The Massachusetts Healthy Families Evaluation-2 (MHFE-2):
A Randomized Controlled Trial of a Statewide Home Visiting Program for Young Parents

Progress Report to the Massachusetts Children’s Trust Fund
Fiscal Years 2011 and 2012

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PART 1: OVERVIEW AND BACKGROUND

For the past 15 years, our team of independent researchers from the Departments of Child Development and Urban and Environmental Policy and Planning at Tufts University (the Massachusetts Healthy Families Evaluation, MHFE) has been contracted by the Massachusetts Children’s Trust Fund (CTF) to evaluate the Healthy Family Massachusetts newborn home visiting program (HFM). The first cohort evaluation (the Massachusetts Healthy Families Evaluation [MHFE-1]) was initiated in 1997 and completed in 2005; the current, second cohort evaluation (MHFE-2) began in 2007.

This third report of MHFE-2 evaluation activities, produced for the Massachusetts Children’s Trust Fund, details progress on data collection and other research activities conducted by our team during Fiscal Years 2011 and 2012 (FY11, FY12).

As of the writing of this report, we are able to examine data collected from the full evaluation sample at Time 1 (T1; enrollment) as well as draw upon data from approximately 95% of our Time 2 (T2; 12 months post-enrollment) sample.¹ We are using this current report as an opportunity to: a) describe the characteristics of the evaluation participants at T2, b) explain the rationale of preliminary analyses examining HFM program implementation, and c) illustrate the components of early analytic work essential in scaffolding our progress toward addressing the main MHFE-2 research questions. This report also provides an example of an integrated analysis that suggests how we intend to approach MHFE-2 research questions in the project’s Final Report, due at the end of FY14.

This report is organized as follows:
- Background of HFM and the Five-Tiered Approach evaluation framework for MHFE-2;
- Updates on MHFE-2 evaluation activities through the end of FY12; and
- Progress report on construct development and data analyses within the Five-Tiered framework, including:
  - Tier Two: Descriptive sample characteristics;
  - Tier Three: HFM program implementation;
  - Tiers Four and Five: Integrating diverse data sources in service of examining HFM program impact; and an
  - Example of fully integrated analyses: Early program impacts on young mothers’ parenting.

While the current report includes a brief review of the evaluation framework and design, please refer to the FY09 report² for a comprehensive overview of the study.

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¹ At completion of this report, data preparation for approximately 20 T2 participant files was still underway.
1.1 Healthy Families Massachusetts (HFM)

HFM is a comprehensive, voluntary, newborn home visiting program for all first-time parents ages 20 and under in the state of Massachusetts. Affiliated with the Healthy Families America (HFA) home visiting program, Healthy Families Massachusetts provides parenting support, information, and services to young parents, beginning prenatally or until the child turns one, and continuing until the child’s third birthday. The full, potential enrollment period for an HFM participant, then, is three years and eight months. HFM program services include home visits, goal-setting activities, group-based activities, secondary contacts (such as through phone calls between home visitors and participants), and linkages and referrals to other resources. Since its inception, HFM has provided services to more than 27,600 families.

The stated goals of the program are:
1. To prevent child abuse and neglect by supporting positive, effective parenting;
2. To achieve optimal health, growth, and development in infancy and early childhood;
3. To encourage educational attainment, job, and life skills among parents;
4. To prevent repeat pregnancies during the teen years; and
5. To promote parental health and well-being.

1.2 The Five-Tiered Approach (FTA) Evaluation Framework

Our evaluation of HFM is rooted in Jacobs’s Five-Tiered Approach to evaluation (FTA), a developmental model (see Appendix A) that moves evaluation activities from a primary focus on descriptive and process-oriented information to an emphasis on program effects. Tier One activities produce needs and demand assessments, and usually are conducted prior to the program’s implementation. Evaluation activities at Tiers Two and Three are directed at program processes: They describe program staff, services, clients, and costs; examine program implementation compared to model standards; and provide feedback to programs for improvement. Tiers Four and Five focus on outcome evaluation activities, assessing the extent to which a program is meeting its short-term and long-term goals. The primary difference between Tier Four and Tier Five is the use of an experimental design in Tier Five; when such scientific rigor is possible, researchers are more confident that changes they observe in participants are the result of the intervention being studied.

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4 By experimental design, we mean a randomized, controlled trial (RCT); both phrases are used interchangeably throughout the report.
MHFE-1 focused on Tiers Two, Three, and Four: program monitoring and accountability, quality review in relation to model and program standards, and measurement of outcomes. It employed a quasi-experimental design, relying on sources of comparison data that included state and nationwide historical data on key indicators and extant data from studies of adolescents and young parents. Using a mixed methods approach, data were collected from a sample of 361 HFM participants, at six-month intervals, at four different time points over a period of 18 months. An ethnographic sub-study, conducted in three communities, explored participants’ beliefs about parenting, childrearing, and help-seeking, and the extent to which HFM services were consonant with those beliefs. The findings from the first evaluation phase were promising; however the quasi-experimental design precluded our ability to definitively attribute positive changes to the HFM program.

MHFE-2, by virtue of its experimental design, is a Tier Five evaluation, and includes research activities at all Tiers save for the first. Data generated at Tier Two allow for a full description of HFM clients, their schools, and communities, as well as a description, along several critical indices, of the 18 HFM programs with which they are associated. Tier Three data provide documentation of HFM program operations, including an assessment of program quality and model fidelity. At Tier Four, evaluation activities are focused on determining whether HFM achieves its intermediate, or proximal, outcomes or objectives, such as a reduction in parenting stress, or strengthening of social support systems. And, as mentioned above, the randomized controlled trial (RCT) we have implemented at Tier Five allows us to establish the extent to which participation in HFM helps young mothers achieve the longer-term goals, or distal outcomes, and the extent to which those outcomes can be attributed to the program. Data collected for this study also provide for a multi-faceted examination of the complex ecologies of first-time teenage mothers and their community contexts.

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5 Defined as the extent to which programs are implemented in line with model standards.
Part II presents a brief review of the MHFE-2 design, and an update of all MHFE-2 evaluation activities involving research protocols, data collection and preparation, and participant retention through FY12.

### 2.1 MHFE-2 Research Design

MHFE-2 a randomized, controlled trial designed not only to assess whether or not HFM is meeting its five stated long-term goals, but also to examine the ways in which participants’ personal, family, program, and community contexts influence and/or explain program utilization and program outcomes. Study participants were randomly assigned to a program group (called the Home Visiting Services group [HVS]) or control group (Referrals and Information Only group [RIO]).

Our central research questions are as follows:

1. Does participation in HFM yield positive effects in the five HFM goal areas?

2. Is HFM more effective for certain individuals, within certain communities or programs?

3. Are program effects mediated by attainment of intermediate goals (e.g., positive parenting)?

4. Within the HVS group, to what extent and in what ways does program utilization predict attainment of HFM goals?
5. Within the HVS group, does the association between program utilization and attainment of HFM goals differ for certain individuals, communities, or programs? If so, how?

6. Within the HVS group, to what extent, and in what ways, does program fidelity predict attainment of HFM goals?

7. Within the HVS group, does the association between program fidelity and attainment of HFM goals differ for certain individuals or communities? If so, how?

8. Within the HVS group, to what extent and in what ways does program utilization mediate the link between community/individual characteristics and attainment of HFM goals?

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2.1. A Study Recruitment

MHFE-2 participants were recruited through the combined efforts of HFM program evaluation site personnel and MHFE-2 researchers. HFM was responsible for the first recruitment step. Eligible women who were referred to HFM were informed by trained HFM program staff about the study. Women who consented to the study were randomly assigned to either HVS or

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6 Although HFM is a universal program, meant to serve every first-time parent under age 21 in Massachusetts, eligibility to participate in this MHFE-2 research project included only consenting females who were 16 years of age or older, had received no HFM services in the past (i.e., no transfers or re-enrollments), were able to speak either English or Spanish, and were cognitively able to provide informed consent.
RIO. Participants assigned to HVS could receive home visiting services. Participants assigned to RIO were not able to receive any HFM home visiting services, but were provided with information about child development and referred to other services (referrals were based on an intake administered by HFM at the time of assignment). In total, HFM recruited 837 participants into the study, 502 (60%) of whom were assigned to HVS, and 334 (40%) to RIO.

Once recruited by HFM, participants were invited by Tufts to complete the following evaluation activities: 1) sign a release allowing Tufts to access her administrative data; 2) participate in a half-hour phone Intake Interview; and 3) participate in an additional two to three hour in-person Research Interview (see below for more information about these data sources). The Intake and Research Interviews were conducted at three time points: Time 1 (T1) interviews were completed at enrollment, Time 2 (T2) interviews were completed 12 months from enrollment, and Time 3 (T3) interviews were completed 24 months from enrollment.\(^7\)

Depending on which of these activities participants opted to complete at each time point, they were considered to be in either the Impact Study Sample or the Integrative Study Sample for that time point. Each of these samples is described below.

**Impact Study Sample**

Any participant who signed the release and completed an Intake Interview is considered to be part of the full MHFE-2 sample, or the Impact Study Sample. Of the 837 initial recruits, 82% (n = 688) completed a T1 Intake Interview and signed an agency records release. In addition, 19 of the participants who had “missed the window” for participating in the T1 Intake Interview\(^8\) gave MHFE-2 permission to have access to their agency data, and completed a one-time truncated Agency Only Intake Interview. This resulted in a T1 Impact Study Sample of 707 participants (84% of those recruited by HFM).\(^9\)

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\(^7\) This represents the ideal timing of data collection. We allowed 18 months from enrollment to collect T1 data (the majority of data were collected by 4 months; this time lapse will be addressed in future analyses); a window of 18 months between T1 and T2, and 18 months between T2 and T3. In total, we allowed no more than 3 years to lapse between T1 and T3. On average, there were 11.9 months between the T1 and T2 Intake Interviews, and 12.1 months between the T1 and T2 Research Interviews. As of the writing of this report, these data are not available for T3 Interviews.

\(^8\) In other words, were not interviewed within 18 months of their program enrollment.

\(^9\) Sixteen percent of women recruited were not included in the final Impact Study Sample (n =130). Of these women who did not participate, 49 (38%) had either asked to be withdrawn or were withdrawn by Tufts; 39 (30%) were ineligible (e.g., miscarried, moved out of state within weeks of enrollment, not fluent enough in either English or Spanish to complete an interview), and 42 (32%) were never located by the Tufts team.
**Integrative Study Sample**

Impact Study Sample participants who also agreed to the Research Interview are considered to be in the Integrative Study Sample. At T1, 477 (67% of the Impact Study Sample) also agreed to the Research Interview at T1, and therefore were considered part of the T1 Integrative Study Sample. As illustrated in Figure 1, The Integrative Study Sample is a sub-sample of the Impact Study Sample.

Figure 1: *Nested Integrative and Impact Study Samples*

![T1 Impact Study Sample](n=707) 420 (61%) HVS

![T1 Integrative Study Sample](n=477) 338 (60%) HVS

**2.1.B Participant Characteristics**

T1 Impact Study Sample participants were, on average, 18.7 years old at the time of enrollment into the evaluation, ranging in age from 16-22. As shown in Figure 2, 32% of the participants identified as Hispanic, 40% as White Non-Hispanic, 15% as Black Non-Hispanic, and 13% were categorized as “Other” (this includes anyone who identified as multi-racial).

Figure 2: *Racial/Ethnic Distribution of Impact Study Sample Participants*

- Hispanic: 32%
- White non-Hispanic: 40%
- Black non-Hispanic: 15%
- Other (includes Multi-racial): 13%

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10 As described later in this section, the size of Integrative Study sample at T1 is 477. Because participation in MHFE-2 is voluntary, participants who were in the Integrative Study at T1 may opt out of it at T2 and vice-versa, the sample number to changes slightly at each data time point.
At the T1 interview, more than half (58%) of the participants were living with a parent, and slightly more than half (51%) reported being in a committed relationship with the baby’s father or with someone else (Figure 3). One-quarter of the participants received public cash assistance benefits through Temporary Assistance for Needy Families (TANF). The overwhelming majority of women (97%) reported having health insurance, and 78% reported having a primary health care provider. Most mothers (88%) were born in the United States, with 69% born in Massachusetts. English was the preferred language of 75% of participants.

Figure 3: Selected Participant Characteristics at T1

2.1. C Data Collection
T1 data collection proceeded from February 2008 to February 2010; T2 data collection proceeded from April 2009 to April 2011; and T3 data collection began in March 2010, and was still ongoing at the end of FY12 (see Table 1).

Table 1: Data Collection Timetable

<table>
<thead>
<tr>
<th>Data Collection Time Points</th>
<th>Year 1 2008</th>
<th>Year 2 2009</th>
<th>Year 3 2010</th>
<th>Year 4 2011</th>
<th>Year 5 2012</th>
</tr>
</thead>
<tbody>
<tr>
<td>T1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>T2</td>
<td></td>
<td></td>
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<td></td>
<td></td>
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<tr>
<td>T3</td>
<td></td>
<td></td>
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2.1.D Sample Retention

Figure 4 presents the status of data collection efforts as of the end of FY12. At T2, 45 participants switched from the Integrative Study Sample to the Impact Study Sample, or vice versa (n = 37). Of the 688 participants who completed a T1 Intake Interview, 82% (566) also completed a T2 Intake. Four hundred two participants (69% of the T2 Impact Study Sample) also completed a T2 Research Interview. The Tufts team was unable to collect T2 data from 17% of the T1 participants. There were no statistically significant demographic differences between the participants who completed a T2 interview and those who did not.

Figure 4: Sample Sizes at T1 and T2

<table>
<thead>
<tr>
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<th>Impact Study Sample</th>
<th>Integrative Study Sample</th>
</tr>
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<tr>
<td>T1</td>
<td>688 completed a T1 Intake Interview</td>
<td></td>
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<tr>
<td></td>
<td>420 (61%) HVS</td>
<td>276 (58%) HVS</td>
</tr>
<tr>
<td></td>
<td>268 (39%) RIO</td>
<td>201 (42%) RIO</td>
</tr>
<tr>
<td>T2</td>
<td>566 (82% of T1 Impact Study sample) completed a T2 Intake Interview</td>
<td></td>
</tr>
<tr>
<td></td>
<td>338 (60%) HVS</td>
<td>229 (57%) HVS</td>
</tr>
<tr>
<td></td>
<td>228 (40%) RIO</td>
<td>173 (43%) RIO</td>
</tr>
</tbody>
</table>

Figure 4: Sample Sizes at T1 and T2

2.2 Data Collection Activities

As described above, participants were interviewed at three time points: Enrollment (T1), 12-months post-enrollment (T2), and 24-months post-enrollment (T3). In addition, MHFE-2 has assembled extant data from agency data systems; collection of these data is ongoing. The following paragraphs provide a brief description of the data sources used for this evaluation, beginning with the data sources available for the Impact Study Sample.

2.2.A Impact Study Sample Data Sources

Data collected from the Impact Study Sample allow us to assess program impact on outcomes related to the five stated goals of HFM. Data on the Impact Study Sample are generated from multiple sources, including public agency administrative data systems; the HFM management information system, called the Participant Data System, or PDS; and the MHFE-2 Intake Interview.

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11 Although T3 data collection was not complete at that point, 595 participants had completed the T3 Intake Interview (87% retention of T1 Impact Study sample), and 410 participants had completed the T3 Research Interview (86% retention of the T1 Integrative Study Sample).

12 106 were not reached within the T2 data collection window (18 months from T1) and 15 participants were contacted but did not want to participate in an interview.
**Public Agency Administrative Data**
State public agency data are utilized to answer the primary research questions about the effectiveness of HFM in achieving the outcomes specified in its five goals. Participating agencies include the Department of Children and Families (DCF); the Department of Elementary and Secondary Education (DESE); the Department of Public Health (DPH); and the Department of Transitional Services (DTA). These data are collected for all MHFE-2 participants. Through Memoranda of Understanding (MOU’s) established between CTF and each of these agencies, data transfers from the agencies to MHFE-2 were slated to occur annually, beginning in calendar year 2010.

**HFM Participant Data System (PDS)**
The PDS is the web-based management information system administered and maintained by CTF. Data entered by home visitors and supervisors provide background information about participants (e.g., pregnancy and birth information); detail about service planning and utilization (e.g., referral, enrollment, and service levels; the frequency and content of home visits and other HFM services; Individual Family Service Plans [IFSP’s] goal-setting and attainment); child and mother assessments and status reports; and discharge records.

**Intake Interview**
The semi-structured Intake Interviews are conducted at each of the three annual data collection time points. These interviews generate data that help characterize MHFE participants and their contexts, and include demographics (e.g., age, ethnic background, relationship status); current family resources and involvement of the baby’s father; current residential and financial circumstances; and maternal well-being (e.g., stress, depression). Information about participants’ use of public and social services other than HFM is also elicited to contextualize the impact of HFM services relative to the array of other services that mothers in both the HVS and RIO groups may receive.

**Geographic Information Systems (GIS)**
GIS is a multi-dimensional, computer-based mapping and analytic application that maintains, retrieves, queries, displays, and analyzes imagery, systems data, spatial data, and attribute data based on geographical reference. In this case, our GIS analyses facilitate investigation of whether, and how, community context influences HFM program implementation and utilization, as well as participants’ attainment of program outcomes. Toward this end, data are derived from spatially assigning participants to a community and then accessing spatially-organized public databases (e.g. MassGIS, U.S. Census, etc.), that help characterize the communities in which participants live. We organize the integrated spatial databases according to potential indicators of community-based assets and risks (e.g., socioeconomic stratification; risks in public health, public safety and environment domains; attributes such as human and social capital, and community resources—infrastructure, public services, recreational and cultural facilities, etc.) to inform and develop our community-based constructs.
2.2.B Integrative Study Sample Data Sources
In addition to the Intake Interview, MHFE-2 participants enrolled in the Integrative Study Sample participated in a Research Interview in their homes. The Research Interview includes a semi-structured interview, the administration of written questionnaires, and observations of mother-child interactions.13

During these visits, qualitative and quantitative methods are used to collect in-depth information about the use of, and satisfaction with, program services (HFM and other programs); social relationships and support networks (family/friend, father of baby, neighborhood/community); mothers’ history of childhood care and victimization, and more recent history of intimate partner violence; educational history and trajectory; and personal functioning/well-being (e.g. depression, trauma history, stress and coping). These characteristics and contextual factors may influence, for example, the ways in which HFM program services are utilized and metabolized by participants. Since child maltreatment represents only one component of parenting, with negative valence attached to it, indicators of positive, effective parenting, such as parenting attitudes and beliefs, and observations of mother-child interaction (e.g., maternal sensitivity and child responsiveness) are included in this protocol.

2.2.C Data Preparation
In addition to data collection, FY11 and FY12 were primarily devoted to data preparation. These activities included: building project databases, cleaning and verifying the data, developing codebooks and coding procedures; coding data; and conducting preliminary analyses. Data preparation activities are described below, organized by data source.

Impact Study Data Preparation
Agency Administrative Data. Public agency data transfers were slated to occur annually, beginning in calendar year 2010. For a variety of reasons (e.g., changes in key state agency personnel, and challenges with querying the relevant databases) we have not received the administrative data as frequently as originally planned. Nonetheless, we did complete the first round of administrative data transfers with three of the four contributing state agencies.

▲ Department of Children and Families (DCF): We received the first data transfer from DCF in the spring of 2010, and received an updated dataset one year later. Those data have been thoroughly cleaned and organized, and were used in preliminary impact analyses during the spring 2012 (see Part III). We are in contact with our DCF liaisons to secure the next transfer of updated data.

▲ Department of Elementary and Secondary Education (DESE): We recently received our first data transfer from DESE, which follows our participants in secondary schools through the end of the 2009/2010 school year. We currently are cleaning and coding those data. We anticipate a timely response to the request for data from 2010/2011 and 2011/2012 school years.

13 See Annual Report from FY09 for table of constructs and measures
Department of Public Health (DPH): We received the first data transfer from DPH, and are cleaning to check for data accuracy.

Department of Transitional Assistance (DTA): MHFE-2 has not yet received an initial data transfer from DTA, but we have remained in regular contact with the agency, and are hopeful that the data will be forthcoming.

HFM Participant Data System (PDS) Data. The MHFE-2 staff worked with CTF to update and refine the PDS report specifications and to test the reports. In addition, we cleaned, coded, and conducted preliminary analyses\(^\text{14}\) of MHFE-2 participant program utilization (i.e., initial enrollment, duration, and use of home visits, groups, and secondary activities\(^\text{15}\)). Additionally, we completed the first phase of the program fidelity\(^\text{16}\) investigation, using CTF’s annual report data for FY 2008-2011 to generate program fidelity scores. The data team also completed the coding of all secondary activities for the full Impact HVS sample.

Intake Interview Data. The team entered and cleaned 100% of T1 data and approximately 95% of T2 data. T3 data entry was just underway at the writing of this report. Additionally, baseline and equivalence analyses on T1 data were completed.

Geographical Information Systems (GIS) Data. As reviewed in the FY10 annual report, the data team used T1 data to “geotag” all participants living in Massachusetts at that time, thus representing participants as a point on a geo-political map. The geotagging process was used to link the geographic location of a participant to the U.S. Census socio-demographic data for the block group for that geographic address. This process was completed with the U.S. Census 2000 and is in the process of being revised, based on data from the U.S. Census 2010.

Integrative Study Data Preparation
The team transcribed, coded, and cleaned 100% of T1 qualitative data generated from the Research Interview. In addition, we entered and cleaned approximately 95% of T2 data, and have recently begun this process with T3 data.

Interviews are being analyzed for key themes of interest (e.g., educational history, educational trajectories, personal functioning, maternal coping, relationship between participants and their home visitors and program participation). Initial analyses have been conducted on select themes (see Part III).

The team collected observational data during the T2 and T3 Research Interviews from a subset of mothers who consented to being video recorded. Observations consisted of video recorded

\(^{14}\) Analyses are considered “preliminary” because, as described in a later section, not all participants have had the opportunity to participate in the program for the maximum possible enrollment of three years and eight months as of the end of FY12, it would be premature to draw any conclusions about many aspects of program usage.

\(^{15}\) Secondary activities – non-visit activities that occur as a part of a home visiting program – represent a construct of program dosage; see Part III.

\(^{16}\) See Part III, Tier Three section, for results of this initial phase.
interactions between the mother and her child\textsuperscript{17} during a five-minute freeplay session and a five-minute teaching task session. We are analyzing these data using the Emotional Availability Scales (explained in Part III); as of June 2012, coding and preliminary analyses of observations were complete for T2 and underway for T3.

\textsuperscript{17} Although it was sometimes the case that the participant would have another child at the time of a subsequent Research Interview, observations were limited to interactions between the participant and the HFM \textit{target child} (the first-born child whose information the MHFE-2 targets at each time point).
PART 3: EVALUATION PROGRESS BY TIER

Overview

Part III presents selected coding and analyses activities, and is organized by evaluation tier. Analyses here represent interim work; they are either initial findings that will need verification, and likely some modification, when the full dataset at all time points is available, or they are the results of preparatory investigations that provide the conceptual and methodological scaffolding necessary to answer and contextualize the evaluation’s core research questions about program impacts on longer-term goals reviewed above. They are segments of the HFM evaluation narrative, providing a snapshot of the evaluation activities undertaken, or to be undertaken, at each of the five tiers.

Moving across the tiers, then, we present a sampling of analyses illustrative of our approach: an analysis of MHFE-2 sample characteristics (a core element of Tier Two); HFM program operations analyses (core elements of Tier Three); preliminary findings on intermediate outcomes (core activity at Tier Four); and initial sample descriptions on selected longer-term outcomes (Tier Five). Tiers Four and Five are combined because they both involve constructs pertaining to MHFE-2 outcomes. The first section of Tiers Four and Five reports on T2 data and is organized by the five HFM goals. This is followed by a section presenting three constructs that we have developed to be used in subsequent process and outcome analyses. Finally, we conclude Part III with an example of analyses we conducted throughout the spring of FY12 examining early HFM program impacts on parenting: this example, the “Early Impacts” study, results from an integration of data from all five Tiers, exemplifying the utility of our well-developed tiered approach.
### 3.1 Tier Two: MHFE-2 Sample Characteristics

In this section we present a series of profiles of the MHFE-2 Impact and Integrative Study samples at T2, using the most representative number of participant cases available for analyses at the time of this report. As described in earlier sections, MHFE-2 uses multiple samples, so for each analysis presented here we identify which of the several study samples was used.

#### 3.1.A Individual Characteristics

In this section, we describe participant characteristics thematically, using constructs proposed as important to the MHFE-2 research questions: static demographics, relationship status, childhood histories of maltreatment, financial support, use of social services, and community context variables.

**Demographic and Parenting Information**

On average, participants in the Impact Study were 18.7 years old at the birth of their first child (range = 15.8 – 21.4) and 19.7 years old at the time of T2 Intake Interview (range = 17.0 – 22.7). These first-born children of the Impact Study participants (53% male) were, on average, 11.9 months old at T2 Intake Interview (range = 1.8 – 29.0 months).

Impact Study participants also reported on general birth and pregnancy status, which are detailed below in Figure 5. Approximately 99% of Impact Study participants delivered their HFM target child at a hospital, and just 5% of births took place outside Massachusetts. At the T2 Intake Interview, 3% of participants reported having a second live birth and 5% reported they were currently pregnant.

**Figure 5:** First-Child Birth Information and T2 Pregnancy and Subsequent Birth Statuses (N Range: 480-544)

This proviso applies throughout this current report. All analyses are based on the data available to us by June 30, 2012. The variation in sample sizes reflects missing data due to instances of participant non-response, non-applicability to participant circumstances, missed interview, etc.
3.1. B Relationship Characteristics

Father Involvement
Impact Study participants were asked about their relationship status at each time point. As presented in Figure 6 below, at T2 Intake Interview, approximately 52% of participants reported being in a relationship with the biological father (e.g. dating, committed relationship, or married); 34% of participants reported they were single; and 13% reported being in a relationship of some sort with someone other than the biological father.

Figure 6: Self-Report Of Relationship Status at T2 Intake Interview (n = 543)

Participants also reported on whether the biological father provided financial, emotional, and/or physical support, and if so, whether it was for both mother and child, or just one or the other. As shown in Figure 7, at T2, 60% of participants reported that they and/or their child received financial support from the father, and more than two-thirds reported that they and/or their child received emotional or physical support.
Quality of Relationships with Father of Child and Other Partners

MHFE-2 uses two measures to assess the quality of the participant’s relationship with the father of her baby and/or other partners.

The *Quality of Relationship Inventory* \(^{20}\) asks the participant about how much emotional support she receives from the biological father, the extent to which there is ongoing conflict between them, and the level of emotional investment she perceives him as having in the relationship. Scores ranged from 0 to 4, where 0 = “not at all” and 4 = “a lot”. As shown in Figure 8 below, participants perceived moderately high amounts of emotional support and investment from the father, and reported slightly lower amounts of conflict.

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**Figure 7: Self-Report Of Support\(^{19}\) Provided by the Biological Father of the Child (n range: 530-533)**

![Bar chart showing distribution of support](image)

**Figure 8: Average Scores of Integrative Study Sample on Perceived Quality of Relationship with Biological Father of the MHFE-2 Target Child (N Range: 384-386)**

- **Emotional investment** (n=384)
  - None
  - Yes - Mom only
  - Yes - Child only
  - Yes - Both Mom & Child
  - Scores range from 0 to 4

- **Ongoing conflict** (n = 385)
  - Scores range from 0 to 4

- **Emotional support** (n =386)
  - Scores range from 0 to 4

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\(^{19}\) * Indicates that responses only included “No” for no physical help with the child and “Yes” for yes, the father supported the mother with physical help with the child.

We used the Conflict Tactics Scale-Revised\textsuperscript{21} (CTS) to assess participants’ lifetime experience of intimate partner violence (IPV) in the following categories: injury (e.g. sustaining or imparting a “sprain, bruise, or small cut”), assault (e.g. receiving or giving a “punch or hit”), sexual coercion (e.g. using “force to make partner have sex”), and psychological aggression (e.g., shouting at a partner). When asked about partner-perpetrated IPV, 22% of participants reported that they had been the victim of injury, 32% indicated that they had experienced assault, 23% indicated that they had been the victim of sexual coercion, and 89% had been the victim of psychological aggression. When asked about IPV participants themselves had perpetrated, 26% reported having caused injury in a partner, 43% reported assaulting a partner, 10% reported having sexually coerced a partner, and 93% reported being psychologically aggressive toward a partner.

The CTS also assesses participants’ experiences of negotiating with their partners in times of conflict. Ninety-eight percent of participants report ever having had a partner use negotiation, and 98% reported using negotiation themselves.

3.1.C Childhood History of Maltreatment

We assessed participants’ histories of child maltreatment through self-report, using the Conflict Tactics Scale Adult Recall Version (CTS Adult Recall),\textsuperscript{22} and administrative data from DCF.

The CTS Adult Recall, administered at T2, asked participants to report whether particular types of maltreatment ever occurred during their lifetime. Categories of maltreatment are as follows: amount of psychological aggression (e.g. “...called me dumb or lazy”), physical assault (e.g., “hit me with a fist or kicked me”), corporal punishment (e.g. “slapped me on the hand, arm, or leg”), severe physical assault (e.g. “threw or knocked me down”), neglect (e.g. “wasn’t able to give me the food I needed”), and sexual abuse (e.g. “before the age of 18 were you ever forced to have sex by an adult or older child...”). As shown in the figure below, nearly 92% of participants recalled a caregiver’s use of psychological aggression, and nearly three-quarters of the sample recalled caregiver’s use of physical assault and types of corporal punishment. Though lower proportions of the sample recall the other types of maltreatment, results (shown in Figure 9) indicate almost a third of the sample recall experiencing severe physical assault (27%), neglect (33%), and sexual abuse (29%) by caregivers.


\textsuperscript{22} (Straus, M. A. et al., 1998).
According to the DCF data, approximately 54% of the Impact Study sample had at least one substantiated case of maltreatment in their own childhood, with a sample average of just over 2 substantiated cases (range = 0-18 cases). Figure 10 shows the distribution of maltreatment types across those participants who had a substantiated case.
3.1.D Financial Support Characteristics
Impact Study participants were asked to describe any formal and/or informal sources of financial support they received.

Informal Financial Supports
Eighty nine percent of participants reported receiving financial and material support from their family and/or close relations since becoming pregnant with their first child. As shown in Figure 11 below, 58% received support from the father of the baby, (and likewise 57% received support from partners who are not the biological father of the baby, for whom it applied), 69% from their parents, and 19% from the parents of the father of the baby.

Figure 11: Self-Report of Informal Support, by Relationship Type, in the Impact Study Sample (n Range: 51-484)

Formal Financial Supports / Public Assistance
We asked Impact Study sample participants to report any public financial services that they availed themselves of since becoming pregnant, including Temporary Assistance for Needy Families (TANF); food stamps, Women, Infants, Children (WIC); and Social Security income (SSI). We also asked participants if they were still receiving the service at the time of the Intake Interview. Figure 12 shows participants responses at the T2 Intake. The most commonly reported type of assistance was WIC, with the majority of participants (82%) still using it as of T2, 14% reporting that they used it at some point since becoming pregnant, and only 4% reporting that they never used it. After WIC, TANF and food stamps were the most frequently reported: more than half of the participants had either received and stopped receiving, or were currently receiving TANF (14% and 44%, respectively), and slightly more than half of participants had either used and stopped using, or were currently using food stamps (8% and 43%, respectively). At T2, only a small minority (29%) had ever received a childcare voucher, and only 6% reported having ever received SSI assistance.
Housing Assistance
As shown in Figure 13, the vast majority of participants had not used any type of housing assistance since becoming pregnant. Only 14% of participants reported living in some type of residential program such as a teen living program, group home, or shelter; and only 7% of participants reported receiving any type of financial housing assistance, such as Section 8, public housing, or vouchers.

Figure 13: T2 status of receipt of housing assistance since becoming pregnant reported by the Impact Study sample (n range: 541-542)
3.1. E Social Service Usage Characteristics

We also asked Impact Study sample participants about any social services they used since becoming pregnant with their first child. Social services of interest here include family, parenting, and health services provided by the state (e.g. DCF and the Department of Youth Services [DYS]) and federal governments (e.g. Early Head Start), public and private community parenting support programs (e.g. parenting classes and parenting groups), and medical providers (e.g. mental health services). Participants also described their receipt of home visiting services other than HFM, which is a program modality, or delivery method, of interest to the evaluation.

Social Services

As Figure 14 shows, only a small minority of participants interviewed at T2 reported having received these types of social services since becoming pregnant: 20% of participants reported receiving services through DCF, 1% of participants had been involved with DYS, 2% had received services through Early Head Start, 20% had attended a non-HFM parenting education classes, 11% had attended non-HFM parenting groups, and 27% of participants reported use of mental health services. Participant reports are detailed in the figure below.

Figure 14: T2 Status of Receipt of Social Services Since Becoming Pregnant Reported by the Impact Study Sample (n range: 485-543)

Home Visiting Services

Forty one percent (n =219) of women in the sample reported that they received at least one non-HFM home visit. Among those who reported that they received at least one non-HFM home visit, the average number of non-HFM home visits was 1.07 (range = 1-3).
3.1. F Environmental Context
We examine characteristics of participants as they pertain to household configuration, neighborhood configuration, and participant perception of neighborhood quality in service to understand the contexts in which participants live and prepare analyses to account for neighborhood influence across all five HFM goals.

Family and Residential Configuration
We asked Impact Study sample participants about the make-up of their households. As shown in Figure 15, at T2, approximately half (49%) of mothers were living with their parents, 17% had been living with their partners and their parents in one household, 12% had lived with just their partners in their household, and 9% reported living independently. Only 4% of participants reported living in a formal institutional setting (e.g. group home) and there was another 4% who did not fit in any of the above categories.

Figure 15: Self-Reported Residential Description in the Impact Study Sample (n =526)

Community Context
We used U.S. Census 2000 data to characterize the neighborhoods in which participants lived at program enrollment. We conducted analyses that examined neighborhood-level characteristics and compiled four types of neighborhoods, what we refer to as Community Profiles. Figure 16 shows the distribution of participants across these four Community Profiles. A majority of the sample (42%) lived in neighborhoods at T1 that can be characterized as moderate income, low population density, and relatively representative ethnic diversity. Another quarter of the sample lived in neighborhoods with relatively low income, highly dense population, and a majority of residents of ethnic minority backgrounds; and 17% lived in neighborhoods that mirror this kind of income and ethnic diversity in a more rural, less densely populated setting. Only 11% lived in neighborhoods that can be characterized as having high average income, low population density, and a homogenously European-American residential make-up.
3.1. G Program Utilization Information in Impact HVS Sample

The extent and nature of participation in the HFM program represent critical data for MHFE-2, both to understand how the programs are operating and are being accepted by the young mothers, and to document the relationship of program participation to the achievement of desired outcomes. These analyses, conducted on the 420 HVS participants only, will include both qualitative and quantitative data. Qualitative data about topics such as the nature of the home visit and the home visitor/client relationship are drawn from the Research Interviews and PDS home visit memo fields. More quantitative indicators of service utilization are largely derived from the PDS, in which HFM home visitors record information about all aspects of participants’ service utilization. Selected PDS utilization data are presented below, and initial qualitative analyses of program data are presented in a later section.

Program Dosage

MHFE-2 recruited participants between February 2008 and November 2009. Consequently, as of June 30, 2012, even those participants assigned to HVS at the very beginning of the study had not had the opportunity to participate in the program for the maximum possible enrollment of three years and eight months. Therefore, until the full HVS sample of MHFE-2 participants have either had the opportunity to complete the full duration, and/or have been discharged, it would be premature to draw any conclusions about participants’ program usage; analyses for the complete sample will be possible only after the last enrolled cohort (those enrolled in November 2009) have completed the maximum possible period of time for program

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23 This Impact Study sample includes only those who were living in the state of MA at T1, and were able to provide a home address.
participation (June 2013). For this report, then, we present selected indicators of participants’ program dosage—duration in program and services used—only as of their T2 Intake Interview.

Duration was calculated, in months, from participants’ point of enrollment through either their discharge date or their T2 Intake Interview (12 months post-enrollment), whichever came first. Forty-four percent of participants were still active in the program as of their T2 Intake Interview. Those still-active participants had stayed in the program for an average of 12.6 months as of their T2 Intake Interviews. Participants who left the program prior to their T2 Intake Interview had stayed in the program for about half that time (an average of 6.1 months).

To represent the amount of services participants had used as of their T2 Intake Interview, we use three indicators: 1) number of home visits; 2) number of groups attended, and 3) number of secondary activities. The last of these, secondary activities, includes all of those non-visit activities that occur as a part of a home visiting program, including phone calls, attempted phone calls, delivery of goods or documents (e.g., a food basket or an application for WIC), rides, mailings, emails, and text messages. As part of their documentation of services in the PDS, home visitors were required to enter every non-visit activity that was attempted or actually occurred (was completed), using a drop-down menu to select the type of secondary activity (e.g., phone call, ride to a doctor’s appointment, etc.) and a memo field to record the details of the activity. For this report we present only the total number of activities that we coded as completed. Future analyses will consider the categories of support provided by secondary activities (e.g., instrumental help, emotional support, etc.) as well.

Average dosage is shown in Figure 17. As of their T2 Intake Interview, participants had participated in an average of 19.8 home visits (range = 1-68); had attended 3.7 groups (range = 1-19); and received 16.6 secondary activities (range = 1-128).

Figure 17: Program Dosage for HFM Program Participants at T2 Intake Interview (n =420)

24 Future analyses on the full sample will include these and other service indicators, such as goal setting, linkages to other services, and home visit content.

25 Completed contacts were those activities in which the home visitor and the client had some type of exchange (e.g., a phone conversation), and any activities that were instrumental in nature, regardless of whether the home visitor and client actually connected (e.g., the HV mailed a TANF application to the mom, or dropped off a car seat). Examples of activities that would not be considered “complete” include leaving a voicemail, driving by a participant’s home and finding no one there, or contacting another agency on the participant’s behalf.
3.2 Tier Three: HFM Program Operations

MHFE-2 Tier Three activities are designed to provide data to answer the following questions:
- Within the program group, does program utilization predict longer-term outcomes?
- Within the program group, are there differences in longer-term outcomes as a function of program quality, specifically defined as fidelity to the model?

For the Integrative Study we ultimately seek to answer the following questions:
- Are program quality indicators, core service delivery processes, and program culture and context related to participant outcomes (intermediate objectives, as well as longer-term outcomes)?
  - Does program utilization predict participant outcomes?
  - Does program utilization influence the relations between program quality and participant outcomes? If so, how?
  - Do participants’ family history and current circumstances explain and/or influence the relations between program utilization and participant outcomes?

In this section we introduce the Program Fidelity Sub-study and the Home Visitor Relationship Sub-study, as examples of the kinds of investigations launched at Tier Three. These investigations seek to understand how the HFM program is implemented across the 18 evaluation sites, the extent to which programs are reaching operational benchmarks, and how the program is experienced by HFM clients. For each sub-study, we present the background, rationale, methods, preliminary analyses, and future direction that we are developing to answer our research questions.

3.2. A Program Fidelity Sub-study
MHFE-2 plans to assess program fidelity—the degree to which programs are operating as intended by the HFM model—at three levels: the statewide HFM level, the HFM program site level, and the participant level. Each of these levels is described below, beginning with the statewide HFM fidelity, for which we have preliminary results.

Statewide HFM Program Fidelity
When program fidelity is assessed at the state level it presents a picture of how the HFM program performed as a whole, in relation to its own standards over four consecutive fiscal years. For initial analyses at this level, the MHFE team compiled data used by CTF for its annual reports to individual program sites.\(^\text{26}\) Analyses focused on programs’\(^\text{27}\) data for selected

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\(^{26}\) At the end of each fiscal year, CTF provides each program with a report summarizing that site’s program performance data for the year. The reports present the data in relation to the benchmarks and the state as a whole.

\(^{27}\) Although MHFE-2 initially recruited participants from only 18 of the 26 program sites, there were some participants who transferred to non-evaluation-sites at some point in their program tenure. Therefore all 26 sites are included in our program fidelity sub-study.
performance indicators embedded within the “critical program elements” that Healthy Families America proposes as a guide to quality program implementation. These include:
- Proportion of referrals that are prenatal;
- Proportion of first home visits that are prenatal;
- Timing of first contact;
- Timing of first home visit;
- Acceptance rate;
- Service intensity;
- Adherence to service level;
- Service duration; and
- Hours of supervision.  

For most of the indicators of fidelity, CTF’s data summaries could be used without modification. However, in some cases we generated the summary variables ourselves from the raw program data (e.g. if data were not available for all fiscal years, or were not consistently derived across all fiscal years).

Results from these initial analyses are presented in Table 2. The first column, “HFM Benchmark,” indicates the benchmark for each critical program element. For example, the benchmark for prenatal referrals is 60%, meaning that at least 60% of the participants who are referred to programs should be pregnant (rather than parenting).

Next, the columns entitled “Program Performance” show, for each fiscal year, how programs did on each indicator in comparison to the benchmark. As seen in the “Program Performance” columns, the HFM sites, on average, came quite close to the benchmark in FY08, FY09, and FY10 (55%, 57%, and 58%, respectively), and a little less close to the benchmark in FY11 (52%).

Finally, the “Fidelity Score” column of Table 2 shows a standardized measure of the “Program Performance” indicators. These scores eventually will be used in cross-benchmark, cross-program analyses. To compute this measure we manipulated the data so that all of the indicators were assessed on the same scale. We did this by dividing the actual program performance by the benchmark itself. These “fidelity scores” represent how close the 26 HFM program sites were, on average, to meeting each of the HFM benchmarks. Scores of 1 indicate that, on average, programs met the benchmark. Scores greater than 1 indicate that programs exceeded the benchmark. Scores of less than 1 indicate that programs failed to meet the benchmark. The farther the score is from 1, the farther programs were from the benchmark. So, for example, returning to prenatal referrals, the fidelity score for FY08, .92, is the result of dividing 55% by 60%. The range indicates that one program scored as low as .42, while the highest scoring program actually exceeded the benchmark, with a score of 1.35. Another way to think about this is that the program sites, on average, came 92% of the way toward meeting the benchmark, with the lowest scoring site only meeting the goal by 42% and the highest-scoring site exceeding the benchmark by more than a third.

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28 This represents our “first pass” at creating these scores: subsequent analyses will include additional indicators, such as outreach and engagement, father enrollment, timeliness of screenings and goal-setting, etc.
### Table 2: Statewide HFM Program Fidelity

<table>
<thead>
<tr>
<th>Program Indicator</th>
<th>HFM Benchmark</th>
<th>FY08</th>
<th>FY09</th>
<th>FY10</th>
<th>FY11</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Program Performance</td>
<td>Fidelity Score</td>
<td>Program Performance</td>
<td>Fidelity Score</td>
</tr>
<tr>
<td>1. HFM program receives referrals for parents during their prenatal period</td>
<td>60% of referrals</td>
<td>55% (24%-81%)</td>
<td>.92 (.40-1.35)</td>
<td>57% (31%-82%)</td>
<td>.96 (.52-1.37)</td>
</tr>
<tr>
<td>2. HFM program makes first contact with new participants either prenatally or within 2 weeks of birth</td>
<td>80% of participants</td>
<td>78% (58%-96%)</td>
<td>.98 (.73-1.2)</td>
<td>78% (58%-95%)</td>
<td>.98 (.73-1.19)</td>
</tr>
<tr>
<td>3. HFM program makes first contact with new participants within 10 days from the referral</td>
<td>100% of participants</td>
<td>58% (13%-100%)</td>
<td>.58 (.03-1.00)</td>
<td>70% (47%-97%)</td>
<td>.70 (.47-.97)</td>
</tr>
<tr>
<td>4. HFM program completes a first home visit with new participants within 20 days from referral</td>
<td>100% of participants</td>
<td>36% (0%-84%)</td>
<td>.36 (.00-.84)</td>
<td>56% (24%-88%)</td>
<td>.56 (.24-.88)</td>
</tr>
<tr>
<td>5. Eligible parents referred to the HFM program accept services</td>
<td>90% of parents</td>
<td>89% (70%-99%)</td>
<td>.99 (.78-1.10)</td>
<td>85% (71%-98%)</td>
<td>.95 (.79-1.09)</td>
</tr>
<tr>
<td>6. HFM program participants receive at least 18 visits per year enrolled</td>
<td>100% of participants</td>
<td>88% (50%-125%)</td>
<td>.88 (.50-1.25)</td>
<td>111% (75%-150%)</td>
<td>1.11 (.75-1.50)</td>
</tr>
<tr>
<td>7. HFM participants receive at least 75% of their visits according to their service level</td>
<td>75% of participants</td>
<td>44% (16%-71%)</td>
<td>.60 (.21-.95)</td>
<td>68% (42%-85%)</td>
<td>.91 (.56-1.13)</td>
</tr>
<tr>
<td>8. HFM participants receive at least 18 months of service</td>
<td>100% of participants</td>
<td>73% (35%-118%)</td>
<td>.73 (.35-1.18)</td>
<td>73% (51%-118%)</td>
<td>.73 (.51-1.18)</td>
</tr>
<tr>
<td>9. Home visitors receive weekly supervision lasting 1.5 hours</td>
<td>85% of home visitors</td>
<td>83% (70%-95%)</td>
<td>.98 (.82-1.12)</td>
<td>85% (72%-100%)</td>
<td>1.00 (.85-1.18)</td>
</tr>
</tbody>
</table>
Using these scaled fidelity scores, we conducted analyses to examine whether, on average, programs changed significantly across the fiscal years on any of the indicators. Results suggest that programs improved over time on several indicators (the timing of first contact, the time of first visits, and adherence to service level). There were two indicators, however, on which program performance declined over time (prenatal first home visits, service intensity). On the remaining indicators—prenatal referrals, service duration, acceptance rate, and supervision—there was no statistically significant change.

It is important to note that the scores presented in Table 2, and the analyses described in the previous paragraph, reflect an average across all programs per fiscal year, rather than illustrating how individual programs change over time. As an example of how much programs vary in their scores at each time point, Figure 18 shows a random sample of program scores across the four fiscal years for one indicator: the percentage of home visits that are prenatal. In the figure, each line represents a program (no names are given in order to preserve program confidentiality). While some programs have consistently low percentages of prenatal first home visits, and others consistently high, almost all of the programs’ percentages fluctuate across time. Further, the graph illustrates that there is a clear increase in the percentages for some programs, which is not accounted for when we look at averages. Subsequent analyses will examine this change over time for all of the indicators.

Figure 18: Fidelity Scores for the Prenatal Referrals Indicator, Across Fiscal Years, For a Random Sample of Programs

To break things down even further, there is tremendous variation within each of the programs, depending on the indicator. Figure 19 shows the FY08 and FY09 fidelity scores for three different programs on three randomly-selected indicators: prenatal referrals, prenatal first contacts, and adherence to service level. Program 1’s fidelity scores are fairly consistent across
the three indicators, largely hovering just above the benchmark. In contrast, Program 2 scores mostly fall below the benchmark on all three indicators, even though there is improvement on one of the benchmarks from FY08 to FY09. And Program 3’s fidelity scores vary quite a bit across both the benchmarks and the fiscal year.²⁹

Figure 19: Example of Within-Program Variation on Three Randomly-Selected Indicators

<table>
<thead>
<tr>
<th>FY08</th>
<th>FY09</th>
<th>FY08</th>
<th>FY09</th>
<th>FY08</th>
<th>FY09</th>
</tr>
</thead>
<tbody>
<tr>
<td>Program 1</td>
<td>Program 2</td>
<td>Program 3</td>
<td></td>
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</tbody>
</table>

Participants are referred prenatally
First contact is prenatal or w/in 2 wks of birth
Participants receive the expected number of visits

HFM Program Site Level Fidelity
Each program site will receive a composite fidelity score, taking into account all of the performance indicators across all of the fiscal years. In other words, we will average data across performance indicators, across fiscal years, in order to generate one program-specific fidelity score for each site. For example, if we were to calculate this site-level composite fidelity score using just those indicators presented in Figure 20, the score for Program 1 would be 1.1, for Program 2, .7, and for Program 3, it would be .8.

²⁹ This figure provides a visual representation of the within-program variability of fidelity scores; the scores have not yet been tested for statistically significant differences.
These program fidelity scores will then be assigned to participants (e.g. a participant who was enrolled at the Blue Hills HFM program will be assigned the fidelity score for Blue Hills). For participants who enrolled in more than one program, fidelity scores will be prorated and combined, depending on the participant’s duration in each program. For example, if a participant spent 60% of her time in Lowell HFM and 40% in Lawrence HFM, she would receive one score that is weighted to reflect this proportion. These fidelity scores will be used in future analyses to explore how program-level fidelity affects both participants’ utilization of services, and participant outcomes.

**Individual-Level Fidelity**

Finally, we will use many of the same performance indicators that go into constructing the program- and state-level fidelity variables to calculate fidelity scores for the individual participants. These fidelity scores will reflect the participant’s individual utilization of services in relation to the benchmarks. For example, if a participant received 75% of her expected number of home visits, her score for that indicator would be 100. As is the case at the program-level fidelity scoring, indicator-specific values will then be used to create a composite fidelity score for each participant. The higher the participant’s score, the more closely her program use aligns with the model. In theory, participants with the highest fidelity scores would benefit most from the program.

Measuring program fidelity at these multiple levels should provide us with a more finely-grained picture of participants’ program use, and the ways in which program quality is related to both program use and participant outcomes. This approach allows us to study both the HFM theory of change (does the HFM model, when implemented faithfully, achieve the desired results?), as well as implementation theory more broadly (what is the alignment between how
programs can and should operate, on the one hand, and how participants can and should use the program, on the other).

3.2. B Home Visitor Relationship Sub-study

Since the initiation of the MHFE in 1998, the Tufts team has sought to “unpack” the core element of HFM—the home visit delivered by trained paraprofessionals. Our intention is to document, for example, the types of help and support mothers receive during their visits, and how the distribution of services changes over time; the relative satisfaction of mothers with these home visiting services; the qualities of the relationship that develops between the mother and the home visitor; and the variations—by individual client, home visitor/client pairs, program, and community—that characterize those relationships. This Home Visitor Relationship Sub-study is expected to help explain why certain clients used home visiting services in particular ways, and then whether and how this relationship, and its resulting patterns of utilization, may mediate and/or moderate program effects.

Data from MHFE-1 suggest that most mothers were well-satisfied with their home visitors and with the relationships that were established, though the nature of those relationships seemed somewhat different across home visitor/mother pairs, and by cultural community. For example, some mothers seemed particularly attached to their home visitors, while others seemed more attached to the local program as a service-providing entity. Seventy-five percent of the participants characterized their home visitor as a “friend,” a more familiar designation than expected or likely even desired by local and state program administrators. And whereas mothers enjoyed their relationships with their home visitors, it was unclear from these data the extent to which, or the topics about which, home visitors actually held sway.

There are many fruitful lines of inquiry to pursue in MHFE-2 as a result of these MHFE-1 findings. Using MHFE-2 T2 Research Interview data, the analysis briefly summarized below picks up on this theme of “home visitor as friend,” trying to understand what the teen mothers actually mean by that designation. It is illustrative of the kinds of investigations we will undertake in exploring this relationship.

Methods

Data were drawn from the transcripts of all eligible MFHE-2 T2 Research Interviews from the Integrative HVS sample (n = 211). Mothers in this group were asked a series of questions about the nature of their relationship with their home visitors, their satisfaction with the help offered, and the relative salience of various home visitor characteristics to their program participation. Initially, an open coding method was used with 50 randomly-selected transcripts to identify the core concepts that had emerged; this process was broadly informed by the home visiting and mentoring literature. After this period of open coding generated an expansive number of

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codes, the team worked iteratively to condense the codes and fine-tune the specific definitional parameters of each. Inter-rater reliability was ultimately established for the full sample.

Results of Initial Thematic Analysis: Home Visitor as a Friend+
When discussing the role of their home visitors, 92 mothers (43%) spoke of them as “friends.” Although this figure is less than what was reported in the MHFE-1 study, it nonetheless represents a sizable percentage of the sample. It is clear, however, that what these participants are describing as friendship includes qualities that differentiate it from a friendship in the usual peer sense. For example, 29 participants also indicated that they view their home visitors as having authority—a quality usually reserved for professionals. An additional 15 reported that their home visitors were similar to a friend, yet had both authority and expertise, where expertise is defined as knowledge or skill in a particular area. A third group (22 mothers) specified ways in which their home visitors were different from a friend, but in ways that do not imply a hierarchical relationship. Below we decipher aspects of the home visitor/client relationship that are both similar and dissimilar to friendships.

When discussing the ways in their relationships with their home visitors were “friend-like,” participants focused both on the home visitor’s personal qualities, and on the qualities of their interpersonal dynamic. Friend-like characteristics ascribed to home visitors by the by participants included: being similar to the participant's other friends; being dependable or available to the participant; being of a similar age as participant's other friends; and being trustworthy. Thirteen participants said that their home visitors had personal qualities similar to a friend in that they provided the participant with support and help, such as by sharing experiences, information, and resources, or by expressing concern or interest in the participant. As one mother noted, "Cause [sic] friends you can talk to and they give you information sometimes and they help you with things, and that’s what she did" (participant 1343).

Participants identified qualities of their interpersonal dynamic with their home visitors as being similar to a friendship, including: closeness; comfort, familiarity, or informality; and personality compatibility between the participant and the home visitor. Elements of comfort, familiarity, or informality, noted by 23 participants, included "hanging out" or having fun together during visits, getting to know one another better over time, ease of communication, and openness on the part of the participant in terms of what she is willing to discuss with the home visitor and the way she discusses topics with the home visitor. For example, one participant said, “I don’t feel like I have to censor myself, or speak a certain way because she is older, I feel like I can just be myself” (participant 1319).

Both home visitors and participants also noted ways in which their relationship did not resemble the usual friendship. Authority was coded as an element of the home visitor-client relationship when a participant made statements that indicated a hierarchical relationship, such that the home visitor ranked “above” her and that the relationship was distinct from a peer-to-peer relationship. Qualities of authority most frequently noted here included boundaries or restrictions on the relationship, maturity, and age. Other qualities of authority
included: the home visitor being a source of experience-based knowledge or information (e.g. because she is older) and professionalism or formality.

Boundaries or restrictions on the home visitor/client relationship included not socializing with the home visitor; restrictions on the home visitor's time, availability, or ability to be involved with the participant and her family (e.g. not being able to attend child's birthday party); and, limitations on the part of the participant in what she is willing to share with her home visitor or the way she interacts with her. For instance, several participants indicated that they are careful not to joke around with the home visitor “about things that are not so appropriate,” (participant 1115)—as they would with their friends. One participant echoed this guardedness when she characterized her home visitor as “a friend, but not that type of friend I tell things to” (participant 1022). Although these dimensions of authority were framed as restricting the relationship, these restrictions were not generally framed as negative by participants.

Participants who identified their home visitors as being similar to a friend but also having expertise described them as a source of professional experience, knowledge and information. For example, one participant noted, “She gave me advice and she talked about different situations and different things I might run into. Things I might have to handle if I ran into certain things. Stuff like that” (participant 1469). For some mothers, expertise set home visitors apart from other friends they had. As one explained, “She’s very professional and she knows a lot, and that’s something that my friends don’t have. I am able to have that professional relationship, but also that friendship” (participant 1091). For other mothers, however, the expertise they identified in their home visitors reminded them of their friends and family which made the relationship similar to the familiar “friend” relationships they maintained. For example, one mother said, “I guess besides my family and my friends, she’s somebody who’s given me advice. Or like, I know that I can go to, and she’ll know things. Just in case I have a question about the baby or anything, she’s one of my resources” (participant 1047).

Taking a closer look at the dimensions of the home visitor/client relationship that the teen mothers consider to be similar to, and distinct from, friendships reveals that "friend" does not quite capture the nature of this relationship, as it is not viewed by most teen mothers as a standard peer-to-peer friendship. However, these relationships do appear to share some qualities with friendship, as the term is understood by program participants. So while some home visiting programs might view "friend" as an overly intimate categorization of a home visitor, the “friendly” aspects of this relationship may well fall within the range of appropriate home visitor/client engagement. Indeed, this hybrid friendship may be what a paraprofessional home visitor model is after, at least for some of the parents involved. And it may, in turn, help increase program participation, thereby increasing program effects.
3.3 Tiers Four and Five: Integrating Data to Examine Program Impact

Here we describe evaluation efforts at Tier Four and Tier Five in two segments: First we provide an overview of initial analyses of indicators, for each goal area, that will be used to determine, and explain, program effectiveness in that domain. We then offer a glance at the “behind the scenes” work that we have done to prepare the full dataset for our use (e.g. examining the psychometric properties of measures and developing constructs to be used in future analyses).

3.3.A Overview of HFM Five Main Goals with Full Sample

Goal 1: Preventing Child Maltreatment and Supporting Positive Parenting
Since a primary goal of HFM is to prevent child abuse and neglect by supporting positive parenting, here we report on multiple measures of child abuse and neglect as these are considered primary longer-term goals of interest, and also report on the intermediate indicators of parenting, stress and qualities of parent-child interactions.

Child Abuse and Neglect. We measure child abuse and neglect via two sources of data: First, for the Impact Study sample we draw upon public agency data from DCF to determine the kind of maltreatment report (e.g., maltreatment type; substantiated or not), the perpetrator (e.g., mother as perpetrator or other person as perpetrator), and the number of reports. Next, we collect self-report from the Integrative Study sample mothers in which we ask participants to report on actions they have taken toward their children in the past year when their children have disobeyed them or done something else that displeased them.

First, we use DCF data to calculate the prevalence of both unsubstantiated and substantiated reports to DCF alleging child maltreatment with the mother as the perpetrator (through to the date of the agency’s latest data transfer, May 5, 2011). Approximately 24% of Impact Study sample participants had been reported as a perpetrator of maltreatment to DCF; the number of combined unsubstantiated and substantiated reports for these mothers ranged from no reports to 6 reports per person. Approximately 17% of the Impact Study sample had substantiated reports of maltreatment; the number of substantiated reports ranged from no reports to 4 reports. As is evident in Figure 21 below, the vast majority of both substantiated and unsubstantiated reports were child neglect only; of 165 total reports made to DCF on the Impact Study sample, 92% were reports concerning neglect only and of the 113 substantiated cases, 96% were found to be supported cases of neglect only.

31 In this section we report on the five HFM goals using T2 data from the Intake Interview (Impact Study sample, n =566) and the Research Interview (Integrative Study sample, n =402) on the total sample, meaning the HVS/Program and RIO/control groups are combined. The proviso offered earlier pertaining to missing data applies here as well.
Next, we use self-reported data at T2. According to mothers’ characterizations of their parenting at T2, the vast majority (89%) of Integrative Study sample participants reported using non-violent forms of discipline to resolve parent-child conflicts in the past year. However, 41% of these participants also indicated they used psychological aggressive tactics (e.g., “shouted, yelled, or screamed” at child), 28% indicated they used physical aggressive tactics – almost all of which (97%) of which can be considered corporal punishment (e.g., “spanked on bottom with bare hand”), and about 6% indicated that they had poorly supervised their child (e.g., “had to leave your child home alone even when you though some adult should be with him/her”).

_Parenting Stress_. We collected data on parenting stress at T2 during both the Intake and Research Interviews. As shown in Figure 22 below, at T2 Intake Interview, just over 81% of the Impact Study sample rated their parenting stress as “not at all stressed” or “a little stressed.”
Observation of Mother-Child Interaction. To represent parenting indicators, we examined, in-depth, emotional availability across T2 and T3 in the Integrative Study sample. Emotional availability (EA) “refers to the capacity of a dyad to share an emotional connection and to enjoy a mutually fulfilling and healthy relationship,”32 it is thought to be an “affective barometer” of parent-child relationships.33

We conducted video recorded observations of mothers and children interacting in brief freeplay and teaching assessments during our T2 and T3 Research Interviews. Here we report on our observations at T2. We asked mothers to play with their infants as they might typically do (what we refer to as the “freeplay”). We then presented mothers with a task that would be challenging for a child the age of their own and observed how mothers and infants/toddlers approached that task (what we refer to as the “teaching task”). The video recorded observations were coded for EA of both mothers and children. We measured EA using the Emotional Availability Scales34 (assessing maternal sensitivity and (non)hostility, and child responsiveness). Maternal sensitivity focuses on appropriate and positive affective interactions. Mothers who are optimally sensitive during interactions with their children are attuned to their children’s emotional cues; have accurate perceptions of their children’s cognitions, emotions and behaviors; and share positive emotional exchanges with them. The maternal nonhostility scale measures the presence/absence of indicators of hostility, including demeaning comments, impatience, anger, frightening, harsh, or threatening behavior. We also assess the child’s responsiveness—her/his eagerness to engage, and pleasure in these interactions.

The figures below present the sample’s average scores for these T2 EA Scales. Maternal sensitivity is measured on a 9-point scale, with higher scores representing greater maternal sensitivity (see Figure 23). Maternal nonhostility was measured on a 5-point scale with higher scores representing greater nonhostility (less hostility) (see Figure 24).

Figure 23: Average Scores for Maternal Sensitivity in the Integrative Study Sample (n range: 229-242)

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Figure 24: Average Scores for Maternal non-hostility in the Integrative Study Sample (n range: 229-242)

Child responsiveness is measured on a 7-point scale, with higher scores indicating greater responsiveness to the mother in interaction (see Figure 25).

Figure 25: Average Scores for Child Responsiveness at T2 (n range: 233-244)

An alternative method of considering the scale scores is to interpret the meaning of the emotional availability scores via a “risk continuum” approach that classifies scores at different levels of risk. Taking this approach, we calculated the scores for the MHFE-2 Integrative Study sample and present here (see Figures 26-29) how mothers and children are represented in different levels of risk:

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Overall, the data suggest that the majority of mother-child dyads exhibit interactive behavior that is concerning and will require further study and analysis to understand potential influences and environmental factors at play (e.g., depression, family support and involvement, parenting stress).
We also note here that going forward, the EA findings pose a particular challenge in relating findings to policy and practice, since mothers in our Integrative Study sample with DCF-supported cases were less likely to agree to be videotaped interacting with their infants. Thus we stress here the subsample with video observations of mother-child interaction is not representative of the whole sample and that results should be interpreted with caution.
Goal 2: Optimal Health, Growth, and Child Development

The second goal assesses optimal health, growth, and child development. We measure outcomes related to this HFM goal by examining several indicators, including: immunizations and assessments, screenings, and referrals. These data come from the Impact Study sample using data we collect from DPH.

Here we provide information about participants’ use of early intervention services, which is one indicator used to assess the second goal. For children who are identified as needing services, we can examine whether the program is effective at referring them to early intervention services. We documented current use of Early Intervention in the Impact Study sample at the T2 Intake Interview, at which point approximately 23% of participants reported they had accessed services from Early Intervention at some point since becoming pregnant. Figure 30 below provides details at T2.

Figure 30: Service Use of Early Intervention at T2 for Impact Participants (n = 541)

Future analyses in this goal area will focus on immunizations and assessments, screenings, and referrals. However, as of the writing of this report, these data are not yet available.

Goal 3: Educational Attainment, Employment, and Life Skills

To assess this goal, we use varying indicators for each of the three categories of outcomes: educational attainment, employment, and life skills. We measure educational attainment using multiple data sources, including administrative data from the Department of Elementary and Secondary Education, as well as self-reported educational attainment from the Intake Interviews at all three time points. Although we have access to participants’ records through the DESE administrative dataset, these data are not yet fully prepared for analysis.

For employment, we use self-reported data on whether the participant was employed or not at the time of the Intake Interviews at each time point. Since gaining access to, and using, health
care resources is an important life skill for parents, we have used self-reported data on whether the participant has health insurance and has a primary health care provider as indicators of possession of critical life skills. These data also derive from Intake Interviews at each time point.

At the T2 Intake Interview, approximately 48% of the Impact Study sample respondents reported they were currently in school, with approximately 27% currently employed. Approximately 97% of the Impact Study sample respondents reported that they currently had health insurance, with about 83% reported now having a primary care provider (see Figure 31.)

Figure 31: Status of Goal 3 Outcomes in Impact Study Sample At T2, (n Range: 540-543)

Goal 4: Preventing Repeat Pregnancies during Teenage Years
For the fourth goal, we use several indicators to examine repeat pregnancies during the teenage years. These indicators include: occurrence of repeat pregnancy, pregnancy spacing, and self-reports of family planning (e.g. plans to have more children and use of birth control/protection).

At T1 Intake Interview, 59% of participants in the Impact Study sample were pregnant and 41% were parenting. For 81%, this was their first pregnancy. Of the mothers who were parenting at T1, a small number become pregnant again (1.5%) or had had a second baby (0.1%) at T1. Most participants (70%) reported plans to have more children: 7% planned to have children in the near future (within 2 years), while a majority (64%) indicated plans for later.

By T2 Intake Interview, all mothers had given birth to the MHFE-2 target child; 5% of participants were pregnant again and 4% have had a second baby. As Figure 32 details below, most mothers (77%) mentioned plans to have children either at some vague future time point (38%), in 3-6 years (33%), or within the next two years (6%). Roughly 75% of participants reported currently using some form of birth control (e.g. condoms, oral contraceptives).
Goal 5: Promote Parental Health and Well-being
For the fifth goal, we aim to measure the intermediate and long term goal of promoting parental health and well-being. We measure parental health and well-being using two indicators, including depression and trauma.

Depression. At T2 Intake Interview, we assessed participants’ level of depression using the Center for Epidemiological Studies Depression Scale\(^{36}\) (CES-D). Depression scores were calculated for clinical levels of depression, using a cut-off score of 16 or higher on a scale that ranged from 0 to 60. As shown in Figure 33, 366 participants did not meet criteria for clinical depression, however 171 participants endorsed enough behaviors and attitudes to be considered clinically depressed.

Figure 33: Participants Distribution of CES-D Clinical Cut-Off Scores, \((n = 537)\)

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**Trauma.** At T2 Research Interview, we assessed participant lifetime experience of trauma exposure and recent symptomology of Post-Traumatic Stress Disorder (PTSD) using the University of California, Los Angeles Post Traumatic Stress Disorder Index.\(^{37}\) Of a possible 13 events, (e.g., “being in a bad accident;” “seeing someone in your town being beaten up, shot at, or killed”) participants in the Integrative Study sample reported experiencing an average of about 3 traumatic events in their lifetime; reports ranged from no events to 9 events. Figure 34 provides a snapshot of these data; approximately 14% of the sample reported never having experienced a traumatic event, 37% reported having experienced 1-2 traumatic events, approximately 28% reported having experienced 3-4 traumatic events, and roughly 21% of the Integrative Study sample endorsed 5 or more traumatic events.

**Figure 34: Number of Traumatic Events Reported Experienced In Lifetime in the Integrative Study Sample, (n = 391)**

![Bar Chart]

As shown in Figure 35 below, when we examined the symptom severity for meeting criteria of PTSD in our Integrative Study sample,\(^{38}\) we found that approximately one-quarter of respondents met either partial or full criteria for PTSD.

**Figure 35: Number and Corresponding Percentages of Participant Status for Meeting Clinical Criteria for PTSD Symptom Severity, (n = 336)**

![Pie Chart]

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\(^{38}\) Due to participants opting out of answering questions regarding symptomology, these data represent approximately 85% of the sample who had endorsed events on the PTSD measure.
3.3.B Preparation and Development of Constructs

We now turn to present work with non-standardized constructs that we will use to measure intermediate and longer-term goals.

In anticipation of the complex, multi-level, and multivariate analyses that we intend to conduct at the Tier Four and Tier Five levels, we have prepared both qualitative and quantitative data in an effort to adequately support a validated, meaningful, and robust understanding of progress participants make toward attaining the five HFM outcomes.

Here we provide examples of analytic activities conducted through the end of FY12 in service to the Tier Four and Tier Five evaluation aims:

- The first example describes the psychometric analysis we have conducted for data quality assurance.
- The second example describes the development of participant educational trajectories to show work integrating multiple data sources toward construct development in the Impact and Integrative studies.
- Lastly, the third example provides an update on our efforts to develop a construct of community context in the Impact and Integrative studies using the GIS databases we have constructed.

Establishing Data Integrity: Construct Validity and Psychometrics of Measures

One of the main tasks we accomplished in FY 2012 was the preparation of T1 and T2 datasets for analysis. Because our team adapted previously used instruments and constructed new instruments altogether, we needed to assess the psychometric properties of these instruments. That is, our researchers use statistical methods to examine whether an instrument actually measured the construct it was designed to measure. This is an important first step, given that most measures used in social research (e.g., determining the quality of relationships) assess phenomena that are not directly observable in the way physical measures are (e.g. body temperature to indicate illness).

We undertook factor analysis to examine the psychometric properties of these instruments. The purpose of factor analysis is to explore whether items within an instrument “fall together” or cohere, to measure larger, hypothetical constructs. For example, the team initially constructed “My Neighborhood Survey” (MNS), which included 48 items intended to measure neighborhood characteristics from the participant’s perspective. Using factor analysis, we were able to derive three unique constructs within the MNS: neighborhood connections, quality of the neighborhood high school, and neighborhood safety. In future analyses we can now use three subscales (rather than 48 individual items) to analyze neighborhoods. (For a more detailed description of this factor analysis process, see Appendix B).

Preliminary Integrative Analyses of Educational History and Outcomes

Our purpose in this section is to provide an example of preliminary analysis through which we develop constructs that enable us to integrate data from multiple sources. More specifically, in
the sample analysis we describe here, we developed a construct called Educational Trajectories to represent variations in how participants’ pregnancies intersected with their educational histories (e.g., if they got pregnant after completing high school, or before, and if before then whether they stayed on track or not). Then, using qualitative analysis methods with two samples of participants, we examined how participants who followed three varying educational trajectories interpreted and explained how their circumstances, supports, and educational experiences came into play in their respective trajectories. We view this analysis as illustrating both (a) the utility of a construct derived from qualitative analysis, and (b) how this construct can be integrated with quantitative data in subsequent multivariate analysis to answer questions regarding whether and how participant and program characteristics influence educational attainment (a primary HFM goal).

**Educational Trajectories.** The semi-structured interviews enabled participants to share qualitatively rich data about their educational histories: their motivations, and explanations for their actions and decision-making regarding their education. Our first objective was to examine the variation in how the timing of pregnancy intersected with educational status. Toward this end, we coded: 1) the timing of the participant’s pregnancy in relationship to her secondary schooling (before, during, or after high school completion), 2) her school enrollment status at the time of the interview at T1 (in school or not), and 3) whether the participant stayed in school or interrupted her education during the secondary school years. We identified the following six trajectories that emerged from the intersection of these three variables:

- Participants who completed secondary school prior to becoming pregnant;
- Participants who became pregnant during high school and either completed their secondary education or were on track to attain a degree;
- Participants who became pregnant during high school, had an interruption in their educational pursuits but then resumed them;
- Participants who became pregnant during high school, dropped out and did not resume;
- Participants who dropped out of high school, became pregnant, and then resumed their secondary education; and
- Participants who dropped out of high school, became pregnant, and did not resume their secondary education.

**Sub-Group Analysis of Varying Educational Trajectories.** Although many participants had completed their secondary schooling before becoming pregnant, over a third (37%) of the participants were still in school and 20% had dropped out of school at T1. Since having participants stay in school to complete high school or having students resume after the interruption for pregnancy or after dropping out of school is an important outcome for the HFM program, we were particularly interested in careful analysis of the educational histories of those participants who were in school or had either dropped out or interrupted their schooling. Two sub-studies, completed in the past year on two groups of participants based on self-
reported ethnicity (45 Euro-American participants and 45 Hispanic participants), are described briefly below.

In both sub-studies, 15 participants were selected to represent each of the following three types of Educational Trajectories:

- "Continuous Attenders": This group is comprised of participants who became pregnant while in high school, and stayed on track towards completing their degree. These participants never had an interruption in their schooling.
- "Returners": This group is comprised of participants who had an interruption in their schooling for a period of time, either prior to or after becoming pregnant, but returned.
- "Non-Returners": This group is comprised of participants who were withdrawn from school at T1 and did not return. These participants may have withdrawn prior to or after pregnancy.

Qualitative analysis of the 45 European American participants revealed that school attainment was challenging for almost all of the participants because of one or more of the following: academic difficulties; low school engagement; or stressors (including individual, family, or peer related stress, or problematic school environment). However, interpretive analysis of how the participants made sense of their circumstances and their decisions to stay in school or not revealed interesting patterns. In-depth analysis of the statements made by participants about the intersection of schooling and pregnancy, in the context of participants’ educational pathways, revealed several themes representing scripts for how participants position themselves vis-à-vis educational attainment. The majority of participants expressed one of the three following scripts:

- **Educational Attainment Script that Accommodated Pregnancy and Motherhood**: These participants maintained a strong commitment to educational attainment, and the attitude that pregnancy and motherhood must fit into that educational attainment script. What is unique about these participants is that in framing the intersection of their educational pathways and their pregnancies, they positioned educational attainment as an unyielding

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41 These group labels are adapted from Linares et al., (1991), who identify four subgroups of adolescent mothers based on their secondary school activities during their pregnancy and within the first year postpartum. Their subgroups include adolescent mothers who: "dropped out of school prior to the pregnancy and had not returned by 12 months postpartum (before-pregnancy dropouts); dropped out during the pregnancy or first year postpartum and did not return (after-pregnancy dropouts); dropped out before or during the pregnancy or early postpartum period but returned to school during the first year postpartum (Returners); and remained in school throughout the pregnancy and first year postpartum (consistent attenders)" (p. 381).
42 See Greenstone, 2012.
43 The term "script" is used to refer to participants' attitudes, thoughts, perspectives, or self-concepts regarding, or relationship to, educational attainment.
priority, and found a way to make pregnancy and motherhood compatible with that priority. In the interest of completing school, they were able to make their role as students flexible enough to accommodate their new roles as pregnant women or mothers, as well as to be flexible to other types of stressors in their lives so that these stressors did not derail their educational pathways.

- **Educational Attainment Script Activated by Pregnancy:** Participants who followed this script reported becoming motivated to complete high school because of their pregnancies. For these participants, pregnancy seems to have caused a shift in their views about the importance or relevance of educational attainment.

- **Obstacles to Educational Attainment Script:** Participants in this script group identified multiple obstacles to school success and framed these as insurmountable obstacles which led them to drop out and not return. These obstacles included not liking school, stressors in their lives which made a focus on school impossible, and features of school that they considered incompatible with their needs or preferences.

Perhaps the most critical differences between the young women in this study who either stayed on track or resumed schooling after interrupting their education and those who dropped out and did not resume their schooling were a) perceptions of ecological stressors as obstacles to the pursuit of educational attainment, and b) the use of personal functioning strategies to respond to such obstacles, as guided by their educational attainment scripts. Furthermore, participants reported that supports such as programs that offered an alternative to the standard route to a secondary degree, and programs that targeted academic-, stress-, or pregnancy-related needs, were also important for their educational success.

The focus of the second analysis (of the 45 Hispanic participants) was on how Latina participants navigated between their family building and educational attainment scripts. In comparing participants’ educational narratives in the three Educational Trajectories (Continuous Attenders, Returners, Non-Returners), most of the participants in all three trajectories reported evidence of child care-giving support from grandmothers and of a committed relationship with either the father of the baby or another male partner. Furthermore, among these mothers as well, the Latina Continuous Attenders and Returners spoke with determination about their educational and career motivations, stated clear goals for their futures, and expressed their belief in the connection between being educated and being a good mother. This latter point is significant, in that these mothers were clearly integrating their family building and educational attainment beliefs, instead of framing these two sets of beliefs as conflicting. In contrast, the Non-Returners in the sample expressed personal accounts that are generally very different from those of Continuous Attenders and Returners. Specifically, Non-Returners reported more obstacles, and expressed more school frustration and lack of clear goals. Interestingly, these participants clearly viewed their family building and educational achievements.

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44 Wright (2012).
attainment beliefs as conflicting, and reported prioritizing their mothering role. For example, when talking about what it means to be a good mother, they did not mention education but rather stressed the fact that they must physically “be there” for their children.

**Framework for Community-level Data: Context via Community Profiles**

Home visiting evaluations increasingly are attending to the community contexts in which the programs are located and services are provided. Although there is increasing interest in examining neighborhood impact on a variety of child outcomes, the measures typically used to characterize the spatial, institutional, and demographic dimensions of communities remain limited in a variety of ways. Additionally, there is increasing concern among experts that essentializing any given demographic characteristic (e.g., race or income) among residents of a community, and then establishing the relation of that characteristic to a particular outcome (e.g., maltreatment), does disservice to the multiplicity of interconnected community factors that influence individual behavior. Community configurations that are based on a bundle of characteristics hold promise in this regard.

Toward this end of developing a construct of community context that represents the interconnected and conflated nature demographic characteristics of neighborhoods, we first identified the neighborhood variables that emerge consistently in the literature as impacting child outcomes. In research on neighborhood or community influences on youth development, income, residential mobility, and racial/ethnic composition of neighborhoods are considered structural features of neighborhoods that typically emerge as significant influences on youth outcomes. Some of the most widely reported ecological risk factors for child maltreatment also include low socioeconomic status, or poverty. Associations between maltreatment and living in poorer, more densely populated neighborhoods have been often noted.

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We selected income, ethnic composition, and population density as the three variables used to generate our construct of Community Context Profiles. Income and ethnic composition of neighborhoods have been identified as significant influences on youth outcomes, and have been used by environmental activists, researchers, and policy-makers to identify neighborhoods that are disproportionately at risk for environmental health problems. We include population density to represent variation in the extent to which neighborhoods are urban or suburban as the third structural characteristic, as this is often confounded with neighborhood poverty.

Community Context Profiles. With this grounding, we empirically examined how census based block groups cluster together in varying configurations of income, population density, and ethnic composition. U.S. Census Bureau socioeconomic data and Geographic Information Systems software (ArcGIS) were used to categorize participants’ geographic environments (at the block group level) according to the indicators of population density (measured as people per dry square mile), percent minority (as determined by specific racial/ethnic composition), and median household income. These demographic indicators were entered into a hierarchical cluster analysis to determine the different types of communities in which participants lived at the time of enrollment into the study. As shown in Figure 36, our analysis generated four have distinct profiles as follows:

- CP 1: Moderate income, low population density, and 25% minority;
- CP 2: Low income, high population density, and 65% minority;
- CP 3: Very low income, low population density, and 50% minority;
- CP 4: High income, low population density, and 10% minority.

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50 (Leventhal & Brooks-Gunn, 2000).
Community Context Profiles in Subsequent Preliminary Analyses. We use two varying approaches to examine if and how community context moderates program impact on HFM goals in subsequent analysis. In the first approach, community context variables (such as the Community Context Profiles), are included among several independent variables in OLS regression models that examine which individual characteristics and community/neighborhood variables predict or moderate program impact on HFM goals. This approach is typically based on Bronfenbrenner’s ecological model,\(^5^2\) which emphasizes ongoing transactions among parents, children, and different layers of their environment over time.\(^5^3\) An ecological approach to research on child and adolescent outcomes lessens the likelihood that studies will generate reductionist explanations of parent-child relationships, because they presume that focus on a single aspect of the problem is not sufficient,\(^5^4\) and that many interacting forces contribute to child developmental outcomes. This approach has been taken in examining community context as a potential moderator of program impact on child maltreatment (see following section, for example).

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A contrasting approach is rooted in more relational theoretical approaches that seek to integrate both the environment (e.g., in our study the structural dimensions of income, density, and racial/ethnic composition of neighborhoods) and place (i.e., the individual level perceptions and meaning-making through which environmental features of neighborhood context are interpreted). Such approaches may elucidate our understanding of the mechanisms by which neighborhood impact (direct or moderating) is associated with child behavioral and developmental outcomes.

**Examining Mechanisms through which Community Context Moderates Program Impact.** As we note in our integrated analysis of the HFM early program impact on parenting outcomes (see next section), both individual characteristics and community level context appear to moderate the program’s impact on parenting outcomes, including child maltreatment. At this preliminary stage of analysis we only speculate about possible explanations of the underlying mechanisms or processes whereby these effects occur. However, because of the richness of our multi-layered data (individual level, program level, and community level) from multiple data sources (participant perspectives collected through standardized surveys as well as semi-structured interviews, agency/administrative records, program records, GIS-based census level aggregate data), we have the opportunity to explore potential moderating and mediating mechanisms whereby individual and community characteristics influence the program’s impact on its goals. One approach to beginning this analysis is to examine how the various potential moderators (at community, program, and individual levels) intersect and interact with each other.
3.4 Putting it All Together: Example of Fully Integrated Data Analyses

Throughout fiscal years 2011 and 2012, the MHFE-2 team has engaged in a research partnership with The Pew Center on the States aimed at advancing research on home visiting and public policy. The partnership afforded the evaluation team the opportunity to initiate multi-tiered and multi-faceted analytic efforts to target one of the five HFM goals—the prevention of child maltreatment and the promotion of positive parenting.

In this last section of our progress report on data analyses, we present an overview of this fully integrated study, entitled Initial Findings for a Randomized, Controlled Trial of Healthy Families Massachusetts: Early Program Impacts on Young Mothers’ Parenting, or here, the “Early Impacts” study, in which we examined early program impacts and ecological influences on young mothers’ optimal parenting. We use this study to illustrate how our data analytic efforts presented above at Tiers Two, Four, and Five can be brought together to provide the dynamic and nuanced inquiry we seek going forward with our Impact and Integrative studies.

3.4.A Pew Center on the States: Early Program Impacts on Young Mothers’ Parenting

In the Early Impacts study we sought to address several gaps within the literatures that examine the impacts of home visitation intervention as a longstanding strategy to provide education and support to parents in an effort to prevent maltreatment. Given the comprehensive protocols of our Impact and Integrative studies and the robust agency data from the Department of Children and Families, MHFE-2 was distinctively positioned to examine early HFM program impact on young mothers’ parenting by: a) operationalizing maltreatment in a multifaceted, comprehensive manner, b) understanding influences of maternal childhood histories of maltreatment as part of a complex maternal ecology, and c) examining how the HFM program may impact recipients differently, depending on varying levels or conditions of individuals’ ecological influences like depression or neighborhood context.

We aligned the aims of the Early Impacts study with the final evaluation questions of MHFE-2 to understand early HFM program impact on parenting outcomes at the Tier Four and Tier Five levels. The primary research questions we examined were:

- Is participation in HFM associated with more optimal parenting and lower rates of child maltreatment? (Or, are there fundamental differences in parenting outcomes between HFM participants and the control group?)
- Do characteristics of individuals or their contexts moderate the relation between program and parenting? (Or, does the HFM program impact parenting outcomes differently for participants of particular levels of an indicator? Does HFM program impact parenting outcomes differently for participants in certain groups or community contexts?)

See http://www.pewtrusts.org
For mothers enrolled in the program, is there an association between program utilization and parenting? (Or, for HFM participants, does the amount or duration of program engagement lead to varying parenting outcomes?)

Methods
We assessed early HFM program impact on parenting outcomes using the fullest MHFE-2 samples available for data analysis. At the time of the study (completed in May, 2012) this included using the full T1 Impact Study sample (n = 687) to understand early HFM impact on DCF maltreatment outcomes, the T2 Integrative Study sample (n = 512) for any outcomes measured at T2 and any analyses testing moderation, and finally the full Impact HVS sample (n = 420) for understanding the influence of program utilization.

For all three questions, we measured optimal parenting outcomes by testing for reduced parenting stress, higher sensitivity on behalf of mothers, lower self-reported maltreatment, and lower DCF reports of maltreatment between groups; and defined our primary prediction variable as the status of HVS or RIO for the first and second questions. In our examination of the HVS participants, we defined our primary prediction variable as program utilization, which we measured by duration in HFM, number of home visits, number of secondary activities, and number of groups attended. It is prudent to mention here that we exhaustively defined maltreatment by examining all of the following for both DCF state-agency reports and self-report admissions: existence of any maltreatment, chronicity of any maltreatment, and chronicity of different subtypes of maltreatment (neglect only, physical abuse only, and combined type). For DCF reports, we also considered each of the above “types” in regards to their reported-but-unconfirmed and reported-and-confirmed status (in which DCF investigates a report of maltreatment and substantiates its existence) as well as by who was identified in reports and confirmed cases as the perpetrator (mother or any person). We also always accounted for maternal demographics, such static traits as age, race, age at child’s birth,

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56 It is important to note here that the Early Impacts study design analyzed data from multiple, exclusive samples: for understanding early HFM impact on DCF maltreatment reports we used our full T1 Impact Study sample of 687 participants; however we used our T2 Integrative Study sample (n = 512) for all other parenting outcomes. For understanding how maternal childhood history of maltreatment influences HFM impact (alongside other ecological indicators) we used multiple subsamples of the 512 participants in the T2 Integrative Study sample (these subsamples ranged in size from 228 participants to 512 participants); and for understanding how HFM participants program utilization related to parenting we excluded RIO participants and used the Impact HVS sample of 420 participants. We note here that the use of multiple samples was necessitated by the limits of participant data. For example, when analyses considered a specific type of maltreatment history (e.g., maternal history of neglect-only) as a potential influence on parenting outcomes we included participants who had experiences of neglect-only and compared them against participants who had no maltreatment history of any type, but necessarily excluded participants for whom neither of these conditions were true, as such any participant with a maternal history of another type of maltreatment could not be included. Generally speaking, subsamples can diminish an ability to draw conclusions about a larger population; in our analyses, we had to be careful in interpreting any statistically significant findings of a subsample. So while we were able to examine in great depth the ecological influences of mothers with differential maltreatment histories, we have to stress that interpretations cannot be generalized to our Integrative or Impact Study samples.
enrollment status, and use of other parenting services, for every participant in analyses so that we could hold these constant in comparing between program and control groups. For the second question, we wished to understand if there was influence of personal ecological characteristics and community or contextual characteristics on parenting outcomes and whether these characteristics interacted differently with program receipt. In order to do so we included a mother’s childhood history of maltreatment, her clinical depression status, and any reported interpersonal violence (IPV) between her and a partner at the individual level, and then social support, neighborhood safety, and resident community profile type at the contextual level.

We had an additional research aim to document the chronicity and types of child maltreatment present in our sample, so after data were organized we ran frequency statistics on the Impact Study sample. For the first and third research questions, we had two phases of analyses; we first conducted bivariate analyses to understand what associations exist among the different parenting outcomes in the sample and then between the main prediction variables and each parenting outcome without controlling for demographic information. We next used OLS regression to test whether or not the primary prediction variables predicted optimal parenting outcomes while accounting for demographic information. For the second research question, we again first conducted bivariate analyses and tested OLS regression models with all the demographic variables, then in subsequent models added maternal ecological variables, then contextual variables, and finally the potential interactions between the ecological variables and program status. We reviewed the all-inclusive, “full” models that indicated statistically significant moderation of program affects, and then by extracting the noise of non-significant variables, we reduced the full model down to a more conservative, “leaner”, final model.

**Missing Data.** Just like much of the preliminary and preparatory analyses presented in the previous sections of this report show varying levels of missing data, we prepared datasets for the Early Impacts study that likewise incurred a lot of missing data. However, it is critical we explain here that for the Early Impacts study we addressed this issue of missing data by using a statistical method called Multiple Imputation (MI; Rubin, 1987) to create fully complete datasets for analysis. By using MI,\(^57\) we were able to have rigorous estimates of data points that otherwise would be missing for individuals: Had we forgone employing MI, our analyses would have lost much of the predictive power associated with large sample size, as OLS regression programs will exclude entire cases (here, a participant’s entire corpus of information) from analyses if the case is missing even just one datum. Thus we were able to conduct analyses on data collected at T2, even for Integrative Study sample participants who missed the T2

\(^{57}\) MI is a statistical strategy endorsed by statisticians and developmental theorists as a preferred method of addressing problems of missingness (Allison, 2002; Schafer & Graham, 2002; Widaman, 2006). Using observed values, MI assigns multiple, different values for missing data. Data analysis using MI data then generates “pooled” results for the multiple datasets based on rules established by Rubin (1987) that incorporate the uncertainty introduced by estimating values. MI has certain advantages over other methods of handling missing data, such as introducing appropriate random error, allowing for unbiased estimates of all parameters, and providing good estimates of the standard errors (Allison, 2002).
Research Interview—these types of missing data were informed by the participant’s non-missing data as well as hundreds of other participants in the sample which resulted in multiple datasets containing their best estimated information. The multiple datasets require extra effort on behalf of the data analysts, because results and interpretations must be considered from “pooled”, or averaged, data estimates. So, instead of having a single dataset that had a third- to a half of the sample excluded, we imputed and worked with five-to-fifty datasets of the same data for our full samples, estimated multiple times and then averaged. Going forward, the evaluation team will continue to deal with missing data and so we will continue to seek the most appropriate, theoretically and statistically sound methods for dealing with missing data.

Results
We present the results of the Early Impacts study by first describing the descriptive rates of maltreatment, then the main effects of HFM program on parenting outcomes, then the moderating effects of program on parenting outcomes, and finally we describe the results of program utilization on optimal parenting outcomes.

Maltreatment rates. Data revealed that while 84% of mothers did not have a substantiated case as perpetrator with DCF, 16% of the MHFE-2 sample had a substantiated case as the perpetrator of maltreatment on file with the state, an overwhelming majority of which was neglect (96% of substantiated cases).

Early HFM impact on optimal parenting. First, results indicated that HFM participants reported lower parenting stress than control group mothers. Next, we found mixed results in terms of maltreatment prevention. Using the T2 Integrative Study sample, the children of HFM participants had a higher likelihood of having a confirmed report of maltreatment filed with DCF. However, we could not replicate this finding in the larger Impact Study sample. Finally, we did not find any group differences in terms of self-reported maltreatment.

HFM program moderation by maternal and contextual ecology. Analyses for our second research question revealed interesting moderation in certain subsamples, such that HFM receipt was influenced optimal parenting outcomes differently for different groups and for different levels of an indicator.

When considering a subsample focusing on maternal history of neglect, we found that depression and community profile type moderate HFM program effects on the outcome of parenting stress. In the case of depression, there was no difference in level of stress between HFM participants and the control group for mothers who were depressed (above the clinical cut-off marker for depression). However, the receipt of HFM lowered stress in non-depressed mothers. In the case of community profile type, those mothers living in neighborhoods of moderate income, low population density, and moderate diversity, the receipt of HFM lowered parenting stress. However, in neighborhoods of high income, low population, and low minority presence, the receipt of HFM did not lower stress.

We found that depression moderates the relation between HFM receipt and the outcome of physical abuse (DCF reports of maltreatment by mother and other).
When considering a subsample focusing on maternal history of physical abuse and looking at DCF reports of maltreatment by either mother or any perpetrator, we found similar moderation of HFM receipt by depression as described above: There were no differences between depressed mothers, but for non-depressed mothers, HFM participants had significantly lower reports to DCF than the control group.

Finally, when considering a subsample focusing on maternal history of multi-type maltreatment, we found that perceived neighborhood safety moderates the impact of HFM on DCF maltreatment reports. When participants perceived their neighborhood as unsafe, HFM participant families were less likely to have a neglect report than the control group, suggesting a buffering effect of intervention. However, in neighborhoods that are perceived as more safe, HFM participant families have higher neglect reports while the control group shows similar likelihood at both ends of the safety continuum.

Program utilization and optimal parenting outcomes. The OLS regression analyses of program utilization were not statistically significant, however in the bivariate analyses we found associations between fewer reports of maltreatment and HFM participants who enrolled in HFM prenatally, stayed longer in the program, received more home visits, received more secondary activities, and attended more groups. These findings suggest that the “early enrollment” of participants may lead to the level of program utilization intended and desired by HFM.

Policy Implications
Through the Early Impacts study we found that even in the examination of early impact of program, HFM program is effective in lowering parenting stress for clients. This is an encouraging finding not only in terms of the immediate and intermediate personal benefit to maternal health, but also as an indication to expect positive longer-term effects on overall optimal parenting: Higher parenting stress was associated with both self-reported maltreatment and DCF reports of maltreatment in our Impact Study sample. While HFM participants have higher rates of maltreatment reports than the control in our Integrative subsample but not the Impact Study sample, we have to consider whether this might be symptomatic of “more eyes” in the home—that we are finding increased surveillance, or if this difference is accounted for in some untested difference between the two samples. The results for the tests of moderation provide the illustration that depressed and nondepressed mothers receive HFM program differently, such that we can appreciably recommend the consideration of added early screening of depression and rigorous provision of resources allocated toward depressed young mothers. Lastly, we found that when HFM participants use HFM as it is intended, we find an association with more optimal parenting outcomes; thus, we could recommend a continued strong effort to enroll teenagers prenatally, and a focus on program and participant engagement once participants are in HFM.

Integrating Data across the Five Tiers
As evident throughout this overview of the Early Impacts study, much of the work we presented in Tiers Two, Four and Five provide a valid, consistent, and thorough basis for Tier
Four and Five investigations. We are able to use the framework at Tier Two to understand in our sample and subsamples the existence and prevalence of these parenting outcomes, as well as describe to what extent HFM participants are engaged with the HFM program once enrolled (and we were able to do this in a multi-faceted manner). We are able to understand how the HFM program functions within Tiers Four and Five because of the measurement validity and thoughtful, empirically sound construction and development of the “My Neighborhood” measure and our community-level constructs. We are also able to see where we need to delve deeper in our understanding of constructs and further our understanding of the sample as participants are distributed across these community-level variables; we have further work to “unpack” the meaning of these relations. In regards to our Tier Three efforts, through the Early Impacts study we were essentially able to pilot our moderation analyses and see where we need more understanding of interaction as we look forward to using our Tier Three efforts on Program Fidelity and Home Visitor Relationship to develop constructs that will be used to test moderation for HFM participants. Whereas the Early Impacts study was a discrete, stand-alone study and able to provide feedback to program and policy in a modest way, it was also an important development of our preparatory data analysis that will provide integral feedback for our efforts toward the final MHFE-2 Tiers Four and Five research questions.
4.1 New Grants

Over the course of fiscal years 2011 and 2012, the evaluation team at Tufts applied for, and was awarded, two competitive grants to examine the role and effectiveness of home visiting programs on early childhood outcomes. The grants are described below.

4.1.A Pew Center for the States
In the spring of 2011, Tufts was awarded $70,000 by the Pew Center for the States to conduct a study of the individual and contextual factors that moderate the impacts of home visitation on parenting and child maltreatment in young, first-time parents. Specifically, the study examined whether program utilization and/or program impacts are moderated by select individual characteristics (intimate partner violence, childhood history of maltreatment, and depression) and/or select characteristics of participants’ communities (community configurations, and perceived risks and assets).

Funding from this grant supported the following tasks, conducted over a ten-month period (July 1, 2011- May 31, 2012): coding of and analysis of Emotional Availability videos; compiling, cleaning, and coding of DCF data; coding and analysis of program utilization and community-level data; writing and dissemination of Final Analysis Report Draft; and, based on Pew peer review process, writing and dissemination of the Final Analysis Report (submitted to Pew May 31, 2012). Posting of the final report and presentation on the Pew website is forthcoming.

4.1.B Maternal, Infant, and Early Childhood Home Visiting
In mid-June, 2011, Tufts was asked by DPH and CTF to submit an evaluation plan as part of the Massachusetts response to the Massachusetts Maternal, Infant, Early Childhood Home Visiting Initiative: Funding Opportunity Announcement (US Department of Health and Human Service/HRSA-11-179 CFDA # 93.505/ Expansion Grant). The award of $9.05 million - $10.66 million annually for 5 years was announced at the end of September 2011, and implementation of the Massachusetts Home Visiting Initiative(MHVI) began October 1, 2011.

The Tufts evaluation of MHVI comprises two main components:
   ▲ A cross-site implementation study of the HFVI that will provide detailed information about the expanded services in the 17 target communities; and
   ▲ A longitudinal follow-up study of participants from a randomized, controlled trial of Healthy Families Massachusetts, with a focus on families’ navigation of early childhood systems of care.

Implementation Study of MHVI
Our proposed utilization-focused evaluation is designed to1) answer core evaluation questions about program processes, operations, and integration into existing systems of care, and 2)
respond to MIECHVI stakeholders’ needs as program enhancements are developed, refined, and implemented across the 17 communities. Anticipated activities will include but are not limited to the following:

- Tier One assessments and technical assistance designed to aid MIECHV stakeholders at the state and program levels to prepare and build capacity for an implementation evaluation;
- Tier Two data collection and analysis designed to provide descriptive information about program staff, participants, and services; and
- Tier Three evaluation activities designed to assess the quality, consistency, and perceived effects of the program, and to describe the contexts in which the program services are being implemented.

**Massachusetts Healthy Families Evaluation-2 Early Childhood (MHFE-2-EC)**
The longitudinal investigation of MHFE-2 is designed to address a) long-term follow-up of the goals of HFM, b) aspects of the intervening and current family and community context that mediate and moderate the long-term effects of HFM participation and c) effects of HFM related to MIECHV goals for families during the early childhood period. The study includes a close examination of the intervening family and community environments (e.g., parenting, child care/preschool, neighborhood) that may nullify, maintain, or amplify the effects of home visitation on family outcomes.
4.2 Publications and Products

Published Papers and Reports


Presentations and Testimony


Student Grants
Bartlett, J. D. (2010-2012). *Young mothers, infant neglect, and discontinuities in intergenerational cycles of maltreatment.* Doctoral fellowship awarded by the Quality Improvement Center on Early Childhood (QIC-EC), (The QIC-EC was created by the Children’s Bureau, Administration for Children & Families, USDHHS as a five-year cooperative between the Children’s Bureau and the Center for the Study of Social Policy, in partnership with ZERO TO THREE and the National Alliance of Children’s Trust and Prevention Funds to prevent maltreatment among infants and young children.)

Raskin, M. V. (2011). *The role of young mothers’ coping with parenting stress in the quality of their parenting.* The Lizette Peterson Homer Injury Prevention Grant awarded by the American Psychological Association and the American Psychological Foundation.
Unpublished Student Papers and Projects


**APPENDIX A**  
Description of Evaluation Activities for the Five-tiered Approach

<table>
<thead>
<tr>
<th>Tier</th>
<th>Purposes of Evaluation</th>
<th>Types of Evaluation Activities</th>
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| TIER 1: NEEDS ASSESSMENT | ♦ To document the size and nature of a public problem  
♦ To determine unmet need for services in a community  
♦ To propose program and policy options to meet needs  
♦ To set a data baseline from which later progress can be measured  
♦ To broaden the base of support for a proposed program | ♦ Review existing community, county, and state data  
♦ Determine additional data needed to describe problem and potential service users  
♦ Conduct “environmental scan” of available resources  
♦ Identify resource gaps and unmet need  
♦ Set goals and objectives for intervention  
♦ Recommend one program model from range of options |
| TIER 2: MONITORING AND ACCOUNTABILITY | ♦ To monitor program performance  
♦ To meet demands for accountability  
♦ To build a constituency  
♦ To aid in program planning and decision making  
♦ To provide a groundwork for later evaluation activities | ♦ Determine needs and capacities for data collection and management  
♦ Develop clear and consistent and procedures for collecting essential data elements  
♦ Gather and analyze data to describe program along dimensions of clients, services, staff, and costs |
| TIER 3: QUALITY REVIEW AND PROGRAM CLARIFICATION | ♦ To develop a more detailed picture of the program as it is being implemented  
♦ To assess the quality and consistency of the intervention  
♦ To provide information to staff for program improvement | ♦ Review monitoring data  
♦ Expand on program description using information about participants’ views  
♦ Compare program with standards and expectations  
♦ Examine participants’ perceptions about effects of program  
♦ Clarify program goals and design |
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<th>Tier</th>
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| TIER 4: ACHIEVING OUTCOMES | ◆ To determine what changes, if any, have occurred among beneficiaries  
◆ To attribute changes to the program  
◆ To provide information to staff for program improvement | ◆ Choose short term objectives to be examined  
◆ Choose appropriate research design, given constraints and capacities  
◆ Determine measurable indicators of success for outcome objectives  
◆ Collect and analyze information about effects on beneficiaries |
| TIER 5: ESTABLISHING IMPACT | ◆ To contribute to knowledge development in the field  
◆ To produce evidence of differential effectiveness of treatments  
◆ To identify models worthy of replication | ◆ Decide on impact objectives based on results of Tier 4 evaluations efforts  
◆ Choose appropriately rigorous research design and comparison groups  
◆ Identify techniques and tools to measure effects in treatment and comparison groups  
◆ Analyze information to identify program impacts |
APPENDIX B

This section provides a detailed example of how we used factor analysis to analyze the psychometric properties of the “My Neighborhoods Survey” (MNS). This procedure was used to examine the psychometric properties of other instruments we created or adapted as well.

My Neighborhood Survey (MNS)
This project decided to construct and pilot the MNS, given that neighborhoods are a defining aspect of participants’ ecology. Moreover, neighborhoods have the potential to affect a host of child and family outcomes, as well as the effectiveness of the program. This instrument was intended to be a brief, psychometrically sound measure of neighborhood characteristics (e.g., diversity, income levels) from an insiders’ perspective.\(^5\)

The MNS included 48 items, which were generated after an extensive review of relevant literature and other instruments. Neighborhood was defined as the area that the respondent thinks about when asked to identify her neighborhood. The items were developed to measure four aspects of neighborhoods: 12 items pertained to neighborhood safety (e.g., “Compared to other areas, how safe is your area?”), 18 items pertained to awareness and accessibility of community resources (e.g., “Check “yes” if you have the following either in or close to the area you live: Organized centers like the YMCA”), eight to quality of schools (e.g., “How much of a problem is fighting among the students?”), and ten items pertained to neighborhood connections (e.g., “I believe my neighbors would help me in an emergency). Some items were categorical. Other items asked participants to rate neighborhood characteristics on a scale (e.g., from very safe to very unsafe). To assist interpretation, some items were reverse coded so that all items were coded in the same direction.

Both the overall scale (all items) and the subscales had good internal consistency, indicating that the items we developed to measure the constructs were correlated among each other (had similar values). The Cronbach's alpha for the overall scale was .88; alphas for the subscales were as follows: safety = .91; resources = .84; schools = .82; and connections = .76 (.82 after we removed two items that were conceptually somewhat different from the rest of the items: “Neighbors often ask too much of you” and “People in the area gossip too much about each other”).

Next, we conducted an exploratory factor analysis to see if the number of items on the questionnaire could be reduced without reducing validity. The analyses excluded the awareness and accessibility of community resources subscale because most items were categorical and did not lend themselves to this analytic approach. Further, we excluded two items that were conceptually different from the rest of the items on the connection subscale. This resulted in 28 items, which were subjected to a Principal Component Analysis with a Promax rotation. A three

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factor solution was requested. Item-retention criteria included factor loadings of .60 or higher. The results revealed a three-factor solution.

The first factor had strong loadings of seven items that measured neighborhood connections. After rotation, this factor accounted for 33% of the variance among items. Questions that defined the neighborhood connections factor included:

- **Think about neighbors who help each other.** Compared to other areas, how many people help each other?
- **Indicate how much you agree or disagree.** You and your neighbors have similar views about how to raise your children
- **Indicate how much you agree or disagree.** You have a close knit area
- **Indicate how much you agree or disagree.** There are a lot of adults that your children can look up to in your area
- **Indicate how much you agree or disagree.** I borrow things and exchange favors with my neighbors
- **Indicate how much you agree or disagree.** I believe my neighbors would help me in an emergency
- **How likely is it that the following would happen in your area?** Would people in your area work together to keep children safe

The next factor had strong loadings of six items that were developed to measure quality of the neighborhood high school. This factor accounted for additional 10% of the variance. Questions that defined the quality of the neighborhood high school factor included:

**In your view, how much of a problem are the following at the high school in your area:**

- Fighting among the students
- Poor discipline in the classroom
- Lack of interest competence of teachers
- Safety at the school
- Use of alcohol
- Use of drugs

Lastly, the third factor included eight items that measured neighborhood safety:

- **Think about the safety of your area.** Compared to other areas, how safe is your area?
- **How much of a problem are each of the following in your area?** Different racial cultural groups not getting along
- **How much of a problem are each of the following in your area?** Vandalism, buildings and personal belongings broken or torn up
- **How much of a problem are each of the following in your area?** Abandoned homes
- **How much of a problem are each of the following in your area?** Open drug use and dealing
- **How much of a problem are each of the following in your area?** Assaults or muggings
- **How much of a problem are each of the following in your area?** Prostitution
How much of a problem are each of the following in your area? Shootings

Analyses showed that a three-factor solution with a total of 21 items accounted for 50% of the variance among items. The three factors were weakly correlated with each other, indicating that the three subscales measure distinct aspects of neighborhoods. (The correlation between neighborhood connection and quality of schools was .55. The correlation between neighborhood connection and safety was .44. The correlation between quality of schools and safety was .23). Internal consistency of the items comprising the resulting subscales was high; Cronbach’s Alphas were as follows: neighborhood connection was .80, quality of schools was .84, and safety was .88. As such, we can now use these subscales (rather than individual items) when analyzing neighborhood characteristics in our study.