

The HFM Program

An affiliate of Healthy Families America, Healthy Families Massachusetts (HFM) is an evidence-based home visiting program administered by the Children's Trust of Massachusetts providing services through a combination of state and federal funding. HFM serves all first-time parents aged 23 years and under—with some local implementing agencies serving parents of all ages. 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.

MHFE-2

Tufts Interdisciplinary Evaluation Research (TIER) at Tufts University conducted a longitudinal evaluation of HFM (the Massachusetts Healthy Families Evaluation: Phase 2; MHFE-2). MHFE-2 included a randomized controlled trial (RCT) of HFM that followed a cohort of young first-time mothers for nearly a decade, documenting

their—and their children's—short- and long-term outcomes across HFM's goal areas. MHFE-2 began in 2008.

Data were first collected about one month following HFM enrollment (Time 1 [T1]), with follow-up studies completed one (T2), two (T3), five (T4), six (T5), and eight (T6) years later. 704 young mothers (18.8 years at first birth, on average) completed T1, with about 70% of mothers remaining in the later follow-ups. Data sources included a phone survey, in-person interviews, and state administrative data.^a For MHFE-2 reports and publications, see: <https://sites.tufts.edu/tier/home/publication/s/>.

HFM Cost-Benefit Analysis (CBA)

In the final phase of the evaluation, TIER collaborated with an economist to conduct a CBA to determine the return on investment for HFM. Using findings from the RCT, statistically significant outcomes that were measured using well-validated tools or administrative data and could be reasonably and independently costed were selected for the CBA.

^aData were from the Massachusetts Departments of Children and Families, Public Health, Transitional Assistance, and Elementary and Secondary Education.

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HFM CBA Method

Estimating Intent-To-Treat (ITT) Program Effects

Using the selected outcomes, we estimated ITT program effects, comparing outcomes between the HFM program group and the control group based on random assignment status. We regressed each outcome on HFM program status (1 = HFM), controlling for maternal race and ethnicity given known racial and ethnic inequities in Massachusetts. For outcomes measured at T4–T6, we weighted the data to be representative of the original T1 sample by incorporating inverse probability weights. 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.

Calculating the Benefits of Participating in HFM

TIER conducted a literature review to estimate the monetary benefits or cost savings related to each of the focal outcomes attributed to reductions in health care, social services, legal system, and productivity loss costs.¹⁻⁸

Using the estimated cost savings and effect sizes, we calculated the economic benefit for each outcome. We applied a discount rate of 3.5% for each year after enrollment an outcome occurred. All monetary values were converted into 2008 dollars to align with the start of the study

and were adjusted to reflect the cost of living in Massachusetts. Lifetime costs were converted to annual costs based on 79 years of life expectancy in Massachusetts. Individual benefits were summed to get the total HFM benefits. See Table 1 for a summary of the outcomes.

Table 1. Description of Outcomes

Outcome and time measured
Maternal
Rapid repeat birth ¹ (measured at T3) ^a
Substance use past month ² (T5)
Asthma treatment past year ³ (T6)
Depressive symptoms ^{4,5} (T2, T4) ^b
Emergency department (ED) use past year ⁶ (T4)
Child
Maltreatment recurrence ⁷ (birth–2016) ^c
Asthma diagnosis past year ³ (T6)
Family
Homelessness since child's birth ⁸ (measured at T5)

Note: ^aParticipants who identified as Hispanic/Latina and experienced psychological vulnerability only; ^bDepressive symptomology; ^cMeasured by receipt of a second 51A report for participants who had an initial report only.

HFM Program Costs

The Children’s Trust provided us with all HFM implementation costs at the program level including staff salaries, fringe, training, travel, food, and participant allowances, among other costs. Using the estimated per family costs from 2008–2011, the years that the evaluation sample was enrolled in HFM, we computed the average annual cost. The average upfront annual cost—\$2,863—was subtracted from the total benefits.

The Benefits of HFM

Outcome benefits ranged from \$164 to \$3,221, with maltreatment recurrence and housing stability yielding the highest benefits. Table 2 presents the information used to calculate the per family benefit for each of the focal outcomes.

Table 2. Summary of Benefits by Outcome (2008\$) Per Family

Outcome	Time ^a	Effect Size	Cost ^b	Benefit ^c
Maternal				
Rapid repeat birth	2	0.78	\$327	\$237
Substance use	6	0.24	\$839	\$164
Asthma treatment	8	0.35	\$632	\$166
Depressive symptoms	1, 5	0.21	\$4,158	\$1,556
ED use	5	0.35	\$688	\$202
Child				
Maltreatment recurrence	4	0.25	\$14,582	\$3,221
Asthma diagnosis	8	0.43	\$761	\$247
Family				
Homelessness	6	0.30	\$12,731	\$3,122

Note: ^aIndicates time since enrollment in HFM; ^bCost was annual outcome per person cost derived from estimates based on published literature; ^cBenefit per family was discounted and calculated by $(\text{effect size} * \text{annual outcome per person cost} / (1 + 0.035)^{\text{Time}})$ where 3.5% is the discount rate.

Overall, for **each dollar invested in HFM**, there is a **return of \$3.11**. Table 3 summarizes the total HFM benefits relative to the cost per family.

Table 3. Summary Benefits and Costs (2008\$) Per Family

	\$
Total benefits	\$8,915
HFM program cost	\$2,863
Benefits - cost	\$6,052
Benefit to cost ratio	\$3.11 to \$1

Sensitivity Analyses

We conducted a series of sensitivity analyses to validate the results, as follows.

Adjusting Average Cost Per Family

The average HFM cost per family 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 family received. See Table 4.

Table 4. Sensitivity Analysis Using Adjusted Costs (2008\$) Per Family

	\$
Total benefits	\$8,915
Adjusted HFM program cost	\$3,332
Benefits - cost	\$5,583
Benefit to cost ratio	\$2.68 to \$1

Adjusting Total Benefits and Average Cost Per Family

In this sensitivity analysis, in addition to adjusted costs, we weighted each benefit by the HFM sample size for each outcome to adjust the benefits to account for missing data and sample attrition. See Table 5.

Table 5. Sensitivity Analysis Using Adjusted Costs and Adjusted Benefits (2008\$) Per Family

	\$
Adjusted benefits	\$4,790
Adjusted HFM program cost	\$3,332
Benefits - cost	\$1,458
Benefit to cost ratio	\$1.44 to \$1

Using Different Discount Rates

Finally, we adjusted the benefits calculations using different discount rates: 5%, 3%, and 2%. See Table 6.

Table 6. Sensitivity Analyses Using Various Discount Rates (2008\$) Per Family

	Main + Discount Rate 5%	Main + Discount Rate 3%	Main + Discount Rate 2%
Total benefits	\$8,336	\$9,121	\$9,551
HFM program cost	\$2,863	\$2,863	\$2,863
Benefits - cost	\$5,473	\$6,258	\$6,688
Benefit to cost ratio	\$2.91 to \$1	\$3.19 to \$1	\$3.34 to \$1

Conclusion

This research brief presented findings from an economic analysis of HFM based on data from TIER’s MHFE-2 study. Focusing on core impacts from the evaluation, for each dollar invested into HFM there was a return of \$3.11. Sensitivity analyses indicated the lower bound benefit was \$1.44 and the upper bound was \$3.34. 2023 estimates from the Washington State Institute for Public Policy⁹ indicate a benefit to cost ratio

of \$1.81 for Healthy Families America, which is in line with our estimate. **HFM is a cost-effective home visiting program serving young parents across Massachusetts.**

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