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Planning for a Pay for Outcomes Approach in Home Visiting

A Review of Research to Inform Maternal, Infant, and Early Childhood Home Visiting Outcome Selection, Projected Savings, and Pricing

Module 2: Economic Value of Home Visiting Outcomes

OPRE Report 2020-90

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Module 2: Economic Value of Home Visiting Outcomes

OPRE Report 2020-90

Authors

Kimberly McCombs-Thornton, Chi Connie Park, Susan Higman, Ashley Kelley, and Patrice Cachat, James Bell Associates

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Pooja Gupta Curtin and Nicole Denmark, Project Officers
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Prepared by

James Bell Associates
3033 Wilson Boulevard, Suite 650
Arlington, VA 22201
(703) 528-3230
www.jbassoc.com

Susan Zaid
Project Director

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Introduction

Pay for outcomes (PFO) is a payment model that promotes innovative financing for social initiatives, connecting funding to outcomes and cost savings. The Bipartisan Budget Act of 2018 (Public Law 115–123, Section 50605) allows Maternal, Infant, and Early Childhood Home Visiting (MIECHV) Program awardees to pursue PFO arrangements. PFO can help awardees expand services, improve outcomes, reach new or underserved populations, and/or engage new stakeholders. This resource provides information to inform PFO feasibility studies and PFO project development, including outcome selection, projected savings, and outcome payment pricing for financial agreements. **Module 2 summarizes monetary values researchers have used to establish savings in home visiting return on investment analyses.**

Purpose of this resource

One of the first steps in a PFO feasibility study (see Introduction) is to identify outcomes to be monetized. This resource provides information about existing studies and reports to inform decisions about outcomes, but it does not walk through how to conduct a PFO project.

- *Introduction* provides background information on PFO and feasibility studies.
- *Module 1: Overview of Outcomes Demonstrated in Home Visiting Studies* presents an in-depth scan of home visiting outcomes achieved by model.
- *Module 2: Economic Value of Home Visiting Outcomes* details monetary values researchers have used to establish savings in home visiting return on investment analyses.
- *Module 3: Economic Value of Outcomes in Non-Home Visiting Research* summarizes monetary values researchers have used for similar outcomes beyond home visiting studies.
- *Module 4: Administrative and Government Cost Data sources* collates the administrative data sources used in the return on investment calculations.

Module 2 Overview

Module 1 outlines evidence for outcomes to facilitate the selection of a target outcome(s). Another step in the PFO project development is to determine a monetary value for those outcomes. Health Resources and Services Administration (HRSA) encourages awardees to use local data when possible. Published research can provide insight for awardees on how to use their local data to identify potential outcomes and project future savings or fill the gap when local data are not available.

Module 2 details findings from a literature review of home visiting return on investment (ROI) studies. It summarizes monetized outcomes, per unit cost figures, and data sources researchers used to inform the economic values.

Module 2 presents the per unit costs researchers used to calculate savings and ROI. Some researchers applied per unit cost figures found in previous studies while others used administrative or programmatic data to calculate a per unit cost. These values represent the standard cost for the outcome or service regardless of whether the recipient participated in home visiting. **Awardees can use the per unit costs to predict PFO savings as described in the How to Use Module 2 section.**

Costs, Savings, and ROI

Home visiting models aim to improve outcomes for families. These improved outcomes can lead to decreased costs for taxpayers.

Per unit costs refer to the price of one unit of an outcome, such as cost per night in foster care.

Savings occur when families need fewer publicly funded services in the future after participating in home visiting, relative to comparable families who were not offered the option to participate. Per unit cost and degree of decrease in service usage are used to calculate savings. Increases in desirable outcomes, such as higher wages that lead to greater tax revenue, can also contribute to savings.

Return on investment compares savings to the cost of the program. ROI is commonly framed as “For every $1 spent, the intervention saved $2 after 5 years.”

Per unit cost represents the standard cost for the outcome or service regardless of whether the recipient participated in home visiting. Researchers use per unit costs to calculate savings and ROI.

In Module 2 we sort per unit cost data by the outcome domains used in the Home Visiting Evidence of Effectiveness (HomVEE) review, which assesses the quality of the research evidence for early childhood home visiting models (Sama-Miller et al., 2019). Home visiting ROI studies have monetized outcomes in six of the eight HomVEE domains.

Twenty-four ROI studies met the inclusion criteria outlined in the Methods section below. Exhibit 1 depicts the number of those studies by outcome domain.

Finally, we discuss **MIECHV performance reporting requirements and identify studies that have monetized MIECHV benchmarks areas and constructs.** This crosswalk will assist awardees interested in using a MIECHV construct or construct indicator as a PFO outcome.

HomVEE Outcome Domains

Child development and school readiness

Child health

Family economic self-sufficiency

Linkages and referrals

Maternal health

Positive parenting practices

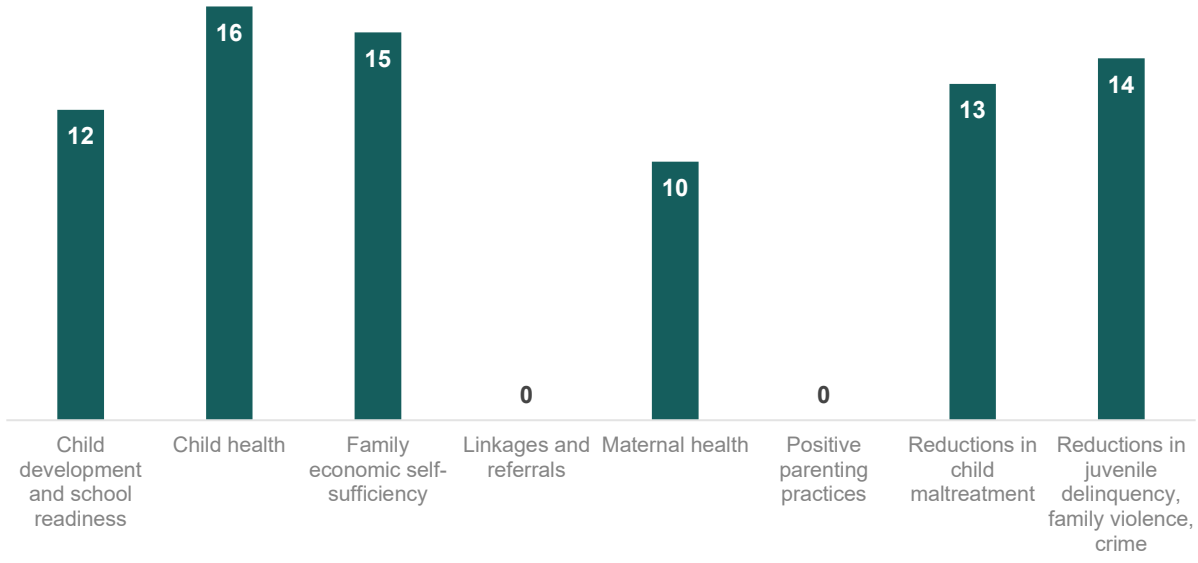
Reductions in child maltreatment

Reductions in juvenile delinquency, family violence, and crime

Bolded domains have home visiting ROI studies included in this module.

Exhibit 1. Outcomes Monetized in Home Visiting Studies (*n* = 24 studies)

Number of studies monetizing each outcome area



In some cases, per unit cost figures differ greatly for similar outcomes. Reviewing individual studies and their cost data sources provides further detail on cost estimates (e.g., if costs are geographically specific). Study profiles accompanying Module 2 provide a snapshot of individual studies, including—

- Study design
- Location
- Model
- Monetized outcomes
- Per unit costs by outcome used to calculate savings and ROI
- Cost data sources
- Study-calculated average savings and ROI

Methods

This resource's study team completed the following steps to identify home visiting studies with findings from ROI or similar cost analyses:

- Literature scan
- Title and abstract review
- Full text review
- Data abstraction

Literature scan. The team first scanned bibliographies from four main sources: MIHOPE Long-Term Follow-Up literature review (Office of Planning, Research and Evaluation, 2020); *Environmental Scan Report* from RTI International and James Bell Associates (2016), summarizing home visiting costs; National Home Visiting Resource Center Reference Catalog (2020); and unpublished HRSA articles/reports on ROI and pay for success. Exhibit 2 displays the home visiting and economic search terms used in the scan.

Exhibit 2. Search Terms for Home Visiting Economic Studies

Intervention		Model (Identified as evidence based by HomVEE)		Economic terms
Home visiting OR home visitation OR home visit OR Maternal, Infant, and Early Childhood Home Visiting (MIECHV)	OR	Nurse-Family Partnership (NFP) OR Parents as Teachers (PAT) OR Child First OR Early Head Start Home Visiting (EHS) OR Family Check-Up (FCU) OR Family Spirit OR Home Instruction for Parents of Preschool Youngsters (HIPPY) OR SafeCare OR Durham Connects/Family Connects OR Attachment and Biobehavioral Catch-Up (ABC) Intervention OR Early Intervention Program for Adolescent Mothers OR Early Start (New Zealand) OR Health Access Nurturing Development Services (HANDS) Program OR Healthy Beginnings OR Healthy Families America (HFA) OR Maternal Early Childhood Sustained Home-Visiting Program OR Minding the Baby OR Play and Learning Strategies (PALS)–Infant	AND	Return on investment OR benefit-cost analysis OR cost-benefit analysis OR social return on investment OR cost-effectiveness analysis

Title and abstract review. The team then screened titles and abstracts to identify studies that—

1. Included at least one of the models reviewed by HomVEE (regardless of evidence-based designation) or assessed another intervention for the parent and child provided in the family's home
2. Used ROI or a similar cost analysis approach
3. Described its methodology and analysis findings

The title and abstract review resulted in 45 articles/reports.

Full text review. Using the same inclusion criteria as the title and abstract review, the full text review found 9 of the 45 articles/reports met the criteria.

Data abstraction. To identify potentially relevant sources beyond the 9 found in the full text review, the team conducted a secondary search examining the reference sections of the 45 articles/reports from the title and abstract review. This strategy increased the final number of articles/reports reviewed to 66 full text reviews. A final total of 24 cost studies met the inclusion criteria.

Limitations. This approach, while robust, does have limitations, such as the following:

- It omits studies not included in the four sources used for the literature scan.
- Searches were not limited by date, leading to several results with relatively old cost figures. To account for this limitation, Module 2 summaries and study profiles include the year of associated cost figures.
- The review includes studies documenting results several years after implementation. Multiyear study periods may be beyond the 10-year scope of MIECHV PFO projects. Awardees concerned

about time frame should review the length of time needed to achieve the outcome and savings indicated in the study profiles.

Special Note: WSIPP

Module 2 refers to the Washington State Institute for Public Policy (WSIPP), which has conducted ROI analyses for multiple social programs using a comprehensive analysis plan and a common set of cost figures. Cost data provided in Module 2 are common *per unit costs* WSIPP applied across models.

Study profiles, on the other hand, include separate entries for each WSIPP analysis to show distinct outcomes monetized by model. Average savings and ROI results for each model are included only in the study profiles. More detail about WSIPP per unit costs and approach to calculating ROI can be found here.

How to Use Module 2

Once an awardee identifies potential outcomes for PFO as described in Module 1, the next step in determining the feasibility of a PFO approach to implement evidence-based home visiting is to predict the monetary value of improved outcomes. Awardees may estimate potential value based on anticipated cost savings or cost avoidance and social benefit. Awardees should use local cost data for these calculations. When local data are not available, awardees can consult prior research to fill the gap. Module 2 provides per unit cost data used in home visiting ROI studies to inform projected savings for PFO. Awardees can use this information to estimate potential savings by doing the following:

1. **Deciding whether to review the module by outcome domain or by model**.

- *By outcome domain*. Awardees that have narrowed down the list of outcomes for PFO using Module 1 may prefer to review Module 2 by outcome domain. Select a particular outcome domain of interest and review cost data across models within that domain.
- *By model*. Awardees that want to focus on a particular model can review outcome costs for that model. Awardees can use the search feature in Adobe to locate their model throughout the module. Remember to check how other models have monetized the same outcome as well.

2. **Identifying a per unit cost for the outcome**. ROI studies "monetize" outcomes by converting them to a dollar amount. Awardees can find the per unit costs for many home visiting outcomes in Module 2. When reviewing per unit costs, awardees should consider the following:

- *Public costs.* Some ROI studies calculate per unit costs strictly from a public or taxpayer perspective. Others include costs to private payors, such as health insurers. Still others include

costs to individual participants, often reflected as earnings or quality of life. PFO projects focus on public costs. For example, PFO would not use participant earnings as an outcome, but it may consider taxes paid on the earnings as a public benefit.

- *Contextual factors.* Awardees will need to consider location differences, year of dollars, and other contextual factors in determining the per unit cost for their location. These per unit costs can help awardees determine types of costs to identify in their own local data or serve as an estimate of per unit costs when local cost data are not available. Awardees can identify potential per unit costs and studies of interest in tables throughout Module 2, and then consult individual study profiles to find contextual factors. Awardees can work with an economist or use an online Consumer Price Index-adjusted inflation calculator to convert per unit costs to current year dollars. Users will need the dollar amount and year of dollars as well as the year to which dollars should be converted.
- *Denominator for cost calculation*. Per unit costs can be calculated based on all children (e.g., all cases referred to Child Protective Services) or just for those receiving the service (e.g., only investigated cases). This resource represents the per unit costs as described in the literature. Unless otherwise noted, the per unit cost represents the average cost among children or families receiving the service or experiencing the outcome.

PFO projects measure savings from a public or taxpayer perspective. Awardees should prioritize per unit costs for publicly funded services or societal outcomes.

3. **Estimating future savings**. As part of the feasibility study or the development of a financial model, awardees may calculate potential savings from the PFO outcome. One approach is to apply the per unit costs to the outcomes awardees or local implementing agencies have achieved in the past to estimate future savings, as illustrated in the following example.

Example: Estimating Program Savings

A potential PFO project is considering *decrease in hospitalization* as a targeted outcome.

- The awardee consulted prior research and learned others had used state Medicaid reimbursement rates to estimate potential public savings. The awardee determined its state Medicaid payment rate for one night in the hospital is $1,610 per infant.
- The awardee's previous evaluation found that once discharged after birth, infants in home visiting were hospitalized an average of .1 nights in the first year of life, compared to .6 nights for the comparison group. Therefore, home visiting infants were hospitalized .5 fewer nights on average.
- The program is estimated to save $1,610 per night in hospital x .5 nights = $805 per infant receiving Medicaid in the first year for this outcome.

Child Development and School Readiness

Half of the 24 studies assessed savings or ROI related to child education, though none included child development or kindergarten readiness in calculations. Monetized outcomes generally fit into two categories:

- Grade retention and remedial services
- Special education

Per unit costs studies used to determine savings and ROI are summarized below. Awardees can use these results to determine types of costs to identify in their own local data. When local data are not available, awardees can apply these values to their own findings on decreases in service usage to estimate potential savings for a PFO feasibility study.

Exhibit 3 shows studies reviewed, monetized outcomes, per unit costs, and cost data sources for each category. Outcomes are listed as defined by each study.

Models With Monetized Child Development and School Readiness Outcomes

- Child First
- Early Head Start–Home-Based Option
- Early Start (New Zealand)
- Family Spirit
- Healthy Families America (HFA)
- Home Instruction for Parents of Preschool Youngsters (HIPPY)
- Nurse-Family Partnership (NFP)
- Parents as Teachers (PAT)
- SafeCare*

**Not currently evidenced based; HomVEE only designates SafeCare Augmented as evidence based.*

Grade Retention and Remedial Services

Studies commonly used data from state education agencies to determine per unit costs of grade retention (i.e., students repeating a grade, typically because of poor performance) for their ROI calculations. WSIPP (2019) used an average per unit cost of $9,585 per year in 2017 dollars for each student who repeated a grade; that number rose to $11,299 for

Exhibit 3. Home Visiting Studies Monetizing Child Education Outcomes

Study	Home Visiting Model	Study-Defined Monetized Outcome	Per Unit Cost	Year of Dollars	Cost Data Source
Grade Retention and Remedial Services					
Glazner et al., 2004	NFP	Education costs	Not provided	2001	State Medicaid data and family survey
Miller, 2013	NFP	Remedial school services[a]	$555 per child	2010	Snell, 2009
Miller et al., 2011	NFP	Grade retention	$7,315 per year per public school student	2005	Karoly & Bigelow, 2005
WSIPP, 2019	Child First, Early Head Start,[b] Early Start, Family Spirit, HFA, HIPPY, NFP, PAT, SafeCare[c]	K-12 grade repetition	$9,585 per year of school per student $11,299 per year of school per low-income student	2017	Office of Superintendent of Public Instruction, 2016
Special Education					
Glazner et al., 2004	NFP	Education costs	Not provided	2001	State Medicaid data and family survey
WSIPP, 2019	Child First, Early Head Start[b], Early Start, Family Spirit, HFA, NFP, PAT, SafeCare[c]	K-12 special education	$20,571 per year of school per student in special education $22,285 per year of school per low-income student in special education	2017	Office of Superintendent of Public Instruction, 2016

Note: Outcomes are listed as defined by each study. Study profiles provide more detail on research design, per unit cost, and financial data sources. Cost data sources are provided in *Module 2 Study Profiles* and cited in the studies listed.

[a]Module 1 shows a medium-to-large effect size on this outcome for the specified home visiting model.

[b]WSIPP calculated ROI for families receiving any type of Early Head Start, including center based, home based, or a mixed approach.

[c]WSIPP calculated ROI for families receiving standard SafeCare, not SafeCare Augmented. Only SafeCare Augmented is designated by HomVEE as evidence based.

each low-income student. Another study applied a per unit cost of $7,315 per year in 2005 dollars[1] for grade repetition (Miller et al., 2011). Miller (2013) also included remedial services at a cost of $555 per student in 2010 dollars.

Special Education

WSIPP (2019) determined a per unit cost for special education using data from the Washington State Office of the Superintendent of Public Instruction. In the state of Washington, special education cost an average of $20,571 per participating student in 2017 dollars. That number rose to $22,285 for low-income students.

Home visiting models typically try to improve outcomes so as to minimize costs for taxpayers while improving child and family well-being.

Researchers used the per unit costs summarized in Module 2 to calculate ROI for various home visiting models. Average savings and ROI results are included in the study profiles.

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[1] For comparison, this converts to $9,213 in 2017 dollars using the U.S. Bureau of Labor Statistics Consumer Price Index (CPI) inflation calculator.

Child Health

Child health was the most commonly monetized outcome area. Sixteen of the 24 studies assessed savings or ROI related to child health. Monetized outcomes generally fit into four categories:

- Birth outcomes
- Infant mortality
- Child use of health care services
- Child use of mental health services

Per unit costs studies used to determine savings and ROI are summarized below. Health figures cited represent average costs to public and private health payors unless noted. Awardees can use these results to determine types of costs to identify in their own local data. When local data are not available, awardees can apply these values to their own findings on decreases in service usage to estimate potential savings for a PFO feasibility study.

Models With Monetized Child Health Outcomes

- Child First
- Early Head Start–Home-Based Option
- Early Start (New Zealand)
- Family Connects
- Family Spirit
- Healthy Beginnings/Baby Love*
- Healthy Families America (HFA)
- Home Instruction for Parents of Preschool Youngsters (HIPPY)
- Maternal Infant Health Program (MIHP)
- Nurse-Family Partnership (NFP)

**Not evidenced based*

Exhibit 4 shows studies reviewed, monetized outcomes, per unit costs, and cost data sources for each category. Outcomes are listed as defined by each study.

Birth Outcomes

Seven studies used preterm births as a monetized outcome. All described per unit costs for preterm births as additional expense over cost of a typical delivery. Per unit costs for preterm births vary across studies. Wu et al. (2017) used a per unit additional cost of $19,400 per preterm birth in 2015

Exhibit 4. Home Visiting Studies Monetizing Child Health Outcomes

Study	Home Visiting Model	Study-Defined Monetized Outcome	Per Unit Cost	Year of Dollars	Data Source
Birth Outcomes					
DuMont et al., 2010	HFA	Hospitalization for low birth weight deliveries[a]	$33,922 per delivery and hospitalization prior to initial discharge additional cost for low birth weight infants[b]	2000	Schmitt et al., 2006
Miller, 2013	NFP	Smoking during pregnancy	$224 per birth[b]	2010	Adams & Melvin, 1998
Miller, 2013	NFP	Preterm birth	$35,388 per preterm birth (additional medical cost)[c] $3,744 per preterm birth (special education) $13,477 per preterm birth (loss of productivity)	2010	Institute of Medicine, 2006 Machlin & Rohde, 2007 Machlin & Rohde, 2007
Miller et al., 2011	NFP	Birth complications as a result of smoking	$217 per birth[b]	2005	Adams & Melvin, 1998
Peters et al., 2015	MIHP	Preterm birth	$24,612.94 average additional expense of a preterm birth over a full-term birth in first month of life[d]	2010	Healthcare Cost and Utilization Project State Inpatient Databases, 2010
Stankaitis et al., 2005	Healthy Beginnings/Baby Love[e]	Neonatal intensive care unit admission rate	$5,047 to $10,214 per NICU admission between 1998 and 2003[d]	2003	Monroe Plan for Medical Care administrative records

WSIPP, 2019	NFP	Health care associated with low birth weight births	$3,522 additional cost per mother in year following birth[c] $31,299 additional cost per child in year following birth[c]	2014	Washington State Hospital
WSIPP, 2019	NFP	Health care associated with very low birth weight births	$8,592 additional cost per mother in year following birth[c] $145,410 additional cost per child in year following birth[c]	2014	Washington State Hospital
Wu et al., 2017	NFP	Preterm birth	$19,406 additional cost per preterm birth[c]	2015	Russell et al., 2007
Infant Mortality					
Miller, 2013	NFP	Infant deaths	$1,500 per infant funeral $1,128,942 per death (loss of productivity) $6,209,027 per death (loss of quality of life)	2010	Miller et al., 2012
WSIPP, 2019	NFP	Infant mortality	$7 million modal value of a statistical life $299,000 annual value of a statistical life	2001	Kneisner et al., 2010
Child Use of Health Services					
Dodge et al., 2014	Family Connects	Hospitalization	$3,722 per night for a 6-month-old infant[c]	Not provided[f]	Paul et al., 2004

Glazner et al., 2004	NFP	Medicaid/health care	Not provided	2001	State Medicaid data and family survey
Green et al., 2016	HFA	Medical claims	No unit cost; used actual claims data	2015	Oregon Health Authority's Division of Medical Assistance Programs
Miller, 2013	NFP	Medical care savings due to immunizations	$778 per immunized child (medical care savings in years 1–4)[c]	2010	Zhou et al., 2005
Child Use of Mental Health Services					
Miller et al., 2011	NFP	Child attention deficit hyperactivity disorder	$1,400 per year[g]	2005	Swensen et al., 2003
WSIPP, 2019	Child First, Early Head Start,[h] Early Start, Family Spirit, HFA, HIPPY	Health care associated with externalizing behavior symptoms	$1,122 per year[c]	2005	Medical Expenditure Panel Survey
WSIPP, 2019	NFP	Health care associated with anxiety disorder	$553 per year[c]	2011	Medical Expenditure Panel Survey

Note: Outcomes are listed as defined by each study. Study profiles provide more detail on research design, per unit cost, and financial data sources. Cost data sources are provided in *Module 2 Study Profiles* and cited in the studies listed.

[a]Module 1 shows a medium-to-large effect size on this outcome for the specified home visiting model.

[b]Study does not indicate if per unit cost reflects reimbursement rates for Medicaid, private insurance, or a combination.

[c]Per unit cost reflects average reimbursement rate across all types of payors.

[d]Per unit cost reflects Medicaid/public payor reimbursement rate.

[e]This Healthy Beginnings was a local adaptation of Baby Love and is not designated by HomVEE as evidence based.

[f]Not clear if Dodge used published rate from 2004 or recalculated to 2010 dollars.

[g]Per unit cost reflects private payor reimbursement rate.

[h]WSIPP calculated ROI for families receiving any type of Early Head Start, including center based, home based, or a mixed approach.

dollars. Miller's (2013) per unit cost of an additional $35,388 in 2010 dollars[2] for each preterm birth included both the delivery and neonatal intensive care unit (NICU) usage. In comparison, WSIPP (2019) applied a per unit cost of an additional $31,299 in 2014 dollars[3] to cover health care for a low birth weight infant during the child's entire first year of life. This number increases to $145,410 for very low birth weight babies. Researchers used a mix of administrative records and figures found in prior research for per unit costs of birth outcomes.

Infant Mortality

Researchers used statistical models accounting for the value of forgone life[4] to calculate a per unit cost for infant mortality. WSIPP (2019), for example, estimated the modal value of a statistical life at $7 million in 2001 dollars[5]. Miller (2013) calculated a loss of $6.2 million for quality of life plus $1.1 million in loss of productivity for each death, both in 2010 dollars[6]. Some also considered concrete costs, such as $1,500 per infant funeral (Miller, 2013).

Child Use of Health Care Services

Few studies monetized health care for children. One study used a per unit cost of $3,722 per night of infant hospitalization (dollar value year not specified; Dodge et al., 2014). Another framed immunization in terms of a $788 savings in medical cost per child through 4 years of age in 2010 dollars (Miller, 2013). Several other studies looked at health claims or Medicaid records but did not report average service costs (Glazner et al., 2004; Green et al., 2016). Cost information on emergency room (ER) usage can be found in the section on Reductions in Child Maltreatment.

Child Use of Mental Health Services

Studies valued children's mental health services at fairly consistent rates. Using data from the Medical Expenditure Panel Survey, WSIPP (2019) estimated health care to treat anxiety at $553 per child each year in 2011 dollars and to address other behavior issues at $1,122 per child each year in

[2] For comparison, this converts to $38,744 in 2015 dollars using the U.S. Bureau of Labor Statistics CPI inflation calculator.

[3] For comparison, this converts to $31,338 in 2015 dollars using the U.S. Bureau of Labor Statistics CPI inflation calculator.

[4] *Some outcomes result in a lower risk of mortality. Economists compute the value of a statistical life (VSL) to assign a monetary value to this lower risk in return on investment calculations. VSL incorporates average lifetime earnings and survey data on what people are willing to pay to decrease the risk of death. See WSIPP's technical documentation for more information.*

[5] For comparison, this converts to $10.1 million in 2020 dollars using the U.S. Bureau of Labor Statistics CPI inflation calculator.

[6] For comparison, these convert to $7.3 million and $1.3 million respectively in 2020 dollars.

2005 dollars. Another study used past research to determine a per unit annual cost to private insurers of $1,400 in 2005 dollars to treat child attention deficit hyperactivity disorder (Miller et al., 2011).

Some researchers applied per unit cost figures found in previous studies, while others used administrative or programmatic data to calculate a per unit cost. These values represent the standard cost for the outcome or service regardless of whether the recipient participated in home visiting.

Family Economic Self-Sufficiency

Fifteen of the 24 studies assessed savings or ROI related to family economic self-sufficiency. Monetized outcomes generally fit into two categories:

- Earnings
- Use of public assistance

Per unit costs studies used to determine savings and ROI are summarized below. Awardees can use these results to determine types of costs to identify in their own local data. When local data are not available, awardees can apply these values to their own findings on change in employment or service usage to estimate potential savings for a PFO feasibility study.

Exhibit 5 shows studies reviewed, monetized outcomes, per unit costs, and cost data sources for each category. Outcomes are listed as defined by each study.

Models With Monetized Family Economic Self-Sufficiency Outcomes

- Early Head Start
- Early Start (New Zealand)
- Family Spirit
- Healthy Families America (HFA)
- Nurse-Family Partnership (NFP)

Earnings

Studies ascribed value to participant earnings in terms of higher taxes paid rather than per unit cost. No studies conducted in the past 20 years reported an average hourly wage or tax rate. Several studies collected wage data directly from program participants. Others used average wage figures from the Current Population Survey or other research literature. Researchers applied federal tax rates to the earnings to calculate tax revenue.

Use of Public Assistance

Many studies used per unit costs for Temporary Assistance for Needy Families (TANF) and Supplemental Nutrition Assistance Program/Food stamps (SNAP). TANF costs were approximately $400 per month per family in 2015 dollars (WISPP, 2019), while food stamps ranged from $146 per family each month in 2015 dollars to $357 in 2016 dollars. Amounts for both vary by family size and state. Several analyses included publicly funded health care or Medicaid, though only Green et al.

Exhibit 5. Home Visiting Studies Monetizing Family Economic Self-Sufficiency Outcomes

Study	Home Visiting Model	Study-Defined Monetized Outcome	Per Unit Cost	Year of Dollars	Data Source
Maternal Earnings					
DuMont et al., 2010	HFA	Changes in tax revenue because of shifts in earned income	Not provided	2000	Family survey and federal tax tables
Glazner et al., 2004	NFP	Changes in tax revenue because of shifts in earned income	Not provided	2001	Family survey and federal tax tables
Karoly et al., 1998	NFP	Changes in tax revenue because of shifts in earned income	$7 per hour (estimated pay) 35% tax rate of mother's pay, including employee and employer taxes	1991	Nightingale & Haveman, 1995 Barnett, 1993
Miller et al., 2011	NFP	Maternal earnings	Not provided	2005	Obama, 2009
WSIPP, 2019	Early Start, Family Spirit	Labor market earnings associated with high school graduation	Not provided	Not provided	U.S. Census Bureau's March Supplement to the Current Population Survey
WSIPP, 2019	HFA, NFP	Labor market earnings	0.0137 annual real growth rate earnings	Not provided	U.S. Census Bureau's March Supplement to the Current Population Survey U.S. Implicit Price Deflator for Personal Consumption Expenditures from the U.S. Department of Commerce

Use of Public Assistance – Cash Assistance/TANF					
DuMont et al., 2010	HFA	Public assistance	Not provided	2000	New York State Office of Temporary and Disability Assistance
Glazner et al., 2004	NFP	Public assistance[a]	Not provided	Not provided	State administrative data
Green et al., 2016	HFA	TANF	$16.64 per day, per family of three	2015	Oregon Department of Human Services
Olds et al., 2010	NFP	Welfare (Aid to Families with Dependent Children-TANF)[a]	Not provided	Not provided	Not provided
Olds et al., 1993	NFP	Public assistance[a]	Not provided	Not provided	Not provided
WSIPP, 2019	Early Head Start,[b] Early Start, HFA, NFP[a]	Public assistance[a]	$407.80 per month per family	2018	Economic Services Administration, 2019
Wu et al., 2017	NFP	TANF[a]	$394 per month per family	2015	Congressional Budget Office, 2015
Food Stamps/SNAP					
DuMont et al., 2010	HFA	Food stamps	Not provided	2000	New York State Office of Temporary and Disability Assistance
Green et al., 2016	HFA	Food stamps	$7.76 per day per household	2015	Oregon Department of Human Services, SNAP Allotments

Karoly, 2017	NFP	Food stamps[a]	$357 maximum per month for family of one adult and one child in New Hampshire	2016	Center on Budget and Policy Priorities, 2016
Olds et al., 2019	NFP	Food stamps[a]	Not provided	Not provided	Not provided
Olds et al., 2010	NFP	Food stamps[a]	Not provided	Not provided	Not provided
WSIPP, 2019	HFA, NFP[a]	Food assistance[a]	$215.57 per month per family	2018	Economic Services Administration, 2019
Wu et al., 2017	NFP	Food stamps[a]	$146 per month per family	2015	Center on Budget and Policy Priorities, 2015

Note: Outcomes are listed as defined by each study. Study profiles provide more detail on research design, per unit cost, and financial data sources. Cost data sources are provided in *Module 2 Study Profiles* and cited in the studies listed.

[a]Module 1 shows a medium-to-large effect size on this outcome for the specified home visiting model.

[b]WSIPP calculated ROI for families receiving any type of Early Head Start, including center based, home based, or a mixed approach.

(2016) provided a per unit cost of $14.26 per day in 2015 dollars. The same study considered savings from reduced use of (1) public childcare subsidies assessed at $17.50 per day of care, and (2) employment assistance assessed at $2,226 per user. Studies largely relied on data from state departments of human or social services.

Savings occur when participating families use fewer services. Per unit cost and degree of decrease in service usage are used to calculate savings. Increases in desirable outcomes, such as higher wages that lead to greater tax revenue, can also contribute to savings.

Maternal Health

Ten of the 24 studies assessed savings or ROI related to maternal health. Monetized outcomes generally fit into two categories:

- Maternal depression
- Other maternal health

Per unit costs studies used to determine savings and ROI are summarized below. Health figures cited represent average costs to public and private health payors unless noted. Awardees can use these results to determine types of costs to identify in their own local data. When local data are not available, awardees can apply these values to their own findings on decreases in service usage to estimate potential savings for a PFO feasibility study.

Exhibit 6 shows studies reviewed, monetized outcomes, per unit costs, and cost data sources for each category. Outcomes are listed as defined by each study.

Models With Monetized Maternal Health Outcomes

- Child First
- Early Head Start–Home-Based Option
- Family Spirit
- Healthy Families America (HFA)
- Nurse-Family Partnership (NFP)
- Parents as Teachers (PAT)
- SafeCare*

**Not evidenced based; HomVEE only designates SafeCare Augmented as evidence based.*

Maternal Depression

Studies differed in how they valued costs for maternal depression. Some used a total cost for mental health care services per person, ranging from $1,096 each year in 2005 dollars[7] (Miller et al., 2011) to $1,763 per year in 2011 dollars (WSIPP, 2019). Ammerman et al. (2017) applied a per unit cost for each type of service, for example $5,371 per hospitalization in 2013 dollars. WSIPP (2019) also considered the impact of depression on labor market earnings and loss of life. Researchers based averages on a variety of sources, including the Medical Expenditure Panel Survey, state Medicaid data, and figures cited in previous studies.

[7] For comparison, this converts to $1,272 in 2011 dollars using the U.S. Bureau of Labor Statistics CPI inflation calculator.

Exhibit 6. Home Visiting Studies Monetizing Maternal Health Outcomes

Study	Home Visiting Model	Study-Defined Monetized Outcome	Per Unit Cost	Year of Dollars	Cost Data Source
Maternal Depression					
Ammerman et al., 2017	HFA, NFP	Medications	$80 (unit not provided)[a]	2013	Consumer Reports, 2013
Ammerman et al., 2017	HFA, NFP	Hospitalization as a result of depression	$5,371[b]	2013	Stensland et al., 2012
Ammerman et al., 2017	HFA[c], NFP	Office visits[c]	$82[d]	2013	Ohio Medicaid, 2014
Miller et al., 2011	NFP	Loss of productivity	$1,734 per year per worker	2005	Stewart et al., 2003
Miller et al., 2011	NFP	Medical costs	$1,096 per year[e]	2005	Arnow et al., 2009
WSIPP, 2019	Child First, Early Head Start,[f] Family Spirit, HFA, NFP, SafeCare[g]	Health care associated with major depression	$1,763 per year[b]	2011	Medical Expenditure Panel Survey
WSIPP, 2019	Child First, Early Head Start[f], Family Spirit	Mortality associated with depression	$7 million modal value of a statistical life $299,000 annual value of a statistical life	2001	Integrated Postsecondary Education Data System
WSIPP, 2019	Child First, Early Head Start[f], PAT	Labor market earnings associated with major depression	Not provided	Not provided	U.S. Census Bureau's March Supplement to the Current Population Survey

Other Maternal Health					
Miller, 2013	NFP	Pregnancy-induced hypertension	$10,678 per case[e]	2010	Preeclampsia Foundation, 2007
WSIPP, 2019	PAT, SafeCare[g]	Health care associated with posttraumatic stress disorder	$1,817 per year[b]	2005	Ivanova et al., 2011

Note: Outcomes are listed as defined by each study. Study profiles provide more detail on research design, per unit cost, and financial data sources. Cost data sources are provided in *Module 2 Study Profiles* and cited in the studies listed.

[a]Per unit cost reflects private payor reimbursement rate.

[b]Per unit cost reflects average reimbursement rate across all types of payors.

[c]Module 1 shows a medium-to-large effect size on this outcome for specified home visiting model.

[d]Per unit cost reflects Medicaid/public payor reimbursement rate.

[e]Study does not indicate if per unit cost reflects reimbursement rates for Medicaid, private insurance, or a combination.

[f]WSIPP calculated ROI for families receiving any type of Early Head Start, including center based, home based, or a mixed approach.

[g]WSIPP calculated ROI for families receiving standard SafeCare, not SafeCare Augmented. Only SafeCare Augmented is designated by HomVEE as evidence based.

Other Maternal Health

Some studies calculated costs related to other maternal health issues. WSIPP (2019) used an annual per person cost of $1,817 in 2005 dollars for health care linked to maternal posttraumatic stress disorder. Miller et al. (2011) assessed maternal hypertension, using a per case cost of $1,678 in 2010 dollars based on data from the Preeclampsia Foundation.

Reductions in Child Maltreatment

Thirteen of the 24 studies assessed savings or ROI related to child maltreatment or injury. Monetized outcomes generally fit into two categories:

- Child maltreatment
- Child injury

Per unit costs studies used to determine savings and ROI are summarized below. Health figures cited represent average costs to public and private health payors unless noted. Awardees can use these results to determine types of costs to identify in their own local data. When local data are not available, awardees can apply these values to their own findings on decreases in service usage to estimate potential savings for a PFO feasibility study.

Exhibit 7 shows studies reviewed, monetized outcomes, per unit costs, and cost data sources for each category. Outcomes are listed as defined by each study.

Models With Monetized Reductions in Child Maltreatment Outcomes

- Child First
- Family Connects
- Healthy Families America (HFA)
- Nurse-Family Partnership (NFP)
- Parents as Teachers (PAT)
- SafeCare*

**Not evidenced based; HomVEE only designates SafeCare Augmented as evidence based.*

Child Maltreatment

Studies included an array of costs for child maltreatment services. Several used the per unit cost of child protective services (CPS) case investigation, which ranged from $511 per case investigated in 2016 dollars (WSIPP, 2019) to $1,762 per investigation in 2000 dollars[8] (DuMont et al., 2010). Many factored in foster care costs, valued from a low of $40 per day in 2013 dollars (WSIPP, 2019) to a

[8] For comparison, this converts to $2,463 in 2016 dollars using the U.S. Bureau of Labor Statistics CPI inflation calculator.

Exhibit 7. Home Visiting Studies Monetizing Child Maltreatment Outcomes

Study	Home Visiting Model	Study-Defined Monetized Outcome	Per Unit Cost	Year of Dollars	Cost Data Source
Child Maltreatment					
DuMont et al., 2010	HFA	Foster care	$47.08 per day of out-of-home foster care placement, birth to 3 years of age $45.53 per day of out-of-home foster care placement, 4 to 5 years of age	2000	New York State age-adjusted foster care per diem rates
DuMont et al., 2010	HFA	Child welfare prevention and support services	$3,865 per year, per family receiving prevention services without foster care	2000	New York State Child Care Review Services administrative database
DuMont et al., 2010	HFA	CPS investigations	$1,762 per investigation	2000	New York State Statewide Automated Child Welfare Information System, CONNECTIONS
Glazner et al., 2004	NFP	Child abuse and neglect	Not provided	2001	State administrative data and family survey
Green et al., 2016	HFA	Substantiated child abuse report	$579.19 per report	2015	Oregon Department of Human Services (DHS), Staffing Survey Data and DHS staff
Green et al., 2016	HFA	Foster care	$77.69 per day	2015	Oregon Department of Human Services, Children and Families Foster Care Program staff and DHS website

Green et al., 2016	HFA	Child abuse and neglect victimization	$187,159 per nonfatal incidence of child maltreatment, average lifetime cost (includes adult health care, criminal justice, and special education costs and productivity losses)	2015	Fang et al., 2012
Karoly, 2017	NFP	Child maltreatment lifetime costs	$64,652 average lifetime costs per nonfatal child maltreatment case, discounted to 0 years of age (includes health care, child welfare, and criminal justice costs)	2016	Fang et al., 2012
Miller, 2013	NFP	Substantiated cases Unsubstantiated, uninvestigated, and unreported cases	$88,557 per substantiated case (includes child welfare, health care, special education, property damage, and work and $37,792 for quality of life) $39,910 per unsubstantiated, uninvestigated, or unreported case (includes child welfare, health care, special education, property damage and work and $27,568 for quality of life)	2010	Miller et al., 2012
WSIPP, 2019	Child First, HFA, NFP, PAT,[a] SafeCare[b]	Investigated cases[a]	$511 per investigation	2016	Washington State Department of Social and Health Services (DSHS) Children's Administration Data

WSIPP, 2019	Child First, HFA, NFP, PAT,[a] SafeCare[b]	Police involvement[a]	$1,132 per case	2016	WSIPP crime model
WSIPP, 2019	Child First, HFA, NFP, PAT, [a] SafeCare[b]	Court involvement[a]	$4,508 per case	2016	Administrative Office of the Courts dockets
WSIPP, 2019	Child First, HFA, NFP, PAT,[a] SafeCare[b]	In-home services[a]	$286 per case	2016	DSHS Executive Management Information System database
WSIPP, 2019	Child First, HFA, NFP, PAT,[a] SafeCare[b]	New foster care placement[a]	$19,271 per case	2016	DSHS Children's Administration data
WSIPP, 2019	Child First, HFA, NFP, PAT,[a] SafeCare[b]	Adoption[a]	$50,444 per case	2016	DSHS data and Interstate Compact on the Placement of Children
WSIPP, 2019	Child First, HFA, NFP, PAT, SafeCare[b]	Impact of abuse and neglect on labor market earnings	Not provided	Not provided	Not provided
WSIPP, 2019	HFA, NFP	Out-of-home placement	$34,261 per case	2016	Not provided

Wu et al., 2017	NFP	Child maltreatment	Not provided	2015	Fang et al., 2012 Jonson-Reid et al., 2004
Child Injury					
Dodge et al., 2014	Family Connects	Emergency department (ED) visit[a]	$423 per emergency department visit per 6-month-old infant[c]	2004	Paul et al., 2004
Green et al., 2016	HFA	EDusage	No average unit cost provided; used actual case data	2015	Oregon Health Authority's Division of Medical Assistance Programs
Karoly, 2017	NFP	ED visit	$814 per visit, child under 5 years of age[c]	2016	Medical Expenditure Panel Survey
Karoly et al., 1998	NFP	ED visit	$250 per ED visit[d]	1994	Not provided
Miller, 2013	NFP	Nonfatal child injury	$6,646 per injury (includes $1,455 for quality of life)[d]	2010	Miller et al., 2012
WSIPP, 2019	HFA	Health care associated with ED visits, general user	$1,555 per visit (general population)[c]	2015	WSIPP calculation using 2015 Medical Expenditure Panel Survey data
WSIPP, 2019	HFA	Health care associated with ED visits, frequent user	$6,803 per visit (frequent ED user)[c]	2015	WSIPP calculation using 2015 Medical Expenditure Panel Survey data

Note: Outcomes are listed as defined by each study. Study profiles provide more detail on research design, per unit cost, and financial data sources. Cost data sources are provided in *Module 2 Study Profiles* and cited in the studies listed.

[a]Module 1 shows a medium-to-large effect size on this outcome for specified home visiting model.

[b]WSIPP calculated ROI for families receiving standard SafeCare, not SafeCare Augmented. Only SafeCare Augmented is designated by HomVEE as evidence based.

[c]Per unit cost reflects average reimbursement rate across all types of payors.

[d]Study does not indicate if per unit cost reflects reimbursement rates for Medicaid, private insurance, or a combination.

high of $77.69 per day in 2015 dollars (Green et al., 2016). Researchers typically calculated costs using data from state departments of human or social services.

Other studies used total costs. Miller (2013) applied a per unit total cost of $88,557 for each substantiated case and $39,910 for each unsubstantiated, uninvestigated, or unreported case, both in 2010 dollars[9]. Roughly half of these costs stemmed from changes to the child's quality of life. Karoly (2017) used an average cost of $64,652 in 2016 dollars for each child experiencing nonfatal child maltreatment over the course of his or her life. This figure included costs related to health care, child welfare, and criminal justice. Green et al. (2016) utilized $187,159 in 2015 dollars in lifetime costs per victim, regardless of whether the case was referred to CPS. These analyses used dollar figures listed in previous research.

Child Injury

Emergency department visits accounted for most costs related to child injury. Figures ranged from $250 per ED visit in 1994 dollars[10] (Karoly et al., 1998) to $1,555 in 2015 dollars (WSIPP, 2019). One study included the injury's impact on the child's quality of life (Miller, 2013), while another distinguished ED costs based on frequency of use (WSIPP, 2019).

In some cases, per unit cost figures differ greatly for similar outcomes. Reviewing individual studies and their cost data sources provides further detail on cost estimates (e.g., if costs are geographically specific). Study profiles accompanying Module 2 provide a snapshot of individual studies.

[9] For comparison, these convert to $97,923 and $44,131 respectively in 2016 dollars using the U.S. Bureau of Labor Statistics CPI inflation calculator.

[10] For comparison, this converts to $403 in 2015 dollars using the U.S. Bureau of Labor Statistics CPI inflation calculator.

Reductions in Juvenile Delinquency, Family Violence, and Crime

Fourteen of the 24 studies assessed savings or ROI related to juvenile delinquency, crime, or family violence. Monetized outcomes generally fit into three categories:

- Youth substance use
- Interpersonal violence
- Crime

Per unit costs studies used to determine savings and ROI are summarized below. Health figures cited represent average costs to Medicaid unless noted. Awardees can use these results to determine types of costs to identify in their own local data. When local data are not available, awardees can apply these values to their own findings on decreases in service usage to estimate potential savings for a PFO feasibility study.

Exhibit 8 shows studies reviewed, monetized outcomes, per unit costs, and cost data sources for each category. Outcomes are listed as defined by each study.

Models With Monetized Reductions in Juvenile Delinquency, Family Violence, and Crime Outcomes

- Child First
- Early Head Start–Home-Based Option
- Early Start (New Zealand)
- Family Spirit
- Healthy Families America (HFA)
- Home Instruction for Parents of Preschool Youngsters (HIPPY)
- Nurse-Family Partnership (NFP)
- Parents as Teachers (PAT)
- SafeCare*

**Not evidenced based; HomVEE only designates SafeCare Augmented as evidence based.*

Youth Substance Use

Three analyses examined costs of youth substance use. One focused primarily on treatment costs, calculated as $135 per day of detox, $120 per day of residential treatment, and $4.54 per day of methadone—all in 2015 dollars (Green et al., 2016). Another used a per unit cost of $1,892 in 2000 dollars for each alcohol-related traffic accident (WSIPP, 2019). The third calculated $219 in 2010 dollars as savings for each youth aged 12–15 deterred from substance use (Miller, 2013). These analyses largely used per unit costs cited in other research or government data sources.

Exhibit 8. Home Visiting Studies Monetizing Juvenile Delinquency, Family Violence, and Crime Outcomes

Study	Home Visiting Model	Study-Defined Monetized Outcome	Per Unit Cost	Year of Dollars	Cost Data Source
Youth Substance Use					
Green et al., 2016	HFA	Detoxification	$135 per day[a]	2015	Oregon Health Plan's October 2015 Fee Schedule for Fee-for-Service Providers, Oregon Health Plan's website
Green et al., 2016	HFA	Methadone treatment	$4.54 per day[a]	2015	Oregon Health Plan's October 2015 Fee Schedule for Fee-for-Service Providers, Oregon Health Plan's website
Green et al., 2016	HFA	Residential treatment	$120 per day[a]	2015	Oregon Health Plan's October 2015 Fee Schedule for Fee-for-Service Providers, Oregon Health Plan's website
Miller, 2013	NFP	Youth substance abuse	$219 per substance-abusing youth	2010	Miller et al., 2006
WSIPP, 2019	HFA, NFP, PAT	Property loss associated with problem alcohol use	$1,892 per alcohol-related traffic collision	2000	Blincoe et al., 2002
WSIPP, 2019	HFA	Mortality associated with problem alcohol use	$7 million modal value of a statistical life $299,000 annual value of a statistical life	2001	Kneisner et al., 2010

Interpersonal Violence					
Green et al., 2016	HFA	Interpersonal violence case	$2,043 per case	2015	Centers for Disease Control and Prevention, 2003
Miller et al., 2011	NFP	Domestic violence case	$1,456 per episode (medical services, other resources)	2005	Miller et al., 1996 Miller et al., 2006
Crime					
Green et al., 2016	HFA	Arrests	$223.04 per arrest	2015	Carey & Waller, 2011
Green et al., 2016	HFA	Person crime victimizations	$43,024 per person, lifetime cost	2015	Miller et al., 1996
Karoly, 2017	NFP	Societal cost of crime[b]	Not provided	2016	McCollister et al., 2010
Karoly et al., 1998	NFP	Police and adjudication costs[b]	$1,924 per arrest	1993	Greenwood et al., 1994
Karoly et al., 1998	NFP	Jail[b]	$27 per day in jail	1993	Greenwood et al., 1994
Karoly et al., 1998	NFP	Adult criminal career	$27,350 per adult criminal career (includes arrest, adjudication, jail, and prison)	1993	Greenwood et al., 1996
Miller, 2013	NFP	Youth crime[b]	$6,506 per crime (includes $5,206 for quality of life)	2010	McCollister et al., 2010
Miller, 2013	NFP	Youth arrest[b]	$11,037 per arrest	2010	Miller et al., 1996

WSIPP, 2019	Child First, Early Start, Family Spirit, HFA, HIPPY, NFP[b], PAT, SafeCare[c]	Police costs[b]	$1,120 per arrest	2015	Washington State Auditor and U.S. Department of Justice
WSIPP, 2019	Child First, Early Start, Family Spirit, HFA, HIPPY, NFP, PAT[b], SafeCare[c]	Juvenile local detention[b]	$51,147 per year	2015	Washington State Auditor and Washington State Governor's Juvenile Justice Advisory Committee
WSIPP, 2019	Child First, Early Start, Family Spirit, HFA, HIPPY, NFP, PAT[b], SafeCare[c]	Juvenile local supervision[b]	$2,262 per year	2015	Washington State Auditor and Administrative Office of the Courts
WSIPP, 2019	Child First, Early Start, Family Spirit, HFA, HIPPY, NFP, PAT[b], SafeCare[c]	Juvenile state institution[b]	$44,558 per year	2015	Washington Legislative Evaluation and Accountability Program and Washington State Caseload Forecast Council for Fiscal Years 1997 to 2015
WSIPP, 2019	Child First, Early Start, Family Spirit, HFA, HIPPY, NFP[b], PAT, SafeCare[c]	Juvenile state parole[b]	$9,645 per case	2015	Juvenile Rehabilitation Administration's Executive Management Information System database
WSIPP, 2019	Child First, Early Start, Family Spirit, HFA, HIPPY, NFP, PAT, SafeCare[c]	Adult jail	$16,776 per year	2015	Washington State Auditor

WSIPP, 2019	Child First, Early Start, Family Spirit, HFA, HIPPY, NFP, PAT, SafeCare[c]	Adult local supervision	$3,296 per year	2015	Washington Legislative Evaluation and Accountability Program
WSIPP, 2019	Child First, Early Start, Family Spirit, HFA, HIPPY, NFP, PAT, SafeCare[c]	Adult state prison	$13,553 per year	2015	Washington Department of Corrections
WSIPP, 2019	Child First, Early Start, Family Spirit, HFA, HIPPY, NFP, PAT, SafeCare[c]	Adult post-prison supervision	$3,296 per year	2015	Washington Legislative Evaluation and Accountability Program
WSIPP, 2019	Child First, Early Start, Family Spirit, HFA, HIPPY, NFP[b], PAT, SafeCare[c]	Court costs[b]	$201 to $152,378 per conviction	2009	Washington State Auditor and the Washington State Administrative Office of the Courts
Wu et al., 2017	NFP[b]	Youth crime[b]	$1,490 per crime	2015	Miller, 2013

Note: Outcomes are listed as defined by each study. Study profiles provide more detail on research design, per unit cost, and financial data sources. Cost data sources are provided in *Module 2 Study Profiles* and cited in the studies listed.

[a]Per unit cost reflects Medicaid/public payor reimbursement rate.

[b]Module 1 shows a medium-to-large effect size on this outcome for specified home visiting model.

[c]WSIPP calculated ROI for families receiving standard SafeCare, not SafeCare Augmented. Only SafeCare Augmented is designated by HomVEE as evidence based.

Interpersonal Violence

Two studies assessed costs as a result of interpersonal violence. Miller et al. (2011) used data from previous research to estimate a per unit cost of $1,456 for each episode in 2005 dollars[11], including medical costs and services. Green et al. (2016) used $2,043 per case in 2015 dollars based on findings from the Centers for Disease Control and Prevention.

Crime

Researchers commonly assessed crime costs. Some accounted for individual costs for police, adjudication, jail time, and supervision, among others. Values varied greatly. For instance, police costs ranged from $223.04 per arrest (Green et al., 2016) to $1,120 per arrest (WSIPP, 2019), both in 2015 dollars.

Others used aggregate costs, such as $11,037 total cost per arrest in 2010 dollars (Miller, 2013) or $27,350 per adult engaging in crime in 1993 dollars[12] (Karoly et al.,1998). Most studies used cost figures published in previous research, though WSIPP calculated costs using state administrative data.

An awardee will need to consider location, year of dollars, and other contextual factors in determining the per unit cost.

[11] For comparison, this converts to $1,786 in 2015 dollars using the U.S. Bureau of Labor Statistics CPI inflation calculator.

[12] For comparison, this converts to $41,284 in 2010 dollars.

MIECHV Performance Measures

MIECHV requires states and territories to achieve results for participating children and families. HRSA has established a set of performance reporting requirements, including performance indicators and systems outcome measures awardees should use to monitor and demonstrate accountability. Some awardees may be interested in using a required MIECHV performance measure as a PFO outcome.

MIECHV reporting requirements are organized into six benchmark areas:

- Maternal and newborn health
- Child injuries, maltreatment, and emergency department visits
- School readiness and achievement
- Crime or domestic violence
- Family economic self-sufficiency
- Coordination and referrals

Each benchmark comprises one or more constructs. Each construct has a specific indicator awardees are required to measure. Exhibit 9 shows MIECHV benchmarks, constructs, and construct indicators.

ROI studies have monetized actual MIECHV construct indicators for preterm birth, child maltreatment, and primary caregiver education. Exhibit 9 lists studies that have monetized the following MIECHV construct indicators:

- Percent of infants who are born preterm following program enrollment
- Percent of children enrolled in home visiting with at least 1 investigated case of maltreatment following enrollment within the reporting period
- Percent of primary caregivers who enrolled in home visiting without a high school degree or equivalent who subsequently enrolled in, maintained continuous enrollment in, or completed high school or equivalent during their participation in home visiting

Awardees interested in using one of these constructs for PFO can consult these studies to learn how researchers valued each indicator. Exhibit 9 also shows studies that have monetized outcomes related to other MIECHV construct areas but not the actual MIECHV indicator. Study profiles provide more information. Awardees considering the use of MIECHV constructs for PFO must remember to meet all legislative requirements outlined in the introduction and HRSA PFO guidance.

Exhibit 9. Home Visiting Studies Monetizing MIECHV Constructs

MIECHV Construct	MIECHV Construct Indicator	Studies With Monetized Outcome Related to Construct
Benchmark I – Maternal and Newborn Health		
1 – Preterm birth	Percent of infants (among mothers who enrolled in home visiting prenatally before 37 weeks) who are born preterm following program enrollment	DuMont et al., 2010[a] Miller, 2013[a] Peters et al., 2015[a] Stankaitis et al., 2005[a] WSIPP, 2019 - NFP[a] Wu et al., 2017[a]
2 – Breastfeeding	Percent of infants (among mothers who enrolled in home visiting prenatally) who were breastfed any amount at 6 months of age	None identified
3 – Depression screening	Percent of primary caregivers enrolled in home visiting who are screened for depression using a validated tool within 3 months of enrollment (for those not enrolled prenatally) or within 3 months of delivery (for those enrolled prenatally)	Ammerman et al., 2017 Miller et al., 2011 WSIPP, 2019 – Child First, Early Head Start[b], Family Spirit, HFA, NFP, SafeCare[c]
4 – Well-child visit	Percent of children enrolled in home visiting who received the last recommended visit based on the American Academy of Pediatrics schedule	None identified
5 – Postpartum care	Percent of mothers enrolled in home visiting prenatally or within 30 days after delivery who received a postpartum visit with a health care provider within 8 weeks (56 days) of delivery	None identified
6 – Tobacco cessation referrals	Percent of primary caregivers enrolled in home visiting who reported using tobacco or cigarettes at enrollment and were referred to tobacco cessation counseling or services within 3 months of enrollment	Miller et al., 2011 Miller, 2013

MIECHV Construct	MIECHV Construct Indicator	Studies With Monetized Outcome Related to Construct
Benchmark II – Child Injuries, Maltreatment, and ED Visits		
7 – Safe sleep	Percent of infants enrolled in home visiting that are always placed to sleep on their backs, without bed-sharing or soft bedding	None identified
8 – Child injury	Rate of injury-related visits to the Emergency Department (ED) since enrollment among children enrolled in home visiting	Dodge et al., 2014 Green et al., 2016 Karoly, 2017 Karoly et al., 1998 Miller, 2013 WSIPP, 2019 – HFA
9 – Child maltreatment	Percent of children enrolled in home visiting with at least 1 investigated case of maltreatment following enrollment within the reporting period	DuMont et al., 2010[a] Glazner et al., 2004[a] Green et al., 2016[a] Karoly, 2017[a] Miller, 2013[a] WSIPP, 2019[a] – Child First, HFA, NFP, PAT, SafeCare[c] Wu et al., 2017[a]

MIECHV Construct	MIECHV Construct Indicator	Studies With Monetized Outcome Related to Construct
Benchmark III – School Readiness and Achievement		
10 – Parent-child interaction	Percent of primary caregivers enrolled in home visiting who receive an observation of caregiver-child interaction by the home visitor using a validated tool	None identified
11 – Early language and literacy activities	Percent of children enrolled in home visiting with a family member who reported that during a typical week s/he read, told stories, and/or sang songs with their child daily, every day	None identified
12 – Develop-mental screening	Percent of children enrolled in home visiting with a timely screen for developmental delays using a validated parent-completed tool	None identified
13 – Behavioral concerns	Percent of home visits where primary caregivers were asked if they have any concerns regarding their child's development, behavior, or learning	Miller et al., 2011 WSIPP, 2019 – Child First, Early Head Start[b], Family Spirit, HFA, NFP, SafeCare[c]
Benchmark IV – Crime or Domestic Violence		
14 – Intimate partner violence screening	Percent of primary caregivers enrolled in home visiting who are screened for intimate partner violence (IPV) within 6 months of enrollment using a validated tool	Green et al., 2016 Miller et al., 2011

MIECHV Construct	MIECHV Construct Indicator	Studies With Monetized Outcome Related to Construct
Benchmark V – Family Economic Self-Sufficiency		
15 – Primary caregiver education	Percent of primary caregivers who enrolled in home visiting without a high school degree or equivalent who subsequently enrolled in, maintained continuous enrollment in, or completed high school or equivalent during their participation in home visiting	Glazner et al., 2004 [a] Green et al., 2016 [a] WSIPP, 2019 – Early Start, Family Spirit
16 – Continuity of insurance coverage	Percent of primary caregivers enrolled in home visiting who had continuous health insurance coverage for at least 6 consecutive months	None identified
Benchmark VI – Coordination and Referrals		
17 – Completed depression referrals	Percent of primary caregivers referred to services for a positive screen for depression who receive one or more service contacts	None identified
18 – Completed developmental referrals	Percent of children enrolled in home visiting with positive screens for developmental delays (measured using a validated tool) who receive services in a timely manner	None identified
19 – Intimate partner violence referrals	Percent of primary caregivers enrolled in home visiting with positive screens for IPV (measured using a validated tool) who receive referral information for IPV	None identified

Note:

[a]Study monetized actual construct indicator.

[b]WSIPP calculated ROI for families receiving any type of Early Head Start, including center based, home based, or a mixed approach.

[c]WSIPP calculated ROI for families receiving standard SafeCare, not SafeCare Augmented. Only SafeCare Augmented is designated by HomVEE as evidence based.

This resource organizes findings by HomVEE outcome domain. Exhibit 10 depicts how MIECHV benchmark areas align with HomVEE outcome domains. Awardees interested in using a MIECHV performance measure as a PFO outcome should consult sections of each module related to the outcome of interest.

Exhibit 10. Alignment of MIECHV Benchmarks and HomVEE Outcome Domains

MIECHV Benchmark Area	Related HomVEE Outcome Domain
I – Maternal and newborn health	Child health Maternal health
II – Child injuries, maltreatment, and Emergency Department (ED) visits	Reductions in child maltreatment
III – School readiness and achievement	Positive parenting practices Child development and school readiness
IV – Crime or domestic violence	Reductions in juvenile delinquency, family violence, and crime
V – Family economic self-sufficiency	Family economic self-sufficiency
VI – Coordination and referrals	Linkages and referrals

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