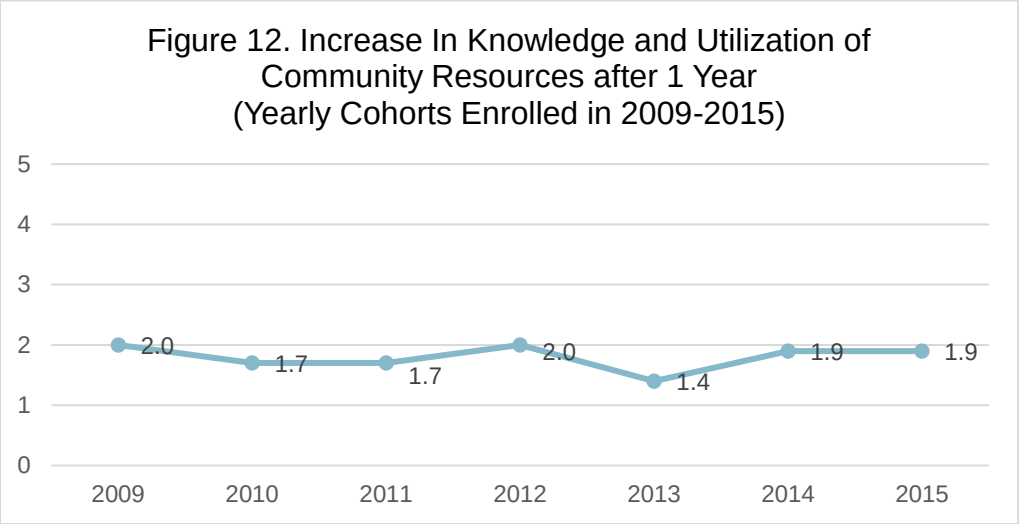
Does Change in Knowledge and Utilization of Community Resources Depend on How Long They Have Been Receiving Home Visits?

Because Table 9 presents change in CLS scores for independent groups based on the length of their participation in the program, the findings provide insight into the different effects of different lengths of participation. That is, they can answer the question – does it matter how long mothers stay in the program? Based on repeated measures analysis of variance for the data in Table 9, there is clear evidence that 1) participation in the program significantly and moderately increases knowledge and utilization of community resources, regardless of the length of time in the program ($F = 371.009$, $p<.001$, $\eta^2 = .169$); and 2) the longer mothers stay in the program, the greater the overall increase in CLS score ($F = 11.600$, $p<.001$, $\eta^2 = .031$), though the effect of time in the program is non-linear ($F = 2.543$, $p<.027$, $\eta^2 = .007$). As was the case with CAPI-R scores, there were no significant differences in CLS scores across the time-point groups *at entry*, suggesting that the time-point groups are relatively similar when they start the program. However, there were significant differences across groups at their final measurement before leaving the program. Taken together, these results indicate that the program has the intended effect in terms of the goal of fostering healthy families and that it has more overall impact the longer mothers stay in the program, but the average rate of change is slower for mothers who stay in the program longer (additional analyses available from the authors upon request). Most likely, this reflects that the program has a relatively immediate effect on knowledge and use of community resources (e.g., during the first 6 months of participation) and then has decreasing effects over time, though more research is needed to understand the effects of participation on individuals over time. In summary, this analysis provides evidence that the program has important beneficial effects on outcomes related to promoting healthy families by connecting them to community resources.

Are There Trends in the Program's Effects?

In Figure 12, we present 1-year change scores on the Community Life Skills (CLS) scale for each cohort of mothers who began receiving home visits each year between 2009 and 2015, and thus have had the chance to be in the program for at least one year. Because one goal of the program is to foster healthy families by increasing their connection to and use of community resources, the *more positive* the score in Figure 12, the more beneficial the program. As such, trends in these scores track

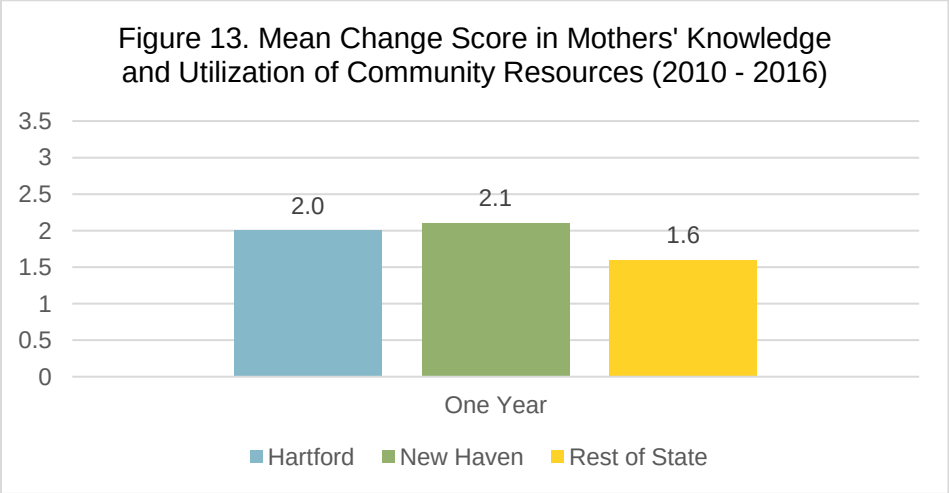
the *performance of the program over time*, and allows us to use past performance as a baseline by which to interpret current performance.



For each of the cohorts, 2009 through 2015, there was a significant increase in CLS scores after one year of participation, increasing from 24.8 at entry to 27.4 after one year ($p<.001$). As with the CAPI-R, the change score for each year in Figure 12 is significant, indicating that the program has had a consistent, significant, and beneficial effect on this outcome year after year.

Do the Effects on Knowledge and Utilization of Community Resources Differ by Region?

In Figure 13, we compare Hartford, New Haven, and Western/ Central/ Eastern regions on the aggregate 1-year change score for the CLS for those who began receiving home visits between 2009-2015, and thus had an opportunity to participate for at least one year. The higher the change score from program entry to one year, the more substantial the change in mothers' knowledge and utilization of community resources and the higher the bar in the graph.



Based on the data presented in Figure 13 and a repeated measures analysis of variance, all regions significantly improved in their knowledge of and use of community resources as measured by the CLS ($F = 272.219$, $p < .001$, $\eta^2 = .129$), and individual paired t-tests confirm that this is true for each of the regions. Furthermore, there is no significant difference in the *amount of change* in CLS scores across regions, suggesting that the program has the same effect regardless of region ($F=0.839$, *n.s.*), despite any apparent differences in the sizes of the bars in Figure 13. Finally, however, there do appear to be slight but significant differences across regions in *overall* CLS scores averaged across entry and 1-year time-points ($F = 3.20$, $p < .041$, $\eta^2 = .003$). Mothers' CLS scores at entry do not differ across regions (suggesting that the populations served do not differ), and so this effect is due entirely to differences after one year of participation. Specifically, after one year in the program, mothers have greater knowledge and use of community resources in New Haven ($t = 2.60$, $p = .009$) and Hartford ($t = 1.94$, $p = .052$) than in the rest of the state, although these two urban areas do not differ from one another. The fact that home visitors are more effective in connecting mothers to community resources in Hartford and New Haven than in the rest of the state is not surprising given the rural nature of many of the communities outside of these two urban centers. Overall, these results mirror those for rigid parenting attitudes, and show that families are making progress in an important area that program services are attempting to improve – promoting healthy families.

Father Home Visiting Program

While fathers have always been invited to participate in home visits, NFN home visiting services have typically focused on mothers. In 2008, via the CQI process, traditional NFN home visiting services were redesigned to be more father-focused, and in 2009, a home visiting pilot for fathers officially began at five NFN sites. Over the course of two years, 2009-2011, Father Home Visiting expanded to 11 sites across Connecticut, and one more site was added in 2016.

Although male home visitors are trained on particular approaches for engaging fathers as noted in the program overview (see page 12), in many ways, home visits for fathers are comparable to standard NFN home visits. That is, services are offered on a weekly, bi-weekly or monthly basis; home visitors use an evidence-based foundational parenting curriculum (Parents as Teachers) during home visits; and case management services are provided as needed (e.g., related to employment, education, mental health). As of the end of 2016, a total of 443 fathers had received home visits at 11 sites, with 51 fathers entering NFN in 2016. Fathers are primarily recruited through mother participants and are screened on 17 items on the REID screen (similar screening as with mothers only adapted for primary father figures, see appendix, Table 14).

In this section, we present data on recruitment rates for the past 3 years, fathers' demographic characteristics, family history of and current stressors that are predictive of risk, retention rates, and outcome data on parenting attitudes and beliefs. Where possible, we compare findings with data on traditional home visiting services for mother participants.

Father Characteristics and Levels of Stressors

On average, father participants are younger than mother enrollees. Over 29% of fathers who enrolled in NFN services in 2016 were 26 years and older (compared to 39% for mother enrollees). The median age of fathers who enrolled in NFN services in 2016 was 22 years old (23 for mothers). Forty-four percent of participating fathers reported they were Hispanic/Latino, and just under one quarter (24%) of fathers indicated they were African American or Black, and another 24% indicated they were White. While 82% of mothers had completed high school, it was 54% for fathers. Approximately 48% of fathers were employed, and of these fathers, 35% were employed full-time. There was a higher rate of prior arrests among father participants (43% compared to 13% for mothers), while only 66% of fathers were experiencing financial difficulties (as documented by the home visitors) compared to 82% of mothers. Furthermore, a higher percentage of fathers were experiencing social isolation (27%) compared to mothers (20%).

Table 10 presents results from the Kempe Family Stress Inventory assessing history and current indicators of stress for all fathers enrolled since 2009. Indicating that the program reaches a high-risk population, fathers who have enrolled scored in the mid to severe range for the following items on the Kempe Family Stress Inventory: 68% for a Childhood History of Abuse or Neglect; 65% for a History of Crime, Substance Abuse, or Mental Illness; 82% for Multiple Stressors; 61% for Low Self-esteem/ Social Isolation/ Depression; and 27% for Potential for Violence. Compared to mothers statewide (see appendix, Table 19), a higher percentage of fathers scored in the mid to severe range for Childhood History of Abuse/ Neglect, History of Crime, Substance Abuse, or Mental Illness, multiple stressors, and Potential for Violence. However, a lower percentage of fathers, as compared with mothers, scored in the mid to severe range on Low Self-esteem/Social Isolation/Depression. These data indicate that the stressors experienced by fathers (past and current) may differ from those

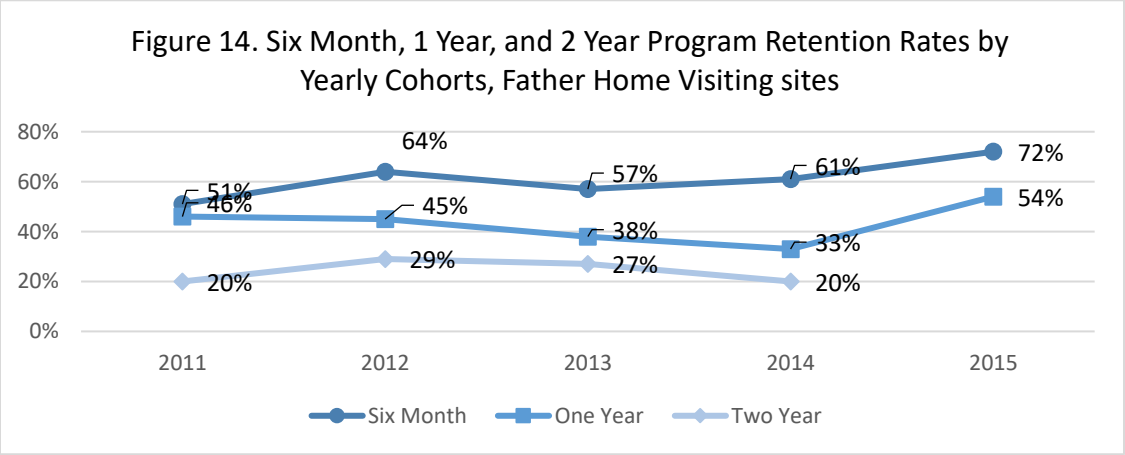
experienced by mothers, which may indicate that home visitors face unique challenges in meeting fathers' needs.

Table 10. Fathers' Scores on the Kempe Family Stress Inventory, 2009-2016

Items on Kempe Checklist (N=276)	% Experiencing at a Moderate to Severe Level
Childhood History of Abuse/ Neglect	68%
History of Crime, Substance Abuse, Mental Illness	65%
CPS History	17%
Low Self-esteem/ Social Isolation/ Depression	61%
Multiple Stressors	82%
Potential for Violence	27%
Unrealistic Expectation of Child	43%
Harsh Punishment	7%
Negative Perception of Child	12%
Child Unwanted/ Poor Bonding	80%
Mean Total Score	29.8

Program Retention- Father Home Visiting

Program retention rates show the length of time fathers are engaged with the program. Figure 14 displays six-month, one-year, and two-year retention rates shown by the year fathers enrolled in the program (i.e., "cohorts").



Over the course of the previous five years, retention rates for each length of involvement have fluctuated. For families who entered the program in 2015 (and thus have had the opportunity to be enrolled in the program for at least one year), 72% remained in the program for at least six months and 54% remained in the program at least one year. This most recent cohort has a much higher six-month and one-year retention rate compared to the traditional mother home visiting services (i.e., 61% of mothers remained in the program for six months, and 47% remained in the program for one year, see Fig. 8), as well as what was found for earlier years of the program. Two-year retention rates increased from 20% in 2011 to 29% in 2012, then dropped to 20% in 2014, which also differs from

the increase seen for the traditional statewide retention rates for mothers in 2014 (see Fig. 8). It is important to keep in mind that these changes in retention rates may reflect random fluctuations, especially given the relatively small sample size, and so we caution against over-interpretation. For all families who have had the opportunity to be in the program for five years (2009-2011), the average length of involvement is approximately 17 months, while the median length of involvement is approximately 8 months. These are shorter than similar measures for mothers, who are, on average, involved in the program for 22 months, with 11 months as the median length.

Change in Parenting Attitudes, Father Home Visiting, 2009-2016

As with mothers, we use the Rigidity Subscale of the CAPI (CAPI-R) to assess changes in rigid parenting attitudes over time as an indicator of the goal of fostering nurturing parenting. As with mothers, in Table 11, we divided groups based on the length of involvement in the program and compared change scores for those who completed 6 months, 1 year, or 2 years (longer time-point groups are too small for meaningful analysis). The higher the score from program entry (pre) to the given time point (post), the more substantial the change.

Table 11. Change in Rigid Parenting Attitudes, 2009 – 2016

Time-Point Group	N	Mean at Entry	Mean at Time-Point	Mean Difference	Standard Deviation
6 Month	109	29.9	25.4	4.5**	16.7
1 Year	98	29.3	15.3	13.9***	21.6
2 Year	34	23.1	20.1	2.9	13.4

* Significant at p<0.05, ** Significant at p<0.01, *** Significant at p<0.001 (pairwise t-test).
[a] Six-month Time-Point collected at Hartford and New Haven sites from 2009-2012 and collected across all sites beginning in 2013

Analysis of the CAPI-R data show that NFN fathers come into the program with scores indicative of high-risk. For fathers entering NFN from 2009-2016 (N=300), the CAPI-R total mean score was 28.9, more than one standard deviation from the general normative population and just below the cut-off score of 30. This entry score is significantly higher than mothers entry CAPI-R score of 26.1 ($t = 2.85$, $p < .01$). Moreover, there are significant reductions on the rigidity subscale for all fathers who completed six months and one year, whereas differences for the two-year time-point group are not significant, perhaps due to the small number of fathers who remained for two or more years.

Beliefs about the Role of Fathers, Father Home Visiting, 2009-2016

The Role of the Father Questionnaire (ROFQ) is a self-report inventory that assesses an individual's beliefs about how important the role of fathering is in raising a child. Scores on the ROFQ range from 15 to 75, with higher scores reflecting belief in greater involvement and a strong emotional relationship with their child. For instance, items on the ROFQ include: "it is essential for the child's well-being that fathers spend time interacting and playing with their children", "the way a father treats his baby in the first six months has important life-long effects on the child", "it is difficult

for men to express tender and affectionate feelings toward babies" (reverse coded); and "mothers are naturally more sensitive caregivers than fathers" (reverse coded).

Participants in the fatherhood home visiting program complete the ROFQ at program entry, after six months, and then annually, as an indicator for nurturing parenting. For fathers who entered in 2016, the average entry ROFQ score was 62.4 (N=27), comparable to the fathers that entered in 2014, 61.9 (N=36), and all father enrollees since services began for fathers, 62.4 (N=229). These relatively high scores *at entry* indicate that fathers who enroll in the program value their involvement with their children prior to program interventions.

Table 12 presents all available data for fathers who have participated in fatherhood home visiting since the program started in 2009. Even though fathers have high scores at program entry, data in Table 12 show small improvements for fathers who completed 6 months and 1 year of program services, though none of the differences are significant.

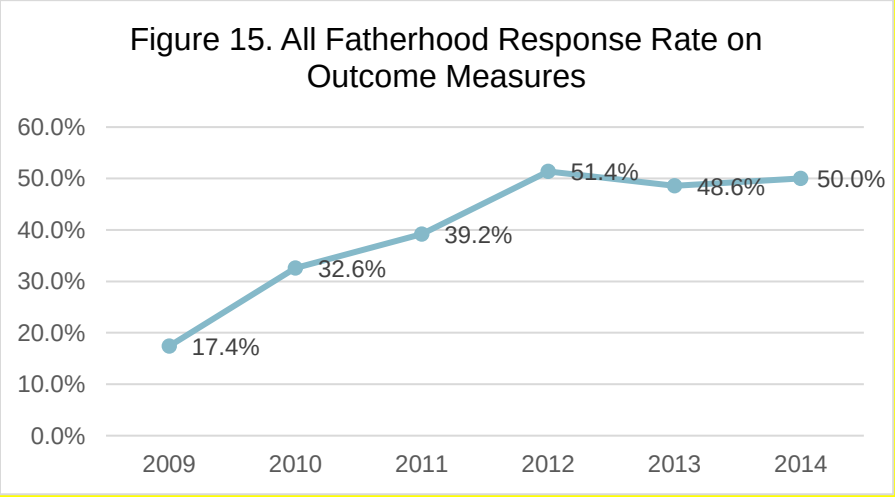
Table 12. Change in Role of Father Beliefs, Father Home Visiting Data, 2009 – 2016

Time-Point Group	N	Mean at Entry	Mean at Time-Point	Mean Difference	Standard Deviation
6 Month	66	62.3	64.0	1.7	9.3
1 Year	39	63.1	65.5	2.4	10.5
2 Year	16	61.4	66.0	4.6	9.8

* Significant at p<0.05, ** Significant at p<0.01, *** Significant at p<0.001 (pairwise t-test).

Low Response Rates for Fathering Home Visiting Inhibits Evaluation

Note that due to a low response rate for outcome measures, we recommend caution in interpreting the findings on father home visiting services. Figure 15 displays the percentage of fathers who completed outcome measures out of those who were confirmed to be receiving home visits at the time-point (e.g., 6 months, 1 year), and thus were expected to complete the measure.



While the response rates for fathers are certainly troubling and make meaningful evaluation challenging, also note that the rate of completed measures for each year has improved from 39% in 2011 to 50% in 2014. In comparison, the traditional home visiting program for mothers, which has over 20 years experience participating and utilizing systematic evaluation, has maintained a very respectable average response rate of *at least* 78% on outcome measures for each of the past 6 years. Data collection/submission for the fatherhood program should be more closely monitored at the programmatic level to ensure this improving trend continues, as reliable data collection is necessary to tell the full story of program progress and its effects.

Summary, Implications, and Recommendations

This section summarizes the key findings from the report in terms of four key areas – screening/enrollment, characteristics of families receiving home visits, outcomes for mothers and children after receiving home visits, and father home visiting. We also present recommendations based on the implications of these findings for both the future of evaluation/research and for program practices. Three focal themes, along with associated questions for future investigation, cut across these findings and recommendations and were identified by researchers and program staff as vital for program development as the OEC continues to move toward a coordinated and comprehensive system of family support services that integrates multiple models and funding streams. Below, we briefly describe each of these themes and then summarize each of the four key areas of research findings, providing recommendations relevant to each area.

1. Variation across Regions and Program Sites (And Eventually across Program Models)

In this report, we have included analyses investigating differences across regions in terms of the recruitment of families for NFN home visiting, the characteristics of families who enroll in NFN home visiting, the stressors they most often face, and the outcomes of their participation in the program. These analyses provide important insights about program successes and challenges, and they raise additional questions with practical implications that should be addressed through future research and analyses.

- While statewide trends in screening and recruitment indicate an overall decreased in screening but with increased efficiency (in terms of identifying eligible parents), we also found differences between New Haven, Hartford and the rest of the state. This variation may reveal differences in the rate and/or success of adopting a new policy in 2012 that prioritized the face-to-face screening and recruitment of "high-risk" (i.e., eligible) mothers and de-prioritized "light-touch" services, such as Nurturing Connections phone support.
- The results in this report also document differences across regions in the population(s) served by NFN home visitors in terms of demographic and family characteristics such as race/ethnicity, education, age, and employment. Research should investigate whether these differences reflect differences in the population targeted (e.g., the community served), differences in the screening/enrollment process, or differences in the receptivity of the population? These findings also raise questions about whether these differences correspond to different needs of the families served, and if so, whether families with different needs require different strategies of support.
- While existing data may shed light on variation across program sites, information about site characteristics and resources is critical for understanding these differences. The newly adopted data systems promise to allow comparison across different home visiting program models (e.g., NFN vs. NFP), but care must be taken in choosing and interpreting comparisons across models as many differences are potentially indistinguishable as causes for variation across program model.

2. Programmatic Innovation

Throughout this report, we have highlighted instances where the results provide insights into the effects, and effectiveness, of programmatic innovation. While the NFN program has an impressive history of using research to guide changes to program policy and practice (e.g., Hughes et al. 2008; Hughes et al. 2016), several findings in this report highlight the reality that even "small" changes in practice/policy can have big, sometimes unintended, effects, while some "big" changes can have rather subtle effects. As a result, it is worthwhile to consider how changes to program practices and policies can be developed, implemented, and monitored more *systematically* in order to continue to improve the program in the most effective and efficient ways. Specifically, the following questions arise regarding this focal theme:

- Where and how can NFN engage all relevant stakeholders (e.g., FSPs, families) in planning and exploring ways to enhance program content, increase effectiveness, identify programmatic options, and ultimately define a coherent network of home visiting?
- How can NFN learn from past research findings and from the strategies developed by other sites, regions, or program models to improve the program and avoid reinventing the wheel?
- What role should research play in developing and evaluating the effectiveness of innovations moving forward?

3. Data collection, analysis and research

Over the twenty-two years the CSR has evaluated NFN home visiting, the scale and processes of data collection, analysis and evaluation research have expanded and evolved alongside the program. The NFN home visiting program is again at a crossroads, with the integration of multiple home visiting models and funding streams under the Family Support Services umbrella and the implementation of two new data systems (Penelope and ECIS) that will be used by program staff to record information about families in the program, their involvement with home visiting (and other services), and the outcomes of this involvement. Importantly, the new data systems are not affiliated with an external evaluator or research organization, but are either owned or administered by the state and the Office of Early Childhood. These transitions raise important questions about the resources and protocols that are necessary to ensure the relevance and quality of research evidence moving forward. Specifically, the following themes and questions arise in the context of future evaluation and data collection:

- Future research should focus on evaluating the efficiency and effectiveness of the program *across* subpopulations, regions, sites, and program models. In order to generate informative comparisons, researchers and staff must review and identify the outcome and process measures that are most relevant to the program, that are feasible to collect, and that facilitate the above comparisons. In general, data collection should align with recommendations made by the PEW "data for performance" initiative, MEICHV benchmarks, and other reporting requirements (e.g., PAT).
- Coordination of data collection (e.g., across models) and data management (e.g., across different databases) are essential, and will require substantial time, effort, and support through the transition period.

- Monitoring data quality, including improving response rates (especially for father home visiting) and ensuring the consistency of definitions of data items (especially across models and databases), is crucial for meaningful research and evaluation.
- Researchers, advocates, program leaders, and staff should come together to determine the questions that are most relevant to the program that future research can explore.

In the following sections, we highlight the findings, implications for future research, and recommendations relevant to the four key areas identified above.

Screening and Enrollment

Since 1999, NFN staff have screened 90,680 families, of which 32,037 (35%) were screened as high-risk and therefore eligible for home visiting services, and approximately 12,000 have received services, demonstrating the extensive reach of the program. Analyses presented in this report highlight several trends over time in the recruitment and retention of families in home visiting, as well as regional variation in these trends.

During the evaluation, the CSR research team continuously tracked the number and percentage of mothers who pass through *each* of the following stages of recruitment statewide, as well as for each of the regions separately: 1) screening for risk/eligibility, 2) offering the service, 3) accepting the service, 4) completing the "Kempe" Family Stress Checklist (an in-home assessment), and 5) initiating a first home visit. These data help discern trends over time in recruitment and enrollment that may reflect the consequences of programmatic changes, provide context for understanding the meaning of other process and outcome data, and highlight targets for future programmatic innovation.

1. Although the total number of screens has declined steadily since 2010, the percentage of screens that indicate high-risk has increased steadily during this same period, from 34% in 2010 to 45% in 2016. The result is that the program has identified a relatively stable *number* of eligible families, despite declines in the number of screens staff have conducted (see Fig. 16).

   Does this trend reflect (a) an increase in the efficiency of screening (i.e., staff are better at identifying, and therefore selecting for screening, those parents who will score positive), (b) an increase in the proportion of high-risk parents in the population, or (c) changes in the way that staff record or complete the REID screening tool? The overall pattern of results may also reveal how relatively small policy changes can have large effects, as the increasing rate of "high-risk" screens seems to correspond to recent policies prioritizing the face-to-face screening and recruitment of "high-risk" (i.e., eligible) mothers and de-prioritizing "light-touch" services such as Nurturing Connections phone support.

2. The percentage of families who ultimately enroll out of the total number of families eligible for services in a given year has decreased from 30% in 2010 to 23% in 2016 (see Table 2).

   Why? Does this reflect changes in the population recruited, the program, or the social/ cultural/ political environment in which home visiting is embedded? This is a very hard-to-reach population, but are some sub-populations harder to reach and/or to enroll than others?

   While the biggest "drop-offs" in the enrollment process have historically occurred at the stages of (a) accepting home visiting and (b) completing the Kempe, these rates have decreased steadily

since 2010. During this period, home visiting acceptance rates dropped from 60% to 52%, while Kempe completion rates dropped from 69% to 55%.

Why do these two stages consistently evidence the greatest attrition rates? What are the most effective strategies for successfully moving families through these two stages to maximize recruitment? How can the program develop overarching strategies and leadership for outreach, including consistent branding and messaging statewide, building connections with medical professionals and hospitals, and improving program infrastructure (e.g., universal screening, continuum of services, assessing current and future site capacity, workforce training)? How can the program best evaluate the effectiveness of these innovations and adapt them along the way?

Once home visitors engage families by completing the Kempe assessment, the vast majority (92-98%) of mothers initiate home visiting.

Why is the conversion rate consistently high at this stage? Does it reflect selection (i.e., something about the family) or causation (i.e., something about the process of completing the Kempe), or both?

3. There is meaningful **regional variation** in these trends. While the number of screens conducted across the state has declined steadily over the past 6-7 years (from 5,868 in 2010 to 4,870 in 2016), the number of screens conducted in Hartford and New Haven have fluctuated considerably. Relatedly, while the program as a whole has seen a noteworthy increase in the proportion of positive screens across the state, the increase has been far more dramatic in New Haven, whereas it has been somewhat erratic in Hartford. Specifically, Hartford and New Haven regions accounted for over 1,400 screens each in 2015 (out of a total of 5,539 screens). In Hartford, the number of screens conducted last year *increased* by more than 300 families, from 1,459 in 2015 to 1,791 in 2016. In contrast to Hartford, the number of screens conducted in New Haven *decreased* substantially (by approximately 40%) in the past year, from 1,404 in 2015 to just 856 in 2016. This overall reduction in screens in New Haven coincided with a tremendous increase in the percentage of positive screens, from 63% to 72% in just the last year (and from 44% in 2011).

   Why? Does this increase correspond to other changes, such as in staffing or other programmatic resources, external relationships (e.g., new referral sources), or the recruitment process?

   Why? Some program staff have suggested that this is the result of providing "education sessions" rather than administering the REID to families who would obviously screen negative, excluding them from the region's recruitment numbers. If correct, this shows how one 'small' programmatic shift can really change the data, intended or not.

4. **Trends for Nurturing Connections and Low-Risk Families:** There have also been noteworthy declines across the state as a whole in: 1) the number and percentage of screened families identified as low risk, 2) the number and percentage of low-risk families *offered* Nurturing Connections, and 3) in the number and percentage of those offered Nurturing Connections who *accepted* the service.

Does this simply reflect a shift toward funneling families to MEICHV funded sites? If so, how can you best track the enrollment of families across sites and models? If the decrease is "real," what are the implications for policy and practice? If this truly reflects decreased utilization of NC "phone support services," how can the program be better aligned with current interest and focus on universal screening and providing a continuum of services by identifying and filling such holes in the service net. This might be an opportunity for the OEC to capitalize on its developing knowledge and infrastructure for conducting PDSA cycles.

- In 2016, a total of 30 families enrolled in NFN home visiting who indicated low-risk on the REID screen (i.e., they were not eligible for home visiting based on established program criteria). While the program allows for exceptions, this appears to be a higher number than usual, yet many of these exceptions were not documented as they had been in the past.

  Do these exceptions, and lack of systematic documentation, represent program drift or rather the importance of maintaining systematic and comprehensive data collection/monitoring protocols?

5. **Prenatal Recruitment:** In 2016, only 11% of all mothers screened were prenatal at the time of screening but, of all mothers who ultimately enrolled, 50% were prenatal. This is very similar to the patterns reported for 2014 and 2015, where 8% to 10% of all mothers screened were prenatal while 42% of mothers who enrolled were prenatal. Among high-risk (eligible), prenatal moms were *more than three-and-a-half times more likely* to complete their first home visit than postnatal moms (53.7% vs. 14.9%).

   Because prenatal recruitment provides an opportunity for home visitors to affect birth outcomes and establish relationships of trust before the child's birth, this is clearly a very important programmatic focus. What do these data tell us in terms of policy and practice, and variation across regions, sites, and models? What are the effects *of prenatal enrollment on retention, participation and outcomes?*

6. **Regional differences in prenatal screening:** In the Hartford region, prenatally screened mothers were over *eight times* more likely to enroll than those postnatally screened (79% vs. 9%), whereas in New Haven prenatally screened mothers were less than two times more likely to enroll than those postnatally screened (34% vs. 18%), which is also a decline in the effect of prenatal recruitment for New Haven compared to 2015.

   Does this reflect differences in the types of sites or recruitment strategies and practices used in each region? Are there also regional differences in the effects of prenatal recruitment on retention, participation and outcomes?

Conclusions and implications:

1. It is critical to ensure that the program collects and reports detailed data on all stages of recruitment moving forward, as this provides invaluable insights regarding where the process can be improved and refined. Can the same tracking system for recruitment be used for all home visiting models and programs to facilitate trans-model and other relevant comparisons?

2. Coordination and monitoring of data collection are critical to ensure the integrity of results. How can these be facilitated with the introduction of ECIS and Penelope? What role will your selected research partner play?
3. How can analysis of variation across regions, sites, sup-populations, and models be facilitated by development/implementation of research protocols so that differences are interpretable and meaningful for guiding program innovation?

Characteristics of Families Served

As part of the evaluation, home visitors collect data on the mother's demographic characteristics (e.g., age, education, employment, marital status, race/ethnicity), characteristics of the household (e.g., who lives there, type of housing), and the type and intensity of stressors that the family experiences (especially those that are associated with increased risk of child maltreatment). Not only does collecting this data function as a way of establishing rapport with the family and gaining insight into their strengths, needs, and challenges, it also serves as a baseline for assessing both programmatic trends and individual change over time.

1. **Birth Outcomes**: The percentage of premature births was higher in Hartford NFN (18%) than statewide (13%) and in New Haven (10%). The Hartford rate is also well above the rate in Connecticut's population as a whole (9.3%). The percentage of children born with low birth weight was also higher in Hartford (9%) than in New Haven (5%) and in Connecticut as a whole (7.9%).

   Birth outcomes are and always have been a major focus of home visiting (e.g., pay for success funding models), so how can (and should) OEC put more intentional programmatic attention and energy toward improving birth outcomes? How can evaluation research be used to both guide and evaluate programmatic innovation around birth outcomes? Why are there such poor birth outcomes for Hartford?

2. **Regional variation** in stressors and risk factors: While the program is reaching a high-risk population in all regions of Connecticut, the specific risk factors, and thus the needs and receptivity of the mothers, may vary by region (see Fig. 6). Specifically,

   - History of Crime, Substance Abuse, and/or Mental Illness: Significantly more mothers in Western/Central/Eastern (60%) than in Hartford (45%) and New Haven (39%).
   - Low Self-Esteem, Social Isolation, and/or Depression: Significantly more mothers in Western/Central/Eastern (86%) than in New Haven (74%) and Hartford (69%), though rates are high in all three regions.
   - Multiple stressors (especially financial challenges): Significantly more mothers in Hartford (77%) and Western/Central/Eastern (74%) than in New Haven (57%).

     Why do the Western/Central/Eastern Regions appear to have a higher percentage of mothers who experience these types of stressors, with New Haven mothers appearing slightly better off than mothers in the other regions? Many of the communities making up the Western/ Central/ Eastern regions are rural; could it be that they are more isolated and have fewer resources or a sparser network of services? Do the urban communities within this region (e.g., Bridgeport)

look more like Hartford and New Haven, or more like the rest of the towns in the Western/Central/Eastern regions? How do program services vary across these contexts in both process and outcomes? What can be learned from one context that can be applied to other regions?

- WIC and Food Stamps: 85% and 50% of Hartford mothers compared to 70% and 21% of New Haven moms and 73% and 30% in the state as a whole.

  Does this variation indicate greater availability, coordination and/or cultural support of government assistance programs in Hartford relative to the rest of the state? Or does it reflect differences in need, as Hartford has one of the highest poverty rates in the country, which is not the case for New Haven?

- **Acute Stress:** Regional differences at program entry (4% in New Haven which is much lower than the 10% in Hartford and 11% in the rest of the state) "wash out" so that the rates of acute cases during the year actually become consistent across regions (7% in New Haven, 7.8% in Hartford, and 8.3% in Western/Central/Eastern).

  Does this indicate that there are regional differences in how staff identify, label, document, or treat these issues? Or does it indicate there are differences in the services provided to acute cases over time in each region? Or is there something different about the populations?

- **Reasons for Exit**: Over the past five years, there has been minimal variation in rates at which families exit the program (i.e., 6 month retention remains just under two-thirds, one-year retention remains just under 50%, and two-year retention remains around 30%) and in the reasons they provide for leaving. One of the most common reasons families leave the program is that home visitors are unable to locate the families (29-32%), while another 12-16% are known to have moved out of the catchment area.

  Were there indications "along the way" to exit? Are families who exit "early" less actively involved in home visiting? Are there other characteristics of the mothers, families, or sites providing the services that are associated with exiting "early" for this (or other) reason? What impact does the amount of "time in the program" have on outcomes?

Conclusions and implications:

1. Research investigating the effects of home visiting on birth outcomes would be an important addition to the evaluation of NFN, and would bring it into alignment with both national interest and other home visiting programs, such as NFP. Maggie Holland of Yale and her collaborators have received funding from NIH to link NFN data with birth records from the Department of Public Health to determine the impact of NFN participation on birth-outcomes for later children. OEC should explore additional funding opportunities to collaborate on this type of work that links administrative data sources (e.g., OEC data to DPH data) to investigate the impact of home visiting on more distal outcomes not directly measureable by the program. The OEC could also

conduct PDSA trials on methods for improving birth outcomes, perhaps starting with Hartford where we see unusually high rates of low birth weight and prematurity?

2. Research investigating differences in risk factors and stressors across regions, sub-populations and models, as well as the relationship between risk factors and outcomes, would provide additional insight regarding the population(s) served and the effectiveness of the program, and may highlight areas where strategies and solutions in one area can be applied to others.
3. With the addition of explicit measures of domestic violence and other areas related to "acute stress," what can we learn about the effectiveness of the program for families facing the most extreme and/or immediate stressors, including the regional differences apparent in existing data?
4. How can indicators of the reasons for exiting the program be improved to provide more insight on this important topic? How can this inform program practice and improve retention of families who appear to be more transient, and thus are likely under more stress?

Outcomes

As part of the evaluation, home visitors collect information on mothers' life circumstances (e.g., level of education, employment), rigid parenting attitudes (CAPI-R), and knowledge and use of community resources (CLS) at entry and then again after 6, 12, 24, 36, 48 and 60 months of participation. These repeated measurements allow the research team to examine the effects of the program on relevant parenting outcomes, as well as how these effects differ over time and across regions, by statistically comparing entry ("pre-test") to later ("post-test") measures.

1. **Changes in Life Circumstances**: After receiving one year of home visiting services, we see a 6- to 9-point increase in the percentage of mothers who had obtained their High School Diploma or GED, a 14- to18-point increase in the percentage of mothers who were employed (6-point increase in the percentage who were employed full-time), and a 4- to 6-point increase in the percentage of mothers who received government assistance (see Table 7).

   While improving the educational, employment, and financial circumstances of mothers is an important goal of NFN, and these are included in the PEW-recommended performance indicators, what are the most relevant analyses for assessing change in these indicators?

2. **Rigid Parenting Attitudes and Practices**

   - High-risk Population: In 2016, NFN mothers entered the program with an average score of 24.0 on CAPI-R, more than one standard deviation above the normative mean (10.1). Moreover, 35.0% of the 2016 NFN cohort were at or above the cut-off of 30 points at program entry, whereas only 5% of the normative population (i.e., those who have never been investigated for abuse or neglect) scores at or above the cut-off.

     These results clearly indicate that mothers enrolled in NFN in 2016 represent a high-risk population – they hold very rigid parenting attitudes, which research indicates are predictive of child maltreatment (see Milner, 1986).

- Change: While there has been some discussion on the suitability of this measure as an outcome (e.g., PEW did not considered CAPI to be a suitable indicator of parent-child interaction), a reduction in rigid parenting attitudes can only be interpreted as a positive outcome and may be seen as an end in-and-of-itself, since attitude change is often an intentional and proximal outcome of parent education. Results indicate that the program has the intended effect in terms of the nurturing parenting goal (i.e., as indicated by CAPI-R), even for those who only participated for 6 months, and has more overall impact the longer mothers stay in the program. The average rate of change, however, is slower for mothers who stay in the program longer (see Table 8).

  Does this pattern of results indicate that the program has a relatively immediate effect on nurturing parenting (e.g., during the first 6 months of participation, perhaps due to the focus on attachment in particular during this period) and then has decreasing effects over time? Are there differences in the types of parents who remain in the program for different lengths of time that explain the above differences in outcomes?

- Regional Variation: While home visiting reduced rigid parenting attitudes in all regions after one year of participation, and there are no significant differences in the amount of change across regions, mothers in Hartford were the most rigid overall, followed by New Haven and then the rest of the state.

  Does this reflect differences in the communities served, populations recruited, or how the program is implemented?

3. **Knowledge and Use of Community Resources**: We find essentially the same results for the Community Life Skills scale – mothers increased their knowledge and use of community resources even after just 6 months of home visits, the improvement is greater the longer they participate (though those who stay longer have a slower average rate of change), and there are no differences in the amount of change across regions (see Table 9).

   Interestingly, mothers in New Haven and Hartford had higher overall CLS scores than mothers in the other regions. Does this reflect differences in the density of resource networks in the different types of communities making up the regions?

Conclusions and implications:

1. While programs do not need to collect a lot of different outcome measures, it is critical that true outcome data are collected consistently and continuously.
   a. *Parent-child interaction* is a focus of home visiting nationally, and one of the outcomes recommended by the PEW initiative. This is partly true because parent-child interaction is one of the best predictors of CPS reports, but also because improving parent-child interactions is itself a goal of most home visiting programs.
      i. Can a common, valid indicator of this critical performance indicator be adopted across all sites and models?
      ii. Although CAPI is *not* a measure of parent-child interaction, is it still meaningful in the context of this program? Is it related to other outcomes such as parent-child

interaction or CPS reports? Prior to making a final decision regarding continuation of measures such as the CAPI-R, researchers should conduct a comprehensive review of current literature, conduct additional analyses on existing NFN data (e.g., do CAPI-R scores correlate with CPS reports?), and consult with the instrument's developers and others who have used it in research.

   b. What are the most relevant outcome indicators that can be obtained from other agencies or organizations (e.g., Child Protective Services cases, birth records)? What resources and processes are necessary for efficiently and effectively obtaining and merging administrative data from other agencies to facilitate analyses of the effectiveness of home visiting?

2. Regardless of the outcomes chosen, more research is necessary to understand the effects of participation on individuals over time, including controlling where possible for sample selection (e.g., types of mothers who are likely to enroll) and attrition (e.g., exiting from the program) to more clearly understand the effects of home visiting. Future research should focus on how individuals change (e.g., in the rigidity of their attitudes) over their course of participation in the program, to both identify different trajectories of change and the factors (e.g., stress profiles) that predict these different trajectories.
3. Regardless of the outcomes chosen, future research should more directly investigate factors explaining variation in parents' outcomes (and their predictors) across sites and models. These analyses require common measures, coordinated data collection, especially measurement time-points and administration protocols, and coordinated data management strategies (e.g., data entry protocols, compatible data bases) across sites and models.

Father Home Visiting

Home visitors collect essentially the same information about fathers who participate in the Father Home Visiting program as they do for mothers in traditional home visiting, with the addition of the Role the Father Questionnaire.

1. Since the program started in 2009, 443 fathers have received home visits at 12 program sites, with 51 fathers starting in 2016.

   Do these numbers align with program goals? Do future goals call for further expansion, or is it more important to focus on refining the program to more efficiently and effectively obtain desired outcomes?

2. **Retention:** For fathers who entered the program in 2015 (and thus have had the opportunity to be enrolled in the program for at least one year), 72% remained in the program for at least six months and 54% remained in the program at least one year. Similar to previous years, this most recent cohort has higher six-month and one-year retention rates than mothers in traditional NFN home visiting services (i.e., 61% remained six months, 47% remained one year). In terms of length of involvement, however, fathers remained for an average of 17 months and half stayed for at least 8 months, which is shorter than for mothers, who stayed in the program for an average of 22 months and half stayed for at least 11 months.

What do these retention rates, and the differences between mothers and fathers, tell us about the program? How can they help us to understand the optimal "dosage," and is it different for mothers and fathers? Are there retention strategies that work for one that can be helpful for the other?

3. **Outcomes:** Fathers enter the program with more rigid parenting attitudes than mothers (fathers average around 29 on the CAPI-R at entry, whereas mothers average around a 26 at program entry). Similar to mothers, however, even those who only stay in the program for 6 months appear to experience reduced rigidity. Because of insufficient sample sizes and the prevalence of missing data, analysis of change in outcomes for fathers participating in home visiting does not produce reliable results.

   Do the same outcome measures (performance indicators) that are, or that will be, collected for mothers make sense for fathers? Are there gender-specific measures that would be more appropriate to measuring the impact on fathers?

4. **Data Quality:** The rate of completed outcome measures for fathers has improved each year, from 17% in 2009 to 50% in 2014 (see Figure 15). In comparison, the NFN home visiting program for mothers has over 20 years of experience utilizing systematic evaluation and has maintained a very respectable average response rate of at least 78% on outcome measures for each of the same 6 years. Response/completion rates of 60% or less reduce statistical power and raise serious concerns about the validity of conclusions drawn from statistical analyses.

   How can the data collection and submission process for the father home visiting program best be monitored at the programmatic level to ensure this improving trend continues, as reliable data collection is necessary to tell the full story of program progress and its effects?

Conclusions and implications:

1. How can data collection be coordinated between mother and father home visiting programs?
2. How can the data be used to better understand differences between mother and father home visiting, including comparisons between mothers and fathers of the same child who both receive home visits?
3. What lessons learned from traditional home visiting can be applied to improve father home visiting and its evaluation moving forward, and vice versa?

Appendices

Table 13. The Revised Early Identification (REID) Screen for Determining Eligibility
1. Mother is single, separated, or divorced
2. Partner is unemployed
3. Inadequate income or no information
4. Unstable housing
5. No phone
6. Education under 12 years
7. Inadequate emergency contacts
8. History of substance abuse
9. Late, none, or poor prenatal care
10. History of abortions
11. History of psychiatric care
12. Abortion unsuccessfully sought or attempted
13. Adoption sought or attempted
14. Marital or family problems
15. History of, or current depression
16. Mother is age 18 or younger
17. Mother has a cognitive deficit

***FOR THE SCREEN TO BE POSITIVE**, 3 items must be true or 8 items must be unknown **or items 8, 11, 14, or 15 are present with one other item**

Table 14. The Revised Early Identification (REID) Screen for Determining Eligibility– Primary Father Figure
1. PFF is single, separated, or divorced
2. PFF is unemployed
3. Inadequate income or no information
4. Unstable housing
5. No phone
6. Education under 12 years
7. Inadequate emergency contacts
8. History of substance abuse
9. PFF has a history of arrests
10. PFF has experienced interpersonal violence (victim or perp)
11. History of psychiatric care
12. Abortion of considered by either parent
13. Adoption considered by either parent
14. Marital or family problems
15. History of, or current depression
16. PFF is age 18 or younger
17. PFF has a cognitive deficit

FOR THE SCREEN TO BE POSITIVE, 3 items must be true or 8 items must be unknown **or items 8, 10, 11, 14, or 15 are present with one other item**

Figure 16. Number of First Time Families Screened, 1999-2016

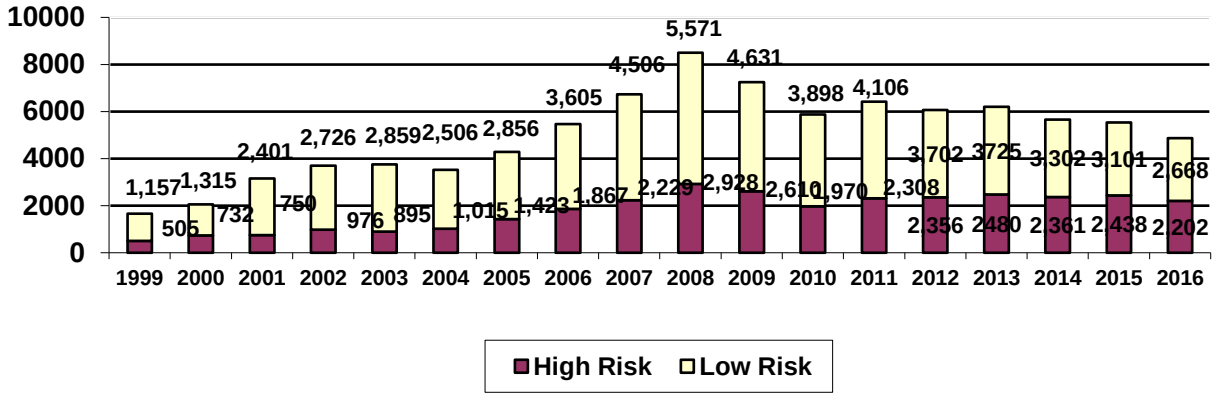


Table 15. NFN Screening, Statewide, 2011-2016						
	2011	**2012**	**2013**	**2014**	**2015**	**2016**
Number Identified at Low Risk	**4,106**	**3,702**	**3,725**	**3,302**	**2,663**	**2,668**
Offered Nurturing Connections	2689 (65%)	2329 (63%)	2044 (55%)	1862 (60%)	1459 (55%)	1503 (56%)
Accepted Nurturing Connections	1469 (55%)	1063 (46%)	866 (42%)	715 (38%)	527 (36%)	581 (39%)
Number Identified as Eligible	**2,308**	**2,356**	**2,480**	**2,361**	**2,340**	**2,202**
Offered Home Visiting	2030 (88%)	2023 (86%)	2133 (86%)	1944 (82%)	2050 (88%)	1916 (87%)
Accepted Home Visiting	1144 (56%)	1214 (60%)	1157 (54%)	1045 (54%)	944 (46%)	991 (52%)
Completed Kempe Assessment	758 (66%)	824 (68%)	739 (64%)	639 (61%)	562 (59%)	546 (55%)
Initiated Home Visiting	743 (98%)	780 (95%)	695 (94%)	602 (94%)	526 (94%)	512 (94%)
Offered Nurturing Connections	525 (23%)	529 (22%)	524 (21%)	488 (21%)	618 (26%)	331 (15%)
Accepted Nurturing Connections	249 (47%)	248 (47%)	217 (41%)	162 (33%)	186 (30%)	113 (34%)

Table 16. High-risk Families Not Offered Home Visiting, 2016	N=244
Home visiting was full	25%
Unable to get face to face contact/family discharged from Hospital	39%
DCF involved	15%
Out of catchment area	3%
Language barrier	3%
Other	16%
High-risk families offered Nurturing Connections	26 (11%)
High-risk families accepted Nurturing Connections	11 (42%)
* actual number of families not offered services is 285	

Table 17. Reasons High-risk Families Decline Home Visiting, 2016[ab]	N=898
Family has enough support	38%
Family not sure if they wanted home visiting	35%
Other member of household does not approve	5%
No time for home visits	5%
Other	23%
Family offered Nurturing Connections	304 (34%)
Family accepted Nurturing Connections	102 (34%)
[a] response are not mutually exclusive [b] actual number of families not offered services is 1106	

Table 18. Mother and Household Characteristics of Enrollees across Regions, 2016

	State NFN 2010-2015	State NFN 2016	Hartford NFN 2016	New Haven NFN 2016
Mothers Enrolled	**N = 4303**	**N = 629**	***N = 157***	***N = 196***
Screened Prenatally	43%	50%	57%	60%
Mother's Age at Program Entry	**N = 4174**	**N = 558**	**n = 135**	**n = 186**
Under 16 years	4%	3%	3%	3%
16 – 19 years	33%	23%	20%	24%
20 – 22 years	24%	20%	16%	20%
23 – 25 years	15%	16%	19%	13%
26 years and older	24%	39%	42%	39%
Median Age	21 years	23 years	24 years	23 years
Mother's Marital Status	**N = 3932**	**N= 557**	**n = 128**	**n = 178**
Single, never married	85%	78%	75%	78%
Married	13%	19%	20%	20%
Divorced, separated, widowed	2%	3%	5%	3%
Mother's Race/ Ethnicity	**N = 4269**	**N = 588**	**n = 137**	**n = 189**
African American or Black	20%	21%	29%	26%
Hispanic or Latina	47%	46%	50%	46%
Caucasian	24%	23%	7%	18%
More than one race	1%	1%	1%	0%
Other	8%	9%	13%	10%
Mother's Educational Attainment	**N = 3921**	**N = 555**	**n = 127**	**n = 178**
Less than high school	38%	32%	28%	24%
High school degree or GED	29%	21%	18%	20%
Vocational training or some college	25%	28%	29%	34%
College degree or graduate work	9%	19%	25%	21%
Mother Currently Enrolled in School	28%	21%	16%	20%
Mother's Employment Status	**N = 3894**	**N = 558**	**n = 127**	**n = 180**
Employed prior to pregnancy	49%	63%	58%	62%
Employed at program entry	26%	37%	37%	38%
Full-time	10%	11%	13%	9%
Part-time/ occasional work/ working more than one job	16%	33%	24%	36%
	N = 3641	**N = 543**	**n = 124**	**n = 174**
Financial Difficulties	70%	52%	61%	58%
Social Isolation	24%	20%	19%	19%
Arrest History	17%	13%	13%	12%
Receiving Gov. Assistance	**N = 3994**	**N = 515**	**n = 121**	**n = 165**
WIC	78%	73%	85%	70%
Food Stamps	32%	30%	50%	21%
TANF	9%	4%	7%	5%
Living in Household	**N = 4293**	**N = 578**	**n = 147**	**n = 163**
Maternal Grandmother	31%	13%	18%	17%
Father	42%	35%	32%	35%
Type of Housing	**N = 3871**	**N = 514**	**n = 121**	**n = 169**
Home owned/ rented by parent	34%	39%	47%	34%
Shared home with other family members	52%	48%	39%	52%
Shared home with friends	3%	3%	3%	2%
Shared home with strangers	1%	2%	1%	3%

Homeless shelter/ Group home/ treatment center	2%	2%	3%	4%
Other	8%	4%	5%	4%
Father's Involvement with Child	**N = 2595**	**N = 419**	**n = 90**	**n = 122**
Not applicable (prenatal)	9%	24%	18%	30%
Very involved	62%	57%	61%	52%
Somewhat or occasionally involved	14%	10%	11%	7%
Very rarely Involved	1%	2%	2%	2%
Does not see baby at all	15%	8%	8%	9%

[a] Differences in N across items are due to missing data for an item

Table 19. Mothers' Scores on the Kempe Family Stress Inventory - Statewide, Data, 2016[a]

Items on Kempe Checklist (N=513)[a]	0 Low	5 Moderate	10 High/Severe
Childhood History of Abuse/ Neglect	50%	16%	34%
History of Crime, Substance Abuse, Mental Illness	53%	25%	22%
CPS History	89%	7%	4%
Low Self-esteem/ Social Isolation/ Depression	22%	59%	19%
Multiple Stressors	31%	34%	35%
Potential for Violence	85%	4%	11%
Unrealistic Expectation of Child	72%	25%	2%
Harsh Punishment	91%	8%	1%
Negative Perception of Child	94%	5%	1%
Child Unwanted/ Poor Bonding	30%	67%	3%
Mean Total Score (N=513)		22.6	

[a] N = 458 for the overall measure, but sample sizes vary by item due to missing data.

Table 20. Mothers' Scores on the Kempe Family Stress Inventory - Hartford Data, 2016[a]

Items on Kempe Checklist (N=125)[a]	0 Low	5 Moderate	10 High/Severe
Childhood History of Abuse/ Neglect	49%	20%	32%
History of Crime, Substance Abuse, Mental Illness	66%	23%	11%
CPS History	84%	7%	8%
Low Self-esteem/ Social Isolation/ Depression	31%	54%	15%
Multiple Stressors	22%	39%	39%
Potential for Violence	88%	4%	8%
Unrealistic Expectation of Child	82%	16%	7%
Harsh Punishment	98%	3%	0%
Negative Perception of Child	97%	3%	0%
Child Unwanted/ Poor Bonding	42%	57%	1%

[a] Differences in N across items reflects differences in missing data (i.e., list-wise deletion of missing data).

Table 21. Mothers' Scores on the Kempe Family Stress Inventory - New Haven Data, 2016[a]

Items on Kempe Checklist (N=156)	0 Low	5 Moderate	10 Severe
Childhood History of Abuse/ Neglect	51%	15%	34%
History of Crime, Substance Abuse, Mental Illness	61%	23%	16%
CPS History	91%	5%	4%
Low Self-esteem/ Social Isolation/ Depression	25%	53%	22%
Multiple Stressors	45%	31%	24%
Potential for Violence	83%	4%	13%
Unrealistic Expectation of Child	72%	26%	2%
Harsh Punishment	86%	12%	2%
Negative Perception of Child	96%	4%	0%
Child Unwanted/ Poor Bonding	26%	71%	2%

[a] Differences in N across items reflects differences in missing data (i.e., list-wise deletion of missing data).

Table 22. Mothers' Pregnancy & Birth Information, 2012 - 2016

	2012	2013	2014	2015	2016
Pregnancy and Birth Outcomes	*N = 626*	*N = 525*	*N = 464*	*N = 535*	*N = 488*
Mother's Risk behaviors during pregnancy					
Smoked Cigarettes	8%	7%	8%	5%	4%
Drank alcohol	4%	2%	3%	3%	3%
Used illicit drugs	5%	4%	5%	5%	6%
Birth Outcomes					
Premature Birth (before 37 weeks gestation)	13%	14%	15%	12%	13%
Low Birth Weight (under 5lbs 8oz)	14%	16%	9%	10%	10%
Born with serious medical problems	13%	11%	13%	15%	14%
Child has a Pediatrician	97%	96%	92%	96%	98%

Table 23. Hartford Program Participation, 2014 - 2016

	2014	2015	2016
Number of families served in NFN	557	507	511
Average number of attempted home visits per family per month	2.7	2.8	**
Average number of completed home visits per family per month	2.1	2.1	2.1
Average number of office/ out of home visits	0.1	0.1	0.1
Average number of NFN social events attended	0.1	0.1	0.1
Total average of visits completed	2.3	2.3	2.3

Table 24. New Haven Program Participation, 2014 - 2016

	2014	2015	2016
Number of families served in NFN	502	518	511
Average number of attempted home visits per family per month	2.8	2.7	**
Average number of completed home visits per family per month	2.0	1.8	2.1
Average number of office/ out of home visits	0.1	0.1	0.1
Average number of NFN social events attended	0.1	0.1	<0.1
Total average of visits completed	2.2	2.0	2.3

Table 25. Completed Ages and Stages Questionnaires, 2012-2016					
	2012	**2013**	**2014**	**2015**	**2016**
Number of families served in NFN Home Visiting	2275	2181	2118	2001	1979
Number (%) of "target" children completing screens	1,357 (65%)	1,377 (63%)	1,232 (60%)	1,275 (76%)	1,346 (68%)
Number of all other children completing screens	1,415	1,496	1,351	1,424	1,485
Total Number of screens completed (including repeats)	4,303	4,242	3,736	4,117	3,633

Figure 18. Six Month, 1 Year, and 2 Year Program Retention Rates by Yearly Cohorts, Hartford Region[a]

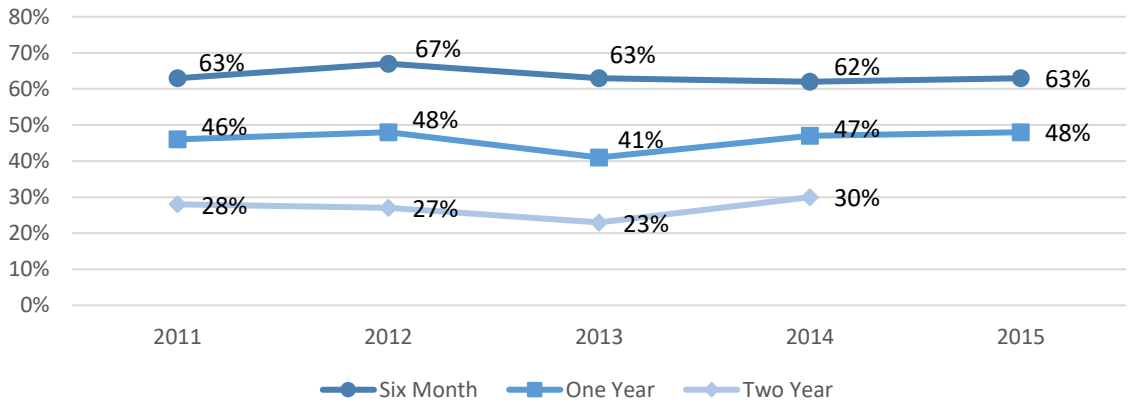


Figure 19. Six Month, 1 Year, and 2 Year Program Retention Rates by Yearly Cohorts, New Haven Region[a]

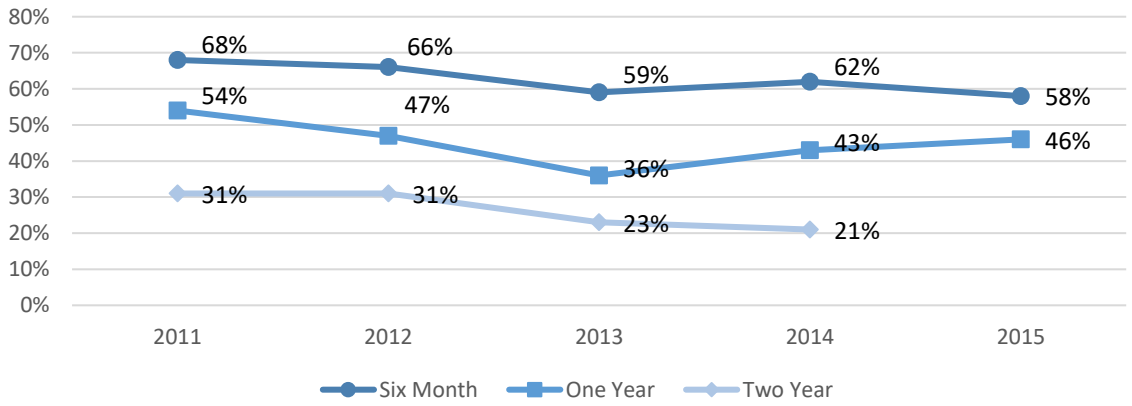


Table 26. Reasons Families Left NFN Home Visiting [a]

	2012 N = 653	2013 N = 906	2014 N = 747	2015 N = 680	2016 N = 724
Family met their goals/ Graduated	10%	13%	15%	11%	14%
Family moved	16%	14%	12%	14%	16%
Unable to locate family	32%	30%	30%	29%	29%
Family decided to discontinue services	16%	19%	16%	15%	16%
Caregiver had no time for home visits- working or in school	14%	11%	9%	14%	12%
Baby removed from home by DCF	2%	1%	2%	2%	1%

[a] Remaining percent left for other reasons

Table 27. Percentage change of Mother's Life Circumstances at entry and at one year

Mothers who participated for at least 1 year (1-Year Time-Point Group) and were…	**Statewide % at Entry and at 1 year (n = 1282)**		**Hartford % at Entry and at 1 year (n = 266)**		**New Haven % at Entry and at 1 year (n = 285)**	
A high school/GED graduate or higher	66%	72%***	59%	68%***	71%	71%
Employed	27%	43%***	26%	40%***	26%	43%***
Employed full-time	10%	16%***	8%	14%**	10%	16%**
Experiencing financial difficulties	69%	67%	71%	67%	64%	59%
Receiving government assistance	82%	89%***	85%	92%***	79%	89%***

Table 36. NFN Fatherhood Screening and Recruitment, 2013-2016				
	2013	**2014**	**2015**	**2016**
Number Identified at Low Risk	**12**	**17**	**16**	**5**
Number Identified as Eligible	**45**	**41**	**40**	**37**
Offered Home Visiting	57	58	56	42
Accepted Home Visiting	57	58	56	42
Received Kempe Assessment	57	58	56	42
Initiated Home Visiting	57	58	56	42

Table 37. Father Characteristics

	2016 Program Entry (N=51)
Characteristics	
Father's Age at Baby's Birth	**N = 38**
Under 16 years	5%
16 – 19 years	26%
20 – 22 years	29%
23 – 25 years	11%
26 years and older	29%
Median Age Fathers	22 years
Father's Race/ Ethnicity	**N = 46**
African American or Black	24%
Hispanic	44%
Caucasian	24%
Other	8%
Multiracial	0%
Father's Highest Level of Education	**N = 42**
Less than High School degree	43%
High school degree or GED	26%
Vocational training or some college	14%
College degree or graduate work	14%
Father's Employment Status	**N = 42**
Employment	48%
Full-time	17%
Part-time, occasional work, or more than 1 job	11%
Fathers enrolled in school	24%
Fathers with Financial difficulties	66%
Receiving Gov. Assistance	45%
Food Stamps	14%
SSDI	4%
Fathers social isolation	27%
Fathers with an arrest history	43%

Table 38. Father Home Visiting Participation, 2013 - 2016

	2013	2014	2015	2016
Number of families served in NFN	133	119	114	
Average number of attempted home visits per family per month	2.9	3.2	2.8	
Average number of completed home visits per family per month	2.2	2.2	1.9	
Average number of office/ out of home visits	0.3	0.3	0.2	
Average number of NFN social events attended	0.1	0.1	0.1	
Total average of visits completed	2.6	2.6	2.2	

Table 39. Change in Fathers' Life Circumstances for 6 month and 1 year Participants, Statewide Data (2009-2016)			
Fathers who participated for at least 6 months (6-Month[a] Time-Point Group) and were…	**N**	**% at Entry**	**% at Time-Point**
A high school/GED graduate or higher	106	62%	62%
Employed	104	45%	54%
Employed full-time	104	28%	38%*
Socially isolated	84	21%	8%**
Experiencing financial difficulties	99	81%	76%
Fathers who participated for at least 1 year (1-Year Time-Point Group) and were…	**N**	**% at Entry**	**% at Time-Point**
A high school/GED graduate or higher	77	75%	75%
Employed	82	49%	51%
Employed full-time	82	27%	38%
Socially isolated	60	20%	17%
Experiencing financial difficulties	68	81%	82%

[a] Six-month Time-Point collected at Hartford and New Haven sites from 2009-2012 and collected across all sites beginning in 2013

Table 40. Change in Rigid Parenting Attitudes, Fatherhood Home Visiting, 2009-2015

Time-Point Group	N	Mean at Entry	Mean at Time-Point	Mean Difference	Standard Deviation
6 Month	51	29.0	22.1	6.9**	18.4
1 Year	18	30.2	22.0	8.2	23.2

* Significant at p<0.05, ** Significant at p<0.01, *** Significant at p<0.001 (pairwise t-test).

[a] Six-month Time-Point collected at Hartford and New Haven sites from 2009-2012 and collected across all sites beginning in 2013.

Table 41. Change in Scores on the Community Life Skills Scale, Father Home Visiting Data (2009-2015)		
6-Month Time-Point Group: Fathers who participated for at least 6 months (N = 46)	**Mean at Entry**	**Mean at Time-Point**
Total CLS Score	24.6	25.1
Transportation	3.5	3.5
Budgeting	3.6	3.6
Support services	4.4	4.6
Support/Involvement	4.3	4.5
Interests/Hobbies	2.8	2.7
Regularity/Organization/Routines	6.3	6.3
1-Year Time-Point Group: Fathers who participated for at least 1 year (N = 36)	**Mean at Entry**	**Mean at Time-Point**
Total CLS Score	25.1	25.3
Transportation	3.6	3.6
Budgeting	3.4	3.6
Support services	4.5	4.5
Support/Involvement	4.2	4.5
Interests/Hobbies	2.7	2.8
Regularity/Organization/Routines	6.8	6.7
2-Year Time-Point Group: Fathers who participated for at least 2 years (N = 21)	**Mean at Entry**	**Mean at Time-Point**
Total CLS Score	25.9	26.6
Transportation	3.3	3.4
Budgeting	3.7	4.3*
Support services	4.3	4.6
Support/Involvement	4.8	4.4
Interests/Hobbies	3.1	3.0
Regularity/Organization/Routines	7.0	7.0
* Significant at p<0.05, ** Significant at p<0.01, *** Significant at p<0.001 (pairwise t-test).		

Table 42. Reasons Fathers Left NFN Home Visiting, 2013 -2015

Items on Exit Form	2013 N = 48	2014 N = 53	2015 N = 52
Family met their goals/ graduate	8%	4%	8%
Other family member did not approve of services	0%	0%	0%
Family moved	6%	2%	13%
Home visitor left program	0%	0%	0%
Family decided to discontinue services	29%	23%	16%
Baby removed from home by DCF	2%	0%	0%
Unable to locate family	29%	30%	30%
Caregiver had no time for home visits due to work or school	13%	13%	23%
Discharged, family not appropriate for program	4%	4%	0%
Discharged, family was noncompliant	0%	0%	0%
Other	8%	15%	10%