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

Navigating the Resource

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Purpose of this Resource

Planning for a Pay for Outcomes Approach in Home Visiting presents research findings on home visiting outcomes and their associated costs. MIECHV awardees, evaluators, and pay for outcomes (PFO) contractors can use this resource to inform PFO feasibility studies and PFO project development including outcome selection, projected savings, and outcome payment pricing for PFO financial agreements. While this resource provides supporting data for PFO, it is not an overarching PFO toolkit. Awardees interested in PFO guidance should consult MIECHV Program Pay for Outcomes Supplemental Information Request (SIR).

This resource packages study findings and details to provide information on home visiting outcomes, per unit costs for these outcomes, and the availability of administrative data sources to determine local costs. Such costs are essential for calculating savings and return on investment (ROI) for home visiting. Each module summarizes results or monetized value for the studied outcome measures before profiling each study's impact, methods, target population, location, outcome valuation and data sources used to inform the value. This four-module series includes –

- *Module 1: Overview of Outcomes Demonstrated in Home Visiting Studies*, which presents an in-depth scan of home visiting outcomes achieved by model

- *Module 2: Economic Value of Home Visiting Outcomes*, which 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*, which summarizes monetary values researchers have used for similar outcomes in non-home visiting studies

- *Module 4: Administrative and Government Cost Data Sources*, which collates the administrative data sources used in the return on investment calculations

Navigating across the Modules

Each component of this resource contains specific information to help you undertake a PFO feasibility study and inform PFO project development. Exhibit 1 shows how the components can be used together.

- The Introduction provides background information on PFO and feasibility studies. If PFO is new to you, start here.
- Modules 1 through 4 provide data compiled from articles and reports of home visiting outcomes, monetary value of those outcomes, and cost data sources that will help you plan your PFO initiative.

Exhibit 1. Flow of Information across Modules in the Resource

INTRODUCTION	MODULE 1	MODULE 2	MODULE 3	MODULE 4
Learn about pay for outcomes	Review effective home visiting outcomes	Identify monetized home visiting outcomes	Identify monetized outcomes in other fields	Find administrative data sources to provide more cost data
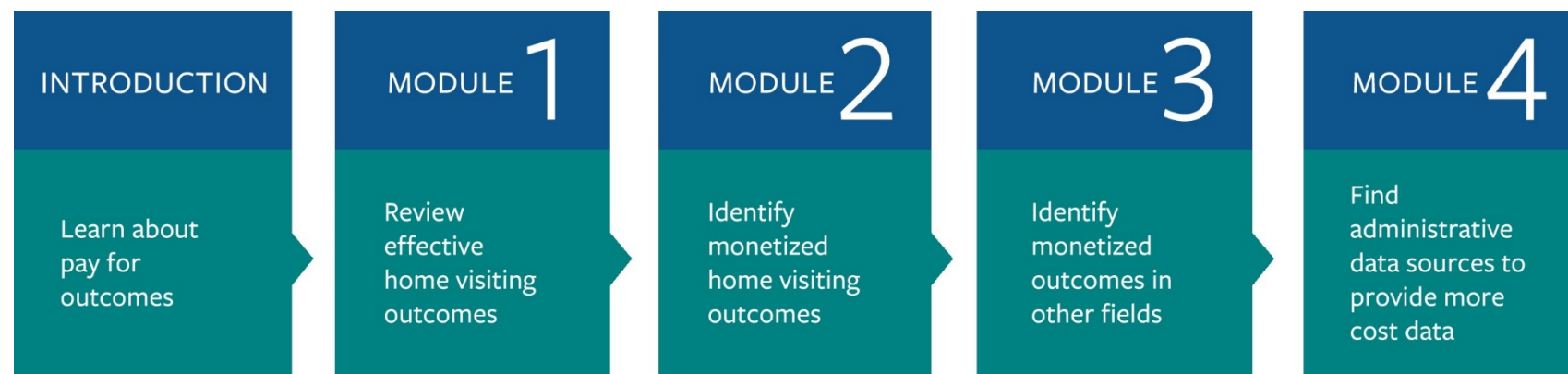
Identifying Your Interests

Awardees may use PFO and this resource in different scenarios, depending on your needs. For instance, some may focus on learning more about which outcomes have been monetized for a specific home visiting model while others may examine specific outcomes of interest across all models. Exhibit 2 outlines where to look for various types of information, based on your specific interests and area(s) of focus.

Exhibit 2. Navigating the Resource

I'm interested in . . .	Where to look and what you will find
PFO information	**Introduction** explains PFO **Introduction** provides additional resources in the reference list
Information on specific home visiting models	**Module 1** summarizes home visiting outcomes with model highlights **Module 1** study profiles show outcome findings by model **Module 2** identifies monetized home visiting outcomes by model **Module 2** study profiles show cost data by model
Home visiting outcomes	**Module 1** summarizes home visiting outcomes **Module 2** identifies monetized home visiting outcomes **Module 3** provides monetized outcomes in non-home visiting research **Study profiles** for Modules 1, 2, and 3 show findings in greater detail
MIECHV performance measures	**Module 2** includes a crosswalk between MIECHV construct indicators and monetized outcomes
Monetized outcomes	**Module 2** identifies monetized home visiting outcomes **Module 3** provides monetized outcomes in non-home visiting research
Data sources to determine monetary value	**Modules 2 and 3** study profiles show data sources **Module 4** lists administrative and government data sources

Awardees may prefer to navigate by outcome or home visiting model. For awardees who have already narrowed down their list of outcomes, Exhibit 3 indicates which HomVEE outcome domains are covered in each module. The associated study profiles for each module provide additional details.

Other awardees may have selected a home visiting model. Exhibit 4 shows home visiting models covered in Modules 1 and 2 along with HomVEE outcome domains with significant results (Module 1) or that have been monetized (Module 2).

Exhibit 3. Navigating the Resource by HomVEE Outcome Domain

Types of information provided in each module

Home visiting outcomes	Module 1	Module 2	Module 3	Module 4
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	👪 🏠	$ 🏠 ⓘ		ⓘ

Key: Icon indicates type of information available in each module:

🏠 Results by home visiting model   👪 Home visiting outcomes $ Cost figures for monetized outcomes

ⓘ Administrative data sources

Exhibit 4. Navigating the Resource by Home Visiting Model

Home Visiting Model	HomVEE Outcome Domain							
	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
Attachment and Biobehavioral Catch-Up (ABC)	①	①				①		
Child First	① ②	②		①	① ②		① ②	②
Early Head Start- Home Based Option (EHS)	① ②	②	①	①	②	①	①	②
Early Intervention Program for Adolescent Mothers		①	①					
Early Start (New Zealand)	① ②	① ②	②			①	①	②
Family Check Up for Children	①				①	①		
Family Connects		① ②		①	①	①	②	
Family Spirit	① ②	②	②		① ②	①		②
Health Access Nurturing Development Services (HANDS)		①	①			①	①	
Healthy Beginnings	①	①			①	①		
Healthy Beginnings/Baby Love*		②						

Home Visiting Model	HomVEE Outcome Domain							
	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
Healthy Families America (HFA)	❶ ❷	❶ ❷	❶ ❷	❶	❶ ❷	❶	❶ ❷	❶ ❷
Home Instruction for Parents of Preschool Youngsters (HIPPY)	❶ ❷	❷				❶		❷
Maternal Early Childhood Sustained Home Visiting Program (MECSH)		❶			❶	❶		
Maternal Infant Health Program (MIHP)		❶ ❷			❶			
Minding the Baby		❶			❶			
Nurse-Family Partnership (NFP)	❶ ❷	❶ ❷	❶ ❷		❶ ❷	❶	❶ ❷	❶ ❷
Parents as Teachers (PAT)	❶ ❷		❶		❷	❶	❶ ❷	❷
Play and Learning Strategies (PALS) Infant	❶					❶		
Safecare Augmented	❷			❶	❷		❶ ❷	❷

❶ Module 1; ❷ Module 2

*This Healthy Beginnings was a local adaptation of Baby Love and is not designated by MIECHV as evidence based.

Example: Examining Child Health Outcomes across Models

Using Exhibit 2 ("I'm interested in … Home Visiting Outcomes") or Exhibit 3 (child health HomVEE domain) indicates that you will need to look in:

- Module 1 to see summaries of home visiting outcomes
- Module 2 to see monetized home visiting outcomes
- Module 3 to see monetized outcomes in non-home visiting programs
- Study Profiles for Modules 1, 2 and 3 for more details about the studies

Using Exhibit 3, you can identify monetized child health outcomes are in the modules and Exhibit 4 indicates which models and outcomes are in Modules 1 and 2. Eleven home visiting models have examined child health outcomes and nine models have assessed monetized child health outcomes.

Example: Examining the Parents as Teachers (PAT) Model

Using Exhibit 2, the information for "I'm interested in … Home Visiting Models" indicates that you will need to look in:

- Module 1 to see summaries of home visiting outcomes with model highlights
- Module 1 study profiles to see results by model
- Module 2 to identify the monetized home visiting outcomes
- Module 2 study profiles to see results by model

Using Exhibit 4, you can identify which HomVEE domains have monetized outcomes in Modules 1 and 2. By finding PAT in the list of home visiting models, you can see that there are monetized outcomes in child development and school readiness, family economic self-sufficiency, maternal health, positive parenting practices, reductions in child maltreatment and reductions in juvenile delinquency, family violence, and crime.

Using the Modules to Build Knowledge

Once you have identified where to look, use the information provided in the modules to build your knowledge of what is known and where to find more information. Each layer will enhance your understanding about results and monetized outcomes in the HomVEE domains, home visiting models and non-home visiting programs.

Modules 1, 2 and 3 are organized to start with a kernel of information in the narrative summaries that will point you toward studies that have assessed the outcomes of interest (see Exhibit 5). The study profiles – located in separate documents – will provide additional information about the more relevant studies and help to narrow the list of studies that will be most useful. The next step is to locate and review the most relevant articles to more fully understand the processes and data used to generate the numbers. Many of these studies are available at no cost through Google Scholar.

Exhibit 5. Gathering In-depth Information

Read summary in the **Module**

Review details in the **Study Profile**

Read the **Full Article** to understand how the monetized outcomes are defined or calculated
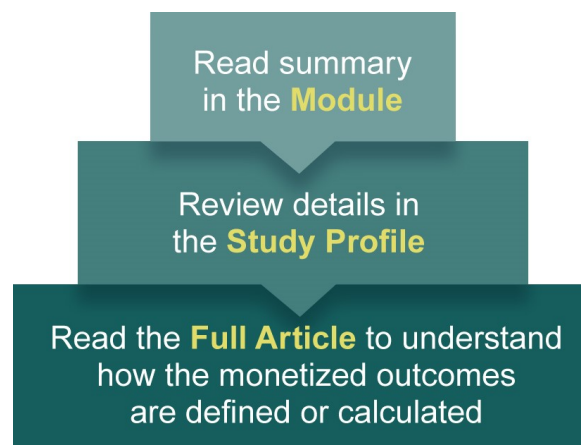
Your knowledge will increase as you apply the review process to more studies (see Exhibit 6). In addition to using the cited studies, you will want to check the administrative and government data sources in Module 4 or other local data sources to determine outcome costs for your location.

The combination of gathering in-depth information and expanding the number of studies or data sources reviewed will provide a broader base of knowledge and stronger foundation for your PFO project.

Exhibit 6. Building the Knowledge Base

Study 1

Read summary in the **Module**

Review details in the **Study Profile**

Read the **Full Article** to understand how the monetized outcomes are defined or calculated

Study 2

Module

Study Profile

Full Article

Study 3

Module

Study Profile

Full Article

Building the knowledge base
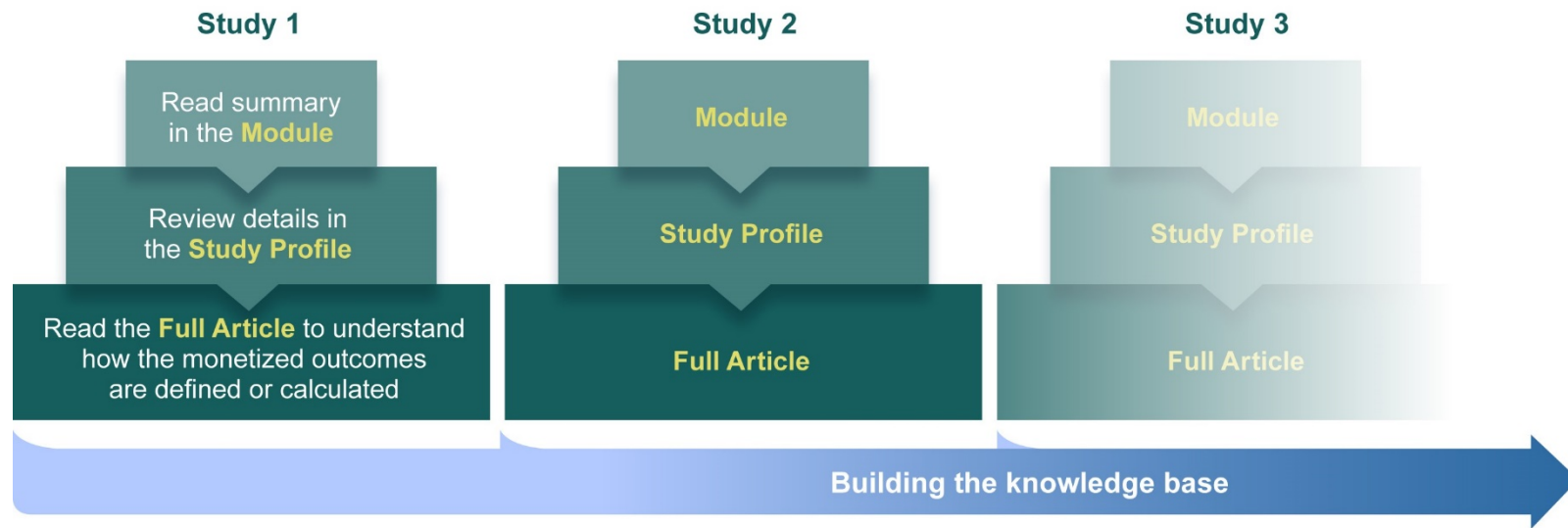
Using the Introduction and Modules

How to Use the Introduction
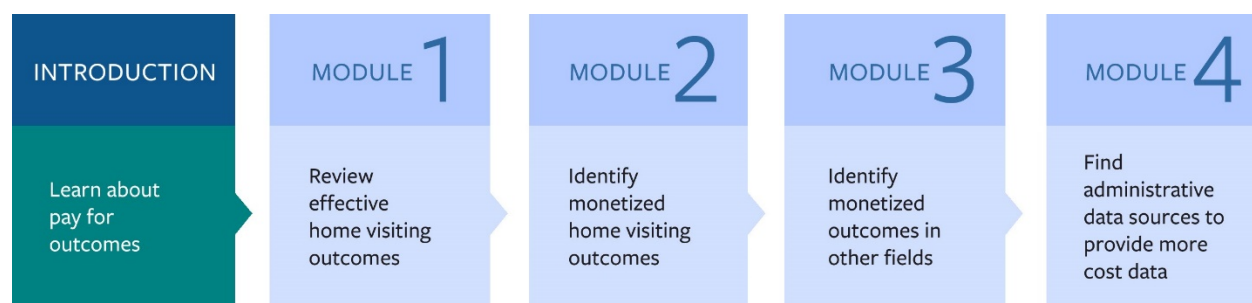
Many awardees will need an overview of pay for outcomes and feasibility studies. The Introduction briefly describes PFO in the context of MIECHV home visiting and provides references to documents that offer background information. In addition, the Introduction describes key features of PFO feasibility studies. You can use this information to:

1. Learn more about pay for outcomes and how it can be applied to the MIECHV home visiting context
2. Gain a general understanding of components in a PFO feasibility study
3. Begin the process of reviewing the research relevant to a PFO feasibility study and project development

How to Use Module 1
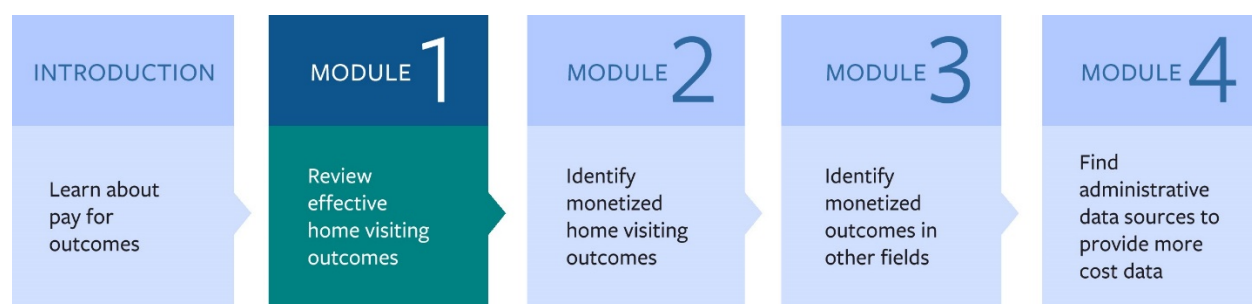
During the PFO feasibility stage, awardees should carefully select one or more meaningful outcomes that local implementing agencies (LIAs) are likely to improve. Module 1 summarizes results from rigorous local evaluation or research literature. Awardees can use this information to inform outcome selection in multiple ways:

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

- *By Outcome Domain* – Select a particular outcome domain of interest and review results across models within that domain. The outcome domain of interest is typically aligned with priorities emerging from a needs assessment.

- *By Model* – Awardees interested in focusing on a particular home visiting model can review previous results for that model. Use the search feature in Adobe to locate outcomes addressed by the model of interest throughout the module.

2. **Review the range of impacts on outcomes.** Each domain and model have a variety of demonstrated impacts on outcomes. Awardees should consider which align most closely with state/territory and local interests and needs.

3. **Identify size of impact.** Knowledge about the expected size of an effect is important information when planning a PFO project. Effect size provides information about the magnitude of the reported impact (i.e., *Does the current home visiting research have a larger or smaller impact on a specific outcome?*). This can help inform awardees about the practical significance of the outcome selected for a financial model.

4. **Understand length of time to reach outcome.** In selecting outcomes for a PFO model, awardees might consider the short-, medium-, and long-term outcomes that can be tracked and feasibly achieved. Short-term outcomes (e.g., positive parenting practices) may be difficult to quantify from a financial benefits perspective, but once strong evaluations show a link between these and more monetizable, long-term outcomes (e.g., reduced child maltreatment), awardees can confer with their PFO partners (including financial investors) about including them in a PFO model as a proxy. When an outcom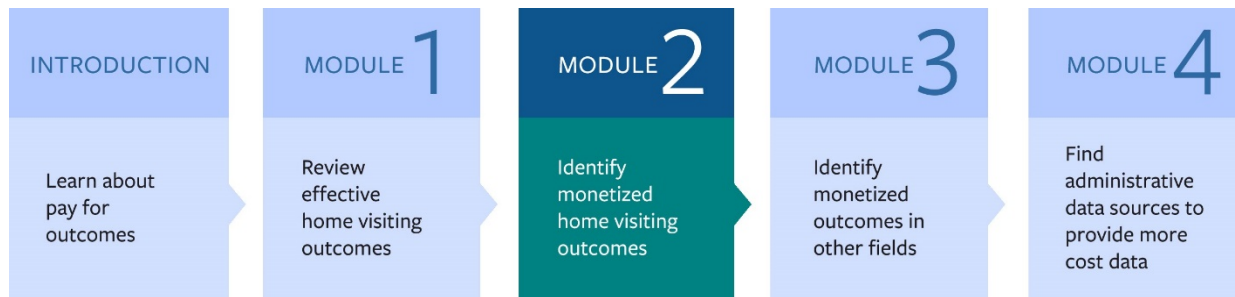e of interest cannot be directly measured (due to a variety of issues, including award period funding duration, data accessibility, challenges in tracking participants for an extended period of time), a proxy variable is a measurable outcome that can be used as an indicator of success toward the outcome of interest.

5. **Consult study profiles for additional context.** There are many factors that should be considered when interpreting the effect size, as studies of home visiting have been conducted in varying contexts. The study profiles specify additional factors that awardees should consider when determining which outcomes to select, such as the model implemented, target population for whom the model was effective, and intervention study design. These factors can influence the strength of the effect size estimated.

After completing this review, awardees may develop a list of potential outcomes to be considered for PFO. Modules 2 and 3 provide a review of cost data related to home visiting outcomes.

How to Use Module 2

INTRODUCTION	MODULE 1	MODULE 2	MODULE 3	MODULE 4
Learn about pay for outcomes	Review effective home visiting outcomes	Identify monetized home visiting outcomes	Identify monetized outcomes in other fields	Find administrative data sources to provide more cost data

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.

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 that others had used state Medicaid reimbursement rates to estimate potential public savings. The awardee determined their 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.

How to Use Module 3
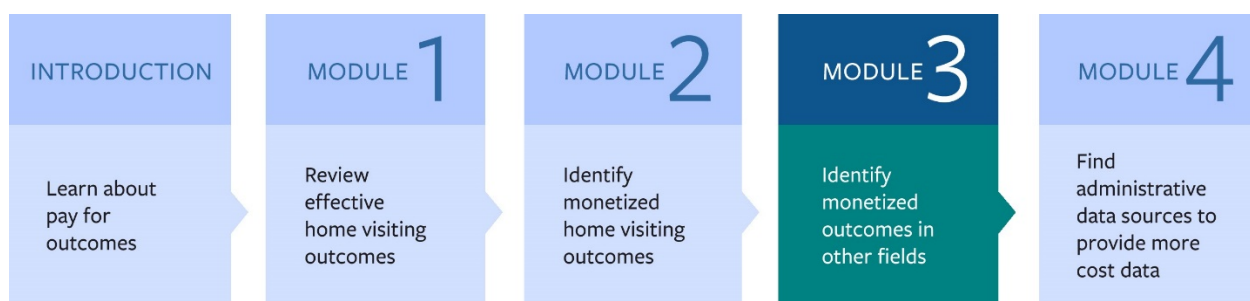
Module 3 summarizes monetized outcome data from research beyond home visiting studies. Before reviewing Module 3, an awardee should select potential outcomes for PFO as described in Module

1. The next steps are to identify relevant local data and examine the per unit cost data used in home visiting return on investment (ROI) studies, as described in Module 2. If there is limited local data and an outcome has not yet been included in home visiting ROI studies, awardees can incorporate monetized outcome data from non-home visiting research. Awardees can use this information in Module 3 to—

1. **Identify per unit costs for an outcome with limited data in home visiting**. Module 3 provides information to estimate the costs associated with the outcomes of interest that have limited or no home visiting monetized outcome data. For example, health care costs associated with disruptive behavior disorder were reported in one study to be $1,817 per year in 2005 dollars. An awardee will need to consider location (e.g., local data will provide a more accurate reflection of costs), year of dollars, and other contextual factors in determining the per unit cost for their feasibility study. 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.

2. **Estimate future cost savings or cost avoidance and social benefit**. As part of the feasibility study, awardees will calculate potential savings from the PFO outcome. Module 2 describes how to apply the per unit costs to the outcomes achieved in the past to estimate future savings. Awardees can use this approach to apply per unit costs from non-home visiting research to project future savings for outcomes reviewed in Module 3.
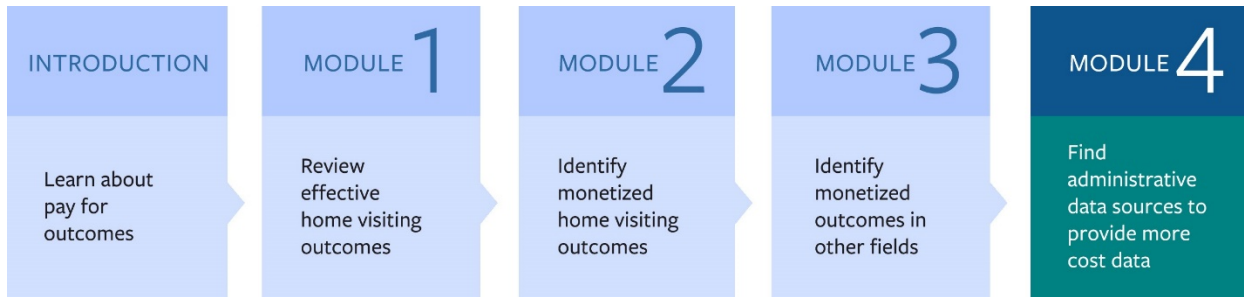
Analyses in Module 3

Benefit–cost analysis (CA) identifies the resources required to implement a program, provides a basis for understanding the cost of providing services, and assesses whether a program's monetary benefits exceed program costs.

Return on investment (ROI) compares program net costs and outcomes in dollars and expresses the comparison as the percentage gained or lost. ROI can also translate to savings for each dollar invested in the program.

Cost–effectiveness analysis (CEA) estimates the cost of achieving a change in specific outcomes. Cost-effectiveness ratio is often expressed as cost per unit improvement (e.g., cost per depression-free day).

How to Use Module 4

INTRODUCTION	MODULE 1	MODULE 2	MODULE 3	MODULE 4
Learn about pay for outcomes	Review effective home visiting outcomes	Identify monetized home visiting outcomes	Identify monetized outcomes in other fields	Find administrative data sources to provide more cost data

Once an awardee identifies potential outcome measures for a PFO initiative, the next step is to predict the monetary value of improved outcomes. These estimates inform both the PFO feasibility study as well as the structuring of the PFO initiative. Awardees may estimate potential value based on anticipated cost savings or cost avoidance as well as social benefit.

One approach is to apply the per unit costs to the outcomes they have achieved in the past to estimate future savings. Awardees should use local cost data when possible to ensure a value more reflective of their community.

Awardees can use Module 4 to identify sources for local cost data. Module 4 provides administrative and government data sources researchers have used to monetize home visiting outcomes. Awardees can use these sources to help find similar data sources for their own location via an Internet search.