

# Healthy Families Massachusetts (HFM): Cost-Benefit Analysis

Report Prepared by Rebecca Fauth and Usman Naeem  
Tufts Interdisciplinary Evaluation Research (TIER),  
Tufts University  
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## Section 1. Massachusetts Healthy Families Evaluation—Phase 2 (MHFE-2)

Healthy Families Massachusetts (HFM), an affiliate of Healthy Families America (HFA), is the largest evidence-based home visiting program in Massachusetts. HFM is administered by the Children’s Trust of Massachusetts and provides services through a combination of federal, state, and private funding. It serves all first-time parents aged 23 years and under (with some local implementing agencies serving older parents). HFM’s stated goals are to: (1) prevent child abuse and neglect by supporting positive, effective parenting; (2) achieve optimal health, growth, and development in infancy and early childhood; (3) encourage educational attainment, job, and life skills among parents; (4) prevent repeat pregnancies during the teen years; and (5) promote parental health and well-being. The program also promotes parental advocacy and empowerment.

The Massachusetts Healthy Families Evaluation: Phase 2 (MHFE-2) is a randomized controlled trial of HFM that was designed and conducted by Tufts Interdisciplinary Evaluation Research (TIER) at Tufts University. MHFE-2 followed a cohort of more than 700 young women for nearly a decade as they transitioned into first-time motherhood, documenting their—and their children’s—outcomes across a range of domains, and assessing the short- and long-term impacts of HFM on these outcomes.

To date, MHFE-2 demonstrated favorable HFM program effects on mothers’ mental health, substance use, and housing stability, and children’s asthma.

### MHFE-2 Methods Overview

MHFE-2 began in 2008. Data were first collected about one month following HFM enrollment (Time 1, T1), with follow-ups completed one (T2), two (T3), five (T4), six (T5), and eight (T6) years later. Data were collected from 704 young mothers (18.8 years at first birth, on average) at T1, with about 70% remaining in the later follow-up studies. Primary data sources included phone and in-person interviews and state administrative data from the Departments of Children and Families (DCF), Public Health (DPH), Transitional Assistance (DTA), and Elementary and Secondary Education (DESE).

MHFE-2 findings are presented in detail in three reports.<sup>1-3</sup> Together, the data have been the source of more than 20 peer-reviewed journal articles.

In this final phase of the evaluation, TIER collaborated with an economist to conduct a cost-benefit analysis (CBA) of HFM. The CBA determined the return on investment for HFM, a publicly-funded program.

In the following sections, we provide an overview of the approach and methods, followed by a description of the benefits.

## Section 2. Approach

### Outcomes

This economic analysis focuses on a subset of significant outcomes from the MHFE-2 evaluation. We used the following criteria to select outcomes for the economic analysis:

- Outcomes that were statistically significant<sup>a</sup>

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<sup>a</sup> No negative program effects were observed. Thus, by omitting outcomes that were not statistically significant, we are not at risk of omitting outcomes for which a potential cost, not benefit, could incur. Null findings were interpreted to have

- Outcomes that were measured using well-validated tools or via administrative data
- Outcomes that could be reasonably and independently costed.<sup>b</sup>

We estimated intent-to-treat (ITT) program effects, comparing outcomes between the HFM program group and the control group based on random assignment status, regardless of whether young parents in the home visiting group enrolled in the home visiting program and received home visits. We regressed each outcome on an HFM program status indicator variable (1 = HFM program group, 0 = control group). We fitted ordinary least squares (OLS) regression models to continuous outcomes and logistic regression models to binary outcomes. All models controlled for maternal race and ethnicity (non-Hispanic White [omitted], non-Hispanic Black, Hispanic, non-Hispanic other), given known racial and ethnic inequities in Massachusetts. For outcomes measured at T4–T6, we incorporated inverse probability weights (IPW) to reweight the data to be representative of the original T1 sample and adjust for attrition over time. All models were run in Stata 17.0.

We used the effect size computation commands in R to calculate effect sizes (Hedge’s *g*) for each outcome.<sup>4</sup> Significant outcomes were determined by examining the effect size 95% confidence intervals. Table 1 below summarizes the focal outcomes for the economic analysis, separated by HFM goal area.

**Table 1. Focal Outcomes for the HFM Economic Analysis by HFM Goal Area**

HFM Goal Area	Outcome	Description
Goal 1: Prevent child abuse and neglect by supporting positive, effective parenting	Children’s maltreatment recurrence	Receipt of a second 51A report, measured from child’s birth through 2016 for participants who had an initial 51A report <sup>5</sup>
Goal 2: Optimal health, growth, and development in infancy and early childhood	Children’s physical health	Child asthma diagnosis past year, measured at T6 <sup>3</sup>
Goal 3: Encourage educational attainment, job, and life skills among parents	Housing stability	Family experienced homelessness since child’s birth, measured at T5 <sup>6</sup>
Goal 4: Prevent repeat pregnancies during the teen years	Rapid repeat birth	Repeat birth by T3 for participants who identified as Hispanic/Latina and experienced psychological vulnerability (e.g., depressive symptoms, post-traumatic stress disorder, childhood history of child welfare involvement, and low social connection) <sup>7</sup>
Goal 5: Promote parental health and well-being	Maternal substance use	Substance use past month, measured at T5 <sup>2</sup>
	Maternal physical health	Mother asthma treatment past year, measured at T6 <sup>3</sup>
	Maternal depression	Mother depressive symptomatology, measured at T2, T4 <sup>1,2</sup>

a value of zero. Thus, if the core HFM costs are lower than total estimated benefits, omitted null findings should have no impact on our final estimates.

<sup>b</sup> For example, parenting stress cost savings would incur via reductions in maltreatment reports or maternal depression, each of which is already costed.

HFM Goal Area	Outcome	Description
Goal 6: Increase mother's knowledge and ability to navigate early childhood systems	ED use	Mother emergency department (ED) use past year, measured at T4 <sup>2</sup>

## Net Present Value (NPV)

Define net present value (NPV). We used the following (standard) formula to calculate NPV for each outcome.

$$NPV = \sum_{t=0}^n [OutcomeCost * EffectSize_t - ProgramCost_0] / (1 + i)_t$$

Where:

$t$  = time since enrollment in HFM

*OutcomeCost* = unit cost of outcome

*EffectSize* = treatment effect for outcome

*ProgramCost* = program cost of outcome

$i$  = discount rate (3.5%)

We applied a discount rate of 3.5% for each year into the future an outcome occurred, proxied by the time since enrollment (in years).

**Table 2. MHFE-2 Data Collection Schedule**

Evaluation Time Point	Average Year of Data Collection	Time Since Enrollment
Time 1	2008	0 years
Time 2	2009	1 year
Time 3	2010	2 years
Time 4	2013	5 years
Time 5	2014	6 years
Time 6	2016	8 years

As seen in Table 2, for outcomes measured at T4, for example, benefits were discounted by 5 years. Discounting is done to account for time value of money, acknowledging that money earned today is worth more than money earned tomorrow, net of the initial investment. For programs like HFM where future benefits may be realized well after upfront costs are provided, it is important to account for this future investment.

All monetary values were converted into 2008\$<sup>c</sup> to align with the start of the study and were adjusted to reflect the cost of living in Massachusetts.<sup>d</sup> Lifetime costs were converted to annual costs based on 79 years of life expectancy in Massachusetts.<sup>e</sup>

## HFM Program Costs

The Children's Trust of Massachusetts provided us with detailed HFM-related costs for the period of the evaluation, 2008 to 2016 (see Appendix A). To generate the average per family program cost, we computed

<sup>c</sup> [https://www.bls.gov/data/inflation\\_calculator.htm](https://www.bls.gov/data/inflation_calculator.htm)

<sup>d</sup> <https://www.bankrate.com/real-estate/cost-of-living-calculator/>

<sup>e</sup> <https://www.cdc.gov/nchs/pressroom/states/massachusetts/ma.htm>

the average per family cost from 2008 to 2011, the years that the evaluation sample was enrolled in HFM. This average is \$2,863, which was subtracted from the total benefits.

### Section 3. HFM Benefits

In this section, we describe HFM impacts and provide details on how we derived the NPV for each of the focal outcomes.

#### Goal 1. Children’s Maltreatment Recurrence

Maltreatment recurrence was proxied using 51A reports from the Department of Children and Families (DCF), Massachusetts child protective services agency. Using records from the time of children’s birth through August 2016, analyses revealed that 51.7% of children had an initial report.<sup>5</sup> Recurrence was operationalized as a second report, with 53.4% of the families with an initial report experiencing report recurrence. Children in the HFM program group had a lower risk of recurrence than children in the control group (49.1% HFM, 60.4% control), and had a longer duration between the first and second reports. Table 3 presents the data used to calculate the NPV for children’s maltreatment recurrence.

**Table 3. NPV for Children’s Maltreatment Recurrence**

NPV Formula Component	Data	Comments
Time since enrollment in HFM	4 years	51A data were available from 2008–2016; 4 years (2012) is the median number of years from enrollment when recurrence was measured
Effect size	0.25	
Total outcome cost (MA 2008\$)	\$1,151,985	Non-fatal child maltreatment per-victim lifetime cost <sup>8</sup>
Annual outcome cost (MA 2008\$)	\$14,852	
Effect size * Outcome cost	\$3,696	
Discounted benefit per family	\$3,221	$(\text{Effect size} * \text{outcome cost}) / (1 + .035)^4$

**\$ The discounted benefit for reduction in maltreatment recurrence is \$3,221.**

#### Goal 2. Children’s Physical Health

At T6, when children were about 8 years of age, mothers in the HFM program group were less likely to report an asthma diagnosis for their child in the past year relative to the control group (7.2% HFM, 14.3% control).<sup>3</sup> Table 4 presents the data used to calculate the NPV for children’s physical health.

**Table 4. NPV for Children’s Physical Health**

NPV Formula Component	Data	Comments
Time since enrollment in HFM	8 years	Outcome observed at T6

NPV Formula Component	Data	Comments
Effect size	0.43	
Total outcome cost (MA 2008\$)	\$60,097	Asthma-related lifetime healthcare costs and productivity loss for asthma onset 6–9 years <sup>9</sup>
Annual outcome cost (MA 2008\$)	\$761	
Effect size * Outcome cost	\$326	
Discounted benefit per family	\$247	$(\text{Effect size} * \text{outcome cost}) / (1 + .035)^8$



The discounted benefit for reduction in childhood asthma is \$247.

### Goal 3. Housing Stability

At T5, mothers were asked to report any experiences of homelessness since the birth of their child. Homelessness included not having a place to live or living in a temporary, transitional, or homeless shelter, a motel, on the streets, or temporarily living with others. Families in the HFM program group were less likely to be homeless than families in the control group (28.6% HFM, 39.2% control).<sup>6</sup> Table 5 presents the data used to calculate the NPV for housing stability.

**Table 5. NPV for Housing Stability**

NPV Formula Component	Data	Comments
Time since enrollment in HFM	6 years	Outcome observed at T5
Effect size	0.30	
Annual outcome cost (MA 2008\$)	\$12,731	Homelessness per-case average annual cost <sup>10</sup>
Effect size * Outcome cost	\$3,838	
Discounted benefit per family	\$3,122	$(\text{Effect size} * \text{outcome cost}) / (1 + .035)^6$



The discounted benefit for reduction in homelessness is \$3,122.

### Goal 4. Rapid Repeat Birth

Mothers were asked whether they experienced a repeat birth at T3 (when children were approximately 2 years of age); data were validated using birth records. Subgroup analyses revealed that mothers in the HFM program group who identified as Hispanic/Latina and experienced psychological vulnerability (e.g., depressive symptoms, post-traumatic stress disorder, childhood history of child welfare involvement, and low social

connection) had 81% lower odds of experiencing a rapid repeat birth than mothers in the control group.<sup>7</sup> Table 6 presents the data used to calculate the NPV for rapid repeat birth.

**Table 6. NPV for Rapid Repeat Birth**

NPV Formula Component	Data	Comments
Time since enrollment in HFM	2 years	Outcome observed at T3
Effect size	0.78	
Annual outcome cost (MA 2008\$)	\$327	Average per person expenditure on unintended pregnancy <sup>11</sup>
Effect size * Outcome cost	\$254	
Discounted benefit per family	\$237	$(\text{Effect size} * \text{outcome cost}) / (1 + .035)^2$

**\$** The discounted benefit for reduction in rapid repeat birth is \$237.

### Goal 5. Maternal Substance Use

At T5, mothers reported on the frequency of binge drinking and marijuana and cocaine use in the past month. On average, mothers in the HFM group reported lower average frequency of substance use compared to mothers in the control group ( $M = 0.14$  HFM,  $M = 0.24$  control).<sup>2</sup> Table 7 presents the data used to calculate the NPV for maternal substance use.

**Table 7. NPV for Maternal Substance Use**

NPV Formula Component	Data	Comments
Time since enrollment in HFM	6 years	Outcome observed at T5
Effect size	0.24	
Annual outcome cost (MA 2008\$)	\$327	Per capita cost of excessive drinking <sup>12</sup>
Effect size * Outcome cost	\$201	
Discounted benefit per family	\$164	$(\text{Effect size} * \text{outcome cost}) / (1 + .035)^6$

**\$** The discounted benefit for reduction in maternal substance use is \$164.

### Goal 5. Maternal Physical Health

At T6, mothers in the HFM program group were less likely to report being treated for asthma in the past year relative to the control group (11.3% HFM, 18.8% control).<sup>3</sup> Table 8 presents the data used to calculate the NPV for maternal physical health.



**Table 8. NPV for Maternal Physical Health**

NPV Formula Component	Data	Comments
Time since enrollment in HFM	8 years	Outcome observed at T8
Effect size	0.35	
Total outcome cost (MA 2008\$)	\$49,952	Asthma-related lifetime healthcare costs and productivity loss for asthma onset 10–19 years <sup>9</sup>
Annual outcome cost (MA 2008\$)	\$632	
Effect size * Outcome cost	\$219	
Discounted benefit per family	\$166	$(\text{Effect size} * \text{outcome cost}) / (1+.035)^8$



The discounted benefit for reduction in maternal asthma is \$166.

### Goal 5. Maternal Depression

Mothers were screened for depression using the Center for Epidemiological Studies Depression Scale (CES-D) at each time point. At T2 and T4, mothers in the HFM program group reported less depressive symptomatology than mothers in the control group.<sup>1,2</sup> Table 9 presents the data used to calculate the NPV for maternal depression.

**Table 9. NPV for Maternal Depression**

NPV Formula Component	Data	Comments
Time since enrollment in HFM	1 year & 5 years	Outcome observed at T2 and T4
Effect size	0.21	
Annual outcome cost (MA 2008\$)	\$4,158	Annual societal cost (productivity losses, maternal health expenditures, and obstetric-specific health expenditures) per mother with perinatal mood and anxiety disorders <sup>13,14</sup>
Effect size * Outcome cost	\$1,722	
Discounted benefit per family	\$1,556	$[(\text{Effect size} * \text{outcome cost}) / (1+.035)] + [(\text{Effect size} * \text{outcome cost}) / (1+.035)^5]$



The discounted benefit for reduction in maternal depression is \$1,556.

### Goal 6. ED Use

At T4, mothers in the HFM program group were less likely to report ED visits relative to the control group (66.4% HFM, 78.5% control).<sup>2</sup> Table 10 presents the data used to calculate the NPV for ED use.

**Table 10. NPV for ED Use**

NPV Formula Component	Data	Comments
Time since enrollment in HFM	5 years	Outcome observed at T4
Effect size	0.35	
Annual outcome cost (MA 2008\$)	\$688	Average cost of ED visit <sup>15</sup>
Effect size * Outcome cost	\$240	
Discounted benefit per family	\$202	$(\text{Effect size} * \text{outcome cost}) / (1+.035)^5$

**\$ The discounted benefit for reduction in maternal ED visits is \$202.**

### Total Benefits

Table 11 below summarizes the total per family HFM benefits relative to the per family cost.

**Table 11. HFM Benefits, Costs, and NPV**

HFM Outcome	Benefit per Family (2008\$)	HFM Costs per Family (2008\$)	HFM NPV
Children’s maltreatment recurrence	\$3,221		
Children’s physical health	\$247		
Housing stability	\$3,122		
Rapid repeat birth	\$237		
Maternal substance use	\$164		
Maternal physical health	\$166		
Maternal depression	\$1,556		
Maternal ED use	\$202		
<b>Total Benefits</b>	<b>\$8,915</b>		
<b>Cost</b>		<b>\$2,863</b>	
<b>NPV (Benefits – Cost)</b>			<b>\$6,052</b>
<b>Benefit to Cost Ratio</b>			<b>\$3.11 to \$1</b>

Overall, for each dollar invested in HFM, there is a return of \$3.11.

## Section 4. Sensitivity Analyses

We conducted a series of sensitivity analyses to validate the results. Each is described below.

## 1. Adjusting Average Cost Per Family

The average cost per family figure of \$2,863 does not account for the fact that some families assigned to the HFM program group did not receive any home visits and some families received many home visits. Thus, we calculated a per home visit cost to adjust overall costs by the number of home visits each of the 433 families in the HFM program group received. We outline our approach below:

- Among families assigned to the HFM program group, the average number of home visits received per family was 24.
- Using the average cost per family of \$2,863, we calculated the average cost per family per visit, which was \$119.
- Multiplying the average cost per family per visit with the actual number of visits each family received, we calculated the adjusted average cost per family.
- We then added the average cost per family across the 433 program participants and divided it by 372, the number of families that had at least one home visit (i.e., 61 families did not receive any home visits), resulting in an adjusted average cost per family of \$3,332.

Table 12 presents the revised NPV calculation using the adjusted average cost per family.

**Table 12. NPV using Adjusted Costs**

	Per Family (2008\$)
<b>Total Benefits</b>	<b>\$8,915</b>
<b>Adjusted Cost</b>	<b>\$3,332</b>
<b>NPV (Benefits – Cost)</b>	<b>\$5,583</b>
<b>Benefit to Cost Ratio</b>	<b>\$2.68 to \$1</b>

Using adjusted costs, for each dollar invested in HFM, there is a return of \$2.68.

## 2. Adjusting Total Benefits and Average Cost Per Family

Here we use the adjusted costs per family (as described above) alongside adjusted benefits. The rationale for adjusted benefits is to account for variation in outcome sample sizes due to missing data and sample attrition. While the effect size calculations accounted for sample sizes, we implemented a further adjustment here to explicitly weigh benefits by HFM program group sample sizes for each outcome.<sup>16-19</sup> We summarize our approach below:

- We start with the eight per family average discounted benefits described in Section 3.
- We then multiplied each of these benefits by the HFM program group sample for each outcome and compute the sum to get the total benefits across families, \$2,073,871.
- We then divided the total benefits by 433, which is the full program group sample. This resulted in an adjusted per family average discounted benefit of \$4,790.

Table 13 presents the NPV calculation using the adjusted average cost per family and the adjusted average discounted benefit per family.

**Table 13. NPV using Adjusted Costs and Adjusted Benefits**

HFM Outcome	Per Family (2008\$)
<b>Adjusted Benefits</b>	<b>\$4,790</b>

HFM Outcome	Per Family (2008\$)
<b>Adjusted Cost</b>	<b>\$3,332</b>
<b>NPV (Benefits – Cost)</b>	<b>\$1,458</b>
<b>Benefit to Cost Ratio</b>	<b>\$1.44 to \$1</b>

Using adjusted costs and benefits, for each dollar invested in HFM, there is a return of \$1.44.

### 3. Using Different Discount Rates

CBA studies use different discount rates. For example, the Washington State Institute for Public Policy (WSIPP) Benefit-Cost Model used a range of discount rates to calculate NPV: 2%, 3.5%, and 5%.<sup>20</sup> The Congressional Budget Office used 3% in the analyses of Social Security;<sup>21</sup> and the Council of Economic Advisors recommended using 2%.<sup>22</sup> While we chose to use a 3.5% discount rate for our main analyses, Tables 14–16 presents NPV calculations for a variety of discount rates: 5%, 3%, and 2%.

**Table 14. NPV using a Discount Rate of 5%**

HFM Outcome	Benefit per Family (2008\$)	HFM Costs per Family (2008\$)	HFM NPV
Children’s maltreatment recurrence	\$3,041		
Children’s physical health	\$221		
Housing stability	\$2,864		
Rapid repeat birth	\$231		
Maternal substance use	\$150		
Maternal physical health	\$148		
Maternal depression	\$1,493		
Maternal ED use	\$188		
<b>Total Benefits</b>	<b>\$8,336</b>		
<b>Cost</b>		<b>\$2,863</b>	
<b>NPV (Benefits – Cost)</b>			<b>\$5,473</b>
<b>Benefit to Cost Ratio</b>			<b>\$2.91 to \$1</b>

Using a 5% discount rate, for each dollar invested in HFM, there is a return of \$2.91.

**Table 15. NPV using a Discount Rate of 3%**

HFM Outcome	Benefit per Family (2008\$)	HFM Costs per Family (2008\$)	HFM NPV
Children’s maltreatment recurrence	\$3,284		
Children’s physical health	\$257		
Housing stability	\$3,214		

HFM Outcome	Benefit per Family (2008\$)	HFM Costs per Family (2008\$)	HFM NPV
Rapid repeat birth	\$240		
Maternal substance use	\$168		
Maternal physical health	\$173		
Maternal depression	\$1,578		
Maternal ED use	\$207		
<b>Total Benefits</b>	<b>\$9,121</b>		
<b>Cost</b>		<b>\$2,863</b>	
<b>NPV (Benefits – Cost)</b>			<b>\$6,258</b>
<b>Benefit to Cost Ratio</b>			<b>\$3.19 to \$1</b>

Using a 3% discount rate, for each dollar invested in HFM, there is a return of \$3.19.

**Table 16. NPV using a Discount Rate of 2%**

HFM Outcome	Benefit per Family (2008\$)	HFM Costs per Family (2008\$)	HFM NPV
Children’s maltreatment recurrence	\$3,415		
Children’s physical health	\$278		
Housing stability	\$3,408		
Rapid repeat birth	\$244		
Maternal substance use	\$179		
Maternal physical health	\$187		
Maternal depression	\$1,623		
Maternal ED use	\$217		
<b>Total Benefits</b>	<b>\$9,551</b>		
<b>Cost</b>		<b>\$2,863</b>	
<b>NPV (Benefits – Cost)</b>			<b>\$6,688</b>
<b>Benefit to Cost Ratio</b>			<b>\$3.34 to \$1</b>

Using a 2% discount rate, for each dollar invested in HFM, there is a return of \$3.34.

### Summary of Sensitivity Analyses

Table 17 presents the total benefits, costs, NPV, and benefit-cost ratios from the main NPV and sensitivity analyses calculations.

**Table 17. Summary of HFM Benefits, Costs, and NPV**

	Per Family (2008\$)					
	Main NPV	Adj. Cost	Adj. Cost & Benefits	Main + Discount Rate 5%	Main + Discount Rate 3%	Main + Discount Rate 2%
<b>Total Benefits</b>	\$8,915	\$8,915	\$4,790	\$8,336	\$9,121	\$9,551
<b>Cost</b>	\$2,863	\$3,332	\$3,332	\$2,863	\$2,863	\$2,863
<b>NPV (Benefits – Cost)</b>	\$6,052	\$5,583	\$1,458	\$5,473	\$6,258	\$6,688
<b>Benefit to Cost Ratio</b>	\$3.11 to \$1	\$2.68 to \$1	\$1.44 to \$1	\$2.91 to \$1	\$3.19 to \$1	\$3.34 to \$1

To put these figures into perspective, estimates from the Washington State Institute for Public Policy (WSIPP) meta-analyses indicated a benefit to cost ratio of 1.31 for Healthy Families America<sup>f</sup> and \$1.22 for Nurse-Family Partnership (NFP).<sup>g</sup> Another analysis of NFP reported a higher ratio at \$4.24.<sup>16</sup> Our reported estimates, ranging from \$1.54 to \$3.34 are in line with these other studies.

## Section 4. Conclusion

This short report presented findings from an economic analysis of HFM based on data from TIER’s MHFE-2 study. Focusing on core impacts from the evaluation including maltreatment recurrence for children; maternal depression, substance use, and emergency department visits; asthma for children and mothers, families’ experience of homelessness, the return on investment for HFM was estimated at \$3.11. Sensitivity analyses using adjusted costs, adjusted benefits, and different discount rates indicated the lower bound return on investment was \$1.44 and the upper bound, \$3.34. Overall, HFM provides a solid return on investment for new families in Massachusetts.

<sup>f</sup> <https://www.wsipp.wa.gov/BenefitCost/Program/119>

<sup>g</sup> <https://www.wsipp.wa.gov/BenefitCost/Program/35>

## References

1. Tufts Interdisciplinary Evaluation Research. *The Massachusetts Healthy Families Evaluation-2 (MHFE-2): A randomized controlled trial of a statewide home visiting program for young parents. Final report to the Children's Trust of Massachusetts*. 2015. [http://ase.tufts.edu/tier/documents/2015\\_MHFE2finalReport.pdf](http://ase.tufts.edu/tier/documents/2015_MHFE2finalReport.pdf)
2. Tufts Interdisciplinary Evaluation Research. *The Massachusetts Healthy Families Evaluation-2 Early Childhood (MHFE-2EC): Follow-up study of a randomized, controlled trial of a statewide home visiting program for young parents. Final report to Massachusetts Department of Public Health, Children's Trust of Massachusetts*. 2017. <http://ase.tufts.edu/tier/documents/tuftsFinalReportFull2017.pdf>
3. Tufts Interdisciplinary Evaluation Research. *The Massachusetts Healthy Families Evaluation Phase 2 (MHFE-2): Time 6 summary report*. 2018. <https://ase.tufts.edu/tier/documents/2018MHFE2.pdf>
4. Lüdecke D. *esc: Effect size computation for meta analysis*. Zenodo; 2022. <https://doi.org/10.5281/zenodo.1249218>
5. Easterbrooks MA, Kotake C, Fauth R. Recurrence of maltreatment after newborn home visiting: A Randomized controlled trial. *American Journal of Public Health*. 2019;109(5):729-735.
6. Stargel LE, Fauth RC, Easterbrooks MA. Home visiting program impacts on reducing homelessness among young mothers. *Journal of Social Distress and Homelessness*. 2018;27(1):89-92.
7. Mistry J, Easterbrooks MA, Fauth RC, Raskin M, Jacobs F, Goldberg J. Heterogeneity among adolescent parents and home visiting program outcomes. *Children and Youth Services Review*. 2016;65:86-93.
8. Peterson C, Florence C, Klevens J. The economic burden of child maltreatment in the United States, 2015. *Child Abuse & Neglect*. 2018;86:178-183.
9. Belova A, Fann N, Haskell J, Hubbell B, Narayan T. Estimating lifetime cost of illness. An application to asthma. *Annals of the American Thoracic Society*. 2020;17(12):1558-1569.
10. Flaming D, Toros H, Burns P. *Home not found: The cost of homelessness in Silicon Valley*. 2015. <https://ssrn.com/abstract=2772270>
11. Sonfield A, Kost K. *Public costs from unintended pregnancies and the role of public insurance programs in paying for pregnancy-related care: National and state estimates for 2010, New York*. 2015. <http://www.guttmacher.org/pubs/public-costs-of-UP-2010.pdf>
12. Sacks JJ, Gonzales KR, Bouchery EE, Tomedi LE, Brewer RD. 2010 national and state costs of excessive alcohol consumption. *Am J Prev Med*. 2015;49(5):e73-e79.
13. Luca DL, Garlow N, Staatz C, Margiotta C, Zivin K. *Societal costs of untreated perinatal mood and anxiety disorders in the United States*. 2019. <https://www.mathematica.org/our-publications-and-findings/publications/societal-costs-of-untreated-perinatal-mood-and-anxiety-disorders-in-the-united-states>
14. Luca DL, Margiotta C, Staatz C, Garlow E, Christensen A, Zivin K. Financial toll of untreated perinatal mood and anxiety disorders among 2017 births in the United States. *American Journal of Public Health*. 2020;110(6):888-896.
15. Moore BJ, Liang L. *Costs of emergency department visits in the United States, 2017*. 2020. [www.hcup-us.ahrq.gov/reports/statbriefs/sb268-ED-Costs-2017.pdf](http://www.hcup-us.ahrq.gov/reports/statbriefs/sb268-ED-Costs-2017.pdf)
16. Miller TR. *Societal return on investment in Nurse-Family Partnership services in California*. Pacific Institute for Research and Evaluation. <https://www.nursefamilypartnership.org/wp-content/uploads/2017/07/ROI-California.pdf>

17. Miller TR. Projected outcomes of Nurse-Family Partnership home visitation during 1996–2013, USA. *Prev Sci.* 2015;16(6):765-777.
18. Miller TR. *Cost savings of Nurse-Family Partnership in California*. Pacific Institute for Research and Evaluation; 2019. [https://www.nursefamilypartnership.org/wp-content/uploads/2019/04/NFP-Govt-Savings-CA\\_2019.pdf](https://www.nursefamilypartnership.org/wp-content/uploads/2019/04/NFP-Govt-Savings-CA_2019.pdf)
19. Miller TR. *Life status and financial outcomes of Nurse-Family Partnership in California*. Pacific Institute for Research and Evaluation; 2019. [https://www.nursefamilypartnership.org/wp-content/uploads/2019/04/NFP-Outcomes-CA\\_2019.pdf](https://www.nursefamilypartnership.org/wp-content/uploads/2019/04/NFP-Outcomes-CA_2019.pdf)
20. Washington State Institute for Public Policy. *Benefit-cost technical documentation*. 2019. <https://www.wsipp.wa.gov/TechnicalDocumentation/WsippBenefitCostTechnicalDocumentation.pdf>
21. Congressional Budget Office. *The 2012 long-term projections for Social Security: Additional information*. 2012. <https://www.cbo.gov/sites/default/files/112th-congress-2011-2012/reports/43648-socialsecurity.pdf>
22. Council of Economic Advisors. *Discounting for public policy: Theory and recent evidence on the merits of updating the discount rate*. 2017. [https://obamawhitehouse.archives.gov/sites/default/files/page/files/201701\\_cea\\_discounting\\_issue\\_brief.pdf](https://obamawhitehouse.archives.gov/sites/default/files/page/files/201701_cea_discounting_issue_brief.pdf)



## Appendix A. HFM Program Costs 2008–2016

HFM Budget Year	Cost per Family	Projected Families to be Served	Actual Families Served	Total # of Completed Visits	Average # Visits per Participant	Participant Average Duration (Months)
2008	\$2,680	4,102	4,793	33,038	7	12.4
2009	\$2,732	3,873	3,554	37,734	11	13.8
2010	\$2,749	3,232	3,131	34,771	11	14.4
2011	\$3,290	2,651	3,039	32,476	11	14.6
2012	\$2,920	3,044	3,089	34,660	11	12
2013	\$3,450	3,991	2,915	36,566	13	13.3
2014	\$3,450	3,991	2,957	36,342	12	15.1
2015	\$3,700	3,633	2,791	36,111	13	14.1
2016	\$3,700	3,809	2,899	39,507	14	14.7

Source: Children's Trust of Massachusetts records