



Characterizing Family Engagement in Rhode Island's Home Visiting Programs

Citation

Bhuiya, Nazmim S. 2019. Characterizing Family Engagement in Rhode Island's Home Visiting Programs. Doctoral dissertation, Harvard T.H. Chan School of Public Health.

Permanent link

<http://nrs.harvard.edu/urn-3:HUL.InstRepos:40976815>

Terms of Use

This article was downloaded from Harvard University's DASH repository, and is made available under the terms and conditions applicable to Other Posted Material, as set forth at <http://nrs.harvard.edu/urn-3:HUL.InstRepos:dash.current.terms-of-use#LAA>

Share Your Story

The Harvard community has made this article openly available.
Please share how this access benefits you. [Submit a story](#).

[Accessibility](#)

CHARACTERIZING FAMILY ENGAGEMENT IN RHODE ISLAND'S
HOME VISITING PROGRAMS

Nazmim S. Bhuiya

A DELTA Doctoral Thesis Submitted to the Faculty of

The Harvard T.H. Chan School of Public Health

in Partial Fulfillment of the Requirements

for the Degree of *Doctor of Public Health*

Harvard University

Boston, Massachusetts.

May, 2019

Characterizing Family Engagement in Rhode Island's Home Visiting Programs

ABSTRACT

A child's first few years are a critical developmental period that has enduring health effects, and children living in poverty are particularly at risk. The Rhode Island Department of Health (RIDOH) implements three evidence-based home visiting programs to ensure children have opportunities to thrive. These programs have demonstrated positive outcomes for children and families. However, RIDOH has been experiencing challenges in engaging families to enroll and participate in these programs.

This DELTA project aims to: (1) identify factors that influence enrollment and participation across three home visiting programs for birth cohorts 2014-2016 in the four core cities where most disadvantaged families reside; (2) understand barriers in delivering and accessing home visiting programs. A mixed methods approach was taken. To assess factors thought to be associated with family enrollment and participation, bivariate and multivariate analyses of data were performed. Potential engagement factors included characteristics of *child* (disabling condition, low birth weight), *family* (maternal age, marital status, health insurance, language, and prenatal visits; and parental education, race/ethnicity, and social-behavioral factors) and *other* (participation in short-term home visiting program). To provide more context for these results, focus groups and interviews were conducted with 45 home visitors and other staff as well as 40 families with young children to understand barriers in delivering or accessing home visiting services.

Though RIDOH was successful in targeting high-risk population, there was low enrollment—28% to 64% of eligible children across the four core cities. However, once enrolled participation was high with over 90% having more than 4 visits. Lack of awareness or

understanding of home visiting programs and indicators of greater vulnerability appeared to contribute to low enrollment rates. Young maternal age, public insurance, <12th grade maternal education, minority race/ethnicity, social-behavioral factors (e.g., substance use, involvement with foster care), and prior contact with short-term home visiting program were significantly associated with lower enrollment. Only language (non-English) was correlated with higher participation.

Recommendations for RIDOH to increase family enrollment and sustain participation in home visiting programs are: (1) conduct outreach to increase awareness of programs; (2) support home visitors; (3) use an integrated home visiting – mental health model approach; and (4) involve families to identify needed community resources.

Table of Contents

ABSTRACT.....	ii
List of Figures.....	v
List of Tables.....	vi
ACKNOWLEDGEMENTS.....	vii
1. INTRODUCTION.....	1
Context of Rhode Island.....	2
2. ANALYTIC PLATFORM.....	7
Literature Review.....	7
Early child development.....	7
Bronfenbrenner’s Bioecological Model of Human Development.....	10
Risk factors, early experiences and impact on development.....	12
Overview of early childhood programs.....	15
The MIECHV program.....	17
The MIECHV program in Rhode Island.....	22
Healthy Families America (HFA).....	24
Nurse Family Partnership (NFP).....	25
Parents As Teachers (PAT).....	25
Program Comparison Highlights.....	27
Project Overview.....	27
Rhode Island Department of Health – Host Organization.....	27
Project description.....	29
Theory of Change.....	29
Design description.....	31
Quantitative.....	31
Qualitative.....	35
3. RESULTS STATEMENT.....	38
Quantitative findings.....	38
Descriptive Statistics.....	38
Bivariate and logistical regression analyses: enrollment.....	43
Bivariate analyses: participation.....	45
Qualitative findings.....	47
Focus group participants: agencies.....	47
Focus group participants: parents/families.....	47
Focus group: Summary of findings and key themes.....	49
Summary of quantitative and qualitative results.....	60
4. CONCLUSION.....	62
Study Limitations.....	69
Future research.....	70
Implications.....	71
BIBLIOGRAPHY.....	73
APPENDIX.....	81
Appendix A. Agency focus group guide.....	81
Appendix B. Family focus group guide.....	82
Appendix C. Description of agencies participating in focus groups.....	84
Appendix D. Criteria for Follow-up from Level I Screening.....	85

List of Figures

Figure 1.1. Enrollment in the Three MIECHV Programs in RI Compared to Capacity, 2016..... 4

Figure 2.1 Bronfenbrenner’s Bioecological Model of Human Development..... 11

Figure 2.2 Theory of Change for RIDOH MIECHV programs 30

Figure 3.1 Births, program enrollment and participation in core cities 41

Figure 3.2 Summary of qualitative findings: barriers for families to accessing programs and for agencies delivering programs in referral/initial contact, enrollment, and participation stages 50

List of Tables

Table 1.1 Enrollment Capacity and Staffing Capacity in the Three MIECHV Programs in Rhode Island, 2016.....	5
Table 2.1 Federally-funded programs & social services that target expecting mothers and young children to support healthy development.....	16
Table 2.2 Description of RIDOH home visiting programs.....	23
Table 2.3 Description of predictor and outcome variables used in analyses.....	33
Table 2.4 Total births by state, core city and year and percent of core city births in the state.....	34
Table 3.1 Sample characteristics (proportion of characteristics in cities, 2014-2016).....	39
Table 3.2 Total births, target and program enrollment by core city for birth cohorts 2014–2016	42
Table 3.3 Core city families enrolled by birth cohort 2014 – 2016 and target number* by year and MIECHV program	42
Table 3.4 Participation levels by core city for birth cohorts 2014-2016	43
Table 3.5 Bivariate analyses of child, family and other characteristics and enrollment for core cities	44
Table 3.6 GEE with significant bivariate enrollment characteristics	45
Table 3.7 Bivariate analyses of child, family and other characteristics and participation levels for core cities	46
Table 3.8 Parents/families focus groups: participants’ information	48
Table 3.9 Parents/families focus groups: enrollment & participation in MIECHV programs	49

ACKNOWLEDGEMENTS

With God’s blessing and guidance I have reached this point and completed this part of my life’s chapter.

I would like to especially thank my committee, Dr. Marie McCormick, Dean Nancy Turnbull, and Mr. Chris Koller for their expertise, guidance, and support during my DELTA journey. I would like to express my gratitude to Blythe Berger for giving me the opportunity to work on this project at the Rhode Island Department of Health (RIDOH) and for her mentorship and insights throughout my DELTA project. I could not have completed my project without the home visiting team— Kristine Campagna, Sara Remington, Sarah Bowman, and Sidra Schraff. I was truly fortunate to work with a wonderful team at RIDOH who shared their experiences and advice that helped shape this DELTA. I would also like to thank Brown University’s Hassenfeld Child Health Innovation Institute (Lauren and Michelle) as well as the HSPH Biostatistics Student Counseling Center for their services.

Lastly, I am grateful for the unwavering support of my family and friends (especially Jeanne & Helen). I could not have come this far without the love and encouragement from my ma, daddy, brother (Ramim), grandmother (nanu), aunts, uncles, and cousins. They are the pillars of my strength. I have made great friendships with my DrPH cohort and other students and staff at HSPH that I look forward to continuing. I would particularly like to thank my DrPH friends (my peer coach and others—you know who you are) for the many hours of conversations and moral support.

This DELTA project was supported by the Health Resources and Services Administration (HRSA) of the U.S. Department of Health and Human Services under T03MC07648 and entitled Epidemiological MCH/SPH Institute.

1. INTRODUCTION

Childhood development is a key determinant of health for an individual's life course (Halfon & Hochstein, 2002). This development consists of cognitive, physical, social, emotional, and language and communication (Davies, 2011). The early years of a child's life, ages zero to three, are a critical window of opportunity to shape the development of the brain and other organ systems. This process is influenced by relationships and experiences and has enduring effects on learning, behavior, and both physical and mental health (Shonkoff et al., 2016). There is a growing body of information that suggests that adverse childhood events have been linked to a number of adulthood health problems (Shonkoff et al., 2012); living in poverty increases the probability of exposure to multiple adversities (e.g., child abuse or neglect, food insecurity, violence) that has implications for development (Black et al., 2017). Absence of caring, supportive adults to help children cope with these circumstances can further exacerbate the mentioned effects (Shonkoff et al., 2012). Moreover, these adversities can be magnified if children and families live in communities with limited programs and other resources (Black et al., 2017).

The research on the science of early childhood development and its impact on future health outcomes has led to the growing attention and investment in ensuring children have a solid foundation for a healthy life. A large body of extant research supports that home visiting programs using evidence-based approaches improve child outcomes (Shonkoff et al., 2016) and are associated with positive behaviors and academic achievement while also safeguard children's health (e.g., reduction in child maltreatment and abuse) and foster the success of children as adults ((Karoly, Kilburn & Cannon, 2005)). In response to addressing the impact of harmful exposures during early childhood years, the federal government initiated the Maternal, Infant,

and Early Childhood Home Visiting (MIECHV). This voluntary program, targeting expecting mothers and mothers with young children, provides parenting education, information on children's health and development, and referrals to support services as appropriate through home-based services. However, the success of such programs depends on enrolling the appropriate families and sustaining contact with these families to deliver the preventive services. This DELTA project will examine the enrollment and participation of families in services (referred to as parental engagement) in the MIECHV Program for the state of Rhode Island.

Context of Rhode Island

Although by some indicators Rhode Island has one of the higher median incomes (\$71,926) and lowest percentage of children without health insurance (1.9%) in the nation, children in the state do relatively poorly in well-being. In 2015, Rhode Island ranked 29th in the country and last in New England for child well-being.* While Rhode Island had surpassed the Healthy People 2020 goal (7.8%) for percentage of low birth weight infants ("Early and Middle Childhood | Healthy People 2020," 2019), most recently the 2016 rate has risen (from 7.6% in 2015 to 8% in 2016). Nearly one in five children in the state lived in poverty with almost two-thirds concentrated in four "core" cities: Central Falls, Pawtucket, Providence, and Woonsocket. In 2016, approximately one-third of reported child abuse and neglected cases involved children ages three and younger. In the same year, the state had 12.3 child victims of abuse and neglect per 1,000 children compared to the national rate of 9.1 (U.S. Department of Health & Human Services, 2019). Approximately one-third of cases involved children ages three and younger. Moreover, the child abuse and neglect rate per 1,000 children under age 18 was more than two times higher in the four core cities than the remainder of the state, and Woonsocket had the

* Ranking is based on a set of indicators that affect children's lives that include family and community; economic; health, safety, and education.

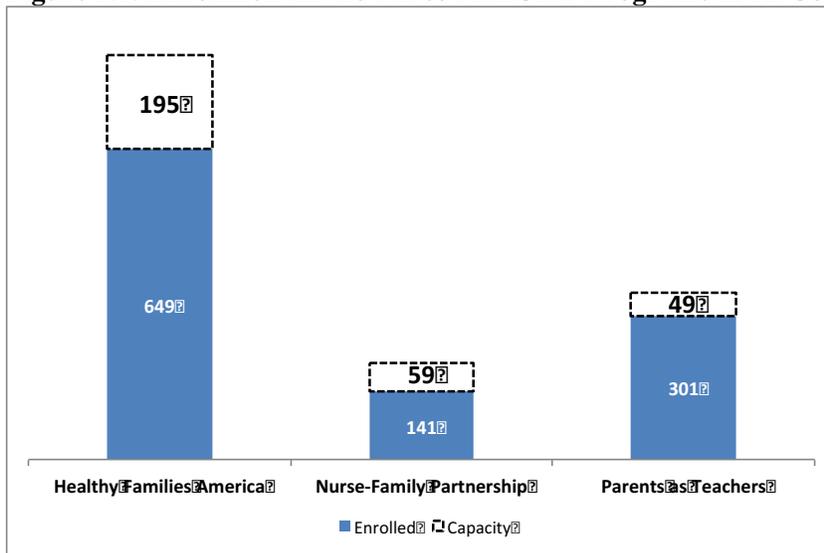
highest rate in the state. Also, 63% (6,475) of babies born in Rhode Island “screened positive” on the state’s newborn risk assessment indicating the presence of one or more factors associated with poor developmental outcomes. Further, in 2016, the percentage of third graders “meeting expectations” on the state’s assessment test (the Partnership for Assessment of Readiness for College and Careers) for reading and math skills was low in the four core cities (reading ranging from 16% to 31%; math ranging from 21% to 39%). There were large achievement gaps by income level (less than half of low-income third graders meeting expectations) and race and ethnicity. (Rhode Island Kids Count, 2017; Rhode Island Kids Count, 2018) These data support the need for early childhood programs to boost these academic areas.

In response, Rhode Island provides services and programs particularly for children who may be at risk for not reaching their developmental potential to ensure that families and their children have the necessary resources for healthy development. The Center for Perinatal and Early Childhood Health at RIDOH, under the Division of Community Health and Equity, strives towards the Healthy People 2020’s early childhood objectives through its comprehensive maternal and child health services, including the newborn screening and follow-up; Special Supplemental Nutrition Program for Women, Infants, and Children (WIC); and home visiting. The state also has a short-term home visiting program, First Connections, which serves as a program and service referral resource for families. In 2011, the Center received a federal grant through the MIECHV program to implement home visiting programs to address the effects of familial and environmental adversities. A condition of the funding was that the programs implemented must be “evidence-based” (Health Resources & Services Administration, Maternal & Child Health, 2017). RIDOH has opted to rely on three such programs: Healthy Families America (HFA), Nurse-Family Partnership (NFP), and Parents as Teachers (PAT).

(“Implementation Reports - Home Visiting Evidence of Effectiveness,” 2018) The NFP program had existed prior to the grant, and RIDOH was able to expand NFP and begin implementing HFA and PAT in 2011. The three programs will be described in greater detail below (see Section 3: Analytical Platform)

However, RIDOH has been experiencing challenges in engaging families in these programs. Anecdotal information from RIDOH indicates that, although referrals are made to home visiting programs, there is a gap in family enrollment and follow-through or participation in the programs. In 2016, a year prior to starting the DELTA project, Rhode Island had the enrollment capacity of 1,394 families across all three home visiting programs, but, as reported by RIDOH, only 1,091 families were enrolled with 303 (22%) slots unfilled (Figure 1.1). Though the MIECHV programs were not fully staffed, the programs were under enrolled relative to staffing capacity (Table 1.1), suggesting that staffing capacity was not the limiting factor in enrolling families. The reasons for low program uptake were not clear. Obtaining insight into these issues was timely as RIDOH was in their strategic planning phase for their home visiting programs.

Figure 1.1. Enrollment in the Three MIECHV Programs in RI Compared to Capacity, 2016



Source: Rhode Island KIDS COUNT Early Learning Fact Sheet, 2015

Table 1.1 Enrollment Capacity and Staffing Capacity in the Three MIECHV Programs in Rhode Island, 2016

Total enrollment capacity (# of MIECHV expected slots in RI)	1,394
Total # of families enrolled	1,091
MIECHV % enrollment capacity (total # enrolled / total # enrollment capacity)	78%
Total staffed capacity (# of slots available based on staffing capacity)	1,258
MIECHV % Staffed (total # enrolled / total # staffed capacity)	87%

Source: Rhode Island Department of Health

For my DELTA project I worked at the Center for Perinatal and Early Childhood Health at RIDOH examining family engagement (defined as enrollment and participation) in Rhode Island’s MIECHV programs. The project focused on the state’s four core cities where children living in poverty are most concentrated. My DELTA has two primary components: (1) to identify child and family characteristics that predict enrollment and participation in home visiting programs (quantitative); and (2) to understand barriers in delivering and accessing home visiting programs from families’ and agencies’ perspectives (qualitative). Lastly, drawing from the quantitative and qualitative data, I developed recommendations for RIDOH to increase access to home visiting programs. This information will also enable RIDOH to develop targeted strategies to promote family engagement and offer appropriate services and resources to create a thriving environment for the state’s children and families.

In the following section, Section 3: Analytical Platform, I provide a landscape of current early childhood development science, a review of evidence-based home visiting programs implemented in Rhode Island, and highlight challenges in implementing these programs. This section also further details the DELTA project and describes the methodology. Section 4: Results, summarizes the findings as well as implications of the results for the state. Lastly, Section 5: Conclusion, outlines recommendations for RIDOH and identifies areas for further research, drawing from the DELTA findings. The thesis concludes by connecting this DELTA

project to the broader context of early childhood development and implications for other states in addressing family engagement in home visiting programs.

2. ANALYTIC PLATFORM

Literature Review

Early child development

Early childhood is one of the most sensitive developmental stages during human growth, a period during which many of the biological systems important for health develop (Center on the Developing Child, 2010). A substantial literature has developed on the maturational processes of brain function. However, programming of hormonal responses to stress, and patterns of physical growth may also influence long-term health. The ability of the child to learn to regulate emotions and behavior are critical for later mental health. Finally, early environmental exposures may alter later development. The critical developmental milestones in the early years are described below, organized by developmental areas: cognitive, motoric physical, social and emotional, and physical growth.

Cognitive Development

Cognitive development reflects the child's development in terms of attention, information processing, memory, problem-solving skills, and language learning (Johnson & Blasco, 1997). This process may begin even prenatally, and progresses through an orderly sequence of sensor-motor exploration to the ability to understand abstract ideas. From birth to age three the brain sequentially develops the sensory pathways (e.g., vision and hearing), language, and higher cognitive function with rapid development occurring during the first year (Thompson & Nelson, 2001). As with most aspects of development, cognitive development is heavily dependent on a reciprocal interaction between the child and his/her environment and learning from others to comprehend the physical and social world surrounding them such as understanding actions of objects and behavior of people. Important concepts developed in the early years include the

discrimination between animate and inanimate things, numbers, oral language abilities, and problem solving drawing from their observations. In addition, children form short-term and working memories and develop the ability to control attention. Critical to this development is the presence of responsive, caring relationships with adults who provide stimulation and expose children to new experiences. (Institute of Medicine and National Research Council, 2015)

Motoric physical development

Closely linked to cognitive development, motoric development progresses through controlling head and neck movements, hand movements, grasping objects, to later activities such as sitting, crawling, balancing, and walking. (Davies, 2011; Johnson & Blasco, 1997)

Social & emotional (socioemotional) development

Socioemotional competencies encompass the ability “to understand and manage emotions and behavior; to make decisions; and to establish and maintain positive relationships, including feeling and showing empathy for others” (Institute of Medicine and National Research Council, 2015). Initially the infant depends on their caregiver (mutual regulation), and their positive responses influences self coping and resiliency in the long run (Crockenberg & Leerkes, 2000). Attachment relationships are the most significant environment for children in the first year when the brain is rapidly growing. “A secure attachment provides the experiences, through face-to-face interaction, emotional attunement, and playful exchange, that encourage optimal brain development” (Davies, 2011, p. 44). Through their toddler years children develop their social skills through social tasks learning about sharing, communicating, and coordinating actions with their caregivers and peers (Davies, 2011). Competence in this developmental domain is important for children to be able to adjust in different settings, and research has shown that it is

critical for mental-health in later years (Institute of Medicine and National Research Council, 2015).

Physical Growth and Development

Physical growth includes the growth of individual cells, tissues, organs, and body systems. Height, weight and organ maturation follows different growth patterns. Infants grow quickly in their first year, and height doubles between three to four after which growth rate slows until the growth spurt in adolescence. By six months an infant's weight has doubled and tripled by age one. In the first year there is a steep increase in skinfold thickness/fat, and in the second year children alter their appearance by growing taller and developing greater muscle mass. In the initial months the brain structure begins to shape, and parts of the brain that control body functions and regulate all facets of human behavior form (Nelson, Thomas & deHaan, 2008), which can be analogized to building foundation, framing, and wiring of homes (Center on the Developing Child, 2007). By age two to three years children's brain size has reached 85% of its adult size.

Organ systems grow rapidly during infancy, and this is essential in order to develop immunity and protect against diseases. For example, during this time the respiratory system matures and the airway grows. Breathing has to begin at birth for the infant to survive and allow for the lung to expand. An infant breathes rapidly and later slows down, and in the initial few months they breathe through their nose. As the lungs are developing, infectious agents can be easily transmitted. (Falkner & Tanner, 1979)

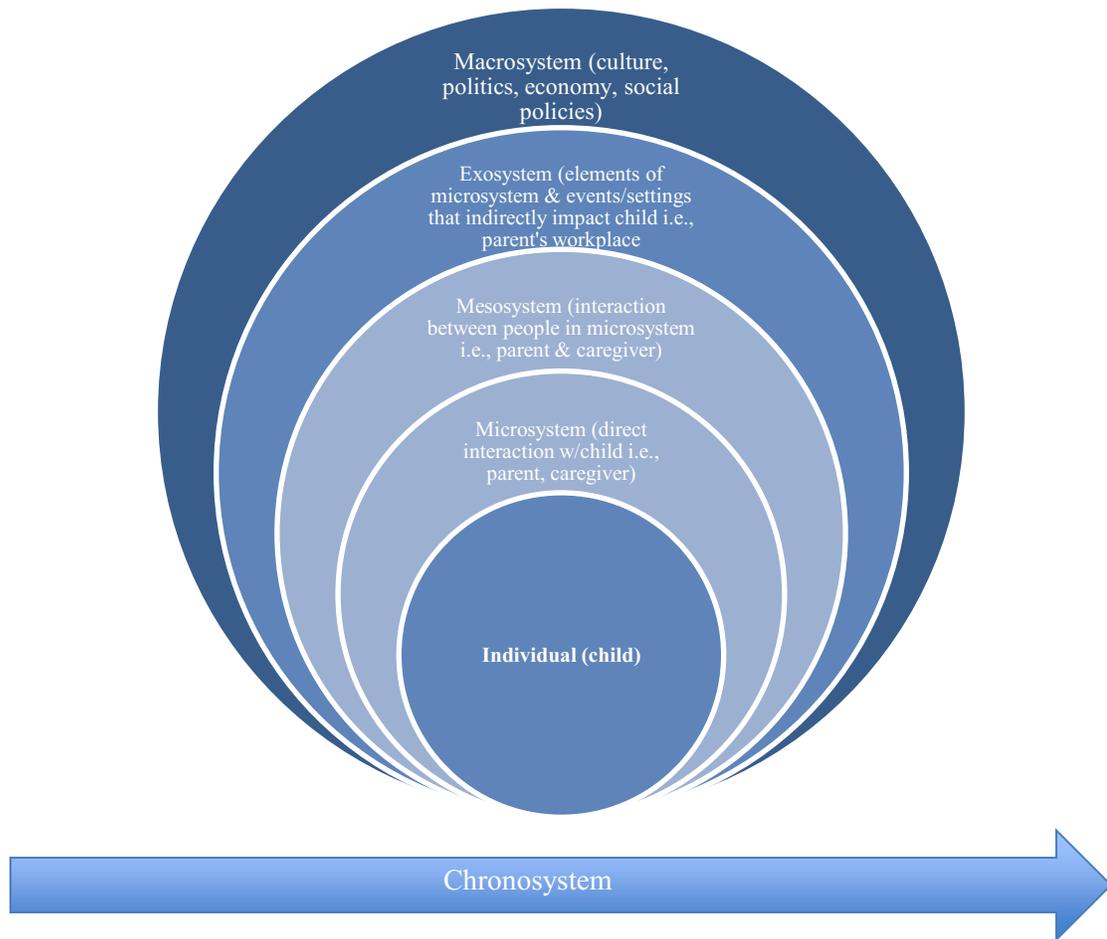
An infant's size is associated with maternal health and size. Growth begins in utero and inadequate fetal growth that can be caused by intrauterine growth restriction can have adverse short-term and long-term outcomes. It is a major cause of perinatal mortality and morbidity and

associated with adult health issues (discussed below). There is rapid growth during infancy, and genes begin to regulate a child's size at around two to three years. Infancy is a nutrition-dependent phase as growth is influenced by nutrition, such as breast-feeding and formula. Both under and over nutrition as well as micronutrient deficiencies influence physical growth (discussed below). (Lejarraga, 2012)

Bronfenbrenner's Bioecological Model of Human Development

Bronfenbrenner's Bioecological Model of Human Development captures the bi-directional influences between the multiple environmental sub-systems that affect individuals. This theoretical grounding moves beyond children and families to the broader context that influences child development patterns. In Bronfenbrenner's model there are five levels of ecosystems: individual, microsystem, mesosystem, exosystem, and macrosystem (Figure 2.1).

Figure 2.1 Bronfenbrenner's Bioecological Model of Human Development



All levels of ecosystems impact development. The individual or the child is at the center surrounded by layers of spheres that represent an ecosystem. The microsystem is where the child spends most of their time with closest people such as family members, caregivers (i.e., in daycare or in other settings), and others who the child may have direct contact. As highlighted above, adults play a critical role across the developmental domains (Center on the Developing Child, 2007). The next ecosystem, mesosystem, is the interaction between two or more microsystems such as home and schools. Relationship between parents and teachers is an example of the mesosystem. The fourth level, exosystem, does not involve the child but indirectly impacts the child. Affecting the exosystem can cause a domino effect on the

microsystem and mesosystem. A common example is a parent's workplace. If the workplace has policies that deter a parent from taking time off or is a stressful environment, this will impact the parent's interaction with their child. The macrosystem is the overarching sphere that includes the economic and cultural environment (i.e., norms and values) and political and social policies. There may be social policies that may offer or limit families' choices that will ultimately impact children's well-being. Bronfenbrenner later modified the model to include the chronosystem. This is the time in relation to a child's development such as historical events (e.g., World War II, economic depression), technology that may impact learning styles and/or social skills, or a parent's death that has a differential impact on younger children than older children. (Bronfenbrenner, 1994)

Risk factors, early experiences and impact on development

A variety of factors can adversely affect development: environmental toxic exposures, malnutrition, maternal health, poverty and adverse experiences. These various factors impact birth outcomes, including birth defects, and can have short and long-term implications on developmental functions and health. Many of these risk factors can be prevented or addressed to mitigate the development effects and health outcomes. Further, many disparities in overall health begin in early childhood (Black et al., 2017; Shonkoff et al., 2012).

Exposures to physiological hazards, for example lead and asthma-inducing air pollutants, can cause detrimental developmental consequences (Phillips & Shonkoff, 2000). Lead can have varying impacts depending on the level of exposure and child developmental period. When children are young, evidence has shown that lead exposure is associated with stunted growth (Schwartz, Angle & Pitcher, 1986), loss of hearing (Schwartz & Otto, 1991), and decrease in

intelligence quotient (IQ) (Schwartz, 1994). Exposure to air pollutants increases the risk for and severity of conditions like asthma (Clark et al., 2009).

Nutrition is also important for development, especially from the second half of pregnancy through two years old. Deficiency in iron can be detrimental to cognitive and motor development (Gordon, 2003). Another example is lack of folic acid, which is associated with a birth defect, spina bifida where the backbone does not form (CDC MMWR, 2004). Malnutrition, which encompasses both undernutrition and overnutrition can impact growth and long-term health outcomes. Undernutrition can result in cognitive deficiencies (Shonkoff & Marshall, 2000), and can also lead to stunting (low height for age) and poor growth. Overnutrition is a major nutritional problem in the U.S., and there has been an increased prevalence of overweight and obese infants and toddlers (Paul et al., 2009). Overnutrition in infancy impacts energy storage and metabolic processes. Rapid weight gain during infancy can also impact later health outcomes. Weight gain has been associated with higher risk of obesity, cardiovascular disease, and type 2 diabetes (Ong & Loos, 2006). Consumption of sugar sweetened beverages accounts is among the top sources of dietary calories among children one to two years, and consumption of these beverages has been shown to be correlated with obesity. Also, early life food preferences influence later diet preferences. (Skinner, Ziegler & Ponzio, 2004)

Mothers' health is closely tied to infants' health and long-term health. Barker's fetal origins hypothesis suggests that early life exposures beginning in utero may program the child's susceptibility to adult diseases. For example, there are relationships between early nutritional experiences and long-term health. Barker found strong associations between low birth weight and risk for high cholesterol and metabolic syndromes as well as higher mortality risk from cardiovascular disease (Barker et al., 1989; Barker et al., 1989). Maternal substance use can also

have adverse consequences on birth outcomes and infant health. Smoking has been associated with preterm birth and low birth weight and has also been linked to intrauterine growth retardation. Fetal alcohol syndrome is correlated with birth defects, mental retardation, central nervous system impairment, and other cognitive problems. (Davies, 2011)

Living in poverty has detrimental consequences that can manifest in children's later years. Family income specifically during early childhood years has the greatest impact on school achievement (Duncan et al., 1998), and income and poverty are strongly correlated with cognitive development and child behavior controlling for factors such as family structure and maternal education (Duncan, Brooks-Gunn & Klebanov, 1994). Lower socioeconomic status has been associated with poorer neurocognitive development that includes language, memory, and cognitive control (Farah et al., 2006). There are a number of pathways through which low income impacts a child—quality of a child's interaction at home including mother-child interaction and learning environment; quality of care in outside settings such as schools; parents' health conditions (e.g., physical and emotional/mental) altering parent-child interaction; and constraints in neighborhood (i.e., playgrounds, healthcare clinics) and school options. (Duncan & Brooks-Gunn, 2000) Moreover, poverty is strongly linked with other poor development related risk factors mentioned previously such as malnutrition, environmental exposures, and high levels of trauma and stress (Phillips & Shonkoff, 2000).

The seminal work of the Adverse Childhood Experiences (ACEs) study has demonstrated the connections between adverse experiences and health issues in adulthood with a greater number of adversities increasing the likelihood of problems. Stressful experiences during children's early years have been linked to increased likelihood in developing cardiovascular disease in adulthood. Increased number of traumatic events is also associated with health issues

such as cardiovascular disease, and obesity as well as risky/unhealthy behaviors such as lack of physical activity. (Dong et al., 2004) Child maltreatment is also risk factor for cardiovascular disease and other chronic conditions (Danese et al., 2007). The cumulative exposure to chronic stress can result in higher levels of stress hormones that increase heart rate, blood pressure, and blood sugar. A “toxic stress response” during early years can damage the brain architecture, particularly if there are no supportive relationships to mitigate the impact. (Shonkoff, Boyce & McEwen, 2009)

Overview of early childhood programs

To address the multitude of risk factors young children face in the United States, a number of governmental policies and services have been established to provide health, mental health, education, and family support services. To ensure all children have the opportunity to succeed, the federally funded programs and services include parenting education and support, early childhood education, nutritional assistance, and health insurance (Table 2.1). These programs seek to “level” the playing field for these children, by addressing risk factors during the significant years of development and that will, if not addressed, adversely impact their future life trajectory.

Table 2.1 Federally-funded programs & social services that target expecting mothers and young children to support healthy development

Program	Description
Maternal, Infant, and Early Childhood Home Visiting (MIECHV) ¹	State administered program relying on evidence-based models for pregnant women and women with young children (0-3 years of age) that provide home-based parenting education, information on children’s health and development, and referrals to support services as appropriate.
Early Head Start ²	Federal program for children birth to 3 years and their families living below the poverty level that focuses on healthy child development and school readiness through a combination of home- and center-based services.
Head Start ³	Federal program that provides center-based educational and health services to prepare children ages 3-5 years from low-income families for kindergarten.
Early Intervention (EI) ⁴	State administered program to provide support and educational services to children birth to 3 years with a developmental delay or disability, or at risk of such outcomes, through the Individuals with Disabilities Education Act (IDEA).
Special Supplemental Nutrition Program for Women, Infants, and Children (WIC) ⁵	State administered program for low-income pregnant, postpartum women, and children up to age 5 years to receive support to purchase food, and nutrition education including breastfeeding.
Medicaid ⁶	Managed by the state, health insurance that provides healthcare access to low-income pregnant women and children under 18 years. EI services are covered under state Medicaid plans if families do not have private insurance or their private insurance plans do not pay for EI. Additionally, Medicaid has the potential to cover components of MIECHV programs, and in some states it does pay for some services.

¹ <https://mchb.hrsa.gov/maternal-child-health-initiatives/home-visiting-overview>

² <https://eclkc.ohs.acf.hhs.gov/programs/article/early-head-start-programs>

³ <https://eclkc.ohs.acf.hhs.gov/>

⁴ <http://www.eohhs.ri.gov/Consumer/FamilieswithChildren/EarlyIntervention.aspx>

⁵ <https://www.fns.usda.gov/wic/about-wic>

⁶ <http://www.eohhs.ri.gov/ReferenceCenter/MedicaidStatePlanand1115Waiver.aspx>

Early Head Start and Head Start were both developed with the intention to provide vulnerable/disadvantaged children the foundation needed to ensure they are prepared for school by providing a nurturing environment for the child (i.e., foster cognitive, social and behavioral development) and parent education. Early Intervention provides the family and child with

therapeutic and other services to address child's special needs or to support family and child to minimize risk factors associated with developmental delays (i.e., language). Special Supplemental Nutrition Program for Women, Infants, and Children (WIC) offer the access to the necessary nutrition for both expecting mother and child to grow healthy. They also play a critical role in monitoring abnormalities in physical growth. With Medicaid, mothers and child can get coverage to visit a healthcare provider for their healthcare needs (e.g., child's special needs) and check mothers' health status (e.g., nutritional status) as well as child's appropriate development, though having coverage does not necessarily equate to having access to healthcare. (Davies, 2001)

Generally, federally funded programs specifically target populations that face risk factors, such as low socioeconomic status. (Karoly, Kilburn & Cannon, 2005) Evaluations of various early education program models have demonstrated improvements in outcomes in at least one of the following areas: behavior and emotion, cognitive achievement, educational attainment, child maltreatment, delinquency and crime, child health, and adolescent and adult health. (Cannon et al., 2017) These early childhood programs clearly illustrate that it is possible to counteract the negative environmental influences during early years of life and may reverse the detrimental consequences later in life.

The MIECHV program

The MIECHV program, created by the Affordable Care Act in 2010, and administered by the Maternal and Child Health Bureau (MCHB) in collaboration with the Administration for Children and Families (ACF), funds states to implement evidence-based home visiting programs to promote maternal and child health, prevent child abuse and neglect, support positive parenting, and foster child development and school readiness. The program provided grants to

states to expand home visiting programs, which offer pregnant women and families the essential resources and skills “to raise children who are physically, socially, and emotionally healthy and ready to learn” (“Home Visiting | Maternal and Child Health Bureau,” 2018). The home visiting programs prioritize families living in at-risk communities, and, depending on the program, reach pregnant women and children from birth to age 5 years. The MIECHV program is based on research that has demonstrated that home visits by a nurse or paraprofessional (e.g., social worker, early childhood educator) during pregnancy and child’s first years improves lives of children and families. (Health Resources & Services Administration, Maternal & Child Health, 2017) States must implement models that meet the criteria for effectiveness, and currently 20 models meet these criteria (“Model Profiles - Home Visiting Evidence of Effectiveness,” 2018). The evidence-based models vary (e.g., target population), however, they share common principles. The program is voluntary, and trained professionals meet regularly with families and children in the homes “building strong, positive relationships with families who want and ask for support.” These programs teach parenting skills and/or model effective parenting techniques and promote early learning for child in the home. All programs have an assessment component where the home visitor assesses the families’ needs and offer support based on those needs. (“Home Visiting | Maternal and Child Health Bureau,” 2018; Health Resources & Services Administration, Maternal & Child Health, 2017)

Program impact

Early childhood home visiting programs have improved outcomes for both children and parents. For children, programs have demonstrated positive impact in areas such as cognition and academic achievement, behavioral and emotional outcomes, educational progression and

attainment, economic success, criminal behavior, health-related behaviors and outcomes, and child maltreatment (Karoly, Kilburn & Cannon, 2005). The Infant Health and Development Program, which targeted low birth weight, premature infants, demonstrated positive effects on cognitive development, visual and motor skills, spatial skills, and receptive language (Brooks-Gunn et al., 1992; McCormick et al., 1993). Participation in home visiting programs has also been associated with more maternal reading to children (Green et al., 2014), reduced risks of low birth weight (Lee et al., 2009), and a decrease in abuse and neglect (DuMont et al., 2008). Increased family economic self-sufficiency is a positive outcome seen in some home visiting programs (Anisfield et al., 2004).

These programs may also result in savings to the government through reduced costs in other programs and services (e.g., Medicaid, Temporary Assistance for Needy Families (TANF), the Supplemental Nutrition Assistance Program (SNAP) and increased tax revenue through higher educational attainment and employment rates and increase in parents' earnings (Michalopoulos et al., 2017). Karoly and colleagues at Rand found that there is a net benefit to society of \$34,000 (2003 dollars) per family served in NFP programs and four-times the return for each dollar invested for higher risk families compared to lower risk families (estimates based on follow-up at age 15) (2005). NFP visits can reduce Medicaid spending on first-born infants by 12%. Further, if Medicaid fully funds the program, it recoups its costs before the child reaches age 5 and recovers 2.3 times its costs by the child's 18th birthday (Miller, 2013). Another program, Healthy Families New York, for women who have had at least one substantiated child protective services report, produced net savings in government costs of \$12,000 per family and savings of \$1,200 by the time the child was seven years old for first time mothers who enrolled prenatally (DuMont et al., 2010).

Implementation challenges: Parent/family engagement

Family engagement is critical for achieving the potential positive outcomes of these programs (Sweet & Appelbaum, 2004; Roggman et al., 2008). Family engagement encompasses enrolling families, retaining them in the program, including keeping their interest between visits, and completing the intended number of visits for the length of the program (Korfmacher et al., 2008). While federal funding exists to support to implement and scale evidence-based home visiting programs, family engagement is one of the key challenges faced by programs.

Some reports indicate that home visiting programs have been successful in enrolling their target population, higher risk families (Boller et al., 2014). However, a recent report from The Mother and Infant Home Visiting Program Evaluation (MIHOPE), a national evaluation of home visiting programs funded through MIECHV, highlighted that participation rates declined after initial visits (Duggan et al., 2018). An evaluation of home visiting programs across multiple sites reported that some models have lower retention rates (Parents As Teachers and Nurse-Family Partnership) than others (e.g., Healthy Families America) (Daro, Boller & Hart, 2014). Consistently across home visiting programs families did not receive the suggested number of visits—families who enrolled received less than 80% of the recommended visits (Boller et al., 2014; Gomby, Culross & Behrman, 1999; Gomby, 2005). Indeed, other work reveals that many families received fewer than the programs' average recommended number of visits (PAT – 26%; NFP – 20%; HFA – 5%) (Daro, Boller & Hart, 2014). A more recent national evaluation study of home visiting programs highlighted that all home visiting models struggled to meet the intended number of visits and program duration (Boller et al., 2014), and high attrition in home visiting programs has been well documented (Anisfield et al., 2004; Caldera et al., 2007). Even within randomized control trials, 25% to 50% of families leave the programs (Daro et al., 2012; Gomby,

2005), and replicated program models such as Nurse-Family Partnership experienced higher attrition rates (60% to 70%) (Ingoldsby, 2010). It is also important to note that experimental studies focus on outcomes, and experience with family engagement is different in randomized control trials than in replicated programs. Thus, the challenges faced in scaling up programs vary, which may impact implementation fidelity and expected program outcomes.

Top reasons for ‘losing’ families recorded by agencies were a high number of missed appointments, parental refusal of further services, or inability to contact the families. Often mothers have other priorities and have limited time because of work or school commitments, making it difficult to schedule or keep visit appointments. (Holland et al., 2014; Wagner, et al., 2000) Further, this issue is related to the timing convenience of appointments (Mytton, 2014). The home visiting programs have a focused curriculum that may not be of interest or relevant to the current needs of parents. For the Nurse-Family Partnership program, for example, first-time mothers found the program to be helpful prenatally, but the later visits were not useful so their interests declined after the birth of the child. (Holland et al., 2014) Changes in child custody can also lead to program dropout (Brand & Jungmann, 2014).

Family situation, community context, family or other external factors affect program participation. Some families may also not support mothers participating in a home visiting program, viewing it as going outside of the family to receive help (Wagner et al., 2000). Housing instability, which includes homelessness, moving, eviction, and foreclosure, is a common reason for leaving the program (Holland et al., 2014; Wagner et al., 2000; Brand & Jungmann, 2014). Home visitors have noted that it is difficult to work with families where there are limited resources (LeCroy & Whitaker, 2005). Families participating in home visiting programs often

experience depression, domestic violence, and substance use, and local resources to address these problems may be limited (National Research Council, 1999; Tandon et al., 2008).

Another factor influencing family participation is the relationship of the family with the home visitor (nurse, paraprofessional). (Krysiak, LeCroy & Ashford 2008; Mytton et al., 2014) Mothers may lose trust in their home visitor because the home visitor does not meet their expectation or is unable to answer the mother's questions (Holland et al., 2014). Thus, families are less likely to drop out if home visitors show parents respect and are competent to address problems that are important to parents (Brookes et al., 2006). Another issue is staff turnover, a common problem (Holland et al., 2014), which can affect the parent/family relationship and the "quality" of the home visits (National Research Council, 1999). It takes times for families to build trusting relationships, and staff turnover generates reluctance to work with a new home visitor out of concern that the new home visitor may also leave the program (Holland et al., 2014; Wagner et al., 2000). Thus, families may leave the program resulting in less than full caseloads for agencies (National Research Council, 1999). Other issues related to staffing include the difficulty in recruiting and retaining staff who have the required qualifications in addition to language and cultural competency to serve diverse populations (Paulsell, Del Grosso & Supplee, 2014).

The MIECHV program in Rhode Island

As mentioned in the Introduction, RIDOH implements three evidence-based home visiting programs, which are described in more detail below. RIDOH chose to implement three different models to give families options and/or to be able to appropriately fit the families' needs. The programs vary in eligibility, focus and intensity, and outcomes. Families can only enroll in one of the MIECHV programs. Table 2.2 summarizes key features of each program.

Table 2.2 Description of RIDOH home visiting programs

Program name	Eligibility/target pop.	Program focus & design	Program outcome	State Program costs per family*
Healthy Families America (HFA)	<ul style="list-style-type: none"> • pregnant or parenting a child <3 months • can have more than 1 child • target children at risk for abuse, neglect, or other adverse experience 	<ul style="list-style-type: none"> • 60 minute, weekly (at least for first 6 mo.) & less frequent visits over time • delivered by paraprofessional • focus on strengthening parent-child relationships • services until child is 4 years • offered statewide 	improved child well-being (physical health, development & school readiness)	\$4,000
Nurse Family Partnership (NFP)	<ul style="list-style-type: none"> • first time mothers <28 weeks pregnant 	<ul style="list-style-type: none"> • 60-90 minute, weekly (initially)/bi-weekly visits by a nurse • delivered by nurse • focus on parenting practices • services until child is 2 years • offered statewide 	improved child well-being (physical health, development & school readiness); reduction in child maltreatment (abuse & neglect)	\$6,000
Parents as Teachers (PAT)	<ul style="list-style-type: none"> • pregnant or parenting a child <2 yrs. • can have more than 1 child 	<ul style="list-style-type: none"> • 12 to 24 hour-long home visits annually by certified parent educators (# of visits depend on families' need) • delivered by paraprofessional (parent educator) • focus on school readiness • services until child is 4 years 	improved child well-being	\$2,300

Source: Homevee.acf.hhs.gov; CECB4cw.org

* estimates based on family's completion of program

Healthy Families America (HFA)

HFA targets parents facing challenges such as single parenthood, low income, childhood history of abuse and other adverse child experiences, and current or previous issues related to substance abuse, mental health issues, and/or domestic violence. This home visiting model is a signature program of Prevent Child Abuse America (PCA America), a non-profit organization that develops “programs that help to prevent all types of abuse and neglect” (“Prevent Child Abuse America | Because Children are our future...,” 2019). The program aims to achieve eight outcomes: (1) reduce child maltreatment; (2) improve parent-child interactions and children’s social-emotional well-being; (3) increase school readiness; (4) promote child physical health and development; (5) promote positive parenting; (6) promote family self-sufficiency; (7) increase access to primary care medical services and community services; and (8) decrease child injuries and emergency department use. This home visiting model is grounded in two theories, attachment and Bronfenbrenner’s bio-ecological systems theories, and incorporates principles of trauma-informed care. The family centered, strength-based (i.e., focus on family’s strength such as resilience) program promotes positive parent-child relationships and healthy attachment, and is culturally sensitive. HFA has three primary components: (1) assessments to determine families at risk for child maltreatment or other adverse childhood experiences (the Parent Survey, formerly the Kempe Family Stress Checklist); (2) home visits from staff trained in trauma-informed practices, parent-child attachment principles, and reflective strategies to support parents; and (3) routine screening for child development and maternal depression. There is a limited enrollment period; families are enrolled prenatally or within three months of birth of child. Families continue with the program until children are at least three years but preferably until children are five years. The program is time-intensive requiring at least one visit per week

for the first six months from child's birth with less frequent visits based on families' needs and progress. Generally the visits run about an hour. ("The HFA Strategy," 2018)

Nurse Family Partnership (NFP)

NFP is specifically designed for first time mothers and their children. NFP recognizes that fathers may also need support, and nurses will support them as well. Fathers, family members, and close friends may also participate in the visits. Similar to HFA this program also targets low-income families. This program focuses on achieving three outcomes: (1) improve prenatal health and outcomes; (2) improve child health and development; and (3) improve families' economic self-sufficiency and/or maternal life course development. NFP centers around three key theories, human attachment, human ecology, and self-efficacy theories. Registered nurses trained in the model deliver the program and use motivational interviewing techniques with mothers to promote health during pregnancy, care of their child, and their own personal growth and development. Families must enroll in the program early in the pregnancy and have a first home visit by the end of the mother's 28th week of pregnancy. For the first month of enrollment the visits are weekly, and in subsequent months until the baby is born, visits are bi-weekly. After birth, nurses meet weekly for the first six weeks and every other week until the child is 20 months with the frequency reduced to once a month until the child is two years old. The home visits can be from 60 to 75 minutes.

("Nurse-Family Partnership – Helping First-Time Parents Succeed," 2018; "Model Profiles - Home Visiting Evidence of Effectiveness," 2018)

Parents As Teachers (PAT)

For PAT, the state can set eligibility criteria for the population they would like to target (e.g., income-based, first-time parents, immigrant families). RIDOH has set flexible

requirements for eligibility and enrollment; any pregnant or a parent with a child of up to two years old can enroll in the program. PAT has four required parts of its model: (1) one-on-one personal (or home) visits; (2) group connections (or meetings); (3) health and developmental screenings for children; and (4) linkages and connections for families to needed resources.

Through these four components, the model aims to accomplish four primary goals: (1) increase parent knowledge of early childhood development and improve parenting practices; (2) provide early detection of developmental delays and health issues; (3) prevent child abuse and neglect; and (4) increase children's school readiness and school success. PAT "promotes optimal early development, learning and health of young children by supporting and engaging their parents and caregivers." Parent educators are trained in Foundational Curriculum and participate in a three-day Foundational training that covers growth and development from before birth to age three, approaches to working with families, building relationship-based competencies, and strengthening protective factors. There is a subsequent Foundation 2 training on children ages three to six years. The meeting requirements are less stringent than HFA and PAT. For families with one or no high need characteristics the program has to offer at least 12 visits annually; while for families with two or more high need characteristics, there should be at least 24 visits. High need characteristics can include being a teen parent, having substance use problem, homelessness, low-income, recent immigrant or refugee, and others. In addition, at least 12 'group connections' meetings (i.e., groups for parents and children to interact with one another and engage in learning activities) a year have to take place. The program has to serve families for at least two years. ("Parents as Teachers," 2018; "Model Profiles - Home Visiting Evidence of Effectiveness," 2018)

Program Comparison Highlights

HFA, NFP, and PAT are all long-term, multi-year home visiting programs. NFP targets only first-time mothers while the other two programs are open to all mothers/families. Both HFA and NFP have limited enrollment periods: NFP mothers have to enroll before the 28th week of pregnancy; HFA, either prenatally or up to 3 months after the birth of the child. All three models require regular contact with families with visits lasting about an hour. However, the number of required visits varies, with PAT requiring fewer annual visits compared to HFA and NFP, which are more time intensive particularly in the first six months of the program when families meet with their home visitors weekly.

The Cost Study of Evidence-Based Home Visiting Programs, conducted by Mathematica in 2014 using data from a one-year period (July 2011 – June 2012), found that NFP may be more expensive to operate than HFA and PAT. This may be attributed to the fact that NFP uses nurses (registered or bachelor's prepared nurses) to deliver the program, who have higher staff salaries than other types of home visitors. Thus, NFP has a higher cost per family and cost per home visit on average. On the other hand, PAT on average has the lowest cost per family and per home visit. (Burwick et al., 2014)

Project Overview

Rhode Island Department of Health – Host Organization

The Rhode Island Department of Health (RIDOH) has put in place systems to ensure all children are screened at birth and periodically through their early years to identify any developmental delays and environmental risk factors that may hamper development. The goals of the RIDOH mirror the Healthy People 2020 early childhood objectives of ensuring children are prepared for schools in a variety of health domains, including physical, socio-emotional,

approaches to learning, language, and cognitive development. The objectives call for support to parents and caregivers, creation of supportive communities, and increased access to high-quality health care (“Early and Middle Childhood | Healthy People 2020,” 2017).

RIDOH has a community-based, standardized, centralized system to identify and refer expecting mothers and families with young children who may be at risk, which is assessed through their screening tools (e.g., newborn risk assessment). Referral sources commonly include WIC, local health clinics, birthing hospitals, and RIDOH. Referrals are made to a local First Connections agency that coordinates resources at the community level to ensure that a family accesses appropriate services to address the family’s needs. First Connections also serves as a short-term home visiting program that is delivered by a nurse, and remains connected with families until they are enrolled in a long-term early childhood program (e.g., home visiting, Early Intervention). RIDOH has a no “wrong door” policy, so for example, providers or families may directly contact a local program implementation agency. However, RIDOH tries to guide providers to refer to First Connections as the point of entry in each community for families. Once families are connected with a local implementation agency such as those delivering evidence-based home visiting programs, the agencies then enroll families into their program.

RIDOH also launched a “Love that baby” campaign in 2016 to promote their home visiting programs (i.e., First Connections and the MIECHV programs). The promotional materials have a “call to action” message where providers and/or families can call, fax, or text RIDOH for more information about home visiting programs and make the appropriate referral. RIDOH also created Local Implementation Teams (LI Teams) in several communities across the state to support local infrastructure and coordination across all early childhood programs. These teams are community-based and multi-disciplinary and include staff representatives from various

early childhood programs and agencies. They help facilitate change at the community level with a collective impact approach to program implementation and policy and program alignment. These teams also allow the state to assess ongoing unmet maternal and child health needs in the communities and statewide, and to develop plans to address such needs. Additionally, RIDOH established an informal resource network for all home visitors in the state. Newsletters, which contain information such as professional development opportunities, parent groups, and continuous quality improvement initiatives, are regularly circulated with all home visitors.

Project description

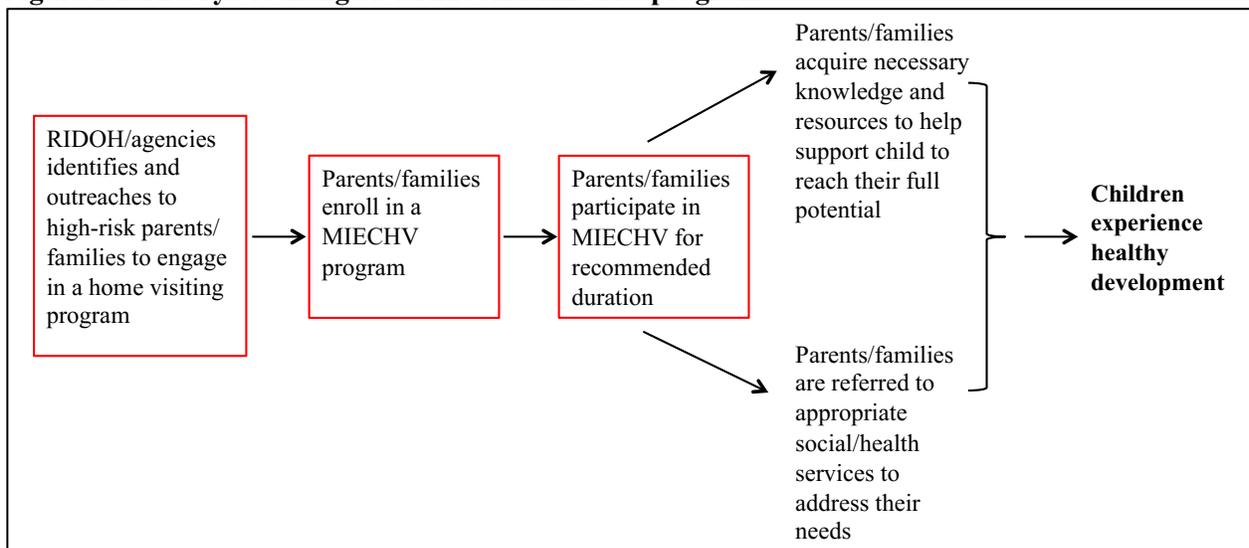
The DELTA project consisted of multiple components and used a mixed methods approach to gain a better understanding of family engagement in home visiting programs. For the first part, using a dataset for the state's 2014-2016 birth cohorts, bivariate and multivariate analyses were done to understand the risk factors contributing to child and families level of engagement, specifically enrollment and participation, in programs. These risk factors included child characteristics (e.g., developmental delays) and family characteristics (e.g., socio-demographic and economic factors). The second part entailed conducting focus groups with local implementing agencies (i.e., home visiting program delivery agencies) and families with young children to provide in-depth qualitative information on engagement and complement the quantitative findings.

Theory of Change

Drawing from the Bronfenbrenner's Biological Model of Human Development, the theory of change will focus on the microsystem and mesosystem and center around family engagement (i.e., enrollment and participation) in home visiting programs. The mesosystem level describes the relationship between parents/families and the home visitors that in turn influences

engagement in home visiting programs and parents receiving the necessary support. This level then impacts the microsystem, where both parents/families and home visitors directly interact with the child supporting their development and health. Figure 2.2 depicts a simple theory of change that begins with the RIDOH having the appropriate tools to identify high-risk parents/families and resources to promote the home visiting programs (including appropriate messaging) and to engage families in the programs. This will encourage parents/families to enroll and participate in the home visiting program where they can receive the appropriate services to address their pressing needs, while also strengthening their ability to support their child, ultimately resulting in child’s healthy developments. This DELTA will focus on the first three elements of the theory of change: (1) RIDOH identifying and outreaching to high-risk families; (2) parents/families enrolling in programs; (3) and parents/families participating in programs.

Figure 2.2 Theory of Change for RIDOH MIECHV programs



Design description

Quantitative

A. Research Question

This component of the DELTA project focuses on two questions that hope to document and explain variation in engagement and retention in the state’s three evidence-based family visiting programs in the four core cities and the overall state. First, what child, family and other characteristics predict enrollment in evidence-based family visiting programs (e.g., NFP, HFA, and PAT)? Second, what child, family and other characteristics predict low and high participation in home visiting programs?

B. Dataset

The data used for the quantitative analyses is derived from the state’s KidsNet and Efforts to Outcome (ETO) databases. The purpose of the KidsNet database is to facilitate the collection and sharing of health data to ensure provision of timely and appropriate preventive health services and follow-up (“KIDSNET: Department of Health,” 2018) through linkages recording services provided, including children’s immunization records, newborn and developmental screenings, lead screenings and other health data as well as program data including home visiting, Early Intervention, and WIC. The service and health data are linked to the birth certificate file so that a complete census of services received are available for all the births in Rhode Island, but not for children born outside the state. The child and family information were linked using the KidsNet identification number to family visiting data extracted from the ETO™ database. RI uses ETO™, an outcomes-oriented software system, to manage and report on their MIECHV programs (“ETO Software Tool of Choice for State MIECHV Initiatives,” 2018). Family visiting agency staff record program enrollment information, visit dates and counts in the

ETO™ database. They also note if a family is currently active or the reason for dismissal or non-enrollment (e.g., child completed program, unable to contact for three months, etc.).

This part of the project was done in collaboration with a research team at Brown University's Hassenfeld Child Health Innovation Institute. The research team compiled a dataset from a range of state agencies including RIDOH, Rhode Island Department of Education, and Rhode Island Department of Human Services. Individual child records were matched across databases using a unique identification number, birthdate, and mother's age. If data from different sources could not be matched, those data points were dropped from the dataset. From this extensive dataset, a subset was created with child/family from one of the four core cities and the variables that pertained to the study research questions. The RIDOH Institutional Review Board Office approved this study, and the Harvard T.H. Chan School of Public Health Institutional Review Board ceded overview to the RIDOH office.

C. Predictor and Outcome Variable(s)

The goal of the quantitative analyses was to assess whether certain factors predicted: (1) enrollment by a family in one of the MIECHV programs [categorical], and (2) if so, intensity of use (low (<4 visits) and high (>4 visits). "Enrollment" refers to family/child who enrolled in a program and received a home visit (Gomby, 2005) while "participation" is the frequency or number of home visits a family/child received (Korfmacher et al., 2008). Table 2.3 summarizes the outcomes of interest and the factors that were analyzed. As shown, the factors were grouped into three categories: child characteristics, family characteristics, and 'other' characteristic. All predictor variables were categorical. The analyses focused on the four core cities of importance to RIDOH (Central Falls, Pawtucket, Providence, Woonsocket).

Table 2.3 Description of predictor and outcome variables used in analyses

Predictor variables	Description/Definition
Child characteristics	
Developmental disabilities or other conditions	Disabilities or other conditions (spina bifida) indicated using developmental screening tool
Low birth weight	Child weight under 2500 grams
Family characteristics	
Maternal age	Mother’s age at birth of child
Marital status	Single (divorced, divorced/widowed, married/separated, widowed); not single
Maternal health insurance	Public; Private; Self; No insurance (proxy for income)
Maternal language	Mother’s primary/preferred language spoken: English; Spanish; Other
Prenatal visits	Yes/No
Race/ethnicity (maternal and paternal)	Hispanic; non-Hispanic Black; non-Hispanic Multirace; non-Hispanic Other; non-Hispanic White
Education (maternal and paternal)	Less than high school; High school completion
Risk disposition	Risk positive or risk negative defined by a set of developmental screening characteristics, Level 1 (see Appendix D)
Social-behavioral factor count	Summary of conditions, score 1 to 4 1. Maternal Domestic Violence Victim— domestic violence or intimate partner violence mentioned in records 2. Parental Mental Health— mother or father inpatient or outpatient mental health care documented 3. Parental DCYF— mother or father DCYF documented 4. Parental Substance Abuse— mother or father substance abuse documented
‘Other’ characteristics	
First Connections visit	Visit through RI’s short-term family visiting program: Yes/No
Outcome variables	
Description/Definition	
Enrollment	Had 1 visit through a MIECHV program (HFA, NFP, or PAT) [categorical—yes/no] Note: does not reflect program participation
Participation	Low participation (<4 visits) and high participation (>4 visits) [categorical]

These child and family characteristics were selected because they have been shown in the literature to be associated with risk factors for development (discussed above) or enrollment and participation in home visiting programs. The likelihood of initial engagement (scheduling of a visit) and completion of the visit has been found to be correlated with high-risk infants (e.g., infants with health risks such as low birth weight, birth complications or other diagnoses), higher maternal education (Goyal et al., 2014), and non-White race (McCurdy et al., 2006). Also, mothers from communities that had higher levels of social deprivation were less likely to enroll (Goyal et al., 2014). Lower participation rates have been shown to vary with family demographic risk factors (e.g., low maternal age, public health insurance, and low socioeconomic status) (Alonso-Marsden et al., 2013). Spanish speakers, were more likely to remain enrolled compared to English speakers (Daro et al., 2014).

D. Sample

The number of newborns born January 2014 through December 2016 for Rhode Island as a whole and by core city is shown in Table 2.4. Across all three years, births in the core cities accounted for 40% of births in the state, and these births were the primary focus of the analyses.

Table 2.4 Total births by state, core city and year and percent of core city births in the state

	2014	2015	2016	Total
Central Falls	317	302	336	955
Pawtucket	964	961	998	2,923
Providence	2,476	2,526	2,398	7,400
Woonsocket	534	545	605	1,684
Rhode Island	10,813	10,986	10,740	32,539
% of core city births in Rhode Island	40%	39%	40%	40%

E. Analyses

For birth cohorts 2014 through 2016 simple frequencies were calculated for each characteristic by the four core cities and the state to understand the population composition.

Then, the enrollment variable was cross-tabulated with each variable in Table 2.3, using chi square analyses to assess statistical significance. Generalized Estimating Equation was used with child and family characteristics found to be significant in bivariate analyses, excluding risk disposition. This variable was excluded to eliminate redundancy because risk disposition indicators encompass several of the characteristics analyzed. Parent identification number was used in the analysis to account for clustering at the family level (i.e., families with multiple children participating in programs).

Qualitative

A. Research Questions

Concurrent to the quantitative component, I conducted qualitative assessments concerning the challenges faced by agencies in delivering family visiting programs, and the barriers families encountered in accessing these programs.

B. Data Collection

(1) Focus groups with agency staff

To learn more about family engagement in home visiting programs, focus groups were conducted with staff from organizations that implement any of the home visiting programs: First Connections, NFP, HFA, and PAT. The type of agency, organizational staffing structure, and number of home visitors varied by site and program. A convenience sampling approach was used. RIDOH contacted the program director or manager at the six agencies that deliver these home visiting programs in the core cities. Each director or manager recruited home visitors who have at least a year of experience working with families to ensure they were able to provide an experienced perspective. The goal was to include a majority of the providers from each agency in the focus groups.

The focus groups were held in-person at the agencies. The length of the focus groups was about an hour. Participation was completely voluntary, and participating staff members had the option to choose to not answer any questions. A semi-structured interview guide was developed to gather information on the agency's early childhood program(s), including questions about family visiting, program coordination within and across agencies, experiences delivering the program(s), and staff perceptions on barriers/challenges that families may face in participating in home visiting program(s). (see Appendix A for the focus group guide). Detailed notes were taken during the focus groups; all identifying information was removed from the notes to maintain confidentiality. A code number for each agency was maintained in a separate file.

(2) Focus groups with parents/families

At the time of this project, RIDOH was conducting focus groups across the state as a part of its Family Home Visiting Program Strategic Plan. In order to streamline data collection efforts, RIDOH suggested that I integrate my focus group questions into its guide. I co-facilitated the RIDOH focus groups in the core cities. Six focus groups were conducted in five communities including in two of the core cities, Providence (2 focus groups) and Woonsocket. The other groups were held in Westerly, Newport, and Bristol. RIDOH scheduled two additional focus groups in Central Falls/Pawtucket and West Warwick/Coventry, but no families showed up.

The participating families were recruited through fliers in WIC offices and home visiting agencies. Home visitors also helped recruit their families to participate. On-site recruitment also occurred at the locations where the focus groups took place (e.g., clinic, community center). Staff at these sites asked expecting and mothers with young children, and interested mothers to join. The focus group guide was used to ascertain how families learned about programs, and whether they decided to participate or not and why. In addition, they were asked about the

enrollment process, and their experiences with early childhood programs not limited to home visiting programs, including Early Intervention and Head Start. At the completion of the focus groups, families were given a brief questionnaire asking about the number of children and their ages, early childhood programs they heard about, programs their children had enrolled in and the duration of participation in the program. In addition, the questionnaire gathered information on participants' race/ethnicity, sex, age, town of residency and length of time living in the town. (see Appendix B for focus group guide and questionnaire)

C. Analyses

Both sets of focus group data were analyzed using NVivo 11 for common themes and patterns as well as any deviations from the patterns. An emic or inductive approach was used to develop a codebook (Boyatzis, 1998). In the process of creating a codebook, one coder reviewed notes and listed key themes around organizational challenges and family barriers and perspectives in accessing home visiting programs. The codebook was iteratively revised and organized with parent codes and sub-codes. The data analyses was summarized and shared with RIDOH to identify possible strategies to enhance family engagement.

3. RESULTS STATEMENT

Quantitative findings

Descriptive Statistics

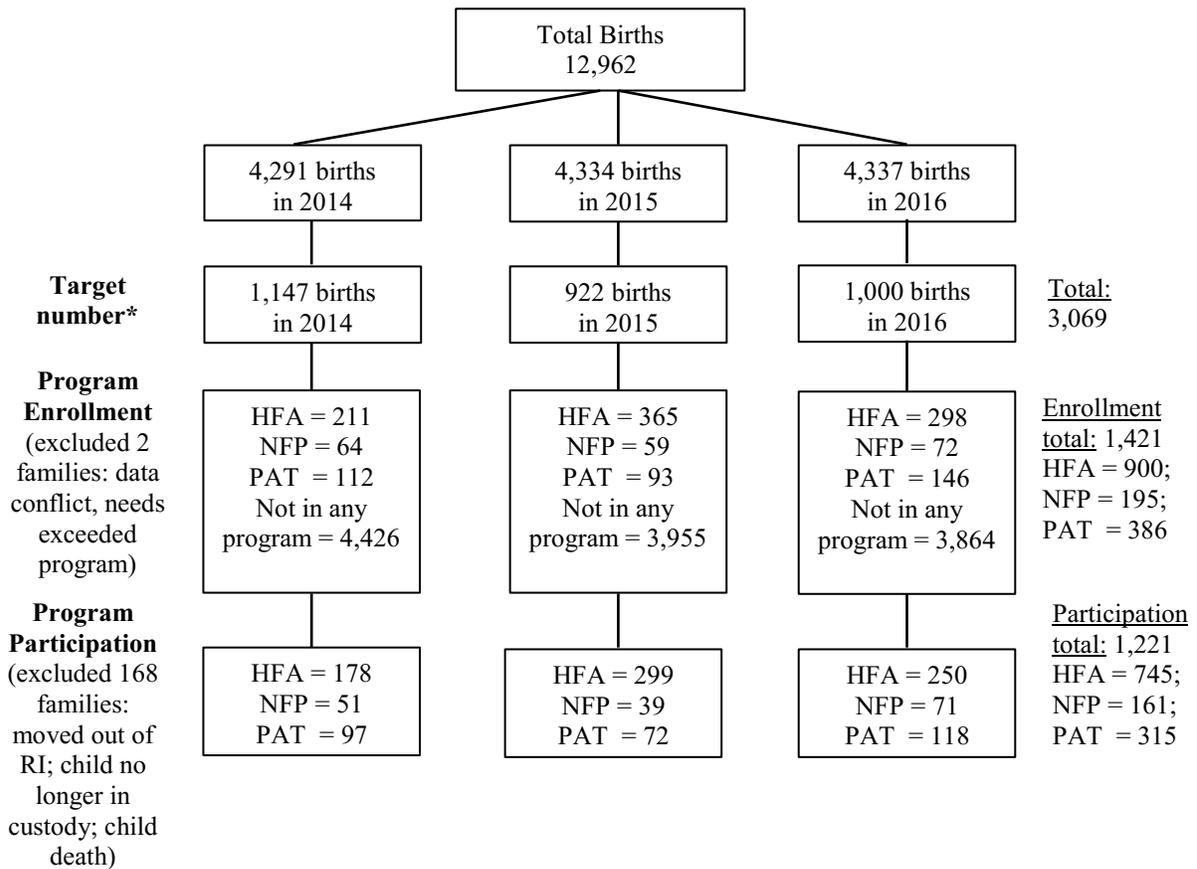
Among all births in the state from 2014-2016, a small percentage of babies had a known disabling condition, and the proportions were about the same in the core-cities and in the state. (Table 3.1). The prevalence of low birth weight across the cities was also similar to the state. There were more single and younger mothers (<21 years) in the four core cities compared to the state. Central Falls and Providence had a large proportion of non-English speakers (Spanish and other languages) while Woonsocket had a lower percentage of non-English speakers than the state. The percent of expecting mothers who had a prenatal care visit in three of core cities was slightly below the state percentage, and the same in Woonsocket. As would be expected, the four core cities had a higher proportion of minorities than in the state as a whole, with the exception of Woonsocket. For both maternal and paternal education, there were more parents without a high school diploma in the core cities. Although the proportion of families with no social-behavior risk count was similar across the state, the percent of families with two or more social-behavior factors was higher in the core cities. Other factors indicating the vulnerability of infants in the core cities, included receipt of public insurance and 'positive' risk disposition score on the state's newborn developmental screening. Also, having a First Connections visit was higher in the core cities.

Table 3.1 Sample characteristics (proportion of characteristics in cities, 2014-2016)

Variable	Central Falls	Pawtucket	Providence	Woonsocket	RI
N births with the characteristic (%)					
N Births	955	2,923	7,400	1,684	32,603
Known disabling condition	23 (2)	64 (2)	155 (2)	41 (3)	662 (2)
Low birth weight	79 (8)	259 (9)	640 (9)	142 (8)	2,390 (8)
Maternal age at time of birth (years) <21	217 (23)	365 (12)	1,202 (16)	303 (18)	3,437 (11)
Marital status: Single	665 (70)	1,648 (56)	4,340 (59)	1,041 (62)	13,850 (42)
Maternal language (primary): Non-English	370 (39)	412 (14)	2,014 (27)	150 (9)	3,546 (11)
Insurance status: public	824 (86)	1,922 (66)	5,511 (75)	1,159 (70)	15,512 (49)
Had prenatal care visit Yes	868 (91)	2,725 (93)	6,964 (94)	1,608 (95)	30,392 (95)
Maternal race/ethnicity non-Hispanic White	148 (16)	1,064 (38)	1,443 (20)	859 (52)	17,954 (57)
Paternal race/ethnicity non-Hispanic White	107 (13)	841 (35)	1,184 (19)	605 (43)	15,933 (56)
Maternal education No high school diploma	327 (40)	467 (18)	1,533 (24)	301 (20)	3,612 (13)
Paternal education No high school diploma	318 (41)	465 (19)	1,568 (26)	327 (23)	3,891 (14)
Risk disposition Risk +	829 (87)	2,183 (76)	5,820 (79)	1,290 (80)	19,790 (64)
Social-behavioral count	655 (69)	1,978 (68)	5,124 (69)	968 (57)	21,453 (67)
0	229 (24)	738 (25)	1,737 (23)	550 (33)	8,582 (27)
1	47 (5)	141 (5)	384 (5)	122 (7)	1,303 (4)
2	18 (2)	62 (2)	138 (2)	38 (2)	448 (1)
3	6 (1)	4 (0.1)	17 (0.2)	6 (0.4)	45 (0.1)
4					
Had First Connections visit	580 (61)	1,253 (43)	3,381 (46)	524 (31)	9,797 (30)

Figure 3.1 shows the number of births in the core cities across the three years, number of families/children enrolled in home visiting programs, and number of families/children that have participated in the programs by year. The number of children/families potentially eligible for home visiting programs were estimated based on the number of families with three or more risk factors using RIDOH's risk factor criteria (see note in Figure 3.1 for criteria list). Using the criteria, 3,069 families were eligible for home visiting programs. With this target number as the benchmark, about 46% (1,421 of 3,069) of the eligible families enrolled in one the home visiting programs. It should be noted that the families enrolled may not be the 'high risk' families reflected in the targeted numbers. While the enrollment percentage is low, the participation rate was relatively high; among families enrolled, 86% (1,221) of families continued to participate in a home visiting program.

Figure 3.1 Births, program enrollment and participation in core cities



* target #s estimated based on families with 3 or more risk factors (public health insurance – proxy for low income; maternal age <21 years; parental DCYF history; parental substance use history; mother education – no high school diploma; and parental inpatient or outpatient mental health treatment; mother marital status – single [counted only if also low income])

Table 3.2 shows the number of births across the four core cities, and the target and program enrollment in each of the cities. Among all total births in the core cities about a quarter of the population was potentially eligible to enroll in a home visiting program. Enrollment rates varied from 28% of those eligible to 64%.

Table 3.2 Total births, target and program enrollment by core city for birth cohorts 2014–2016

Variable	Central Falls N (%)	Pawtucket N (%)	Providence N (%)	Woonsocket N (%)
Number of Births	955 (3)	2,923 (9)	7,400 (23)	1,684 (5)
Est. target number*	238 (25)	630 (22)	1,647 (22)	508 (30)
Total number of families enrolled in a home visiting	152 (64)	307 (49)	785 (48)	140 (28)

*target #s estimated based on families with 3 or more risk factors (public health insurance – proxy for low income; maternal age <21 years; parental DCYF history; parental substance use history; mother education – no high school diploma; and parental inpatient or outpatient mental health treatment; mother marital status – single [counted only if also low income])

Table 3.3 presents enrollment and estimated target numbers by year. In 2015 and 2016 the number of estimated targeted families were lower than in 2014. The enrollment numbers reflect the number of children/families from each birth cohort who enrolled in a program, not necessarily in the year of the child’s birth. While program enrollment rate increased from 2014 to 2015 and a slightly decreased in 2016, the data reinforce the conclusion of relatively low enrollment rates.

Table 3.3 Core city families enrolled by birth cohort 2014 – 2016 and target number* by year and MIECHV program

Program	2014		2015		2016	
	Enrolled N	Est. target N	Enrolled N	Est. target N	Enrolled N	Est. target N
HFA	211	1,147	365	922	298	1,000
NFP	64		59		72	
PAT	112		94		146	
Total N (%)	387 (34)		518 (56)		516 (52)	

*target #s estimated based on families with 3 or more risk factors (public health insurance – proxy for low income; maternal age <21 years; parental DCYF history; parental substance use history; mother education – no high school diploma; and parental inpatient or outpatient mental health treatment; mother marital status – single [counted only if also low income])

Among families enrolled in a home visiting program most families had more than one visit, and participation levels show that most families continued to participate for at least four or more visits (Table 3.4). Woonsocket had slightly lower percentages of families participating in the program after the first visit, though low and high participation levels were comparable to

both Pawtucket and Providence. Central Falls had a slightly greater percentage of families having a ‘high participation’ level.

Table 3.4 Participation levels by core city for birth cohorts 2014-2016

Variable	Central Falls N (%)	Pawtucket N (%)	Providence N (%)	Woonsocket N (%)
Families enrolled (of those targeted)	152 (64)	307 (49)	785 (48)	140 (28)
Families participated (>1 visit)	126 (83)	257 (84)	675 (86)	98 (70)
Low participation among participating families (<4 visits)	6 (5)	25 (10)	58 (8)	9 (9)
High participation among participating families (≥4 visits)	120 (95)	232 (90)	617 (92)	89 (91)

Bivariate and logistical regression analyses: enrollment

In the core cities, a majority of the child, family and other characteristics were significantly associated with enrollment status (Table 3.5). Children with low birth weight were more likely enrolled than not in MIECHV programs. Characteristics associated with higher enrollment included maternal age <21, single marital status, primary language not English speakers, public health insurance, minority racial/ethnic status, low parental education, social-behavioral risk factors, and a First Connections visit.

Table 3.5 Bivariate analyses of child, family and other characteristics and enrollment for core cities

Variable	Enrolled N (%)	Not Enrolled N (%)	Chi Sq. p- value
Child characteristics			
Child developmental delay/disability	45 (3.2)	247 (2.1)	p = .11
Low birth weight (<2500 grams)	159 (11.2)	1,019 (8.4)	p < .001
Family characteristics			
Maternal age: <21 years	393 (27.6)	1,755 (14.3)	p < .001
Maternal marital status: single	1,023 (72.1)	6,803 (55.6)	p < .001
Maternal insurance status: public	1,296 (91.6)	8,320 (70.7)	p < .001
Maternal language (primary): non-English	446 (31.6)	2,510 (21.6)	p < .001
Had prenatal care visit	1,319 (92.7)	11,490 (93.8)	p = .093
Maternal race/ethnicity: non-Hispanic White	213 (15.6)	3,721 (31.5)	p < .001 ^a
Paternal race/ethnicity: non-Hispanic White	119 (12.0)	2,983 (29.2)	p < .001 ^a
Maternal education: No high school diploma	447 (37.6)	2,284 (21.6)	p < .001
Paternal education: No high school diploma	366 (36.4)	2,371 (23.4)	p < .001
Risk disposition: Risk +	1,323 (94.8)	8,896 (77.5)	p < .001
Social-behavioral factor count:			p < .001
0	758 (53.3)	8,609 (70.3)	
1	425 (29.9)	2,851 (23.3)	
2	148 (10.4)	570 (4.6)	
3	82 (5.8)	190 (1.5)	
4	10 (0.7)	25 (0.2)	
Other characteristic			
Had First Connections visit	1,003 (70.5)	4,826 (39.4)	p < .001

^a chi square test based on a 4 category race variable (black, white, Hispanic, other)

The characteristics that remained significant in the multivariate analyses were: maternal age < 21 years, public insurance, racial/ethnic minority status, maternal education, social-behavioral factor count, and having a First Connections visit (Table 3.6).

Table 3.6 GEE with significant bivariate enrollment characteristics

	OR (CI)
Child characteristics	
Low birth weight (<2500 grams)	1.3 (1.0, 1.7)
Family characteristics	
Maternal age: <21 years	1.6 (1.4, 2.0)**
Maternal marital status: single	.85 (0.7, 1.0)
Maternal insurance status: public	2.7 (1.9, 3.3)**
Mother language: non-English	0.92 (0.6, 1.4)
Maternal race/ethnicity: non-Hispanic White	.59 (0.4, 0.8)**
Paternal race/ethnicity: non-Hispanic White	.71 (0.5, 1.0)*
Maternal education: no high school diploma	.83 (0.7, 0.9)*
Paternal education: no high school diploma	.90 (0.7, 1.0)
Social-behavioral factor count	1.5 (1.4, 1.7)**
Other characteristics	
First Connections visit	2.6 (2.2, 3.1)**

*p<.05

**p<.001

Bivariate analyses: participation

In contrast to enrollment findings, no child, family, and other characteristics were found to be associated with participation level except for language; mothers speaking non-English languages had higher levels of participation (Table 3.7). Having a prenatal visit almost achieved significance in the association with a higher participation rate. Because of the lack of association between these variables, no multivariate analysis was performed.

Table 3.7 Bivariate analyses of child, family and other characteristics and participation levels for core cities

Variable	Low participation (<4 visits) % (N)	High participation (≥4 visits) % (N)	Chi Sq. p-value
Child characteristics			
Child developmental delay/disability	3 (3.1)	36 (3.4)	p = .897
Low birth weight (<2500 grams)	26 (14.3)	111 (10.5)	p = .131
Family characteristics			
Maternal age: <21 years	24 (25.0)	301 (27.9)	p = .543
Maternal marital status: single	66 (68.7)	775 (72.0)	p = .494
Maternal insurance status: public	85 (88.5)	989 (92.1)	p = .225
Maternal language (primary): non-English	44 (24.2)	362 (34.3)	p < .05
Had prenatal care visit	86 (89.5)	1,014 (94.0)	p = .092
Maternal race/ethnicity: non-Hispanic White	23 (13.1)	144 (14.0)	p = .350 ^a
Paternal race/ethnicity: non-Hispanic White	7 (12.1)	84 (10.9)	p = .151 ^a
Maternal education: No high school diploma	29 (37.7)	350 (38.4)	p = .896
Paternal education: No high school diploma	22 (36.1)	287 (37.0)	p = .880
Risk disposition: Risk +	91 (94.8)	1,067 (95.3)	p = .917
Social-behavioral factor count:			p = .668
0	52 (54.2)	577 (53.5)	
1	30 (31.2)	328 (30.4)	
2	7 (7.3)	109 (10.1)	
3	7 (7.3)	56 (5.2)	
4	0 (0)	9 (1)	
Other characteristics			
Had First Connections visit	74 (77.1)	774 (71.7)	p = .262

^a chi square test based on a 4 category race variable (black, white, Hispanic, other)

Qualitative findings

Focus group participants: agencies

Eleven focus groups were carried out at agencies that participate in a home visiting program. These agencies included a variety of service organization types such as social support and health care. A total of 25 home visitors with one to 14 years of experiences participated in the focus groups. Other participants included 11 managers or supervisors, who had previous home visitor experience but currently not working in that role, one social worker, and two intake coordinators. Two directors of family support programming/early childhood programming did not participate in the focus group and were interviewed separately. See Appendix C for a description of participating agencies.

Focus group participants: parents/families

A total of forty families (45 individuals: parents and family members; 4 were couples/partners) participated in six focus groups. Five of the participants were expecting at the time of the focus groups. Demographic data was collected from 42 of the 45 participants; not all parents answered questions about race/ethnicity, sex, age, and number and age of children. Table 3.8 summarizes the participants' demographic information.

Table 3.8 Parents/families focus groups: participants' information

Demographics	Participants N (%)
Family member	
Mother (non-biological/biological)	36 (88)
Father	4 (10)
Grandmother	1 (2)
City/town	
Providence	6 (14)
Woonsocket	7 (16)
Westerly	10 (23)
Newport	13 (30)
Bristol	7 (16)
Race	
White	18 (44)
Black	7 (17)
Hispanic	7 (17)
Asian	3 (7)
Mixed	2 (5)
Unreported	4 (10)
Age	
20-29	19 (45)
30-34	5 (12)
35-39	7 (17)
40+	5 (12)
Unreported	6 (14)

Of the 40 families in the focus groups, 20 were enrolled in a MIECHV program (Table 3.9).

Their length of participation in the programs ranged from less than six months to more than three years. Among the focus group participants, greater number of families were participating in PAT.

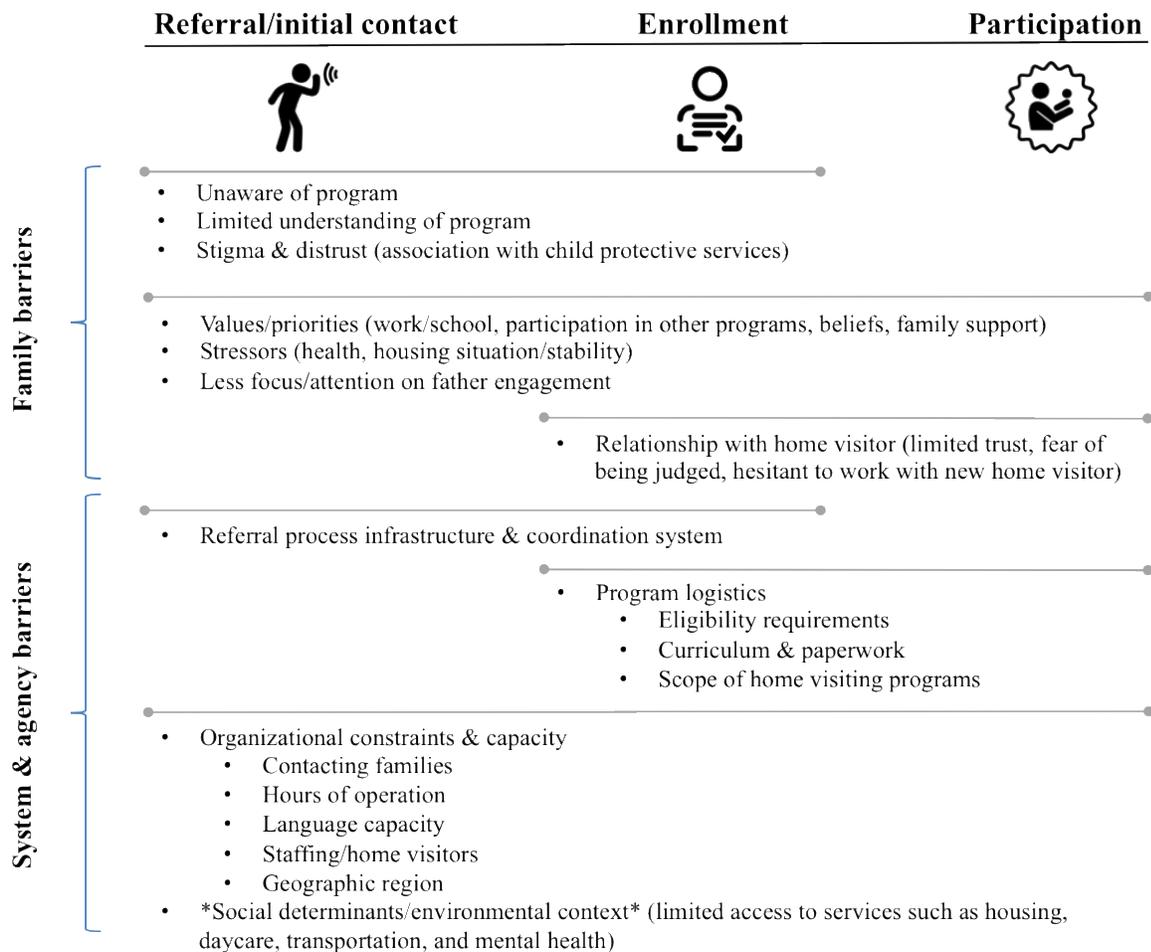
Table 3.9 Parents/families focus groups: enrollment & participation in MIECHV programs

	Participants N (%)
# families participating in a MIECHV program n=40)	
Yes	20 (50)
No	20 (50)
MIECHV program participating in (n=20)	
PAT	13 (65)
HFA	5 (25)
NFP	2 (10)
Length of participation in program (n=20)	
Less than 6 months	4 (20)
6-12 months	3 (15)
1-2 years	5 (25)
More than 3 years	3 (15)
Unreported	5 (25)

Focus group: Summary of findings and key themes

Family barriers in accessing home visiting programs and agency- and system-level barriers in delivering programs have been organized into three categories that correspond to phases in program exposure: referral/initial contact, enrollment, and participation. Figure 3.2 outlines the barriers that agency staff and families identified in the focus groups.

Figure 3.2 Summary of qualitative findings: barriers for families to accessing programs and for agencies delivering programs in referral/initial contact, enrollment, and participation stages



These findings have been organized into nine themes, the first six concern families and the other four relate to agency (deliverers of the program) and system level issues. The barriers incorporated both families’ and agencies’ perspectives, and a number of the themes were interrelated.

Family barriers

- Lack of awareness/understanding: Families are unaware of or have limited understanding about home visiting programs affecting enrollment.

Some families have never heard about home visiting programs. The brief questionnaires completed by families in the focus group highlighted that a majority of them had not heard about HFA (73%) and NFP (85%), and slightly less than half had not heard of PAT (48%). No families had heard of all three programs, although six families had heard of at least two programs. Other families may have heard about home visiting programs, but do not fully understand the programs' purposes. Some families have misperceptions about MIECHV programs. One parent said that families think that the programs are going to teach you how to parent so they are reluctant to participate, and it's important that when presenting these programs that it is clear that the programs will not teach "how to parent."

- Stigma and distrust: Families stigmatize home visiting programs and generally distrust state social services, hindering enrollment.

Families associate home visiting programs with the Department of Children, Youth, and Family (DCYF), the state's agency that runs child protective services, among other responsibilities. One single, expectant mother said that she did not enroll in NFP and shared: "I live in a basement, and I don't want to get the landlord in trouble. If they [visitors] come and see where I live they may take my child." This stigma is the most noted obstacle among the agencies in engaging families. DCYF has a negative reputation particularly because they can remove children from families. Families often believe home visitors are from DCYF and are "watching" or "spying" during the visits. This stigma makes it harder for agencies to engage families into the program and for families to trust visitors if they are enrolled in the program. Home visiting agency staff shared that in their experience, families are also concerned about their legal/ documentation status and so are hesitant to enroll in public programs.

- Limited focus on fathers: The fathers in the focus groups expressed that they are interested in participating in the visits, but are often not engaged in the conversations. This discourages their participation. The fathers also shared they would like to participate in groups or other programming for dads.
- Relationship with home visitors: Although families are often hesitant to work with home visitors, once families are established in the program, they generally view their relationship with home visitors as an asset.

Initially, families believe their home visitors will judge them on their parenting practices or housing conditions, which is also associated with discomfort in having an “outside” person come into their home. Home visitors shared that trust takes time to build, but once the relationship is established families are eager to participate and more open to share their concerns and situations. Conversely, several families described their home visitor as a social/emotional support system and participated in the program because the home visitor was a resource (e.g., learning about breastfeeding). One mother said the visit was a “stress relief,” and felt that she can talk to her worker “about anything and everything.” First time and older mothers find the program to be useful because the workers “have higher knowledge.” Families stated that they want to be treated as “equals” and work in “partnership.” A few families expressed that they “did not like it when [their] worker changed.” Thus, the departure of a home visitor impacts families continued participation in the program, and families are reluctant to work with another home visitor because they worry this home visitor may also leave.

- Values & support: Families have other priorities or their culture does not support engagement in home visiting programs.

Families have other competing priorities, such as their jobs or school. Two mothers expressed that they did not enroll in a program because they knew it would not align with their work schedules, while another young mother said that she went back to school so she would not have the time. Similarly, agencies stated that it also gets difficult to engage families once the parent or responsible family member starts working. One home visitor said it's their "#1 reason for losing families." One home visitor said that it is difficult to set appointments because families "don't have a consistent schedule," referring to the reality that many low-wage jobs have work schedules that are not the same from day to day.

Families are engaged in multiple programs or have multiple appointments to manage. For example, for DCYF families, parents have limited time with their children, and sometimes parents will choose not to participate in a home visiting session during that time. Agencies acknowledged that scheduling a visit in the last trimester is difficult as "closer to delivery date mothers have more appointments so they are harder to reach," and it can be "overwhelming" for the mothers.

People from some cultures typically do not seek support and access such services. They believe in "taking care of self." There is also the "family" culture where the mother/parents receive advice from family members that conflicts with the information from the home visitor but "my kids turned out fine." In other situations, partners may not want a visitor in their home although the mother may want to participate in the program.

- Stressors: Families experience stressors that impacts program engagement.

Agencies shared that many of the families they work with experience problems around mental health, substance use, trauma, and domestic violence. Families experiencing these risk factors was also evidenced in the quantitative data, such as large proportion of families having a public health insurance (proxy for low-income) and presence of more than one social-behavioral factor count. Many of the families face multiple problems that need to be addressed more immediately, making it difficult for them to focus on the home visiting curriculum and/or keep their appointment. One home visitor also said that families live in “deplorable housing conditions,” and so do not want someone in their homes. Some families live with extended families or live in someone else’s home, so they do not feel comfortable obtaining permission for a visitor or they perceive their family members may be uncomfortable with a home visitor. Agencies shared that they have attempted to address this barrier by meeting families outside the homes in locations such as libraries or at homeless shelters for families who do not have a home.

Agency/system-level barriers

- Social determinants/environmental context: There is a lack of needed services and resources to support families/for families to have their needs met.

Challenges within the broader state and social service system result in obstacles for families to engage in home visiting programs and contribute to the families’ stress (also mentioned above). Agencies spoke about limited access to needed services, such as housing, transportation, mental health services, and childcare. With the rise in rental costs in Rhode Island, many families have become homeless. The transportation system in certain communities does not allow families to commute efficiently across the city or may be limited

in some neighborhoods. While this is not a problem when a home visitor is going out to the home, some of the MIECHV programs have a ‘group’ component where parents and their child(ren) are invited for workshops. Lack of transportation prevents some families from attending, and this is one reason for low attendance rates for group sessions. Limited mental health services also hinder participation in programs. Availability of childcare services/providers for low-income families is also an issue. It may not directly impact participation in the home visiting component of programs, but it contributes to family stress. Because of the lack of services in the community, home visitors have to spend time addressing families’ more immediate needs. Also, families live in unsafe neighborhoods, and one agency expressed concerns for the “safety of [their] staff going to neighborhoods where there was a recent shooting.”

- Coordination system & referral process infrastructure: The current system for coordinating across programs is inadequate, and the referral system is ineffective.

Agencies and families both shared that there is lack of care coordination across state programs, including Early Intervention, and this is an issue in managing and communicating when families are participating in multiple programs and working with multiple providers. Agencies raised issues with the referral process for home visiting programs. Agencies found that some families were not aware that they were referred to a MIECHV program. One home visitor stated the “referral source matters,” because some referral sources know about the programs and requirements, others may not. Those referral sources who are less familiar with the programs do not make appropriate referrals and frame the purpose of MIECHV programs improperly resulting in families’ misperceptions about the program (e.g., that home visiting programs will be teaching parents how to raise their children) or incorrect expectations (e.g.,

that home visitors will assist with finding jobs, housing, etc.). On the other hand, parents said that it matters who shares information about the program (e.g., physicians are a trusted source). One parent suggested that referrals could come from a person who is or has been in a home visiting program, who could share their own experiences. Parents will be engaged depending on how the program is “brought up and whether or not it interests them.” Families would like program information in multiple formats (e.g., not just brochures) and repeated messaging, as a parent said that “I have a lot going on” and “it takes a few times to get something, to sink in.”

- Organizational constraints & capacity: Agencies experience constraints and have limited capacity to serve all families who may be eligible for programs.
 - *Staffing/home visitors*: Agencies noted issues of staff burnout and turnover, which has recently impacted their actual capacity to serve families. One director shared, “it’s not a great salary for staff so there’s burnout, turnover, and then families leave. Some families do stick with 2 to 3 providers.” Currently, at most agencies staff are at capacity, and challenges arise when there is staff turnover as another staff person has to take on additional cases. One logistical issue that arises with increased caseload is that it is more difficult for home visitors to re/schedule appointments. Home visitors work with families who are experiencing hardships and that takes a toll on the visitors. One home visitor spoke about “compassion fatigue” and said that some staff are not able to manage the stress. In addition, visitors have back-to-back appointments with limited time for paperwork. Some home visitors have also expressed that they are not adequately supported by their agencies (e.g., they are not given the space or opportunity to share their experiences). However, a number of staff

- shared that they find this work rewarding and value their connections with families, and this “keeps them coming back to work.”
- *Contacting families:* All agencies confronted problems in reaching families. Often it is difficult to make phone contact with the families because they may not have a phone balance/credit or their numbers have changed. Many families do not pick up the phone if they do not recognize the number. Teens, in particular, are more difficult to get in touch with and also, may require parental permission to be contacted. Some agencies noted that families say “yes” to get providers “off their back” or to leave the hospital, and they may not be interested in the program. Once initial contact has been made and families have enrolled in the program, follow-up contact continues to be a challenge. Some families move and do not inform the agency. It is particularly hard to track families if they become homeless.
 - *Hours of operation:* Home visiting programs primarily run during business hours, and this makes it difficult for families to schedule appointments at times that are convenient for them. Some parents also raised this issue. Though most agencies have introduced flexible hours (i.e., evening and weekend hours), timing of program delivery is still an issue.
 - *Language capacity:* All agencies have capacity to serve Spanish-speaking families. However, there are problems for less common languages. Agencies have access to interpreters; however, if there are a limited number of interpreters, the scheduling of home visits can be delayed. Further, one staff expressed that the “therapeutic connection is lost with an interpreter.” Some agencies mentioned that it can be costly to hire translators, and another stated they “still serve families, and figure it [the

- budget] out.” It can also be “tough to engage and hire” other bilingual staff (e.g., Creole, Portuguese) because of the limited workforce, demanding jobs, and low paying salaries.
- *Geographic region served:* Most agencies/programs are not able to follow families when they move because the agencies serve a particular geographic region. Further, during this transition period families can be lost to the programs. The NFP program works with families across the state, but this statewide coverage can create a challenge, as home visitors have to travel farther distances, which limits their time to meet with families and complete paperwork.
 - Program model logistics: Program requirements such as visit frequency, paperwork, and eligibility period impact family enrollment and participation. Home visiting programs are often not designed in a way that meets the needs and preferences expressed by families.
 - *Curriculum & paperwork:* HFA can be intense because of the required weekly visit – “weekly visits can be a lot; it’s daunting.” Families prefer short-term over long-term programs (e.g., First Connections) and may opt for less intense programs such as PAT as one parent said they will not participate in a “time consuming” program. One agency observed that programs that have a less stringent meeting requirement have better engagement. Also, during the initial visits there is a lot of paperwork to fill out. A staff member expressed “it’s tough in an interactive program when doing paperwork at first.” One parent in the focus group suggested to “not lead with paperwork.”
 - *Eligibility:* All programs require families to enroll within a certain period, particularly HFA (prenatally or within first 3 months of birth) and NFP (prenatally, <28 weeks).

There is “pressure” on agencies because of the “short window” of enrollment period (referring to period of prenatal to 3 months). By the time agencies make contact or families self-refer, agencies are unable to enroll families into their programs because of this limitation.

- *Scope of home visiting programs/agency service:* Families often require services beyond what the agencies offer and what the home visiting curriculum is designed to deliver (e.g., mental health, language support, housing advocacy). All agencies expressed similar sentiment that “it's mainly doing case management but should be doing the curriculum.” Some families “call in crisis” or “when they need something.” Home visitors recognized that it is important to address the families’ immediate needs and, depending on the severity of the issue, they will do a part of the curriculum. This sub-theme also relates to the stressors families face and is contributed by the social determinants/environmental factors, which then hamper the ability of home visitors to deliver the curriculum.

There were difficulties in recruiting families for the focus groups, and therefore not all relevant perspectives were captured, particularly the views of parents/families who choose not to participate in the family visiting programs. In order to learn more about why families may have declined to participate, interviews were conducted at WIC clinics in two of the core cities (one affiliated with an agency participating in the agency focus groups and another part of a healthcare center). WIC clinics were chosen because the Center at RIDOH oversees these clinics and was able to facilitate connections with the clinics. These clinics are also a place to access parents and young children who may be eligible to participate in home visiting programs. I spent

three to four hours over three days at the two clinics, identifying and interviewing families who had declined enrollment. Using a brief questionnaire, I interviewed ten families. The most common reasons for not enrolling included living situation, work/school commitments and inconvenient hours, and existing family support. Program hours were also mentioned in the focus groups while the other reasons augmented the qualitative findings.

Summary of quantitative and qualitative results

Enrollment

The results show that a relatively low proportion of the potential target populations in the four core cities enrolled in one of the home visiting programs (28-64%). Woonsocket had the lowest enrollment rate, which may be associated with higher proportion of families who are non-Hispanic, white residing in the city and lower percentages of families receiving a First Connections visit. The former factor was shown to decrease the odds of families enrolling in one of the MIECHV programs. First Connections visit families were more likely to enroll in a program, suggesting that these visits could be leveraged to encourage families to enroll in the MIECHV programs. While enrollment rates were low, the characteristics of those infants enrolled in the programs indicate that the programs reached the appropriate groups.

The qualitative data provide some insight into enrollment barriers. A primary issue is families' lack awareness or understanding of the MIECHV programs. Contributing to the limited understanding of the program is the stigma around MIECHV's association with DCYF that incites fears in families. Also, families face multiple issues, such as health and housing instability, that impact enrollment and participation. There is a disconnect between program hours and times most convenient and available for families to participate. In particular, scheduling visits around the family's work schedule proves difficult.

Participation

Despite these enrollment challenges, once families are enrolled, they have high participation levels (90-95%), indicating that participation does not seem to be a major issue. The only characteristic that was significantly positively associated with participation level was non-English language (most non-English speaking mothers were Spanish speakers). This reflects that all agencies had capacity to provide home visiting programs in Spanish, but they are still limited to serve other language speakers who may greatly benefit from the program. Although participation is high, several factors may influence the adequacy of the services provided. Home visitors work with families who have complex needs (the most commonly mentioned was mental health), but the programs may have limited capacity to address these needs. Thus, home visitors have to manage and balance delivering the program while addressing families' more pressing issues. Despite these concerns, families have expressed that the relationship with their home visitor is valuable and influences their program participation. There is also a recent issue of staff retention as home visitors have cited burnout and turnover due to the complexity of their work or increased caseloads.

4. CONCLUSION

This DELTA project presents new information on the family characteristics that influence family enrollment and participation in home visiting programs in Rhode Island, and the barriers and facilitators to enrollment and participation. These results add to the literature on family enrollment and participation in early childhood programs. Much of the existing literature focuses on participation and family drop out, but not on enrollment. However, enrolling those at risk is a key factor in achieving population change in childhood outcomes. The results suggest that high-risk families are likely to enroll, but that they often lack awareness about the potential programs available to them. In Rhode Island, there appear to be opportunities to facilitate enrollment in home visiting programs by establishing better connections with First Connections, the state's relatively short-term home visiting program. The qualitative results indicate that many factors in the lives of stressed and vulnerable families may contribute to lack of enrollment, including distrust of government agencies, particularly DCYF. These findings suggest having knowledgeable and trusted intermediaries who can describe the potential benefits of these programs may help facilitate enrollment.

Some of the findings from this study are consistent with the literature, while others are not. Literature exploring enrollment rates and/or associated predictive factors is sparse. A consistent finding was that non-white populations were more likely to enroll (McCurdy et al., 2006) and mothers without a high school degree were less likely to enroll (Goyal et al., 2014). However, unlike in the extant research, families in the core cities (communities with high poverty rates) were more likely to enroll in a home visiting program, and low birth weight did not significantly increase odds of enrollment. In contrast to other studies, few factors seemed to influence participation, once enrolled, generally participation remained high. Prior work has

found child characteristics such as low birth weight and family/parental characteristics young maternal age and public health insurance status were associated with low visit participation rates. It should be noted, however, that this study did not follow individual families overtime, so that we may not have a strong measure of drop-out. Many of the barriers identified through the focus groups resonated with previous research findings. Contacting families (Wagner et al., 2000; Brand & Jungmann, 2014), and serving families with health issues (e.g., mental health) (Tandon et al., 2008) are challenges for delivery agencies. Families face difficulties participating in programs due to program hours or having to return to work or school (Brand & Jungmann, 2014; Mytton et al., 2014; Wagner et al., 2000). The literature has consistently found that the relationship between home visitors and families is a critical factor for families engaging in home visiting programs.

The findings suggest a number of key areas that can be addressed to facilitate enrollment and participation in MIECHV programs. Program enrollment is and continues to be a challenge, while, at least at this point, participation is a lesser issue. While participation was not a major issue in the core cities, it is a critical piece of program engagement, and the set threshold of four or more visits as “high participation” is a low number. Familial, agency and community context influences enrollment in home visiting programs in Rhode Island. Based on the study results, several recommendations for increasing program enrollment (Recommendation 1) and participation (Recommendations 2 - 4) are presented below. These recommendations consider RIDOH’s current capacity and interests and align with its strategic priority areas around family engagement and staff retention.

Recommendation 1: Conduct outreach to increase awareness of home visiting programs in Rhode Island.

RIDOH needs to promote MIECHV programs to address families' lack of awareness and limited understanding of the programs. One approach is to leverage the role of First Connections by enrolling families into this short-term home visiting program as the data shows that having a First Connections greatly increases the likelihood of families enrolling into one of the MIECHV programs. Thus, this may be an effective mechanism for enrolling families into one of the long-term, home visiting programs. A second is to revise the current "Love that baby" campaign to create a new messaging campaign, and ensure that this branding is relatable to diverse populations as well as both mothers and fathers. An important element would be distinguishing the MIECHV programs from the activities of DCYF to help allay families' fears. This may begin by clarifying the purpose of the MIECHV programs such as sharing that the programs focus on child development and provide tools for parents/families to support child wellbeing. Insights from the qualitative analyses may provide guidance in this revision.

Another action step for RIDOH is to partner with the four major obstetric practices to 'catch' parents/families earlier. The data showed that over 90% of women receive a prenatal care visit, and in Rhode Island a majority of women receive prenatal services at these obstetric practices so it is an opportunity to share information about home visiting programs. Each prenatal visit for a mother may allow for repeated communication about the program, which parents shared is necessary. Also, the evidence demonstrates that women who enroll prenatally are more likely to participate in a home visiting program (Daro et al., 2003; McCurdy et al., 2006). This effort requires educating staff (i.e., midwives, front-line staff) about home visiting programs and identifying eligible parents/families. RIDOH will need to have continuing

conversations to understand these practices' current capacity to identify the appropriate staff to outreach to parents. However, reliance on physician and midwife initiated referrals should prove effective as they are cited by parents/families as a trusted referral source.

In addition, RIDOH may consider training parent program mentors who would be present in the clinics or other sites to share information with parents and families. The parent mentor, particularly if they share similar backgrounds/identities, would be better able to connect with families and share their experiences with the program. Parent mentors have been used as peer supports for parents with special needs children (Kerr & McIntosh, 2000) and Neonatal Intensive Care Units (NICU) infants (Predye & Ardal, 2003), and they have also been effective in increasing health insurance enrollment (Flores et al., 2016). Parents/families have also stated that this approach would help to engage families hesitant to enroll in a program.

Recommendation 2: Strengthen current support systems for home visitors to improve staff retention.

Supporting staff is crucial in helping to retain families because of the relationships that home visitors build with families and the impact on this relationship on the quality of program delivery. This is also important because the qualitative data showed that home visitors are experiencing burnout, are not adequately supported by the agency, and receive low salaries. For example, the Home Visiting Network, informal information network for home visitors (mentioned above), can be utilized to create a space for peer-to-peer support. RIDOH can also hold 'listening sessions' to better understand the experiences and needs of home visitors, including their professional development interests as home visitors shared in the focus groups that they would like more professional development training opportunities. RIDOH can share

this feedback anonymously to all agencies, and offer training programs across agencies for home visitors.

Second, RIDOH can work with agencies to help create a positive working environment and emphasize the importance of supporting their home visitors. Agencies use reflective supervision[†] that helps to alleviate burnout; RIDOH can assess if reflective practices are effective and identify ways to strengthen them. Home visitors have to be shown they are valued—reward and recognition are key ways to demonstrate appreciation for their work.

Recommendation 3: Use an integrated home visiting – mental health model approach to increase families’ access to mental health services.

As the qualitative highlighted, mental health services are limited in the four core cities, and in the rest of the state, yet this is a service that is often needed. The quantitative data showed that higher proportion of families enrolled in a home visiting program had multiple social-behavioral factors, and based on anecdotal information from RIDOH, for a majority of these families it was mental health challenges. Addressing mothers’/families’ mental health needs will enable parents/families to better engage in home visiting programs. RIDOH can redesign their home visiting programs to incorporate a mental health component. A number of states are piloting models that integrate mental health into their home visiting programs. For example, Minnesota Department of Health[‡] requires agencies to hire a mental health consultant. Similarly, through California’s Project Launch, mental health specialists work with home visiting staff to build capacity to identify and effectively address families’ mental health needs. An advantage of relying in part on the home visitors is that families have a relationship and feel comfortable with

[†] Reflective supervision: a regular collaborative practice between a supervisor and home visitor where the home visitor reflects on their work, experiences with interacting with families, how to engage meaningfully with high-need families and an opportunity to discuss and problem solve around issues such as burnout. (Parlakian, 2001)

[‡] <http://www.health.state.mn.us/divs/cfh/program/fhv/reflectpract.cfm>

the visitors, and many families may not seek services due to stigma. However, the role of the home visitor in delivering mental health services needs to be circumscribed so that it does not divert from delivering the home visiting program curriculum. As in other states, the home visitor may serve as a bridge to more formal services that provide short-term crisis management and brief mental health services to families, and longer-term group therapy. The organization of such services must take into account the concerns of these stressed families.

However, there are potential challenges to consider for this type of model. In order for this model to be effective, the state has to have trained workforce particularly mental health professionals who have experience working with complex-needs, high risk families. There is no knowledge on the present workforce pool in Rhode Island, and it will be important to assess this. Currently, RIDOH does not have funding to support hiring of a mental health consultant/specialist, so the onus will be on the local implementing agencies. Thus, this is an added cost for agencies. If there is a limited workforce, RIDOH may partner with local universities with psychology and psychiatry programs to develop the needed workforce and to recruit advanced students to provide consultation services to the agencies (e.g., practicum, internship opportunities). On the other hand, given the stigma around mental health, some families may not be open to working with a mental health consultant or even working with the home visitor if family members believe they do not have a mental health problem (Peters & Genua, 2018). In such cases, the mental health consultant and home visitors may overcome this barrier by using non-mental health terminology (Duran et al., 2009).

Recommendation 4: Involve parents and families in identifying needed community resources, services, and programs.

Often program beneficiaries do not have a formal role or voice in the program design or operation. Programs such as home visiting are intended to provide parents' with knowledge and resources. Their engagement in these programs is critical, and therefore, it is important to ensure that the program is benefiting them and addressing their needs. Currently parents are not part of the Local Implementation Teams (LI Team) (described in Project overview subsection) or state-level early childhood advisory committees. To ensure the parent/family perspective is present, RIDOH should actively recruit parents/families to join the LI Team meetings. However, parents/families may not be able to participate in these meetings, which take place during the day when they may be working. Alternatively, RIDOH can lead efforts to create a local parent advisory board for all early childhood programming, and the discussions and input of the parent board could then be shared at LI Team and other committee meetings. Parents/families can also help strategize how to address barriers such as DCYF stigma of home visiting programs as well as how to recruit, enroll, and retain parents/families. This will help to assure that the programs are designed to respond to the varied, complex needs of families or at minimum begin these conversations.

The RIDOH can draw from the Tribal MIECHV program that has a 15-member parent advisory board. Program staff share program data and updates, and parents provide feedback to strengthen the program. More recently, parents have helped to redesign the questions and process for the programs' family satisfaction survey. (U.S. Department of Health & Human Services, 2017) Thus, it will be important for RIDOH to identify the roles and responsibilities for

parents/families on the advisory board that can range from sharing feedback or to a more active role in shaping program policies and practices.

Parents/families should be incentivized for their participation, and this will also help to recruit families to join. Generally, program staff are paid to participate on committees through their jobs because it is a part of their role, however, for families it is an additional activity that they are not paid to do. Dr. Emily Vargas-Baron shared that monetary incentive is one approach, however, from her experience as the Founder and former Director of the Center for Development, Education, and Nutrition (now called Any Baby Can), this can present challenges. Parents/families on the board may lose their 'status' or may be delegitimized because they are paid, and other parents/families may question why particular parents/families were chosen to be on the board. She suggested that parents/families could be provided with non-monetary incentives such as food or gift baskets, and this has worked well for their programming. (E. Vargas-Baron, personal communication, May 6, 2019) RIDOH will need to define criteria for selecting parents/families to join the board and to determine the appropriate incentive program for participating parents/families on the board.

Study Limitations

The data analysis for enrollment included all children born into families living in one of the core cities with a relatively rich set of variables. However, there are limitations in the data that may have affected the findings of the study. The dataset did not include out of state births (ranged from 350-450 births depending on the year). Referral data was incomplete in earlier years of program implementation and a limitation of this dataset; it is unknown how many families did not enroll because they were unaware of the MIECHV programs. Due to confidentiality reasons, information on parental mental health, substance use, DCYF

involvement and maternal domestic violence could not be individually examined for the analyses to assess associations linked to enrollment and participation. Also, employment status and housing situation were not available. Thus, several variables that may be associated with enrollment were not available. Home visitor characteristics (e.g., demographics, years of experience) and quality of program were not collected, however, important to consider as these factors may influence parent/family participation. Additionally, the small sample size for each program and core city did not allow for analysis of associations between child and family characteristics and outcomes of enrollment and participation, thus differences across programs and core city could not be assessed.

The focus group findings may not be generalized to home visiting programs implemented in all contexts and for all populations. However, broad lessons can be drawn for programs in urban settings. Additionally, there were challenges in recruiting families for the focus groups, and families ‘self-selected’ to participate. Further, it is particularly difficult to recruit families with complex needs (e.g., homelessness), and this would have been a particularly important voice to hear as these families likely could benefit more from the home visiting program than many other families.

Future research

Further research is needed to explore how many families participating in the programs are receiving the recommended number of visits and meeting requirements of timely home visits. Unfortunately, the dataset did not allow for this analysis. Additionally, with a larger sample size it would be beneficial to look at child, family, and other characteristics by program and by each core city to assess any differences across the three home visiting programs and the four core cities. The RIDOH should look individually at how each of the four parental risk factors that

were included in the social-behavioral count variable (parental DCYF involvement, substance use, mental health, and maternal domestic violence) affects program enrollment and participation. This will provide a deeper understanding of families' experiences, which can help RIDOH to identify appropriate community resources needed to better support families and enable them to optimize the benefits from programs. The home visiting programs are premised around achieving particular outcomes, as demonstrated through randomized control trials, however, the actual implementation in communities and scaling up across the state is challenging. It will be valuable to conduct an evaluation on whether the home visiting programs are achieving the desired impact for the families in Rhode Island (i.e., intended outcomes of these evidence-based programs).

In addition, RIDOH needs to invest in a systematic approach to improving awareness of these programs. Several suggestions were made above, but identifying the most effective approach requires further work.

Implications

Parents play a significant role in the upbringing of their children. Home visiting programs are designed to help support and strengthen parent/family-child bonding and foster child development. Research shows that these programs can especially be beneficial for vulnerable families experiencing adversities. Effective home visiting programs are one means to help young children build a stronger foundation from conception to birth to toddler age, a critical development period, and contribute to mitigating health disparities that are rooted in early childhood.

There are a number of federally funded programs that serve families in low-resourced settings. While funding is an important factor in increasing access to programs such as home

visiting programs, there are other important considerations to keep in mind. Home visiting programs are not carried out in an isolated context. The delivery of programs is impacted by the context in which participating families live in. Limited access to necessary social services, resources, and public policies affect both families in engaging in such programs and home visitors in effectively delivering the programs. Without addressing issues in the broader community context when scaling up evidence-based home visiting programs, these programs may fail to meet the parents'/families' and child's needs and be ineffective in achieving the desired outcomes.

BIBLIOGRAPHY

Alonso-Marsden, S., Dodge, K. A., O'Donnell, K. J., Murphy, R. A., Sato, J. M., & Christopoulos, C. (2013). Family risk as a predictor of initial engagement and follow-through in a universal nurse home visiting program to prevent child maltreatment. *Child abuse & neglect, 37*(8), 555-565.

Anisfeld, E., Sandy, J., & Guterman, N. B. (2004). Best beginnings: a randomized controlled trial of a paraprofessional home visiting program. *Final Report Columbia. Project Report.*

Barker, D. J., Osmond, C., Golding, J., Kuh, D., & Wadsworth, M. E. (1989). Growth in utero, blood pressure in childhood and adult life, and mortality from cardiovascular disease. *Bmj, 298*(6673), 564-567.

Barker, D. J., Osmond, C., Winter, P. D., Margetts, B., & Simmonds, S. J. (1989). Weight in infancy and death from ischemic heart disease. *The Lancet, 334*(8663), 577-580.

Black, M., Walker, S., Fernald, L., Andersen, C., DiGirolamo, A., & Lu, C. et al. (2017). Early childhood development coming of age: science through the life course. *The Lancet, 389*(10064), 77-90. doi.org/10.1016/s0140-6736(16)31389-7.

Boller, K., Daro, D., Del Grosso, P., Cole, R., Paulsell, D., Hart, B., Coffee-Borden, B., Strong, D., Zaveri, H. & Hargreaves, M. (2014). Making replication work: Building infrastructure to implement, scale-up, and sustain evidence-based early childhood home visiting programs with fidelity. *Washington, DC: Children's Bureau, Administration for Children and Families, US Department of Health and Human Services.*

Boyatzis, R. E. (1998). *Transforming Qualitative Information: Thematic Analysis and Code Development.* Thousand Oaks, CA: SAGE Publications.

Brand, T., & Jungmann, T. (2014). Participant characteristics and process variables predict attrition from a home-based early intervention program. *Early Childhood Research Quarterly, 29*(2), 155-167.

Bronfenbrenner, U. (1994). Ecological models of human development. *Readings on the development of children, 2*(1), 37-43.

Brookes, S. J., Summers, J. A., Thornburg, K. R., Ispa, J. M., & Lane, V. J. (2006). Building successful home visitor-mother relationships and reaching program goals in two Early Head Start programs: A qualitative look at contributing factors. *Early Childhood Research Quarterly, 21*(1), 25-45.

Brooks-Gunn, J., Liaw, F. R., & Klebanov, P. K. (1992). Effects of early intervention on cognitive function of low birth weight preterm infants. *The Journal of pediatrics, 120*(3), 350-359.

Burwick, A., Zaveri, H., Shang, L., Boller, K., Daro, D., & Strong, D. (2014). *Costs of early childhood home visiting: An analysis of programs implemented in the supporting evidence-based home visiting to prevent child maltreatment initiative*. Mathematica Policy Research.

Caldera, D., Burrell, L., Rodriguez, K., Crowne, S. S., Rohde, C., & Duggan, A. (2007). Impact of a statewide home visiting program on parenting and on child health and development. *Child abuse & neglect, 31*(8), 829-852.

Cannon, J. S., Kilburn, M. R., Karoly, L. A., Mattox, T., Muchow, A. N., & Buenaventura, M. (2017). Decades of evidence demonstrate that early childhood programs can benefit children and provide economic returns.

Centers for Disease Control and Prevention. (2004). Spina bifida and anencephaly before and after folic acid mandate--United States, 1995-1996 and 1999-2000. *MMWR. Morbidity and mortality weekly report, 53*(17), 362.

Center on the Developing Child. (2007). *A science-based framework for early childhood policy: Using evidence to improve outcomes in learning, behavior, and health for vulnerable children*. Center on the Developing Child, Harvard University.

Center on the Developing Child. (2010). *The Foundations of Lifelong Health Are Built in Early Childhood*. Center on the Developing Child, Harvard University.

Clark, N. A., Demers, P. A., Karr, C. J., Koehoorn, M., Lencar, C., Tamburic, L., & Brauer, M. (2009). Effect of early life exposure to air pollution on development of childhood asthma. *Environmental health perspectives, 118*(2), 284-290.

Crockenberg, S., & Leerkes, E. (2000). Infant social and emotional development in family context. In C. H. Zeanah, Jr. (Ed.), *Handbook of infant mental health* (pp. 60-90). New York, NY, US: The Guilford Press.

Danese, A., Pariante, C. M., Caspi, A., Taylor, A., & Poulton, R. (2007). Childhood maltreatment predicts adult inflammation in a life-course study. *Proceedings of the National Academy of Sciences, 104*(4), 1319-1324.

Daro, D., McCurdy, K., Falconnier, L., & Stojanovic, D. (2003). Sustaining new parents in home visitation services: Key participant and program factors. *Child abuse & neglect, 27*(10), 1101-1125.

Daro, D., Hart, B., Boller, K., & Bradley, M. C. (2012). *Replicating Home Visiting Programs with Fidelity Baseline Data and Preliminary Findings* (No. b7e3bd7ae1d94302a8f3df437d200508). Mathematica Policy Research.

Daro, D., Boller, K., & Hart, B. (2014). *Implementation fidelity in early childhood home visiting: successes meeting staffing standards, challenges hitting dosage and duration targets*. Mathematica Policy Research.

Davies, D. (2011). *Child development: A practitioner's guide*. 3rd ed. New York: Guilford Press.

Dong, M., Giles, W. H., Felitti, V. J., Dube, S. R., Williams, J. E., Chapman, D. P., & Anda, R. F. (2004). Insights into causal pathways for ischemic heart disease: adverse childhood experiences study. *Circulation*, *110*(13), 1761-1766.

Duggan, A., Portilla, X.A., Filene, J.H., Crowne, S.S., Hill, C.J., Lee, H. & Knox, V. (2018). *Implementation of Evidence-Based Early Childhood Home Visiting: Results from the Mother and Infant Home Visiting Program Evaluation*. OPRE Report 2018-76A. Washington, DC: Office of Planning, Research, and Evaluation, Administration for Children and Families, U.S. Department of Health and Human Services.

DuMont, K., Mitchell-Herzfeld, S., Greene, R., Lee, E., Lowenfels, A., Rodriguez, M., & Dorabawila, V. (2008). Healthy Families New York (HFNY) randomized trial: Effects on early child abuse and neglect. *Child abuse & neglect*, *32*(3), 295-315.

DuMont, K., Kirkland, K., Mitchell-Herzfeld, S., Ehrhard-Dietzel, S., Rodriguez, M. L., Lee, E., & Greene, R. (2010). A randomized trial of Healthy Families New York (HFNY): Does home visiting prevent child maltreatment. *Rensselaer, NY: New York State Office of Children & Family Services and Albany, NY: The University of Albany, State University of New York*.

Duncan, G. J., Brooks-Gunn, J., & Klebanov, P. K. (1994). Economic deprivation and early childhood development. *Child development*, *65*(2), 296-318.

Duncan, G. J., Yeung, W. J., Brooks-Gunn, J., & Smith, J. R. (1998). How much does childhood poverty affect the life chances of children?. *American sociological review*, *63*(3), 406.

Duncan, G. J., & Brooks-Gunn, J. (2000). Family poverty, welfare reform, and child development. *Child development*, *71*(1), 188-196.

Duran, F., Hepburn, K., Irvine, M., Kaufmann, R., Anthony, B., Horen, N., & Perry, D. (2009). What works? A study of effective early childhood mental health consultation programs.

Early and Middle Childhood | Healthy People 2020. (2017). *Healthypeople.gov*. Retrieved 28 August 2017, from <https://www.healthypeople.gov/2020/topics-objectives/topic/early-and-middle-childhood/objectives>.

ETO Software Tool of Choice for State MIECHV Initiatives. (2018). Retrieved 28 July 2018 from <https://www.socialsolutions.com/blog/press-release/efforts-to-outcomes-eto-software-tool-of-choice-for-state-miechv-initiatives/>.

Falkner, F., & Tanner, J. (1979). *Human growth*. London: Baillière Tindall.

Farah, M. J., Shera, D. M., Savage, J. H., Betancourt, L., Giannetta, J. M., Brodsky, N. L., Malmud, E.K., & Hurt, H. (2006). Childhood poverty: Specific associations with neurocognitive development. *Brain research*, *1110*(1), 166-174.

Flores, G., Lin, H., Walker, C., Lee, M., Currie, J. M., Allgeyer, R., Fierro, M., Henry, M., Portillo, M., & Massey, K. (2016). Parent mentors and insuring uninsured children: A randomized controlled trial. *Pediatrics*, *137*(4).

Gomby, D. S., Culross, P. L., & Behrman, R. E. (1999). Home visiting: Recent program evaluations--analysis and recommendations. *The Future of Children*, *9*(1), 4.

Gomby, D. S. (2005). *Home visitation in 2005: Outcomes for children and parents* (Vol. 7). Invest in Kids working paper.

Gordon, N. (2003). Iron deficiency and the intellect. *Brain and Development*, *25*(1), 3-8.

Green, B. L., Tarte, J. M., Harrison, P. M., Nygren, M., & Sanders, M. B. (2014). Results from a randomized trial of the Healthy Families Oregon accredited statewide program: Early program impacts on parenting. *Children and Youth Services Review*, *44*, 288-298.

Goyal, N. K., Hall, E. S., Jones, D. E., Meinen-Derr, J. K., Short, J. A., Ammerman, R. T., & Van Ginkel, J. B. (2014). Association of maternal and community factors with enrollment in home visiting among at-risk, first-time mothers. *American journal of public health*, *104*(S1), S144-S151.

Halfon, N., & Hochstein, M. (2002). Life Course Health Development: An Integrated Framework for Developing Health, Policy, and Research. *Milbank Quarterly*, *80*(3), 433-479. doi.org/10.1111/1468-0009.00019.

Health Resources & Services Administration, Maternal & Child Health. (2017). *The Maternal, Infant, and Early Childhood Home Visiting Program: Partnering with Parents to Help Children Succeed*. Retrieved 5 July 2018, from <https://mchb.hrsa.gov/sites/default/files/mchb/MaternalChildHealthInitiatives/HomeVisiting/pdf/programbrief.pdf>.

The HFA Strategy. (2018). Retrieved 6 July 2018, from <http://www.healthyfamiliesamerica.org/the-hfa-strategy-1/>.

Holland, M. L., Xia, Y., Kitzman, H. J., Dozier, A. M., & Olds, D. L. (2014). Patterns of visit attendance in the nurse-family partnership program. *American journal of public health*, *104*(10), e58-e65.

Home Visiting | Maternal and Child Health Bureau. (2018). Retrieved 6 July 2018, from <https://mchb.hrsa.gov/maternal-child-health-initiatives/home-visiting-overview>.

Implementation Reports - Home Visiting Evidence of Effectiveness. (2018). Retrieved 6 July 2018, from <https://homvee.acf.hhs.gov/implementations.aspx>.

Ingoldsby, E. M. (2010). Review of interventions to improve family engagement and retention in parent and child mental health programs. *Journal of child and family studies*, *19*(5), 629-645.

Institute of Medicine and National Research Council. (2015). *Transforming the Workforce for Children Birth Through Age 8: A Unifying Foundation*. Washington, DC: The National Academies Press. doi.org/10.17226/19401.

Johnson, C., & Blasco, P. (1997). Infant Growth and Development. *Pediatrics In Review*, 18(7), 224-242. doi: 10.1542/pir.18-7-224.

Karoly L.A., Kilburn M.R., Cannon J.S. (2005). *Early Childhood Interventions: Proven Results, Future Promise*. Rand Corporation.

Kerr, S. M., & McIntosh, J. B. (2000). Coping when a child has a disability: exploring the impact of parent-to-parent support. *Child: care, health and development*, 26(4), 309-322.

KIDSNET: Department of Health. (2018). *Health.ri.gov*. Retrieved 4 April 2018, from <http://www.health.ri.gov/programs/kidsnet/index.php>.

Korfmacher, J., Green, B., Staerkel, F., Peterson, C., Cook, G., Roggman, L., Faldowski, R.A., & Schiffman, R. (2008, August). Parent involvement in early childhood home visiting. In *Child & Youth Care Forum* (Vol. 37, No. 4, pp. 171-196). Springer US.

Krysiak, J., LeCroy, C. W., & Ashford, J. B. (2008). Participants' perceptions of healthy families: A home visitation program to prevent child abuse and neglect. *Children and Youth Services Review*, 30(1), 45-61.

Lejarraga, H. (2012) Growth in Infancy and Childhood: A Pediatric Approach. In N. Cameron & B. Bogin (Eds.), *Human Growth and Development* (pp. 25-56). London: Academic Press.

LeCroy, C. W., & Whitaker, K. (2005). Improving the quality of home visitation: An exploratory study of difficult situations. *Child Abuse & Neglect*, 29(9), 1003-1013.

Lee, E., Mitchell-Herzfeld, S. D., Lowenfels, A. A., Greene, R., Dorabawila, V., & DuMont, K. A. (2009). Reducing low birth weight through home visitation: a randomized controlled trial. *American journal of preventive medicine*, 36(2), 154-160.

McCormick, M. C., McCarton, C., Tonascia, J., & Brooks-Gunn, J. (1993). Early educational intervention for very low birth weight infants: Results from the Infant Health and Development Program. *The Journal of pediatrics*, 123(4), 527-533.

McCurdy, K., Daro, D., Anisfeld, E., Katzev, A., Keim, A., LeCroy, C., McAfee, C., Nelson, C., Falconnier, L., McGuigan, W.M. & Park, J. K. (2006). Understanding maternal intentions to engage in home visiting programs. *Children and youth services review*, 28(10), 1195-1212.

Michalopoulos, C., Faucetta, K., Warren, A., & Mitchell, R. (2017). Evidence on the Long-Term Effects of Home Visiting Programs: Laying the Groundwork for Long-Term Follow-Up in the Mother and Infant Home Visiting Program Evaluation (MIHOPE). OPRE Report 2017-73. *US Department of Health and Human Services*.

Miller, T. R. (2013). Nurse-Family Partnership home visitation: costs, outcomes, and return on investment. *Pacific Institute for Research and Evaluation*.

Model Profiles - Home Visiting Evidence of Effectiveness. (2018). Retrieved 6 July 2018, from <https://homvee.acf.hhs.gov/models.aspx>

Mytton, J., Ingram, J., Manns, S., & Thomas, J. (2014). Facilitators and barriers to engagement in parenting programs: A qualitative systematic review. *Health Education & Behavior, 41*(2), 127-137.

National Research Council. (1999). Revisiting Home Visiting: Summary of a Workshop.

Nelson, C. A., Thomas, K. M., & de Haan, M. (2008). Neural bases of cognitive development. In W. Damon & R.M. Lerner (Eds.), *Child and adolescent development: An advanced course* (pp. 19-53). Hoboken, NJ: Wiley.

Nurse-Family Partnership – Helping First-Time Parents Succeed. (2018). Retrieved 6 July 2018, from <https://www.nursefamilypartnership.org/>

Ong, K. K., & Loos, R. J. (2006). Rapid infancy weight gain and subsequent obesity: systematic reviews and hopeful suggestions. *Acta paediatrica, 95*(8), 904-908.

Parlakian, R. (2001). *Look, Listen, and Learn: Reflective Supervision and Relationship-Based Work*. Zero to Three, Suite 200, 2000 M St., NW, Washington, DC 20036-3307.

Parents as Teachers. (2018). Retrieved 6 July 2018, from <https://parentsasteachers.org>.

Paul, I. M., Bartok, C. J., Downs, D. S., Stifter, C. A., Ventura, A. K., & Birch, L. L. (2009). Opportunities for the primary prevention of obesity during infancy. *Advances in pediatrics, 56*(1), 107-133.

Paulsell, D., Del Grosso, P., & Supplee, L. (2014). Supporting replication and scale-up of evidence-based home visiting programs: Assessing the implementation knowledge base. *American journal of public health, 104*(9), 1624-1632.

Peters, R., & Genua, D. (2018, August). Addressing maternal depression in the context of home visiting: Opportunities and challenges. *National Home Visiting Resource Center Research Snapshot Brief*. Arlington, VA: James Bell Associates and Urban Institute.

Phillips, D. A., & Shonkoff, J. P. (Eds.). (2000). *From neurons to neighborhoods: The science of early childhood development*. National Academies Press.

Prevent Child Abuse America | Because Children are our future... (2019). Retrieved 18 January 2019, from <https://preventchildabuse.org>.

Preyde, M., & Ardal, F. (2003). Effectiveness of a parent “buddy” program for mothers of very preterm infants in a neonatal intensive care unit. *Cmaj*, 168(8), 969-973.

Rhode Island Kids Count. (2017). *2017 Rhode Island Kids Count Factbook*. Providence, RI: Rhode Island KIDS COUNT.

Rhode Island Kids Count. (2018). *2018 Rhode Island Kids Count Factbook*. Providence, RI: Rhode Island KIDS COUNT.

Roggman, L.A., Cook, G.A., Peterson, C.A., & Raikes, H.H. (2008). Who drops out of Early Head Start home visiting programs? *Early Education and Development*, 19(4), 574–599.

Schwartz, J., Angle, C., and Pitcher, H. Relationship between childhood blood lead levels and stature. *Pediatrics* (1986) 77,3:281–88.

Schwartz, J., and Otto, D. Lead and minor hearing impairment. *Archives of Environmental Health* (1991) 46,5:300–05.

Schwartz, J. Low level lead exposure and children’s IQ: A meta-analysis and search for threshold. *Environmental Research* (1994) 65,1:42–55.

Shonkoff, J. P., Boyce, W. T., & McEwen, B. S. (2009). Neuroscience, molecular biology, and the childhood roots of health disparities: Building a new framework for health promotion and disease prevention. *JAMA*, 301, 2252-2259.

Shonkoff, J., Garner, A., Siegel, B., Dobbins, M., Earls, M., Garner, A., McGuinn, L., Pascoe, J., & Wood, D. (2012). The Lifelong Effects of Early Childhood Adversity and Toxic Stress. *Pediatrics*, 129(1), e232-e246. doi.org/10.1542/peds.2011-2663.

Shonkoff, J. P., & Marshall, P. C. (2000). The biology of developmental vulnerability. *Handbook of early childhood intervention*, 2, 35-53.

Shonkoff, J. P., Richmond, J., Levitt, P., Bunge, S. A., Cameron, J. L., Duncan, G. J., & Nelson III, C. A. (2016). From best practices to breakthrough impacts a science-based approach to building a more promising future for young children and families. *Cambridge, MA: Harvard University, Center on the Developing Child*.

Skinner, J. D., Ziegler, P., & Ponza, M. (2004). Transitions in infants’ and toddlers’ beverage patterns. *Journal of the American Dietetic Association*, 104, 45-50.

Sweet, M.A., & Appelbaum, M.I. (2004). Is home visiting an effective strategy? A meta-analytic review of home visiting programs for families with young children. *Child Development*, 75(5), 1435–1456.

Tandon, S. D., Parillo, K., Mercer, C., Keefer, M., & Duggan, A. K. (2008). Engagement in paraprofessional home visitation: Families’ reasons for enrollment and program response to identified reasons. *Women's Health Issues*, 18(2), 118-129.

The Science of Early Childhood Development. (2007). National Scientific Council on the Developing Child. <http://www.developingchild.net>.

Thompson, R., & Nelson, C. (2001). Developmental science and the media: Early brain development. *American Psychologist*, 56(1), 5-15. doi: 10.1037//0003-066x.56.1.5

U.S. Department of Health & Human Services, Administration for Children and Families, Administration on Children, Youth and Families, Children's Bureau. (2017). *Empowering Families Through Tribal Home Visiting*.

U.S. Department of Health & Human Services, Administration for Children and Families. (2019). *Child Maltreatment 2017*.

Wagner, M., Spiker, D., Gerlach-Downie, S., & Hernandez, F. (2000). *Parental engagement in home visiting programs: Findings from the Parents as Teachers multisite evaluation*. ERIC Clearinghouse

APPENDIX

Appendix A. Agency focus group guide

1. What programs does your organization offer to pregnant women and children 0-3 years old (e.g., WIC)?
 - a. If the organization offers more than one program, how does your organization coordinate with all your early childhood programs? → could present an example of a family and ask organization to map a flowchart or specify aspects of coordination (i.e., intake, shared documents)
2. What family visiting programs do you run? (if not specifically mentioned before)
 - a. How do families learn about the programs?
 - b. What are the demographics of the families you serve? Family structure? (generally)
3. What are some challenges/issues in terms of family engagement (enrolling and retaining) have you/your organization faced when running your family visiting program(s)?
[probes: contacting families to enroll, scheduling visits/missed visits, continuity e.g., due to moving, changing jobs]
 - a. [for organizations implementing more than one family visiting program] How do these challenges/issues differ by program?
 - b. How do the challenges/issues differ by communities/cities?
 - c. What are your perceptions of barriers families may face in participating in programs?
 - d. What are some strategies you use to engage families in your programs?
4. What are some additional services you would like to offer that are beyond the scope of the current family visiting programs?
 - a. How do you currently support families to address this service gap?
5. What evaluation structure do you have in place to assess your home visiting programs, if any?
6. Anything else you would like to share or comment on?

Appendix B. Family focus group guide

“Awareness”

1. How did you learn about family visiting programs (e.g., HFA, NFP, PAT)?
Prompts: Why/Why did you do that? Where did you learn that / who did you learn that from? Did you have any questions at that time? What did you do after that? What worked well? Did you have any challenges or obstacles? Did anyone else have a similar experience? A different experience? How did that make you feel?

“Enter”

2. Please describe your most recent experience enrolling in a program? Which program was this for? Were you pregnant when you enrolled? (If no) How old was your child?
Prompts: Why/Why did you do that? Where did you learn that / who did you learn that from? Did you have any questions at that time? What did you do after that? What worked well? Did you have any challenges or obstacles? Did anyone else have a similar experience? A different experience? How did that make you feel? What would you do differently if you did this again?
3. What advice would you give someone enrolling in this program for the first time?
4. Why did you decide to participate?
 - a. Do others agree / disagree? Who feels differently?
 - b. If you did not participate, why not?
5. Do you have any suggestions for how we can get more families to participate in family visiting programs?

“Engage”

6. Now I want to learn more about your experience being a participant: Can you describe your most recent visit?
Prompts: Why/Why did you do that? What else happened? Can you be more specific? Did you have any questions at that time? What did you do after that? What worked well? Did you have any challenges or obstacles? Did anyone else have a similar experience? A different experience? How did that make you feel? What would you do differently if you did this again?
7. How long have you participated?
8. Have you ever received information (a flyer, a booklet, a binder, etc.) from a visitor? What materials did you like? Why? What materials did you not like? How would you prefer these programs share information with you (on paper, in an app, etc.)?
9. Did you ever participate in a group activity for this program? Why/why not? What did you like, or not like, about that experience?
10. Has your experience changed over time? What has changed? Why?

“Exit & Share”

11. If a new family moved in, how would you describe this program to them?
Prompts: Can you be more specific? Why would you say that?
12. Would you recommend it? Why or why not?
13. Has anyone in this room previously participated in a program that they left?
 - a. If yes, why did you leave?
14. Did you share anything about the program to anyone else? What did you say?
 - a. If no, what keeps you involved in the program?
15. Is there anything else you would like to share?

Family questionnaire (completed & collected prior to focus group)

1. Tell us about your family! How many kids (biological or step-children) do you have and how old are they?

2. What programs have you heard of (check all that apply)

- Early Intervention (EI)
- Early Head Start (EHS)
- Head Start (HS)
- Healthy Families America (HFA)
- Nurse Family Partnership (NFP)
- Parents as Teachers (PAT)
- Other: _____

3. What programs have you ever been in?

- Early Intervention (EI)
- Early Head Start (EHS)
- Head Start (HS)
- Healthy Families America (HFA)
- Nurse Family Partnership (NFP)
- Parents as Teachers (PAT)
- Other: _____

4. How long have you been in these programs? _____

5. Where do you live? _____

6. How long have you lived there? _____

7. *Optional:* Provide your race, gender, age: _____

Appendix C. Description of agencies participating in focus groups

Agency	Description	MIECHV program	Staffing	Focus group/ interview
Agency A	A nonprofit, multi-service agency, offers an array of services including health services and social support services primarily to residents in their catchment area	HFA	- 4 visitors, - 1 supervisor, - 1 intake coordinator, - 1 manager/ director	3 visitors, 1 supervisor, 1 intake coordinator, 1 manager/ director
Agency B	A community-based, nonprofit, offers family support services, childcare services for toddlers and older, and after-school program	PAT	- 3 parent educators, - 1 social worker, - 1 manager	3 parent educators, 1 social worker, 1 manager
Agency C	A nonprofit, offers family services in addition to education & training, housing and emergency services, and senior services	HFA, PAT	- 5 HFA visitors & 1 supervisor, - 9 PAT visitors & 1 supervisor, - 1 intake coordinator, - 1 director	3 HFA visitors, 4 PAT visitors, 2 supervisors, 1 intake coordinator, 1 director
Agency D	A nonprofit, offers services for both children and families such as early head start, childcare, adoption, and professional development	HFA, NFP	- 8 HFA visitors & 2 supervisors, - 7 NFP visitors & 2 supervisors, - 1 First Connection visitor & 2 supervisors	2 HFA visitors, 3 NFP visitors, 1 First Connection visitor, 6 supervisors
Agency E	Offers a range of early childhood programs including WIC and houses a charter school and a center for special needs children	HFA	- 9 HFA visitor & 1 supervisor - 1 director	3 HFA visitors, 1 supervisor, 1 director
Agency F	A mental health and addiction treatment center	HFA	- 4 HFA visitor, 1 manager	3 HFA staff, 1 manager

Appendix D. Criteria for Follow-up from Level I Screening

Risk Positive (+) are infants with:

Any **1** of the following criteria:

- Developmental disabilities and certain other established conditions
- Birth weights less than 1500 grams (3.3 lbs.)
- Intensive care hospitalization greater than 48 hours
- Hepatitis B surface antigen positive mother

Any **2** of the following criteria:

- Care giver's education less than 11th grade
- Mother's age less than 19 or greater than 37
- Single Care giver
- Mother's number of live births greater than 5
 - or** no other live births
- One parent characteristic, e.g. chronic illness
- Less than 6 prenatal care visits before 36 weeks
 - or** total number less than 10
- No prenatal care visits before 5 months
- Gestational age greater than 37 weeks **and**
 - birth weight 1500-2500 grams (3.3-5.5 lbs.)
- Apgars at 1 and 5 minutes less than 7
- Medicaid Eligible

Clinical Information is also included in the determination.